

2018 International Report on Snow & Mountain Tourism

*Overview of the key industry
figures for ski resorts*



Laurent Vanat

10th edition - April 2018

Table of contents

Foreword	- 5 -
Glossary	- 7 -
Introduction	- 9 -
<i>Sliding upwards again?</i>	- 10 -
The world ski market	- 11 -
<i>Participating countries</i>	- 11 -
<i>Ski resorts and infrastructure</i>	- 13 -
<i>Evolution of worldwide skier visits</i>	- 15 -
<i>Market share of worldwide skier visits</i>	- 15 -
<i>Skiers per region of origin</i>	- 16 -
<i>International skiers flows</i>	- 17 -
<i>Future trends in market share</i>	- 18 -
<i>Country benchmark - top 20</i>	- 21 -
The Alps	- 27 -
<i>Austria</i>	- 28 -
<i>France</i>	- 31 -
<i>Italy</i>	- 35 -
<i>Liechtenstein</i>	- 38 -
<i>Slovenia</i>	- 39 -
<i>Switzerland</i>	- 41 -
Western Europe	- 45 -
<i>Andorra</i>	- 46 -
<i>Belgium</i>	- 49 -
<i>Denmark</i>	- 51 -
<i>Finland</i>	- 53 -
<i>Germany</i>	- 56 -
<i>Iceland</i>	- 58 -
<i>Norway</i>	- 60 -
<i>Portugal</i>	- 63 -
<i>Spain</i>	- 65 -
<i>Sweden</i>	- 68 -
<i>United Kingdom</i>	- 71 -
Eastern Europe and Central Asia	- 74 -
<i>Albania</i>	- 75 -
<i>Armenia</i>	- 76 -
<i>Azerbaijan</i>	- 78 -
<i>Belarus</i>	- 80 -
<i>Bosnia & Herzegovina</i>	- 82 -
<i>Bulgaria</i>	- 85 -
<i>Croatia</i>	- 88 -
<i>Cyprus</i>	- 90 -
<i>Czech Republic</i>	- 91 -
<i>Estonia</i>	- 95 -
<i>Georgia</i>	- 97 -
<i>Greece</i>	- 100 -
<i>Hungary</i>	- 103 -
<i>Kazakhstan</i>	- 106 -
<i>Kosovo</i>	- 108 -
<i>Kyrgyzstan</i>	- 110 -
<i>Latvia</i>	- 112 -
<i>Lithuania</i>	- 114 -
<i>Macedonia</i>	- 116 -
<i>Montenegro</i>	- 118 -

<i>Poland</i>	- 120 -
<i>Romania</i>	- 123 -
<i>Russia</i>	- 125 -
<i>Serbia</i>	- 129 -
<i>Slovakia</i>	- 131 -
<i>Tajikistan</i>	- 133 -
<i>Ukraine</i>	- 134 -
<i>Uzbekistan</i>	- 136 -
The Americas	- 138 -
<i>Argentina</i>	- 139 -
<i>Bolivia</i>	- 142 -
<i>Canada</i>	- 143 -
<i>Chile</i>	- 147 -
<i>Colombia</i>	- 151 -
<i>Mexico</i>	- 152 -
<i>United States</i>	- 153 -
Asia-Pacific.....	- 158 -
<i>Australia</i>	- 160 -
<i>China</i>	- 163 -
<i>India</i>	- 169 -
<i>Japan</i>	- 171 -
<i>Mongolia</i>	- 175 -
<i>New Zealand</i>	- 176 -
<i>North Korea</i>	- 179 -
<i>South Korea</i>	- 181 -
The Middle East & Africa	- 185 -
<i>Afghanistan</i>	- 186 -
<i>Algeria</i>	- 188 -
<i>Iran</i>	- 189 -
<i>Iraq</i>	- 192 -
<i>Israel</i>	- 193 -
<i>Lebanon</i>	- 194 -
<i>Lesotho</i>	- 196 -
<i>Morocco</i>	- 197 -
<i>Pakistan</i>	- 199 -
<i>South Africa</i>	- 201 -
<i>Turkey</i>	- 203 -
Conclusion	- 206 -
Sources and acknowledgments	- 209 -
French / German / Chinese glossary	- 212 -



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Laurent Vanat is an independent consultant with skills as a general practitioner and a specialist. With a Master's degree in commercial & industrial sciences from the University of Geneva, he has over 30 years of professional experience as both a business consultant and a senior executive in upper management. He possesses executive experience in sales, finance and general management on the one hand, and advises companies and organisations of all horizons on the other. This broad experience means that Mr. Vanat is well acquainted with numerous industries.

Heavily involved in the tourism, hospitality & leisure industry, Mr. Vanat has closely followed the ski area industry for numerous years. In his search for information on ski areas, Mr. Vanat quickly understood the importance of tracking skier visits and collecting statistical data. Noting the difficulty in consolidating this information for the Swiss market, he found a way to contribute to the industry by taking the initiative to start a systematic collection of visitor data and publishing an end of season report. Since winter 2004/05, this document has been recognized and important reference for Switzerland.

In order to analyse the competitive position of major players in a wider perspective, via invitation from leading industry bodies and tourism conferences, he extended the scope of the research to produce an overview of the key industry figures worldwide. For several years now, the **International Report on Snow & Mountain Tourism** has become a reference in the industry, conferences and TV interviews.

Beside his personal involvement in the sector of snow & mountain tourism, Mr. Vanat runs his own consulting firm specialising in business management.

Disclaimer

The present document compiles data provided by numerous sources, together with estimates done in the absence or insufficient reliability of available statistics. All the information set out in this report has not been systematically verified. The author is not responsible for any inaccuracy, nor is he liable for any damage whatsoever, direct or indirect, from using this document or its contents.

The contents of this document are updated on a yearly basis with the goal of continually improving accuracy. Therefore, readers of past editions should be aware that some data may have been amended in line with this objective. Since new and more reliable statistics are made available every year, some data changes must be interpreted carefully. Unless clearly specified and presented with historical data, some variances from one edition of this report to the next are not necessarily significant (increases or decreases). It may be only modification due to more reliable sources¹.

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¹Comparisons with former editions of this report may lead to inadequate conclusions.

² Available at following address : www.vanat.ch/tarif-International-report-data-2018.pdf

Foreword

It is a great pleasure for me to present this 10th issue of the **International Report on Snow & Mountain Tourism**. When I started this report in 2009, covering only the 7 major ski countries, I could not imagine that this document would one day cover in a comprehensive manner the whole ski market. Step by step, the report grew bigger and it then took the challenge to reach all the countries on the planet that offer at least one ski area. This goal has been achieved since the 2016 report.

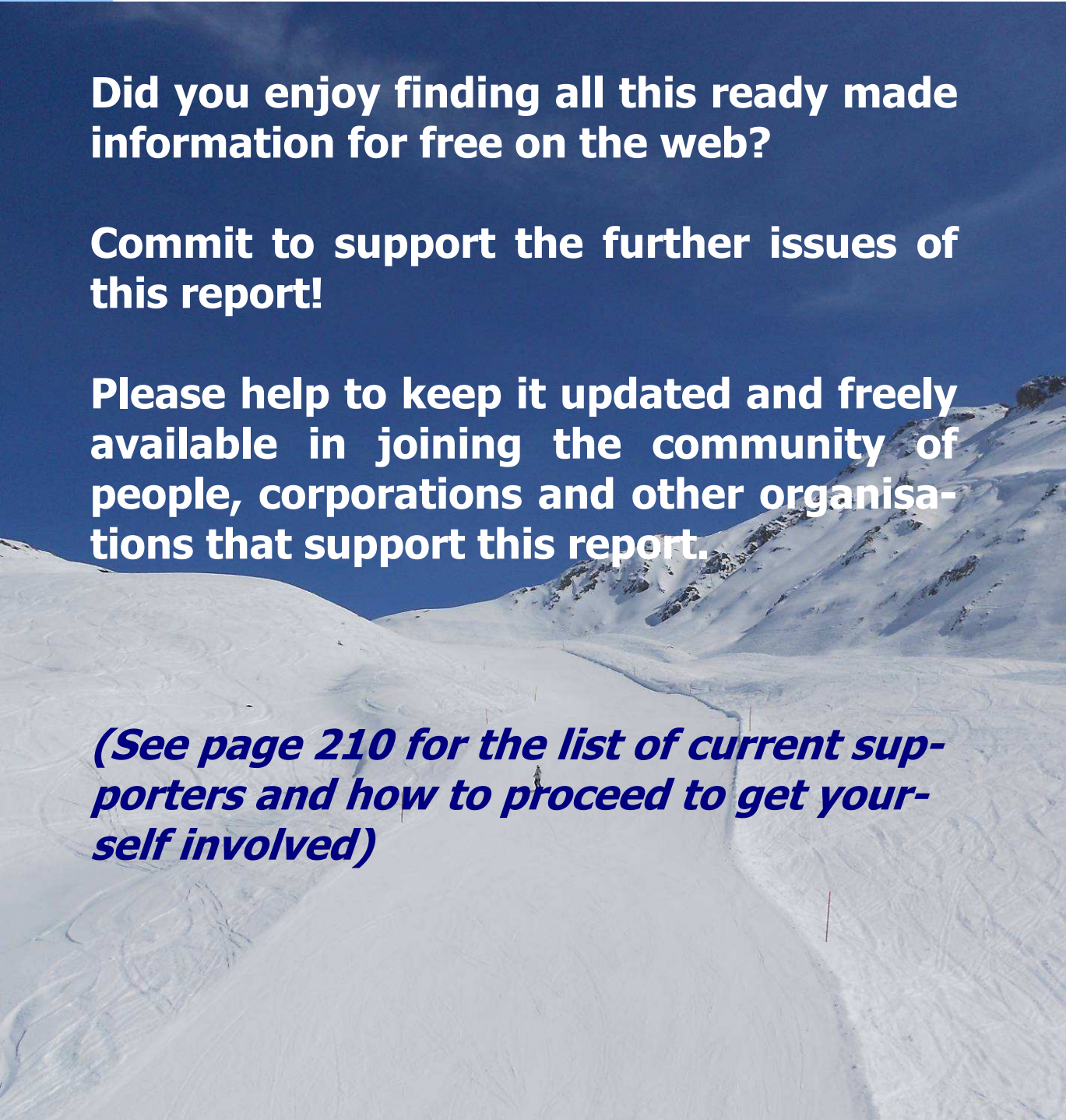
There are however further challenges. One major concern is to keep this report as up to date as possible. Despite its goal has always been to bring more transparency on the global ski business, it now faces an increasing adverse trend by some major resorts and operators. At times where banking secrecy has fallen in many places, the confidentiality about skier visits figures is surprisingly rising. Skier visits are the major metric to follow up our industry. This is even more relevant in challenging times. However, more and more players in the market unfortunately decide to conceal this data to the public. They are reluctant to supply any consistent facts and figures beside their nice marketing stories or corporate reports only showing vague and global attendance data. So it seems that keeping this report up to date in the future will not be made easier.

It is however also the time to make a big thank you to all that contribute to this report, in openly sharing information or contributing to the crowdfunding action. They are listed under the acknowledgment section at the end of this document. All are key for the sustainability of this report and I want to express my very sincere thanks for this support.

One thing that was also not expected at the genesis of this report was the worldwide reputation it quickly gained. For years now, it has been internationally acknowledged as the reference for the industry. I also want to thank the worldwide audience for the trust they have granted to this publication since 2009.

Enjoy learning about our industry in facts and figures!

Laurent Vanat



Did you enjoy finding all this ready made information for free on the web?

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(See page 210 for the list of current supporters and how to proceed to get yourself involved)

Glossary³

Aerial lifts: A lift where skiers hang in a carrier over the ground (which is held to the cable by fixed or detachable grips). This includes chairlifts, gondolas, combined lifts (chairs & gondolas, also called telemix or chondolas), cable-cars, funitels, 2S lifts, 3S lifts.

Alpine country: Those countries that are part of the European Alps (Austria, France, Italy, Lichtenstein, Slovenia and Switzerland). Often, reference in this document is limited to the 4 majors.

FIS: International Ski Federation, based in Switzerland. It was founded in 1924 and now comprises 118 national ski associations. Its mission is to promote and direct the development of ski and snowboarding activities worldwide, and oversee competition.

Hourly lift output (skiers/hour): The manufacturer's rated number of skiers per hour that a lift can transport to the top of the lift. Total country capacity is the sum of all the individual lift capacities.

Lifts (ski lifts, ropeways): General term to designate any aerial lift, surface lift or funicular.

Number of skiers transported: The number of passengers transported per lift; one skier taking the same lift 5 times accounts for 5 skiers transported, also referred to as *frequencies*.

National participation rate: Domestic skiers as a percentage of the total country population. This represents the total number of nominal skiers without any consideration for the frequency of visits to a ski resort. Thus, this rate includes skiers that did not ski during the latest season⁴.

Ski area: A designated place where one skis (in some countries, these areas may not have lifts).

Ski resort: In this report, a ski resort is considered as an organized ski area with more than four lifts.

Skier: One person participating in skiing, snowboarding or other downhill sliding activity, independent of the frequency of his visits to ski resorts. Thus the wording also covers *nominal* skiers that do not ski each season.

Skier visits (or skier-days): One person visiting a ski area for all or any part of a day or night for the purpose of skiing, snowboarding, or other downhill sliding activity. Skier visits include full-day, half-day, night, complimentary, adult, child, season pass and any other type of ticket that gives a skier/snowboarder the use of an area's facilities. A skier skiing for a whole week at a resort accounts for 7 skier visits (for example). The figures

³ A French / German / Chinese glossary is available at the end of the report.

⁴ Some countries, like the U.S., calculate a specific participation rate for each season, which only covers the related season's active skiers and may vary considerably from the nominal participation rate.

indicated in this report for countries or individual resorts usually refer to the last 5-year average.

Skier visits per inhabitant: Ratio of domestic skier visits divided by the population.

Skier visits per foreign visitor: Ratio of skier visits of foreign visitors divided by the total number of foreign visitors.

Surface lift: Any kind of ski lift where the skier remains standing on their skis, pulled or pushed on the ground. This includes drag-lifts, rope tows, tow lifts, platter lifts (or button lifts), T-bars and beginner lifts.

Vertical Transport Metres per Hour (VTMH): Product of each individual lift's hourly capacity multiplied by the vertical drop (the figure is usually expressed in thousands).

Introduction

Although comprehensive coverage of all countries in the world offering organised ski areas was already achieved in 2 past issues, the country summaries presented in this 10th issue have been enriched with reports about Bolivia and Colombia. Even if both countries do no longer account in the active ski areas inventory, they used to have very small ones in the past. So they join Afghanistan and Algeria that were already reported in past issues.

This **10th edition** of the **International Report on Snow & Mountain Tourism** goes on with the tradition of updating and adding new information to the former issues, in order to provide a comprehensive and reliable reference. Even if this goal is now pretty much achieved, the content will always need updates and will never cease seek improvements in accuracy. In several countries, the industry still lacks statistical resources and requires relying on estimates.

Since some countries represent relatively small markets compared to alpine regions, they are not as well known. Therefore, for these countries, the report enters into more detail than with the more familiar markets, even if the size of the ski industry there may be insignificant.



Sliding upwards again?

It is a pleasure to notice that after 3 years of stagnation or decrease, the total figure of skier visits worldwide is now showing a trend upwards again (see figure 2). In contrast to many pessimistic reports in the media, would this mean that the ski industry is now heading towards a safer horizon?

It is much too early to rely on this upside to claim for victory. Most markets still show a very mature profile and basic issues of the industry remain: the demographic, with the retreat of baby-boomers and the low renewal of customer base. Worldwide competition in holiday and leisure activities and the improvement of retention rates and updated ski learning solutions remain challenges.

It thus remains time to be vigilant and awaken and maybe to act on a different scale than that used until then. All western markets are now arriving to the point when they begin to seriously realise that although their population has been increasing, the skier visits did not. In fact, the problem is not limited only to destination countries. The problem has spread to the European outbound countries that feed these destinations. It is the global Western skier market that is flattening, although this is not reflected in the number of skiers worldwide, which is growing thanks to developing markets such as China. However, in these developing markets, the ski consumption per skier is still much lower than it used to be on traditional markets, resulting in an overall rather stagnant skier-visits number.

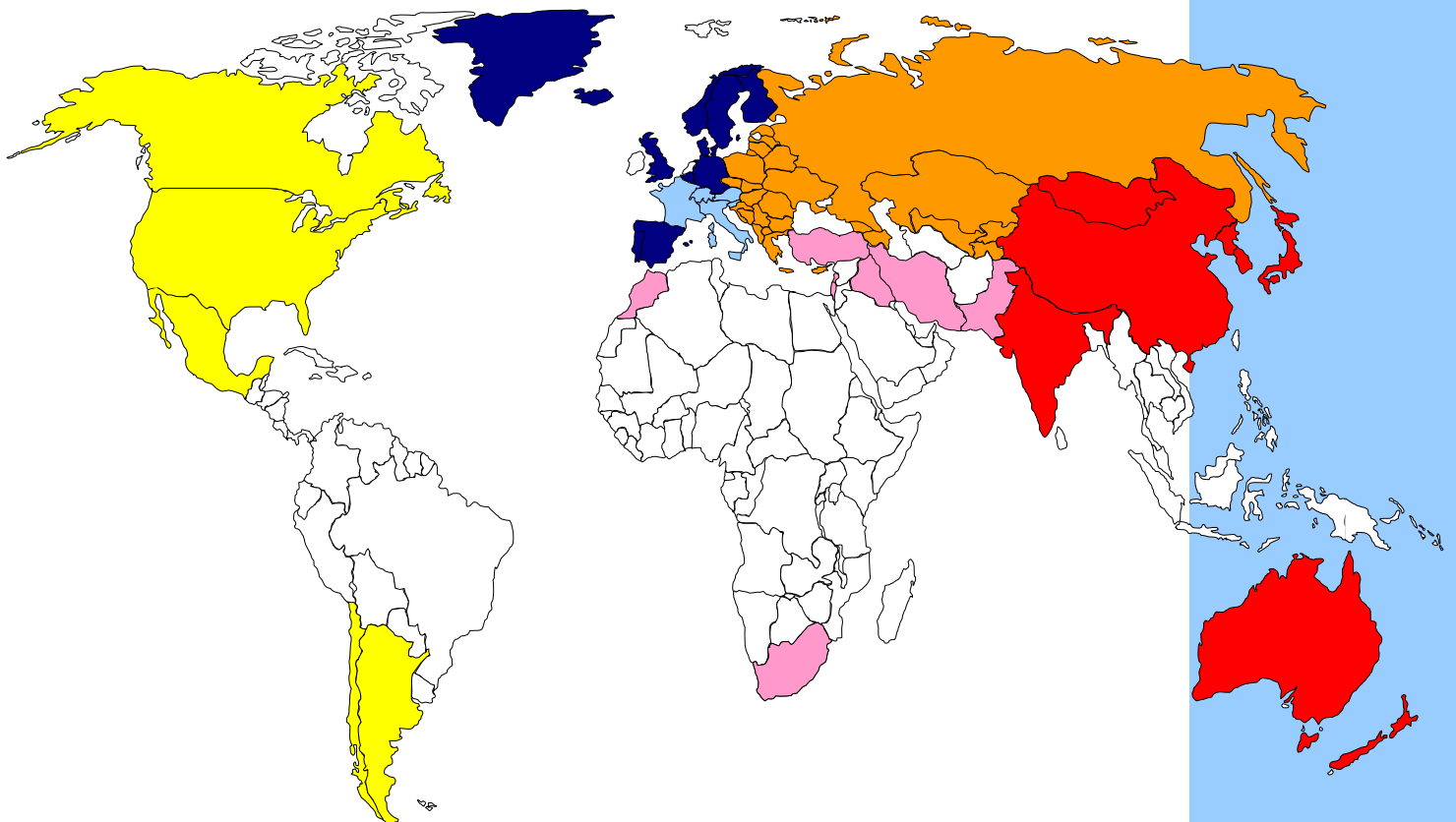
The last years showed indeed some changes. Western markets have now entered into some disruptive business models as far as season passes are concerned. In North America, big consolidation manoeuvres happened. In the Alps, it is the number of very large interconnected ski resorts that has been on the rise thanks to intensive lift constructions in Austria. And of course, the market is booming in China, where 57 new ski areas mushroomed in 2017.

Future years promise to be exciting for the global ski market!

The world ski market

Participating countries

Accounting for ski countries may vary according to the definition of skiing and of a ski area. **There are currently 67 countries in the world that offer equipped outdoor ski areas covered with snow.** They are shown colour-coded on the map below. Taking into account indoor facilities⁵, mountaineering-only areas and other types of facilities such as dry slopes, the figure can be as high as 100⁶. Even if snow fields are much more numerous⁷, about 2'000 ski resorts have been identified worldwide. Besides the major ski destinations in terms of skier visits, there are a number of other, smaller destinations, where skiing has been an industry for a long time, or is currently developing. The most obvious emerging destinations are Eastern Europe and China, but there are a number of other small players spread out across the globe: Cyprus, Greece, India, Iran, Israel, Lebanon, Lesotho, Morocco, New Zealand, Pakistan, South Africa, Turkey and many more.



⁵ There are about 80 indoor snow centres operating in 20 countries around the world.

⁶ According to a detailed breakdown prepared by famous ski-journalist Patrick Thorne.

⁷ The estimate is 5'000 to 6'000 designated areas for skiing.

The 67 countries offering equipped outdoor ski areas covered with snow are described in detail in this report. The report covers 4 additional countries which no longer have any organised ski area in operation but use to offer skiing: Afghanistan, Algeria, Bolivia and Colombia.

The industry currently offers about 6 million commercial beds in the mountains. These are primarily concentrated in the industrialised ski markets, which have a high volume of skier visits.

100 countries offer skiing?

Famous ski journalist Patrick Thorne (Snowhunter) published in a 2013 press release his count of countries where it is possible to ski. He concluded that 100 countries across all continents have reliable snow coverage for all or part of the year, or artificial surface slopes, to allow snow sports. How does this figure reconcile with the data published in the *International Report on Snow & Mountain Tourism*?

Now that the *International Report on Snow & Mountain Tourism* completed taking inventory, which started with the edition issued in 2009, it features reports on 67 countries having at least one ski area with lifts. 4 additional countries once had one or more ski lifts, but these are no longer in operation (Algeria, Afghanistan, Bolivia and Colombia are also written up in this document and still offer unorganised skiing opportunities). 14 others countries offer some permanent or temporary snow coverage in some mountains, making it technically possible to ski:

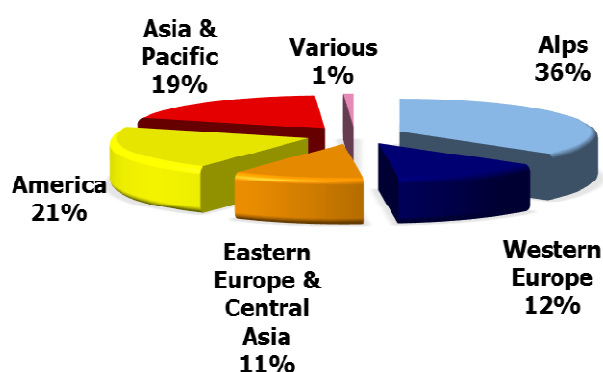
- **Bhutan**, with snow covered mountains in winter;
- **Democratic Republic of the Congo**, with a glacier and occasional snowfall on the highest peaks;
- **Ecuador**, with glaciers and occasional snowfall on the highest peaks;
- **Ethiopia**, with occasional snowfall on the highest peaks;
- **Indonesia**, with some small quickly-melting glaciers;
- **Kenya**, with occasional snowfall on the highest peaks;
- **Myanmar**, with high snow-covered mountains at the Himalayan border, and even a projected ski resort;
- **Nepal**, with high snow-covered mountains, featuring even heli-skiing opportunities (but the snow-covered mountains are at too high an elevation to make it convenient);
- **Nicaragua**, with the highest volcano receiving snow every few years;
- **Peru**, with tropical glaciers and snowfall in the mountains in winter, and possibly even some temporary lifts;
- **Syria**, with snow in the mountains in winter (a ski resort was in planning before the civil war);
- **Tanzania**, with a glacier and occasional snowfall on the highest peaks;
- **Uganda**, with a glacier and occasional snowfall on the highest peaks;
- **Venezuela**, with a snow field at the top of the Merida lift, not usually used for skiing.

With these, the total reaches 85 countries where outdoor skiing is possible on snow. There are a further 15 countries offering either indoor ski centres or outdoor dry slopes, bringing the total to 100.

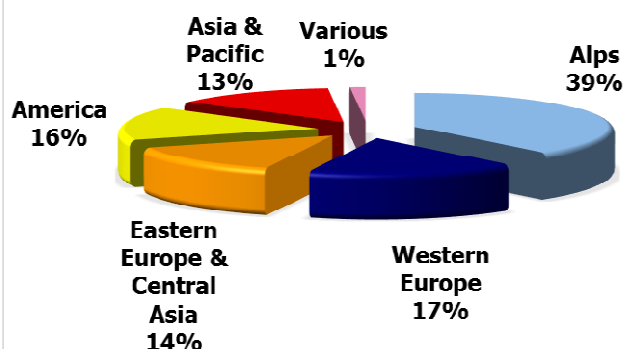
Ski resorts and infrastructure

Based on the latest situation, the key figures for ski resorts and their equipment are presented in following tables. The colour of each slice matches with that of the geographical area shown on the above map.

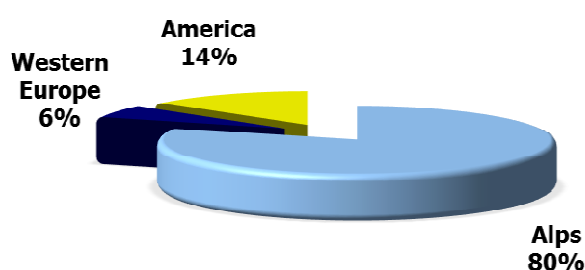
Distribution of the number of ski resorts worldwide (2'113 resorts): More than one third of all ski resorts are located in the Alps.



Distribution of the number of lifts worldwide (26'334 lifts): The number of lifts emphasises the weight of the Alps in the industry.



Distribution of the number of major resorts worldwide (51 resorts): There are a limited number of major resorts worldwide⁸. 80% of them are located in the Alps.



⁸ A resort is considered as major if its attendance reaches over 1 million skier visits per winter season.

The major ski resorts worldwide have been ranked below on the basis of their average annual skier visits⁹ during the last few winter seasons.

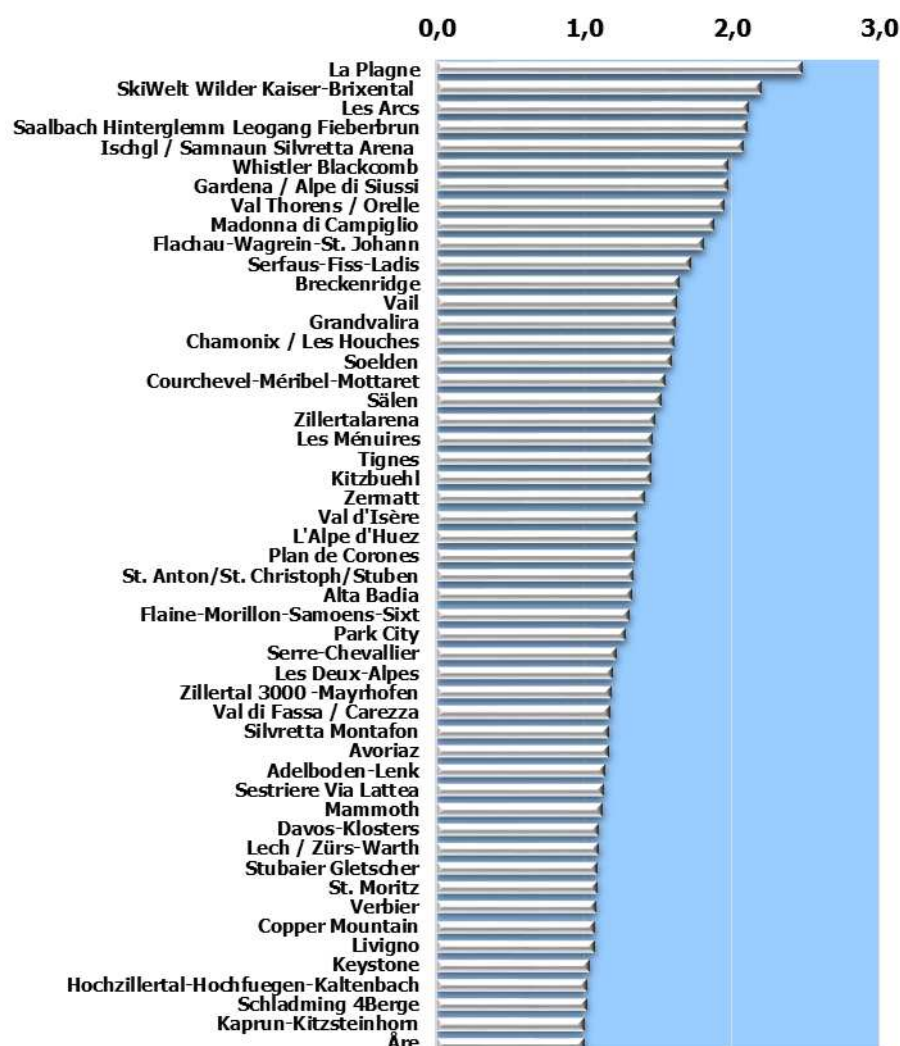


Figure 1: Top world resorts in millions of skier visits

Most of the industry is concentrated around the resorts that generate more than 100'000 skier visits per year. Even if they only account for 20% of the resorts, they account for 80% of all skier visits.

Although often important at a regional level, the altitude of a ski resort is not really an important benchmark worldwide, since at some places around the globe one can ski at sea level, whereas in other countries, one needs to be at the higher elevations to access decent snow conditions.

⁹ Publicised data or estimates when required; based on the operating company or marketing operator.

Evolution of worldwide skier visits

Although data collection within the industry is not always well organized and yearly number of visits may vary due to weather conditions, for several years the estimate has been an overall draw of approximately **400 million** skier visits worldwide¹⁰. The assumption is that the total figure has been stable over the last 15 years, as major mature markets experienced reduced growth (when not experiencing a dramatic decline as with Japan), while other markets were emerging.

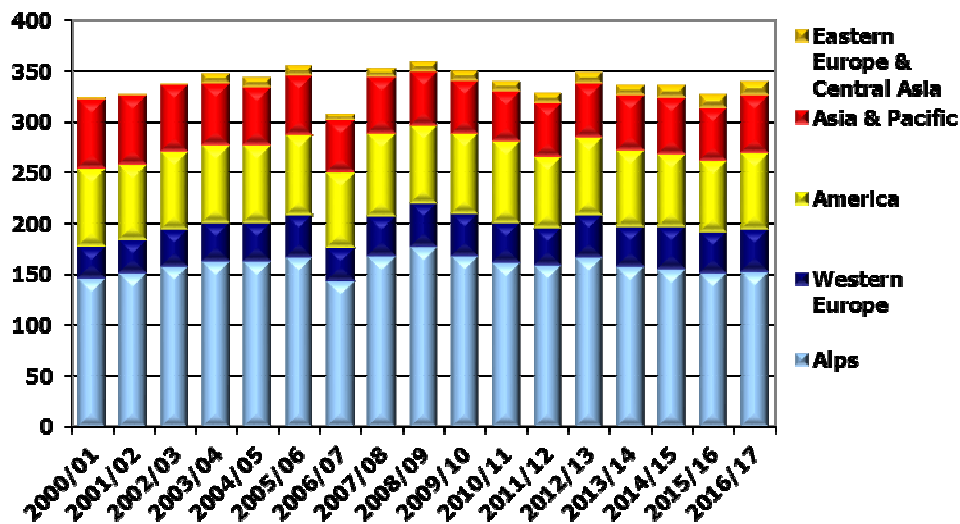


Figure 2: Evolution of skier visits per region (millions)

The chart above appears to confirm this assumed trend, and reflects the evolution of skier visits in those countries considered to be a large sample¹¹ of the most significant industry players over the last decade.

Market share of worldwide skier visits

The relative importance of the major destinations is showed in the pie chart below. Clearly, the Alps are the biggest ski destination in the world, capturing 43% of skier visits. The second biggest destination is America (mostly North America), accounting for 21% of skier visits worldwide.

¹⁰ Including visitors to indoor ski centres.

¹¹ This sample refers to the countries where skier visits are measured and publicised on a yearly basis. In spite of the very representative sample, it is of course not a comprehensive sample of all countries with ski areas.

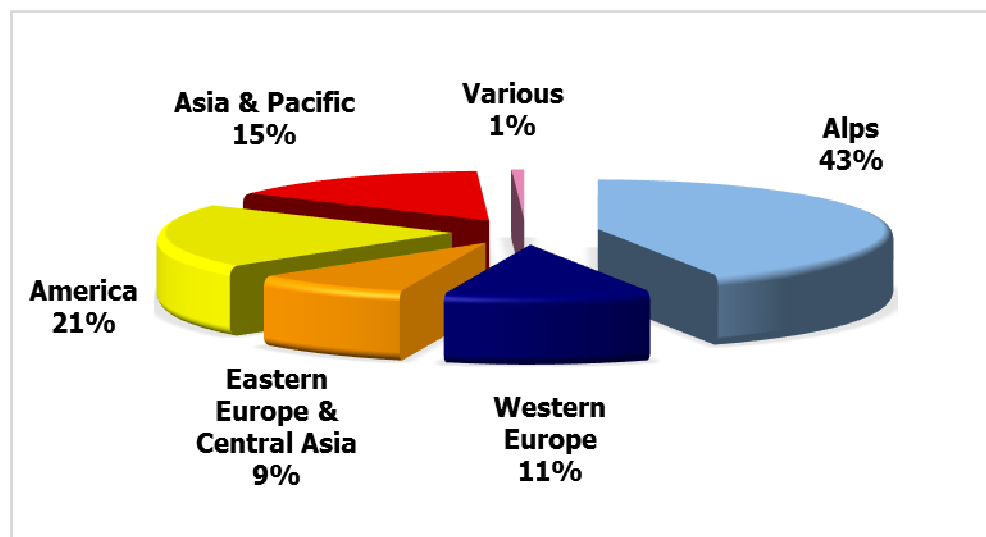


Figure 3 : repartition of skier visits worldwide

Asia & Pacific used to have the same market share as America. However, the continuous decline of the industry in Japan has still not been replaced by the growing ski market in China. In the very long term, countries such as India and Pakistan may join them and contribute to increasing the weight of Asia in the international spread of skier visits¹². Northern, Southern and Western European non alpine countries (grouped under the label of Western Europe) also attract 11% of the market, even if skier visits are spread primarily over a large number of small resorts.

Skiers per region of origin

The total number of skiers worldwide was estimated based on both the number of skier visits in the various countries as well as on the national rates of participation¹³. The figure is currently estimated to be around **130 million** and seems to be growing, thanks to the development in Eastern Europe and Asia¹⁴. Although some countries have no ski areas (in some instances only ski domes), they have skiers who ski abroad. For example, this is the case with the Netherlands, which accounts for about 1 million outbound skiers.

¹² This seems however to be an uncertain perspective, since up to now, the projects in these countries failed to be implemented, or only on a small scale. Moreover, skiing has recently been banned in some areas in India by environmental protection laws.

¹³ It must however be stressed that the number of days actually skied per potential skier may vary significantly from one country to another. Skiers are considered independent from their frequency of visit to ski areas – see glossary.

¹⁴ Interestingly, this is not yet fully reflected in the evolution of skier visits, as the participation rate of new entrants is still lower than those of declining skiing populations.

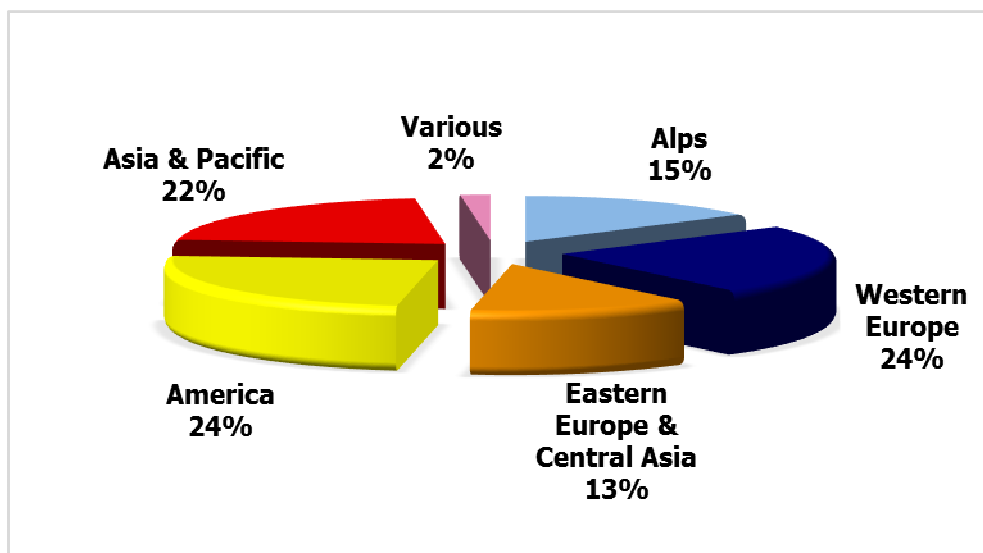


Figure 4: distribution of skiers by region of origin

This chart, comparing to skier visits, clearly shows the regions that are exporters of skiers and those that are recipients. The Alps is the most internationally visited ski destination, attracting most of the inbound-skier travel. Even though it hosts 43% of skier visits, it only produces 15% of the skiers. No other region has such a high proportion of foreign visitors.

International skiers flows

The international flows of skiers are primarily concentrated within Europe. The number of skiers using long haul flights to go skiing is rather small. For instance, overseas skiers represented only 3.8% of total skier visits to U.S. ski resorts in 2012/13 (including Latin American visitors). The weight of international customers is limited for most ski destination countries. Moreover, the international catchment areas are also limited, due to various factors such as market size, transportation, travel time and costs, and possible saturation of airports at ski destinations in Europe.

Worldwide, in a global perspective, the share of foreign visitors in the number of skiers is limited to about 12% of total participants. There are few big players both in the inbound and the outbound markets. Skiing is mostly based on the domestic markets and the national customer base is very strong in most of the big player countries. Often, foreign visitors are concentrated in a few top international resorts.

There are only 2 big outbound markets, Germany and the United Kingdom, providing skiers to a few inbound markets. Most of the outbound countries have few to no ski areas but a ski culture. This is an important issue, as countries with no ski culture are not likely to be major suppliers of international skiers, even if they have huge populations. The major international

skier flows concentrate on a very limited number of destinations. The table below ranks the flows for over 200'000 yearly skiers.

Inbound country	Outbound country				
	Germany	United Kingdom	Netherlands	Belgium	Switzerland
Austria	1	6	5		9
France		2	7	8	
Italy	3	10			
Switzerland	4				

Outbound European markets are not increasing but will be spread over more destinations in the future. For instance, British customers familiar with the Alps and Andorra now also have other destinations to choose from such as Bulgaria, Romania, Slovakia, etc. It is also foreseeable that the new markets will supply themselves at a regional level. The recent growth of skiing in Asia will feed resorts in Japan and South Korea, before eventually, if ever, benefiting resorts in the European Alps or North America.

Future trends in market share

It also appears from figures 3 and 4 that the regions of Eastern Europe & Central Asia and Asia & Pacific provide 35% of the skiers worldwide, but only produce, at this stage, 24% of skier visits.

These regions clearly represent the future growth potential of the market. Besides, a look at new deliveries of lifts confirms that Eastern European and Asian countries are building up at a higher rate than the more traditional ski regions, if the figures are analysed in relative terms. In addition, with the exception of a few resorts in Canada¹⁵, no new resorts have been created in the traditional markets.

Although consumption patterns of skiing in countries like China still need to be confirmed on a broader scale, it is likely that the Eastern European and Asian markets will grow their skier visit figures over the decade. They may end up reaching the weight equivalent of the other major regions in terms of skiers by the year 2020.

¹⁵ Kicking Horse Mountain Resort was developed beginning of 2000s and expansion is still increasing. Revelstoke Mountain is the newest ski resort in Canada. It opened in 2007 with a gondola and a few chairlifts and aims at offering the greatest lift-served vertical drop in America (total forecasted investment is USD 1 billion over 15 years). And there are further ski area development projects in the Canadian Rockies, with Jumbo Glacier Resort and Valemount.

Indoor ski centres

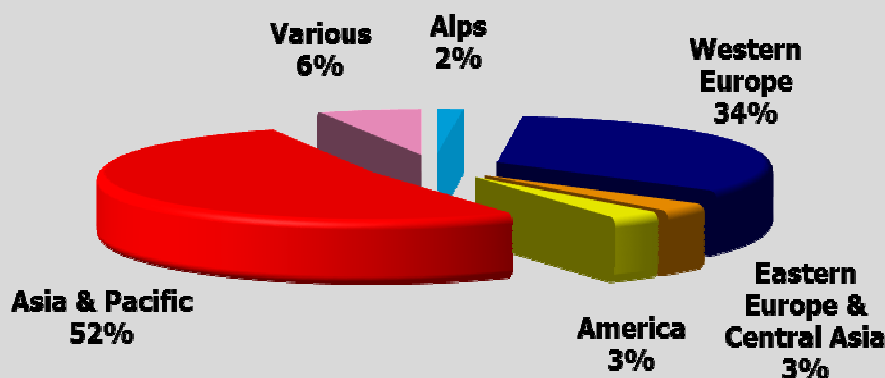
Earlier versions of indoor snow centres date back to the 1920s in Berlin and Vienna and in the early 1950s a complex using crushed ice as a snow surface for part of the year opened in Seibu, Japan. Now fitted with an artificial slope surface under the snow, this complex celebrated 60 years of operations in 2012.

The longest established and still operational *real snow* indoor snow centre is generally agreed to be Tamworth Snowdome in the UK which opened in 1993. A small earlier *test facility* at nearby Telford, which was opened in 1989 by operator Acer Snowmec, who has gone on to make snow for many of the world's leading indoor snow facilities, also opened to the public in 1993 but has since closed.

One of the world's largest ever indoor snow centres, the SSAWS indoor snow centre in Tokyo Harbour, also opened in 1993 just after the Japanese bubble economy burst, and never recouped its USD 300 million construction cost before closing in 2002.

More than 100 indoor snow centres have been built in approximately 30 countries over the past 25 years, and around 90 are still operational. A few of them are dedicated to cross country skiing (ski tunnels) and some *snow experience* areas. The number offering downhill skiing is closer to 65. Over the recent years, the number of indoor ski areas in China has been growing tremendously. 14 Indoor ski centres opened in China between 2015 and 2017.

The distribution of operating indoor downhill ski centres is presented hereafter.



China is the country in the world offering the highest number of indoor ski centres (21), followed by the Netherlands, United Kingdom, Germany, Japan and India. The largest one in terms of slope surface area is the newly opened Harbin Wanda Snow Park, in China, and in terms of slope length is the Amneville Snow Hall in France.

Source : Snowhunter

Harbin Wanda Snow Park

The biggest indoor snow centre yet has opened on Friday June 30th 2017. Unusually for an industry where indoor snow centre construction projects often over run, this was 2 months earlier than the original August 2017 date.

The huge complex in Harbin, North Eastern China, has six ski slopes up to 500 meters long and including some of the steepest indoor slopes yet built. Although there are slightly longer (up to 640 meters) long indoor slopes in France, Germany and The Netherlands, the total slope area at the new Chinese centre is the biggest in the world at present.

Harbin area does usually get very cold weather in winter, often -20 to -30 degrees C, so again, unusually, the indoor centre will offer warmed conditions for snow-sports in winter, just a few degrees below freezing, than skiing outdoors.



Source : Snowhunter

Country benchmark - top 20

Various organisations and entities usually collect ski resort data at a national level. This information has been compiled to produce an international overview of the key figures for the industry. For some countries, since data is lacking or incomplete, some research has been conducted in order to either collect or consolidate detailed national data or to extrapolate figures based on known benchmarks. Numerous sources were checked to ensure the most accurate figures. Some general information was also provided from global directories or statistics. Although some definitions may vary from one country to another, the section hereafter presents a summarised benchmark of some of the key figures for the industry¹⁶.

Under the country review section, charts are presented for those where attendance at ski resorts is measured and consolidated on a yearly basis. On the charts, in addition to yearly data, the evolution of the 5-year average has also been included (blue line). It helps to understand the long term trend for each of these markets. In current chapter, the charts hereafter generally only show the top 20 countries ranked.

The United States, Japan, France and Italy have the most **ski resorts** with more than 200 each (not included are small ski areas with less than 5 lifts – see glossary).

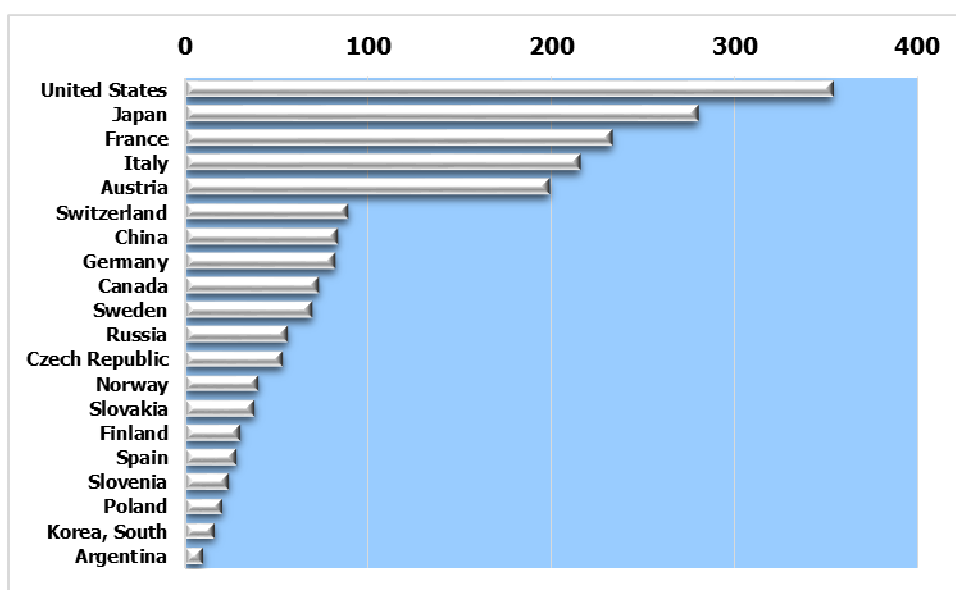


Figure 5 : Number of ski resorts with more than 4 lifts

If Germany also shows a significant number of ski areas, most of them are very small ones that are not considered as ski resorts under the definition used in this report.

¹⁶ Please refer to the Glossary at the front of the document for further definitions of the terms employed.

Only Austria and France have more than 10 **resorts that generate over 1 million skier visits per season**. Thanks to recent lift-interconnexions between ski resorts, Austria now accounts for a higher number of such resorts than France, which used to host the highest number of very large ski resorts for a long time.

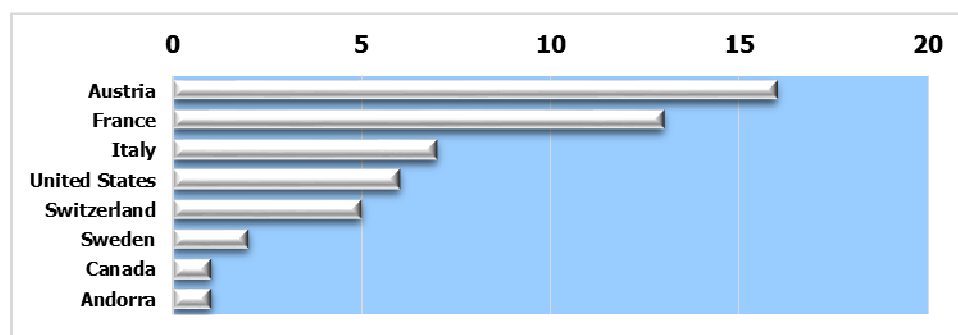


Figure 6 : Number of ski resorts with more than 1 mio skier visits

France, Austria and the United States top the list of countries with the most **lifts**, with about 3'000 each.

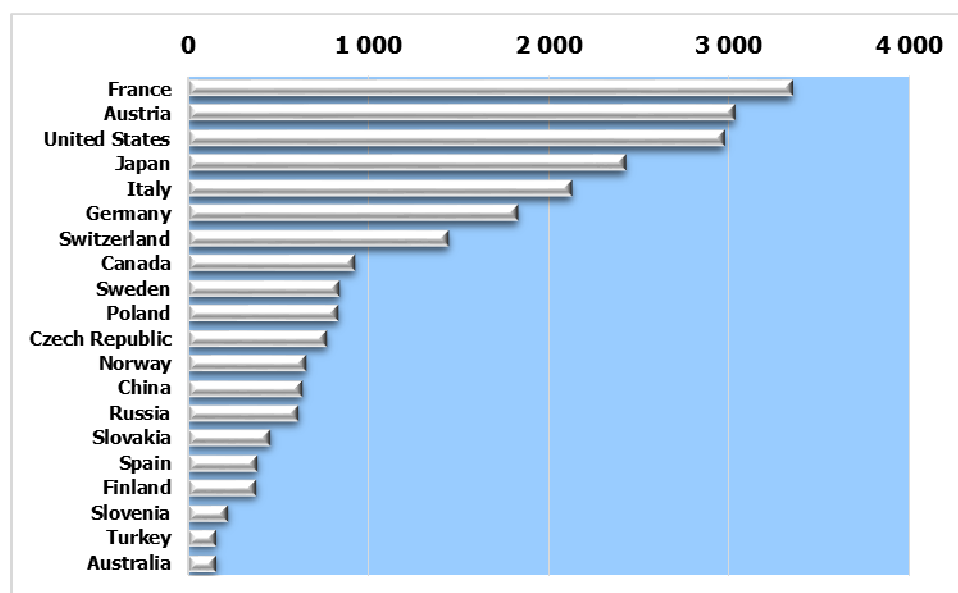


Figure 7 : Number of lifts per major country

They are also the countries posting the highest **5-year average skier visits** figures, with more than 50 million each. United States are back on the first rank, after France took the place after season 2015/16.

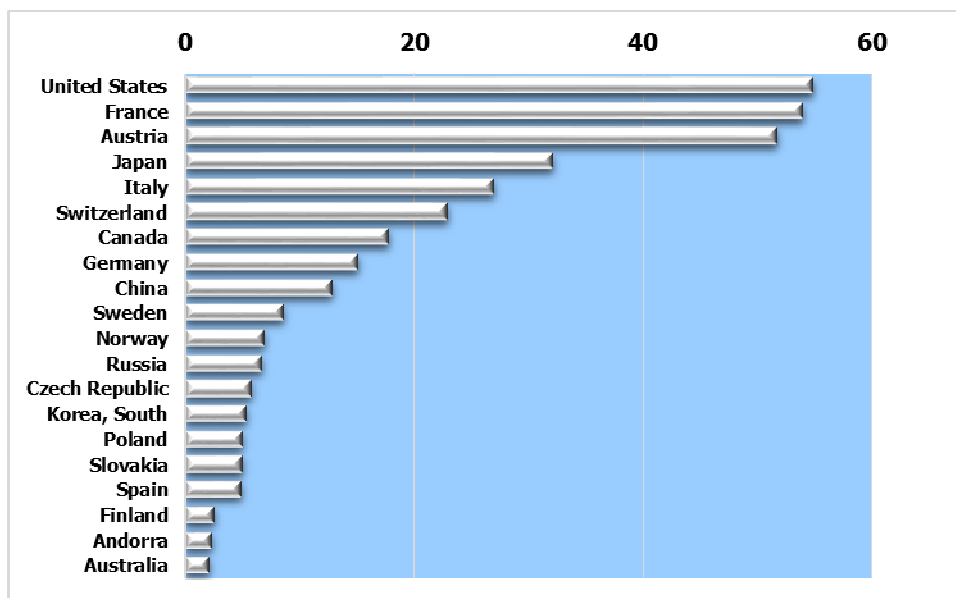


Figure 8 : Skier visits per country (5-year average, in millions)

New *Seal of Approval* for ski area size claims

The company run by German ski writer and cartographer Christoph Schrahe, who 3 years ago highlighted discrepancies in claimed ski area size, has launched a new independent *Seal of Approval* for resorts that want to verify that the ski area size they claim is genuine.

Schrahe's precise research, based on more than 20 years of detailed study of ski areas around the world, found that most ski areas exaggerate their claimed size, although the amount of exaggeration widely varies.

The findings caused uproar, particularly in the Austrian media, when ski areas rationalized their claims with explanations that included measuring piste width multiple times, treating them as 2 or 3 runs, and measuring the length of a snaking skiers S-track descent of a run rather than a straight line from top to bottom.

Surveys of skier preferences have found that ski area size is the number one criteria when considering where to ski.

An Austrian ski resort association subsequently introduced a code of practice for slope measurement and several areas shrunk in claimed size – the Ziller Valley by around 20%, for example. Others, including the Skiwelt, brought in their own independent professionals to verify their numbers.

Schrahe subsequently published several annual guides to what he claims to be the true size of the world's 100 largest ski areas from his precise and standardised measurement system¹⁷.

Now Schrahe's Montenius Consult Company, whose main business is ski resort design, has launched the, *Verified Piste Length* seal. To receive the seal the resort must allow Schrahe's company to measure all runs, going down the precise centre

¹⁷ The list of the world's 100 largest ski areas – Analysis of relevant statistics in different categories, available from www.montenius.com (use code LVWR2018 to get special discount).

line of each piste, to come up with a figure.

A new multi-lingual website, www.pistelength.com, has been set up to promote the service. Schrahe's first 2 customers are reported to be 2 of the 5 biggest ski areas in Austria.

Source: Snowhunter

South Korea features a record breaking figure as far as **skier visits produced per lift** is concerned, with nearly 40'000 skier visits generated per lift per season. The number of skier visits per lift is also higher in Canada and the United States than in other countries, showing the difference in the business model from that in Europe, where an emphasis is placed on lift mechanics and sophisticated infrastructure.

With more than 1'300 million inhabitants, the biggest **national market** of the sample is China, far greater than any other. However, at this stage, the size of the ski industry is not proportional. India, which also has over one billion inhabitants, still has a very low number of skiers. The United States represent the largest mature market, with a population of over 300 million inhabitants.

The Lichtensteinese, Swiss, Austrians, and Norwegians are the populations with the highest nominal **participation rates**, with 25% or more of the population participating in skiing.

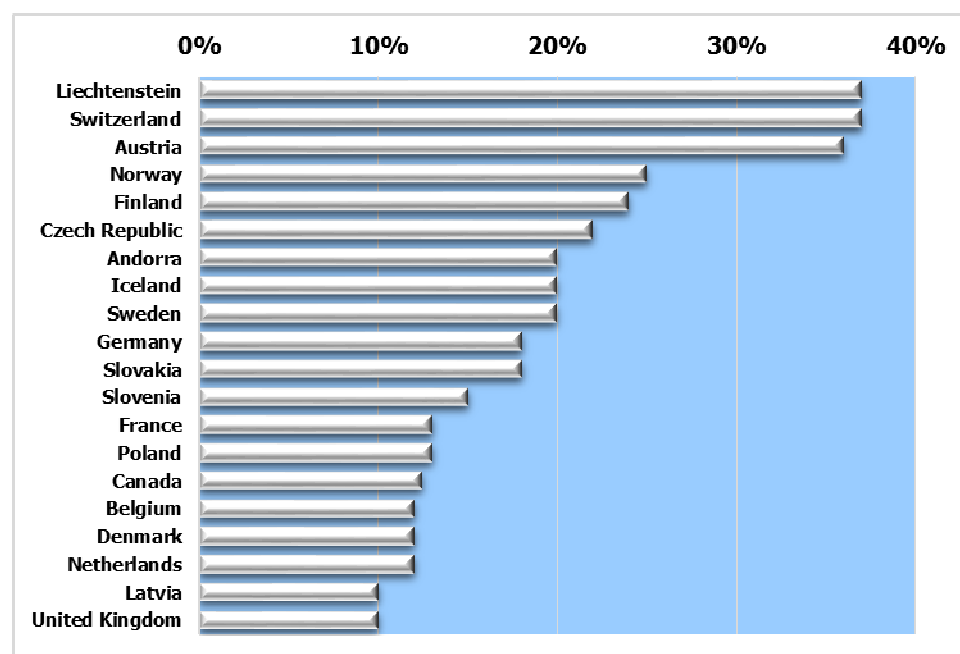


Figure 9: Participation rate of the population (nominal)

However, since they benefit from much larger populations, the United States, Germany and Japan account for the highest **number of national skiers**.

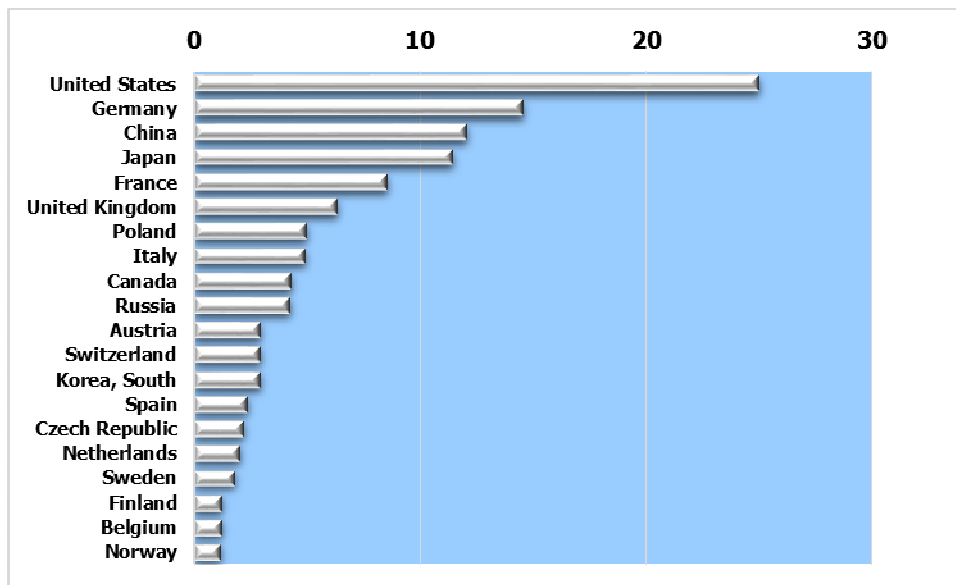


Figure 10: Number of national skiers (nominal - in millions)

France, the United States and Spain are the **countries with the most foreign tourists**, but it is only in France that they provide a noticeable benefit to ski resorts. Most foreign visitors, however, do not come to ski. For the 2 other countries, foreign tourists only marginally contribute to the number of visits to ski resorts.

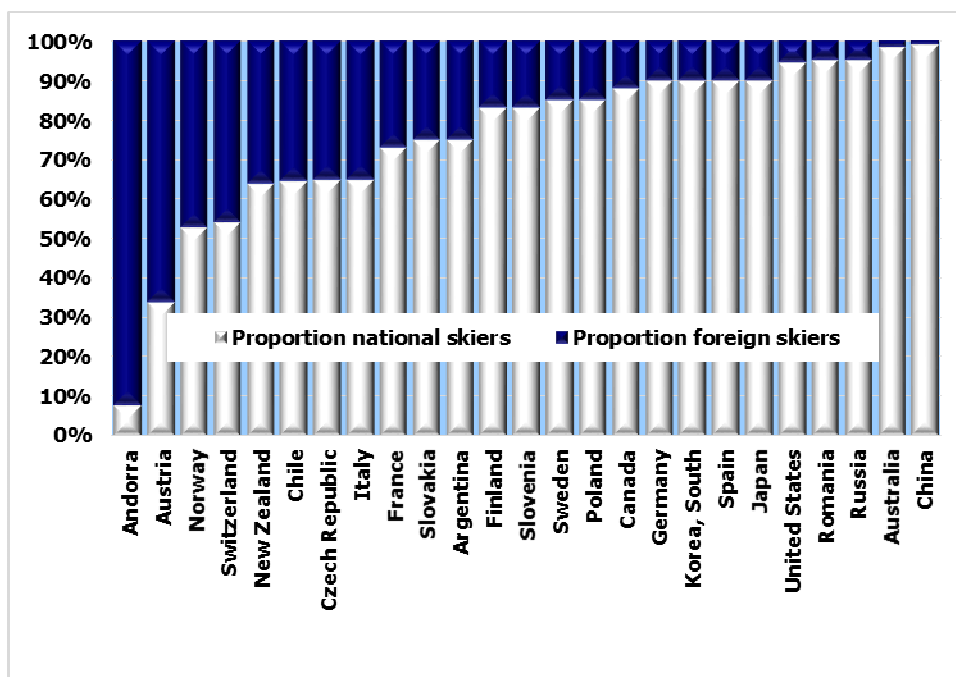


Figure 11: Proportion of national and foreign skiers

In nearly every country, the main portion of skier visits consists of domestic skiers. There are only 2 major markets worldwide where international cus-

tomers represent more than half of skier visits. In Andorra and Austria, foreign customers represent between 66% and 95% of all skier visits. Besides posting a record proportion of foreign skier visits, these countries also have the highest ratio of skier visits per inhabitant and per foreign visitor of the sample, clearly showing the importance of winter tourism.

Summer ski options

Currently up to 8 glaciers open at some point between June and September in Austria (although half of these close at the start of June and do not re-open until late September), 3 in Italy, 3 in France, 3 in Norway, 2 in Switzerland and 1 each in Canada and the USA.

In the 1980s and 1990s, up to 40 resorts, primarily in the Alps, opened for summer skiing with famous resorts including Verbier, La Plagne, Zugspitze, Val Thorens, Monterosa and Marmolada offering this option. While many of these resorts stopped offering summer snow sports at the start of this century, the numbers have remained relatively constant for the past decade.

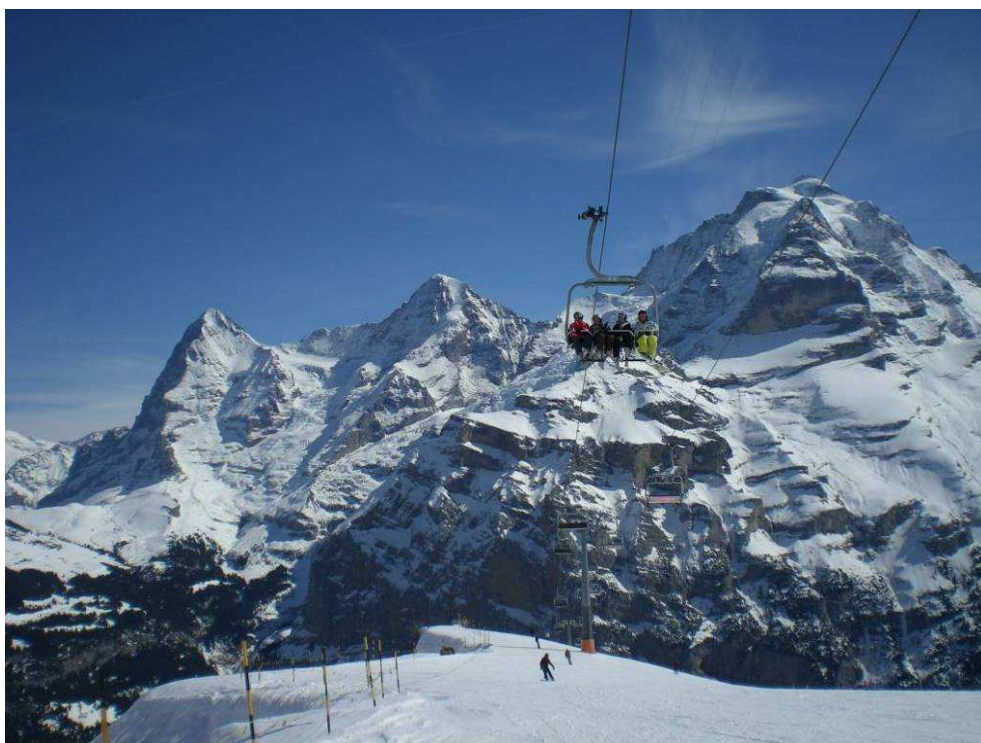
The maximum number of ski areas open in July and August is now a dozen, although Hintertux in Austria, Zermatt in Switzerland and Timberline in Oregon, USA, are usually open more-or-less year round (except for weather/maintenance breaks). There are long standing plans to build a year round ski centre, Jumbo Glacier, in BC, Canada.



Source: Snowhunter

The Alps

The Alps are by far the largest inbound ski market on the planet, capturing 43% of worldwide attendance. It is also the most intensely equipped region of the industry, totalling more than 10'000 lifts. Unsurprisingly, it is home to 4 of the major players of the ski industry. Although geographically part of Western Europe, the Alpine countries have been treated as a separate group in this report, due to their importance in terms of market share.





Austria



Part of the Alps, Austria is covered mostly by mountains. 68% of the country is located above 500 metres. Only the eastern side of the country partly consists of lowlands. The Alps cover 62% of the land area, culminating with the Grossglockner at 3'798 metres above sea level. Thus, contrary to the other alpine countries, Austria does not feature any summit above 4'000 metres.

Winter sports already appeared in Austria at the end of the 19th century. Some ski competitions were organized as early as 1906 and

the first ski schools emerged. The *Arlberg* ski teaching method was the standard at that time. In the 1930s, ski schools and ski clubs were founded in several locations. In 1936, the first surface lift was installed and in 1947, the first chairlift. Together with the slope preparation, they contributed to making winter sports increasingly popular. A lot of farmers' villages in the mountains discovered the opportunities winter tourism offered, and after Second World War, it progressively developed into a major industry.

Ski resorts have never ceased to improve. With more than EUR 7 billion spent since the year 2000, Austrian operators have been massively investing, showing the most updated lift infrastructure of the industry. To some extent, or when measured to other countries' standards, the infrastructure in some places even tends to be luxurious, with equipment such as 8-seater detachable chairlifts with heated seats, bubbles and underground parking. It is worth noting that the economic sustainability of such a high level of investment is still difficult to demonstrate, when more than 50% of revenues have been reinvested for several consecutive years.

The industry now also covers more than 60% of the slopes with snowmaking. A yearly average of EUR 130 million has been invested on snowmaking since 2008.

Austria has a strong ski culture and remains the only country where schools still go on ski weeks on a regular basis. For the observer, there is a high level of individuality between the ski resorts, and the business models of the alpine villages show some particularities. Austria is the European country with the largest hotel accommodation offering. Since most of these hotels are family-owned¹⁸, they still have a very conservative approach to

¹⁸ The same families also often own shares in the lift companies.

marketing, but benefit from loyal returning customers. The owners invest very regularly to maintain rooms and infrastructure up to date, resulting in a very good price/quality ratio of most of the accommodations. This seems to be successful with both the domestic and the large German and Dutch customer base (respectively 12%, 48% and 11% of overnight stays¹⁹). In fact, the country is a big importer of skiers; most of its skier visits are generated by foreign tourists. Another traditional customer base is via British tour operators.



A couple of Austrian resorts have a very strong market positioning. Some, although not connected, have joint marketing efforts, showing an example of a new dynamic. Despite the fact that it is not possible to ski between each of the resorts, the benefits of using this common brand have appeared, for instance by allowing higher pricing and joint advertising actions. By the way, the number of interconnected resorts has been growing over the recent years. The race to become Austria's biggest interconnected resort seems to be open!

In the western part of the country, Tyrol is likely to be the most densely ski-resort populated area in the world. With 79 ski areas and 480 major lifts²⁰, Tyrol captures 49% of Austrian skier visits. Large ski resorts can also be found in Vorarlberg, Salzburg and Carinthia. The smaller ski resorts in the eastern regions are visited by guests from the Vienna area and neighbouring Slovakia and Hungary, mostly just for day trips.

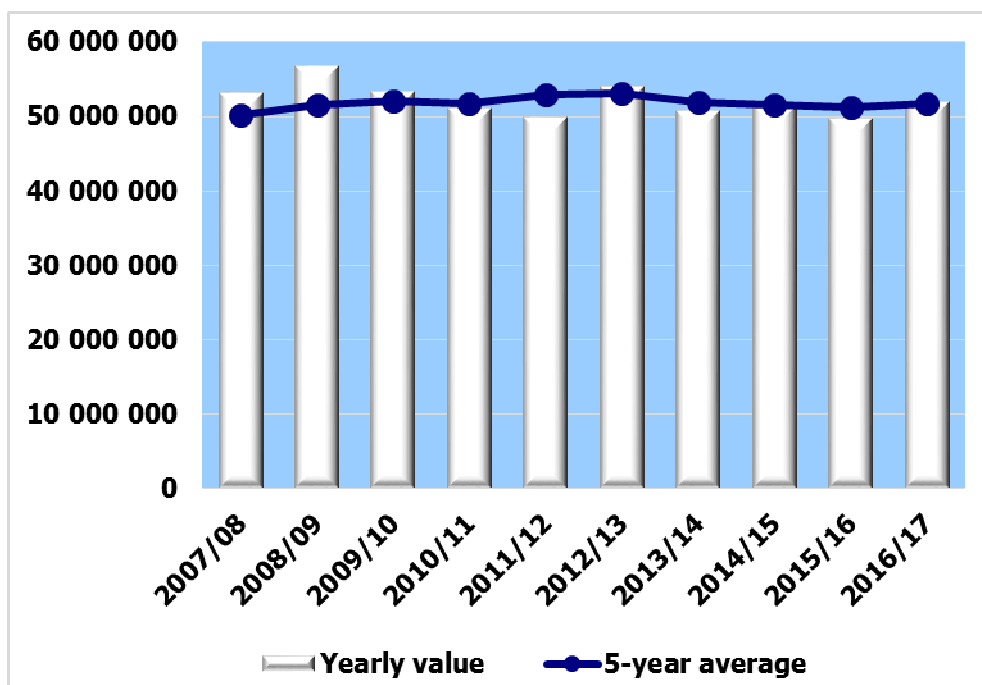


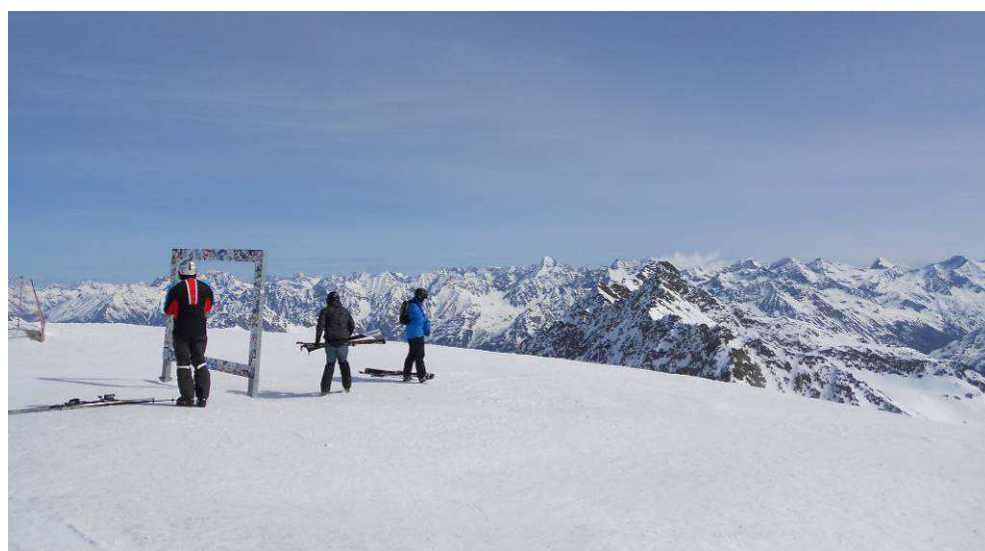
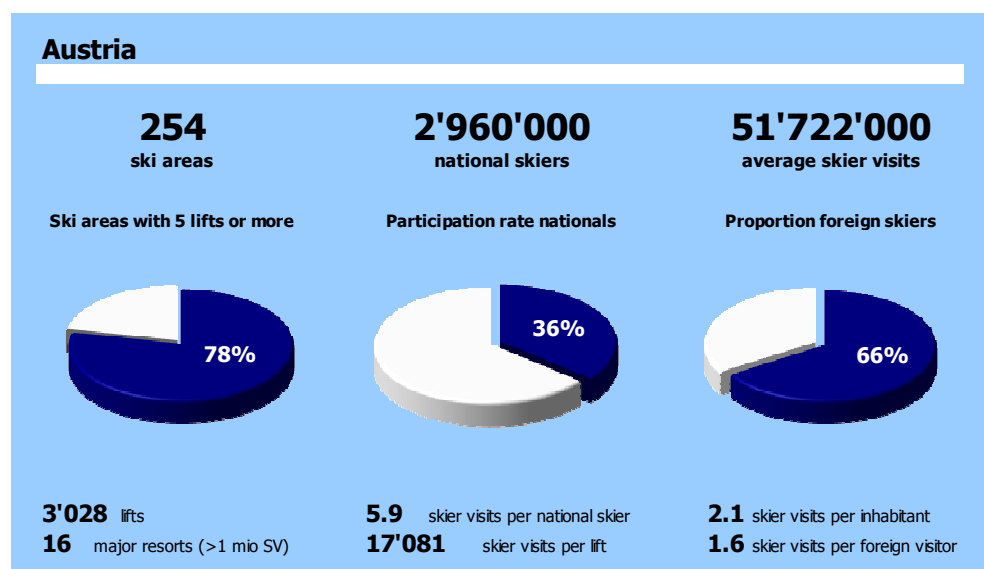
Figure 12: Austria, evolution of skier visits

¹⁹ Figures from the 2014/15 winter season, Statistik Austria, Tyrol, Salzburg & Vorarlberg.

²⁰ Not taking into account the surface lifts.

With an average yearly increase of 2.25% since beginning of the century up to the record 2008/09 season, Austria was close to reaching the level of skier visits in France. The country experienced continuous growth in skier visits. Then, yearly attendance began to decrease, as with other alpine destinations. Despite very good visitation figures during the 2012/13 winter, the situation then stagnated at lower levels, translating to an overall decline in the long term trend up to winter 2015/16, which was 3.3% down from the former one. Season 2016/17 however looks better with a 4.4% increase and the 5-year average trend on the rise again.

Over the last years, Austrian ski resorts benefited from an increase of foreign guests that more than compensated the sharp decline of Russian customers. Traditional German, Dutch and UK clients were up – possibly a switch from Switzerland due to the rise of the Swiss currency. Domestic customers remained stable.





France hosts, together with Italy, the highest summit of the Alps (Mont-Blanc, topping at 4'810 meters above sea level). There is a total of 24 alpine peaks that reach over 4'000 meters in France. If the French ski resorts in the Alps are the largest and most well-known, several other mountain ranges in the country have ski resorts: the Jura, the Pyrenees, the Massif Central and the Vosges. There is even a ski area in Corsica Island.

France saw the first Winter Olympics Games, held in Chamonix in

1924. At that date however, they did not include downhill ski competitions. Ski began to develop in France in the 1930s and Chamonix was joined by other mountain villages, like Mégève. After a first development phase of ski areas around existing villages, French developers began to build resorts from scratch. It first started with village-like resorts and then moved to high altitude densely urbanised integrated resorts which saw construction of big housing blocs in the mountain in the 1960s and 1970s. The French Government highly supported the development of these suburb-looking mountain towns (Plan neige). Last and most recent development phase returned to more village-like lower altitude resorts, smaller and better integrated in the environment.

Some of the major French resorts that were created from scratch, initially as integrated operations, were later on dismantled in the 1980s and lift operations were distributed among numerous actors, giving birth to the Compagnie des Alpes, the world's largest ski resort operator. France is the only European country with such a dominant operator who runs nearly all the major resorts (13 large alpine resorts totalling more than 15 million skier visits are operated fully or partly by Compagnie des Alpes). There are also a few other smaller operators that manage lifts for several ski areas, such as Labellemontagne and Altiservice. Savoie Stations Participation is a public / private company that holds interests in 17 ski areas. In France, ski lifts are still considered to be a public service, and some of the operating companies are either partially owned or even directly managed by municipalities.

Another particularity of French resorts, especially in the big purpose-built resorts, is the extremely high proportion of apartment housing. Hotels are quite rare and most customers spend their ski week in what is called a *Résidence*



de tourisme, which are to some extent the French equivalent of the North American condos, with much less surface area per guest, and with a level of comfort in many cases still based on the standards of the 1970s. This latter issue is even becoming a problem, as it means a decrease of the number of beds that can be properly marketed.

Although France is the number one destination in terms of arrivals in world tourism, the ski industry is still primarily driven by the domestic market. However, the domestic market is very mature, with a number of skier visits that is now tends to decline after several years of stability. On the other hand, there are about 2 million foreign skiers who visit France each winter season and their number used to tend growing and compensate the retiring domestic customers. The British represent one quarter, followed by the Italians, Belgians, Germans and Russians. The latter became increasingly numerous at ski resorts, accounting for 7% to 9% overnight stays in hotels, before the Ukrainian crisis.

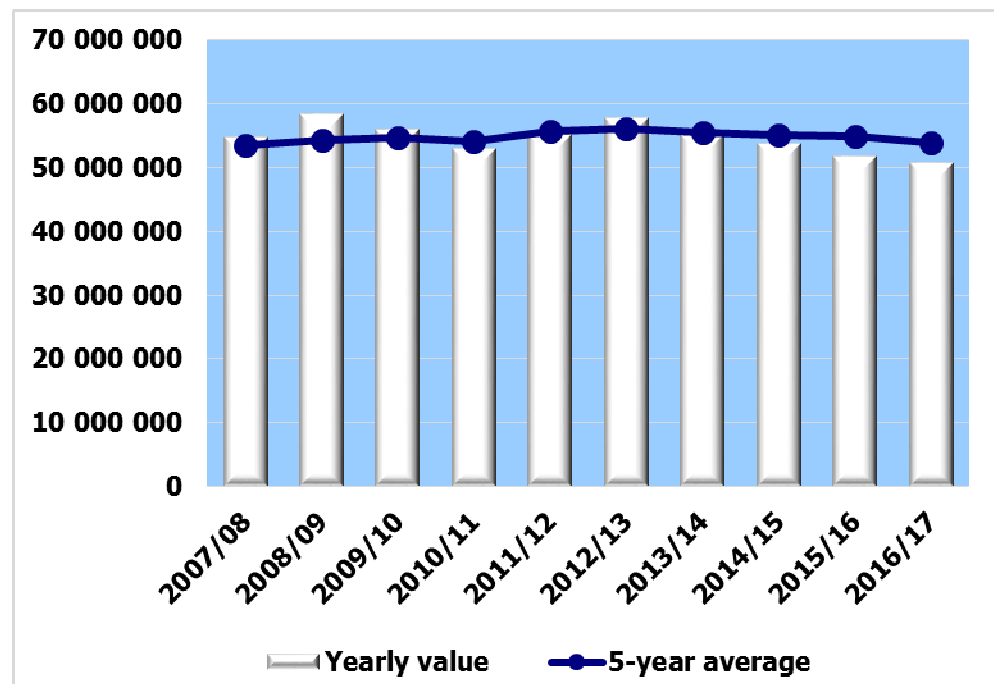
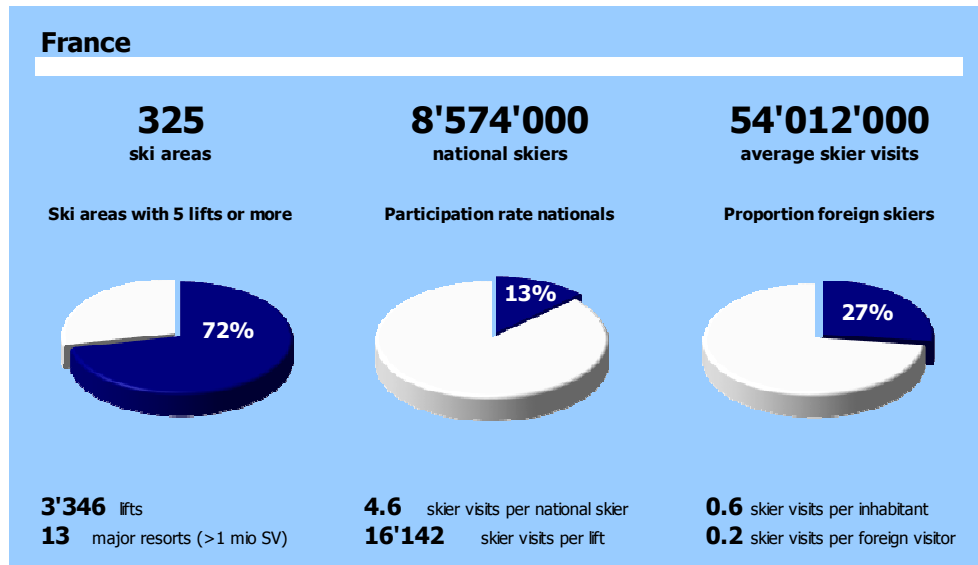


Figure 13: France, evolution of skier visits

With 51.0 million skier visits, 2.0% down from previous season, winter 2016/17 is the fourth season in a row with a decrease in visits to French ski resorts. As for other destinations in the Alps, the weather and snow conditions at the beginning of the season were extremely unfavourable. Snowfalls in December and January have been scarce. For the third time in a row, Christmas holidays featured mild temperatures and sun. After correct winter conditions came back for February, spring came early and snow began to melt away already beginning of March. Good attendance in February and the improvement in school holidays calendar were not sufficient to mitigate the adverse effect of the difficult season start. Small resorts were

especially impacted by the lack of snow, while very large resorts were on average even with the former season.

The 5-year skier visit average is also trending slightly downwards and highlights the overall trend in Europe. As outlined in the introduction of this report, both domestic and foreign customer bases are flattening and it will be imperative in the very near future to find new ways to introduce massively new clienteles to skiing.



New French ski lift will be longest 6-seater in Europe

A new 6-seater chairlift being installed in the French Grand Massif region will be the longest of its kind in Europe and access an all new bowl, extending the ski region, already one of the world's largest, still further.

The new 6-seater detachable Coulouvrier chairlift will ascend 920 vertical metres over its 2'850 meters (nearly 2 miles long) in around 9 minutes, with an uplift capacity of 3'000 people per hour. The new lift will provide access to the region's new terrain addition, the Coulouvrier Bowl, an area covering some 42 hectares of pistes located between the villages of Morillon and Samoëns.

4 new ski runs are planned for the area, including 2 blues scheduled to open this winter and 2 reds to follow for the 2018/19 winter season. So far it has not been announced if the region will announce an increase to its previous published size of 265 kilometres of slopes.

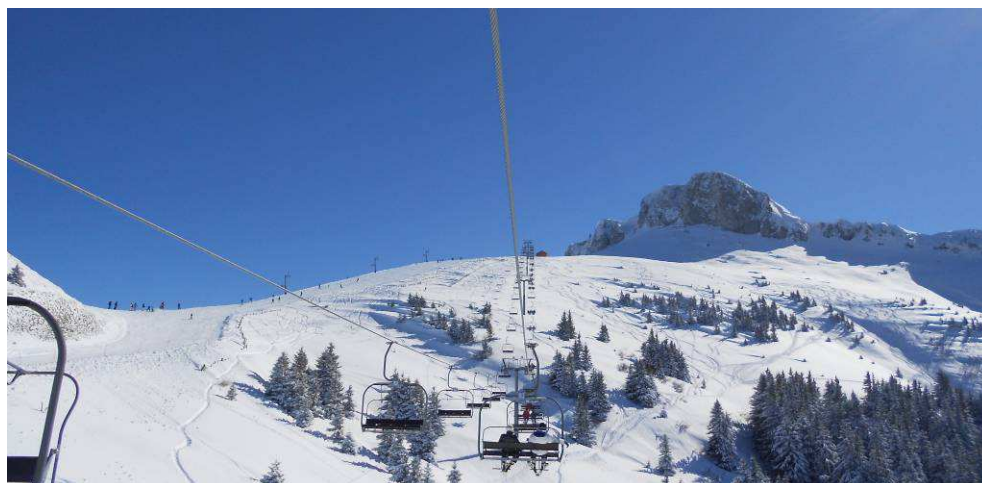
In addition a snow-making network with 70 snowmakers is being created in the area.

Other off-season projects to improve the Grand Massif include extensive landscaping of the Tête de Saix summit to optimise intersections and improve safety for skiers crossing over between the resorts of Flaine, Les Carroz, Morillon and Samoëns with the transformation meaning skiers will enjoy a 360° view of the whole of the surrounding panorama.

There's also a 110'000 cubic meter reservoir being created, integrated into the

natural environment in the Veret sector. This will provide the resort which has previously had problems sourcing water for snowmaking with a tenfold increase in its snow-making capacity. This resource will be of particular use for enhancing the natural snow coverage on the pistes leading back to the base.

Source: Snowhunter





Italy



A share of 35% of Italian territory is mountains and a further 42% is covered by hills. 2 major mountain chains cross a large part of the country and are linked together. The highest one, the Alps in the North, ranging from East to West, culminates with the Mont-Blanc, on the border with France. The second range, the Apennine, crosses the country from Liguria to Calabria. It is not so high as the Alps but much longer, as it extends over 1'500 kilometres. Its highest point, Corno Grande, in the Gran Sasso, reaches 2'914 meters

above sea level. The Etna volcano, which by the way hosts a ski area, culminates over island of Sicily at 3'340 meters above sea level. Italy shares also with Switzerland the Matterhorn, one of the most iconic summits of the Alps.

Although most of the ski resorts are concentrated in the northern regions of Piemonte, Valle d'Aosta, Lombardy, Trentino, Alto Adige (Südtirol) and Veneto, there are minor ski resorts throughout most of the country, including on the islands of Sicily and Sardinia.

Despite some older traces of skiing in Italy, it seems that modern skiing was introduced in 1897 in the region of Torino. In 1901, Ponte Nossas and Torino ski clubs were the first ones in Italy. They concentrated at the beginning mostly on the promotion of backcountry skiing. The first ski race was organised in Italy in 1904 in Bardonecchia. Italian Ski Federation was founded in 1913. First World War gave an impulse in Italy to train 88 alpine battalions.

Cervinia completed its first Breuil - Plan Maison cable car in 1936. The lift was built within 2 years of the founding of Cervino in 1934, and played a crucial part in the resort becoming one of the most important ski resorts in Italy.

Corvara, in Val Badia, was the first place to introduce dedicated ski-lifts in Italy. It started in 1938 with a sledge-lift, cable-dragged across the snow. Then the first chairlift was built in 1946. It was a single seater with wooden towers. Its enormous success led to expanding the area with other lifts over the next year, creating the famous *Skicarosello Alta Badia*.



In 1956, the Winter Olympics were held for the first time in Italy, in Cortina d'Ampezzo. 50 years later, the 2006 Winter Games returned to Italy, in Torino.

The Italian ski industry is similar to the Austrian model in the South Tyrol and eastern regions, and shares some similarities to the French resorts in the west. Some players are very dynamic, like the *Dolomiti Superski* area (featuring 450 lifts and 1'200 kilometres of trails), and offer a high level of infrastructure and state-of-the-art lifts and snowmaking facilities under a common brand name. This packaging is, however, formed by a multitude of small operators. The evolution of some other areas has been slower, contributing to stagnation in skier visits.

The Italian industry is quite fragmented, with no major operator. It relies primarily on domestic customers and for about one third from European outbound markets. Large international resorts are popular for guests from Germany, United Kingdom, Netherlands and Poland.



From 2002 up to 2009, 20% of the lifts were removed and a further 20% have been renewed, for a total of 445 new lifts. Although Italian operators have been investing quite heavily in the beginning of 2000s, attendance started to decline. Even if the market was then recovering up to 2010/11 season, Italy seems to have a rather mature market profile, with the trend toward declining skier visits ever since and yearly figures stabilising at a low level for the 6 last winters. Season 2016/17 looked however a little better, stabilising the 5-year average.

Italy is the only major market that does not supply proper national yearly attendance statistics. Skier visits figures rely on estimates²¹.

²¹ The present report does not rely on the officially communicated estimates. Please note that attendance figures over the decade have been completely restated since last issue of this report, in order to try presenting more precise data.

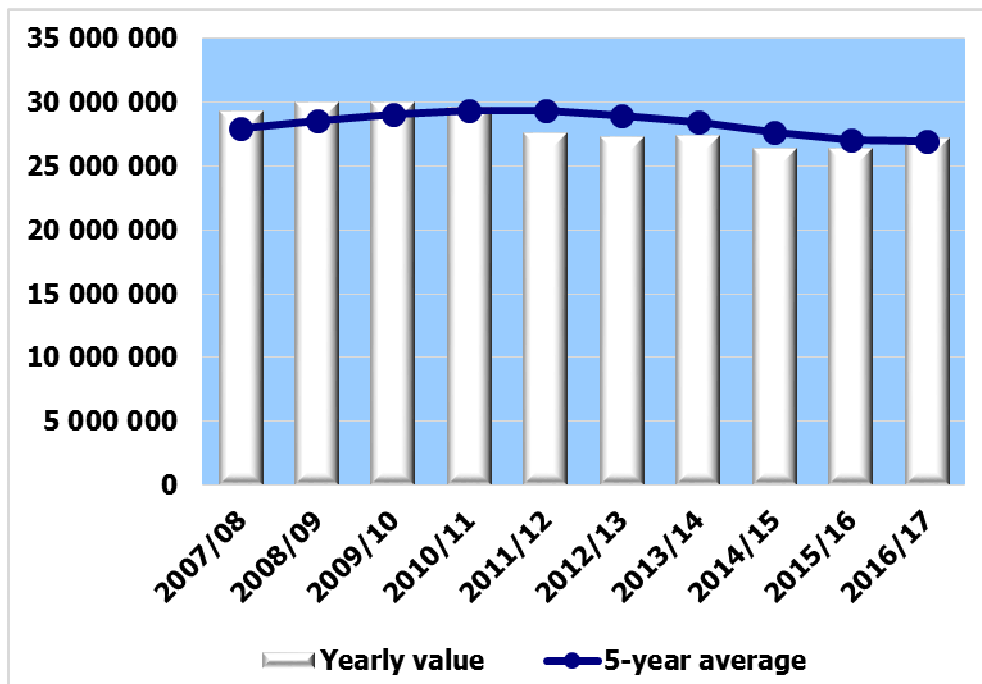
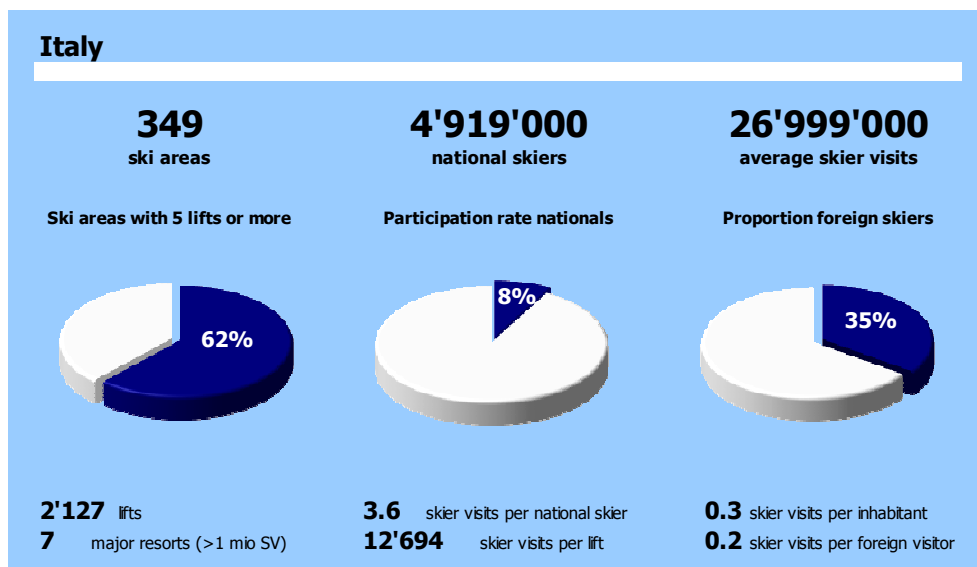


Figure 14: Italy, evolution of skier visits



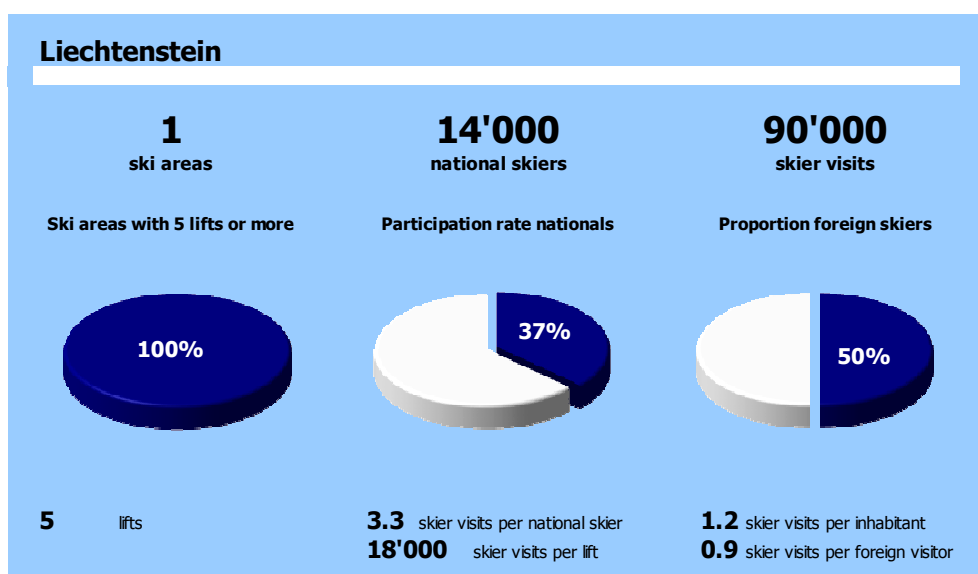
Liechtenstein



Liechtenstein is a small alpine principality in Central Europe bordered by Switzerland to the west and by Austria to the east and north. The majority of its 162 square kilometres is mountainous, with the highest summit topping out at 2'599 metres above sea level (Grauspitz), making it a destination for winter sports, although the small country only accounts one single ski resort, Malbun.

Malbun is pretty close to the capital of Vaduz but the road up to the resort can be an intimidating one for inexperienced mountain drivers, with steep gradients and sharp corners.

Skiing in Malbun appeals to the nostalgia of the days before the sport became industrialized, with package tours and lift queues. It is not a place to ski record vertical, or to spend a lot of money on après-ski. However, Malbun is the perfect resort for a romantic getaway to remind oneself what a ski vacation was once all about. Like the country, the resort is tiny, with only a handful of hotels amongst the private chalets and houses. It is only equipped with 5 lifts that rise to a maximum altitude of 2'000 metres. The snow conditions normally remain pretty good.





Slovenia



Slovenia has 28 peaks over 2'800 metres high. The highest peak, Triglav, culminates at 2'864 metres above sea level. The Alps, including the Julian Alps, the Kamnik-Savinja Alps and the Karavanke mountain range, tower above Northern Slovenia along its long border with Austria and Italy. In the 17th century, skis were already used there as a means of transportation. Today, hiking and trekking are among the most preferred sports in Slovenia. Thanks to attractive winter resorts such as Kranjska Gora, Rogla and Krvavec,

skiing has developed into a major sport in the past few decades, even though other European winter sport destinations are strong competitors due to higher altitudes and the guaranteed snow. Tourism is the highest growing economic sector in Slovenia and is increasingly competitive. The Ministry of Economic Affairs encourages modernising infrastructure, and 36 projects have received public funding for a total of EUR 50 million. From 2001 to 2013, approximately EUR 145 million was provided to develop tourism.

The growth in skier visits reveals a strong dependency on snow conditions. After a substantial growth in the beginning of the 2000s, the last few seasons have shown less than favourable skier visit figures. For the time being, attendance seems to stabilise at a low level.

Slovenia has 44 resorts with a total of over 200 ski lifts. It offers a very good price/performance ratio, modern ski runs, cross country skiing, good infrastructure, snowmaking, and well-equipped holiday apartments and hotels.

Mariborsko Pohorje is one of the most well-known resorts. It hosts an Alpine World Cup ladies' downhill event every year. 43 kilometres of ski runs, modern spas, beautiful landscapes and being near the city of Maribor make this a very attractive destination. The resort guarantees 100 snow days per season. Another popular ski resort is Kranjska Gora. It hosts an Alpine skiing World Cup event every year and has trails for every level, from beginners to expert skiers and snowboarders. The highest winter resort in Slovenia is Kanin²², which is connected with the Italian resort of Sella Nevea. It offers 30 kilometres of ski runs, 13 lifts and snow through early spring. Cerklno is the most modern family ski resort in Slovenia, located on the

²² The resort has been closed for the 2013/14 ski season further to financial difficulties.

slopes of the 1'291 metre high Črni vrh peak. This ideally situated ski area is 100% covered by an extensive snowmaking system, which guarantees a minimum of 70 ski days per winter.

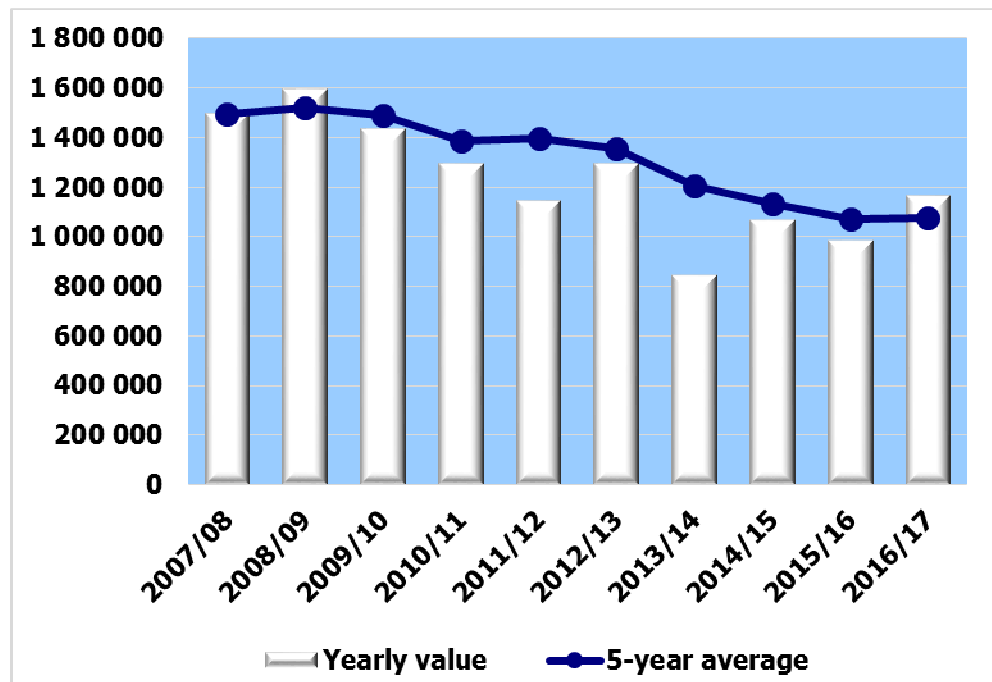
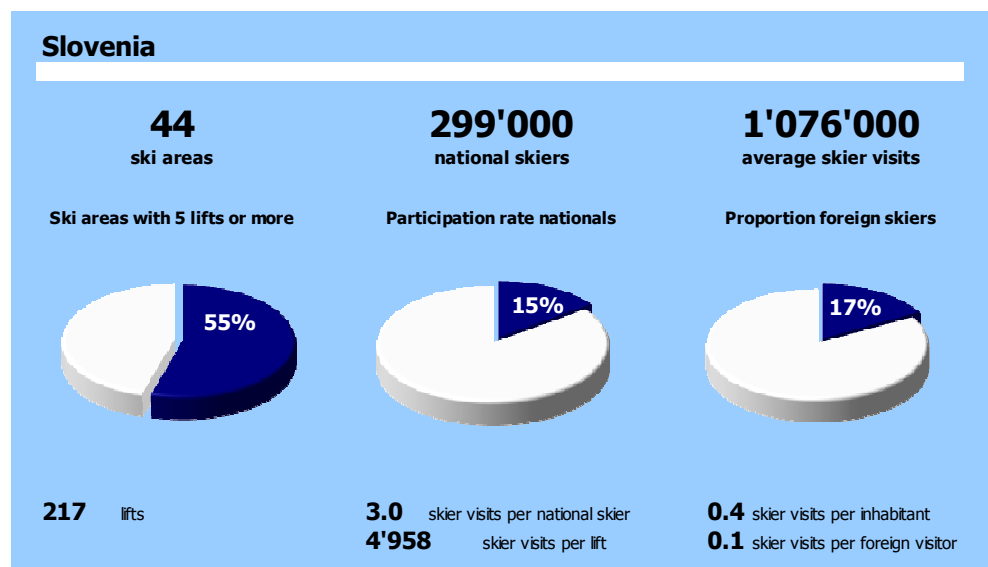


Figure 15 : Slovenia, evolution of skier visits





With 49 summits, Swiss Alps account the largest number of peaks that reach over 4'000 meters²³ of the whole mountain chain. The alpine mountain range cross all Switzerland from East to West and cover 62.5% of the national territory.

Another 10% of land is covered by the lower mountain range of the Jura, which is also shared with France and Germany. Jura only reaches 1'679 meters above sea level at its highest point in Switzerland.

Mountain tourism developed already during the 19th century in Switzerland, in places like St. Moritz, Davos and many others. At the beginning, it was concentrated on summer time. Winter tourism in Switzerland is considered to be born in 1864 in St. Moritz. First winter sports were sledging, curling and ice skating. Ski competitions appeared over the next century. World's first downhill race was held over the Plaine Morte Glacier in Crans-Montana in 1911. In 1921, the first modern slalom race was held in Mürren. The second Winter Olympics were held in St. Moritz in 1928 (without downhill skiing competition at that time). The first T-bar lift was installed in Switzerland in 1934 in Davos²⁴.

Therefore, Switzerland was, for quite some time during the last century, the most well-known ski destination in the world, with some places still garnering lasting recognition. The country was also once the leader in terms of lift infrastructure. However, the industry lost part of its lustre in the 1980s; too many fragmented operators fighting over the same mountains led several companies into a poor financial situation. Investment has slowed down for quite some time and Switzerland has lost part of its appeal to foreign tourists. This has not been helped by its legendary, but not always true, reputation as being an expensive destination. However, for several years now, the exchange rate between the Swiss Franc, the Euro and the British Pound has been unfavourable and has led to a renewed reputation for being expensive. The situation became even worse when, on January 15, 2015, the Swiss National Bank discontinued the minimum exchange rate of the Franc with the Euro.

Swiss ski areas used to host an important foreign customer base, made up of Germans, British, French, Italians and Dutch²⁵. Over the last few years the number of Spanish, Russian and Asian customers has increased, but this has not made up for the decline of Switzerland's traditional foreign

²³ Some are located on the boarder and shared with Italy.

²⁴ In fact it was first a J-bar lift installed, that was later on converted into a T-bar.

²⁵ Top 5 in hotels overnight stays during the winter season in mountain regions.

customer base. Over the last 10 years, winter resorts lost 1.5 million over-night stays related to the loss of the latter. Nowadays, the average proportion of foreign guests on the slopes has dropped below the 50% mark.

On top of this, the Swiss ski industry is facing the same demographics issue with its domestic and foreign customer base. The skier visit figures present thus a long range declining trend.

From beginning of 2000s, Switzerland first experienced a period of stagnation, which ended after winter 2008/09 when attendance began to show a steady decline. This happened in spite of continued efforts by Swiss ski resorts to extend snowmaking facilities and renew lift infrastructure. 21.2 million skier visits were recorded for the 2016/17 winter season, a 1.9% decline from the prior year and 10.2% below the five-year average.

The unfavourable scenario of winter 2014/15 repeated for a third consecutive season in 2016/17. After early snowfalls in November, weather became mild and dry up to the end of the year. In several areas, there has been no snowfall / rainfall at all during the month of December. Snow was lacking in many resorts for Christmas / New Year holidays. Genuine winter conditions only arrived in January and kept good in February. However, spring was then early and many resorts closed in March. Attendance was limited during the late Easter holidays.

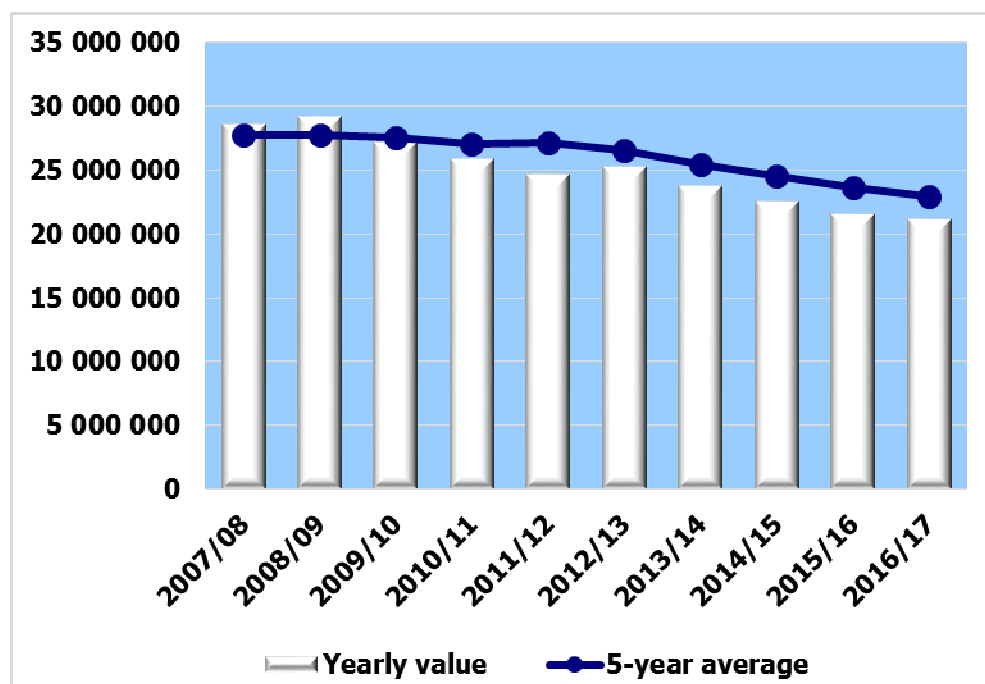


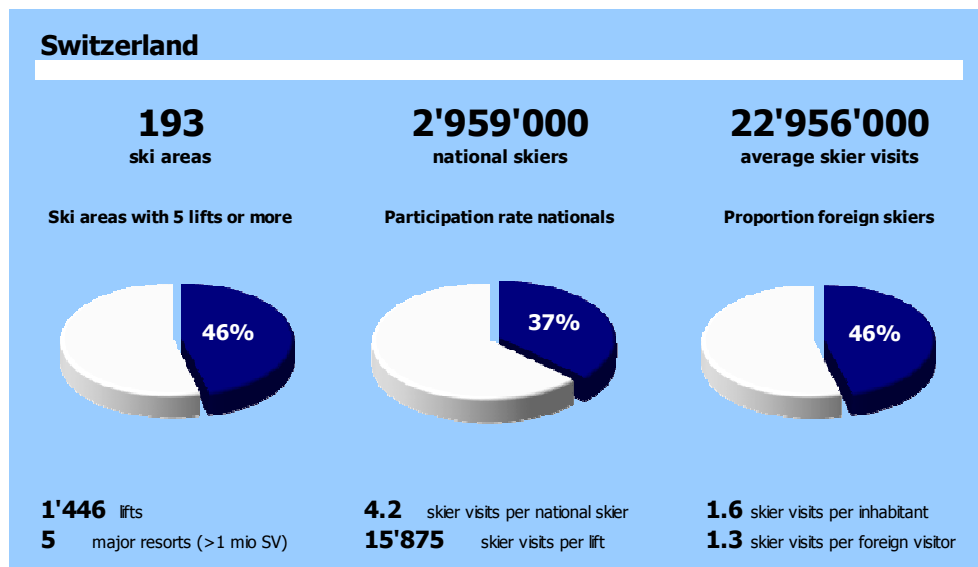
Figure 16: Switzerland, evolution of skier visits

The future is still unclear and is a concern for ski area operators. For the time being, Swiss operators have not taken any considerable measures to anticipate the impact of the demographic changes in their client base. Some campaigns were launched over the last few winters to get citizens of

major cities acquainted with the pleasures of skiing. Various ideas are being studied but customer knowledge still needs to be improved to develop successful CRM programs.



Further improvements to the client experience will also pass through the modernization of part of the aging hotel infrastructure, which offers very unequal quality depending on the destination. The increase in the non-skiing offer will also help the Swiss alpine resorts to be more appealing to a larger customer base both in winter and in summer.



Switzerland's new super ski region nears completion

Long-running plans to connect the 2 Swiss ski resorts of Andermatt and Sedrun are nearing completion with the 2 ski areas connected by lifts and runs in one direction this winter as 3 new lifts are completed. The full inter-connection in both directions should be finished in time for winter 2018/19 with another 4 lifts due to be added in summer 2018.

Although the final size of the new area has not been officially announced, the 2 areas have 120 kilometres of ski runs. Work on the upgrading and connection of

the two areas which has a CHF 130 mio price tag, began in 2015 and in total 14 lifts are involved, several of which have already opened. They include 7 new lifts, 6 lift refurbishments, and one lift modification. At the same time as the lifts are installed, snow-making facilities, slopes and restaurants are being built.

Most of the lifts are fast, comfortable, high capacity chairlifts, including 2 6-seater chairlifts installed last season, one of which was designed by Porsche.

The driving force behind the development, which, after the ski area construction projects before the Sochi Olympics, and the more recent merger of Park City's ski areas, is probably the biggest ski resort development in the world today, outside China, has been the Egyptian billionaire Samih Sawiris.

Mr Sawiris has been driving forward a GBP 1.8 billion development in Andermatt which is focussed primarily on property development, including the construction of 500 luxury apartments, six 4* and 5* hotels and 25 custom premium chalets with guests and residents able to use the new state-of-the-art ski area as well as the leisure facilities of the hotels.

The apartments in Andermatt are being marketed as particularly interesting from an international investment point of view. Unlike most Swiss ski property developments, overseas investors are excluded from the *Lex Koller laws* when buying property in Andermatt which means there are no restrictions on foreign buyers, and investors can also enter their properties into a rental scheme if they wish.

Currently 7 of the apartment complexes have already been completed, along with the 5* Chedi hotel. A 4* Radisson Blu hotel is due to be completed next along with the accompanying Gotthard residences.

Source: Snowhunter



Western Europe

Western Europe (except the Alpine countries mentioned separately above) is for the present time the largest outbound skier market. It is home to more than 30 million skiers. It is also home to nearly 1'100 ski areas, an amount quite comparable to the Alps. However, even if several Western European countries have their own ski resorts, a lot of skiers enjoy travelling to the Alps. Thus, attendance in Western European resorts represents only 25% of the total alpine skier visits.





Andorra



With 62 peaks over 2'000 metres high within the country's 468 square kilometre surface area, the Principality is located in the highest part of the Pyrenees and has the largest ski area in the Pyrenees. The resorts are located at altitudes between 1'550 and 2'640 metres above sea level. Due to the southern location, the climate is milder and sunnier than in the other European ski regions. Even if susceptible to unreliable snowfall, snow conditions are generally good, enhanced by a solid snowmaking system.

As the Andorran population is very small, the national customer base is insignificant. Most skiers are foreign visitors. Although there is no direct access by rail or air to Andorra, the ski areas are close to big cities from neighbouring Spain and France, and also attract other international visitors, such as British and Russian skiers. The resorts offer many hotels for all tastes and budgets. They are also valued for their nightlife and shopping.



Due to the huge portion of international customers in the number of skier visits, Andorra is the only destination in Europe that experienced a decrease in skier visits immediately after the 2008 crisis. They however quickly stabilised and showed again some slight trend upwards over the last 4 winters. If the trend goes on, skier visits will return over the 2.5 million

mark, which was the level at the beginning of the 2000s. The country has nevertheless to fight against increasing international competition and lacks a domestic market.

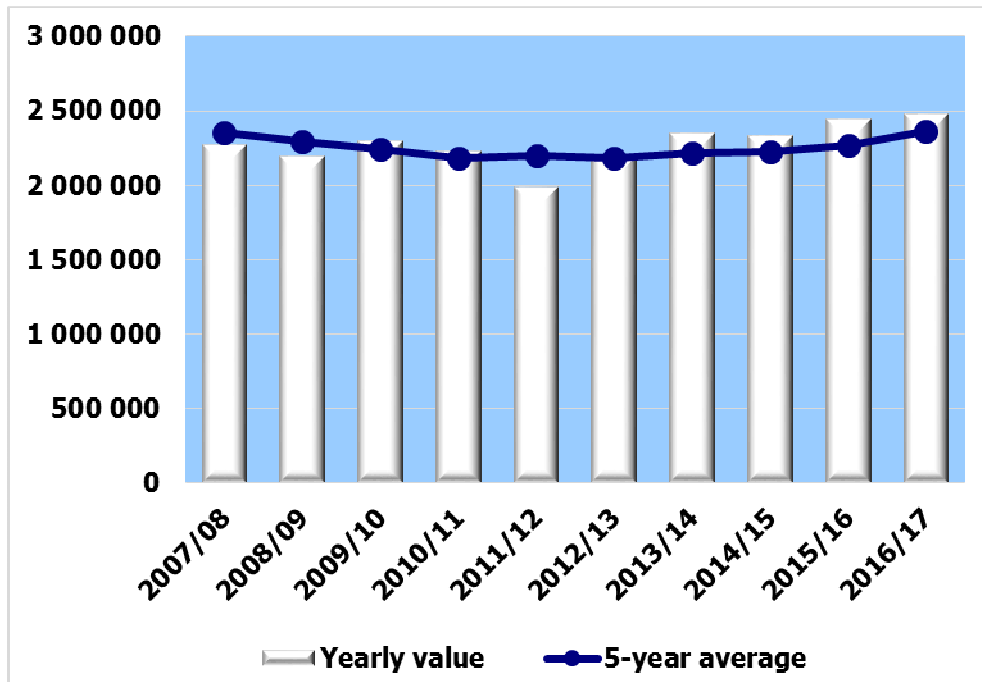


Figure 17: Andorra, evolution of skier visits

Despite modern infrastructure, good snowmaking, and large enough resorts to compete with the Alps, part of the skier market does not consider Andorran resorts as attractive as those in the Alps, claiming their layout differs slightly. The country has an image deficit to address (as for all Pyrenees resorts). Villages are extensively connected over wide areas, but vertical drop is lower than in the major alpine resorts.

Le Pas de la Casa-Grau Roig and Soldeu-El Tarter form the Grandvalira ski area. Grandvalira is the largest ski area in the Pyrenees. With its 64 lifts, 118 runs for a total of 210 kilometres of skiing, it has entered the exclusive club of the top 50 largest resorts in the world (over one million skier visits per year).

The other resort is Vallnord, which is made up of the 3 distinct ski areas of Pal, Arcalis and Arinsal. Since 2004, the three areas are covered by the same lift pass, offering guests the opportunity for a wide variety of skiing and snowboarding. Arinsal and Pal are linked via a 50-person cable car, but a 40 minute bus ride is required to reach Arcalis. Vallnord features 43 lifts and 70 runs for a total of 93 kilometres of skiing.

Andorra

3
ski areas

Ski areas with 5 lifts or more



140 lifts
1 major resorts (>1 mio SV)

17'000
national skiers

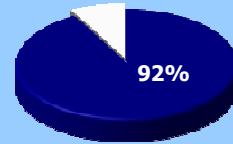
Participation rate nationals



11.1 skier visits per national skier
16'890 skier visits per lift

2'365'000
average skier visits

Proportion foreign skiers



2.2 skier visits per inhabitant
1.2 skier visits per foreign visitor





Despite Belgium being qualified as *the Flatlands*, with an average altitude less than 300 metres above sea level, the southern part of the country has some hilly terrain. The Ardennes range tops out at 694 metres (Signal de Botrange).

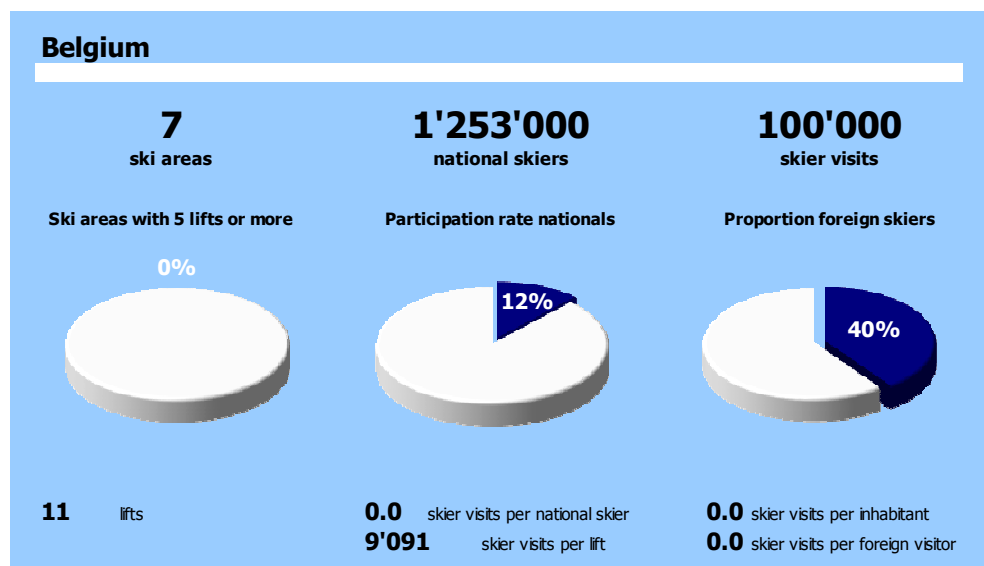
Since Belgians like to ski, and even though they spend most of their winter sports vacation abroad, 7 small ski areas have become popular in the Ardennes, in addition to a few indoor and dry slope facilities. Snow coverage is an issue, as good conditions are never guaranteed

during the winter. January and February are the most likely to offer snow. On average, Belgian ski areas operate between 30 and 80 days in a season.

The ski areas are small and local, offering only surface lifts. It is possible to rent skis in most places. They are suitable for families with young children as they offer mostly beginner slopes (and also often a sledge run). Incidentally, several ski areas ban snowboarding for safety reasons. These areas offer a good opportunity for novice skiers to get a taste for skiing before heading to the larger ski resorts in the Alpine countries. Belgian slopes also attract neighbouring French and Dutch skiers.

The best-known ski areas are Baraque de Fraiture and Mont des Brumes. Baraque de Fraiture has the highest slopes in Belgium (reaching up to 652 metres above sea level) and also features night skiing. Mont des Brumes has been the cradle of skiing in Belgium. The place was discovered by skiers in 1946 and a ski club was founded 2 years later. The area was soon equipped with ski lifts and it was one of the early places in Europe where snowmaking facilities were installed.

The longest trail in Belgium (1'200 metres long) is located in Val de Wanne ski area.





Denmark



Denmark is one of the flattest countries in the world, with an average altitude of about 30 metres above sea level. There are absolutely no mountains and the highest hill culminates at 173 metres. However, the country also includes Greenland, which features heights up to 3'733 metres above sea level (Fjeld Gunnbjørn). Greenland is a peculiar territory, with more than 75% of its surface covered with an ice cap and only contains 56'000 inhabitants.



On top of a lack of any terrain relief, Denmark also often lacks snow. The Danish winter is unpredictable and snowfall sporadic. It is usually mild, with an average temperature of 0 degrees Celsius in January and February. However, sometimes the winters are much colder and include snowy days, while other winters there have no snow at all, or the snow melts as soon as it falls. Sometimes several years pass between two snowy winters.

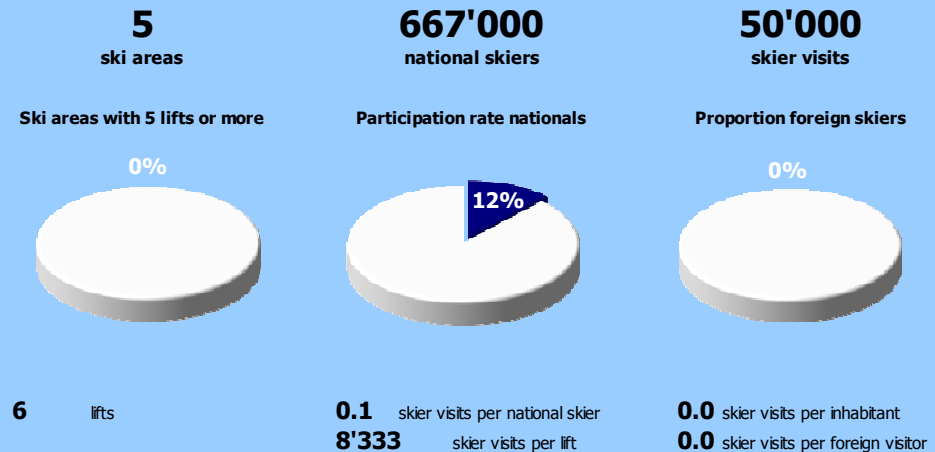
In addition to a couple of indoor ski facilities, there are a few outdoor ski areas with limited vertical drop and infrastructure. Skiing is a popular sport in Denmark and many Danes go skiing every year, travelling abroad, either to Scandinavia or to the Alps.

While the 3 ski areas in Denmark (Hedeland, Kolding and Bornholm) are mostly equipped with rope tows or beginners lifts (only Bornholm features a draglift), the 2 ski areas in Greenland (Nuuk and Angmassalik) have one or

more ski lifts. Hedeland is equipped with some snowmaking facilities.

The wild mountainous areas of Greenland, covered with fresh polar powder snow, offer some exclusive spots for heli-skiing. It is possible to ski 2'000 metres of vertical down to the water's edge.

Denmark



Ski resort proposed for Greenland

A ski area is being planned for Greenland by an Austrian mountain planning firm. The company is working with officials on Disko Island, located off the West Coast of Greenland mainland in Baffin Bay.

Disko Island is reported to be a natural paradise with guaranteed snow year round including on a glacier and is also a good place to see the northern lights. The proposed ski area would initially have 4 lifts and 19 kilometres of runs with long terms plans to expand this to 63 kilometres of runs served by 9 lifts according to a report in International Ropeway Review magazine.

Greenland currently has a few small ski hills with simple lifts used primarily by locals. Disko Island has a population of just over 1'000 who mostly live by fishing with some limited summer tourism. So developing a commercial ski area would be quite a major development for the island. Heli-skiing, summer skiing, ski touring and year round cross country skiing are among the possible options the centre could offer visitors.

Source: Snowhunter



Finland



Despite the coastal plains and the flat terrain of Southeast Finland, the country's high point is Mount Halti, 1'328 metres above sea level, located in the mountainous region along the Finnish-Norwegian border. Even with few mountains, Finland has about 80 ski areas in the North and Lapland (22), the South (26) and in the middle of the country (28).

The longest ski trail is in Lapland (over 3'000 metres long) but the average length of a ski run in Finland is between 600 and 800 metres. Finnish lift passes are among the cheapest in Western Europe.

Skiing has been in Scandinavia for several thousand years and it is said that the Vikings already used skis as a means of transportation. If the existence of skiing is very old, its practice as a sport is more recent. It was developed after 1850, when the first races were held (mainly in Norway), and the Finnish Ski Federation was founded in 1908.



Ski season in Finland can last substantially longer than in the alpine countries, with some resorts opening already mid of October and operating until mid May²⁶.

²⁶ Ski resort of Ruka opened the 2016/17 season on October 10th, using 30'000 cubic meters of snow from former season that had been piled into 3 huge mounds. Winter 2017/18 already began on October 6th, using the same technique.

The progression of skier visits in Finland is quite low. With ups and downs, the long range trend seemed however to be improving over the years through winter 2013/14, where attendance was down 15% and remained so for the consecutive seasons. Winter 2016/17 saw however a 6% increase over the former one.

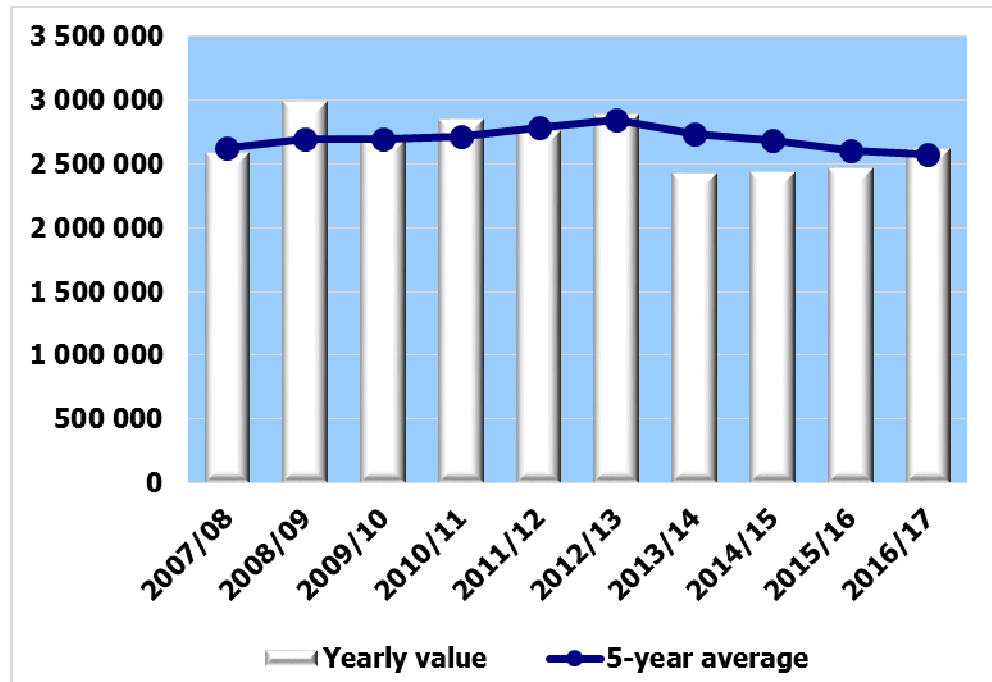


Figure 18: Finland, evolution of skier visits

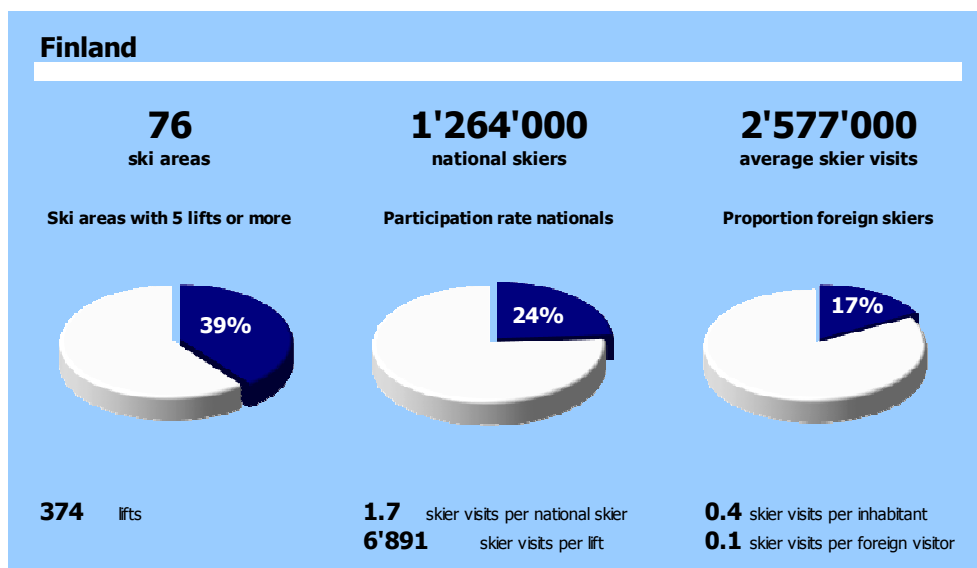
The biggest resorts are located northern of the country and offer unique combination of alpine skiing or snowboarding and true winter wonderland (arctic circles, reindeers, northern lights, Santa Claus, pure nature and clean air ...). Finnish Lapland has recently attracted a number of new routes with direct scheduled flights from United Kingdom, Germany, France and Switzerland.

The main ski resorts in Finland are Levi, Ruka and Ylläs. They primarily target families, recreational skiers and people attracted to the many adventure activities they offer (excursions, etc.). Levi is the fastest growing ski resort in Finland. It is located in the northern part of the country, has 2 cable cars, 1 chairlift and 25 surface lifts with a total capacity of 27'900 people per hour. Levi offers 230 kilometres of runs and 10% of them are lit for night skiing. From time to time the resort hosts Alpine Ski World Cup races.

The Ylläs ski area consists of seven peaks and two original Lapp villages. At 718 metres above sea level, Mount Ylläs itself is one of the highest peaks in Finnish Lapland. The Ylläs ski resort features 29 ski lifts, 61 trails, a Super-G-slope and the longest run in Finland (3.5 kilometres).

The northernmost ski area of Finland is Saariselkä²⁷. The resort features 6 lifts and 15 slopes, 7 of which are illuminated. Vertical drop is 180 meters.

There is also a great network of local ski areas around Finland. Local ski areas are very popular not only for kids and beginners but especially for expert freestyle skiers and snowboarders. In such small resorts with snow-parks and efficient lifts, it is possible to enjoy very good training conditions.



²⁷ The resort even claim to be the northernmost resort in Europe. However, there are a few ski lifts in Tromsø, Norway, that are more north than Saariselkä.



Germany



There are over 500 ski areas in Germany to satisfy the largest population of skiers in Europe: more than 12 million. However, nearly half of these areas only have one lift. The country's main resorts are located along the southern border of the Black Forest and in the Bavarian Alps, which border Switzerland and Austria. The German Alps, the Harz Mountains, Black Forest, Bavarian Forest, and the Thuringian Forest are middle altitude mountains, rising as high as 1'500 metres above sea level. Ski areas often sit at altitudes lower than

Austrian or Swiss resorts, and skier visit figures have shown high sensitivity to snow conditions in the past. They have therefore heavily invested in snowmaking systems. It may be too early to conclude whether this infrastructure will be able to definitively mitigate the meteorological risks, but visitor figures have remained very steady over the last decade, beside an exceptional season in 2012/13. The long term trend appears to be flat.

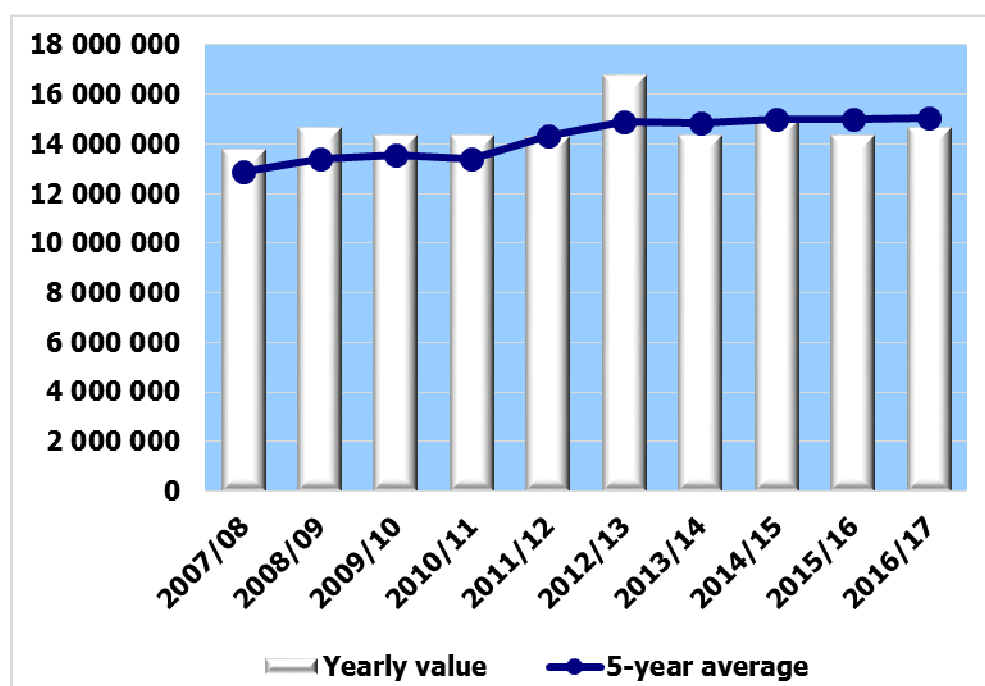
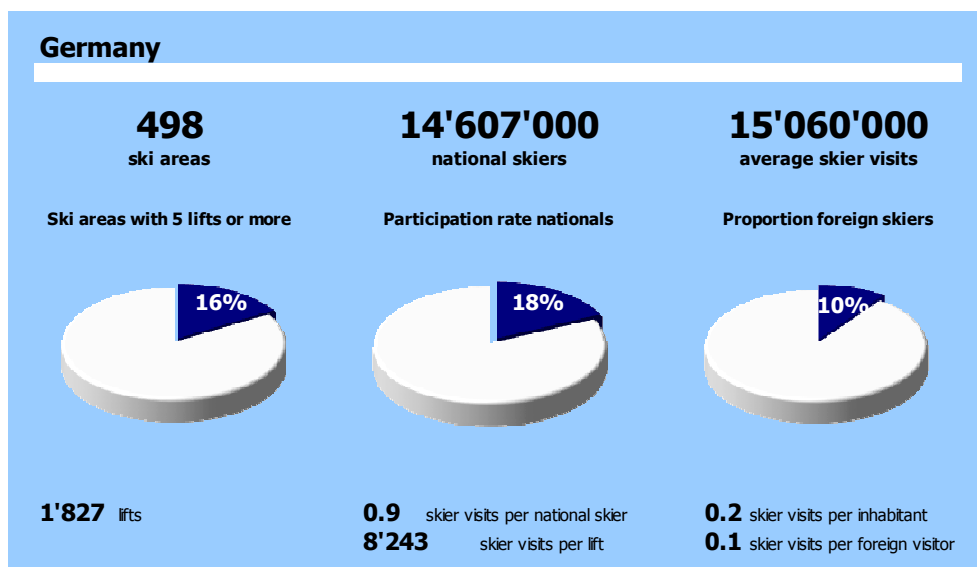


Figure 19: Germany, evolution of skier visits

The major catchment areas for German skiers are Munich, Stuttgart and regions further north. However, the Germans are big consumers of skiing abroad, and represent, for example, the largest foreign customer base for Austrian resorts.

Garmisch-Partenkirchen is the undisputed German winter sports capital. Renowned for its traditional New Year's ski jumping competition and for being an Olympic city, Garmisch today is a cosmopolitan place. Its ski area extends to the Austrian border, and includes over 60 kilometres of trails. The Zugspitze is the highest ski lift in Germany, topping out at 2'830 metres. Skiing in Germany is not limited to Garmisch. In Western Länder, there are ski areas such as Oberstdorf, Balderschwang and Oberammergau in the Bavarian Alps, or Reit im Winkl, Oberaudorf and Berchtesgaden in the East.





Iceland



In spite of the country's name, it may often be warmer at ski resorts in Iceland than at many ski areas in Europe or North America. However, the snow conditions are in general cold and firm instead of powdery. Most of the Icelandic mountains are no higher than 1'500 metres above sea level. The ski areas may therefore lack the vertical drop needed for experienced skiers. Several ski areas are located near urban centres, including the capital, Reykjavik. The main areas are equipped for night skiing, which is absolutely necessary given the very short

winter days. They usually offer a reasonable variety of runs. Many also offer cross-country ski trails, skating rinks and the possibility of renting snowmobiles.

The 2 best known resorts are Bláfjöll, 30 minutes away from the capital, and Akureyri, on Mount Hlíðarfjall. Bláfjöll is the largest in the country with 11 lifts (2 chairlifts and 9 surface lifts) and a total hourly capacity of over 8'000 people. Opened in 1982, it has 16 runs for all levels, but only a small portion is for advanced skiers. The area ranges between 480 and 700 metres altitude, offering limited vertical drop. Glacier skiing is possible during the summer. Accommodations are limited, with only 100 beds available for visitors in homes belonging to three ski clubs. One daily lift pass costs less than EUR 20. However, life in Iceland is pretty expensive for the extras.

Akureyri is the most popular and most comprehensive ski destination in the country. It is equipped with 7 lifts, including a chairlift and a moving carpet, and features a wide variety of downhill ski runs from the summit. There are 24 runs that cater primarily to beginner and intermediate skiers. With an altitude ranging between 500 and 950 metres above sea level, the area is equipped with a snowmaking system. In addition to skiing and a skating rink, visitors can also enjoy the snowpark, a swimming pool heated by geothermal activity and a fitness centre. Accommodations at the ski area only amount to 100 beds, but other options are available in the town of Akureyri, 7 kilometres from the resort. The daily lifts pass costs around EUR 20.

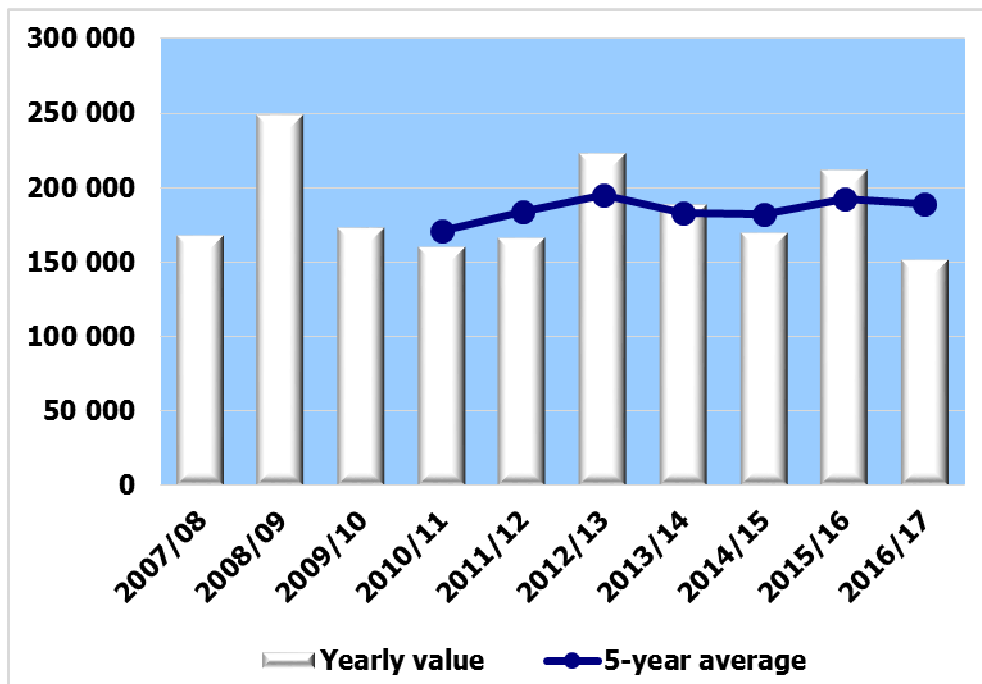
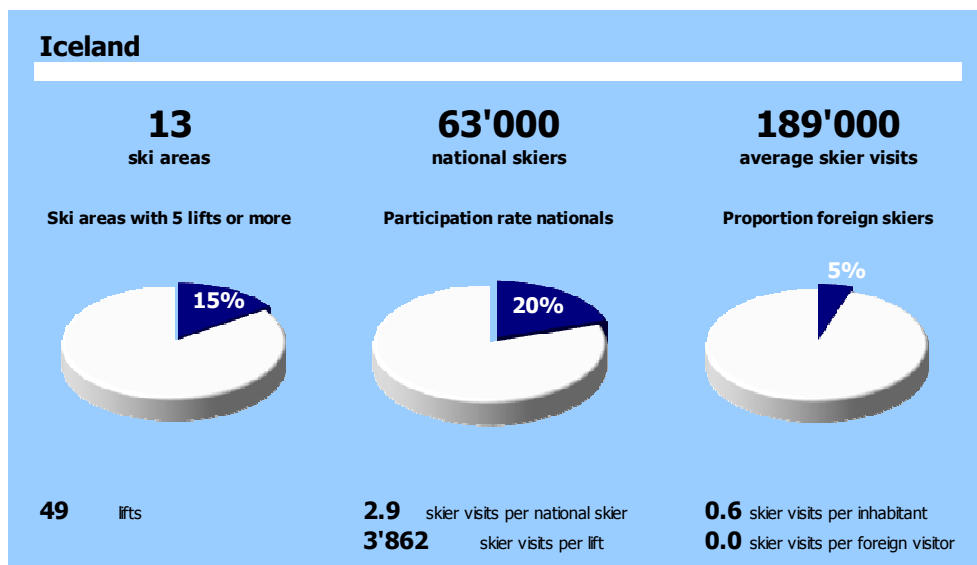


Figure 20: Iceland, evolution of skier visits





Norway



Most of the country is dominated by mountainous regions or high terrain, with 26 peaks higher than 2'300 metres above sea level. The highest summit tops out at 2'469 metres.

Skiing has been an activity in Norway for over 4'000 years and modern skiing was invented here. Initially, skis were solely a means of transportation, but skiing soon became a recreational activity. Morgedal, the birthplace of Sondre Norheim, the skiing pioneer and inventor of the telemark technique, is considered to be the cradle of skiing and was chosen three times to light the Olympic torch for the Winter Games. Norway has more than 200 ski resorts and over 650 ski lifts. Skier visits appeared to grow for several years in a row through the 2008/09 winter. Following a few lower seasons, attendance was once again on the rise for the 3 last years. With 7.5 million skier visits, 2016/17 is a record breaker.

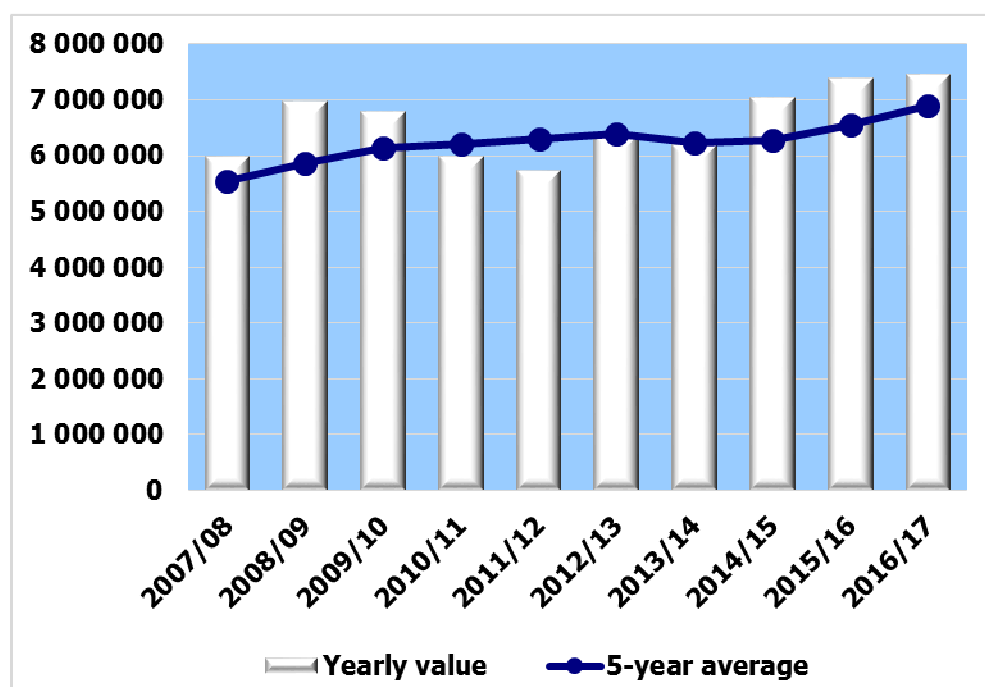
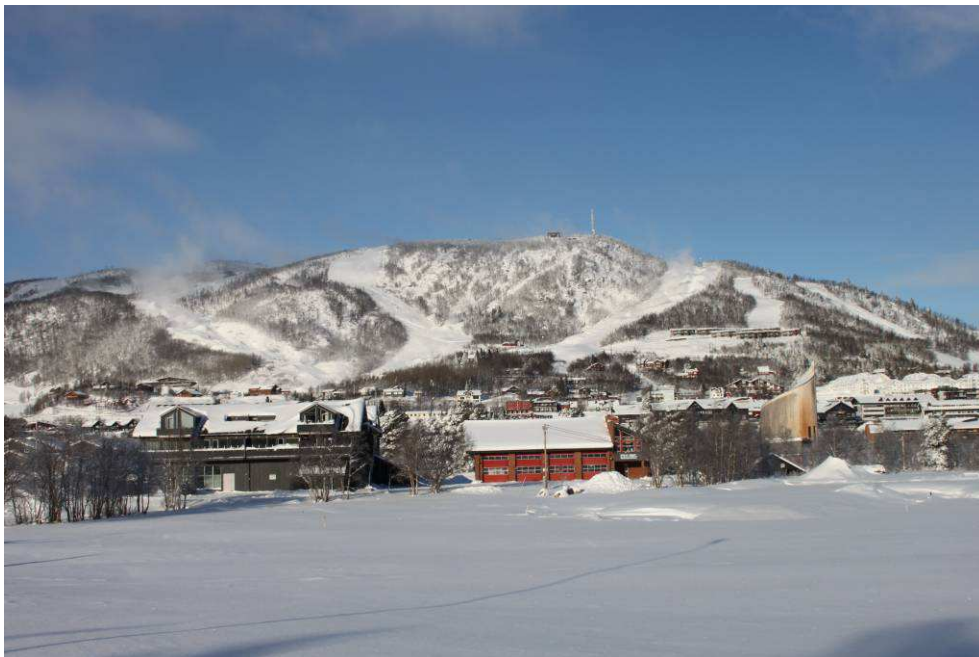


Figure 21: Norway, evolution of skier visits

Norway is an ideal holiday destination for families, thanks to excellent childcare facilities. Children under the age of seven can ski for free, provided they are wearing a helmet. The ski season begins very early and lasts from November until Easter. Norwegian ski resorts benefit from good snow conditions and are not as overrun as elsewhere, so that ski lift lines are rare. The two largest ski resorts – Trysil and Hemsedal – even offer their guests a snow guarantee: if the guaranteed ski trails are not open for an extended period of time, the resort refunds their guests the money for their hotel, ski school, ski rentals and lift pass.

In the far North, there are no major resorts, but there is a wide variety of ski areas with cosy holiday cottages that are often rented out by private owners. Many holiday homes and hotels are very close to the ski lifts. Norway also offers several snowboard parks and over 30'000 kilometres of cross country skiing trails. 2'500 kilometres of tracks are lit, as night falls very early in Norway.

Geilo is the oldest ski resort of Norway and has since become a modern resort with good infrastructure, excellent ski runs, snowboard parks, mountain restaurants, hotels and spas. Spread on several areas, it has 4 chairlifts and 13 surface lifts with a total capacity of 22'000 people per hour, all located between 800 and 1'178 metres above sea level.

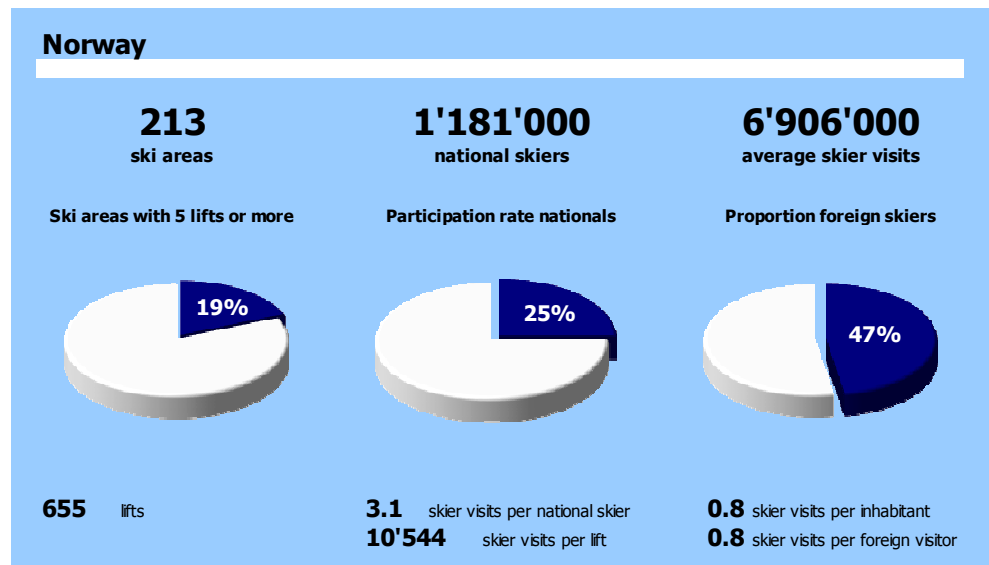


Hafjell is the third largest alpine ski area in Norway, 2 hours drive north from Oslo, well-known thanks to the 1994 Lillehammer Olympic Winter Games. With 835 meters vertical drop, it has 1 gondola, 3 chairlifts, 11 surface lifts, 44 kilometres of well-maintained ski runs and 300 kilometres of groomed cross country skiing trails. Hafjell is a very modern and sunny ski resort. Snowmaking facilities cover 87% of the skiable area.

Hemsedal, in the Scandinavian Mountains, is a 3 hour drive from Oslo (230 kilometres). The summit of the resort culminates at 1'450 metres above

sea level, offering 830 meters vertical drop. Hemsedal features 49 downhill runs for a total of 46 kilometres of skiing, 6 chairlifts, 12 surface lifts, with total capacity of 28'500 skiers per hour. Accommodations offer 4'800 commercial beds. There are two mogul runs and two runs are lit for night skiing.

Despite the title of northernmost ski area is heavily disputed between the 3 Scandinavian countries, it falls to Tromsø, featuring 4 kilometres of slopes and 2 T-bar lifts.





Portugal



Although Portugal is among the countries most famous for their beaches, the northern half of the country is mountainous and marked with valleys, highlands and cold winters. Ponta de Pico, the highest point of Portugal (2'351 metres above sea level) is located in the Azores Islands.

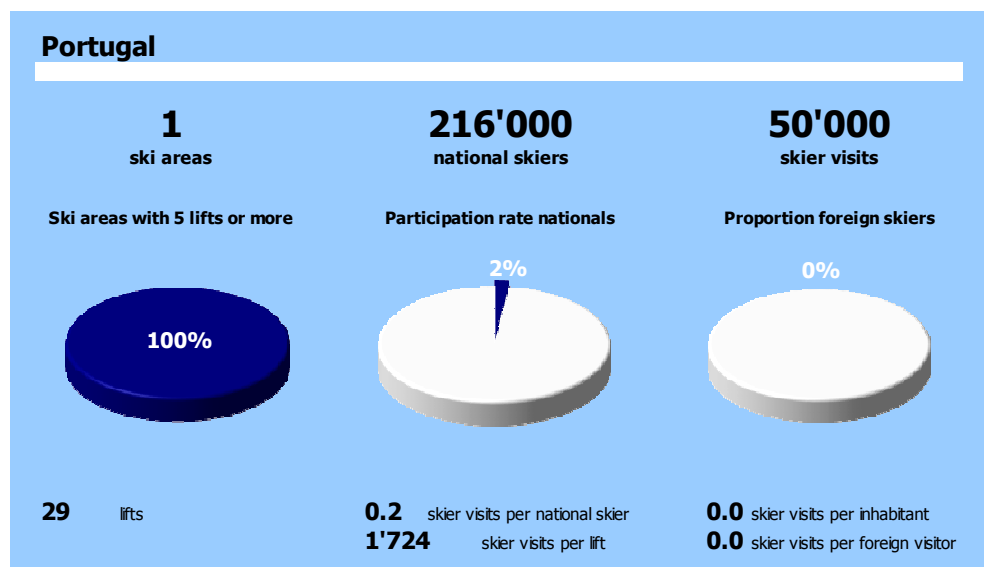
The continental Portuguese mountains culminate with Serra da Estrala, a little less than 2'000 metres high. Cold weather and natural snowfall in winter enables skiing, and the country's only ski area was developed there as early as the 1950s. The ski area offers a vertical drop of 134 metres, between 1'851 and 1'985 metres above sea level. There is 1 chair-lift and 2 surface lifts, together with 2 other beginner lifts. Snowmaking facilities have also been built to secure good skiing conditions.

The resort features 2 hotels and other accommodations, ski rentals, snowmobile tours and other various leisure activities.

The neighbouring village of Manteigas also offers the possibility for year-round skiing on its 400-metre long synthetic slope, equipped with a ski lift and lights for night-skiing.



Skiing facilities in Portugal are beginner oriented. More experienced Portuguese skiers travel abroad in the Spanish and Andorran ski resorts, or further to the Alps. The resort of Sierra Nevada, for instance, hosts a large number of Portuguese skiers every winter.





Spain



Despite the image of beaches commonly associated with Spain, the country ranks well among the mountainous regions of Europe (with a mean altitude of 650 metres above sea level, the country is even the fifth most mountainous in Europe). It has a centuries-old tradition of skiing, with 32 ski resorts located throughout various parts of the country. Spaniards, like many Europeans, love winter sports. Families go skiing or snowboarding on weekends and many people own second homes in the Pyrenees. Even former King Juan Carlos used to

spend several days a year in the spotlight at ski resorts. In most resorts, 90% or more of skier visits consists of domestic skiers. One peculiarity of the ski season in Spain, when compared to other European countries, is that it usually starts at the beginning of December due to certain public holidays. Attendance is therefore fairly well balanced over the 4 full months of the season: December to March. In April attendance is low, as ski resorts start competing with the beaches.



With the exception of those seasons that experienced bad snow and weather conditions, skier visits at Spanish ski resorts grew slightly during the first few seasons of the new millennium, before declining and flattening out in recent years, following the record 2008/09 winter. Since, the attend-

ance seems to have stabilised already for 5 consecutive years at an average around the 5 million mark. The country's difficult economic situation may delay recovery. Resorts may have to wait a bit longer to benefit from their expanded infrastructure. For instance, the number of lifts grew from 228 in 2003 to over 380 today.

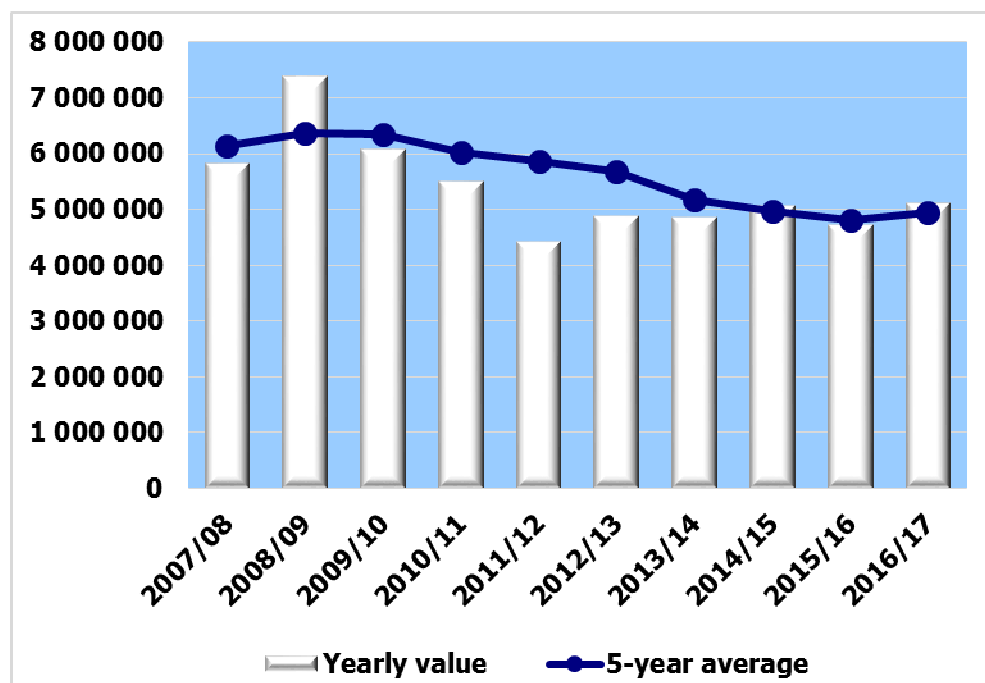


Figure 22: Spain, evolution of skier visits

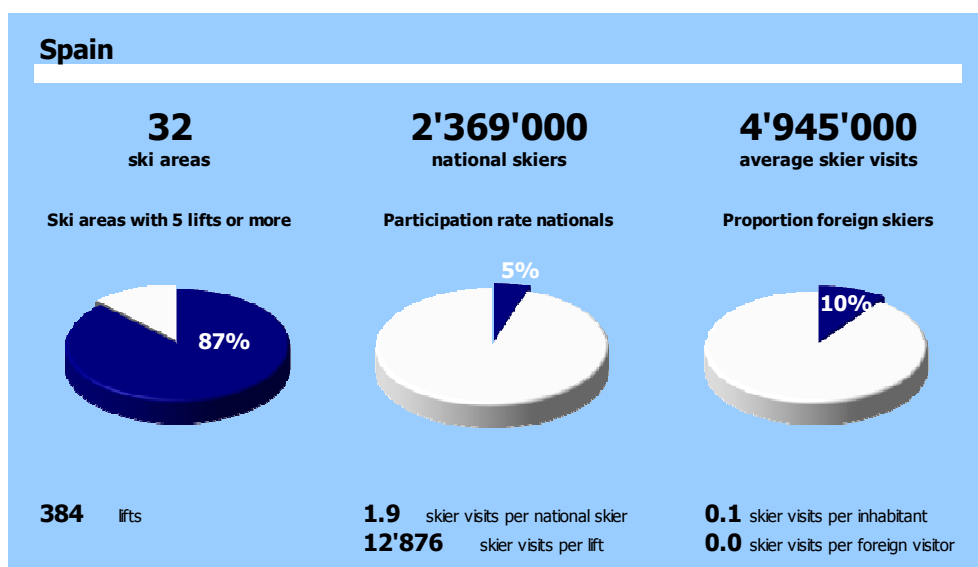
The ski areas in Spain are well equipped and suitable for skiers of all levels. The on-mountain facilities are continuously being improved upon: trails, infrastructure, machinery, access, accommodations and services. Snow-making systems at many resorts cover more than 50% of the trails. Annual investments, totalling millions of euros at the beginning of the 2000s, have contributed to bringing the resorts up to international standards, in an on-going effort to respect the environment and natural sites. Some areas have been certified by the *Q trademark* for Spanish Tourism Quality. This label is granted to establishments which meet the quality standards required.

Snow conditions are usually good; daylight hours are longer in the winter than in the Alps. In addition, resorts offer a wide range of complementary activities to visitors.

In the North, the Pyrenees form a natural barrier between France and Spain and have offered favourable conditions for building multiple ski resorts. Among the famous ones of the region, Baqueria Beret is located in the Aran Valley. It was founded in 1964 and is today one of the largest in Spain, featuring 78 slopes totalling 153 kilometres and 25 lifts. It offers a vertical drop exceeding 1'000 meters. Formigal resort is another internationally renowned resort in the Pyrenees.

Apart from the Pyrenees, which represent the most extensive ski region of Spain, the centre of the country, the Cordillera Central, has 4 ski resorts located essentially on the outskirts of Madrid, Salamanca and Segovia.

Last but not least is Andalusia. It is home to the most attended resort in Spain, Sierra Nevada, which sees on average 800'000 skiers visits per winter. Located in the second highest mountain chain in Europe, it is the southernmost resort in continental Europe, with 14 peaks over 3'000 metres high. Skiing at an altitude of 3'400 metres an hour's drive from the Mediterranean Sea offers an exotic experience, as there are very few places where you can swim or surf in the sea in the morning and ski or snowboard in the afternoon. With over 105 kilometres of ski runs, 18 lifts and snow coverage about 5 months per year, Sierra Nevada offers all winter sports, for beginners and experts alike. It is also possible to ski at night during on certain weekends or during holiday periods. The resort has many bars, restaurants, and discotheques for evening entertainment.





Sweden



The Scandinavian Mountain Range runs along the border with Norway, from the North Sea to the North Cape, on 1'700 kilometres. It reaches 2'104 meters above sea level at its highest point in Sweden, Mount Kebnekaise (the highest summit of the range is located in Norway).

The Swedish winter is long, with a lot of snowfall. In the North the season lasts until May. Sweden is a sought-after winter sports destination as snow is practically guaranteed. In addition, cross country skiing is very popular and the beautiful landscapes, lakes and forests offer a breathtaking panorama for skiing and relaxing.

Downhill skiing has already more than 70 years history in Sweden, with the first lift installed in 1940 in Åre. About 20 ski areas were developed in the 1950s, but the big boom of the industry happened in the 1960s. Today, Sweden has over 200 ski areas with a total of more than 800 ski lifts. They are spread throughout all the

country, even if the largest resorts are located in the middle section of the country, in the Scandinavian Mountains, close to the Norwegian border.



New investments have been made, with extension of hotel and lodging capacities in several resorts and renewal of lifts over the last years. Attendance has been growing for 3 winters in a row at Swedish resorts, pushing the long range trend towards the rise after having shown for a long time a very flat evolution.

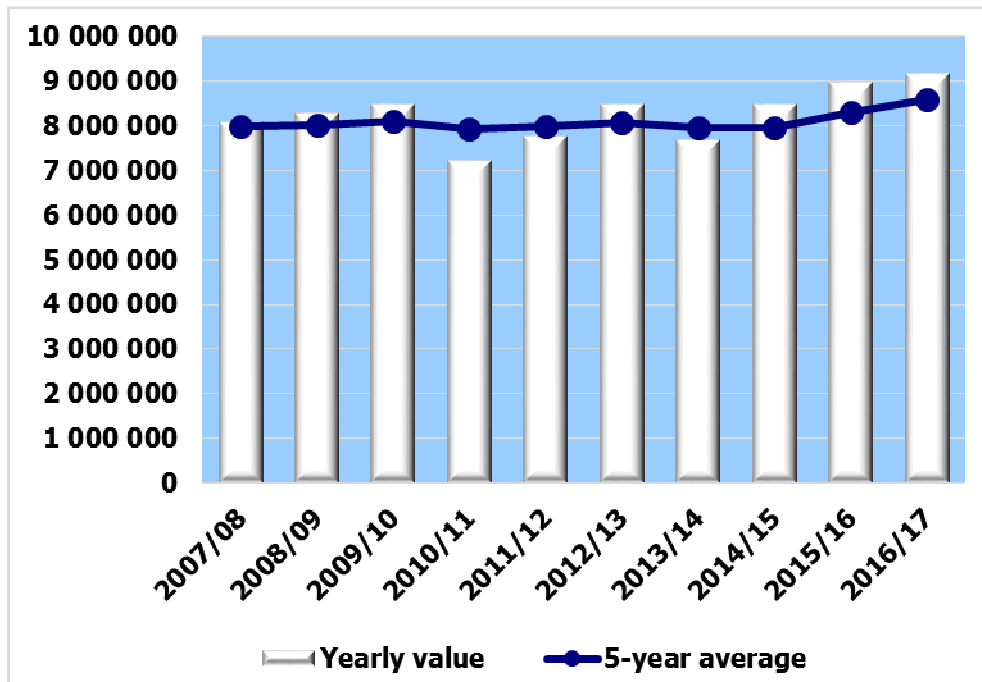


Figure 23: Sweden, evolution of skier visits

Climate change, and its consequences for countries in the European Alps, is considered to be an advantage for Sweden, as ski tourism may shift to the colder northern Scandinavian countries.

The largest ski destination of the country is Sälen, situated in the northwest of the province of Dalarna, approximately 420 km from Stockholm. It consists in fact in four mountains interconnected into two large skiing areas – Lindvallen/Högfället and Tandådalen/Hundfället. Sälen offers more than 100 trails and 87 lifts, totalling a capacity of 87'600 skiers/hour. Accommodations feature 13'900 commercial beds.

The second largest ski destination in Sweden is Åre. It is situated 650 kilometres northwest of Stockholm and consists of three ski areas: Åre Björnen, interconnected with Åre By and the single area of Duved. Each one has its own profile and target group. Åre has 42 ski lifts, 89 ski runs and 5'800 commercial beds. Åre is the most internationally visited resort in Sweden.

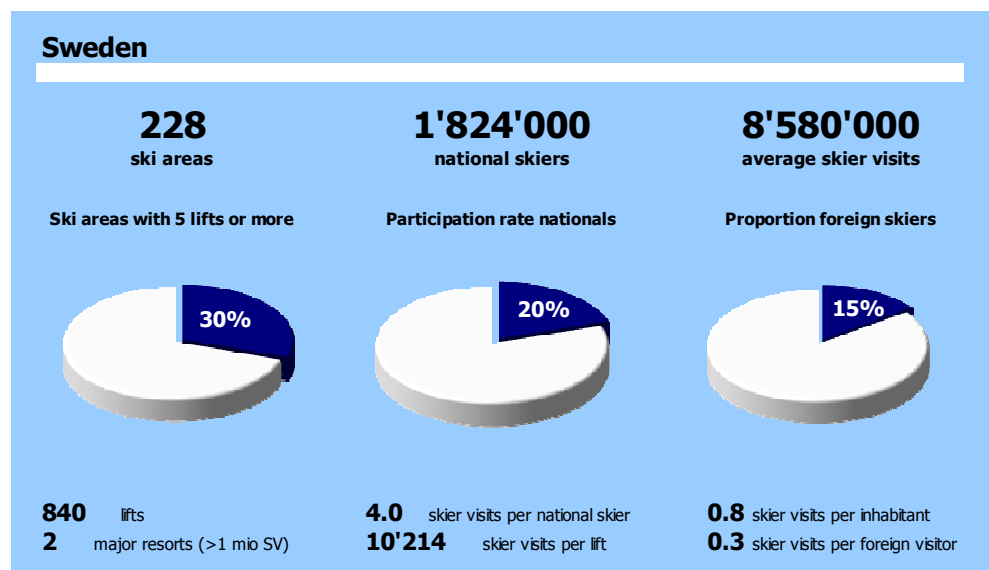
Vemdalen is the third largest ski destination in Sweden. It lies approximately 480 kilometres northwest of Stockholm, and consists of 3 areas: Björn-

rike, Vemdalskalet and Klövsjö/Storhogna. They total 35 lifts and 58 slopes.

All 3 major ski destinations are operated by SkiStar, the largest Scandinavian ski resort company.

Located in Swedish Lapland, 200 kilometres north of Polar Circle, Ski area of Riksgfänsen is the northernmost ski resort of the country. With its 6 ski lifts and 15 ski runs, it is famous for skiing under the midnight sun and for high-speed snowboarding. Slopes are elevated between 522 and 909 meters above sea level.

In order to improve accessibility of Swedish ski resorts, Scandinavian Mountains Airport will open in 2019. It received the green light from the EU Commission and an investment grant of SEK 250 million from the Swedish Government. It will be located in Dalarna, close to the Norwegian border. From there, it will be easy to reach Sälen, Idre, Trysil and Engerdal ski resorts (2 later are located in Norway). The airport is being constructed on the site of an existing small airfield. Construction work started in 2017.





United Kingdom



Although many English people are fans of skiing, there are only 5 ski resorts with natural snow in the United Kingdom, located in Scotland, plus a few ski areas managed by ski clubs in Northern England and Wales. However, the country does have roughly 50 to 60 dry slopes, where skiers can slide down slopes covered with synthetic material²⁸. Furthermore, there are 6 indoor snow centres, where skiers can enjoy manmade snow at any time of the year.

Skiing has a long history in Scotland, with resorts such as Glencoe and Glenshee built in the early 1930s. Although at that time they were already equipped with a small engine-powered tow, the first permanent lifts were installed in the 1950s. Skiing took off in the 1960s with several developments that proved unsustainable, especially due to the unreliable snow conditions. After Lecht opened in the 1970s and Nevis Range in the 1980s, with the first modern gondola in the United Kingdom,

Scotland currently has 5 ski areas in operation.



The Scottish resorts reach a total yearly average of 200'000 skier visits, but attendance is highly sensitive to weather and snow conditions and can double from one season to another. The Scottish ski season usually starts at Christmas, but ski lifts sometimes open in October. The end of the sea-

²⁸ There were over 200 dry slopes in the 1970/80's, but most have closed.

son may also be extended. One of the record seasons, the 2009/10 winter, lasted through May and even June at some resorts. Winter 2016/17 was very bad with very low snow. Many snowfalls were quickly followed by mild weather, making it difficult to maintain slopes. The snow kept melting before a base could be established. On top of these adverse conditions, there was no snow in the Central Belt or by the coast, so customers thought there was no snow anywhere – the *no snow in the backyard* issue. Attendance was thus at its lowest over the last 10 years.

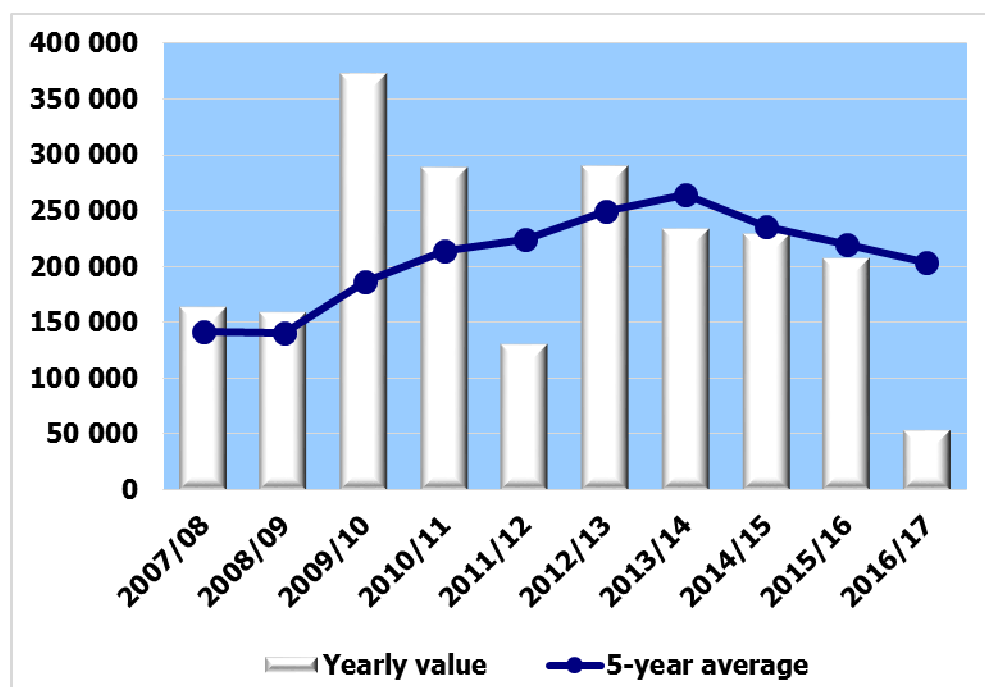
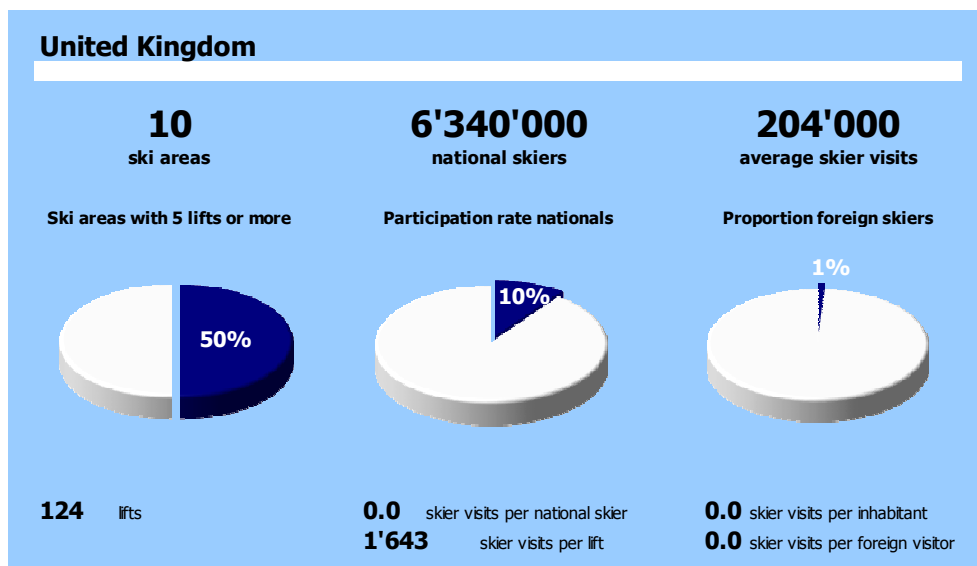


Figure 24: United Kingdom, evolution of skier visits

With its 19 surface lifts and 3 chairlifts, the resort of Glenshee offers the country's most extensive skiing and snowboarding facilities. Culminating at 1'108 metres above sea level, with a base elevation of 305 metres, Glencoe Mountain resort has the highest vertical drop and also offers the longest and steepest runs in Scotland. While Cairngorm offers the only Scottish funicular railway, Nevis Range features the only gondola lift. Both also operate during the summer months.

The indoor slopes are working hard to attract new people to snowsports, which is a benefit for the industry. One indoor ski centre offers a *Learn to Ski in a Day* program, which is very attractive for first time skiers and snowboarders. The artificial ski slopes are also good opportunities to enable novices to learn and become familiar with skiing. The national snowsports governing body is working to introduce snowsports to people who have never skied or snowboarded before. Some private clubs even have their own artificial slope.

In the 1980s and 1990s, skier visit figures in the United Kingdom were higher than they are today. But with improving roads and air connection to Europe, together with the introduction of low-cost airlines, most of the UK ski business is currently abroad. Every year there are more than one million skiers who travel to the Alps or other destinations for winter sports²⁹. Even if it lost some of its market share, France is still the most popular country among British skiers, accounting for more than one third of travellers. Austria is ranked second, capturing about 25% of the British skier market. Next is Italy (about 14%), then Andorra (about 6%), which is on a par with Switzerland (also about 6%), North America (less than 5%) and Bulgaria (about 4%). British skiers used to travel primarily through tour operators (with several major firms specialized in winter ski travel) but now increasingly arrange their own travel and book their own accommodations, or even stay in properties either they or their friends own. For the 2012/13 season, 54% of British skiers claimed that they booked their trip independently. Market analysis picked up a slight upturn in outbound traveller numbers.



²⁹ A recent survey commissioned by Ski Weekends concludes that 1.5 million UK skiers are going skiing at least once a year.

Eastern Europe and Central Asia

Eastern Europe and Central Asia have been grouped as a single region in this report, since of the concerned countries are currently in the processes of developing their ski industry. Even if skiing is nothing new for most of these countries, the ski areas in many places have only recently been developed into resorts and marketed internationally. Part of the growth potential for the industry will come from this region, whose evolution is interesting to follow from an aggregate perspective. With more than 400 million inhabitants, the population of this vast region is even with the Alps and Western Europe together, but skis 3 times less³⁰. Thus, the number of participants is still much lower, but will no doubt grow in the near future. The region already has more than 1'100 ski areas, which is comparable to the Alps or Western Europe.



³⁰ Based on the penetration rate of skiing – which is roughly 4% in the region compared to a consolidated 12% for Western Europe including the Alps.

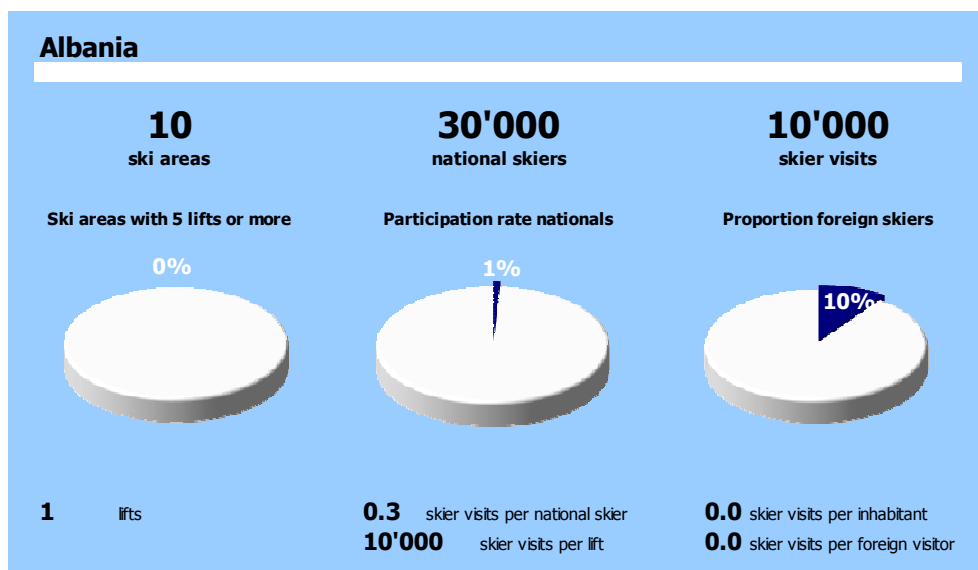


Albania



Albania is a mountainous country, with about 70% of its surface area covered by mountains and hilly terrains. The country's high point is Mount Korab, 2'764 metres above sea level. The mountains in the North are a continuation of the Dinaric Alps and the Montenegrin limestone plateau. The mountain range along the eastern border is the highest zone. The terrain is difficult to access, folded and rugged, with deep valleys and few roads (often unpaved). The non-coastal part on the country has a continental climate with

lots of precipitation in the highlands, especially in winter. From North to South, the inland part of the country can offer the right conditions for skiing, including powder snow.



However, and in spite of this attribute, the country is not well-known as a ski destination. There are a limited number of unequipped areas to ski and the first surface lift was only first installed in 2012. The areas that offer skiing are not resorts, but villages in the mountains where one can go skiing, similar to the Alps one century ago. Albanian ski enthusiasts are few in numbers, and for years the local situation did not really favour the development of this activity, even if it was not an unknown pastime. If they want to ski, Albanians would prefer to travel to the neighbouring countries, which are better equipped. Backcountry skiing in the mountains is mostly enjoyed by foreigners.

The ski area of Bigell, near Dardhe, is at present time the only area equipped with a surface lift.



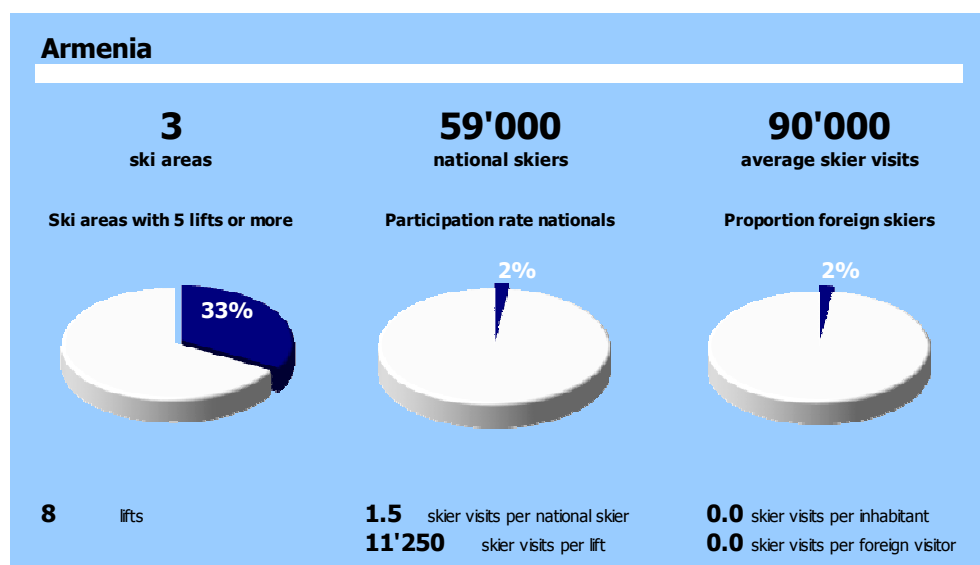
Armenia



Half of Armenia is covered by mountains. The largest part of the country is at an altitude of more than 1'000 metres above sea level. Winters are cold, and offer ideal snow conditions for winter sports.

Yet, the country has only one ski resort equipped with more than 4 lifts, Tsakhkadzor, located 55 kilometres from the capital, Yerevan. Once upon a time it was the training grounds for the Soviet Olympic team. The first lift system was installed in 1972, turning the city into a ski resort.

A ski teaching centre was founded there in 1986, training athletes, including some who participated in the Olympic Games. The ski area is located between 1'966 and 2'819 metres elevation, East of Mount Teghenis. In 2005, the Government started a special program to develop Tsakhkadzor into an international tourist destination. Since then, the site has expanded quickly and every year features new hotels and recreational facilities. New lifts, built to international standards, were installed between 2004 and 2008. Among them a three-stage chairlift, offering new runs and growing the popularity of Tsakhkadzor as a genuine ski resort. The total hourly capacity of the lifts is 4'400 skiers. The ski area extends for over 30 square kilometres and includes 10 runs, for a vertical drop of 853 metres. Most runs will suit beginners, and the ski area offers excellent off-piste conditions. 5 groomers are planned to maintain runs. The season runs from late December to late March. An all-day lift pass costs about EUR 20. In 2002, improvements to the highway leading to the resort were made to meet with international standards and to improve safety. In addition to being a ski area, the city of Tsakhkadzor is also a spa centre.



There are 2 other ski areas in the country, each one with only one ski lift: Akhtamar ski centre, next to the Sevan Lake, is equipped with a quad chairlift, and Jermuk has a double chairlift.





Azerbaijan



About half of the country is flat, with some lowlands situated below sea level (the Caspian Sea is located 28 metres below sea level), and the other half is considered to be mountainous terrain. Except for its eastern Caspian shoreline, Azerbaijan is surrounded by mountains. To the North, part of the Great Caucasus Mountains crosses its territory, offering peaks rising up to 4'485 metres above sea level (Bazarduzu Dagi) along the Russian border. To the West, the Lesser Caucasus Mountains are located on the Armenian Border, and

top out at 3'500 metres, together with the Karabakh Mountains and volcanic highlands. South, along the Iranian border, the Talish Mountains rise to 2'477 metres above sea level.

Ski resorts are something new in Azerbaijan. There are presently only 2 that were recently built.



Shahdag, named after a nearby 4'243 metre peak, is currently the largest ski area in the country. Construction started in 2009. The resort is located in a large national park and will offer year round mountain activities and a complete range of accommodations, from luxury hotels, individual chalets and cottages, to camping (in the summer). The budget for the 10-year development plan for this world-class complex has been said to be over EUR 2 billion. In winter, it will offer 19 ski runs and the same number of lifts, as well as snowmaking. The base of the ski area is located at an altitude of 1'435 metres, and the village area at 1'650 metres. Lifts will rise to a maximum

elevation of 2'525 metres. For the 2016/17 ski season, 7 lifts and 4 magic carpets were in operation, serving 17 kilometres of trails. 160 snow cannons ensure coverage of 100% of the resort's skiable area. 5 hotels and 20 restaurants and bars are ready to welcome customers. The ski resort is located 200 kilometres from the capital city of Baku, and its airport is a 4-hour drive away.

About 40 kilometres away, Quebele Mountain Resort is also still being built. A gondola and a mixed lift (8-person gondola – 6-person chairs) were installed in 2012. Two other lifts of this kind were installed the next year.

The resorts expect to host mostly foreign customers from neighbouring Russia, Iran and Turkey, plus guests coming from countries further away, such as China, India and Arab countries.

Azerbaijan





Belarus



With an average altitude of 162 metres above sea level, Belarus is a country covered with plains and forests. Its highest point, Dzyarzhynskaya Hara, is only 346 metres above sea level and is located near the capital city of Minsk. It is part of a range of low-lying mountains called the Byelaruskaya Hrada (Belarus Range). The northern part of the country offers landscapes with several lakes, hills and gentle slopes. Nearly one third of the southern part of the country is covered in swamp-lands. Winters are mild to cold with an average January temperature ranging between minus 4 and minus 8 degrees Celsius. It snows during the 105 to 145 day winter season, offering the chance to enjoy powder.

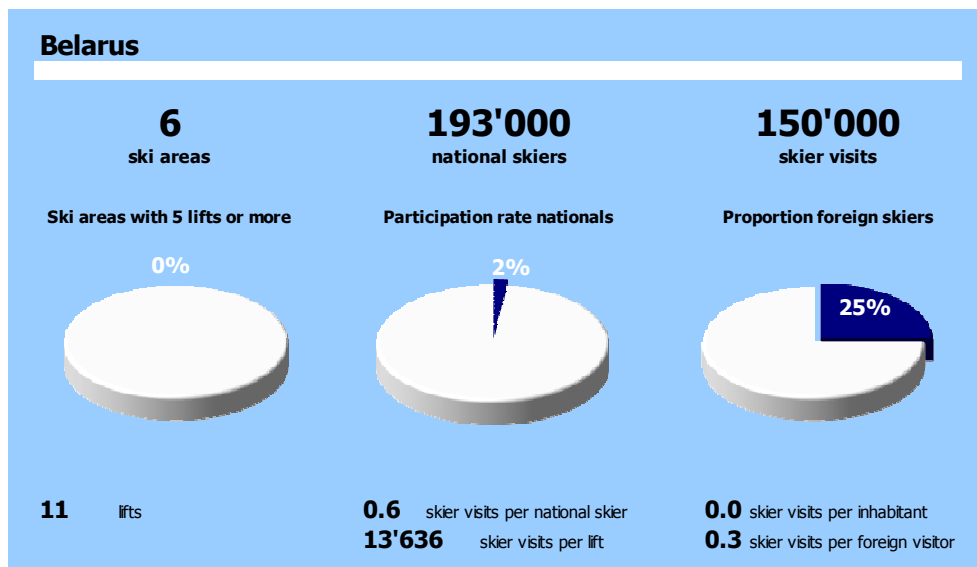
Despite the lack of real mountains, alpine skiing started in the 1950s in Belarus, on hills near the city of Minsk. In 1964, the Raubichi ski training centre was built, an initiative of the Belarus Federation of Alpine Skiing and Ski Jumping, and the first championship was held in 1965. Nowadays, downhill skiing has become increasingly popular on the higher hills and steep ravines. In the 2000s, several 4-season recreational areas opened and offer skiing and snowboarding in winter. Alpine skiing facilities are found in Minsk, Minsk Oblast, Gomel Oblast and Vitebsk Oblast. They attract domestic skiers, together with ski aficionados from Lithuania, Latvia and Russia.

The 2 major most recently built ski areas are Logoisk National Ski Centre and the Silichi recreational centre. Both are located in the Minsk region.

Logoisk was the first centre of its kind to be built in Belarus. With a vertical drop of 82 metres, it features a fixed-grip quad chairlift and one surface lift, 8 trails totalling 3.6 kilometres, equipment rentals, night skiing, a ski school, a 50 bed hotel and restaurants.

Silichi centre opened in 2005 as a 4-season recreational area. For snow sports, it offers 2 fixed-grip chairlifts (1 double, 1 quad) and a beginner rope tow, 4 trails totalling 2.8 kilometres, snowmaking facilities, night skiing, a half pipe, ski school, snow-tubing, an ice skating rink (which is used in the summer for indoor sports), snowmobiles, a 104 bed hotel, 12 dachas (wooden cottages), restaurants and cafés. In order to increase the vertical drop and offer a steeper slope, the builders artificially raised the hill an additional 24 metres, for 100 metres of vertical drop. The centre receives more than 100'000 yearly visitors, and skiers can train all year round thanks to a skiing simulator.

In 2009, the Sunny Valley ski area was built within the city of Minsk, offering 2 ski lifts, equipment rentals and night skiing for its citizens, without having to leave the town.





Bosnia & Herzegovina



Bosnia & Herzegovina is a mostly forested and mountainous country; the Dinaric Alps run from the North-East to the South of the country with numerous valleys and peaks. The highest summits rise up to 2'386 metres above sea level near the border with Montenegro (Peak Maglic).

In 1984, Sarajevo was the host city for the Winter Olympic Games, evidence of the long history of skiing in Bosnia and Herzegovina. However, the war in 1992 left scars still visible at ski areas today. It is only

recently that the major ski areas have started to modernise, either by building new ski lifts or renovating old ones, as well as building new accommodations. Thanks to these infrastructure improvements, skier visits have increased in recent years, and with it the hope that Bosnia & Herzegovina will find its place among international ski destinations. However, most resorts do not have the means at this stage to install snowmaking systems.

About 5% of the Bosnian population skis, the country has less than 20 ski areas and some are too small to really be considered. Most foreign visitors come from Serbia, Slovenia, Croatia or Montenegro.

Jahorina, Bjelasnica and Igman, the major ski areas in Bosnia & Herzegovina, are located in the Sarajevo region. In addition to these popular places, Mount Vlasica, in the centre of the country, also has a ski resort. In the West, Kupres and Blidinje Natural Park are also two destinations for connoisseurs. All resorts in the country provide alternative activities to skiing, such as cross-country skiing and snowmobile tours. It is also possible to night ski. A small but important detail for visitors: in Bosnia and Herzegovina the roads are not routinely salted in the winter, meaning that access to ski areas can sometimes prove a challenge.

Jahorina, which hosted some of the events during the 1984 Olympics, presents itself as one of the major skiing and tourism centres of the Balkans. Damaged during the war in the 1990s, the area has since been refurbished and new hotels built. With its 20 kilometres of runs for skiers of all levels, 5 chairlifts (2 old fixed grip doubles and 3 new detachable 6-pack), 4 surface lifts and a baby lift, the resort features a total hourly capacity of 13'230 skiers. It is located between 1'300 and 1'880 metres above sea level. Visitors have a wide choice of restaurants and a selection of hostels to four-star hotels. An all-day lift pass amounts to less than EUR 25. Grooming may be of poor quality and the runs are not always well marked. A large part of the mountain was turned into a national park to preserve the natural beauty of the region.

The neighbouring resort, Bjelasnica-Igman, was also a former Olympic competition site. In addition to 6 runs of various levels and 11 kilometres of skiing, it has 2 ski jumping facilities. Compared to Jahorina, this ski area has fewer runs, but they are better maintained. The uphill infrastructure includes 8 lifts (4 surface lifts and 4 chairlifts), for a total capacity of nearly 9'000 skiers per hour. A number of investments have been made at the resort in recent years. It is now equipped with a snowmaking system and 2 brand new chairlifts have been built in 2017 (one fixed grip quad and one detachable six-pack). Moreover, hotels were recently built in the area. The restaurant selection is still limited, although sufficient for the basic needs of the resort. The price of an all-day lift pass is roughly equivalent to one at Jahorina.

Vlasic offers 14 kilometres of beginner to intermediate runs, so is well suited for novice skiers. It has 6 ski lifts with a total uphill capacity of 4'600 skiers per hour. The runs are poorly groomed. Some facilities that hosted

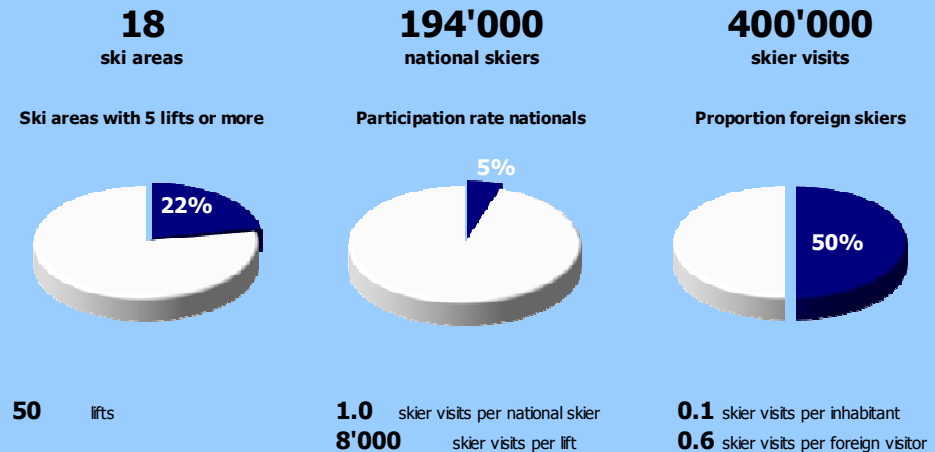


events during the 1984 Olympics were damaged during the war and never rebuilt. However, the resort belongs to a private owner who is investing to improve services for the entire area. Through this modernization, the ski area hopes to earn the title of second best ski area in the country with regard to popularity and visits. Visitors will find rooms in one of several new or renovated hotels, or at a few private accommodations (cottages or pensions).

The small city of Kupres has a ski area that features 4 runs for 13 kilometres of skiing, 2 chairlifts and 3 surface lifts. The area, which also has 2'000 beds, is especially well-suited for beginners. Risovac, located in Blidinje national park, has 1 chairlift and 2 surface lifts with a total hourly capacity of 2'960 skiers. It has 4.5 kilometres of ski runs and a certified FIS slalom run. The resort offers 700 beds.

A study conducted in 2009 by the Foreign Investment Promotion Agency of Bosnia and Herzegovina (IFAP) shows that the country only utilizes a fraction of its potential for winter tourism. The document recommends different investments to improve infrastructure in the Bosnian Mountains, which still lack a sufficient number of lifts, lodging and proper ski run maintenance.

Bosnia and Herzegovina



New ski gondola lift opens in Bosnia

A new gondola lift nearly a mile in length, has opened at the Ravna Planina ski centre near the country's capital and 1984 Olympic host city, Sarajevo.

The new 1'400 meters long gondola at the ski area near the town of Pale is the first of its kind in Bosnia and Herzegovina. The lift has large 10-person cabins and with 19 of these on the wire has an uplift capacity of 2'200 skiers per hour.

The lift is reported to be just one part of a multi-lift project christened *Jahorina Express* which aims to connect Pale with the Bosnia and Herzegovina's famed Jahorina ski mountain, one of the country's most important tourist resorts.

Ravna Planina now has 7.5 kilometres of ski runs all accessed by the new lift, the longest 1.4 kilometres long and approved to FIS-race standards.

Bosnia's Minister of Youth, Family and Sports, Jasmina Davidović, attended the lift's opening ceremony, and congratulated the Golijan family who own the ski area for *...their great enthusiasm, energy and success in creating the lift and the resort infrastructure.*

Sarajevo's major, also present at the opening, agreed, adding, *the Golijan family has done what many could not do with their own resources and energy. Even some countries of the region do not have the power to make facilities like this. For 15 years, the Federation of Bosnia and Herzegovina and the city of Sarajevo has been trying to build a cable car, but have been unable to finish it.*

The Bosnian War ended in 1995.

Source: Snowhunter



Bulgaria



Bulgaria is the highest country of the Balkan region, with an average altitude of over 450 metres above sea level. 8 mountain ranges rising higher than 2'000 metres cover one-third of the country. The highest peak culminates at 2'925 meters above sea level (Mount Mousala).

The robust development of skiing in Bulgaria in the past few years is mainly due to significant investment in mountain resorts and the country's attempts to host the Winter Olympics (despite several bids, the

candidacy has never been retained). In addition, the quality of the services and activities offered has also improved. A few resorts possess world-class infrastructure. One of the main assets of Bulgarian ski resorts is their excellent price/quality ratio, much less expensive when compared to the Alps; this attracts a number of international visitors. Foreign tourists from Russia, Romania, Macedonia, Serbia, Turkey, the United Kingdom, France and Israel visit Bulgaria's ski resorts. The number of Russian tourists recently decreased, while the number of Turkish tourists was on the rise.

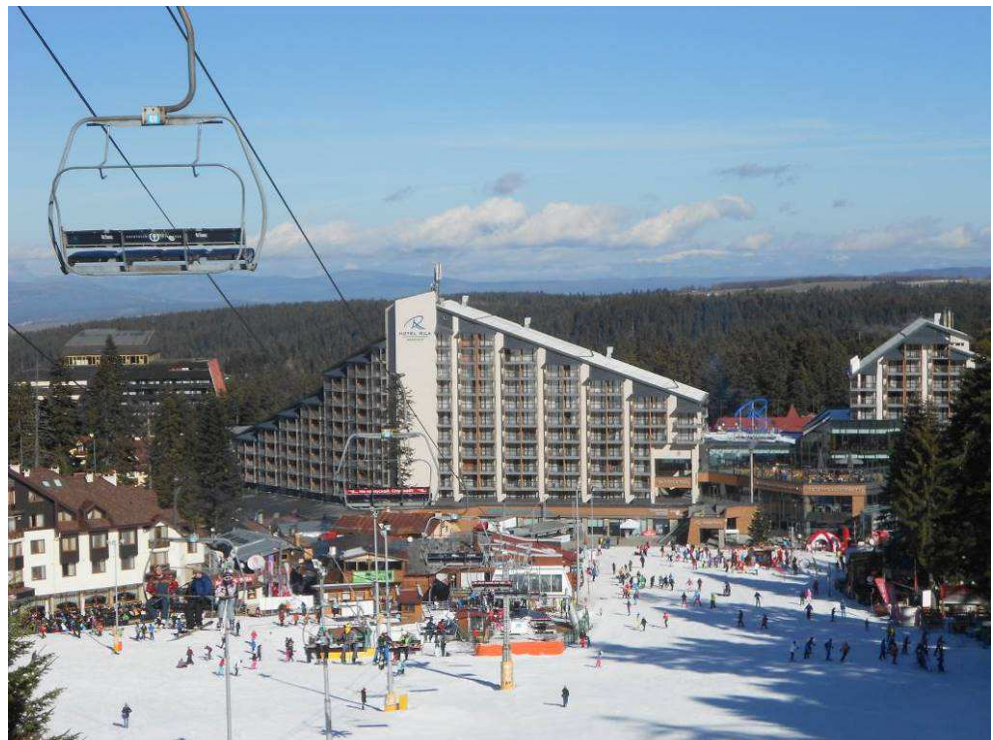
Despite the lack of official figures, ski resorts are estimated to attract roughly 1.2 million skier visits per year. The country's most internationally renowned ski resorts are Bansko, Borovets and Pamporovo.

Bansko, often referred to as the Winter Capital of the Balkans and said to be the most modern resort of Eastern Europe, contains a wide variety of hotels up to 5 stars. The slopes are equipped with a modern gondola and state-of-the-art detachable chairlifts. Investments of EUR 100 million were made to upgrade the lift system and the ski slopes, enabling Bansko to gain international recognition by organising FIS World Cup Ski races. Bansko has 75 kilometres of ski runs and 14 ski lifts with a capacity of 23'100 people per hour. The resort has many restaurants and a very dynamic après-ski offering, which is very appealing to both national and international tourists.

Borovets ski resort claims to be the leader in the Bulgarian ski market and the largest ski area of Eastern Europe. It is the oldest Bulgarian ski resort, with a history that dates back to 1896, when it was established as a hunting place for the Bulgarian kings. Aris-



tocrats and members of the Bulgarian elite followed the trend and subsequently built their summer cottages and chalets in Borovets. Winter sports developed and the first downhill race was held in 1930. The resort expanded in the 1960s and 1970s based on the French ski resort development model and hosted its first FIS competition in 1974. Borovets has 13 ski lifts with a total capacity of 16'300 people per hour. Large expansion plans have been developed for the *Super Borovets* project. Once fully completed, it would provide around 17'500 hotel rooms, extend the number of slopes and double the number of lifts. However, it never turned into reality because of setbacks and environmentalists oppositions.



Pamporovo, the sunniest of the Bulgarian mountain resorts, is nestled in the heart of the Rhodopes Mountains at 1'650 metres above sea level. It is the perfect resort for beginners and it claims to have one of the best ski schools in Eastern Europe. Pamporovo has 14 ski lifts with a total capacity of 13'000 people per hour.

Vitosha ski resort is only a few kilometres away from the capital city of Sofia and easily accessible by public transportation. It used to be popular for people living in Sofia to go skiing there on the week-ends. However, the lack of lift renewal appears to have decreased the area's appeal.

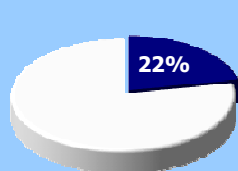
Lifts renewals and resort development has been a challenging issue for Bulgarian ski resorts over the last 10 years, as environmental activists seem to systematically oppose any new lift projects. With an aging infrastructure and less than optimal connections, a few resorts may lose some of their international popularity, likely limiting the industry's growth and development in the country.

Bulgaria

32

ski areas

Ski areas with 5 lifts or more

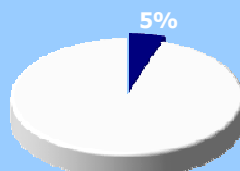


110 lifts

349'000

national skiers

Participation rate nationals

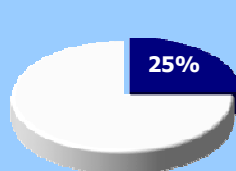


2.6 skier visits per national skier
10'909 skier visits per lift

1'200'000

skier visits

Proportion foreign skiers



0.1 skier visits per inhabitant
0.1 skier visits per foreign visitor



Croatia



Croatia extends from eastern end of the Alps through the Dinaric Alps, up to the Adriatic Sea. The highest point of the country is Dinara Peak, which rises 1'831 metres above sea level. The central and southern regions near the Adriatic coastline consist of low-lying mountains and forested highlands. The first snow usually falls in autumn and lasts through spring, providing the right opportunity for winter sports.

Skiing is nothing new in Croatia. In the highland area of Mrkopalj, not far from the Adriatic coast (only a half-hour drive), winter sports developed at the beginning of 20th century. There are records of a ski competition as early as 1913. The first ski jump was built in 1934, where international competitions were held. In the 80s, under the former Yugoslavian regime and around the time of the Sarajevo Winter Olympics, a ski training centre was built in Bjelolasica. At that time, winter sports connected to skiing were actively promoted.

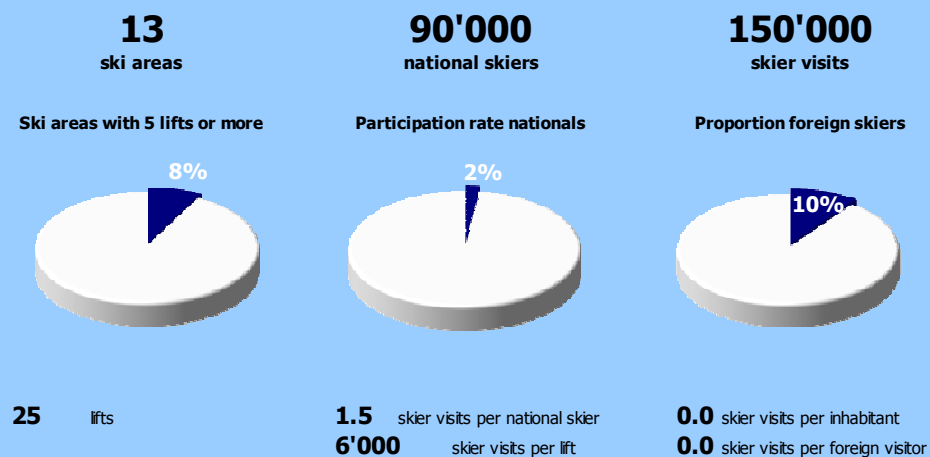
Today, the Zagmajna Croatian Biathlon Centre is located in the same region, together with the ski areas of Begova Razdolja, Bjelolasica and Velika.

The resort of Sljeme / Medvednica is located only 10 kilometres away from the capital city of Zagreb, (and 33 kilometres from the airport). It is equipped for night skiing and is close to a variety of accommodations.

The largest ski resort in Croatia has only 5 lifts and less than 10 kilometres of trails. Bjelolasica offers a vertical drop of 800 metres. A few resorts are equipped with snowmaking systems. However, several resorts only offer a single lift or only a magic carpet.

Even if skiing is not well developed at this stage, there are several projects to expand existing resorts and to build new ones, mostly in the coastal region of Gorski Kotar. About 1'900 hectares of land have been set aside for recreational sports and ski area development. Maj Cicak should turn into the best Croatian resort.

Croatia





Cyprus



The forested Troodos Mountains stretch across most of the western side of Cyprus, offering a cool sanctuary in the summer, and the opportunity for winter sports at the only ski area in the country. Imagine skiing under the blue Mediterranean sky!

The ski area is located just a one-hour drive from the seaside town of Limassol or from the capital city Nicosia. It is perched high on the slopes of Mount Olympus, whose summit rises to 1'951 metres above sea level, just 2 kilometres away. The ski area itself ranges from 1'800 to 1'920 metres altitude, features 4 lifts (1 chairlift and 3 T-bar lifts), snowmaking facilities and a total of 2 kilometres of skiing spread over 8 runs for all levels. The ski area also offers cross-country skiing.

The Cyprus Ski Federation organises an international FIS ski competition every year at Troodos Mountain, on the officially sanctioned, 380-metre long Zeus slalom run. The first race was held in 1969, with participants from 9 countries.

The ski season is rather short, running usually from the beginning of January to the end of March.

Skiing has a history here, having officially started in Cyprus in 1947, with the creation of the Cyprus Ski Club. At that time, the roads were not cleared and the pioneers used to walk to Troodos in order to practice their sport. The first lift was soon built with local means and ingenious ideas from the pioneers. In the late 1950s, 2 portable lifts were installed in the winter. The first modern ski lift started operating in 1967 and is still in use today.



Czech Republic



The 2 main regions of the country, Bohemia and Moravia, are both surrounded by numerous mountains and hills. The highest summit in the Czech Republic is the 1'602 metre high Sněžka peak in the Sudetes mountain range, Giant Mountains sub-range (Krkonoše). The latter accounts for the largest ski resorts of the country.

However, in spite of much lower altitudes than in the Alps, there is a large number of ski resorts nearly all over the Czech Republic (about 200 ski areas with a

total of almost 800 ski lifts), all of them located between 900 and 1'300 metres elevation (only 3 ski areas top over 1'300 meters above sea level). Despite this lower elevation than in the Alps, the northern situation of the country provides for relatively enough snow. Most of the resorts are small; the larger ones often made of the aggregation of several small operators, and not always fully connected. A lot of ski areas are easily accessible from Germany or from the country's capital city of Prague. Snowmaking enables skiing throughout the entire season, mitigating climate risks.

Skiing has a long history and tradition in Czech Republic resulting in an important share of skiers in the population; the first ski club was founded in 1887 by Josef Rössler-Orovský. In 1893, the first ski races took place in Jilemnice (Krkonoše – Giant Mountain) and in 1903 the Association of Skiers in the Czech Kingdom was founded, which was the first ski association in the world. The first hanging (cabin) cableway was installed in Ještěd (Liberec) in 1933 and in 1940 the first chairlift appeared in Pustevny (Beskids Mountains). With single chairs and wooden towers, it was the earliest one in Europe³¹. It was reconstructed with steel towers in 1956, later on replaced in 1987 with a double seater, and modernised again in 2006. This later version is still in service.

Over the last 10 years, resort infrastructure has been renewed and expanded. 50 new lifts were delivered by the major manufacturers.

Despite this, attendance at Czech ski resort has been showing a stagnant or even declining trend for several years. Obviously, the ski industry in Czech Republic faces the same problems than most of the major mature markets.

³¹ The first chairlifts in the world were installed at Sun Valley, United States, in 1936 and 1937.

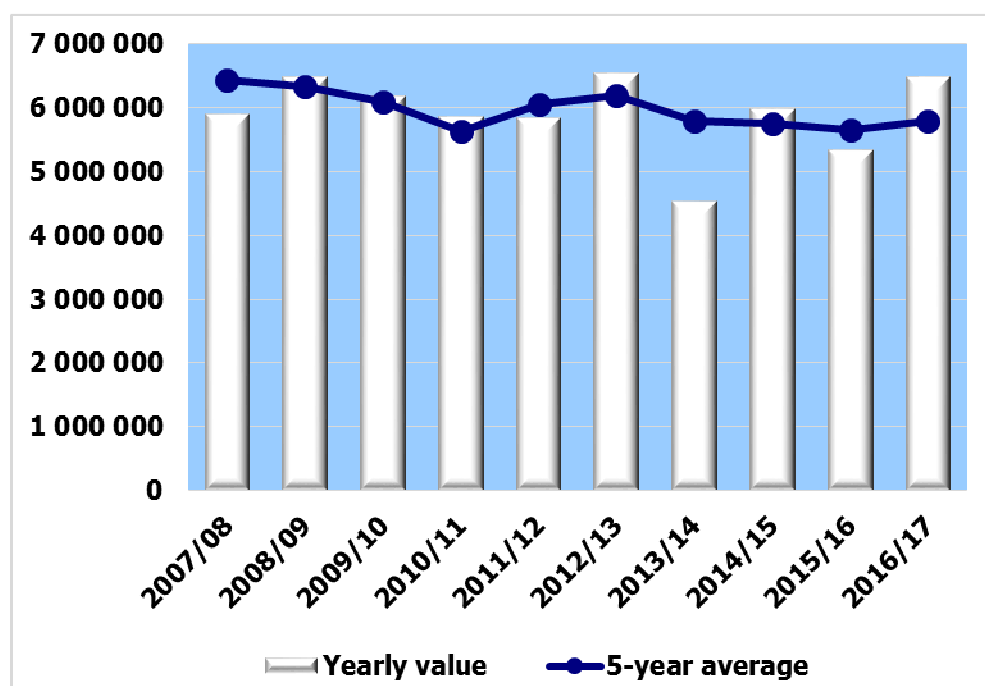


Figure 25: Czech Republic, evolution of skier visits

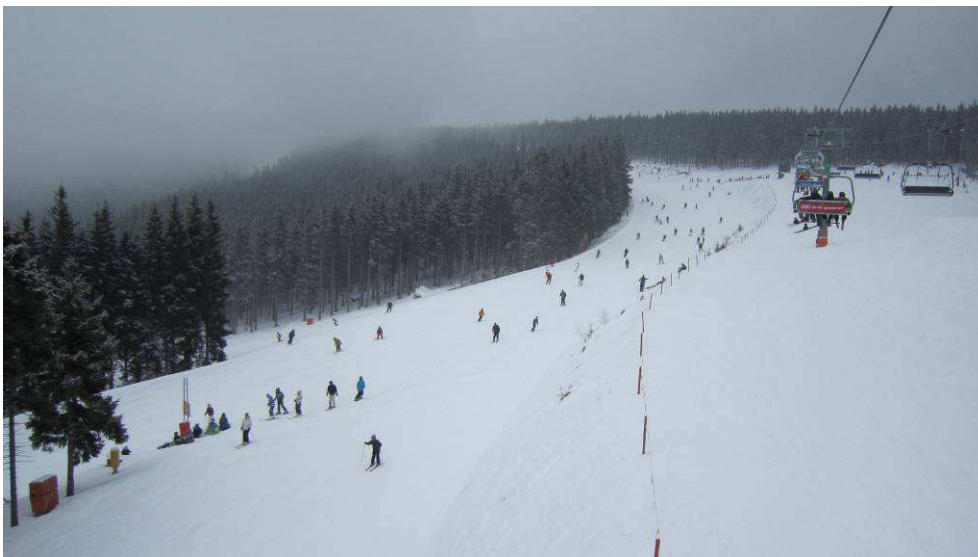
With 41 kilometres of ski pistes and some 40 lifts accessible with the same pass, ski resort Černá hora - Pec, located within the Giant Mountains National Park, sells as the largest resort of Czech Republic. It is however not fully interconnected. Despite a snowcat ride allows to connect from Černá hora-Janské Lázně to Pec pod Sněžkou, other smaller areas can only be reached by bus connections. The resort is located at the base of the country's highest mountain, Mount Sněžka, which is accessible via a new gondola, built in 2013 to replace its 50-year old predecessor. The first lift was built there in the 1940s. Ski resort Černá hora - Pec offers approximately 13'000 beds. The season lasts from mid-December to mid-April.

Spindleruv Mlyn is one of the largest and most famous resorts in the country. The first lift was built there as early as 1947. The resort developed, split into several sub areas that will be soon all interconnected by lifts and ski trails (Svaty Petr, Hromovka, Medvěďín, Horní Mísečky). Hromovka has the second longest night skiing run (1'500 metres) in the country. Svaty Petr hosts World Cup Alpine Ski races, acrobatic ski events and snowboard races. Horní Mísečky hosts also several events. The full resort has more than 20 ski lifts, 25 kilometres of ski runs, of which 12% are black (difficult) trails³². To make up for any lack of natural snowfall, snowmaking covers 85% of the ski area. Various base villages offer a wide range of accommodations, totalling 12'000 beds, including chalets, apartments, privately rented homes and hotels, together with a wide choice of restaurants. The resort also features a very lively summer offer.

³² With the projected interconnexion, total slopes' length will reach 40 kilometres.

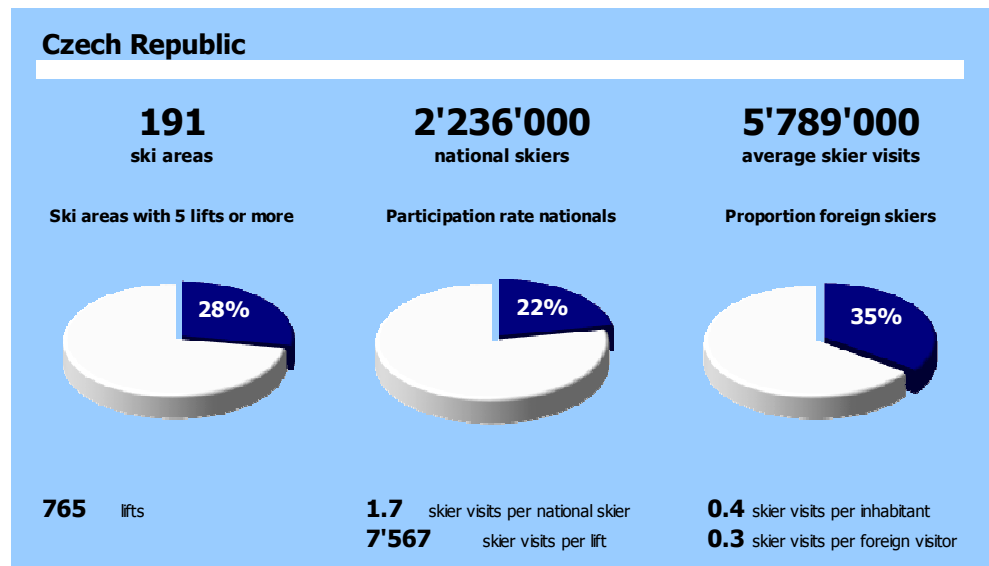


With also more than 20 lifts, Rokytnice Nad Jizerou also accounts among the largest Czech resorts. Its target public is skiers of all levels, even though it has predominantly blue (easy) slopes. The resort is split into 5 sub areas (Horní Domky, Studenov, Modrá hvězda, Párek and Udatný) and has a total of 18 kilometres of ski runs. Rokytnice Nad Jizerou belongs to *skiregion.cz*, a ski area alliance totalling 4 resorts and 35 lifts, 37.5 kilometres of ski runs. It allows skiing with the same ticket in all affiliated ski areas.



Another popular resort is Malá Morávka - Karlov pod Pradědem, in Moravia near Mount Praděd, in the Northeast. Although it is split between several

operators and not all slopes are interconnected, the ticket system is united. Due to its low altitude (maximum 940 metres above sea level), it is very sensitive to lack of snow. The slopes are nearly fully equipped with snow-making. The runs are aligned one next to the other and the vertical drop is limited to 150 metres offering little appeal for experienced skiers. The resort has about 15 ski lifts and a total of 22 kilometres of ski runs, 53% of which are blue (easy).





With cold and snowy winters, Estonia offers decent conditions for winter sports. The winter climate is one of the most stable in Europe, with few sudden changes that could harm the ski season. However, due to the lack of any real mountains (the high point Suur Munamägi, only 318 metres above sea level) and low altitude, the snow season is short, and cross-country skiing and snowshoeing are much more popular than alpine skiing. Cross-country skiing has a long history in the country, with the first competition being held in Tartu

as early as 1921. It later on became a yearly tradition and The Tartu Ski Marathon is a well-known and highly attended race by national and foreign cross-country enthusiasts. Otepää is called the *Winter Capital* of Estonia and has hosted World Cup cross-country skiing events.

However, downhill skiing and snowboarding have become increasingly popular among the youth. One hundred metre long low-angle slopes work well for beginners. However, although not very long, there are steeper slopes for more experienced skiers. Several ski areas have no lifts, including some simply equipped with a magic carpet that may also be used for snow tubing; a few offer terrain parks for snowboarders. Several rental shops next to cross-country trails also offer downhill ski equipment, even if there is only an adjacent unequipped snow hill. More sophisticated hills offer a beginner lift and groomed slopes.

Night skiing is popular, and several ski areas have lighted runs, a necessity since the days are very short in winter at these latitudes.

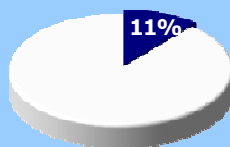
A few more elaborate ski centres are operated in various areas of the country, on either natural or artificial hills (built from mining waste). There is an adventure park near Kivioli that features a few ski runs, and a ski centre in the White Mountains next to the city of Tapa. The region of Otepää, south of the city of Tartu, also has a few ski runs spread over several ski areas. This region has the largest ski areas in the country: Kuutsmäe has 5 lifts and Munakas has 3 lifts.

Estonia

9

ski areas

Ski areas with 5 lifts or more

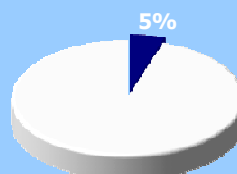


17 lifts

63'000

national skiers

Participation rate nationals

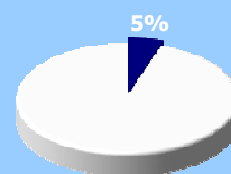


1.9 skier visits per national skier
7'353 skier visits per lift

125'000

skier visits

Proportion foreign skiers



0.1 skier visits per inhabitant
0.0 skier visits per foreign visitor



Georgia



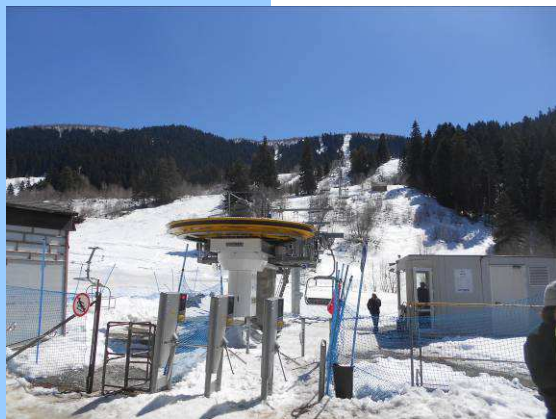
Georgia is located on the historic and geographic barrier between Europe and Asia, between the Black Sea and the Caspian Sea. Mountains cover a large part of the country, with the Greater Caucasus Mountains in the North and the Lesser

Caucasus Mountains in the South. Some reach impressive altitudes, with the Mount Shkhara, located on the border with Russia, culminating at 5'201 metres above sea level.

Georgia used to be one of the popular winter sports destinations of the former Soviet Union. Winter tourism developed there in the 1970s. With its colossal mountains, there are plenty of options for mountaineering and several spots to go heli-skiing. Georgia unsuccessfully bid for the 2014 Winter Olympics. It attracts tourists from neighbouring countries, as well as from the USA, Germany, Israel and Turkey.



In addition to a few ski areas with limited infrastructure, Georgia has 2 resorts equipped with lifts that also offer heli-skiing: Gudauri is located in the Greater Caucasus Mountains, 120 kilometres from Tbilisi, the capital of Georgia. Gudauri has guaranteed snow from November to May. The average snowpack is about 1.5 metres deep. The resort's high point is the



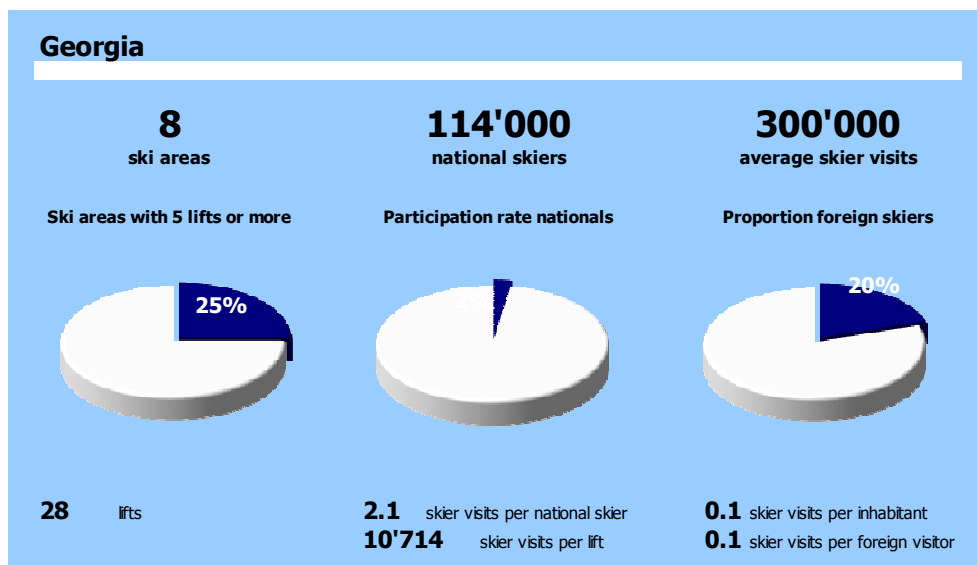
3'007 metre summit of Mount Kudebi. The area enjoys great weather in spite of its high elevation. The resort benefited recently from a complete redesign by a leading international master planner. Accommodations are in the process of being upgraded to 2 to 5-star hotels, some with international brands. The ski area has 7 lifts, which were recently replaced, retrofitted or newly built. A 10-seater gondola lift was added in 2011 and a new investment program of EUR 70 million will further develop the resort from 2014-2017. Gudauri's terrain is unmatched in the entire Caucasus, and offers great off-piste skiing. Ski mountaineering and heli-skiing are also very popular in Gudauri. The attendance in the resort has been growing dramatically over the last couple of years.

Bakuriani, the second resort, is located on the Didveli slopes of the Lesser Caucasus Mountains, in the south-eastern part of Georgia, at an altitude of 1'800 metres. The highest skiable mountain of the resort is Mount Kohta, culminating at around 2'200 metres above sea level. The resort lies 30 kilometres from Borjomi and is located within the Bakuriani Depression. It is connected with Borjomi by an electrified narrow gauge railway line. Bakuriani offers both downhill and cross-country skiing for skiers of all abilities. The resort has accommodations ranging from 3-star hotels to small private hotels and guesthouses. It has 12 ski runs of varying difficulty. New chairlifts and a gondola were recently added. The resort is family oriented, with a year round offering. The forest-covered mountains, the mineral water springs, the roads leading to the spectacular natural or cultural monuments of the Borjomi Valley are appealing for vacationers. Further to an important private-public partnership, a new resort base named Kokhta-Mitarbi has now been connected to the ski area. It is supported by a USD 150 mio investment by the Georgian State in infrastructure improvement.

New resorts have also been planned. One is at Goderdzi Pass. The Georgian Department of Tourism has contracted with a foreign company in order to develop a new ski resort in the high mountains of Adjara. The resort will accommodate about 7'000 tourists and offer 35 kilometres of runs. The resort is located 90 kilometres from Batumi, with an elevation ranging between 1'700 and 2'400 metres above sea level. A first gondola lift was delivered in 2012 and a detachable chairlift in 2014.

Another project is located in the remote high-mountain town of Mestia, where officials hope to establish a year round tourist destination at Mount Tetnuldi, with an initial budget of USD 145 million. It will feature 6 ski lifts and a run with 988 metres of vertical drop to meet Olympic standards. The first lifts have already been installed through financial support from the Georgian and French governments. Closer to Mestia, the ski area of Mount Zuruldi / Hastvali has also been refurbished and equipped with new lifts. Since 2010, a 4-seater chairlift enable skiers and pedestrians to reach the top of the mountain restaurant, featuring a beautiful view on the valley and

the famous Mount Ushba twin peaks. The slope is equipped for night skiing.



6-seater chairlift links town to slopes at new ski resort in Georgia

A new high-speed 6-seater chairlift has opened in the northerly Georgian province of Svaneti.

The new 1'200 meters long Mestia-Hatsvali ski lift connect the Hatsvali ski area, part of Georgia's newest ski resort Hatsvali-Tetnuldi, with the centre of regional-capital town Mestia.

There are 30 kilometres of ski runs divided into 9 different ski trails catering to all levels of skiers, from beginners to experts in the Tetnuldi sector and 7 kilometres of runs divided into 5 different ski trails in the separate Hatsvali ski area.

There are 5 ski lifts in the Tetnuldi sector and one at Hatsvali, all open from 10 am to 4 pm every day and lift pass prices are reputed to be amongst the lowest in Europe thanks to a Georgian Government subsidy. The centres began opening in winter 2015/16. In its first season the lifts were reported to have operated free of charge.

Situated on the southern slopes of the central Caucasus Mountains and surrounded by 3'000 to 5'000-metre peaks, Svaneti is the highest inhabited area in the Caucasus. 4 of the 10 highest peaks of the Caucasus are located in the region.

Source: Snowhunter



Greece



Skiing in Greece is a unique experience. Surprising as it may sound, while Greece is mostly well known for its warm sunny weather and beautiful beaches, skiing is also well developed. This is no secret for Greeks and a handful of other Europeans. But the majority of skiers in Europe, the United States and other countries around the world fail to imagine the numerous skiing possibilities that Greece can offer. Mountains cover 80% of Greece with a majority of peaks topping out at over 1'500 metres above sea level, thus provid-

ing some areas with ideal conditions for winter sports resorts. These resorts are located all over Greece. In central Greece there are the resorts of Parnassos, Karpenissi (Velouchi), Vassilitsa and Pilion. Located in Northern Greece, in the historical region of Macedonia (not to be confused with the country nearby), are the resorts of Seli, Tria-Pente Pigadia and Kaimaktsalan. In the Peloponnesus, in Southern Greece, are the resorts of Kalavryta and Mainalo. Greece has a total of 21 ski resorts and those mentioned above are the most well-known, and also equipped with modern infrastructure.

During the winter season many Greeks enjoy winter sports and although all skiers are not as well trained as those living in Alpine countries, the skier level, especially for children, is improving every year. Skiing is still popular in Greece, and most ski resorts are full with skiers and visitors on the weekend.

The largest ski resort is Parnassos Ski Resort, in Central Greece, only 200 kilometres from Athens, and very close to the well-known ancient city of Delphi. Runs are between from 1'600 to 2'250 metres elevation. In Parnassos, one can ski in the morning and bathe in the sea at lunch time. The nearby Gerontovrachos ski area offers another 2 lifts and it is possible to ski to and from Parnassos. The Fterolaka ski area was built in 1975 and in 1981 the Kellaria ski area was fully operational. Today it has 19 runs for a total of 36 kilometres of skiing. Fterolaka and Kellaria have 14 lifts: 1 gondola, 6 chairlifts and 7 surface lifts. The Ermis lift that connects Fterolakka and Kellaria was built in 1988 and offers skiers and visitors unbelievable views. Looking to the North one can admire the Mountain of the Gods, Olympus; looking to the South, the clear blue waters of the beautiful Corinthian Gulf. It is usually operated throughout the year, including the summer season, offering countless hiking options for residents and tourists. The winter season starts in December and usually ends in April. Parnassos has hosted multiple FIS alpine skiing and snowboarding races at the end of March-April, and foreign racers have always been surprised by the snow quality and quantity.

In Central Greece, in addition to Parnassos, is the ski resort of Karpenissi (Velouchi), near the city of Karpenissi. The resort is located at an altitude of 1'750 metres and tops out at 2'000 metres. It has 3 chairlifts, 3 surface lifts and 12 runs. Another ski resort in Central Greece is Vassilitsa, close to the city of Karditsa. Snow conditions are very good and it has 2 chairlifts and 4 surface lifts of varying lengths, ranging from 900 to 2'000 metres long. The Agriolefkes ski resort (Central Greece) on Mount Pilion, near to the city of Volos, is located between 1'178 metres and 1'471 metres elevation. It is one of the oldest ski resorts in Greece and has 3 chairlifts, 3 surface lifts and 5 kilometres of runs.

Another well-known ski resort is Kalavryta on the Peloponnese (southern Greece). It is located 200 kilometres from Athens in the region of Achaia. It is nestled at an altitude of 1'650 metres, with runs starting from as high as 2'340 metres. It has 7 lifts and more than 10 runs. The ski resort of Mainalon is also located on the Peloponnese, near the city of Tripolis, at an altitude of 1'500 metres, with a top elevation of 1'860 metres. It features 4 lifts and 8 runs.



The largest ski resort in Northern Greece, in the region of historical Macedonia, is Mount Kaimaktsalan. Its ski area is located between 2'050 and 2'480 metres above sea level. It features 10 runs for a total of 4 kilometres of skiing. It has 7 lifts, including a chairlift and 6 surface lifts. Skiers can take advantage of 430 metres of vertical drop. It also has a half pipe and snowpark for experienced snowboarders and skiers. Snowmaking equipment includes 4 mobile cannons and 6 snow lances.

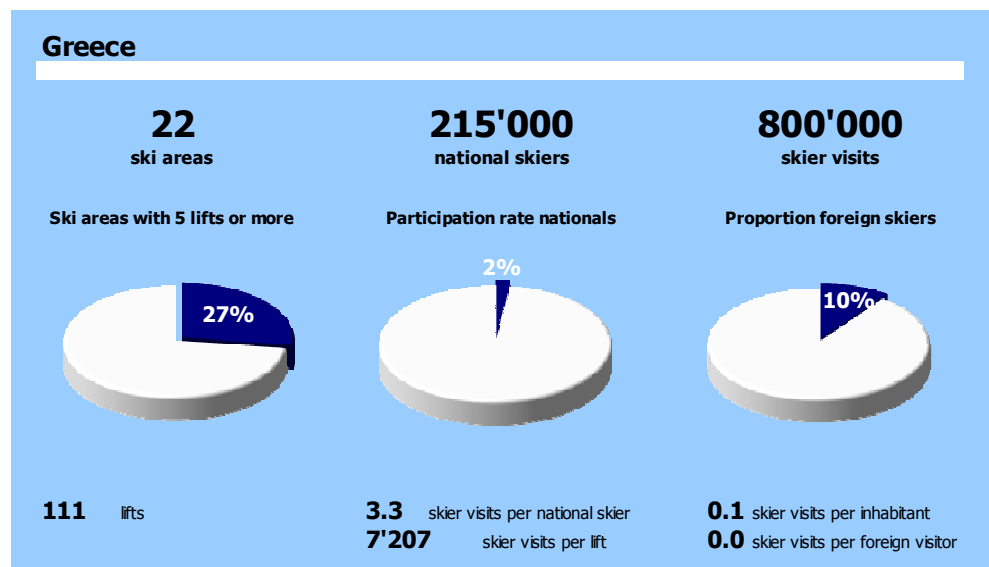
Another ski resort in Northern Greece in the historical region of Macedonia is the 3-5 Pigadia, located between 1'430 to 2'005 metres elevation, near the town of Naousa on Mount Vermion. There is 1 chairlift and 5 surface



lifts, as well as cross country skiing. This resort is used by several national sports teams (football – track and field, etc.) as a training camp, and has top-notch equipment. Most of the Super-G races in Greece take place in 3-5 Pigadia, as the slope length meets FIS standards. The ski resort is equipped with snowmaking equipment to ensure excellent snow conditions throughout the entire ski season.

The Seli ski resort, where the first ever ski lift in Greece was installed in 1955, near the town of Veroia, is among the most beautiful ski resorts in Greece. Seli is located at an altitude of 1'515 metres, and tops out at 1'874 metres. It has 1 chairlift and 8 surface lifts that serve 14 runs. Cross-country skiing is also popular in Seli.

In all the above ski resorts, there are officially sanctioned ski slopes that host FIS alpine and cross country skiing races every year. All ski resorts have restaurants, cafeterias, ski schools, ski shops, ski rentals and medical facilities.





Hungary



Even though only 2% of Hungary is located higher than 400 metres above sea level, a number of small ski areas exist. A mountainous region stretching over 200 kilometres is located in the northern part of the country next to the Slovak border. It consists of Börzsöny, Cserhat,

Matra (including the country's highest peak, the 1'014 metre high Mount Kekes), Bükk and Zemplén Mountains. However, one of the biggest and most popular ski resorts in Hungary, Epleny, is located in another region, the Bakony Mountains, on Lake Balaton in the western part of the country.

Skiing has become popular in Hungary: about 550'000 of the 10 million Hungarians ski. However, more than 90% of them travel abroad for winter



sports, as the Hungarian mountains are not high enough, the ski lifts are somewhat antiquated and snow coverage is insufficient. Thus, skier visits in the country are only estimated to be around 350'000.

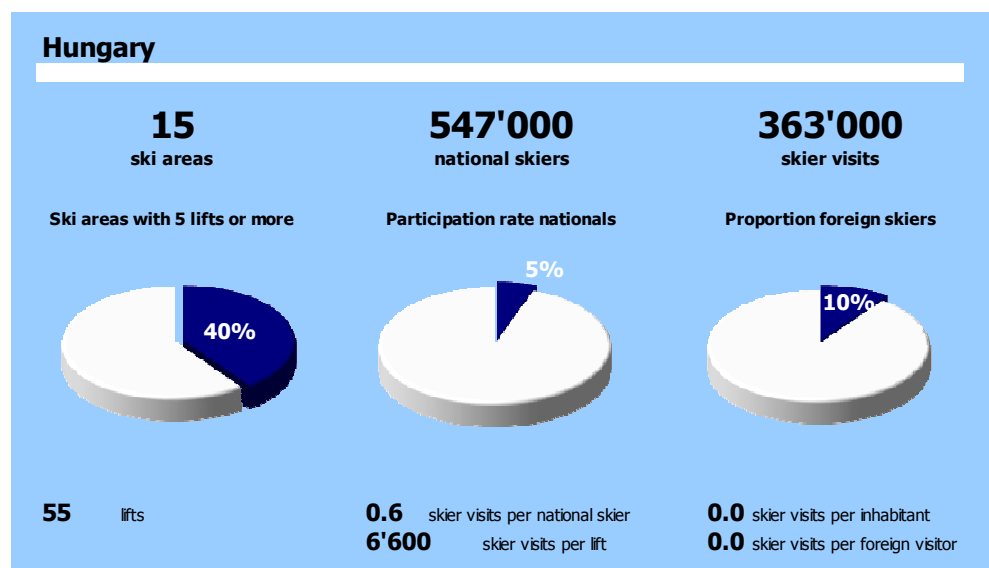
There are 15 ski areas with a total of 55 ski lifts in Hungary. Only 6 resorts have more than 4 ski lifts each. The most important ones are the already mentioned Skiarena Epleny, which has the most runs, with a total of 7.2 kilometres of trails, Matraszentistvan Skipark, Kekesteto, the highest ski resort in Hungary, Visegrad and Bankut. The latter resort operates the most lifts (9).

In Bankut, snowmaking systems are not yet allowed, so the number of operating days per winter is limited. The ski resort of Epleny, Matraszentistvan, Kekesteto, Visegrad and Satoraljaujhely are relatively modern and have snowmaking equipment, which allows them to operate for up

to 100 days per winter if the temperature is low enough. Satoraljaujhely also features a synthetic slope.



There used to be many smaller ski areas in Hungary, with only one or two short lifts, but they no longer operate due to poor snow conditions and high costs. However, there is a plan to revitalise the well-known, historical slopes of Normafa, in the Buda Hills, which could become popular with people living in the capital city of Budapest.



First skier's quad chairlift opens in Hungary

What is believed to be the first quad chairlift to be built at a Hungarian ski area has opened at the Matraszentistvan Ski Arena in the Mátra Hills, about 100 kilometres from the capital Budapest.

Hungary is home to more than a dozen ski areas, many of which offer terrain parks and night skiing as well as conventional runs.

Most have lift-served skiable verticals of between 100 and 200 metres, served by drag and carpet lifts but, after several years of planning, the Matraszentistvan Ski Arena has installed their quad chairlift.

Matraszentistvan was established as recently as 2002 and has grown year-on-year to now operate 8 slopes and around 10 lifts as well as additional attractions such as year-round tubing using an artificial surface ski slope in summer.

Source: Snowhunter





Kazakhstan



Kazakhstan is a big country, ranking 9th in the world in area. It offers a variety of terrain, from desert zones, which cover nearly half of the country, to high mountains in the Southeast. The highest peak of the Tien Shan Mountains rises to 7'439 metres above sea level, and the mountainous range that continues well into China, starts from the suburbs of Almaty.



In most areas there is a wide temperature difference between summer and winter, which can be very cold. The ski season begins in mid-November and lasts until mid-April.

More and more Kazakhs are discovering the pleasures of skiing. The ski resort of Shymbulak, near Almaty, has been around for a long time. The resort is located in the Zailii Alatau Mountains. It started to attract skiers at the end of the 1940s, and in 1954 it was established as a ski resort and

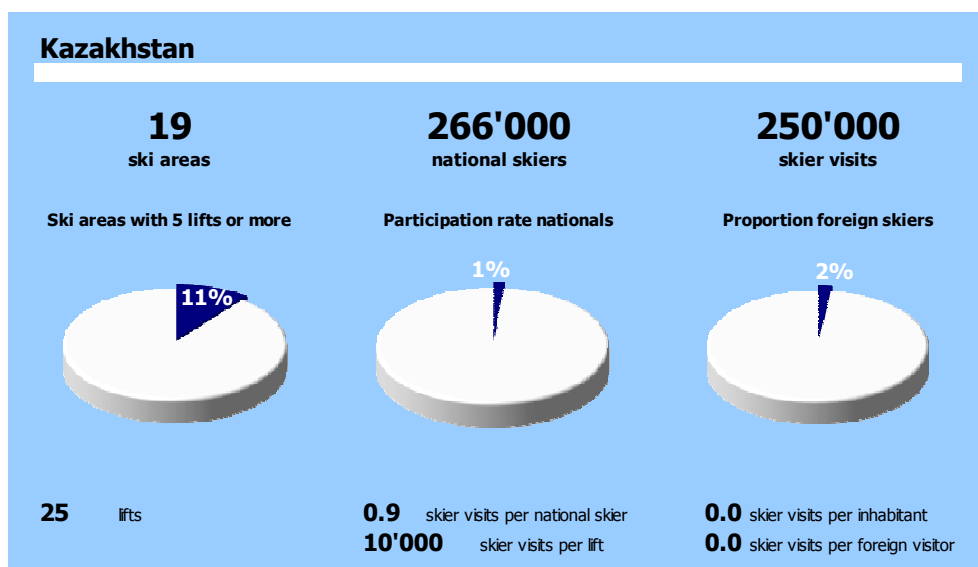
equipped with its first ski lift. Ski competitions were held there, and until 1962 it had a monopoly on skiing in the former Soviet Union. Since 1983, it has operated as an Olympic centre for downhill ski training and additional lifts were added. The resort was recently refurbished, with 5 new lifts out of a total of 6. It even has one of the longest gondolas in the world, with a 4'572 metre section that provides easy access to the ski area, connecting Almaty's public bus system with the ski resort. There are a total of 15 kilometres of runs between 2'200 to 3'163 metres elevation. Some of the runs are FIS certified. The resort hosted the 2011 Asian Winter Games. The famous Medeo ice rink is located at the base of the mountain, where numerous competitions have been held, and 120 world records established.



Another major resort in Kazakhstan is Ak-Bulak, recently equipped with 4 new lifts, and also not far from Almaty. It offers one high-quality hotel and an important 4-season indoor and outdoor sports centre.

In addition to these well-known resorts there are several other ski areas, located either in the Almaty Region (Enbekshikazaksky resort) or in the eastern part of Kazakhstan. In the latter, ski areas are located in the suburbs of cities such as Ust-Kamenogorsk, Zyryanovsk. The Nurtau resort, Altaïs Alps, Edelweiss, Stardust Camp and Eagle ski areas offer a wide variety of runs for all levels of skiing and snowboarding.

The ski industry of Kazakhstan aspires to continue to develop. Three major new resort development projects were recently presented (Kokzhailau, Kaskasu Mountain and Koksai), and the City of Almaty applied, unsuccessfully, to host the 2022 Winter Olympics.





Kosovo



A large part of Kosovo is mountainous, with the highest peaks rising to 2'656 metres above sea level (Mount Gjeravica, located on the western border with Albania).

Despite several mountain ranges, there are only 3 ski areas in Kosovo.

The largest ski area, Brezovica, is located in the South, on slopes facing the Sharr National Park. It is conveniently located only 60 kilometres from Pristina Airport and 70 kilometres from Skopje

Airport in Macedonia. The current ski area was originally established in 1954. In 1979, the first ski lift was installed. Breznovica served as an alternative site for downhill skiing events at the 1984 Sarajevo Winter Olympics and hosted several FIS events in the 1980s and 1990s. However, due to the difficult situation of the country, the resort has not received any meaningful investment for more than 2 decades. The site however offers favourable conditions for a ski resort, with snowfall from mid-November through May, for an average of 128 skiable days. The ski area currently features 10 lifts, carrying skiers up to an altitude of 2'500 metres, with a total capacity of about 10'000 people per hour. There were recent plans by the Government to develop Brezovica into a genuine 4-season resort. EUR 410 million were likely to be invested to develop more than 100 kilometres of trails and build new lifts. A contract had been announced with a French consortium. However, the whole story was later on denied by some of the said interested parties and the financing anyway failed to materialise.

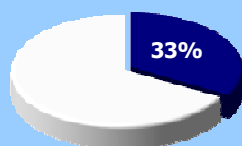
The other smaller ski areas are Bogaj (Bogë), in the Rugova Valley in the West and Brod, in the Dragash municipality, in the South. They are equipped with a limited number of lifts but offer nice slopes and spectacular villages. In Brod, there is a hotel and the ski area hosts competitions between local ski clubs and those from neighbouring Albania.

Kosovo

3

ski areas

Ski areas with 5 lifts or more

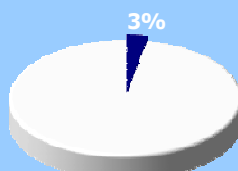


12 lifts

55'000

national skiers

Participation rate nationals

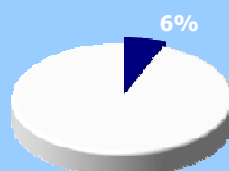


1.7 skier visits per national skier
8'333 skier visits per lift

100'000

skier visits

Proportion foreign skiers



0.1 skier visits per inhabitant



Kyrgyzstan



Kyrgyzstan is a small country with just over five million people and is often compared to Switzerland because of its potential for developing alpine skiing. Indeed, the climate and the significant vertical drop are factors that offer great conditions for skiing. Over

90% of the country is covered by mountains. Its average elevation is 2'750 metres above sea level and a majority of the peaks rise to over 3'000 metres. The highest summit, Pobedo Peak, is 7'134 metres high.

Skiing is however at this stage not widely developed, even though the country has 19 ski areas, many of them near the capital city of Bishkek. They are small, often at an early stage of development, with no or only one hotel, and a limited range of standard services such as equipment rentals or ski schools. Not a single ski area has a modern detachable lift. The most



advanced system is 3 or 4-seater fixed grip chairlifts. Some have only rope tows. Poor master planning is a common issue for many ski areas. For instance in one place, lifts do not serve all slopes and skiers need to go up by road. Most of the ski areas however feature old second-hand groomers to prepare the slopes.

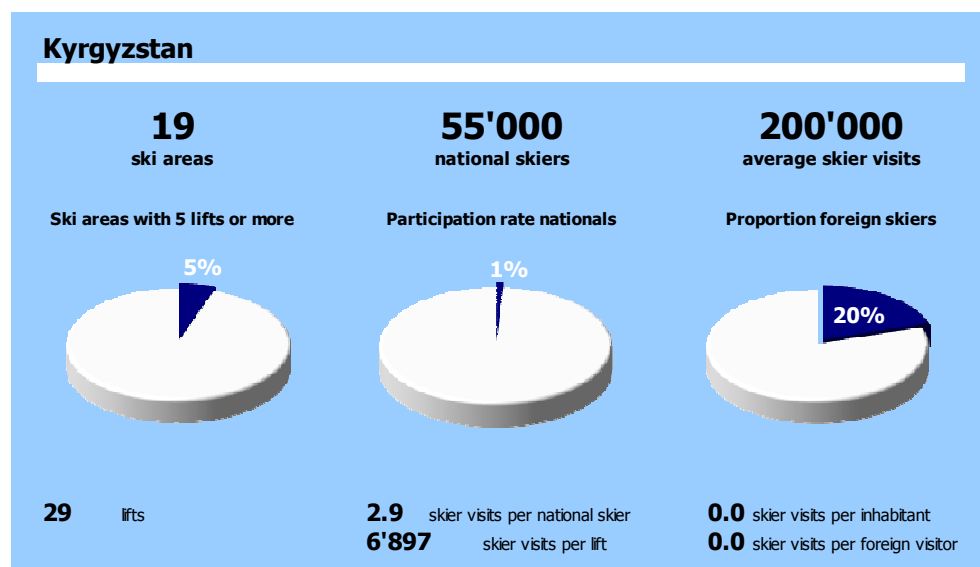
7 kilometres from the town of Karakol, a ski resort of the same name is located on the slopes of the Tian-Shan mountain range. Its base area sits at 2'300 metres above sea level. It has a temperate climate and offers

views of the second largest mountain lake in the world, Lake Issyk Kul. Most of the 20 kilometres of runs descending through the forest are of varying difficulty and between 400 and 3'500 metres in length. The highest point of the resort is 3'040 metres above sea level, providing a total vertical drop of 800 metres. Karakol features 4 lifts: 2 double and 2 triple chairlifts. The 2-metre average snowfall per year offers a sufficient base for the entire ski season due to low nightly temperatures. In addition to downhill skiing, there are also plenty of options for backcountry skiing, mountaineering or snowmobile tours.

Opened in 1967, Orlovka has grown in recent years. A new lift was built, as well as new buildings (cottages, restaurant). Lighting for night skiing was installed and the resort has acquired its first snowmaking equipment, becoming one of the few in the country able to guarantee snow throughout the entire season. The resort has a total of 5 lifts: 4 chairlifts and 1 surface lift, with a total capacity of 4'200 skiers per hour. Skiers have access to 9 runs of varying difficulty and between 150 and 2'900 metres long. Snowmobile rentals are also available.

Norus, about 40 kilometres from the capital, is located at 1'980 metres above sea level. It has 3 lifts and 15 kilometres of trails for all levels. The area is however particularly well-suited for children. There are also drop off zones for heli-skiing.

35 kilometres from Bishkek, the Kashka-Suu ski area is located at 2'000 metres above sea level. Two lifts (1 chairlift and 1 surface lift) serve 6 runs of varying levels for a total of 10 kilometres of skiing. A sauna, an ice rink and conference rooms are also available to visitors.





Latvia



With the highest hill just 311 metres above sea level, Latvia is not a mountainous country. However, snow is an integral part of the winter season, and over recent years, skiing has gained much interest. The short but steep slopes offer a suitable location for quick runs on skis or a snowboard. While it may seem unusual, alpine skiing is one of the favourite winter-time activities in Latvia, ski runs are located in almost every town, including well-marked and well-lit runs where one can cross-country ski. Since vertical drop is always limited

(often less than 100 metres), most ski areas are equipped with only one or a few surface lifts, and sometimes a small chairlift. Ski areas are also often limited to one only run.

The ski season usually starts in the first quarter of December and finishes in the last week of March. Most ski runs are equipped for night skiing.

The ski area of Riekstkalns is close to Riga. It features 8 runs and 11 lifts and some snowmaking equipment. The longest run is 350 metres long.

In the North, the resort of Baili has 7 lifts and 100% snowmaking. The longest run is 180 metres long. In the West, there are the ski areas of Milzkalns, with 8 lifts, and Zviedru Cepure (4 lifts, also equipped with a summer toboggan run). The recreational park of Lemberga Hüte offers a recently refurbished slope on a manmade hill next to Ventspils. Every year since 2005 this hill has been made higher, using construction debris and old asphalt from repaved streets. It is now 52 metres high and equipped with 3 lifts as well as snowmaking. As with other ski hills in Latvia, it turns into an adventure park in the summer and is a popular leisure and sporting facility for the inhabitants of Ventspils.

The area around Sigulda has at least 6 ski runs. There is, for example, the recreational centre in Kakitis, Korde slope and the leisure complex in Reina Trase, which is located a little bit farther. The only cable car in the country (which by the way is also the only one in the Baltics) is also located in Sigulda and connects both sides of the Gauja River. It is not used for skiing.

Near the city of Cesis, the ski areas of Zagarkalns and Ozonkalns are equipped with a chairlift, snowmaking, a snowpark, a beginner and children's zone, ski schools and cafés. The longest run is 500 metres long.

Latvia

26

ski areas

Ski areas with 5 lifts or more

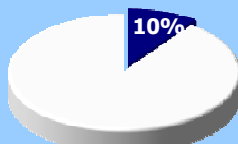


77 lifts

218'000

national skiers

Participation rate nationals

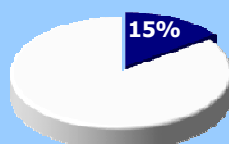


3.1 skier visits per national skier
10'390 skier visits per lift

800'000

skier visits

Proportion foreign skiers



0.3 skier visits per inhabitant
0.1 skier visits per foreign visitor



Lithuania



Lithuania is a rather flat country with a few gently rolling hills but no real mountains; its highest point is 294 metres above sea level.

Lithuanians started to show interest in skiing only a few years ago and focusing primarily on cross country skiing, but there are a few downhill ski areas. Most are limited to snowfields on hills, offering a few hundred metres of runs, equipped with one or more lifts, where skiers can pay for a 2 hour pass that includes equipment rental. No ski area

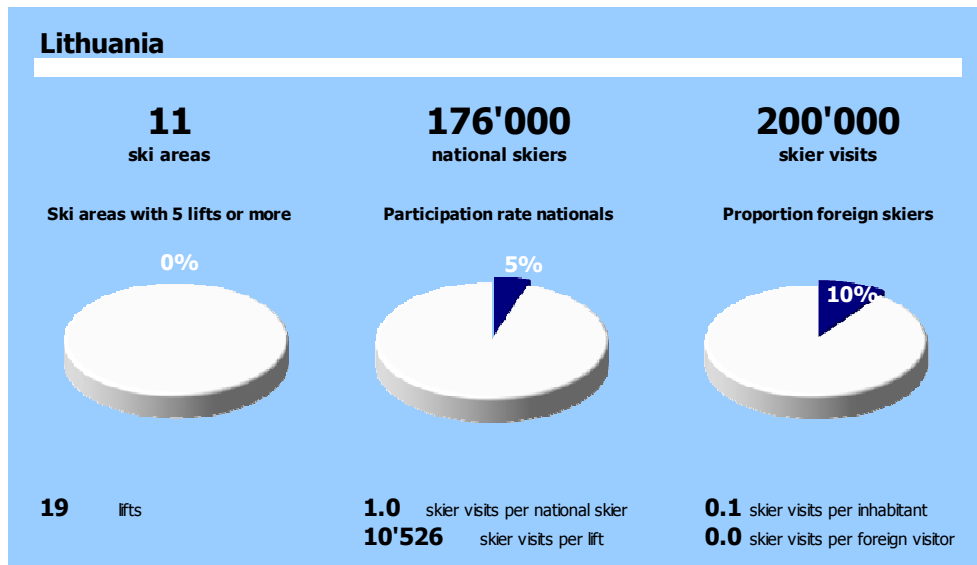
has more than 4 lifts. The majority are located about 80 kilometres from the capital city of Vilnius. They also do not offer hotel accommodations, but there are country homes available for rent near a few ski areas. Some also offer night skiing and have snowmaking systems.



An indoor ski centre opened in 2011. At a cost of EUR 32 million, it offers Lithuanians the opportunity to ski year-round. The facility is one of the very few in the world to feature an outdoor slope during the winter season. As the other outdoor ski areas are rather small in size, this 640 metre-long outdoor slope is one of the longest in the country.

There are current plans to upgrade the Liepkalnis Ski Hill area by adding a complex of iconic buildings to make it an epicentre of entertainment, leisure and culture for the city of Vilnius.

The ski season in Lithuania is a bit peculiar when compared to resorts in the Alps. It begins in September with the first snowfall, and ends in February. However, winters are pretty stable.





Macedonia



Macedonia is a small landlocked country, in the southernmost part of what was once Yugoslavia. Reaching altitudes up to 2'764 metres (Mount Korab), the country's mountainous region boasts snow coverage through the end of May, in spite of its southern location.

Civil war and regional conflicts considerably slowed the pace of ski industry development. Even if the country is emerging as a budget winter destination, with week-long lift passes at EUR 69.00, ski areas are still primarily visited by local

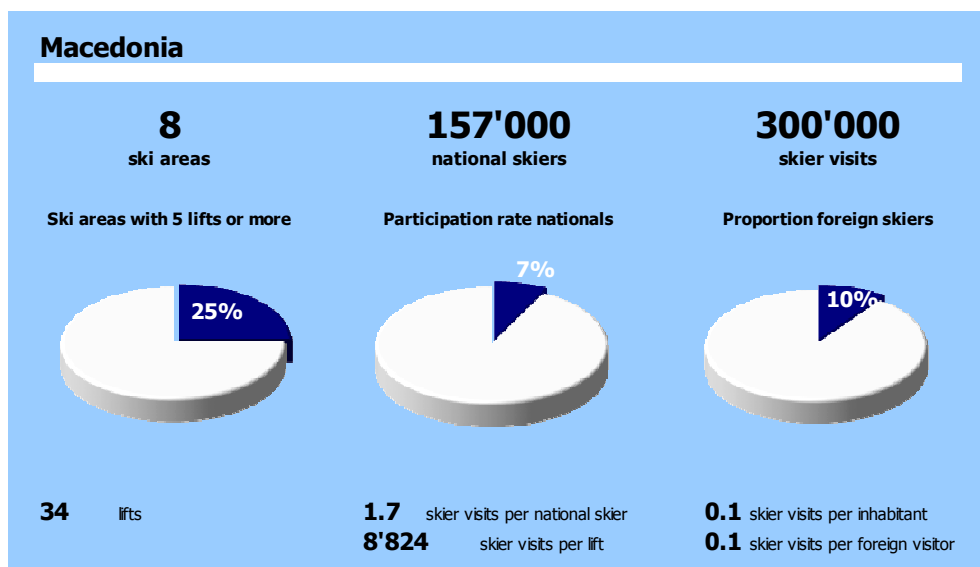
Macedonian skiers. Due to the conflict, the country has had a hard time building up a skier population base large enough to support ski resorts and offer state-of-the-art facilities. Lifts, trail marking, grooming and even cleanliness are not yet up to western standards. The ski areas tend to be crowded by locals on the weekends, with long lifts lines, and empty on weekdays, when lifts may even close. The foreign customer-base is currently limited to Albanians, Greeks and Bulgarians.

The Zare Lazarevski ski area, in Mavrovo national park, a one hour drive from the capital city, is the largest in Macedonia. It has 14 lifts, and tops out at 1'860 metres above sea level. The resort features several hotel accommodations, including 4-star hotels. It has FIS approved downhill, super giant slalom and giant slalom runs. However, the lift infrastructure is ageing, with no high-speed detachable lifts.

Popova Sapka, another one of the most popular resorts, is located in the north-western part of Macedonia, just 35 kilometres from the capital of Skopje. With bars, restaurants and hotel accommodations, it is able to successfully attract foreign customers. The ski area is equipped with 9 lifts. It has hosted both European and Balkan ski championships. One of them, the *Shara Mountain Cup*, dates back to 1947. Popova Sapka was linked to the neighbouring city of Tetovo via a 7-kilometre long cable car that was destroyed in the 2001 hostilities. Slopes are located between 1'708 metres and 2'510 metres above sea level, and the snow pack lasts 135 days per winter on average.

Located next to the border with Greece, Ski Centar Kožuf is the only ski area in the country recently equipped with new lifts from one of the major manufacturers. Even though it only has 3 lifts, there is a EUR 73 million development plan to extend the resort and add further lifts and accommodations.

Finally, a special mention for the Sharplania ski area, which brings skiers to the top of pristine slopes by using 2 snow cats since the area is not equipped with lifts. 14 freeriders can sit in each snow cat.





Montenegro

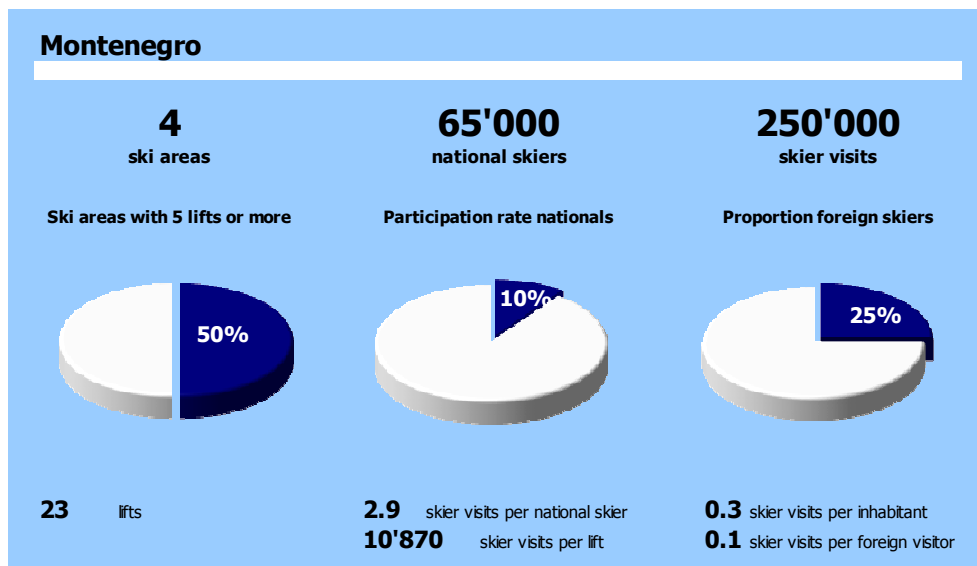


Known primarily for its sun-kissed coastline, Montenegro also offers plenty of mountain scenery, lakes and the longest canyon in Europe, through which the Tara River flows. The country has a lot of mountains and valleys. The highest peaks in Montenegro rise to over 2'500 metres above sea level (Maja Kolata, Prokletije Mountain, 2'534 metres; Bobotov Kuk, Durmitor Mountain, 2'523 metres). Some winters receive extremely heavy snowfall; during this type of winter, some places become inaccessible by car.

There are several winter resorts for both downhill and cross-country skiing. The most popular ones are Kolasin and Durmitor, which are at the foot of beautiful and massive mountains.

The resort of Kolasin 1450 is the most modern resort in the country. Located in Jezerine, near to the city of Kolasin, it was known in the past under the name of *Bjelasica Ski Centre*. After being acquired during bankruptcy proceedings, it was renamed, developed and some lifts were replaced. A high-speed 6 person detachable chairlift was recently installed (2010) in addition to 1 other fixed-grip chairlift and 3 surface lifts. The ski area features the only snowmaking system in Montenegro. Kolasin 1450 offers both winter and summer activities. Rustic wooden restaurants and mountain huts make the place a picturesque location, together with two 4-star mountain resort hotels.

Located close to Durmitor National Park and in the shadow of one of the country's highest peaks, Zabljak is the highest town in northern Montenegro and an epicentre for winter sports. It enjoys snow 120 days per year, from December to April. The Durmitor resort is made up of several small ski areas for a total of 12 lifts that rise up to 2'313 metres elevation. Some high-quality mountain ski chalets and new hotel ski-lodge accommodations have opened in recent years.



Both resorts are trying to increase market awareness and attract more local and foreign customers. Durmitor has hosted international downhill ski competitions. Various entertainment and sporting events are organised by the National Tourism Organization throughout the season, with the slogan, *A hot winter in the mountains*. Ski passes, equipment rental and ski lessons are a bargain here. An all-day lift pass costs about EUR 15.00, a pair of skis and boots can be rented per day for EUR 10.00 and a one-hour private ski lesson costs EUR 20.00.

Since Montenegro only gained independence in 2006, the tourism industry is still thinking about the major developments to invest in. Until now, the country's ski areas have primarily been the domain of locals and a few visitors from the Balkans. In the future, a number of tourism projects will enhance the country's tourism appeal. Mountain centres are a key part of this strategy and 8 resorts have been planned for development. Some are starting from scratch, such as the Zarski, Torine, Jelovica and Komovi ski resorts, others intend to further develop the existing ski area of Kolasin.



Poland



The Carpathian Mountains cross the southern part of Poland and form a natural border with neighbouring Czech Republic and Slovakia. In the High Tatras region, the highest part of the Carpathian Mountains, Poland has 70 peaks over 2'000 metres high. The range culminates with the 2'499 metre high Mount Rysy. The Beskidy and the Giant Mountains are Carpathian sub-ranges, with slightly lower altitudes. They all contain winter sports areas. Skiing also exists in the central and northern parts of the country. In these regions, the slopes

are gentler and ideal for beginners or those who want to get in shape before going to the mountains.

Even though skiing has been around for a while, up until recently Poland was not a very popular winter ski destination for international tourists. The opening of Polish air space to low-cost airlines and the development of the highway system have given a big boost to tourism in Poland. The relatively low prices and pristine wilderness are other factors that have helped to make Poland popular with tourists.



The climate in Poland provides good conditions for winter sports. The season begins in December and lasts until April at some resorts. However, the best conditions for skiing are from January to March.

The country offers nearly 200 ski areas and a total of over 800 lifts. A lot of ski areas are pretty small, with only a few trails and one or a couple of lifts. Most of the time, skiing is consumed on an hourly or pay-as-you-go basis. Snowmaking and night skiing are common.

The most famous ski destination in Poland is the town of Zakopane, which attracts 2 million visitors yearly. Nestled in the heart of the Tatras Mountains, it started out as an intellectual centre in Poland. Since the 1930s, the area evolved into one of the most popular holiday destinations in the country, with a flourishing winter sports centre, as well as year round activities and a busy nightlife. Zakopane hosted the FIS World Ski Championships in 1929, 1939 and 1962. However, even if it has a total of almost 50 lifts, it is not a ski resort like those of international renown. The fact is that the town is surrounded by several small ski areas with a few lifts each that are not interconnected and that do not offer a common lift pass. Most of them have short surface lifts, either running parallel or not connected to one another. Some were installed in the 2000s, but there are still some rather archaic relics. The ski areas are privately owned and require separate lift tickets (usually priced for a specific number of rides). From Zakopane, it is also possible to drive to larger resorts.

The beginner-friendly ski area of Zieleniec features more than 20 ski lifts (mostly surface lifts and 2 quad chairlifts) and 7 baby lifts. In terms of lifts, it is the largest single resort in the country. Even if its altitude is rather low (950 metres above sea level), it benefits from a unique alpine micro-climate which guarantees snow nearly 150 days per winter. Together with a snow-park and 10 runs equipped with lighting for night skiing, the resorts broad offering suits skiers of all levels.

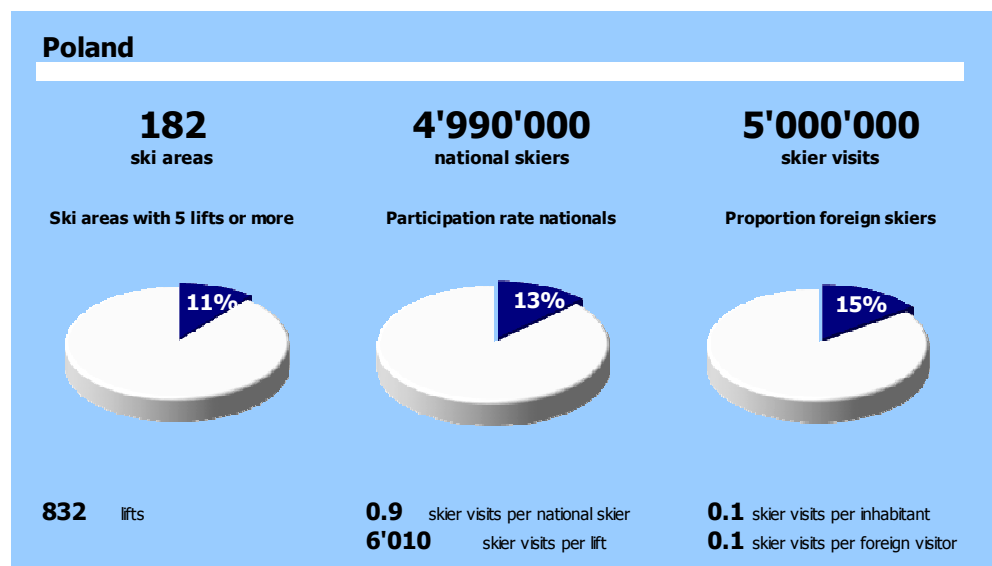
The ski areas of Czysta and Solisko combine to form the popular resort of Szczyrk. It has about 20 ski lifts as well as several baby-lifts, 30 downhill trails totalling 60 kilometres, with an approved FIS run, snowmaking, night skiing, ski school, restaurants and equipment rentals. The first chairlift was installed in Szczyrk in the 1950s due to the area becoming an Olympic training centre. 2 new detachable chairlifts with bubbles and a 10-seat gondola have been installed in 2017.

With 16 lifts, Bialka Tatrzańska is also among of the largest ski resorts in Poland. It is 40 minutes away from the city of Zakopane, has recently expanded, and infrastructure was improved with the addition of several new chairlifts. It offers runs for all skiing abilities, and has a number of bars, restaurants and shops.

Recently, there has been a revival of ski tourism in Poland. Cross-country skiing and backcountry skiing have become more popular, and there are well-marked itineraries not only in the South of Poland, such as in Karkonosze - Jakuszyce in the famous Race Piast - and at the foot of the Tatras, but also in other parts of Poland, including Masurian Suwałki, the lake region in Kashubian, the Cracow-Częstochowa plateau



and the mountainous Roztocze. Furthermore, 34 new lifts have been built at Polish ski resorts over the last 10 years.





Romania



The Romanian Carpathian Mountains are the second largest mountain range in Europe. They dominate the centre of the country, with 14 peaks reaching over 2'000 metres. Culminating 2'544 metres above sea level, Moldoveanu Peak is the high point. There is snow between November and April and snow conditions are very good through the end of March or even April, with often very cold temperatures. The ski resorts have decent infrastructure, and the hotels are comfortable and offer interesting specials packages.

Nevertheless, the poor access roads are sometimes an issue.

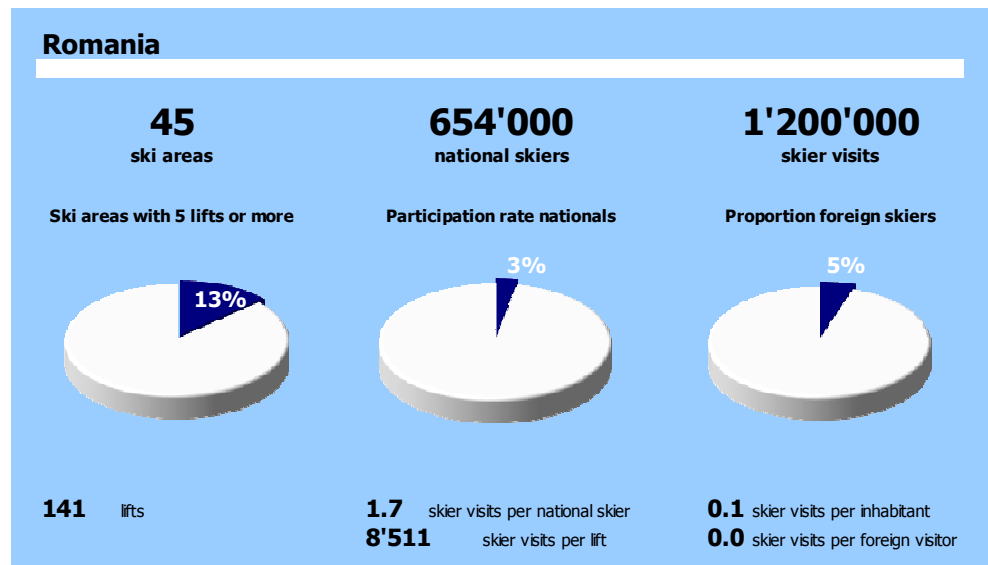
Romania is still a rather unknown and undiscovered winter holiday destination. It features 44 ski resorts with about 150 ski lifts. It is an attractive destination for foreign visitors, as prices are relatively low when compared to most of Europe, and some ski runs are lit for night skiing. However, lift passes are not considered cheap due limited infrastructure and poor grooming. Romanian ski resorts are estimated to attract around 1.2 million skier visits per year.

The main ski areas in Romania are Poiana Brasov, Sinaia, Busteni, Predeal, Azuga in the Southeastern Carpathians, Paltinis in the Southern Carpathians and Borsa, Vatra Dornei, in the Eastern Carpathians.

The popular destination of Poiana Brasov is only 13 kilometres from the medieval city of Brasov. More restaurants, villas and hostels have been built there than anywhere else in the country. The region hosts several sporting events every year. It has 11 ski lifts, a snowmaking system, cross-country skiing, ice rinks, swimming pools as well as several bars, restaurants and discos. The resort offers a capacity of 4'500 visitors per day and the lodging infrastructure can accommodate 4'000 guests.

Sinaia, with a maximum altitude of 2'000 metres above sea level, is located 125 kilometres from Bucharest. It is called the *Pearl of the Carpathians* because of its beautiful landscape. The mountain resort has 10 recently upgraded lifts, cross-country skiing and lots of restaurants, bars and discos. The highest city in Romania is Predeal at 1'000 metres above sea level, 145 kilometres from Bucharest. It is one of the main ski resorts in the country and has 7 lifts.

Recently, a new ski resort opened. Initially called *Star Trek Voineasa*, the now official name is Transalpina. It features a 2-section gondola, 1 quad chairlift and 2 surface lifts. Developers want to add more lifts to make it the largest resort in the southern Carpathian Mountains. The finalised project features 31 lifts and 80 kilometres of trails. The resort is being built by the Romanian Ministry of Sustainable Development and Tourism as part of their EUR 80 million *Ski the Carpathians* program, backed with EC funding, which includes the dramatic upgrade of several Cold War era resorts as well as the development of new centres.





Russia



Out of all the countries in the world, Russia boasts the largest number of mountain ranges, from the rolling hills of the Khibiny range, to the majestic peaks of the Caucasus and the volcanoes of Kamchatka.

The number of ski areas in Russia increased significantly since 2012. Currently, 75 of the 83 regions or *subjects* of the Russian Federation offer one or more, totalling over 350 ski areas. Many of them still feature limited infrastructure and lifts that require some renovation. There are about 40 small ski areas around Moscow and a few around St-Petersburg, even though neither city is located in a mountainous region. The main ski resorts in the country are located in the Ural and the Caucasus Mountains.

The Caucasus is a mountainous region that includes Mount Elbrus (5'600 metres above sea level) and is one of the snowiest areas in the world. With winters longer than the rest of Europe and the opportunity to ski on glaciers and at high altitudes, it has the natural potential to compete with the Alps. However, the Caucasus is subject to cycles of violence (bombings, explosions, terrorist attacks, etc...) on a regular basis. In order to bring the region to more peaceful status, the government's goal is to develop the tourism industry and attract investors. For example, under the name of *Northern Caucasus Resorts*, a broad regional project is being designed to build 5 resorts through a public-private partnership, spread among the various semi-autonomous Russian republics of the region. These resorts will have a total of 179 lifts and 879 kilometres of ski runs, with the goal of accommodating 150'000 guests daily. After the multi-billion euro project is complete, over 10 million tourists are expected to visit the mountains on an annual basis. The largest of these planned resorts, Mamison, will feature 220 kilometres of runs and 60 lifts. For the time being, most of the operation is concentrated in the Soviet legacy resort of Elbrus and Cheget, situated in Elbrus



National Park, near the Georgian border. In Elbrus, a new record holding gondola³³ was recently added to its original 3 gondolas and 2 cable-cars³⁴. They provide the opportunity to ski through August on Mount Elbrus, offering 21 runs for 35 kilometres of skiing. The negative point however is that lift lines are long. In nearby ski area of Cheget, lifts are aging and grooming is substandard. In Arkhyz ski area, one of the other projected resorts, the 3 first lifts (1 gondola and 2 chairlifts) have already been delivered.

A project for a new year-round resort of international standing is also in the planning phase in the Nizhny Novgorod region. The infrastructure will be able to accommodate 1'900 people.

Building the Olympic complex was also a major step towards developing the ski industry in Russia. The site has been built on the shores of the Black Sea, in the Caucasus Mountains, near Sochi. This was a huge project between the sea and mountains. Here, as with a few other new resorts, everything was built or rebuilt from scratch. 70 kilometres from Sochi, the resort of Krasnya Polyana served as the main site for the Olympics. It is spread over four different ski areas: Alpika Service, opened in 1993, lies between 690 and 2'050 metres above sea level, offering a vertical drop of



over 1'300 metres. Laura, whose real name is Gazprom (but some people call it Laura because of the name of the river running through it), first opened for the 2008/09 season. It now features 14 lifts. Some gondolas are open all year round, since they are designed for more than just skiing. Gorky Gorod was built specifically for the 2014 Olympics, and has 30 kilometres of trails and 11 lifts. An efficient snowmaking system was also built to guarantee that the problems encountered at the Vancouver Olympics would not be repeated. This also allows extending the season further into the spring. Some lifts also operate all year round. Rosa Khutor is Krasnya Polyana's largest resort, and hosted the alpine skiing events during the 2014 Olympics. The resort features 94 kilometres of runs for all levels, from beginners to Olympic champions, and 25 lifts (7 gondolas, 9 chairlifts and 9 surface lifts). It is spread over 500 hectares, with the highest point culmi-

³³ Highest gondola in Europe, reaching up to 3'847 meters above sea level

³⁴ Gondolas are from the 2000s while cable-cars date from the 1960s.

nating at 2'320 metres above sea level. Some gondolas are open almost all year round. Various ski and mountain biking competitions and several festivals are held there. After the Olympics, the resort has proved to be very popular and has been recording about 800'000 skier visits each winter.

The most popular resort in the Ural Mountains is Abzakovo. It is also one of the largest in the region. With a spa, the area is both a ski resort and a sports and health complex. For years it was essentially the resort of choice for residents in the city of Magnitogorsk, 60 kilometres away. But with the construction of a new complex and modern skiing facilities, its popularity has spread throughout Russia. Abzakovo features a dozen runs with a total length of 18 kilometres of skiing, including FIS approved slalom and giant slalom runs. The 5 ski lifts and the baby lift can carry 5'000 skiers per hour. In addition, the resort has a snowmaking system and offers the possibility of renting snowmobiles. Visitors also have the opportunity to enjoy ice skating.

In 2008, drawing on foreign experience for such projects, an indoor ski centre opened in Krasnogorsk, in the Moscow province. *Snezh.kom* comprises, in addition to a ski slope, an ice skating rink, a fitness centre, an aquatic centre, conference rooms, restaurants, shops and other entertainment facilities. Snow is produced through ice crash technology, consisting of grinding thin ice plates to produce snow. 3 machines make 90 tons of fresh powder every day. The advantage of this technique is that it does not increase the humidity inside the complex. 56 chillers, air conditioners and de-humidifiers run constantly to maintain a temperature between -5 ° C and -7 ° C. The slope, 400 metres long with 65 metres of vertical drop, holds up to a metre of snow and requires constant maintenance. 2 groomers are available for this purpose. A 4-seater chairlift and a baby lift allow skiers to reach the top of the run.

Ski resort development for the 2014 Sochi Winter Olympics has been driving a growing market with future potential. Of Russia's 140 million inhabitants, only 3% ski. Over the last decade, over a hundred new lifts were installed in the country. The market is therefore expanding through an increasing number of domestic skiers, and an increased attendance at domestic ski resorts. The trend has been clearly noticeable since the Sochi Olympics, triggered by the new state-of-the-art resorts. On the other hand the drop in the rouble's value, due to recent political issues, encouraged Russians to ski in Russia. Between January 2014 and January 2016, Russian rouble lost half of its value. Tours to Russia became much cheaper for foreigners and, accordingly, travelling abroad became much more expensive for Russians. Therefore, many Russians who used to spend their winter holidays in European resorts skied domestically. According to recent surveys, the number of Russian tourists travelling abroad decreased by about 30% in 2015/16.



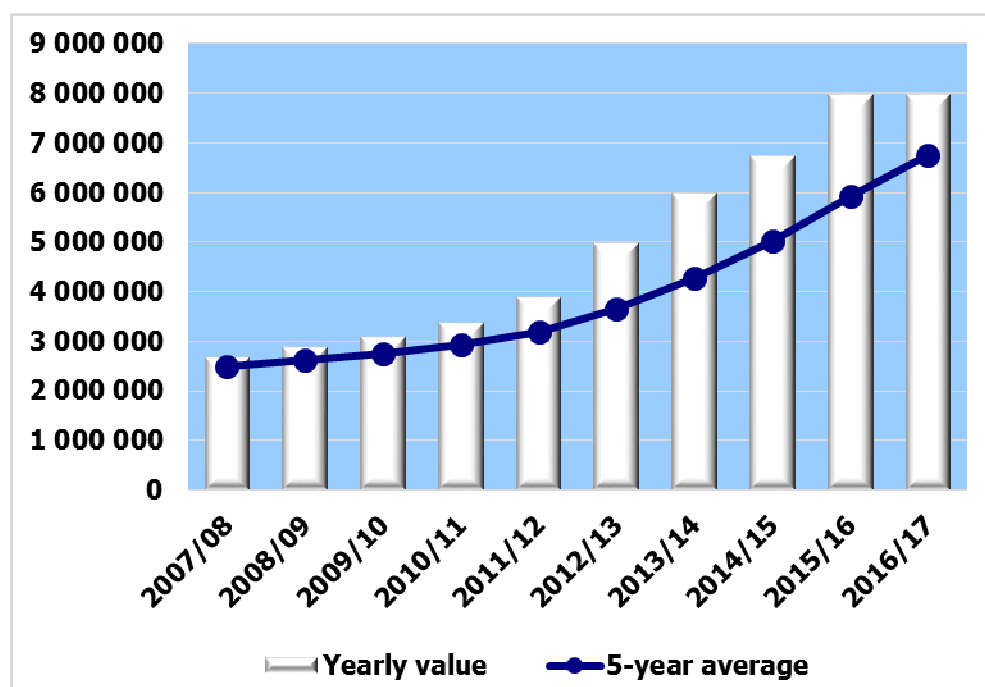
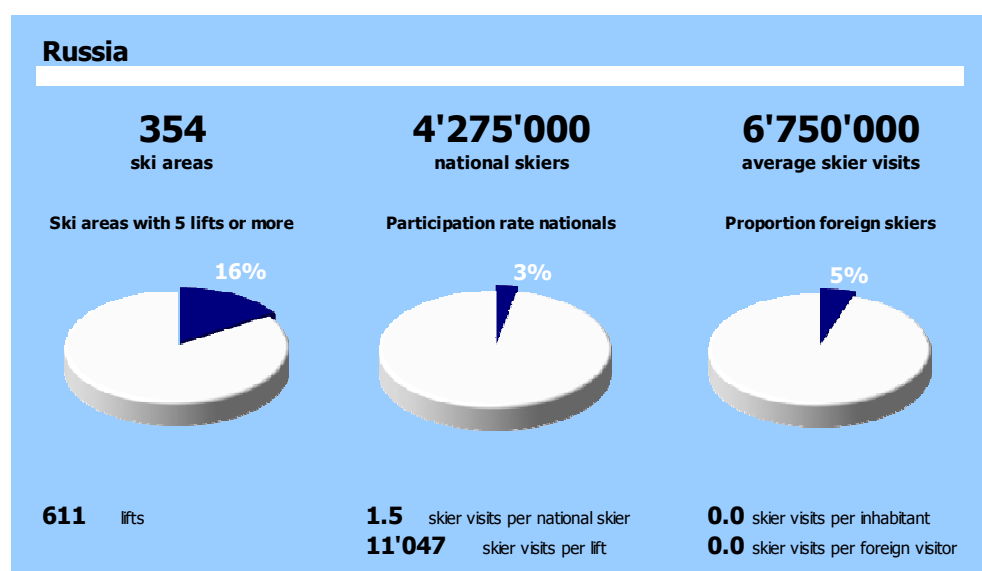


Figure 26 : Russia, evolution of skier visits

It looks that in 2016/17 skier visits have stagnated at former years' level. Visitation at many Russian ski resorts even slightly decreased, despite relatively good snow conditions.





Serbia



If northern Serbia consists mostly of plains, 75% of the country is covered with hills and mountains. The highest peak culminates at 2'169 metres above sea level. There are several mountain ranges, offering good conditions for winter sports, with up to 5 months of snow on the ground per year.

The mountains in Serbia therefore offer options for winter sports enthusiasts. Among the more than 20 ski areas, the country's most developed

and popular ski resorts are Kopaonik, Tornik Ski Centre on Zlatibor and Stara Planina, which has FIS certified ski runs and hosts international competitions. These areas were modernised by the government company, *Ski Resorts of Serbia*, which is working to build up skiing infrastructure and transforming Serbian ski resorts into an international ski destination. The goal is to make the resorts more attractive to domestic and foreign tourists with a year-round offer.

Serbian ski resorts were popular with Irish and British skiers when tour operators offered them as destinations. However, the major operators stopped offering these destinations a few years ago. Today, more and more of skiers are locals and Russians.

The resort of Kopaonik has taken the lead in Serbia's ski industry. It is located at an altitude of 1'600 metres above sea level, with runs that start from as high as 2'000 metres. It benefits from about 160 snow days per year and offers more than 50 kilometres of ski runs serviced by 23 lifts, including 6-, 4- and 2-seater chairlifts, together with some surface lifts. They can accommodate 32'000 skiers per hour, which ranks Kopaonik among the largest ski areas in this part of Europe. The resort is equipped with snowmaking that covers 97% of its runs and offers one trail equipped with lighting for night skiing and a snowpark. The village base offers various accommodations, from cottages up to 4-star hotels (and soon even 5-star), bars, restaurants and a vibrant night life.

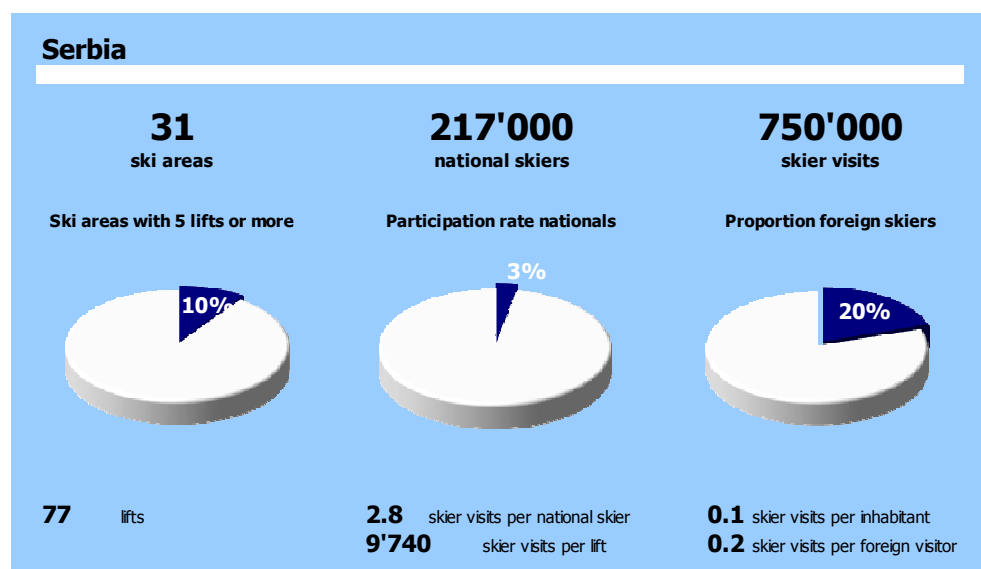
Near the Bulgarian border, located in a high mountain range, the resort of Stara Planina offers considerable potential for tourism development. A few years ago, it had only 2 lifts, but now has 5, including the first gondola in Serbia. It will further expand with new chairlifts and runs (to reach a total of 100 kilometres



of downhill skiing), accommodations and other infrastructure, and will soon become one of the country's most important ski resorts. The planned Babin Zub base village will offer 8'000 beds.

In the region of Zlatibor, the Serbian capital of mountain tourism, the Tor-nik Ski area has a modern 6-seater chairlift and 2 surface lifts. In addition to skiing, it also offers tubing runs.

Some other smaller resorts offer limited infrastructure. The Iver Ski Resort, on Mount Tara, has 4 runs 900 to 1'100 metres long, equipped with snow-making and one lift. Divcibare Ski area, on Mount Maljien, is a place specifically designed for beginners, with several short runs, and one intermediate slope, equipped for night skiing. Several other ski areas are only equipped with one lift. A few even have no lifts but are designated places where people ski.





Slovakia



Slovakia already has a long ski history. Since 1940, lifts have been in the Tatras Mountains. With more than 40 new lifts delivered by the major manufacturers over the last 10 years, there are now more than 100 ski areas in the Slovak

Republic, most of them located in the northern part of the country. Approximately 80% of the country is located at an altitude of 750 metres above sea level or more. The highest point is Gerlachovský Peak, 2'655 metres above sea level.

The majority of the ski areas are located in nature reserves. With regards to environmental preservation, their development is limited to some extent. Slovakia has a little less than 500 lifts. Due to the low altitude of many ski areas, snow coverage is not always guaranteed. Nevertheless, Slovakia seems well on its way to becoming a popular ski destination in Eastern Europe.

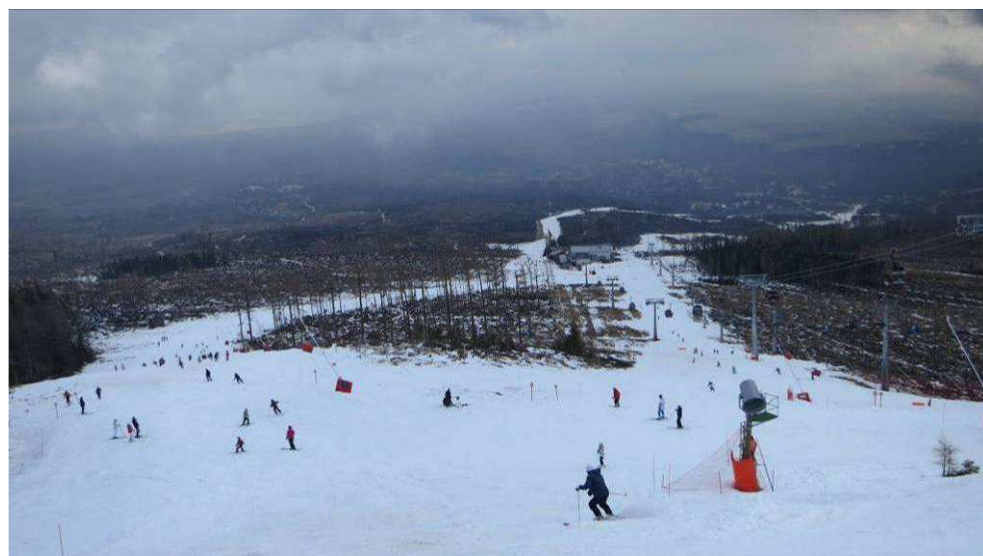
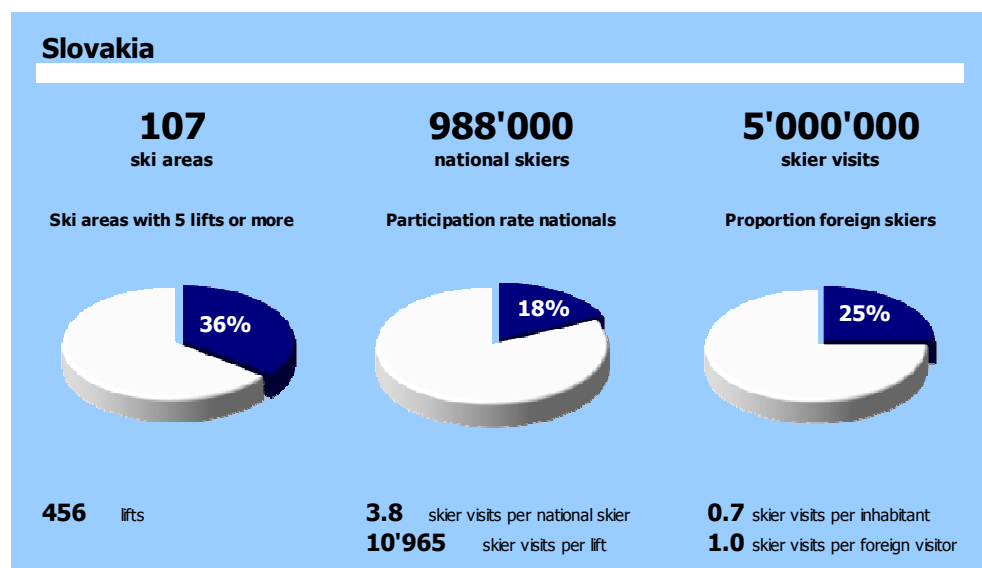
Slovak ski resorts were estimated to have attracted about 4 million skier visits per year at the beginning of the 2000s. This figure is now at about 5 million.

Currently, visitors from Poland, Hungary, Russia, the Czech Republic and the Ukraine come to Slovakia to ski. Thanks to very competitive prices, the Slovak ski resorts are now trying to expand their catchment area to the Western European market. A group of four ski areas (Snow paradise Velka Raca/Oscadnica, Park Snow Strbske Pleso, Jasna Nizke Tatri and Park Snow Donovaly) have launched an advertising campaign aimed at the French, British and Benelux middle classes. These 4 ski resorts have recently made different investments and are now able to offer infrastructure and services similar to those in Western Europe (64 kilometres of ski runs for all levels, hotels, chalets and guest houses, 6-seater chairlifts, bubble equipped chairlifts ...). The Tatra Mountain Resorts Group, which operates 4 ski resorts and several hotels, invested EUR 190 million over 7 years from 2007 to 2013 to upgrade facilities and expand the resorts.



Donovaly is one of the major ski resorts in Slovakia. It is located in the centre of the country between the Low Tatras and the High Tatras. It is popular with Slovaks as well as with foreign visitors. Donovaly has 15 ski lifts

and offers 18 kilometres of ski runs. Jasna Nizke Tatri – Chopok North is the largest ski resort in the country. It is located in the Carpathian Mountains, in the Low Tatras. It features 18 surface lifts, 7 chairlifts and 4 gondolas, including a recently installed funitel, with a total capacity of 30'744 people per hour. 29 of the 45 kilometres of ski runs are equipped with snowmaking. The Bystrianska Dolina ski resort is located between 1'216 metres and 2'005 metres above sea level in the Low Tatras. It has 14 ski lifts and 7 ski runs, 2 that are considered difficult. The vertical drop is 789 metres.





Tajikistan



With 93% of the territory covered in mountains, more than 10 mountain ranges and 72 peaks over 6'000 metres high, Tajikistan is one of the most mountainous countries in the world. It shares the high Pamir and Tian Shan mountain ranges with its

neighbours Afghanistan and China. The highest summit, Peak Ismoil Somoni, tops out at 7'495 metres above sea level. The 70 kilometres long Fedchenko Glacier is the longest and thickest glacier in the world, outside the Polar Regions. About 50% of the country is located over 3'000 metres, with an average altitude of 4'000 metres in the highlands in Eastern Pamir.

Despite the vast natural potential, mountain tourism is not very developed, recording very few visitors. It is not part of the local culture.

The only ski area of the country, formerly known as Takob, is now called Safed Dara. It was developed during the Soviet era, in the 1980s, about 100 kilometres from the capital city Dushanbe. Access roads are not in very good conditions and driving there can take 3 hours. The ski area is located about 2'250 metres above sea level and was equipped with 2 old surface lifts, of which only one operates. However, in 2016, a brand new 8-seater gondola lift was installed and the old building with accommodations located at the base of the slopes, which was falling into disrepair, has been renovated entirely. Attendance seems mostly concentrated on the week-ends.

However, since mountains and snow are not scarcities, there is plenty of potential for ski touring and ski mountaineering and there are 2 reputable locations for heli-skiing, one in the Pamir and the other in the Fann Mountains. Those who have skied there reported deep untracked snow and stable sunny weather.



Ukraine



Part of the Carpathian Mountains extends through Western Ukraine, followed by lower hills to the centre of the country. The highest peak in the Ukraine is Hoverla Peak which culminates at 2'061 me-

tres above sea level, near the Romanian border.

Ukraine is hardly known internationally for its ski resorts, but there are many places to ski in the country. Most ski resorts are located in the Carpathian Mountains, but there are also a few ski areas in the other regions and several urban ski areas (hills next to cities equipped for downhill skiing).

The ski industry has been developing and Ukraine's ski resorts have considerably improved in the last 10 years. 18 brand new lifts were delivered by major manufacturers in the last decade. In the past few years, several small hotels, holiday houses and apartments were built and some resorts have upgraded a portion of their ski lifts to current standards, even if ground transportation is still problematic for access to some resorts. Secondary ski areas usually have only basic equipment, and runs may not be groomed. Lifts queues can last more than one hour on the week-ends.

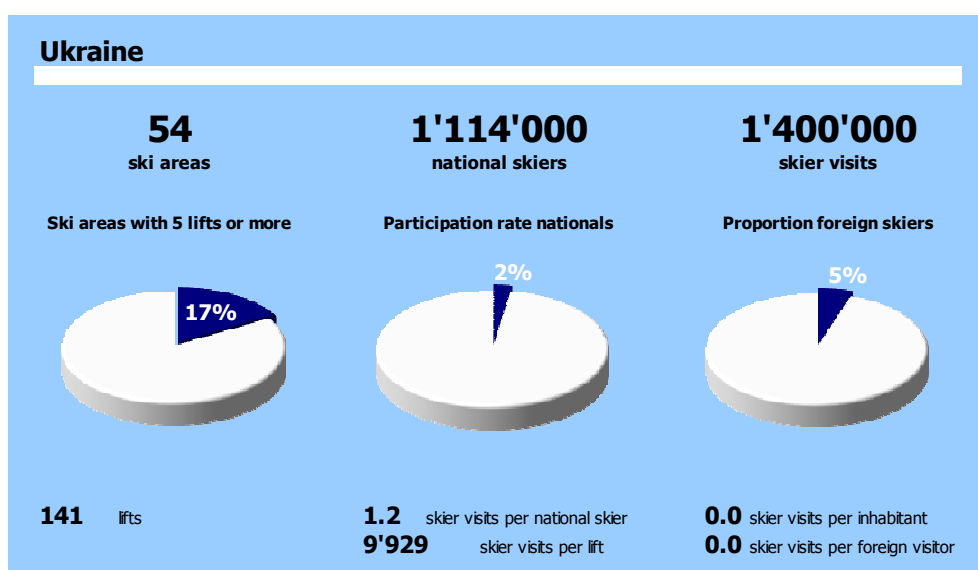
The price for lift passes, ski rentals and ski lessons are relatively cheap compared to Western European standards.

The newest and most modern ski resort in the Ukraine is Bukovel. It was built in the 2000s and is for the time being the only one with world-class facilities: with high-speed chairlifts and meticulously groomed runs, snow-making facilities, organised lift lines and safety personnel. Even if Bukovel is the second highest resort in Ukraine, its base elevation is only 900 metres above sea level and the highest ski lift reaches 1'370 metres. This makes the resort very weather and temperature dependent. In 2011/12 winter season, the ski area only fully opened at the end of January. Additional snowmaking systems will help reduce dependence on weather conditions and allow an earlier start to the season. The mountains around the resort protect it from the cold wind. It has 16 lifts, 60 kilometres of runs and quality ski and snowboard instruction.

The resort of Slavska was the most popular in Ukraine for many years (until Bukovel was built after 2000). It is also one of the easiest to access. Located in a picturesque village at 600 metres above sea level, it is surrounded by mountains that protect the resort from strong winds. With 4 different

mountains, the resort offers a wide variety of runs. The most famous one is the Mount Trostian, which offers nearly 500 metres of vertical drop and 8 lifts (1 chairlift and 7 surface lifts).

The highest ski resort in the Ukraine is Drahobrat, located at 1'360 metres above sea level, in an area with heavy snowfall and a stable snowpack. It is the first ski area to open for the season and the last one to close. The resort features 8 lifts, 8 ski runs and claims to meet the requirements for Olympic competition. It is very popular with skiers and snowboarders because of the guaranteed snow. The natural landscape in and around Drahobrat, and the view from most hotels are appealing. However, access to the resort is a challenge. The only way to drive there is to use old Soviet all-terrain vehicles on an unpaved road.





Uzbekistan



Although a large part of the country is covered with a mostly flat and rolling sandy desert with dunes, and broad, flat, intensely irrigated river valleys along the Amu Darya, Syr Darya and Zarafshon rivers, the eastern part of the

country along the Tajik and Kyrgyz borders is surrounded by mountainous terrain. The country's high point rises to 4'301 metres above sea level (Adelunga Toghi).

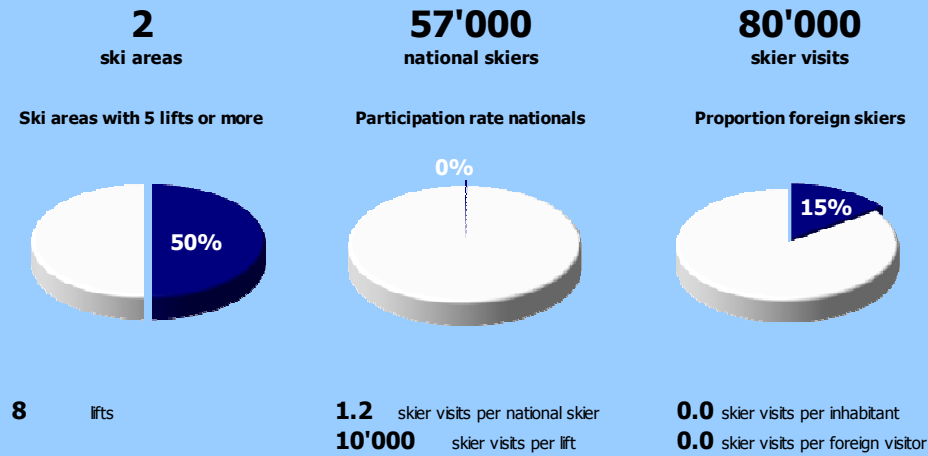
Although skiing has a relatively low national participation rate, the country has 2 ski resorts located in the Western Tian Shan Mountains, about 80 kilometres away from the capital city of Tashkent. Every year, more than half a million tourists from Tashkent and other neighbouring areas visit the 3 health–recreation complexes that have been built in the mountains. 2 of them offer skiing during the winter: Chimgan and Beldersay.

With a base elevation of 1'600 metres, Chimgan lies below the massive 3'309 metre high Big Chimgan peak. As early as the 19th century, the climate made the area an appealing destination. The elite began to build summer houses and cottages, and then a sanatorium and resorts. Much later, 6 ski lifts were built for winter sports. The ski season is not very long; it starts in December and lasts until mid-March.

With a slightly longer season, Beldersay ski area is located close to Chimgan, on the slopes of Kumbel Mountain. The ski area advertises more than 300 sunny days a year and abundant snowfall. Runs are more geared towards skilled skiers and snowboarders and one is FIS certified. The ski area's infrastructure is limited to 2 lifts and minimal accommodations.

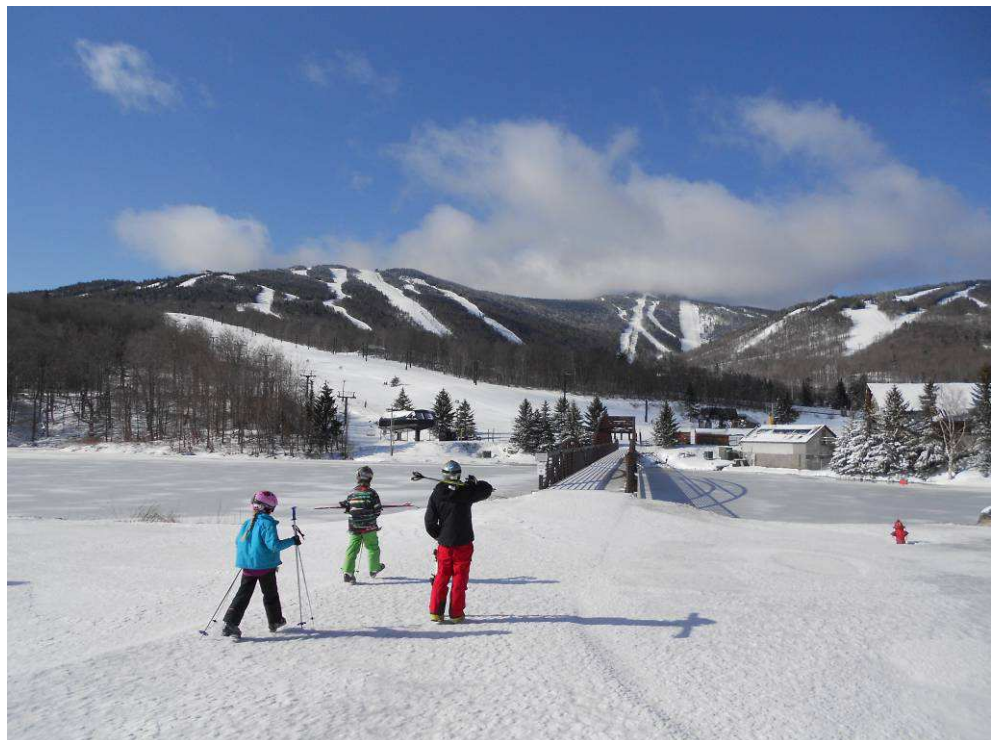
Various locations in the Western Tian Shan Mountains also offer heli-skiing opportunities. Skiers are flown to altitudes ranging between 2'500 to 4'200 metres above sea level. Descents are often 10 kilometres long and offer up to 2'000 metres of vertical drop.

Uzbekistan



The Americas

Both North and South America have ski resorts. Although the region has a market twice the size of Europe, including the Alps, with approximately 900 million inhabitants, penetration rate for the ski industry is low. Proportion of skiers among the population is only one third of what it is in Europe³⁵. In spite of two continents spread across two hemispheres, both with high mountains, more than 90% of the ski resorts are located in North America. Overall attendance is only the half of the skier visits in the Alps, even if this region is second to the Alps in terms of big ski resorts (with 7 resorts in the top 50).



³⁵ About 4% for the Americas compared to around 12% for Europe



Argentina



23% of Argentina is covered in hilly and mountainous terrain. The longest mountain chain in the world, the Andes, runs down the entire western side of the country for more than 3'000 kilometres, and includes the chain's highest summit, Aconcagua, topping out at 6'960 metres above sea level. However, in spite of the high summits of the Andes, the ski resorts are located at lower altitudes, primarily between 1'000 and 2'000 metres elevation. At the southern end of the country, ski areas are located even lower. As is typical for winter sports resorts in the Southern Hemisphere, the ski season in Argentina starts in June and lasts through mid-October.

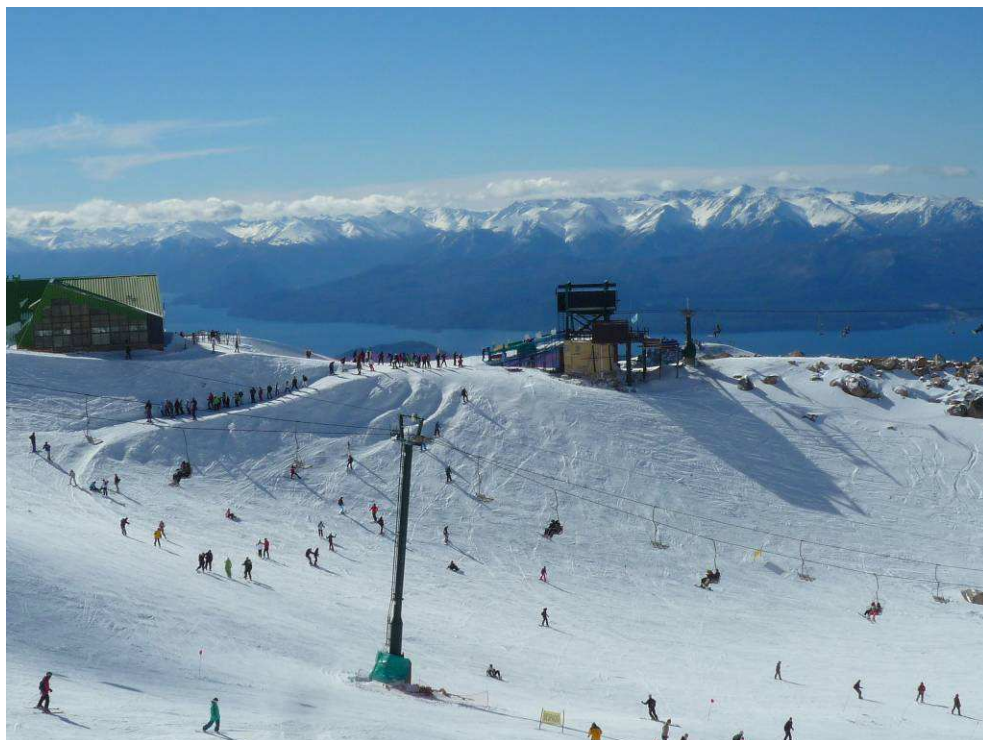
Before skiing became a leisure activity, and due to the mountains and the presence of snow, skis were already used in the 19th century as a means of transportation by foreigners who brought the activity over from Europe. It developed as a recreational activity

in the 1930s, mostly concentrated in the area surrounding San Carlos de Bariloche under the management of ski clubs and promoted by some European pioneers. Ski areas developed even before being equipped with lifts. The first lift was installed in Catedral, Bariloche's ski area, in 1939 and ski racing started in Argentina in the 1940s.



South American ski resorts have experienced new growth and development over the last decade. With nearly unlimited off-piste possibilities and good powder snow on pristine slopes, they offer an appealing option during off-season for resorts in the European Alps and North America. Skiing has until

now remained fairly exclusive, as Argentines do not have the mountain culture of the Alps and costs are relatively high. General interest is increasing, with an annual dedicated trade show, *Expo Nieve*. Visits to ski resorts are not limited to nationals. Skiers from Brazil, Chile and even Mexico come to Argentina, and some resorts are crowded with this international clientele in July and August, the middle of the austral ski season.



Argentinean ski areas are estimated to generate around 1.5 million skier visits per year, mostly concentrated in the top 7 resorts.

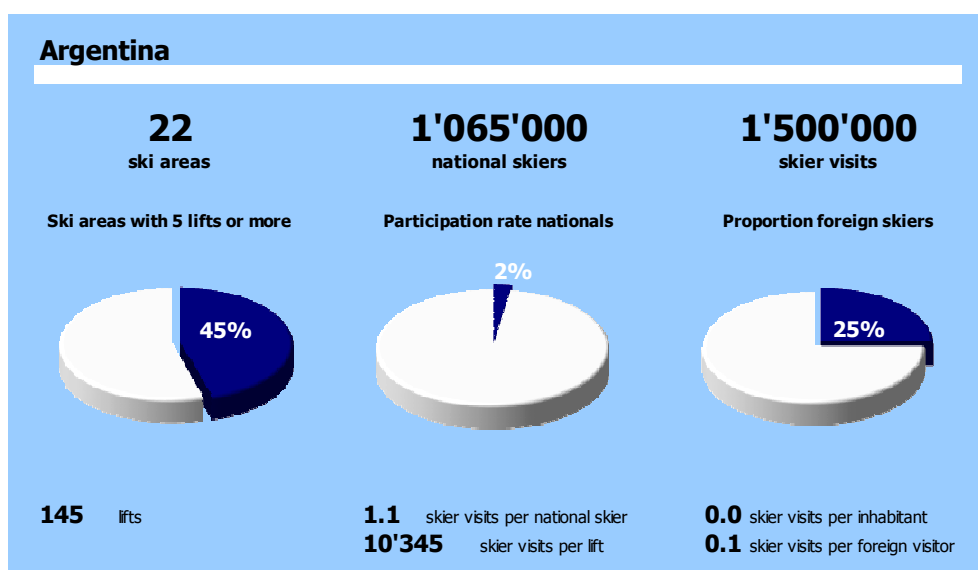
The biggest resort in Argentina is Cerro Catedral, which stands for *Mount Cathedral* in Spanish, due to its summits resembling the towers of a medieval cathedral. It is located in a national park near San Carlos de Bariloche, whose name may be more familiar to foreigners. The majesty of the place is well-known by skiers from all around the world. The resort was a pioneer in South America. It operates as a 4-season resort and is today the most international and fully-equipped ski area in the country. It continues to update facilities in order to provide visitors with the most advanced infrastructure. It is considered to be the *Chamonix* of South America. With 53 runs, 39 lifts, a snowmaking system covering 10 hectares, it offers 600 hectares of skiable terrain, with a top elevation of 2'180 metres above sea level. For years Catedral has hosted the most important international competitions and snow festivals in Argentina.

Las Leñas is among the most popular ski resorts in Argentina due to snow quality, runs for all levels, the outstanding off-piste descents and cross-country skiing. The resort is located a few kilometres from the City of Mendoza. It is the highest in the country. With a vertical drop of 1'200 metres, the area is located between 2'240 metres and 3'430 metres above sea level. Due to its dry climate, the snow quality for the 230 hectares of skiable

terrain and 40 runs is famous worldwide. The terrain is served by 13 lifts and, if necessary, supported by a snowmaking system.

Another spot close to Mendoza is Penitentes. With views of Mount Aconcagua, it is also very close to Chile. Inaugurated in 1979, the resort occupies more than 300 hectares of skiable terrain and offers 25 runs. Several runs are FIS approved and are used for competition. The hotel infrastructure, with a capacity of nearly 2'000 beds, includes all kinds of accommodations, from hostels to 4-star hotels.

Among the other major ski areas of the country, Chapelco, in Patagonia, offers fantastic scenery from its 1'980 metre high perch. It is advertised as combining adrenaline pumping activities and beautiful landscapes. Cavihue, with a base elevation of 1'647 metres above sea level, is located at the foot of the Copahue Volcano on the shores of a lake with the same name. With over 1'000 hectares of skiable terrain, and 20 runs, it offers the longest season in the southern hemisphere. The 8-kilometre long off-piste descent from the volcano's crater to the base of the resort is legendary. Popular with families, La Hoya, located in a forest, lake and waterfall covered landscape, was opened in the 1950s. The first lifts were installed in the 1960s and the resort was subsequently modernised in the 2000s. It now features 10 lifts, 24 runs and snowmaking equipment. For those who like skiing at the far reaches of the planet, Cerro Castor, the newest resort in Argentina and the southernmost on Earth, is close to the capital of Tierra del Fuego, where the sea and the mountains meet. The ski area base is only 195 metres above sea level and the summit rises to 1'057 metres. Cerro Castor enjoys very good weather and quality powder snow. Due to stable temperatures, it has one of the longest seasons in South America. Opened in 1978, Mount Bayo ski resort is located within a beautiful natural landscape. Surrounded by forests and with a majestic view of a lake, it offers 200 hectares of terrain for alpine skiing, with a 700 metre vertical drop. It has 22 marked trails and 12 lifts.





The Andes are running through the western side of the country in 2 distinctive ranges separated by the Altiplano, a high-land plateau situated between Occidental and Oriental ranges of the Cordillera. The Andes feature very high altitudes in Bolivia and are topped at 6'542 meters above sea level (Nevado Sajama). The country capital city, La Paz, is itself situated at an altitude of 3'640 meters. The town is overlooked by mountains reaching over 6'000 meters, with snow-capped peaks in the northernmost part of the Cordillera Oriental, the Cordillera Real.

The upper slopes of these mountains have some glaciers and are covered year long with snow, at altitudes over 4'600 meters. Over 5'500 meters high, climate can be polar. However, global warming has been showing its impact. Permanent snow-covered slopes are scarcer and some glaciers already disappeared.

This caused the highest ski area in the world to get out of business. For a long time, Chacaltaya, situated at nearly 5'400 meters above sea level held this record and was an attraction for the middle class of La Paz, about 30 kilometres and one hour drive away. The at that time existing Chacaltaya glacier was served by a single home-made lift, offering a slope that was skiable 7 or 8 months a year, together with some après-ski. It was once home of the Club Andino Boliviano, which established there already in 1939.



The place has however been a witness of climate change over decades. Bolivian scientist started measuring the Chacaltaya glacier in the 1990s. In 2005, it was predicted that it would survive until 2015. However, it completely melted down already in 2009. Now the defunct ski area looks like a ghost place, with the ruins of the base area building. The skilift has been dismantled.



Ski areas in Canada are located in the Rocky Mountains of the West and in the Québec, Ontario and Atlantic³⁶ provinces of the East. While the Rockies have ski resorts that can compete with the European Alps in terms of vertical drop, skiing in the East takes place on lower altitude mountains and hills.

With a long ski history (North America's first rope tow was installed in 1932 at Shawbridge, in Quebec), Canada has a mature market, with serious concerns about an ageing clientele and the ability to renew the customer base, and is also facing interesting ethnic issues. Skier visits have been flat for the last decade, mostly influenced by weather conditions. These can be much different from East to West, mitigating the overall impact on national attendance figures.



³⁶ Prince Edward Island, Newfoundland, Labrador, Nova Scotia and New Brunswick

However, market studies show that the number of skiers continues to decline. The purchasing behaviour of most skiers has been influenced by the economy and they have more actively sought out deals or to ski close to home. Some still say that weather and poor snow conditions are the prevailing cause. Winter 2015/16 was the worst season over at least 20 years for Ontario and Quebec, resulting in a depressed national total.

The winter of 2016/17 had a bit of a sluggish start, but then ... will be remembered very differently depending on which part of Canada is considered. While millions of Canadians experienced exceptionally mild temperatures during January and February, much of the country (geographically) experienced a *classic Canadian winter* with an abundance of snow. This *classic winter* was particularly true in the West, where Arctic air and frequent storms brought impactful snow even to typically mild locations like Vancouver and Victoria, while in many of the mountain towns of British Columbia, snowfall was measured in meters. The northern portion of British Columbia was an exception to this epic winter with a much dryer weather pattern and only near normal snowfall.

Overall, the domestic and international skier visit numbers rebounded strongly after the weather challenges of the previous season. Snow and favourable exchange rates with respect to key markets in the US and Europe certainly helped drive the success of the season.

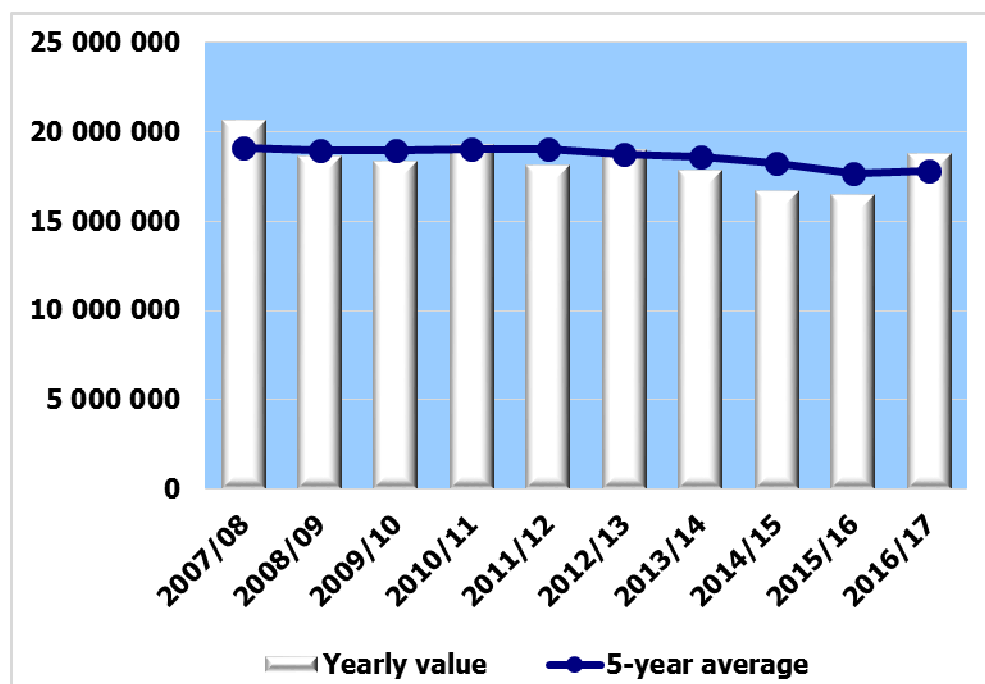


Figure 27: Canada, evolution of skier visits

Canadian ski resorts depend on a domestic and U.S. customer base. It is interesting to stress that some of the well-known resorts, such as Whistler Blackcomb, Banff and to a lesser extent Tremblant, also attract some overseas skiers, even if the proportion of foreign visitors is relatively low. Fur-

thermore, some very small resorts also appear to attract British tour operators. Mont Saint-Sauveur International and Resorts of the Canadian Rockies are the largest multi-resort operators in Canada, with 6 resorts each. Further to the demise of Intrawest, some of its former resorts are now being operated by the 2 large US multi-resorts groups. Otherwise, operators are mostly local.



Another major ski area announced for Western Canada

A proposal has been announced to turn an old nickel mine in British Columbia, Canada into a year-round recreational area incorporating a ski area called the Giant Nickel All Season Resort.

The CND 600 mio plans include a ski area with 10 runs and one of North America's biggest lift-served verticals served by a new gondola which would be located just off the TransCanada Highway, 2 hours' drive from Vancouver.

The nickel mine closed 45 years ago and the area where the ski centre is proposed is suffering economic decline.

The mine is owned by Toronto-based Barrick, the world's largest gold mining company, who are reported to be progressing the ski resort plan.

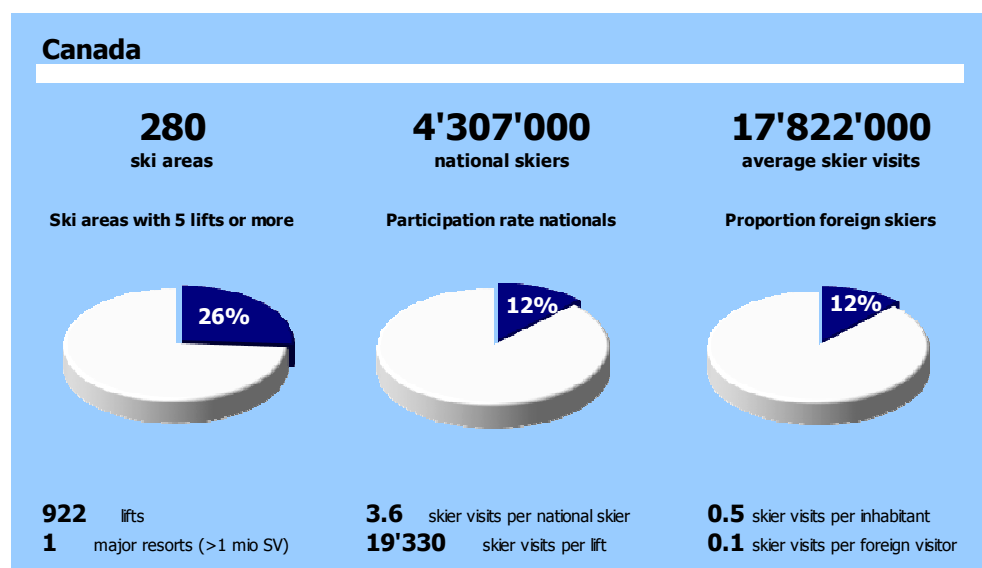
Local communities and First Nations representatives are reported to be in favour of the development. The project will need to go through a 2 year provincial environmental assessment review.

At least 3 other ski resort developments have been put forward for western Canada in the past few years.

Source: Snowhunter

Due to the ongoing stagnation of attendance, the Canadian ski industry has conducted detailed studies about the demographics, implementing the

Model for Growth. Several operators have also diversified their activities and some of the major resorts now offer numerous summer activities that enable them to balance out visits for both seasons. The idea of a year-round resort has been highly developed and promoted. Some resorts near metropolitan areas have developed water rides and other such summer activities, which even allow them to use some of the lifts during the summer, as well as to sell year round passes.



New ski area planned for Canada

A new ski hill is under construction in the Canadian province of Saskatchewan. Saskatchewan lies on the Eastern side of Alberta but lacks the big mountains of its neighbour and although there are a dozen ski areas here, most are small ski hills with less than 100 metres of vertical served by a few drag lifts and built to serve local communities. Winter temperatures are normally double-digits below freezing so snow cover is rarely a problem.

The Optimist Hill, located within Diefenbaker Park in the largest city in the province, Saskatoon, has similar physical limitations but big ambitions with its backers, The Optimist Ski Club, aiming to raise USD 5 million not just for a lift and other infrastructure at the hill, but also to add about 10 metres of ground depth to the top of the hill, taking its skiable vertical up to around 21 metres, and slope length to around 140 metres.

Plans for the hill include floodlighting for night skiing, a terrain park, cross country loop and facilities for tubing as well as ski and boarding runs for all ability levels. The centre will also feature an impressive 4'000 square foot base lodge.

Funding for the hill was boosted by a USD 150'000 donation from the local Co-op and it is hoped some facilities will be ready to go at the ski hill this coming winter.

The Optimist Club said in a statement that the funds will *support the creation of an affordable, family-oriented recreation site encouraging healthy lifestyles.*

Source: Snowhunter



Chile



The Andes run 4'000 kilometres up and down the entire length of the Chile. 80% of the country is covered in mountains, rising to very high altitudes in the North, with year round snow coverage on summits over 4'800 metres high. In the South, after having reached its highest point, the Andes are a bit lower, with most peaks topping out in the 3'000 metre range. Most ski resorts are typically located at these altitudes. Further south, Patagonia offers huge glaciers that plunge into the sea, where several fjords shape the coastline.

The first Andean skiers were already identified in 1887, when investigation work started for the construction of a railway from Valparaíso to Santiago, crossing the mountains into Argentina, from Mendoza to Buenos Aires. With snowfall of up to 8 metres in the high passes, the most efficient way for the European engineers to travel was on skis. Skiing was, for instance, the only realistic way for workers to reach Uspallata Pass, which is near the present-day Chilean resort of Portillo. During

construction of the Trans Andean Railroad, skis were then used by engineers to travel around in winter. There are also historical records of skiers hired to transport mail across the mountains in the winter of 1889. Finally, after the inauguration of the railway, in 1910, recreational skiers began to use the railway as a ski lift.

In the 1930s, a rudimentary lift was built in the Portillo area (so called because it was a small pass between the mountains) and adventurers from Europe and North America became the first ski tourists. Ski instructors were brought from Europe and a rustic mountain lodge served as the first hotel. In 1946 Portillo installed a chairlift, the first one on the continent. In 1949, the Gran Hotel Portillo was inaugurated. In 1960 the Chilean government, who had owned and operated the ski area up to that point, decided to sell Portillo, making it one of the first state-owned companies sold to the private sector in Chilean history. In 1966 the World Alpine Ski Championships were held in Portillo, which focused international attention on Chile's emerging ski industry, and also increased national interest in the sport. Over the years, three speed records were set on Portillo's slopes, including the 1978 record for U.S. skier Steve McKinney, who surpassed 200 kilome-

tres per hour for the first time in skiing history. During the 1960s, top international ski racers began to train during the northern hemisphere's summer on Portillo's slopes, and then later on in El Colorado, La Parva and Valle Nevado.



During the 1950s and 1960s, the sport expanded rapidly with new ski areas being built in the central Andes near Santiago and in southern Chile, largely on the slopes of volcanoes. During the 1980s, improvements to infrastructure included new ski lifts, increased and better hotel capacity, and improved roads. With fewer tourists than in Europe and the United States, the ski industry in Chile remained relatively quiet until the 1990s. Improvements such as new ski lifts, added capacity to hotels, saunas and swimming pools served to provide Chile's ski resorts with a world-class reputation.

There are three principal geographic ski regions in Chile. The Central Chilean Andes, where ski resorts are located between 2'800 and 3'000 metres, on wide-open mountains, above tree-line. The snow is generally dry and the terrain varied, providing slopes for skiers and boarders of all abilities. The main resorts are El Colorado, La Parva, Valle Nevado, Portillo, Lagunillas, and Chapa Verde. The already mentioned ski resort of Portillo is the oldest in South America. It is surrounded by snowy peaks that rise to 5'000 metres above sea level. The resort has a few odd 5-person T-bar lifts, unique in the world. The resort offers 23 runs, features 14 lifts and claims to limit access to only 450 guests, offering a unique experience. Tres Valles, with an interconnect between El Colorado, La Parva and Valle Nevado, is the largest ski area of South America, with a total of 48 lifts and about 120 kilometres of groomed runs. The area, located 40 kilometres from Santiago, tops out at 3'630 metres. In addition, the Valle Nevado base area, nestled at 3'025 metres above sea level, is recognised as the highest in the world.

In the Southern Andes, where the mountains are lower on average, precipitation is much higher, and as a result there is both more and heavier snow.

The resorts are largely located on the lower slopes of volcanoes, many of which are active, and provide terrain with dense native forests. The views of lakes, forests, and distant volcanoes are exceptional. The major resorts are Termas de Chillán, Villarrica, Antillanca, Lonquimay, Las Araucarias, and Corralco.



Patagonia offers skiing at Cerro El Fraile and at Cerro Mirador in Punta Arenas, where one can ski and enjoy spectacular ocean views. Due to the latitude, these resorts have the longest ski season of anywhere in Chile. Cerro Mirador is the southernmost ski area in Chile. It was equipped in 1947 with its first lift, in spite of the fact that it was already considered a ski resort as early as 1938. Still today, the area features one unique lift, but 14 runs, which allow skiing from mid-June to mid-September with spectacular scenery of the Straits of Magellan.

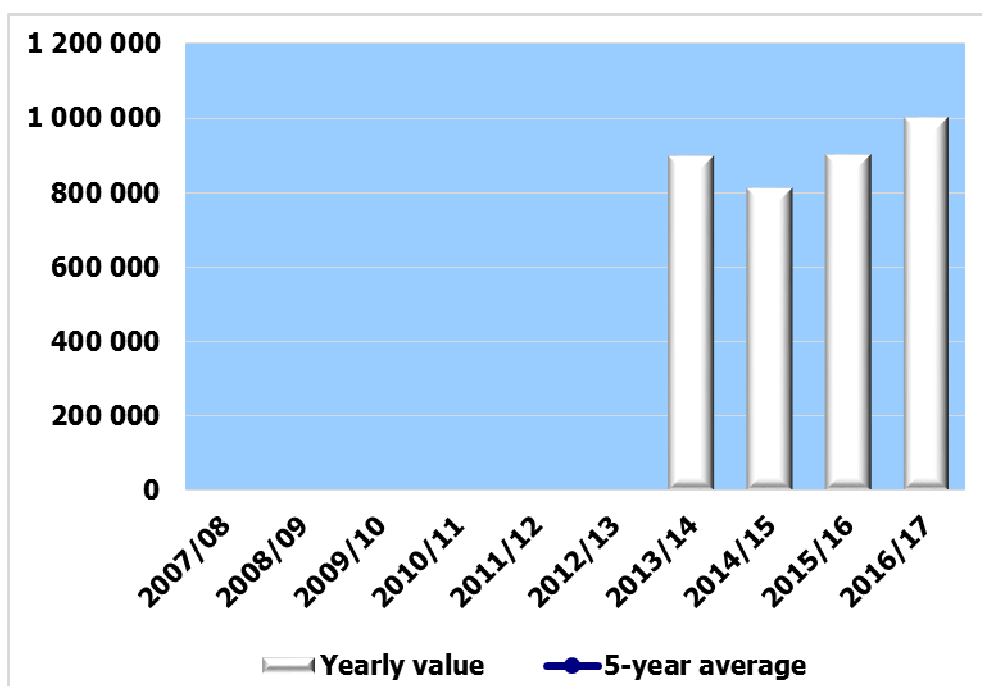
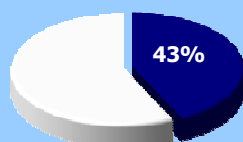


Figure 28: Chili, evolution of skier visits

Chile

21
ski areas

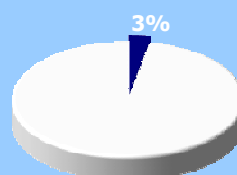
Ski areas with 5 lifts or more



127 lifts

517'000
national skiers

Participation rate nationals



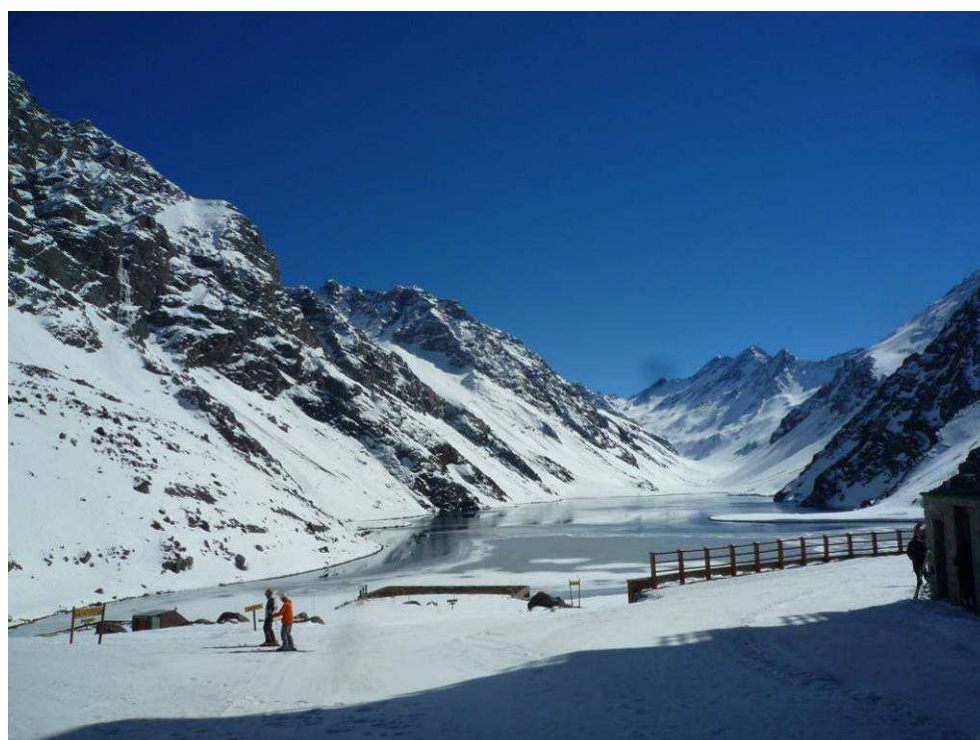
1.1 skier visits per national skier
7'087 skier visits per lift

900'000
average skier visits

Proportion foreign skiers



0.0 skier visits per inhabitant
0.1 skier visits per foreign visitor



Colombia



Colombia offers a wide variety of terrain: it combines flat coastal lowlands, central highlands, high Andes Mountains and eastern lowland plains. Altitudes range from sea level up to Pico Cristóbal Colón and Pico Simón Bolívar, both topping at 5'775 meters.

Colombia no longer accounts in the current world ski areas inventory, but it deserves however to be mentioned as it used to host a small lift equipped ski area, despite it has already belonged to the

past for a long time. The idea to ski on the very high slopes of Nevada del Ruiz, a 5'305 meters high active volcano of Cordillera Central, already emerged in 1949. This mountain is located in a compact cluster of volcanic mountains near the centre of Colombia and is included in Los Nevados National Park. It is partly covered by a glacier. The ski area was located over 4'800 meters and a T-bar lift was installed in 1956, allowing to host the same year the South American Ski Championships. A second T-bar lift was installed later on and whilst the ski season corresponded to the northern hemisphere winter, there was enough snow there for the lifts to operate on any day of the year, subject to demand.

Skiing in Columbia was driven by a couple of enthusiasts but as no Colombians succeeded in international (or national) competition, interest waned rapidly and the lifts fell into disrepair by the late 1970s. Later on, it is reported that the lift cables were partly buried in glacial ice. The volcano had a major eruption in 1985 and more than 23'000 people were killed³⁷. Following that eruption, the mountain remained continually active for several years, melting down part of the glacier. Eruptions culminated in 1991 and 1992. The last eruption dates from 1996.

Even if accessibility is sometimes restricted due to seismic activity, Nevada del Ruiz remains a popular climbing area in Colombia, as well as a popular unorganised ski spot in winter. Some parts of the glacier and snow still remain on the mountain year-round, even if they are expected to melt down over the next 30 years.

³⁷ The 1985 eruption was the world's second most deadly eruption in the twentieth century, the first being the 1902 eruption of Mont Pelée, which killed 29'000 people.



Mexico contains several mountain ranges. The Sierra Madre Occidental and the Sierra Madre Oriental run from north to south along the western and eastern sides of the country. The Mexican highlands (Altiplano) range between 1'000 to 2'000 metres elevation.

From the Pacific Ocean to the Gulf of Mexico runs the 900 kilometre long Trans-Mexican Volcanic belt, the Cordillera Neovolcanica, which marks the geological divide between North and Central America. The Cordillera Neovolcanica features the country's 3 highest volcanic peaks, all over 5'000 metres. At 5'675 metres above sea level, Pico de Orizaba (Citlaltépetl) is the third highest mountain in North America.

Snow can be found in winter on the high peaks of the Sierra Madres, as in other places in the Northern Altiplano. There are even some remaining glaciers on the 3 highest peaks³⁸, where mountain aficionados sometimes enjoy skiing after their mountaineering endeavours.

Skiing is nevertheless not very popular among Mexicans. There is only one small ski area in the North, named Monterreal, close to the city of Monterrey. It is a 4-season leisure centre, equipped with 2 dry slopes (230 and 45 metres long), one platter-lift and one magic carpet. However, between December and January, it is possible to ski there on the natural snow that covers the area.

Despite the significant population of the country, there seems to be very few people who actually ski, as there is no ski culture. The closest destination for Mexican skiers is of course the US. However, there is in fact no report of important figures of Mexican skiers, among the half million of people that come every year to ski in the US (most of them are Canadians).

³⁸ Due to volcanic activity and the associated rising temperatures, Popocatépetl is now off limits to climbing and its snow fields are slowly disappearing.



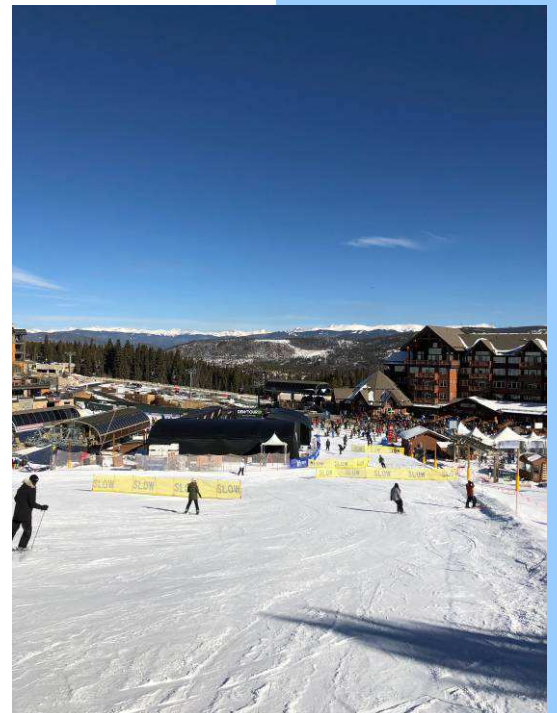
United States



With a territory as large as Europe, the United States represents one of the world's largest ski markets. Beside the Rocky Mountains Range, reaching altitudes higher than 4'300 meters in Colorado, there are numerous other mountains throughout the country. Located in the State of Alaska, the highest summit, Denali, also known as *Mount McKinley*, its former name, reaches 6'144 meters above sea level. Only a dozen of the 50 States do not offer ski areas. The East part is subject to polar winds in winter and ski areas can be located in low altitudes. On the West part, resorts are located at higher altitudes, with base areas over 3'000 meters³⁹ and reaching up to 3'914 meters above sea level with the highest lift in Breckenridge ski resort. This enables some ski resorts like Arapahoe Basin to offer one of the longest ski season in the world, for non-glacier resorts, with opening in October and closing in July.

Ski has a long history in the United States. The sport was obviously brought in by Norwegian immigrants, who founded the first ski club in 1882 in New Hampshire. The National Ski Association was founded in 1905 and a ski factory already existed in 1911. Howelsen Hill Ski Area already opened in 1915 in Colorado and the first rope tow was installed in 1934 in Woodstock, Vermont. United States accounted already more than 50 ski areas before World War II. The first Winter Olympic Games in America were held in 1932 in Lake Placid. However, at that time, downhill skiing was still not introduced as an Olympic discipline.

There has later on been a big boom in the development of ski areas in the 1950s to 1970s. But contrary to the Alps, new ski areas went on appearing even after the 2000s, even if it is in more limited numbers.



³⁹ Arapahoe Basin, Loveland, Silverton Mountain, Santa Fé, Monarch, Wolf Creek, Cooper ...

Nevertheless, due to closures and other misfortunes, the number of ski areas has been steadily decreasing over the years. At the beginning of the 1980s, there were over 700 ski areas in the country, whereas there are less than 500 ski areas still in operation today.

The industry is dominated by several big players, operating several mostly integrated resorts. They have been growing in size by new acquisitions over the last years, with some billion dollars recent deals. Vail Resorts, Peak Resorts, Alterra Mountain Company⁴⁰ and Boyne Resorts all operate more than 10 resorts each. Some of the larger players are listed companies. In addition to smaller groups, it has numerous independent ski areas of varying sizes.

Aside from the 2008 crisis, weather conditions have shaped, more than anything else, the change in skier visits over the years. Their pattern throughout the decade reinforces the trend of a mature market since the end of the 1970s. After the 2010/11 winter posted an all-time record of 60.5 million skier visits, a very bad season followed and since, the 5-year average went down up to the 2016/17 winter. With 54.8 million skier visits, attendance rose 3.7% over the previous year, pushing the 5-year average upwards again.

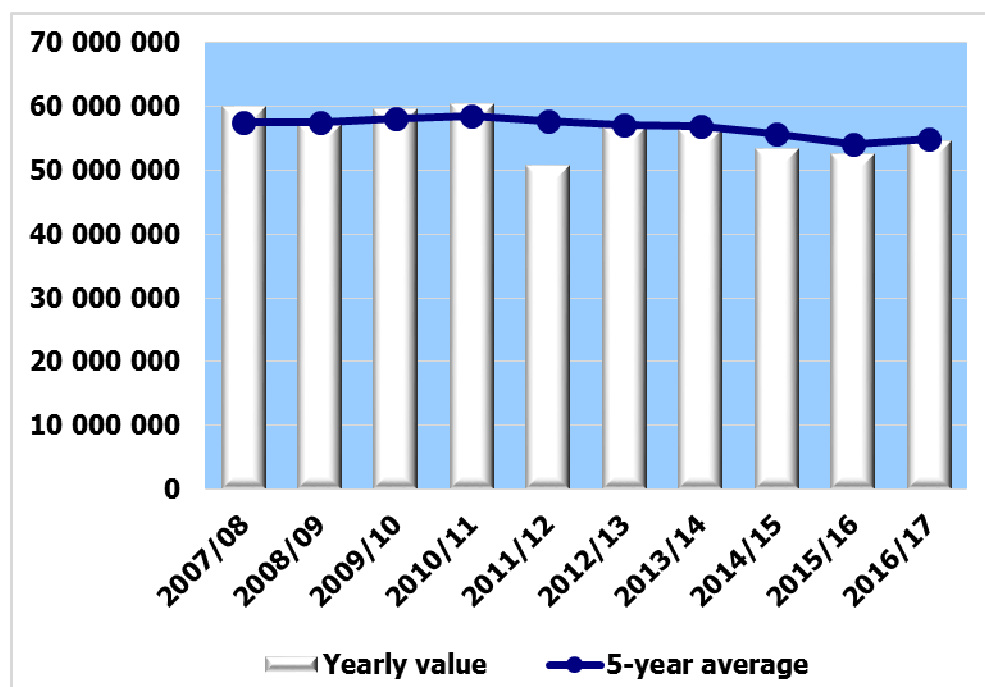


Figure 29: USA, evolution of skier visits

2016/17 winter season was good overall, with a strong rebound in the Northeast region, a record season in the Pacific Northwest region, and the second best season on record for the Rocky Mountain region. At the same

⁴⁰ A joint venture between Henry Crown & Company (owner of Aspen) and KSL Capital Partners.

time, the Midwest region is estimated to have had its worst season since records started in 1978/79. The average number of operating days was generally up in most regions of the country. On an overall national basis, surveyed resorts were open an average of 119 days, up from 112 days in 2015/16 (an increase of 6%). The number of areas operating in the season was also up by 18. This fluctuation is primarily due to cycles of closure and re-opening of small resorts, as part as a result of local weather conditions.

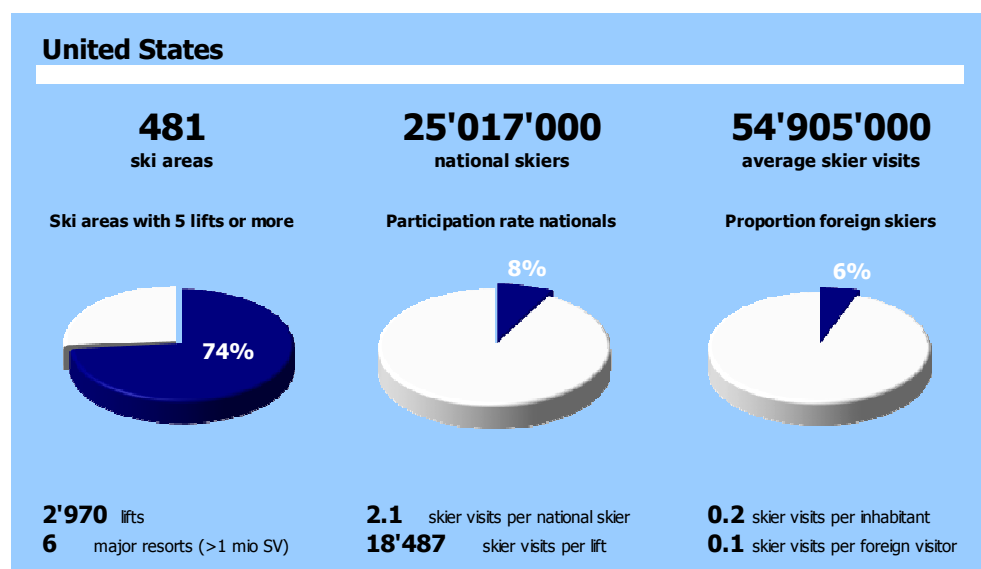


The ski industry in the United States has been the most closely analysed ski industry over the years. There is a substantial history of statistical data available, already since early 1980s. It was the first in the industry to raise issues in the discrepancies between population growth and skier visits, especially since it primarily depends on domestic skiers. In spite of its huge population, the actual yearly participation rate is low. The number of active snow sports participants⁴¹ followed yearly even shows a decrease since 2012/13. It was estimated to 6.5 million active skiers and 2 million active snowboarders in 2015/16. Active snow sports participants represent only 2.6% of U.S. population nowadays. They were still 3.2% 20 years ago (winter 1996/97). To address demographics, the U.S. ski resort industry closely monitors the yearly results of its *Model for Growth*. This aims at addressing the aging population, the increasing proportion of minorities and skier retention rates (increasing beginner interest, converting them into lifelong skiers and preventing regular skiers from abandoning the sport). For several years now, measures have been taken in order to implement this Model for Growth, even if some drawbacks have arisen and the U.S. industry still continues to have difficulty in growing its customer base. The results show that continuous efforts are required and their benefits are

⁴¹ Participants who participated in a snow sport at least once during the given season. This rate is of course much lower than the number of nominal participants (see Glossary). It is estimated that about 25 million people in the United States know how to ski (nominal participants).

limited, so they need to be multiplied. With a market as big as Europe but only one third of the number of skier visits, the U.S. industry still appears to have some potential.

Another issue that the US ski industry is facing is the increasing prices, paid by a declining number of customers. The window price of daily lift ticket rose from an average of USD 59 a decade ago to USD 105 during the 2015/16 season⁴². Average daily rates in accommodations in the western resorts also rose from an average 30% since 2009/10. This tends to make ski less affordable, and especially for the beginners, who usually purchase daily passes, the less discounted tickets. In an overall, the business model of the large US resorts summarises in getting always more money from always less customers. The question is to know if it will still be sustainable for a long time.



New multi-resort North American ski pass to go on sale for 2018/19 season

A new US and Canadian multi-resort pass has been announced by the new conglomerate of a dozen leading US resorts created last spring and now known as the Alterra Mountain Company.

But the new *Ikon Pass*, which will be available for the 2018/19 ski season, will not just feature the dozen Alterra-owned resorts but almost as many leading Canadian and US resorts – a total of 23 destinations in 9 US states and 3 Canadian provinces.

The 23 resort on the *Ikon Pass* are an amalgamation of six industry leaders - Alterra Mountain Company, Aspen Skiing Company, POWDR, Boyne Resorts, Jackson Hole Mountain Resort and Alta Ski Area.

So resorts on the pass will include Aspen Snowmass, Copper Mountain Resort,

⁴² Even if yield per lift ticket did not increase that much, rising from USD 31.94 to USD 49.88.

Eldora Mountain Resort, Jackson Hole Mountain Resort, Big Sky Resort, Killington Resort, Sunday River, Sugarloaf, Loon Mountain Resort, Alta Ski Area, and Snowbird.

In recent years the US lift pass market has transformed in many ways. An increasing number of resorts now have airline/hotel style dynamic pricing of their lift passes and there are also several multi-resort season passes available in various formats, which allow holders to ski at numerous resorts for one price that's often not a lot more than a week's ski pass in Colorado.

These include the *Epic Pass* run by Vail Resorts and its partners, which also includes resorts in the Alps, Japan and Australia and the *Mountain Collective* pass which offers 32 days of skiing at 16 destinations across 5 continents (typically 2 days at each), plus additional benefits.

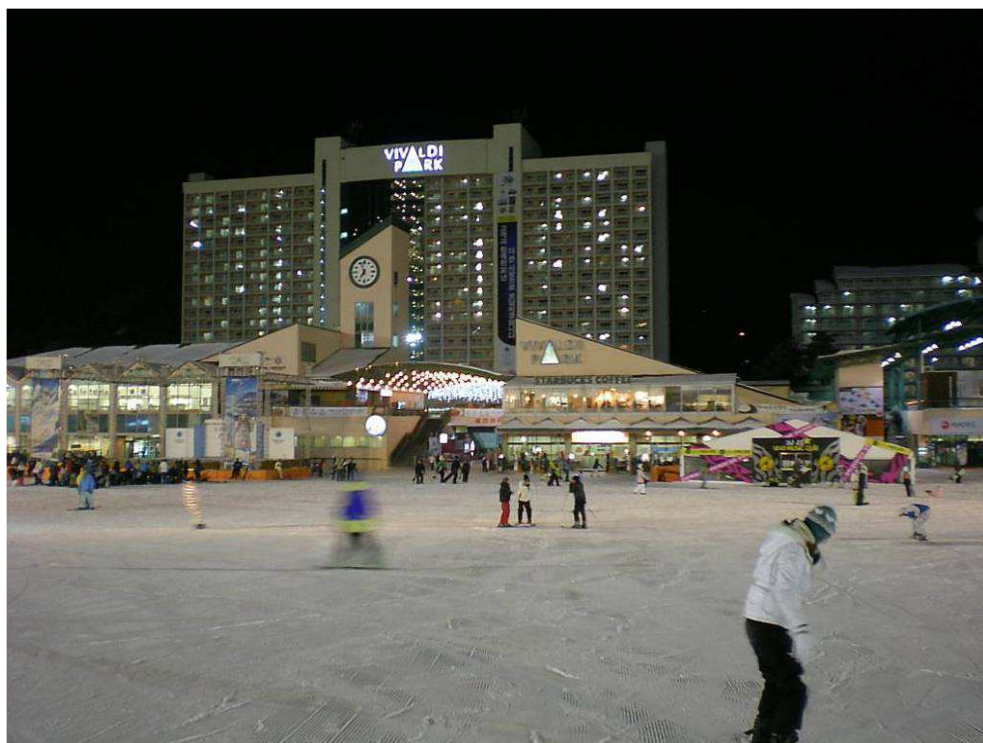
The U.S. Ski Team's Mikaela Shiffrin has joined forces with Alterra Mountain Company as an investor and is helping launch the *Ikon Pass* as an Ambassador. Her team mate Lindsey Vonn has long been sponsored by Vail resorts and has promoted their *Epic Pass*.

Source: Snowhunter



Asia-Pacific

With more than 3 billion inhabitants, this region is by far the largest potential market. It combines countries with a long ski history and others that are still completely novice to the industry. Despite the fact that some countries will remain mostly unreachable by the industry over the next decades, some others have demonstrated over the last 15 to 30 years a considerable potential for development. This has compensated for the decline or stagnation in attendance of the more traditional markets of the region.



New ski area planned for northern Myanmar

A new ski resort is to be built on Khakaborazi, the highest peak in Myanmar, according to reports from the country.

At 5'881 meters, Khakaborazi is the highest peak in the region and is located in Myanmar's most northerly state of Kachin, close to the border with China and India.

Reports say that the ski area, close to Naungmung township, would be built with finance from a foreign direct investment company, with negotiations currently underway with an unnamed Australian business.

The country does not currently have any ski area with lifts but there have been several previous plans to build a ski resort in Northern Myanmar (formerly Burma) under the long established former military dictatorship.

These failed for multiple reasons including the fact that the site was inaccessible by road, that the region was unstable due to heavily armed separatists and that the nearest airports were over a closed international border in a neighbouring state. It is unclear whether these issues have been dealt with in the current proposals.

Source: Snowhunter



Australia



Skiing already has a long history in Australia. Miners are said to have started skiing in the 19th century. Records indicate that they founded the first ski club in 1861. The 1920s saw an explosion of winter sports. The industry organised and Australia's first ski lift started operating in 1937. On-slope lodging facilities remained limited through the 1950s. Then skiing became more popular and resort development increased, with strong influence from the United States, Canada and Europe. However, some ski areas are located in

Natural Parks and their expansion has been under tight control. The boom of the ski industry lasted through the 1970s and then entered a consolidation phase, with skier visit figures flattening. They have been stable for the past ten years, with occasional good years, alternating with average and poor years.



2017 was a very interesting season actually. The season started for most resorts on 9th June with no natural snow. All resorts now have very extensive snowmaking, with three resorts also having snow factories. Excellent natural snowfalls arrived in the middle of July, with good snow depths recorded through to early October, with larger resorts extending for an additional week. All resorts closed on almost a full base of snow.

The end result of all of this is that customers are now able to rely on skiable snow – even in early/mid June. The season has been extended at both ends if you like. This has driven additional visitation from loyal ski-

ers/boarders but has also prompted a new wave of snow tourism. Australia has a large immigration program and many *new Australians* come from countries with no snow and no winter culture. These people are very keen to experience snow and *have a go*. These people are not necessarily skiers and snow boarders (yet), but travel quite long distances to have fun in the snow. Some will try skiing and boarding of course.

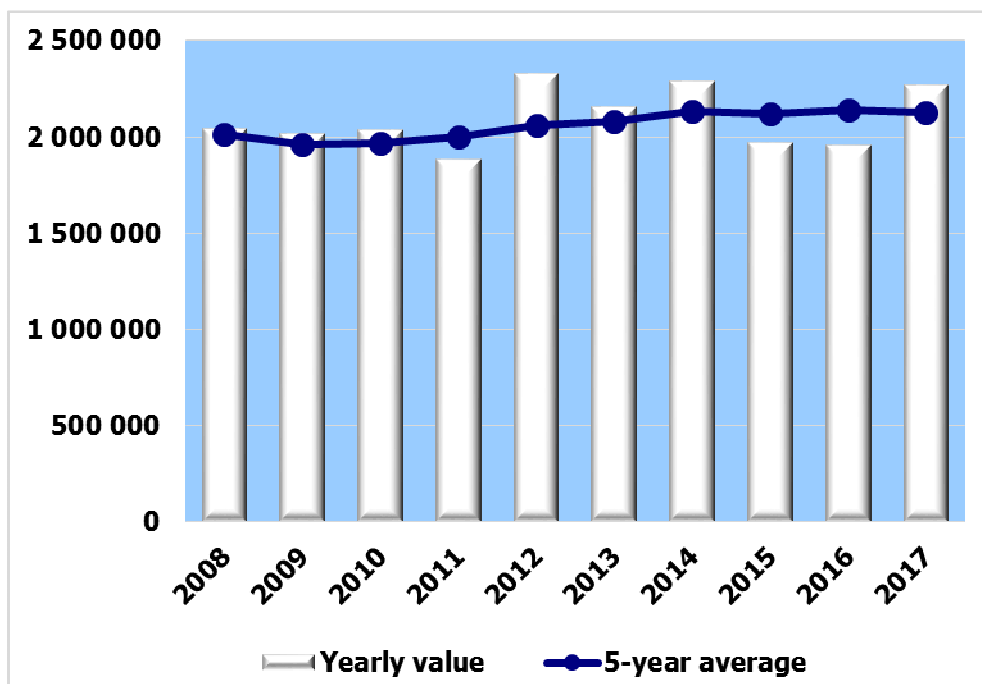


Figure 30: Australia, evolution of skier visits

Downhill skiing and snowboarding primarily take place at 10 resorts in the states of New South Wales and Victoria, in a region called the Australian Alps, located between Melbourne and Canberra. There are also 2 small ski resorts on Tasmania Island, located in National Parks, where snowfall is not always sufficient to enable skiing every year.

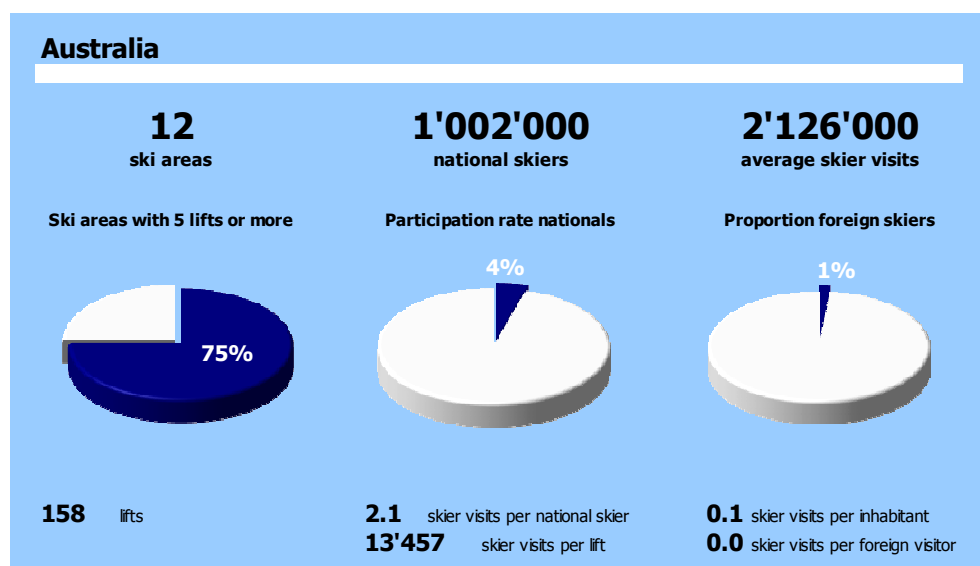
Thredbo, built on the European ski resort model with its shops, nightlife and accommodations, is an example of the kind of resorts that exist in Australia, with 50 runs served by 14 lifts. The resort also offers the longest run in Australia, 3.2 kilometres long with a vertical drop of 670 metres. Thredbo is located on the slopes of the highest mountain in Australia, which culminates at an altitude of 2'228 metres and is in the Southern Snowy Mountains. Another example is Perisher Blue, located in the Snowy Mountains of New South Wales. This is the largest ski resort in Australia, with four villages (Perisher, Smiggin Holes, Blue Cow and Guthega) and seven summits (including five of the highest in the country) served by 49 lifts. There are 99 kilometres of runs for all levels, but 60% are intermediate.

Apart from this big resort, most of the ski areas are rather



small with limited vertical drop. Most areas have snowmaking capabilities. Some resorts have a vibrant night life, but they are perceived as expensive and even luxurious.

With foreign visitors representing less than 2% of skier visits, Australian resorts are clearly not very appealing to international customers, since New Zealand offers a close alternative with much greater vertical drop, lower prices and at least as much fun. It even competes for domestic customers, who in part also prefer to go skiing in New Zealand. Besides New Zealand, Australia is also an important outbound skier market for Japan and South Korea.





China



Two thirds of China is covered by mountains. As the country has boundaries with Nepal and Pakistan, China shares with these countries 11 of the 17 highest peaks in the world, including Mount Everest and K2. In addition, it has also one summit over 8'000 metres above sea level exclusively on its territory (Mount Shishapangma, 8'027 metres). 40% of China lies above 2'000 metres, mostly in the western part of the country. Mountains in the eastern part are much lower, with top altitudes limited to 2'600 metres above sea level.

Skiing is not new at all in China, even if it looks that modern skiing only became popular since the early 2000s. In fact, skiing is very likely to have been invented in China. Skis were used already thousands years ago by hunters in the Altay Mountains. Petroglyph paintings showing skiers have been found there and experts agree to date them more than 10'000 years ago. It would be from the Altay cradle that skiing was then exported to Northern Europe, Russia and other places⁴³. Long and wide traditional wooden skis are still currently used in the Altay Mountains. They have their base covered with animal skin, which allows both for climbing and sliding downhill in the very cold and powder snow that uses to cover the ground during the winter.

Modern skiing and snowboarding practice started in the north-eastern part of the country, in the Harbin region, which still contains most of China's ski areas, but where temperatures can be extremely tough. The first ski areas emerged in the 1980s, mostly designed for training ski racers, with usually only one slope and poor accommoda-



⁴³ Rock paintings picturing skiing hunters were found in Altay in 2005. The International Ancient Skiing Cultural Forum held in January 2015 in Altay gathered international experts that agreed together that Altay was the oldest skiing region in the world.

tions. Since Yabuli was awarded the 1996 Asian Winter Games, interest in skiing has developed quickly. Besides building the necessary infrastructure to host the Games, ski areas suddenly began to develop around major cities. The pace of growth increased in the 2000/01 winter, when the first snow stadium near Beijing was built.

With the boost of winter sports triggered off by 2022 Winter Olympics, ski areas are now blossoming in nearly all Chinese provinces, up to the South West. Only in 2017, 57 new ski areas opened, bringing the total to 703 ski areas. Most are still poorly equipped and are rather ski fields for beginners, only equipped with one or a few magic carpets. Only 25 approach Western standards, but often without accommodations and only a limited number can be considered genuine ski resorts. However, in recent years, this restricted circle has been growing by one unit yearly and now includes Beidahu, Cuiyunshan (also known as Galaxy), Fulong, Genting Resort Secret Garden, Songhua Lake, Thaiwoo, Wanda Changbaishan, Wanlong and Yabuli ski areas. Soon a few other new 4-season destinations will join the group. There are also 21 ski-domes⁴⁴ (mostly in the Beijing and Shanghai regions) and a dozen snow stadiums around Beijing with 100% snowmaking and a maximum vertical drop of a few hundred metres.

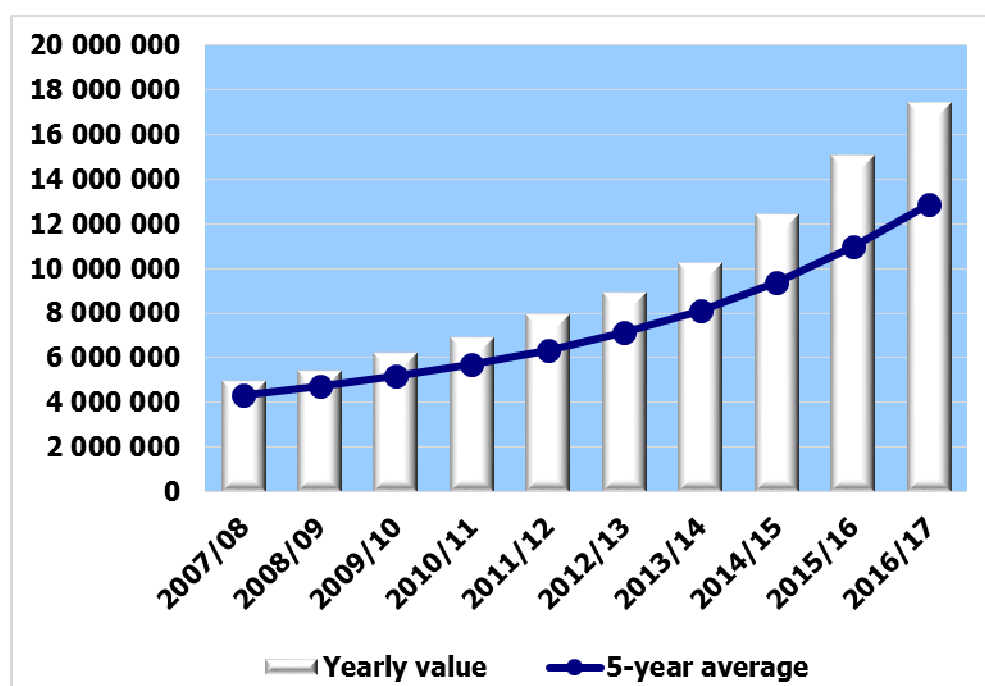


Figure 31: China, evolution of skier visits

Growth in attendance has been dramatic since 2000 and boosted since 2015 by the awarding of the 2022 Winter Olympics which has generated further enthusiasm for skiing. The last few winter seasons experienced considerable growth, with the 15 million skier visits mark reached in 2015/16. It therefore seems that China will soon rank among the big players of the industry.

⁴⁴ As well as some other projects scheduled to open in future years.

The number of skiers in China is also growing quickly and is currently estimated to be above 12 million. At this stage, the market potential mostly remains untapped. It was estimated at 27 million skiers by the UNWTO in 2003, revised to 120 million in the plans of the Chinese government to encourage winter sports (share of skiers in the global plan aiming to have 300 million Chinese participating in winter sports). Support from the government seems very strong. However, when this figure will be reached is still anyone's guess, even if it is likely that by 2022, there may be more than 1'000 ski areas in China and 40 million skier visits.

There is no culture of skiing. Most Chinese skiers do not ski more than once per season and 80% are beginners. Some ski areas even have paid employees to help skiers get up after they fall and to retrieve their equipment! Most ski areas offer packages for 2 hours of skiing, including equipment. Skiing is consumed as a kind of entertainment product rather than a sport that requires repeated practice. For the time being, ski areas are considered more as ski playgrounds than as mountain resorts, and one-time skiers account for a considerable portion of skier visits. Skiing is nevertheless becoming more and more popular among Chinese between the ages of 25 to 35. About 80% of the skiers are under 40.

A big challenge facing the ski business in a market such as China is the learning process. As various foreign surveys already pointed out, the first ski experience is often very disappointing for first-time beginners, with extremely low return rates. Unfortunately, ski areas crowded by uncontrolled beginners do not offer ideal conditions for a good learning experience. On top of this, the traditional alpine ski teaching methods are mostly designed for skiers staying for one week at a ski resort and may not be the best adapted for the current Chinese consumption pattern. The industry needs to quickly develop a suitable ski teaching curriculum in order to be able to capture this huge market potential and not drive it away from skiing for good.

Among the destination resorts, one of the oldest and most well-known in China is Yabuli, in the Heilongjiang Province, near Harbin. Recent developments have brought it close to European and Japanese standards in terms of infrastructure quality, with the interconnection of the 3 mountains, offering a total of 46 runs. Some of the accommodations are now managed by a well-known international hospitality & leisure operator. Located in the far Northern China, temperatures can be frigid.

The recently opened ski resort of Wanda Changbaishan is one of the most modern and state of the art in China. It offers a



combination of hot springs and snow. Located in the Jilin Province, the resort has views of 16 peaks in the Changbai Mountains. It is located at an altitude of 800 to 1'206 metres above sea level and was built in 23 months, with an emphasis on accommodations: more than 5'000 of the planned 12'000 beds are already in operation. Recently 2 other big ski resorts opened in the region, one is Changbaishan Luneng and the other is Changbaishan Tianchixue. The distance among these three ski resorts is less than 90 kilometres.

Beidahu is also located in the Jilin Province. It is surrounded by mountains with summits over 1'200 metres that are covered in snow for half of the year. It is close to Vanke Group's Songhua Lake resort, featuring a 5 star hotel and state of the art detachable lifts, with heated seats. Vanke also manages and other ski area, Shijinglong, in the vicinity of Janqing⁴⁵.

Close to Beijing, about a 3 hour drive northwest, in Hebei Province, the city of Chongli⁴⁶ seems to develop into the ski capital of China. The already well established resort of Wanlong (improving every year its infrastructure, now including detachable chairlifts and combined chair / gondola lifts called there *chondolas*, all Chinese-made), was quickly followed by the development of Genting Secret Garden, where the freestyle competition of the 2022 Winter Olympics will be held. The resort of Thaiwoo opened not far away for winter 2015/16, featuring a north-American like village base. A further state of the art resort was opened in December 2016 by the Fulong Group, just next to the city. It was followed in December 2017 by Cuiyunshan ski resort, featuring also hotels and Real Estate development, and there are still other ski areas projected in the neighbouring.



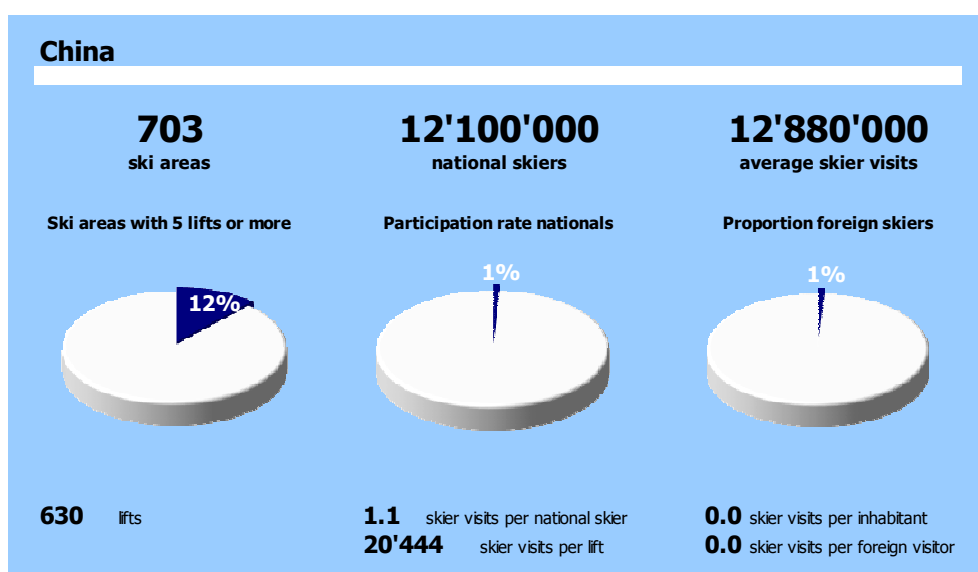
In the Southwest, the mountains are much higher. Dagu Glacier Ropeway, installed in 2008 in the Sichuan Province, is the highest gondola in the world. The summit station is located at 4'860 metres! Xiling Snow Moun-

⁴⁵ Vanke Group Ice & Snow Business division has also 2 other ski resorts projects moving forward. Xiaohaituo, which will become the Alpine Centre of 2022 Beijing Winter Olympics and a new ski resort project in Chongli.

⁴⁶ Part of the Zhangjiakou area

tain, in the same Province, currently features a gondola lift and several 2 and 4-seater chairlifts. Surrounded by mountains more than 5'300 metres high, the resort represents the largest ski area in Southern China. Ski areas are also being developed even more southern, in Yunnan, Guangxi and Guizhou Provinces. In the later, for instance, the city of Liupanshui opened Plum Blossom Mountain International Ski Resort, a ski area located at latitude of 26.6 degrees. There is also a project of ski area for Lhasa, capital of the Tibet autonomous region, which has an average altitude of 4'500 meters above sea level.

Because of the natural conditions, Xinjiang Province in the Northwest offers quite good snow quality. Silk Road Ski Resort is 38 kilometres away from Ürümqi city and Altay Powder Park is located in Kelan Grand Canyon which has the first heli-skiing program in China.



Beijing to have more than 50 ski areas in time for 2022 Winter Olympics

The total number of ski areas in Beijing should reach at least 52 by the time the China capital hosts the Winter Olympics in 2022, according to what is belied to be the first *Five Year plan of Winter Sports Development* which has been created by the city's municipal government.

Beijing currently has 22 ski areas, but another 30 are planned by 2022, according to the report. All of the existing areas have opened in the past 20 years and most rely on snowmaking, leading to criticism (some years ago) of water resources being used for snowmaking when the city has struggled to provide drinking water to parts of its vast population. At the turn of the century the ski areas were seen as a recreation facility for China's *nouveau riche*, but they have gradually become more *main stream*.

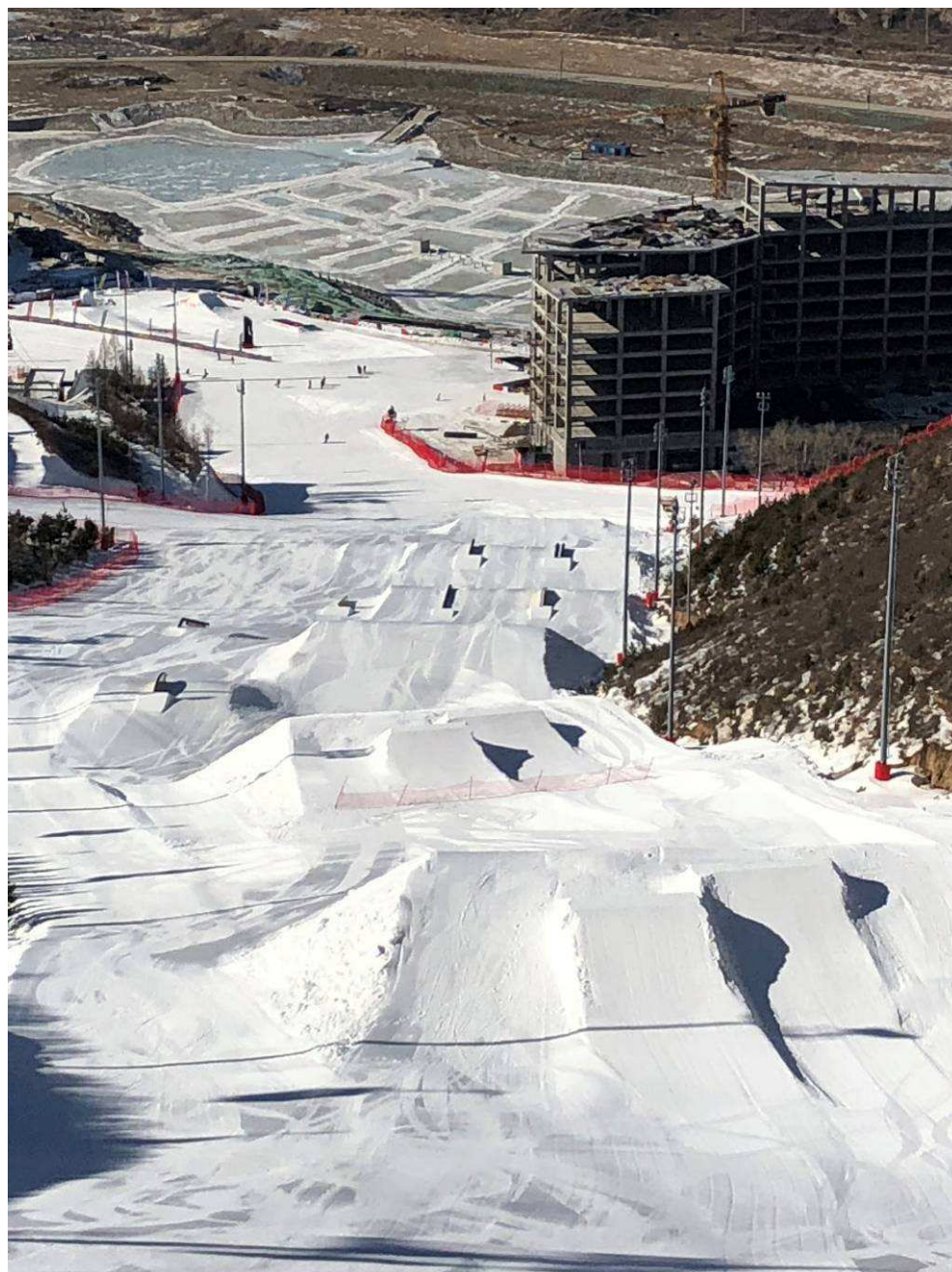
The five year plan has also set a city goal of reaching 40 billion Yuan (USD 5.8 billion) in revenue from the winter sports industry by 2022.

China's president has encouraged some 300 million Chinese to take part in winter sports of all kinds ahead of the Olympics, so ski resort development is a pri-

ority. Across China more than 700 ski areas⁴⁷, most of them rudimentary centres, have opened in the past decade and the country looks set to have the most ski areas of any country in the world.

A TV reality show featuring winter sports in China - The King of Kanone – directed by Zhang Yimou, who was also responsible for the opening and closing ceremonies of Beijing's 2008 Summer Olympics - premiered earlier this year in China and is expected to boost the popularity of such sports in the country.

Source: Snowhunter



⁴⁷ Including 21 indoor ski centres



India



Northern India is a mountainous region with several peaks over 7'000 metres high. Skiing was introduced here by Europeans in the early 1970s and has become increasingly popular with foreign skiers. Even if some Indians love skiing, most are not yet familiar with the discipline. Operators are beginning to develop more modern ski areas, which are also among the least expensive in the world.

Skiing takes place in the Manali Valley, located in the State of Himachal Pradesh, in North-western India. This region, in the foothills of the Himalayas, concentrates most of the country's few and limited ski areas. The lift infrastructure remains modest, but some rise to impressive altitudes, as the region is located between 4'500 and 7'000 metres above sea level. There is also skiing in Kashmir, a neighbouring region of the Himachal Pradesh. This region of the Indian subcontinent is still disputed territory between India and Pakistan, giving rise to armed conflict from time to time, which may cause access restrictions in some places.

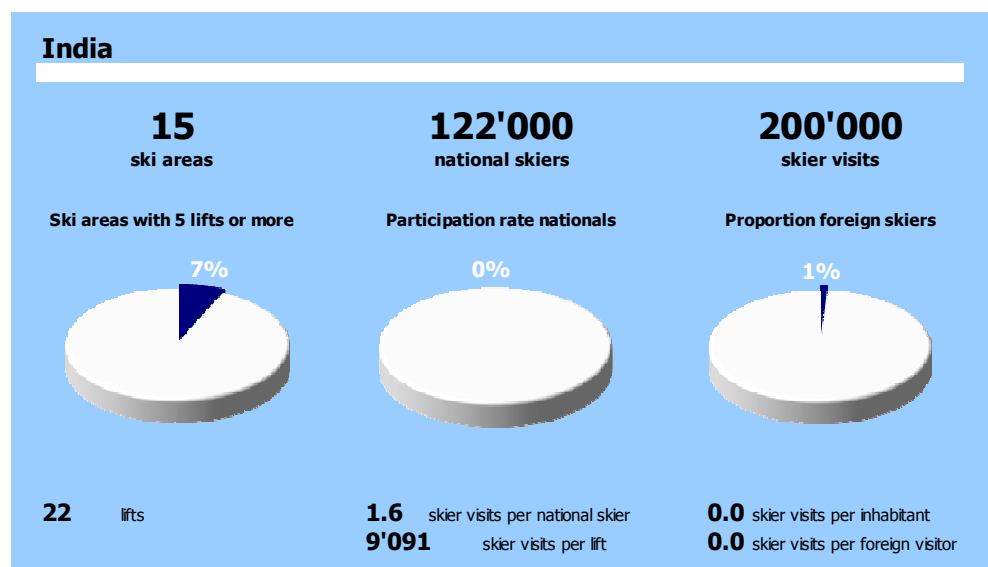
There are 3 acknowledged ski areas in the country. The largest one is Gulmarg, in the State of Jammu and Kashmir. It is one of the most famous in this region of Asia. Runs range from 2'600 to 3'200 metres long. The ski area was equipped a few years ago with a 2-section gondola, famous for carrying skiers to an altitude of nearly 4'000 metres above sea level at its top station. A quad chairlift at the same high-altitude was recently added, making it the highest in the world. The area offers more than 1'000 metres of vertical drop, with pristine slopes. The village of Gulmarg lies at 2'500 metres above sea level. The base area sits below the 4'124 metre Mount Apharwat. This gives the place a magical feel for skiers. The resort is one of the few places on Earth where there may be 2 continuous weeks of snowfall. Furthermore, it offers a variety of runs: skiers will enjoy the high slopes of Apharwat, which offer magnificent views of K2 during good weather, or the runs in Kongdori. The best time to come to Gulmarg is from mid-January to mid-February, especially for skiers looking for a balance between a stable snowpack, combined with the powder snow down to Gulmarg, in the valley.



Auli is the most select resort in India, offering the best possible infrastructure. It hosts the Indian national ski Championships and an Indian ski festival. It is nestled in a collection of snow covered Himalayan peaks (the Garhwal Mountains). Auli offers 2'000 metres of slopes, equipped with lifts.

The ski area of Manali is located at the northern end of the Kullu Valley. It is best known for heli-skiing but also operates a few lifts. It has a multi-season sports offering.

The country's other ski areas usually have only one lift. The small Kufri ski area is nestled in the hills of Himachal Pradesh. It is one of the best destinations for skiing in this State and a destination easily accessible for anyone in northern India. This quiet town becomes a winter paradise as soon as the snow begins to fall. Kufri is home to an annual festival of winter sports in February. Narkanda resort is located 65 kilometres from Shimla. At 3'143 metres above sea level, it is one of the oldest resorts in India. The ski season is concentrated between late December and early March. Narkanda offers beautiful landscapes and splendid views of the Himalayas. Dayara Bugyal is another ski area, located at an elevation of 3'050 metres.

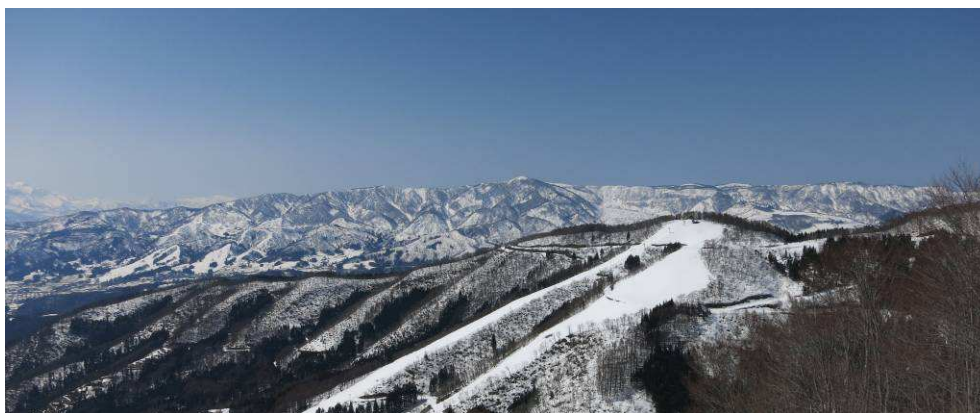




Japan is one of the countries with the highest number of ski areas. Resorts are located all throughout the Japanese islands, from the northern island of Hokkaido to the main southern island of Kyushu. Almost the entire population is only a couple hours away from a ski area. With its high number of inhabitants, this represents a huge potential.

The Japanese ski industry experienced a tremendous boom in the years from 1970 – 1990, when skier visits

showed record figures and the number of active skiers reached over 18 million in a season. They are estimated around only 8 million nowadays⁴⁸. In the eighties, resort development was extraordinary, with several new, expanded or fully rebuilt ski areas. The country offered the finest and most modern facilities in the world. Skiing became very fashionable, and the most popular sport among young people. The resorts were busy and crowded to such an extent that it was sometimes difficult to actually ski! There were long lift lines and crowded slopes. This surely contributed to skiing becoming less appealing. Furthermore, Japan experienced a significant economic downturn at the beginning of the 1990s and real estate was affected. Many resorts had difficulty financing their huge investments. Skier visits began to decrease significantly.



⁴⁸ Skiers having actually skied last season.

In the past, Japan was also the country with the most indoor snow centres and the world's first such centre (the first one opened in 1959). However, in recent years, several of these facilities have closed. This seems to be a further sign of the loss of interest in skiing.

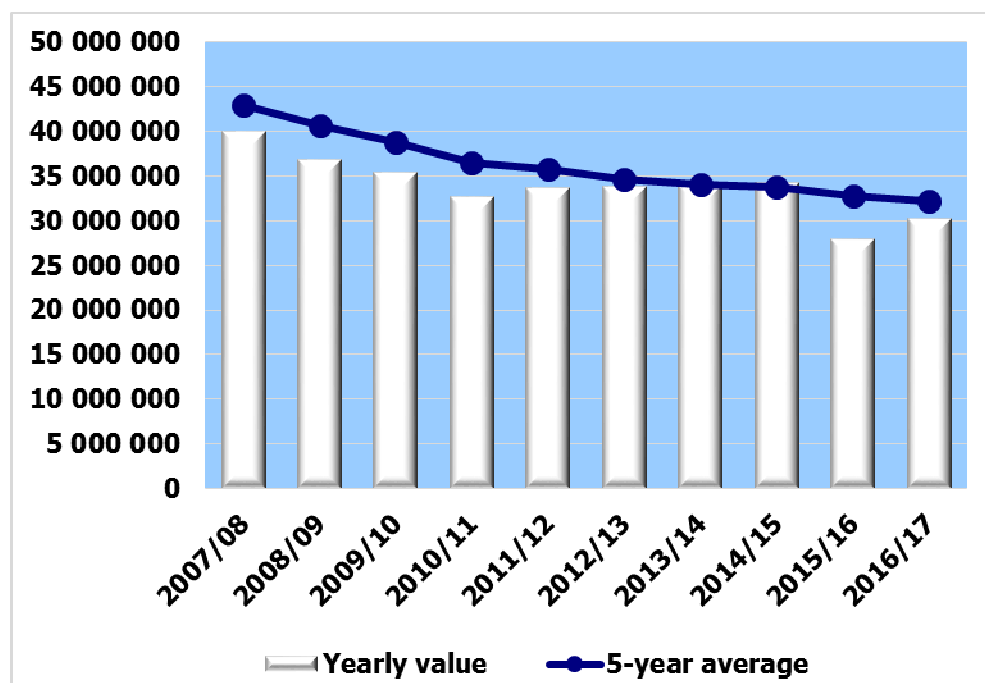


Figure 32: Japan, evolution of skier visits

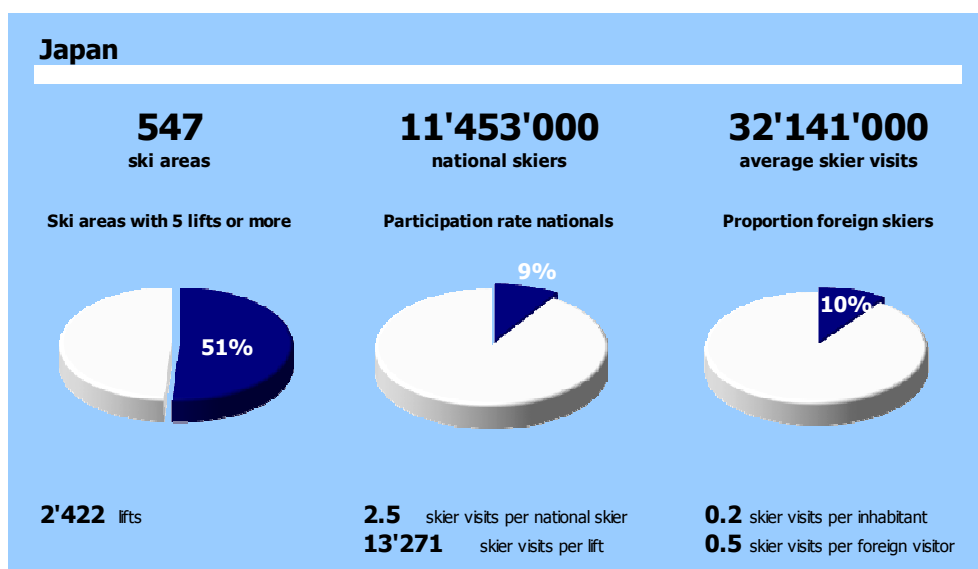
Skier visits are currently under 40 million per year, about half of what they were in the 1980s. After a succession of seasons with decreasing attendance, the situation seemed to have stabilised, despite in the season 2015/16, riders counts decreased 18% due to warm weather conditions (Japanese resorts feature a lower equipment level in snowmaking than the alpine region, with 65.8% of ski areas having no snowmaking). After this season that was one of the worst for 50 years, season 2016/17 did however not show a full recovery. The prefecture of Hokkaido is however showing a distinctive trend. With very favourable snow conditions, it was not affected by the overall decrease in visitation during recent seasons and attendance even show a move upwards. But it may still take time before Hokkaido recovers the 7 million skier visits it had at the beginning of the century⁴⁹.

Ski resorts have started to make attempts to revitalise the industry, but they have to fight against demographic reality of the aging Japanese population. The latter may unfavourably impact the overall participation rate. Nowadays, the Japanese slopes are no longer overcrowded and the industry is trying to attract new clients. Some ski areas have turned into big resorts where skiing is only one of many activities to choose from. Investments are directed to make these places attractive to both skiers and non-

⁴⁹ Attendance in Hokkaido was 5.1 million skier visits in 2016/17.

skiers. True mountain base villages have been developed, offering housing and multiple facilities. Some are even afraid of an almost *Disneylandification* of the mountain.

With these changes, Japanese ski areas have subsequently attracted an increasing number of foreign visitors. Before the 2000s, there were nearly no foreign visitors who came to Japan to ski. After the 9/11/2001, Australian skiers began to come to Japan instead of flying to North America. They were followed by visitors from neighbouring Asian countries, even some without any ski culture. Efforts have been made to produce trail maps, sign and menus in English, Korean and Chinese. Today, the country attracts more and more skiers from abroad. It is now common to see skiers from Australia and East Asia. Very recently, China became one of the most promising markets for skiing in Japan. Focus has also now turned to attracting European and American skiers.



New ski area opened in Japan is first for 14 years

What is reported to be the first new ski resort for 14 years has opened in Japan.

Mineyama Kogen White Peak Resort is located by the town of Kamikawa Town in the Hyogo prefecture and will operate quite a short planned season to the second Sunday in March, 2018.

Kamikawa Town is reported to have sunk around JPY 1 billion (equivalent to EUR 7.4 mio) into the project, which will be the most southerly in the central Japanese prefecture.

The resort features a double and a triple chairlift located on the eastern slopes of Mt Gyoseizan.

These serve 3 ski runs over 140 metres of vertical, with two thirds of the terrain suited to beginners, 25% to intermediate skiers and 5% rated black.

Source: Snowhunter





Mongolia is a large country combining highlands and mountains. The lowest altitude in the country is 518 metres above sea level, and the average altitude is 1'580 metres.

The Western and northern parts of the country are crossed by the Khangai and Altai mountain ranges, featuring the country's highest summit, the 4'374-metre high Kujten Uul (formerly Nayramadlin Orgil). There are also several volcanoes in the area. One third of Mongolia is covered by the famous Gobi desert.

With an extreme continental climate, the country has long, dry, cold winters and short summers. The average temperature is below freezing from November to March. Minus 20 degrees Celsius is common in January and February and night temperatures can reach minus 40. Lakes and rivers freeze in winter. Snowfall is limited. The level of precipitation is low and mostly concentrated during the summer months.

Even though Mongols are accustomed to winter, the first and only ski area of the country opened in 2009. Sky Resort is located next to the capital city of Ulan Bator. Its base elevation is 1'379 metres and the top of the lifts reach 1'570 metres, offering about 200 metres of vertical drop. It is equipped with 2 quad chairlifts and 2 surface lifts, plus 3 moving carpets, comprehensive snowmaking facilities and lighting for night skiing. All of the equipment was manufactured in China. The ski season lasts from November to March / April, but the resort is operated as a year-round recreation destination. It features various outdoor activities, including a golf course.



New Zealand



The southern island of New Zealand is the more mountainous of the two main islands, crossed through the middle by mountains referred to as the Southern Alps. It includes 18 peaks over 3'000 metres, culminating with the 3'754-metre Mount Cook. Although the northern island has fewer mountains, it features some volcanoes. The highest peak, Mount Ruapehu (2'797 metres above sea level), is a still an active volcano.

New Zealand is a major destination in the Southern Hemisphere for skiing and snowboarding. The resorts are well equipped and fairly evenly spread out over the two main islands that make up the archipelago. Snow conditions are good, even if the powder is not as light as in the European Alps, Japan or the Andes, due to the maritime climate. Only a few resorts offer more than 500 metres vertical drop. The others have shorter slopes. The season starts in late May and ends in early November.

In addition to 13 commercial ski areas, New Zealand has 10 private ski clubs. Heli-skiing is also highly developed, with numerous possibilities and departures from 10 different bases.



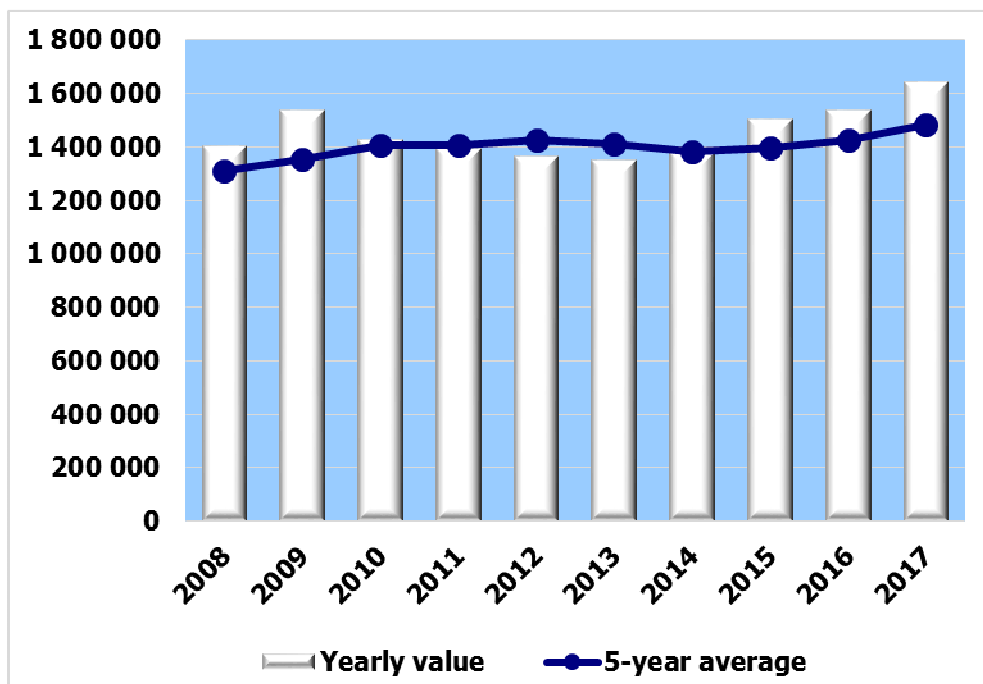
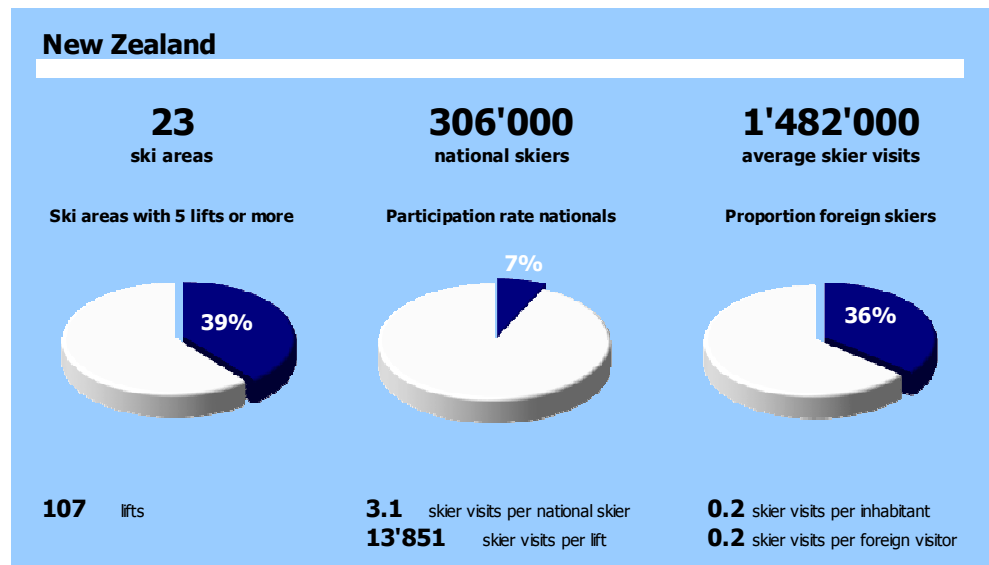


Figure 33: New Zealand, evolution of skier visits

Over the last decade, skiing has grown. Before the 2000s, only exceptional seasons saw more than one million skier visits. Since the early 2000s this has been the rule. Winter 2015 was very good. With record snowfalls and an extended season, some resorts had their highest ever number of visits. Winter 2016 and 2017 renewed with very good attendance figures and made the best scores in recent history.



The southern part of the country offers the best ski resorts in New Zealand. Near Queenstown, the Remarkables mountain range boasts a vast ski area of about 220 hectares that rises to 1'935 metres above sea level. There are 4 ski resorts on the northern Island. Whakapapa and Turoa are the most popular ski areas, topping out at 2'300 metres above sea level on the northeast side of Mount Ruapehu. They recently merged and draw many skiers and snowboarders every year. Despite being the largest resort in the country, it is small when compared to other international destinations. It has only 43 trails and 16 lifts spread out over 400 hectares.





North Korea



With its high point Paektu-san rising to 2'744 metres above sea level, North Korea is a country covered by forested hills and mountains, separated by deep, narrow valleys. It counts 50 peaks over 2'000 metres. There are some coastal plains wide in the West, discontinuous in the East.

Although the climate is tough, with long cold winters and a decent amount of snow, the socio-economic situation for most of the population does not generate an important demand for leisure activities. The number of skiers is very limited.

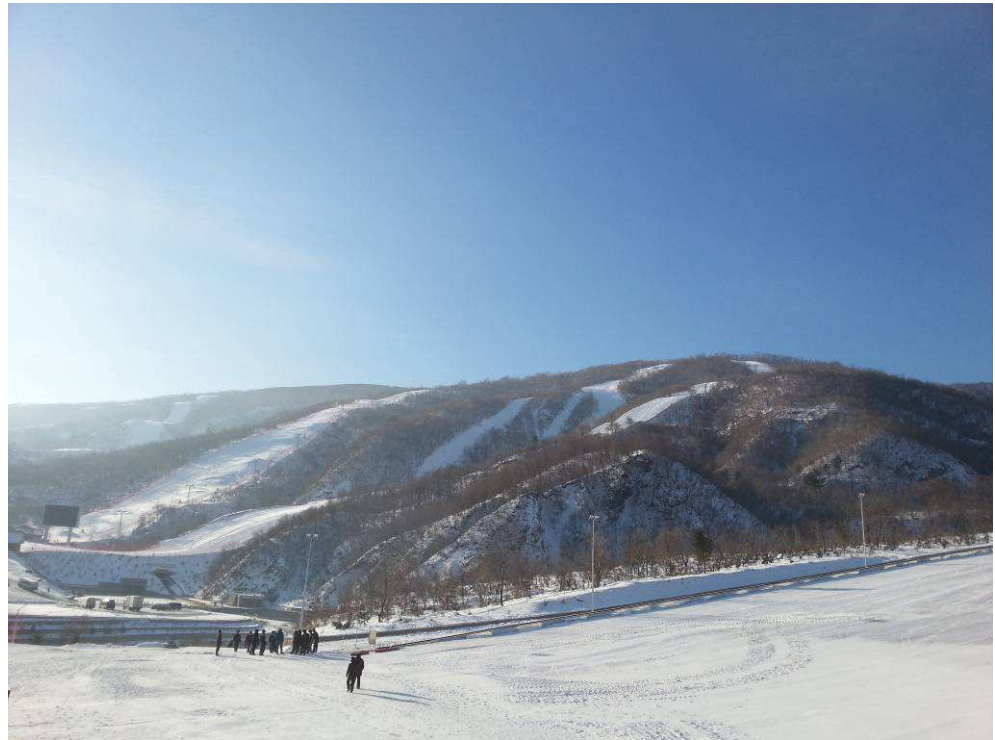
A couple of limited ski areas offer a few second hand ski lifts but are reported to be only used by the military and other selected members of the North Korean population. The small ski resort of Begaebong features a second hand chairlift retired from the Alps. Another single downhill slope equipped with a ski lift has been identified in Samjiyon, close to Mount Paektu.



Due to the UN embargo, Austrian, French and Swiss manufacturers had to refuse to sell the country a new detachable chairlift to equip a planned ski resort on Mount Masik, the first with the goal of meeting international standards. Despite this drawback, the resort was officially inaugurated at the end of December 2013 with unusual media visibility for North Korea. Due to the embargo, the originally planned brand new western manufacturers' installations were replaced with second-hand equipments (surface lift and fixed grip 2-seater chairlift). Later on, a gondola lift having served before in Austria was installed, and some further Chinese-manufactured lifts. The ski area features an impressive hotel, ski rental shop and restaurants (even one top of the mountain panoramic restaurant). The final plans

would call for 110 kilometres of ski trails and a heliport. It is considered to be the first ski area in the country to open to the general public.

Rumours of building another new ski area mention a project which would be located 50 kilometres away from Chinese border. The ski area would feature 2 slopes.



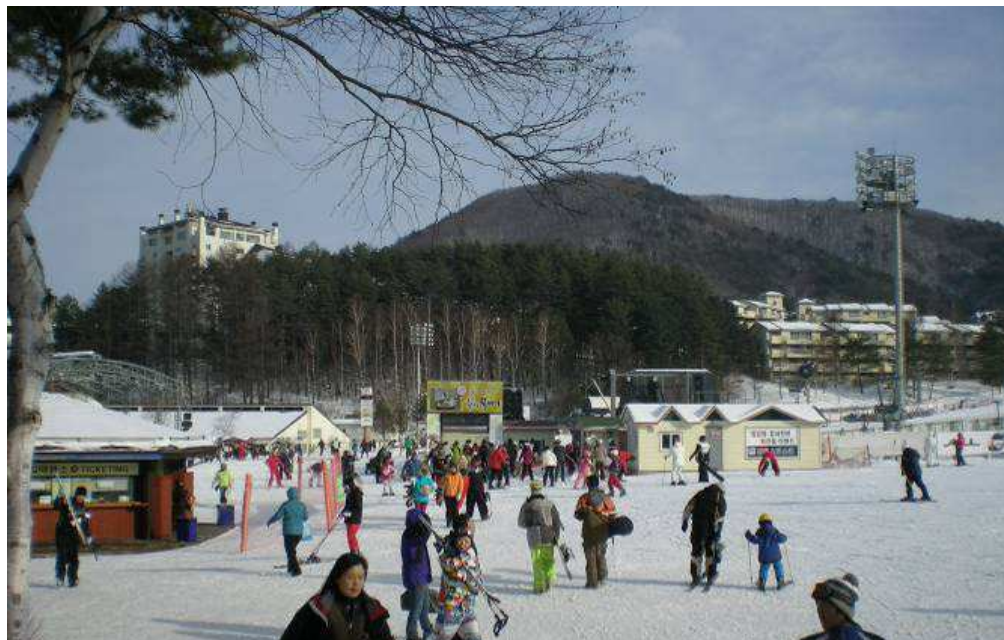


South Korea



South Korea is a mountainous country with relatively cold winters. Ice skating or gliding over the snow was already familiar to part of the population before the advent of skiing. When the first ski resort was developed in 1975, it rapidly became popular. A few years later it was followed by several new openings. Even if the financial crisis that hit South Korea in 1998 slowed down new developments for years, they resumed after 2002 but stopped again by 2010. The country now has 18 ski resorts⁵⁰, mostly equipped to international standards.

Korean resorts are based on the North American model, very capital intensive. They are generally built on land that must be fully or partially acquired



by the operator, who then controls the entire business. As all ski resorts have been created from scratch, they require significant investment in roads and utilities, not to mention the need to build the entire base area infrastructure. Accommodations are almost exclusively condominiums. The

⁵⁰ 4 resorts are currently closed due to financial difficulties; one is closed since 2007, a second one since 2008.

peculiarities of the terrain also create the need for a lot of civil engineering work. This generally limits ski resort operation to powerful financial groups. Several ski areas are owned by large, typically Korean, conglomerates, like Hyundai and LG. The smaller developers have often suffered financial difficulties or gone bankrupt only to be acquired by a big investor.

With the significant increase in supply up to 2010, some resorts have been losing market share as the market has become much more competitive. In light of the huge investments, some may have to fight to survive in the short term and some even closed.

All resorts offer year round activities. Most have at least one golf course, an indoor swimming pool and shops. Indoor malls are filled with recreational activities like bowling, ping pong, video games, movies, karaoke, and of course restaurants, bars, clubs and night-clubs, as many of the resorts are active both day and night. 3 resorts even offer a water park and a theme park.

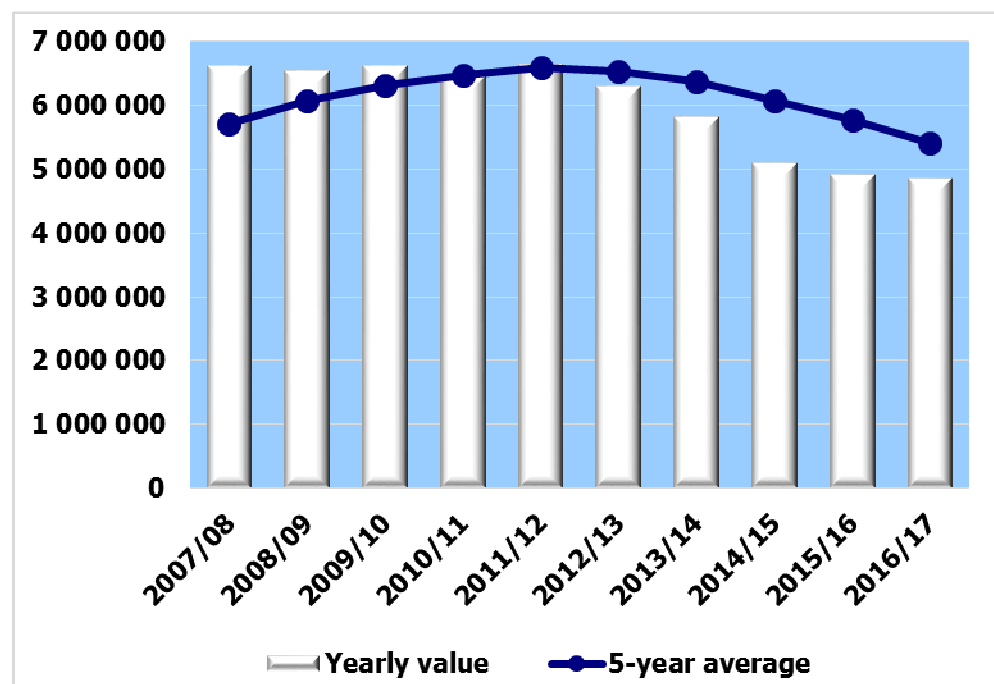


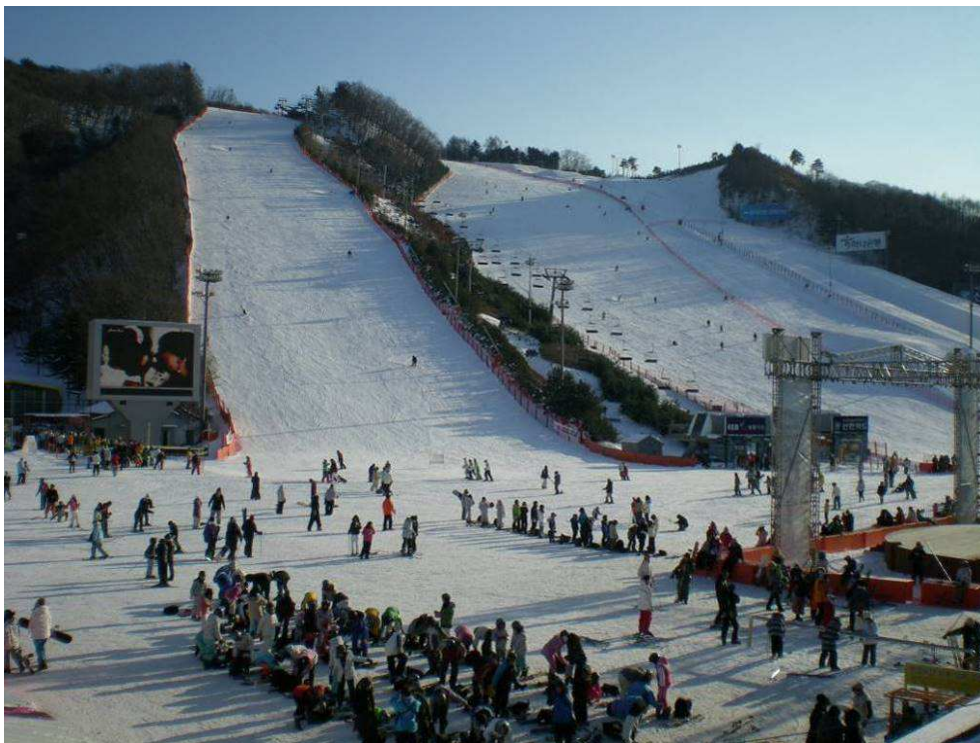
Figure 34: South Korea, evolution of skier visits

Starting at the beginning of the 2000s, attendance records grew steadily through 2008. Since then, yearly skier visits have stagnated and then dropped below the 5 million mark. This happened in spite of several new high-quality resorts that have opened in the late 2000s. It was expected that they would stimulate demand. South Korea also expected an increase in foreign customers, boosted by promotional efforts made by the government. But the reason for the stagnation probably has to do on one hand with current economic conditions and a depressed market, both nationally

and in Asia⁵¹. On the other hand, ski has been so much packaged like a leisure activity in South Korea that this makes it much more sensitive to trendy fashion as if it had been presented as a sport and healthy practice. It seems that there is currently a switch towards other leisure activities at domestic level. Considering the last 5-year average, it is reasonable to fear a long term decline at this stage.

Even the perspective of Korea being the venue of the PyeongChang 2018 Winter Olympic Games did not contribute to an increase in the popularity of skiing. Unfortunately, it seems that it was not supported by parallel efforts of the government and the private sector to promote winter sports.

With 2.5 million skiers for a population of more than 48 million inhabitants, a participation rate of about 5%, the potential for the Korean market is still partially untapped and demand could be developed. In addition, the high-quality equipment at Korean ski destinations, meeting the highest of international standards, offers an attractive alternative to European resorts for skiers throughout the entire Asian continent. Prices are also more attractive than in Japan, and Korean ski areas offer a great deal of fun, with several ski resorts operating their lifts nearly around the clock.



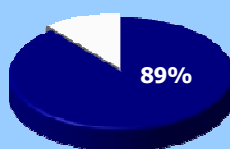
The ski season is peculiar in Korea. It is relatively short, but very dense. The school year matches the calendar year, so students have their annual holidays in December and January, which is followed by mid-February and spring holidays. The ski season begins in late November / early December and ends in March, but has virtually no lag time.

⁵¹ South Korea is perhaps the country where attendance is the least dependent on the climate. With a lot of snowmaking and relatively cold temperatures, snow is nearly guaranteed. Furthermore, much skiing consumption is done at night, with little concern for sunny skies.

Korea, South

18
ski areas

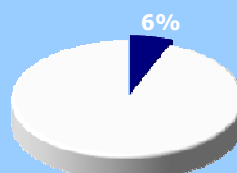
Ski areas with 5 lifts or more



150 lifts

2'937'000
national skiers

Participation rate nationals



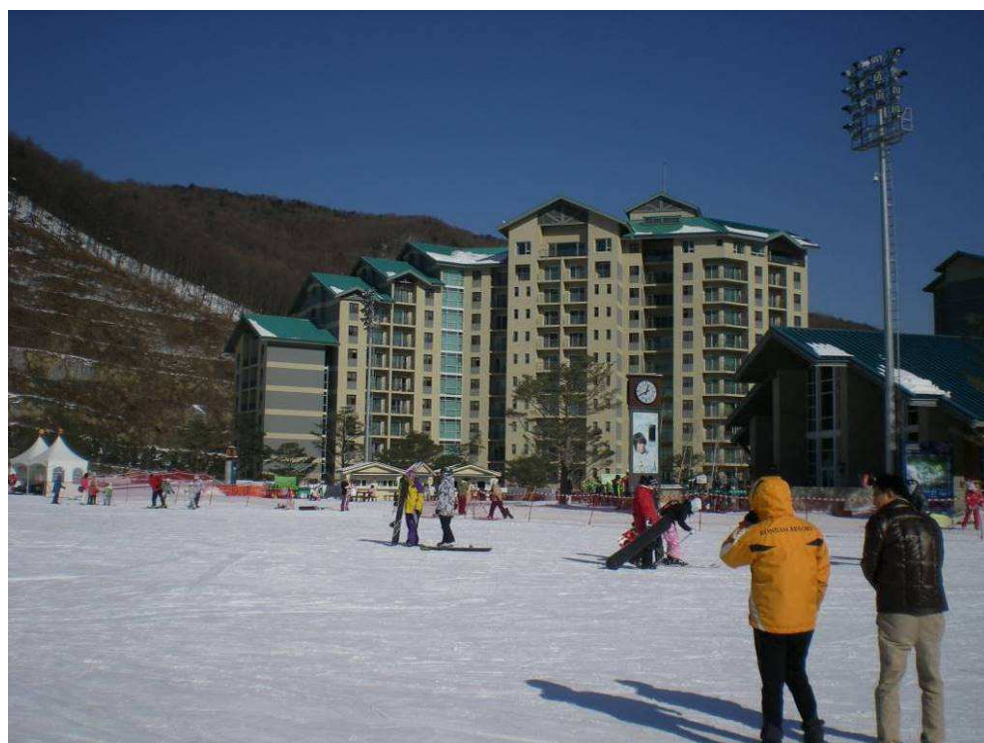
1.7 skier visits per national skier
36'067 skier visits per lift

5'410'000
average skier visits

Proportion foreign skiers



0.1 skier visits per inhabitant
0.1 skier visits per foreign visitor



The Middle East & Africa

Every continent offers options for skiing. Even if much scarcer than in other regions of the world, there are ski resorts spread across the Middle East and Africa, and in both the Northern and Southern hemispheres for the latter.



Afghanistan



The country is mostly covered by rugged mountains, with the Hindu Kush range and 100 peaks rising to over 6'000 metres above sea level. The highest point tops out at 7'485 metres above sea level (Nowshak Peak). With such an arid climate, the cumulative snowfall in the mountains during the cold winter serves as the primary water supply. The Koh-e-Baba (Grandfather Mountains) is the western extremity of the Hindu Kush mountain range of Afghanistan and Pakistan. It contains glaciers and permanent snow.

Modern skiing was introduced to the country by European visitors in the 1960s. At that time, the Afghan tourism organisation established Afghanistan's first ski area at Chowk-e-Arghande, near a low pass just outside Kabul known for its heavy snowfalls. With the help of a German ski enthusiast, Afghanistan's first rope tow was installed in 1967. A few years later a second rope tow was installed to take skiers to a higher, steeper slope. Together the two lifts offered a roughly 700 metre descent. Most skiers were expatriates living in Kabul. Some locals, including women, also got acquainted with skiing and a few races were organised in the 1970s (the last ski races were held at Chowk-e-Arghande during the 1978 winter). Through the subsequent four decades of conflict, snow sports became all but impossible to pursue in the country.

Today, the widespread poverty among most of the population does not allow for expensive leisure activities (living standards are among the lowest in the world). However, sledging has remained a popular activity in the snowy mountainous regions. Boys and girls sliding down on homemade sleds is a common sight. In 2010, during a local festival in Bamyan, a ski race was once again organised to familiarise people with snow sports. Second-hand skis from France, together with others made by local artisans, were used.

In spite of the few favourite spots of a couple pioneering skiers and snowboarders, there is no organised and equipped ski area. The rope tows have been destroyed along with most infrastructures. For the time being, the only available ski lifts are donkeys.

However, the Bamyan region offers tremendous backcountry skiing potential. More than 200 ascent/descent options have been described in a recent backcountry guide to Bamyan and Band-e-Amir region.

Although country's tourism appeal is debatable, some places were very popular with tourists through the 1970s. Four decades of war have destroyed the country, including its once profitable tourism industry. The Bamyan province, formerly the centre of Afghanistan's tourism industry, aspires to once again become an appealing destination for tourists, with its culture, natural beauty and snow-covered mountains. In fact, in several countries across the world, tourism has already demonstrated an ability to rebound quickly following a war.





Algeria



Although the highest point of Algeria is located in the Saharan part of the country (Mount Tahat, in the Hoggar, 3'003 metres above sea level), the Atlas mountain range in the coastal region also rises to over 2'000 metres high. In Kabylia and in the Aurès, several mountains are covered with snow during the winter. In several areas, there is sufficient snowfall to ski for 2 to 3 months during the winter.

Even though the country uses gondolas for urban transportation in several major cities and recreational areas, there are no longer any operating ski lifts in the country. For the time being, ski resorts in Algeria are a thing of the past. Although at least 4 ski areas used to be equipped with ski lifts, they have all been either destroyed or no longer function. In recent years, there were plans to rehabilitate 2 of these areas, but this has not yet been implemented.

For instance, in the Blida area, 70 kilometres away from the capital city of Algiers, the Chr  a National Park used to have a ski area. Located 1'500 metres above sea level, it was the first one in Africa when it opened in the 1940s and was equipped with a surface lift. Later, in the 1980s, an additional chairlift was installed as well as a 7 kilometre long 2 section gondola, in order to enable direct access from the city of Blida. All lifts were later damaged by the civil war and only the gondola was renovated in 2007. Today, on the week-ends, the small slopes are sometimes crowded with locals sledging, even if there is no longer any organised form of skiing.

Another place that became famous for skiing in 1948 is Tikjda. Rising to over 2'000 metres above sea level and offering a vertical drop of about 500 metres, it used to be equipped with 2 ski lifts and a chalet-hotel. Even if they are no longer on use, Tikjda remains the second place in Algeria where people still do some snow sports.



Iran



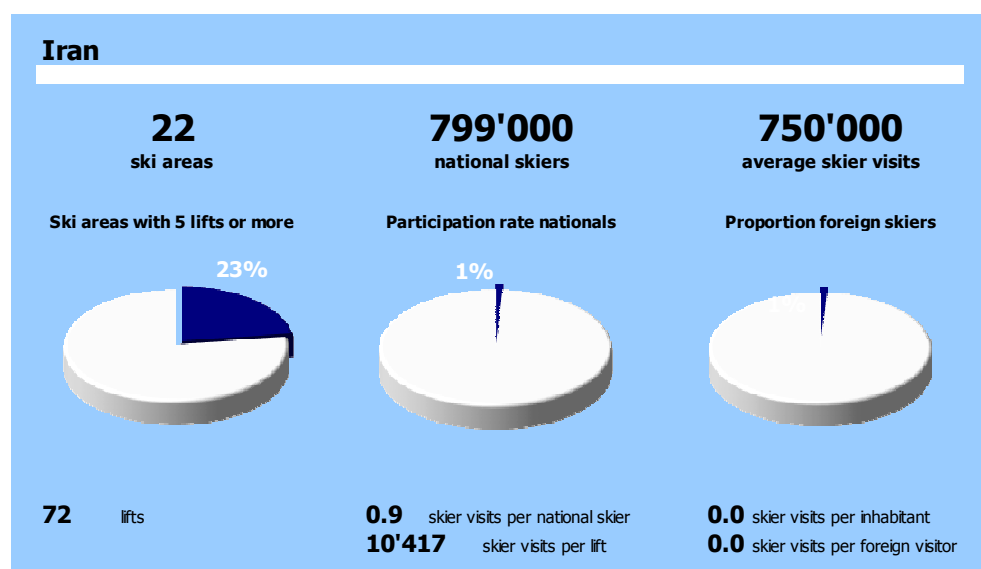
Modern skiing was introduced in Iran around 1930. Germans, who were in the country to build the national railway, and Iranian students, who studied in Switzerland and France and learned to ski there, helped to introduce the sport. In 1947, the Olympic Federation of Iran and the Iranian Ski Federation were founded. The first lift was installed in 1951. Iran was represented for the first time in history by a skier in the women's competition at the 2010 Vancouver Winter Olympic Games.

Most ski resorts were built during the reign of the Shah. When he was overthrown in the 1979 revolution, the Iranian clergy closed all ski areas as they were considered to be emblematic of the decadent western lifestyle. In the mid-1980s, growing demand put pressure on the government to reconsider its position and reopen the ski resorts. Today, there are a dozen in operation, and the most important are located in the Alborz Mountains above Tehran, in the northern part of the country. The highest peak in Iran is located here, Mount Damavand, a giant dormant volcano rising to over 5'600 metres above sea level. Even if several new gondolas were delivered in the 2000s, infrastructure is still rather old and facilities often limited. However, the resorts are located at high altitude and have excellent snow conditions. Several resorts also offer spring and summertime activities, such as tennis, volleyball, climbing, mountain biking or grass skiing. Although runs are no longer segregated between men and women, the lifts still are. There are two separate lines and it is illegal for a man and a woman to share a gondola.



The biggest resort in Iran and even in the Middle East is Dizin, 70 kilometres north of the capital. Founded in 1969, the ski area lies between 2'650 and 3'600 metres above sea level. It thus accounts among the highest ski resorts in the world. It covers 470 hectares and receives about 7 metres of snow per year. With 23 runs for all levels, 4 gondolas, 3 chairlifts and 9 surface lifts, it is the first ski area in Iran to have been officially recognised by the FIS as suitable to host officially sanctioned international competitions. The mountain also offers a lot of freeride options. Dizin has 2 hotels, 19 cottages, villas and private apartments. An all-day lift pass costs USD 30.

Shemshak is the second largest ski area in the country. Located 60 kilometres northeast of the capital, it opened its doors in 1958 and lies between 2'550 and 3'030 metres above sea level. It was originally designed to offer a trendy spot to the Teheran jet set. With 2 chairlifts, 5 surface lifts and 8 runs, it is well-suited for experienced skiers and snowboarders. The resort offers the opportunity to ski at night as well as cross-country skiing. There is only one official hotel, Shemshak Hotel, built in the style of an old Austrian chalet; the resort has adopted a somewhat Western style.



The Tochal recreation complex, which is connected to Tehran by a 7-section gondola lift, features a ski area at the top. In addition to the gondola, there are 2 chairlifts and 1 surface lift that serve the 4 runs.

Ab-Ali is the oldest resort in Iran, where the first lift was built in 1951. It helped to instigate the development of skiing in the country. Recently renovated, it has a few new lifts: 1 gondola and 8 surface lifts for a total hourly capacity of 4'500 people. The 5.5 kilometres of runs at this ski area, located between 2'400 and 2'650 metres elevation, are well-suited for beginners and intermediate level skiers.

The newest ski area in the country is Darband-Sar, opened in 1982. Originally a very small ski area with only one chairlift, it has been purchased by

a private investor that is now developing it further. Designed for beginners and intermediate skiers, it has 6 lifts: 1 gondola, 3 chairlifts and 2 surface lifts. Ski area of Darband-Sar is close to Dizin (with currently and interconnection project under study).

Iranian ski resorts require new investment, since most of them still operate with equipment from the late 1970s. However, this would require promoting skiing at a national level to attract more skiers and to increase resort revenues in order to provide the financial means to make any new investments. With regard to foreign visitors, apart from the occasional diplomat, tourists are a rare sight at ski areas around Tehran.





Iraq



Even if large parts of the country are flat deserts and of low altitude, Iraqi Kurdistan, in the north-east, is a mountainous region, with peaks reaching up 3'611 meters above sea level.

Snow is not unusual in the mountain in this autonomous region of Kurdistan, even if not all places are accessible due to some hostilities and unsettled disputes. Already several decades ago, the mountain near Haj Omran, next to the Iranian border, was an acknowledged place for skiing, even if the place

was not equipped. Recently, an ice and snow festival was held there at Kudu Mountain.

It is reported that a first ever ski school was opened in the mountain village of Penjwin in early 2010s. It does not operate any ski lift. The only infrastructure is a simple municipal building that houses the equipment.

The only equipped ski area in Iraq, Korek Mountain Resort, opened in 2013. Located about 100 kilometres east of the city of Arbil, it features a 3.7 kilometres gondola lift, bringing the people from base station in Bekhal up to the mountain, 1'690 meters above sea level, where there are some facilities for skiing. Equipment rental and a magic carpet allow everybody that can afford to have a taste of snow sports. The place has become a popular attraction for Iraqis and Kurdish people seeking to have some respite in the snowy landscape. Some are coming from regions that do not experience snow and have there their first contact with it. Some visitors are even coming from the neighbouring countries Turkey and Iran. In one packed day, the place can welcome up to 2'500 visitors. Of course only a fraction is skiing, despite ski can also be practiced without snow, thanks to a dry slope. The mountain also offers some amusement park style attractions, zip-line, tubing, chalets and food outlets.



Israel



In spite of its small size, Israel is home to a variety of geographic features, including mountain ranges in Galilee, Carmel and the Golan Heights in the North. Even if the city of Jerusalem receives snow at least once per year, only the Golan Heights are high enough in altitude to offer the requisite conditions for winter sports.

The sole ski resort of Israel is located there, just next to the UNDOF buffer zone with Syria. Although Mount Hermon is located in this buffer zone, the Israeli ski area is called Hermon Ski Resort. It is located on the south-eastern slopes of the Mount Hermon, between 1'600 and 2'040 metres elevation. During the winter, when the mountains are covered in snow, the resort attracts a lot of visitors that come to enjoy the snow. It offers family activities, like sledging and of course skiing. On peak days, it hosts up to 12'000 visitors.

The first lift was built in 1971. Now, the resort offers several chairlifts and surface lifts. It even features a FIS-approved competition run. Winter operations usually run from January to March. However, during some seasons, skiing may be limited to only 2 to 4 weeks due to the lack of snow. In 1999, the resort had no sufficient snow at all for skiing.

The resort also offers summer activities.



Only 23% of Lebanon lies in coastal plains and lowlands; it is a mountainous country, with 2 mountain ranges parallel to the Mediterranean coastline. Both ranges run up and down the entire length of the country. The first row of mountains is called the Lebanon Mountains and varies in between 10 to 56 kilometres wide. Narrow and deep gorges cut through the range. The Lebanon Mountains top out at 3'088 metres above sea level, with Al Qurnat as Sawda as the high point. They gradually descend to the south before rising again to a

height of 2'695 metres at Mount Sannine. The second range, the Anti-Lebanon (Antilibanos) Range, is separated from the first range by the Biqa Valley. It runs parallel to the first, bordering with Syria and Israel. Mount Hermon, its highest peak (2'814 metres above sea level), is situated in the South, on the geographical border with Syria. Parts of both of these mountain ranges are covered in snow in winter.

Lebanon is one of those countries where it is possible to ski in the morning and to swim in the sea in the afternoon. It has 6 ski resorts with lifts and groomed slopes. The ski season last about 4 months, from mid-December to the beginning of April.

Skiing developed and became popular in the 1930s, when the first ski club was founded, soon followed by the first ski school. The first lift was installed in 1953 in Cedars. This resort is reputed for its charming natural surroundings. It is located at an altitude of 2'000 metres and benefits from an extended season (sometimes beginning in early November and lasting until late April). Resort capacity was enhanced in 2005 with the addition of a few chairlifts. Further projects include the construction of a gondola and new accommodations.

Mzaar offers world class infrastructure and facilities for tourists. It is the best equipped and most popular resort. It features 18 lifts and 42 runs totalling 80 kilometres. With a base elevation of 1'850 metres, the resort tops out at 2'465 metres above sea level.

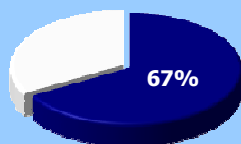
Faqra is a private ski club, meaning the club owns the land, the 4 lifts and all other facilities.

Lebanon

6

ski areas

Ski areas with 5 lifts or more



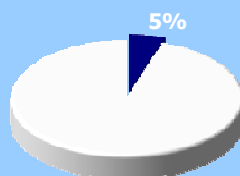
46

lifts

207'000

national skiers

Participation rate nationals



0.5

skier visits per national skier

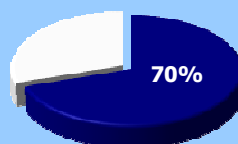
7'609

skier visits per lift

350'000

skier visits

Proportion foreign skiers



0.0

skier visits per inhabitant

0.1

skier visits per foreign visitor



Surrounded entirely by South Africa, 66% of Lesotho's land area is mountainous. Its lowest elevation is 1'000 metres above sea level, and the highest peak is 3'600 metres. With some natural snowfall, the country almost brings together all the necessary criteria to operate a successful ski resort. This was enough to motivate a few entrepreneurs to start Afriski Mountain Resort.

It is located in the arid Mahlasela Valley, 3'222 metres above sea level, in the Drakensburg-Maluti Mountains. The ski area features a 1 kilometre long T-bar as well as 2 beginner lifts and a magic carpet for kids and beginners. The resort is not always covered with natural snow during the winter months. In general, snow falls 3 to 4 times per winter season, but is quite unpredictable: it can snow 10 out of 12 months a year at the resort's altitude. The ski area is equipped with a snowmaking system, which guarantees skiing from June to the beginning of September.

The ski area is far from any urban area. The nearest city is located 110 kilometres away, and it takes four-and-a-half hours to drive there from Johannesburg, South Africa. The ski area offers winter and summer activities. Various chalets and group accommodations provide for 250 beds at the resort. Since Afriski is an alliance of individual companies and private homeowners that work in cooperation with each other, similar to a European ski resort, there is a central booking office that services the rooms available at the resort. Winter and summer activities, including equipment rental and meals, can also be booked through this agency.

The ski area hosts around 12'000 skiers per season, with a good portion of them being foreign visitors. 90% are South Africans, who come up primarily from Johannesburg. There are also skiers who travel from farther away, such as Germans, the Dutch and North Americans.



Morocco



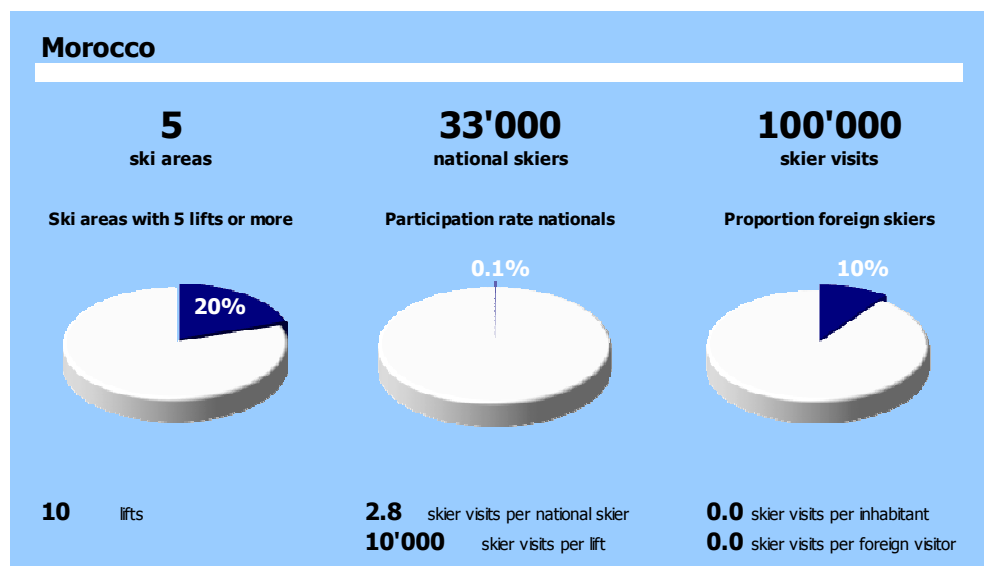
Morocco has several mountain ranges: in the North, the Rif, the Middle and High Atlas in the centre and the Anti-Atlas close to the Saharan plains. The highest summit, Jbel Toubkal, south of Marrakech, rises to 4'165 metres above sea level.

In the 1930s, mountaineers and skiers already enjoyed the snow-covered mountains of Morocco, even if access was rather difficult at that time due to poor or inexistent roads. Situation improved in the 1960s, and skiing became fashionable.

The largest and most well-known ski resort in the country is Oukaimeden. Chalets and hostels were built there in the 1940s and 1950s. In the 1960s, the first ski lifts were installed and the resort continued to develop by adding restaurants and night clubs. Today, it features 5 surface lifts and 1 chairlift and tops out at 3'200 metres above sea level (the base area is at 2'600 metres elevation), which makes it the highest ski resort in North-Africa. It is possible to ski from November to April. The resort is also popular in the summer. Close to Marrakech, it provides a cool refuge during the warm summer months. Mountain biking, climbing and mountaineering are all popular here.

The other ski area operating in Morocco is Mischliffen, in the Ifrane region. This city is located in a region with a cold climate, one that posts the lowest temperatures in Africa. The mountains are lower, with cedar forests and smaller vertical drops. The area rises to only 1'650 metres above sea level and is equipped with 2 ski lifts and some accommodations. The ski season is shorter, with slopes skiable from December to end of February.

The area of Azrou was also once known for skiing, with 2 surface lifts installed in the 1950s at Borg Doumergue and Djebel Hebri. They are now out of service. In the past, they used to host ski races. The first one was held there in 1936, even before any lifts were built.





With peaks rising to over 8'000 metres above sea level, Pakistan is blessed with majestic mountains. 7 of Asia's 16 highest peaks are located in Pakistan. K2's 8'611 summit makes it the second highest peak on the planet. The western and northern parts of the country are covered in mountains. The highest peaks are in the North, while in the West, the mountain ranges rise up to 3'000 metres above sea level.

The first ski area in Pakistan to be equipped with a chairlift was Malam Jabba. It was owned by the Pakistani Tourism Development Corporation and featured a 50-room hotel and an 800-metre long slope located 2'804 metres above sea level. The resort was equipped with modern facilities through cooperation with the Austrian government and was completed in 1988. It was however left on standby for the next 10 years due to disputes over operations.

Malam Jabba quickly became a popular retreat, especially for families and students from Islamabad and Peshawar. Many of them drove the four to five hours to the resort not for skiing but just for the snow. Malam Jabba gets a lot of it; the snowpack can reach up to three metres deep. Even in summer, the place was packed with people who just came for the fresh mountain air, took a ride on the chairlift to the summit ridge (2'670 metres) and enjoyed the stunning views of Nanga Parbat. It all came to an end when the Swat valley fell under the influence of the Taliban in 2006. Since they consider skiing to be un-Islamic, they blew up the hotel, the chairlift and the grooming equipment.

In 2009 the Pakistani army regained control over the Swat valley but it took another five years for contracts to rebuild the resort were signed. Under a lease from the Pakistani government, a large tobacco company from Islamabad won the tender to develop Malam Jabba, to build a four-star hotel and other three-star accommodations, a new chairlift and run the place as a four season resort. In exchange the government promised to rebuild the road and take care of the power supply. The chairlift was rebuilt in summer 2015, supplied by a Chinese manufacturer who also supplied the magic carpets for a beginner area and a toboggan run. Nevertheless, skiing there never actually stopped. A simple lift has served about half of the vertical drop and locals have continued to offer ski rentals and lessons. The new hotel is scheduled to open in 2017.

In 2014, Naltar ski area became the second ski resort in Pakistan to get a chairlift, with the help of the Ski Federation of Pakistan. This second-hand lift previously in use in the Swiss ski resort of Villars-Gryon replaced an old surface lift. Access to the ski area is difficult and either requires a four-wheel drive vehicle or helicopter. As a matter of fact, the ski area is located in an army base and is primarily used by army officials. The staff is employed by the Pakistani Air Force. The resort features the country's longest ski run at 2.5 kilometres in length.

Pakistan sees growth in skier numbers as Pakistanis find it harder to ski abroad

The number of people skiing at the recently re-opened Pakistan ski area of Malam Jabba is reported to be increasing quickly, partly due to improved security in the area, and partly as Pakistan-based skiers and boarders are finding it increasingly difficult to gain entry to the world's leading ski nations, according to reports.

Malam Jabba ski area opened in the late 1990s after long delays with infrastructure provided by Austria. The Swat Valley where it is located was however taken over by the Taliban from 2007 to 2009 who, disagreeing with pro winter sports hard liners in Iran and Saudi Arabia, declared skiing *un-Islamic* and destroyed the ski infrastructure. In recent years however the centre has re-opened with new security and a new Chinese-built chairlift. The centre's hotel is also being rebuilt.

Visitors interviewed in Malam Jabba this season were mainly domestic tourist. Some arrived from the south of Pakistan excited just to see snow and improved roads and growing car ownership are also credited with growing the domestic market. People had to sleep in their cars last summer as the numbers of people visiting to enjoy the cooler mountain air was greater than the holiday accommodation available. Visitor numbers in one mountainous province of Pakistan were reported to have nearly tripled from 250'000 in 2014 to 700'000 last year. Most of these are domestic tourists, with only 2% of international visitors (when before the 9-11 terror attacks more than half of visitors were from overseas).

Source: Snowhunter



South Africa



South African interior highlands are separated from the coastline and its lowlands by the Great Escarpment, a 3'500 kilometre long geological formation along the edge of the Central Plateau with mountains that range from 2'000 to 3'300 metres. In the east, the highest stretch of the Great Escarpment is known as the Drakensberg Mountain range and features the country's high point, Peak Mafadi, culminating at 3'450 metres above sea level, on the border with Lesotho. Other mountain ranges are located

between the coastal plains and the Great Escarpment (Swartberg and Langeberg).

South Africa has only one single commercial ski resort, even if it is possible to ski in different areas in the mountains. Located near the border with Lesotho, on the highest mountain in the region, Ben McDhui Peak, the Tiffindell ski area tops out at 2'900 metres elevation.

Since opening in 1993, an area for beginners, and 2 main runs from 2 T-bars were built. A recent investment was made to renovate the 2 T-bars, increase the length of the ski runs, add a terrain park and upgrade services in order to improve its offering. Although its location on the southern face of Ben McDhui Peak receives enough natural snow, the ski area is equipped with a modern snowmaking system that covers 3 hectares.

There are daily entertainment programs offered to children and adults. Tiffindell also has an attractive after-ski scene, with mountain-themed bars to relax after a day on the slopes. The accommodation consists of rustic log cabins for 4-8 people, Luxury Mountain Chalets for up to 12 people and Mountain Suite rooms for 2 people – for a total of over 150 beds. Popular ski week packages include meals, lift passes, ski equipment and instruction.

The ski season extends from late May to early September (Southern Hemisphere). Skiing in South Africa is of course a completely different experience than skiing in Europe. The number of runs and infrastructure is limited, as is the snow quality. In spite of such a limited offer, the country has a ski association. Founded in 1990, Snow Sports South Africa (SSSA) is affiliated with the FIS and recognised as an official organization for everything relating to skiing in South Africa. It serves to coordinate and promote the development of skiing in the country.

In conjunction with Tiffindell, the association organises the South African National Skiing Championships every year. Incredibly in 2014, SSSA and Tiffindell also hosted the first Men's FIS slalom ever to be staged on the African Continent and again in 2015 the men were joined by the women for the first Ladies' FIS race in Africa. Competing racers were from Austria, Sweden, Belgium, Iceland, the USA, Slovenia, Italy and Slovakia. A local ski club called the Ikhephu Ski Pups train around 120 children from the surrounding schools annually. There is a Winter Sports Academy based at the resort which provides 24 children with both schooling and race training for the ski months of June, July and August.

From a snow perspective, there was little to no natural snowfall in South Africa (and Lesotho) during the 2014 ski season, but low temperatures allowed Tiffindell as well as Afriski in Lesotho to make snow in order to open the ski areas. In Tiffindell's case, this was the longest season on record thanks to a newly extended snowmaking system. 2015 conditions were better, with some natural snowfall.



Turkey



Turkey, in addition to its beaches, is also a mountainous country with almost 60% of the territory covered in mountains. They are spread all over the Anatolian region, with the Köroğlu and Pontic ranges in the North and the Taurus Mountains in the South; they meet and join in the Eastern part of the country. The average altitude in Turkey is 1'131 metres above sea level, but in eastern Anatolia, this average increases to 1'600 metres. Located in the far eastern part of the country, Turkey's highest mountain, with an elevation of 5'137 metres above sea level, is the legendary Mount Ararat, the supposed final resting place for Noah's Ark.

The Turkish Ski Federation was founded in 1936, the year when the Turkish Olympic team first participated in the Winter Olympic Games. This was the impetus to develop skiing in Turkey and build ski resorts, especially Uludağ (the highest mountain in Western Turkey, topping out at 2'543 metres above sea level, about 45 kilometres from Bursa), Erciyes (Mount Erciyes is the highest point of Central Anatolia with 3'916 metres) and Elmadag (in the province of Ankara). Internationally sanctioned competitions were first organised in Turkey as early as 1944. To increase participation in the skiing, ski training clinics and holiday camps are organised every year, but for the time being, this only reaches a small section of the population.

New ski areas have been built on a regular basis in Turkey and the pace increased over the last decade. In 2000, there were 20 ski areas. Today, there are more than 40, spread all over the country, plus another 50 additional sites identified as having the potential to become new ski areas. For the time being however, less than 10 ski areas offer more than 4 lifts. Hotels provide approximately 15'000 rooms all ski resorts combined.

One of the most famous resorts in Turkey is Palandöken,



which hosts FIS competitions. It lies in the eastern part of Turkey, near the city of Erzurum and has one of the colder climates in the country resulting in very good snow conditions. The Winter Universiade in February 2011 was the driving force to bring the Turkish ski industry to new heights. In preparation for the event, Palandoken invested nearly USD 100 million. In 2014, the brand GrandErzurum was born from the merger of Palandoken with the neighbouring resort Konakli. Although both ski areas are not physically connected, GrandErzurum totals 65 kilometres of ski trails and 14 lifts. It is now managed by an international ski operator. 212 snow cannons guarantee snow coverage for 75% of the resort's skiable area, located between 2'200 and 3'180 metres above sea level.



Although it was already possible to ski at the base of Mount Erciyes for a long time, the area developed into a modern, state of the art ski resort – the largest in Turkey. Initiated in 2005 by Kayseri Metropolitan Municipality and later on managed by its wholly owned development company Kayseri Erciyes A.S., it was inaugurated in 2011. After a global investment of EUR 350 mio, the resort now offers 13 aerial lifts, including gondolas and 4 and 6-seater chairlifts, some with heated seats and bubbles, totalling capacity of 26'750 skiers per hour. 58% of the 102 kilometres of slopes are equipped with snowmaking. They range between 2'200 and 3'400 meters above sea level. The resorts offers 1'450 beds (with some further hotels planned, together with additional lifts on the other side of the village) and the 25 kilometres away neighbouring city of Kayseri offers an additional 6'000 hotel beds, including international brands. Lift passes are priced very attractively, with a daily pass sold TKL 70 (EUR 15) in winter 2017/18. The resort has FIS homologated slopes and already hosted several world cup events. It also offers night skiing and promotes *cultural skiing*, with tours of Cappadocia in addition to days spent on the resort slopes.

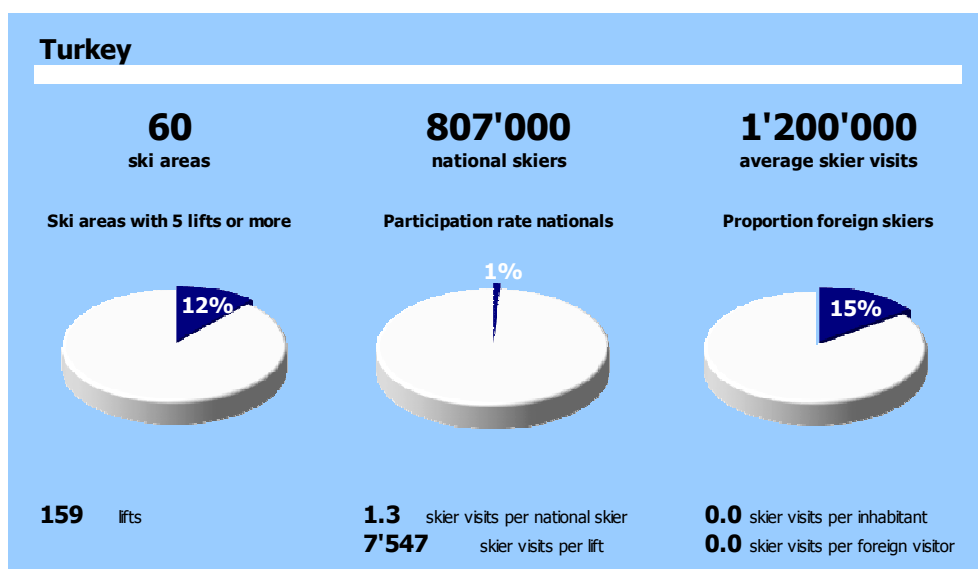
Kartalkaya, located west of the Balkan Sea, in the Koroglu Mountains, built the first professional snowpark in Turkey. The ski area lies between 1'850 and 2'250 metres above sea level and has 18 lifts serving 12 runs of all levels. Kartalkaya has 3 major 4-star hotels with a total capacity of 2'250 beds. The resort hopes to become better known worldwide by hosting international competitions in the future. Since it snows a lot, the ski season lasts an average of 120 days.

With 2 gondolas, 6 chairlifts and 8 surface lifts, Uludag is one of the largest resorts in Turkey. It is located near Bursa, offers an uphill capacity of 19'630 people per hour, and 28 kilometres of runs. Snowfall generally averages 3 metres per winter. In addition to alpine skiing, the area enjoys favourable conditions for cross-country and heli-skiing. Located in a national park, the ski area also has swimming pools, fitness centres and a well-developed night life. With its 27 accommodations for all levels of expectations (some are State properties), Uludag offers 3'000 beds.

Over the last 10 years, about 50 new lifts were installed in the Turkish mountains. To diversify the tourism offering (primarily beaches), there are major projects in the works to further develop Turkey's winter tourism and

bring the number of ski resorts to 100. This project, which includes EUR 50 billion in investments, 1'000 new lifts and 275'000 beds for 14 million of skiers, has recently been discussed in the media. At present, although resort capacity is on the rise, they are not yet at a stage to compete with foreign resorts in attracting an international clientele. The potential for the Turkish mountains is not yet fully exploited. The Minister of Sports has declared the willingness of the government to promote winter sports among children, in a country where only an estimated 1% of the population participates in skiing.

Currently, foreign skiers are primarily from Russia, the Ukraine or Iran. Thanks to the 2011 Winter Universiade, which brought together 58 nations, the country has hopes of attracting more Europeans. In addition, many Turks still travel abroad for their winter holidays. Improvement in local infrastructure will increase the retention rate within the country.



Conclusion

Nearly everywhere, the industry is facing the challenge of generating long term growth. In many places, the market is more than mature and the baby-boomers represent the majority of participants. This generation will progressively exit some of the mature markets without being adequately replaced by future generations with the same enthusiasm for skiing. The need to stimulate the market is extremely important and not always sufficiently addressed. In developing markets this is also an issue. Everywhere, the challenge is to attract a younger generation that has different consumption patterns, that zaps quickly from one interest to the next, and that is in great demand for all kinds of competing activities.



As already experienced by ski areas that have been actively looking for solutions, gaining new customers by attracting non-skiers and converting them into loyal participants is far from a done deal. It requires a significant effort and the situation only improves very slowly. Innovation and customer relationship management is the key. The first not only concerns lifts (much has already been done in this area), but everything that is related to improving the mountain experience, and in some countries this starts with lodging. It is difficult to attract clients for one week of wonderful skiing, using state-of-the-art lifts, grooming and snowmaking, if guests have to spend the time they are not skiing in substandard hotel rooms and restaurants. Newcomers to the industry are often well integrated and capable of offering modern facilities for every aspect of the product, and are also fun

places to vacation. Thus, if traditional destinations still want to compete, they need to better manage the quality of their infrastructure, equipment and services throughout the entire resort. Technology will help service-oriented operators to closely monitor the needs and desires of their customers and to put together customised offers. In this globalised world, everyone appreciates personalised service. The Internet made it possible for now more than 10 years to offer one-stop shopping where clients are able to take care of all their needs. Unfortunately, this is not yet widely spread in the ski resort industry, and especially in the traditional markets that suffer from stagnating demand.

Even though the Internet and mobile apps are powerful communication and promotional tools for the existing customer base, and even though most ski areas recognise the need to be present on social media⁵², it has failed up to this point as a tool to help grow the global ski market. There has simply been a swap in the promotional channels. Marketing operations have changed somewhat, but this has not enabled new market development. The Internet and mobile technology certainly have their strengths, but these strengths are currently limited and mitigated by their drawbacks.

In fact, the web and mobile apps enhance communication, facilitate bookings, travel arrangements, daily package sales and make snow conditions more transparent for skiers. The latter already presents some adverse effects. Both direct and indirect competition has increased, and has been enhanced by technology, as has communication. The web is itself a competitor, such as when young people choose to spend time in front of their screens instead of heading to the slopes! The benefits of the Internet are also available to all competing industries. Finally, the web and mobile apps have failed to provide the ability to reach non-skiers on a massive scale and transform them into enthusiastic participants; they do not teach one to ski nor help one to practice!

Independent from the potential benefits that the industry can gain from the technology, the customer experience will only be complete when the virtual purchase turns into a reality. At this stage, careful attention should be paid to maximise guest satisfaction. Service quality and friendly human interactions are required to truly produce an exceptional customer experience. This has become the reality in tourism and for ski resorts as well. The potential for improvement still leaves the future wide open for those players in the industry that clearly understand these issues. The market demands convenience and those that figure out how to supply it will win.

Given the new generation that is targeted everywhere, this report will conclude with a special note about ski learning and instruction. This is where convenience and experience may be the most challenging! This is also one of the first pieces of the ski experience puzzle. If the industry does not figure out how to turn the tedious learning process into a great time, it will fail in capturing the interest of the new generation of potential skiers that is

⁵² A couple of years ago, some of the world's most popular and well-known ski resorts were barely able to attract 100'000 friends to their Facebook pages, even though they host over 1 million skier visits per year! Now the situation improved a little bit, but there are still resorts in this situation.

desperately needed to fill the newly built resorts in Asia and Eastern Europe and to renew the baby-boomers customer base in the traditional markets.



Sources and acknowledgments

As comprehensive information is not available worldwide for the industry, and even quite scarce for some countries, the present report compiled data from several sources.

A lot of effort has therefore been focused on presenting the data as accurately as possible. The data has been cross-checked numerous times. If, however, a reliable source has been omitted or the data insufficiently updated, the author would very much appreciate being informed for future reference. Please address any comments to **vanat@vanat.ch**.

Besides the personal historical database assembled by the author, and in addition to conducting extensive web research, the following sources of data were used:

- Reports and news from national or regional ski areas associations: ACESKI - Asociacion de Centros de Ski de Chile A.G., ANEF (Associazione Nazionale Esercenti Funivari), ASAA (Australian Ski Areas Association), ASSQ (Association des Stations de Ski du Québec), ATUDEM (Asociacion Turistica De Estaciones de Esqui y Montana), CWSAA (Canada West Ski Areas Association), DSF (Domaines Skiabiles de France), NSAA (National Ski Areas Association), RMS (Remontées Mécaniques Suisses), SHKY (Finnish Ski Area Association), SLAO (Swedish Ski Area Association), VDS (Verband Deutscher Seilbahnen und Schlepplifte), WKO (Fachverband der Seilbahnen Österreichs) and others
- Annual reports from large ski resorts operators, such as Compagnie des Alpes, Skistar, Tatra Mountain Resorts ...
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- ATOUT France, Chiffres clés du tourisme de montagne, 7e édition, and others
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- Doppelmayr, Leitner and Poma, reference lists and annual reports
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- Webpages (among others) wikipedia.org, skiofpersia.com
- Wintersportanalyse in Europa, Manova, Octobre 2010

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Maps: CIA Factbook

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English	Français	Deutsch	中國
Aerial lifts	Téléportés (terme générique)	Luftseilbahn	架空索道
Alpine country	Pays alpin	Alpenland	高山国家
Alpine skiing	Ski alpin	Ski alpin	高山滑雪
Backcountry skiing	Ski hors piste	Skifahren ausserhalb der Pisten	后山滑雪
Button lift	Télésiège à perches / assiettes	Tellerlift	圆盘式拖牵
Cable-car	Téléphérique	Pendelbahn	箱式缆车
Cat skiing	Ski avec montée en chenillette	Skifahren mit Aufstieg per Pistenwalze	雪猫滑雪
Chairlift	Télésiège	Sesselbahn	吊椅式缆车
Combined lift	Télemix	Kombibahn	吊箱吊椅混合式缆车
Cross-country skiing	Ski nordique, ski de fond	Langlauf	北欧滑雪, 越野滑雪
Detachable	Débrayable	Kuppelbar	脱挂式
Downhill sliding	Sport de glisse (gravitaire)	Schneesportarten (Abwärts)	速降
Drag-lift	Télésiège	Skilift	拖牵
Fixed grip	Pince fixe	Feste Klemme	固定抱索器
Freeride skiing	Ski freeride (pratique libre, hors cadre formel)	Freeride Skifahren	自由滑雪 (多指滑野雪)
Freestyle	Freestyle (figures lors de sauts)	Freestyle (Figuren im Sprung)	自由式滑雪 (多指花样或技巧类)
Gondola lift	Télécabine	Gondelbahn	箱式缆车
Groomer (vehicule)	Dameuse, chenillette	Pistenraupe / Pistenfahrzeug	压雪车
Grooming	Damage	Pistenpräparierung	压雪
Hourly lift output	Capacité horaire	Stundenleistung	每小时运力
Lifts	Remontées mécaniques	Seilbahnen	索道
Magic carpet	Tapis roulant	Förderband	魔毯

English	Français	Deutsch	中國
Nordic skiing	Ski nordique, ski de fond	Langlauf	北欧滑雪, 越野滑雪
Off-piste skiing	Ski hors piste	Skifahren ausserhalb der Pisten	道外滑雪
Participation rate	Taux de pratique	Ausübungsrate	参与率
Quad	Télesiège 4 places	4er-Sesselbahn	4人缆车
Rope-tow	Télécorde	Kleinskilift	小拖牵
Ropeways (cableways)	Installations de transport à câble	Seilbahnen	索道
Six-pack	Télesiège 6 places	6er-Sesselbahn	6人缆车
Ski area	Zone de pratique du ski	Ski Übungsgelände	滑雪区
Ski lift	Téléski (terme générique)	Skilift, Schlepplift	拖牵
Ski resort	Station de ski	Skigebiet	滑雪场
Ski touring, ski mountaineering	Ski de randonnée	Skitouren	滑雪旅游
Skier	Skieur	Skifahrer	滑雪者
Skier transported	Passagers transportés	Beförderte Personen / Frequenzen	运送的乘客
Skier visits	Journées-skieurs	Skifahrertage / Skier-Days	滑雪人次
Snowboarder	Néviplanchiste / snowboardeur	Snowboarder	单板滑雪者
Snowcat	Chenillette	Pistenwalze	雪地履带车 / 雪猫
Surface lift	Téléski, télécorde (terme générique)	Skilift, Schlepplift	拖牵
Snow field	Stade de neige	Schneefeld	滑雪场
T-bar lift	Téléski à arbalètes / archets / pioches	Bügelift	T型拖牵
Terrain park	Zone freestyle, snowpark	Freestyle-Bereich, Snowpark	地形公园
Trails	Pistes	Pisten	雪道
Tram (aerial)	Téléphérique	Pendelbahn	缆车
Vertical drop	Dénivelé	Höhendifferenz	垂直落差



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