

Have there been Glaciers in the Alpes?

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Abstract

A geomorphologic-physical inquiry of ice-age is given, where a discrepancy between theory of ice-age and real existing glaciers is shown.

Contents

1	Introduction	2
1.1	Have there been Glaciers in the Alpes?	2
1.2	Reasons for Retrogression of Glaciers	2
1.3	The Historically Latest Glacier Maximum of the Alpes	2
2	This are Today's Glaciers	3
2.1	Properties of a Real Existing Glacier	3
2.2	When a Glacier is Melting	4
3	What a Glacier does not Effect	5
3.1	Properties of a Landscape with Discrepancy to an Ice-Age	5
3.2	Examples of Landscapes in Contradiction to an Ice-Age and in Contradiction to Usual Ice-Age Theories	5
4	Result: The End of Theories of Ice-Age	6

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1 Introduction

1.1 Have there been Glaciers in the Alpes?

For the first one would say:

”In each case ’YES’, because there *are* glaciers in the Alpes today.”

1.2 Reasons for Retrogression of Glaciers

Recently the glaciers of the Alpes diminish themselves. There are several possibilities to be counted as reasons of this process, e.g.:

- Recently there are maxima of the solar spots. By this it is temporary warmer on the earth than in the average of the century.
- In winter there is an unusual heavy compression of the snow on the glaciers by ski tourism. This compressed snow at the melting of the snow melts faster than untouched deep snow.
- By pollution of the environment a significant increase of the concentration of carbon dioxide in air has taken place. The effect is a worldwide heating of the earth’s atmosphere.
- Via the ozon hole more radiation than before can reach the earth. By this snow and ice is sublimating faster in large altitudes than ever before.

Certainly one can mention several further reasons for the retrogression of the glaciers in the Alpes. Especially with discussing global climate changes one should take into consideration that in New Zealand the glaciers are increasing in spite of the ozon hole.

1.3 The Historically Latest Glacier Maximum of the Alpes

Therefore the following statement is sure:

”In earlier times there have been larger glaciers in the Alpes than today.”

The latest great prolongation of the glaciers was in circa 1700 after Chr., which can easily be seen at *each* glacier of the Alpes at the *ending moraine*¹. Furthermore there is more or less clearly a second hill of rubble some more down to the valley at many glaciers, which could be a hint that in former times the glaciers have gone even more down to the valley than in the year 1700².

If a glacier is totally molten away³, it has leaved a plain tub which is framed by a hill of rubble.

Therefore, recently the glacier’s scientists in the Alpes have got ideal conditions to examine former positions of glaciers. Now it is the substance of this essay to compare the remainders of historically documented glaciers to the remainders of a so-called ice-age.

¹A hill of rubble which a glacier is pushing in its front.

²In the Ötztal there are glaciers with prolongation maximum in circa 1850.

³very impressible to be seen in the northern area of Stubai in Gleirsch’s valley at the eastern glaciers of the Solar Walls

2 This are Today's Glaciers

2.1 Properties of a Real Existing Glacier

A glacier results from remaining of the old snow each of the last winter. By this there are regular year-strata in the glaciers. The more ice is build up by compression of the névé, the more the lower ice is molten by the high pressure.

Effect: The glacier is wandering down to the valley.

FURTHER PROPERTIES OF A GLACIER ARE:

- At sunshine the temperature on the glacier can without problems increase to more than 30 degree Centigrade. Then a lot of wild brooks shoot down at the surface of the glacier and dig themselves several Meters deep into the ice.
- There are also wild brooks *beneath* the glacier⁴. The junction between the brooks beyond and beneath the glacier are whirl pools that are gorged into the ice. These whirl pools are also called "glacier's mill", although they grind neither ice nor stone.
- At night the whole glacier including all wild brooks is frozen totally again⁵. Because of this reason a trip onto a glacier is starting before sunrise and finished on the ice the latest at two o'clock in the afternoon to prohibit to be drowned in the pulp. Only at the large glaciers also in the afternoon one can walk over the sharp-edged ice of the melting zone. In this case nevertheless there is a need of respect considering the wild brooks.
- The length of glaciers that go down very deep to the valley⁶, essentially depends on the precipitation amount in the corresponding last winter.
- The periode of day and night causes enormous tensions within the glacier's ice which can be studied especially in the morning being a hissing and a crashing sound beneath the own feet. These tensions are held responsible for dismantling the rocks beneath the glacier via *frost sprinkling*⁷.
- Rubble that is removed from the underground rock, is wandering via the so-called *frost lift* to the surface of the glacier. Therefore untrained persons *cannot* distinguish⁸ in areas of fragile rock between glacier and rubble.
- The surface of a glacier mainly is formed by day and night. This can be studied very impressively with puddles⁹ and "melting noses"¹⁰.

⁴this can be seen well at the tongue of the glacier

⁵Only the tongue of the glacier also is melting at night in summer. This zones of permanent melting consist of very sharp-edged ice.

⁶e.g. lower Grindelwald glacier

⁷This denotation is suitable.

⁸severe danger of falling into a crevasse, because e.g. the crampons have been removed too early!

⁹The puddle is freezing from the ground first!

¹⁰In the Alpes the "nose" behind a stone always shows into northern direction.

- If two glaciers strike together, they are flowing parallelly until the tongue of the glacier. The stones of the bordering moraines are moved as a dark belt¹¹ onto the surface of the glacier. This phenomenon of the "highway traces" can be seen very well on large glaciers¹².
- The average age of a glacier can be estimated to 500 years or also another value. The oldest partitions always are found at notches, where the snow is compressed only slowly and furthermore no large weight pressure is available.

Example: The glacier corpse called "Ötzi" (also known as "Frozen Fritz") has been found at such a notch, while at the glacier's tongue mainly findings of circa 100 years of age are found.

- Similarly to the tree rings at the glaciers a *year-strate* is located, where old and new snow during its compression build up different ice crystals¹³.

2.2 When a Glacier is Melting

In the last century there existed to this question mainly a lot of theory. Today there are also located phenomena:

- All stones that a glacier has "grinded", are sharp-edged. A glacier bursts the stones out of the rock and crushes them by further frost sprinkling. A rounding off of the stones can be done by wild brooks of molten water only.
- When a glacier is molten away, a plain tub or hollow is left, The old bordering moraines always are very fragile and as steep as possible thus they collapse already by rain or snow. The walking on such bordering moraines partially is very dangerous.
- The nature of a glacier's moraine is a statistical mixture of powder, stones and rocks, which depending on the area can be as large as house blocks¹⁴.
- If the Rhone glacier is looked at¹⁵, it can without problems be located that its maximum prolongation has been until Gletsch¹⁶, because today between glacier and Gletsch there is a broad, circa 3 km long U-valley. Recently the Rhone glacier itself is hangig with its tongue at a rather perpendicular wall. The Rhone valley beneath of Gletsch is an extremely narrow and steep V-valley.

A glacier's effect to the landscape always is in such a way, that plains and perpendicular walls are burstet out of the rock.

¹¹better: as a stony hill of 5 to 20 Meters hight

¹²e.g. Aletsch or Gorner glacier

¹³This could be seen very well in 1989 and 1990 because of few snow in the winters before.

¹⁴When in the afternoon the rockfall is starting by the sun radiation, this can be very unpleasant.

¹⁵It can almost be reached via Furka or Grimsel pass by car.

¹⁶a village with circa 1700 Meters altitude above sea-level

3 What a Glacier does not Effect

3.1 Properties of a Landscape with Discrepancy to an Ice–Age

In the following some shapes and properties of a landscape are mentioned that surely are *not* the result of a glacier:

- If there is a strata of the rubble according to size or density, this cannot be a glacier's moraine.
- If the "gravel" is rounded instead of sharp-edged, a glacier is eliminated from its building history. The difference is expected to be significant down to microscopic structures¹⁷.
- If a gorge is located within an otherwise broad valley¹⁸, so it is clearly established that a glacier has maximally come until to this hindrance—there is almost no hindrance for a glacier besides heat.

Because of this reason the inhabitants of the Alpes are not so unlucky about the retrogression of the glaciers.

- If a broad valley is separated by little hills, the latest influence to the shape of the surface of this area surely has not been a glacier.
- If a lake is very deep and has got a natural exit, no glacier was participated in building up the basin of this lake.
- If dragging traces are located on a stone, it has been transported by a wild brook and not by a glacier. A glacier transports the stones in a loose strata *upon* its surface—also with the bordering moraines this is true, because the ice always "creeps" beneath the stones.

3.2 Examples of Landscapes in Contradiction to an Ice–Age and in Contradiction to Usual Ice-Age Theories

- The deep plain of northern Germany has got several hills¹⁹ and an unequivocal strata of sand, loam, and gravel. Besides of splinted flint there are no sharp-edged stones. Even the large *erratic blocks* are all very rounded.
- Between Chur and Lake of Constance a mountain²⁰ is blocking the valley of the Rhine. The Rhine presses through the narrowest place thus only highway and railway fit into this narrow position near Sargans.

In the panoramic map of the Hallwag press this location is drawn extremely broad. Many other maps have got a wrongly drawn partition of the river or stop just before the interesting point because of the country borders. Nevertheless my impression of this area from driving aside has been "narrow".

¹⁷Measured data is not available to me until now.

¹⁸e.g. a mountain is located through which the water has gorged its way.

¹⁹e.g. Wilseter Berg (169 m. above Normal Null), Bungsberg (168 m.a.NN.), Ruhner Berge (178 m.a.NN.), Hümmling (73 m.a.NN.), Königsstuhl (161 m.a.NN.), etc.

²⁰Regitzer Spitze (1135 m.a.NN.) between Maienfeld and Sargans

- The Walensee cannot be the further way of the glacier, because it is very deep, and furthermore there is in spite of the Linth canal a watershed between Lake of Zurich and Walensee.
- Between Chur and Hinder Rhine there is a gorge named "Via Mala"²¹, which was hard to go around not only to the Romans, but also to a glacier.
- The gorge of the Breitach near Oberstdorf and the hills between Sonthofen and Oberstdorf are a circumstantial evidence that never there has been a glacier in the valley of the Iller.
- The gorge of Hell's Valley near Garmisch shows that a glacier has been able to go down from the Zugspitze until a maximum of 1400 m.a.NN.
- Between Füssen and Reute the gorge of the Lech blockes the way for a glacier.
- The valley of the Würm is so totally untypical for a glacier, that is it better to eliminate the Ice–Age of the Würm.
- Above Saas Balen there is in circa 2000 m.a.NN. a group of rocks having a large overhanging partition. A glacier would not have tolerated such "jokes" of the landscape, because the ice always in tending to a completely smooth wall.
- The large glacier of Aletsch has been molten down more than 200 Meters within the "latest" time. The smooth remaining walls are horribly monotonous and blusted so much into the rock, that until today there is growing nothing being worth to mention. The glaciers more and more are bordered by brown or gray zones which give the historical maximum prolongation of the ice.
- The Grenzgletscher beneath the hut of Monte Rosa has heaped up a huge wall (bordering moraine), behind which the hut is entrenched. Above the hut there is found nothing comparable, leading to a historical maximum of ice circa 200 Meters above today's level.

4 Result: The End of Theories of Ice–Age

By some attention it is easy to find out with *each* glacier of the Alpes, that the glaciers only particularly have gone down beneath 2000 m.a.NN. Exceptions are mainly found in Grindelwald because of the abundant precipitations at the Eiger and the Wetterhorn.

The theories of the glacier's scientists and their theories about the Valley of the Würm, Blau or Iller give evidence to the fact that these glacier scientists of the last century did not even know the physics of the glacier and also the glaciers of the Alpes themselves, when they looked in their homeland for traces of an ice–age.

In this connection it is worth to be mentioned, that the glacier's theories possibly already existet while the Alpes were not yet being prepared for tourists.

Especially the denotation *ground moraine*, which is available in all teaching books, cannot be underlined. After all that I have located, the ice of a glacier always goes down to the smooth

²¹lat.: evil way

rock²². Thus especially the denotation "glacier's dragging" is held by me to be physically questionable.

In earlier times it has been easier than today to start a philosophy of a nice glacier's theory without danger that anyone could check the statements. Unfortunately especially in Germany it is a bad custom in science, that all which already has been written to a teaching book is not allowed to be questioned about in principle. By this "THE NEW CLOTHES OF THE KING" are leaved from generation to generation.

I want to encourage to check my statements directly at the locations in the Alpes or somewhere else. It is thoroughly possible that I have been in error in some conclusions. Therefore the discussion about the scientific examinations is more important to me than the publication of "assured" statements.

I want to encourage to think about the existence of an ice-age in principle rather than to "iron" (repair) some "refinements" of a pretended theory.

According to the hints and locations given by me about shapes of the landscape, the concept of an ice-age has to be questioned in principal and totally to give information about the origin of geomorphologic phenomena. It would mainly be suitable to think about alternative origin theories which content more realism than the story of an ice-age.

²²This could be seen very well in 1990 at the Weismies, because the middlest part of the glacier was molten away.