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# Easy four-thousanders in the Alps: between alpinism and mass tourism

**Abstract**: The article discusses natural and anthropogenic conditions of the present-day exploration of five Alpine mountain peaks – selected for the purpose of the present paper – standing at 4000 meters above sea level or higher, including Allalinhorn, Breithorn, Gran Paradiso, Punta Gnifetti (Signalkuppe) and Zumsteinspitze, which are referred to as easy Alpine four-thousanders. A common belief that the summits are easily accessible contributes to a higher volume of tourists in their region, which, besides favorable and relatively safe natural conditions, is further facilitated by intensive development of tourism infrastructure including mountain huts and most of all mountain railways. The analysis of the contemporary phenomenon of climbing easy four-thousanders almost on a massive scale provides basis for a discussion on the ongoing human impact on the environment in the highest Alps and the blurring of boundaries between a sport and elite mountain feat that requires both special qualifications and considerable experience and an objectively average achievement accessible to almost every physically fit tourist.

**Key words**: alpine four-thousanders, Alpine tourism, mass tourism

## 1. Introduction

Mountain areas are home to diverse tourist activities which irrespective of their nature (sporting, cognitive or aesthetic) are typically a source of very powerful experiences and sensations (Czyż, 2010). Most popular forms of mountain tourism include hiking, skiing and mountain biking. The attractiveness of mountain tourism, especially in high-mountain regions, manifests itself primarily in the unique landscape value. Climbing mountain ridges and summits tourists can observe as plant life changes with altitude and admire vast panoramas opening in front of their eyes. A wide variation in the landscape, topography and climate are a strong impulse for physical and mental states of tourists (Kurek, 2004). The Alps in Europe are the biggest and most economically developed of the mountain regions in the world, with nearly 120 million tourists visiting the Alpine region on an annual basis (Bartaletti, 2012). Although the region has a longstanding tradition of tourism that goes back to the 19th century (Kurek, 2004), its development on a mass scale is a relatively new phenomenon. It is assumed that the development of mass summer tourism in the Alps began only a few years after the end of World War II, while winter tourism as a mass phenomenon emerged even later, in the mid-1960s (Bätzing, 1991). Now as in the past, the main motive for the majority of tourist stays is to climb the Alpine peaks, including the highest ones, which are a unique attraction at least on a continental scale.

The present article aims to analyze the natural and infrastructure conditions underlying the increased volume of mountain tourism in the areas of Alpine peaks, which in travel guide books and on specialist portals as well as the Internet fora are quite often referred to as "easy" four-thousanders. The author attempts to determine what makes them fall into this category and if this is in fact a reasoned categorization. The issues outlined in this article are important for natural environment conserva-

tion to prevent devastation, which must naturally occur with the growing number of tourists threatening to exceed the carrying capacity for tourism in the mountain peak areas and along mountain trails leading to them. A fact particularly worth noticing is an increased number of tourists in the Alps from outside the Alpine countries, especially from Central and Eastern Europe (EUROSTAT, 2017). The experience those tourists have gained in much lower mountain ranges (e.g., in the summer, in the Tatra Mountains) coupled with their belief that the Alpine four-thousanders are easy to climb may result in an increased number of mountain accidents and them being the likely casualties from such accidents.

The present paper is based mainly on the author's own observation and reflection regarding the scale and the limits of Alpine tourism promotion. It also draws on a selection of popular travel guide books (Babicz and Tkaczyk, 1994; Babicz, 1995; Goedeke, 2011, 2012) as well as tourist cartographic materials (Zermatt, 2003; Saas, 2012; Valsavarenche, 2013; Alte valli d'Ayas e del Lys Monte Rosa, 2016).

## 2. A list of the Alpine four-thousanders and a historical overview of their accessibility

Most probably establishing the number of mountain peaks in the Alps exceeding 4000 meters in absolute altitude unambiguously and indisputably will never be possible . This is due to the many different criteria taken into consideration (altitude, morphology, landscape and even history) when drawing up such a list. For some, Alpine four-thousanders are only those mountain peaks that are clearly separated from their adjacent ridges and shoulders, excluding foresummits and other bulges in the ridges, while others include them provided their relative altitude is higher than the preset limit value of, for instance, 100 m or 30 m. This significant discrepancy shows already that this criterion is quite conventional and is not necessarily reflected in the terrain from the climber's perspective. The most well-known and most often used list of Alpine four-thousanders was developed by the International Climbing and Mountaineering Federation (*L'Union Internationale des Associations d'Alpinisme*) in 1994 (UIAA, 1994). The list includes 82 mountain peaks.

Mont Blanc was first reached as late as the second half of the 18$^{th}$ century while the next pioneering ascents of the Alpine four-thousanders took place mainly in the following century. In the main, this concerns the so-called documented ascents. A belief in the pristine nature of the highest Alpine areas undisturbed by man was questioned in 1991, when a discovery of a well-preserved corpses of a man who lived about 3000 years BC (Bortenschlager and Oeggl, 2000) was made near the summit of Fineilspitze (3.514 m) in the Ötztal Alps on the Austrian-Italian border. "Ötzi", which is the a nickname the mummy received, was a hunter gatherer dressed in leathers and shoes made from intertwined strands of soft grass and bast. Based on a comprehensive research, it was established that Ötzi the iceman, was well nourished and equipped with weapon and tools of everyday use, and that the immediate cause of his death was not hypothermia or suffocation from being under snow but the wounds he sustained fighting against other men.

The 20th century brought about breakthroughs in establishing new increasingly difficult climbing routs in the entire Alpine region. The progress achieved in climbing techniques over the past century is best demonstrated in the time needed to ascent the famous Eiger vertical north face (3.970 m) in the Brenese Alps. Now it takes no longer than two and a half hours, while the first climbers needed approximately four days to reach the summit. Apart from free climbing other most diverse new disciplines classified as extreme sports are being developed, including but not limited to ice climbing, mountain biking, free skiing, paragliding, speed flying, BASE jumping. At the same time these mountains are becoming increasingly available for mass tourism, which is fueled by a massive development of infrastructure, including accommodation and dining facilities, mountain railways and ski

lifts. For instance, it is estimated that there are approximately 2500 mountain huts while the number of ski lifts amounts to several thousand (Kurek, 2004). They can also be found in the area of the highest Alpine peaks. Also huge technological advances in mountaineering apparel and equipment as well as their widespread availability shall not be underestimated.

## 3. Environmental and infrastructure aspects of ascending the easy four-thousanders in the Alps

Allalinhorn (4.027 m n.p.m.) located in the Pennine Alps in Switzerland (Fig. 1) is now commonly considered the easiest 4000-metre peak in the Alps to *climb*.

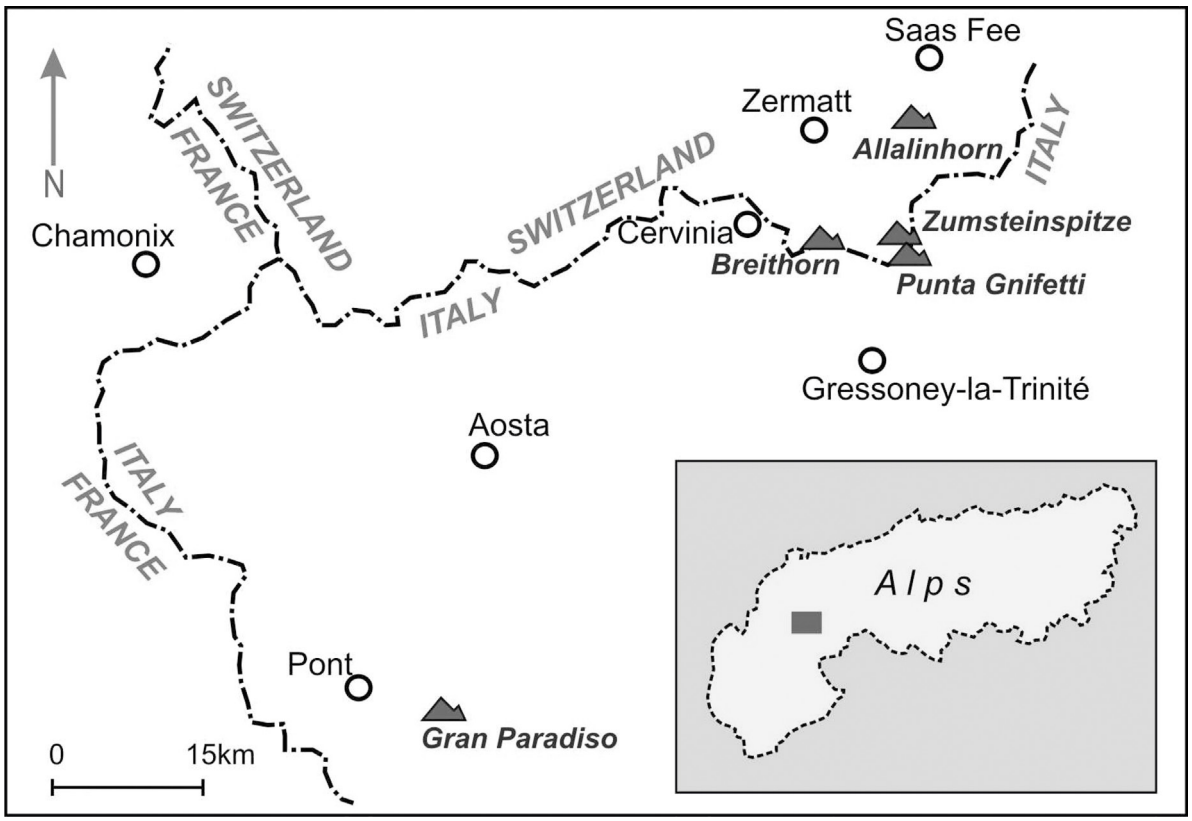


**Figure 1.** The position of the Alpine four-thousanders discussed herein

Source: the author's own work

*There are at least two reasons justifying this common belief. Firstly, in its immediate vicinity, there is an* underground funicular called „Metro-Alpin", operating there since 1984. It helps tourists reach the altitude of nearly 3500 meters above sea level (to the peak of Mittel Allalin), with the capacity of 1500 persons per hour. In turn the lower station (at approx.3000 m) is connected with Saas-Fee village (one of the highest tourist resorts in Switzerland, at an altitude of approximately 1800 m above sea level) via two cable car services 'Alpin Express' and 'Felskinn'. In fact it means that within several hours starting from the bottom of a valley a tourist reaches a point from which the distance to be covered on foot is less than 600 meters in elevation difference. And this can be done in about two hours (Fig. 2). Although the trail leads through a glacier, it is mostly snow-covered with a gentle ascent. Moreover, initially it passes through year-round ski area. The mountain summit is best known for its vast panorama even among those complaining about the man-made desecration of the surrounding area. Besides being easily accessible, this is certainly the main reason why the summit enjoys such a great popularity among tourists.

**Figure 2.** A view over Allalinhorn (4.027 m) as seen from the upper station of „Metro-Alpin" (3.456 m)

Source: M. Jarosz, www.commons.wikimedia.org Publication based on the GNU Free Documentation License

**Figure 3.** The view from Zermatt side over the western summit of Breithorn (4.164 m) and the Klein Matterhorn (3.883 m)

Source: the author's personal archive

**Figure 4.** The route to the Breithorn within the plateau area at the foot of the mountain

Source: the author's personal archive

**Figure 5.** The view of the western summit of Breithorn towards the East

Source: the author's personal archive

**Figure 6.** The Vittorio Emanuele II Refuge at the altitude of 2.735 meters

Source: the author's personal archive

**Figure 7.** The final section of the route to Gran Paradiso.

Sources: the author's personal archive

**Figure 8.** Gran Paradiso – the Madonna summit (4,052 m).

Source: the author's personal archive

**Figure 10.** The crevasses area on the trail to Punta Gnifetti.

Source: the author's personal archive

**Figure 12.** The summit of Punta Gnifetti (4.554 m).

Source: the author's personal archive

**Figure 9.** Tourists on the normal route to the Punta Gnifetti (Signalkuppe) summit above the the Capanna Giovanni Gnifetti refuge

Source: the author's personal archive

**Figure 11.** Snow and ice landscape of the Monte Rosa massif in the summer season

Source: the author's personal archive

**Figure 13.** The building of the Capanna Regina Margherita hut

Source: the author's personal archive

Only climbing the peak of Breithorn (4.164 m) seems a little more of a challenge nowadays. The mountain is also located in the Pennine Alps, yet on the border between Italy (to the south) and Switzerland (to the north). It may come as a surprise that on the Swiss side this multi-peak massif slopes with an exceptionally impressive steep rock and ice wall measuring 2.5 km in width, where spectacular seracs falls and avalanches are a frequent sight. However, from the southern side Breithorn presents itself somewhat differently. This is particularly so for its highest west peak which looks like a huge snow-capped ice dome, towering over a vast snow-covered plateau. And it is this summit that essentially attracts most climbs on the Breithorn (Fig. 4) Accommodation in the summit area is very well developed. It mainly includes two Italian huts Rifugio Teodulo (3.317 m, 86 beds) and Rifugio Guide del Cervino (3.480 m, 36 beds). They can be reached with no major problems from the upper funicular cable car station operating all year round between Breuil-Cervinia in the valley of Valtournenche (approx. 2.000 m.) and the peak of Testa Grigia (3.408 m). And yet the volume of tourist flows within the Breithorn regionhas been affected by the cable car service operating there since December 1979 with its lower station in Zermatt. Its upper station is in the area of Klein Matterhorn (3.883 m ), from where a tunnel drilled in the mountain runs directly to the glacial plateau below Breithorn. On average over half a million people use this means of transport annually. Even assuming that the majority of them are skiers or people for whom the main tourist attraction is to admire the views on the way up and await the ride down, the remaining group of people is big enough for Breithorn to gain a reputation of an extremely congested summit. However with good weather conditions the panorama extending from the peak of Breithorn includes both the massif of Monte Rossa and Matterhorn and is one of the most beautiful panoramas in the entire Alps (Fig. 5). For this reason alone, it is worth getting to the top despite an excessive concentration of climbers in this area.

Situated in the Graian Alps entirely within the Italian territory, Gran Paradiso (4.069 m) is another very popular tourist destination. It is the only mountain summit, out of the four described in this paper, that can be reached from the bottom of the valley entirely on foot along a trail starting from Pont (1920 m) without any artificial conveniences on the way. The Rifugio Vittorio Emanuele II is an ideal starting points to climb the summit. The hut is situated at an elevation of 2.735 meters and is a tourist attraction itself, especially in good weather on summer weekends (Fig. 6). Besides, the hike to the hut follows a well-marked trial. Built in 1884, the hut was substantially enlarged in the mid-20$^{th}$ century. The place offers 120 beds in the main building and some dormitory rooms in the nearby winter shelter. The latter runs a year round service, while the main building opens in mid-June and closes in mid-September. However reservations can be made already as of mid-March. In fact, the ascent to the mountain summit is not too hard, yet quite onerous. Once you leave the hut, the first part of the trail is already rough and very bumpy, leading through rock blocks. Then the path leads through quite steep moraines, screes and rocks. Then at an elevation of about 3.300 meters it becomes a glacier route (the Gran Paradiso glacier). This section of the climb is not problematic either, fairly low angled and with few crevasses. The final 60 meters, just before the subsidiary summit of Gran Paradiso called Madonna (4.052 m), are most challenging as the ridge is exposed (Fig. 7 and Fig. 8). Most climbers reach as high as this point, considering it to be the true summit of the Gran Paradiso, while the main summit (4,061 m) is, in actual fact, at the south-west ridge and requires a few more minutes of a mixed and even more exposed climb. The exceptional setting of Gran Paradiso as the highest isolated point of the massif offers a wide panoramic view over Mont Blanc and Matterhorn, among others. The Vittorio Emanuele II refuge is also a starting point for climbing Tresenta (3.609 m), a much smaller summit which can also be reached through a relatively easy glacier route. Therefore many tourists planning to climb Gran Pardiso decide to spend at least two nights at the refuge. Located between Switzerland and Italy, Monte Rosa is the highest mountain massif in the Alps. The massif includes Dufourspitze (4.634 m), the highest mountain peak of Switzerland and also the second highest stand-alone mountain of the Alps. Except for Dufourspitze, there are other

11 four-thousanders within the massif, with five of them over 4.500 meters above sea level. Moreover the east face of the massif measuring 2.400 meters above sea level is considered to be the highest in the Alps. Still access to this gigantic massif has been greatly facilitated by the construction of a gondola lift service in 2011, operating all year round from the settlement of Staffal (about 1800 m above sea level), part of Gressoney-La-Trinité village in the Gressoney valley (*Val de Gressoney*), which takes passengers (capacity of 2.400 persons per hour, 7-15 minute-ride) to the altitude of approximately 2.300 m above sea level near lake Gabiet (*Lago Gabiet*), a reservoir where one can change to a gondola going to the Salati mountain pass (Passo dei Salati 2.980 m) built in 2004. Passo dei Salati can also be reached by a cable car from Alagna, situated in the neighboring valley. Since 2010 the cable car route has been extended and it takes passengers all the way to the Indren Glacier. Thus in a short time and without much effort one can reach an elevation of 3.200 m, from where after a slightly over an hour-hike leading through rocks and a heavily melting glacier one can reach huts opened in the spring and summer season, which are a starting point for climbs further up the Monte Rosa massif. Slightly below (3.498 m), there is Citta di Montova (80 beds), a refuge built in 1974. The second hut is Capanna Giovanni Gnifetti (3.647 m, almost 180 beds), which was rebuilt in in 1967. For the majority of climbers staying overnight at the two huts, the goal is to climb Punta Gnifetti (4.554 m), Signalkuppe in the German language, on the Italian-Swiss border. This summit can be reached following 4-5 hours of climbing a snow and glacier route (Fig. 9). The initial and final sections of the trail are most difficult with the greatest challenge being deep crevasses (Fig. 10). In the summer the hike follows well-trodden mountain trails, which clearly suggest the direction when passing and crossing the crevasses. Undoubtedly, taking the normal route to Punta Gnifetti provides an incredible opportunity to experience the vastness of the snow and ice desert (Fig. 11), against which human silhouettes are vanishing even if the trail is busy. Even in this wild Alpine landscape one will find products of our civilization, which in fact directly contributes to the popularity of the trail among tourists. Situated on top of Punta Gnifetti, there is the Capanna Regina Margherita hut (Fig. 12) marking the final destination point of the trail since 1893. The present two-story building (70 bed places) was built in 1980. It is the highest-altitude lived-in building of Europe (Fig. 13). For those who already reached this place, climbing the nearby easy (F-) summit of Zumsteinspitze (4563 m) presents no technical difficulty all the more so as the summit offers a magnificent view over the Monte Rosa massif as well as other mountain groups.

## 4. Are easy four-thousanders ease? – Introduction to a discussion

To evaluate the overall difficulty of the rock and ice routs in the Alps, the Alpine scale (Fyffe and Peter, 1997) developed in the 1940s is often used. The scale evaluates how hard the route is, including mainly technical difficulties but also such factors as length and inconvenience of the ascent, length and complexity of descent, exposure, steepness, quality of rock, ice and snow, location of key difficulties, altitude, as well as objective risks such as avalanches, seracs, rock slides or unstable weather conditions. Originally the scale included six grades of difficulty with initials of French words designating the level of difficulty: easy (F - *Facile*), not very hard (PD - *Peu Difficle*), fairly hard (AD - *Assez Difficle*), hard (D - *Difficle*), very hard (TD - *Tres Difficle*) and extremely hard (ED - *Extrement Difficle*). In addition, to better describe the conditions present the scale allows a further gradation within individual levels of difficulty indicated by a "+" (more than average difficulty within a given level) and "-" (less than average difficulty within a given level). In the 1970s the scale was enhanced with the seventh level of difficulty: abominable (ABO - *Abominablement*).

Normal routes leading to all the above mentioned four-thousanders have been classified as easy routs (F or F+), with the exception being Punta Gnifetti, rated as not very hard (PD) for its altitude and length of ascent (www.summitpost.org). It should be clearly stated however that those routes are Alpine routes and thus

require to be treated with due caution without neglecting having the basic equipment, including harness, ropes, crampons, axe and the necessary skills to use it.

Those routes are not marked or belayed in the more difficult sections of the trail particularly were they run on the glaciers surfaces. On a sunny day these may basically seem unnecessary as the path to the summit is always trodden and its course can be clearly seen from a distance. Therefore one can literally follow in the footsteps of the climbers ahead as far as the direction of ascent is concerned the more so as the climbers very often stay close to each other. Although climbers climb in small teams, unfortunately, on sunny summer weekends, they would rather resemble a long stretched caravan. However, the situation may change dramatically in the case of rapid weather deterioration, fog, incoming clouds or snowfall. In such conditions, with limited visibility and no points of orientation in a vast snow and ice terrain, the risk of losing one's way increases dramatically as does the risk of falling in crevasses or falling into the abyss. In contrast on warm sunny days, especially in the afternoon, the risk of snow bridges (that form over crevasses) caving in increases as well as the danger of snow avalanches coming down, seracs breaking out and rocks falling down. A relatively small number of life threatening events within the area of easy four-thousanders can be explained by the prevailing mode of a group climbing lead by an experienced and paid guide who can properly assess the conditions en route and the fact that those groups undertake the challenge of reaching the summit only in good weather conditions.

With mountain railways and other technical facilities available, they deprive themselves of adequate acclimatization, which is necessary to adjust to the conditions typical at the higher-altitude areas in the Alps, especially the air which is low on oxygen at this altitude. This may result in health problems such as, for instance headaches, breathlessness, palpitation, easy fatigue, vomiting which in turn can be an onset of even serious health conditions. In the past, for obvious reasons, the trail would be covered entirely on foot and the hike would most often be done in two stages, with an overnight stay at a mountain hut. Nowadays, the climbers' physical performance is often verified for the first time at an altitude of about 3000 meters or better yet as high as the upper station of Klein Matterhorn (almost 3.900 m).

A growing number of people on mountain trails with widely varying skills for climbing in high altitude terrains brings about new dangers, which could not have been predicted by the firs to have climbed the Alpine peaks. These include, for instance a quite possible risk of crashes between climbers and skiers. This regards places in which the mountain rout leading to the summit overlaps or crosses the downhill ski runs. Concentration of climbing teams with climbers roped up with each other, moving at different speeds and in different directions on a narrow trodden path requires focusing attention on avoiding, overtaking and passing each other in a relatively safe manner. It is particularly important on the steeper sections and congested summits, in which case simul-climbing suprisingly increases the risk for a large group of people to be undercut with a rope. Unfortunately, it often happens in the case of organized guided ascents that the rope which is meant to be used to secure the clients is in fact used by the guides to drag those clients up the hill. The hazards mentioned above may even to a larger extent decide about the difficulty of the climbing route than its technical aspects which are linked to natural conditions.

## 5. Summary and conclusions

Over the past two decades a number of investments in terms of tourist infrastructure have been made in the high altitude Alpine zone. They are intended primarily for professional and recreational skiers. With the global warming, the ski seasons are becoming increasingly shorter especially in the lower-altitude areas (Koenig and Abegg, 1997; Abegg et al., 2007; EURAC, 2007; Gonset, 2013; Tranos and Davoudi, 2014; Gilaberte-Búrdalo et al., 2014). Hence the tendency to develop new ski resorts in high altitudes, reaching even as far

as the alpine zone. The same artificial facilities are increasingly used in the summer by tourists whose aim is to reach the Alpine summits, including the highest ones, rising above 4000 meters above sea level. On the one hand more tourist than ever have the opportunity to reach so high altitudes but on the other hand this situation may result in trivializing places available insofar only to a handful of people. Certainly, misusing the concept of "easy" four-thousanders and understanding it literally may encourage reckless escapades. In fact, they are easy for expert mountaineers (yet not devoid of objective dangers), relatively easy for those with some experience gained in lower Alpine summits but for the rest of the world they are difficult. It should be expected that given the demand, the tourist infrastructure will continue to develop in the high-altitude Alpine zone. It is, however, important that it take on the right course and scale, reconciling the interests of all the mountain users, and that priority be given to preserve the environment in the state very close to natural. This is consistent with the concept of sustainable tourism in the Alps, introduced at the end of the 20th century (Van der Straaten 2000) which is to cover the entire region, including both the valleys that have long been inhabited as well as the rock and glaciated deserted areas in the highest mountains.

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