

Name of research institute or organization:

**MeteoSchweiz, Bundesamt für Meteorologie und Klimatologie,
Zürich**

Title of project:

The weather in 2006

Report by:

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Project description:

The two halves of the year 2006 were completely different with regard to meteorological conditions. The first months were completely in the power of snow and cold. Winter season 2005/2006 was already the second winter in succession with temperatures in total below the average. During the second half of the year 2006, mainly high temperatures dominated the meteorological situation, in particular, autumn brought a temperature surplus far above the hitherto experienced values.

Table 1 illustrates that compared to the long-range means from 1961-1990 in both the plains of the northern side of the Alps as well as in the high mountainous areas, the year 2006 was too warm. In Bern it was +1.2 °C and at Jungfrauoch +1.7 °C warmer than the average. Precipitation in the Jungfrau region was significantly lower compared to the long-term mean, while the amounts in the plains were clearly above the average.

Table 1: Comparisons of temperature and precipitation with the long-range mean 1961-1990 at the stations Jungfrauoch and Bern. For temperature the deviation from the long-range mean is shown. Precipitation is expressed relative to the average amounts. Because precipitation is not measured at Jungfrauoch, values from Kleine Scheidegg have been used.

	Jungfrauoch	Bern
mean temperature	- 6.2 °C	+ 9.4 °C
deviation	+ 1.7 °C	+ 1.2 °C
precipitation	1333 mm	1216 mm
relative to the average	85 %	118 %

Extraordinary snowfalls on both sides of the Alps

The first extraordinary snowfall reached the southern part of the Alps. After two days of intense snowfall, on January 28, the Ticino “woke up”, under a snow cover of 60 to 90 centimetres. It was the deepest snowfall in the Ticino lowlands since 1986. The snow masses caused considerable interruptions of traffic. Many roads were impassable, and even in important towns like Bellinzona, Locarno and Lugano non-skid chains for the cars were obligatory.

However, not only the quantity, but also the low density of the snow was exceptional. This was due to the temperatures significantly below zero degrees Celsius, especially at the beginning of the event.

It was on 4 and 5 March, again a weekend, when persistent heavy snowfall led to the most significant quantities of fresh snow measured so far in northern and eastern Switzerland. Within one day, 54 cm of fresh snow fell in Zurich, 49 cm in Basle and even 60 cm in St. Gall. The usually rather active city of Zurich experienced a contemplative winter calm – even during the following working days.

Exactly at the meteorological start of summer, northern Switzerland was once more in winter's grip. Cold polar air dropped the line of snowfall again down to low altitudes on May 31. The climatological station of Meiringen (595 metres above sea level; Bernese Oberland) notified with the morning observation a snow depth of 2 cm. A fresh snow cover at this altitude is very rare during the intermediate season from May to June. In a time interval of one week before and respectively after this point of time only four comparable cases for entire Switzerland are known during the past 50 years.

Extremely wet spring

Meteorological spring 2006 (March-May) was generally experienced as unfriendly and wet. The weather during this season was marked by regular periods with abundant precipitation. The impression of humidity was not false: A number of observing stations in the Midlands north of the Alps registered for the period lasting from March to June about half of the average annual precipitation amount. At some measuring stations, for instance those of Zurich and Berne, spring 2006 was even registered as that with the highest precipitation amounts since systematic records started in 1864.

Extreme heat and regionally pronounced dryness in the middle of the year

Summer 2006 started very warm, even extremely hot. An over averaged warm June was followed by an extremely hot July in large areas of Switzerland. In the lowlands north of the Alps and in most of the Alpine valleys the highest ever July averages were registered. The previous record dates back to July 1983. In elevated stations west of the river Reuss and on the southern slope of the Alps, however, temperatures did not quite reach the values recorded in July 1983. On the mountain tops, comparable temperatures were observed in the months of July 2006 and 1983 respectively. South of the Alps, however, the record of July 1928 has not been broken.

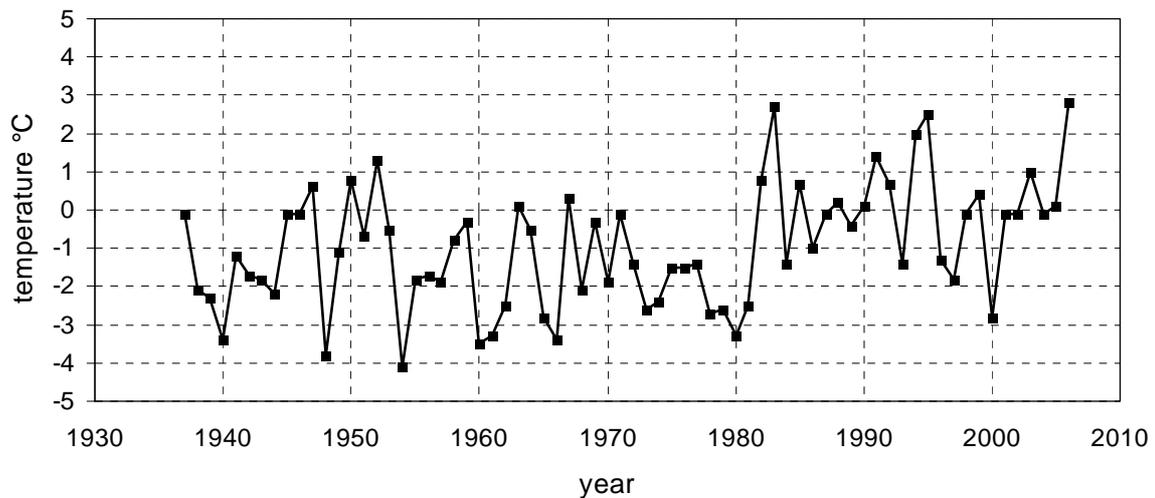


Figure 1: Mean temperature for July 1937-2006 at the Jungfraujoch (homogeneous data). The mean of the normal period 1961-1990 for July is $-1.2\text{ }^{\circ}\text{C}$. A similar monthly mean as in 2006 ($2.8\text{ }^{\circ}\text{C}$) was measured in July 1983 ($2.7\text{ }^{\circ}\text{C}$). Only a few degrees below this value were the monthly means of July 1994 and 1995.

Consequently, the month of July was in some areas extraordinarily dry and sunny. Showers and thunderstorms were the predominant precipitation type, which caused precipitation quantities with considerable local differences. Draught developed in particular on the northern foot of the Jura (north western Switzerland), in large areas of the Midlands and on the eastern slope of the Alps, with in general only 25 to 50 percent of the normal rain fall quantities. Also the “Vorderrheintal” (Northern Grisons) got less than 50 percent of normal rain amounts. Along the southern Jura, in the Napf (hilly pre-alpine region; highest peak 1600 metres above sea level) and in the northerly neighbouring Midlands, on the other hand, more than 70 percent were measured in many places, locally even quantities exceeding the normal values. In the Alps west of the river Reuss, 50 to 70 percent of the normal totals were recorded by many stations. Large areas of the Grisons and of the Ticino showed a small rain deficit, and in some places it rained more than on the long-time average.

„Winter time” in summer

On a long-time average, the first half of August represents, together with the second half of July, the actual midsummer north of the Alps. The annual maximum of temperature and the minimum of the summery precipitation disposition are normally reached in that period. Midsummer 2006 ended much earlier. At the very beginning of August, at the height of midsummer, cool air masses started to dominate the meteorological conditions in Switzerland as well as in the rest of Central Europe; the monthly mean temperature sank to an unusually low level. In many places of the lowlands north of the Alps, it was eventually 1.5 to 2.0 degrees cooler than normal. Similar low average temperatures for the month of August were recorded almost thirty years ago. Before 1980, however, cool temperatures in August belonged to the climatic normality at that time. Thus, the cool month of August 2006 is nothing else than a resumption of a former “tradition”.

