

METEOROLOGICAL OBSERVATORY AT LOMNICKÝ ŠTÍT

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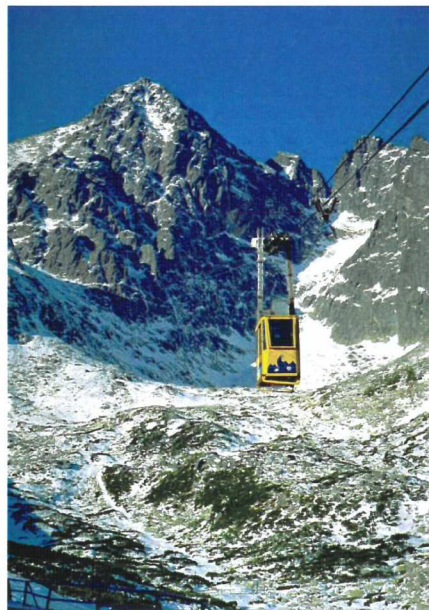
Lomnický štít is situated in the Eastern part of the High Tatras's main ridge of more than 26 km length. The High Tatras are mountains with a relatively small horizontal area, but with very steep slopes above the surrounding valleys and of a relative elevation up to 2000 m. The meteorological observatory is situated in the building of a cable-car in an altitude of 2635 m ($\varphi = 49^{\circ}12' N$, $\lambda = 20^{\circ}13' E$), precisely at the sharp peak of Lomnický štít. The whole building, where the observatory is located, is built on the top of the peak and it is about 18 m high on the north side. The reinforced-concrete observer's room (rotunda) is placed on

the platform of the building of the cable-car. The flat roof is used also for measuring and observing other meteorological parameters.

There were considerations to build up a mountain observatory on some of the High Tatras's peaks (Gerlachovský p., Slavkovský p., Ladový p., Kriváň) before World War I. In 1907 many scientific journals from the Hungarian monarchy called to people to support this idea. The idea was taken up after the establishment of the Czech & Slovak state, especially by professor František Vitásek from Brno. The action was supported also by Dr. Rudolf Schneider, the director of the national meteorological institute at that time. It was stressed on the importance of an observatory for aviation, climatic cure and tourism in the Tatras. It was decided to build-up a cable-car to Lomnický štít suggested by owners and stewards of a local spa in 1933. The project was carried out by the firm Weisner from Chrudim (Czech Rep.), that was the main contractor with the Marvan company from Hradec Kralové (Czech Rep.). The costs were spent by the state.

The establishment of the upper part of the cable-car at Lomnický štít began in 1936. First, the section between Tatranská Lomnica and Skalnaté Pleso was opened. In spite of the uneasy years 1938/39, when the work was often interrupted and the cable-car was not running to the peak yet, the regular meteorological observations started already on 1st October 1940. Professor Mikuláš Konček who arranged rooms and Dr. Antonín Bečvář who provided tools and devices for the observatory, were the people who arranged it. The first observer was Mr. Jozef Uhliar. More than 100 observers have been working from the beginning of observations to the present, some of them only for a short time.

Regular meteorological observations and measurements of some meteorological parameters have been done at Lomnický štít since 1st October 1940. In contrast to the rest of meteorological stations the specific conditions at Lomnický štít required a non-standard installation of the Stevenson screen and other instruments. The Stevenson screen is mounted on the north side of the rotunda directly on the flat roof of the building in a height of 120 cm. The rain gauges are installed on the south side of the roof.



On 5th September 1996 an automatic weather station was installed. Since 1st January 2000 the observatory has been running in 16-hours shifts (from 06.30 a.m. to 09.30 p.m. CET) with three observers. At night hours all weather reports are sent automatically by the computer system. Besides the hourly synoptic messages SYNOP and the regional daily climatic message INTER the 10-minute messages of the automatic data are transmitted as well. The station is connected with the regional telecommunication node via a private telecommunication network.

The data of past and present weather from Lomnický štít were processed and published many times before, a good basis to evaluate the gradients of meteorological elements and radiation budget compounds in the south slopes of High Tatras region from the bottom of Poprad basin to the ridge level of the High Tatras massif from stations measurement: Poprad (694 m. a.s.l.), Stará Lesná (807 m. a.s.l.), Skalnaté pleso (1778 m. a.s.l.) and Lomnický štít (2635 m. a.s.l.). The data from the upper-air station Poprad-Gánovce (703 m. a.s.l.), situated about 15 km SE from High Tatras's main ridge were used for a comparison between free atmosphere and real mountain conditions, influenced by the High Tatras massif. Here, the basic climatological data from Lomnický štít are presented in Figs. 1 and 2.

It is necessary to notice that practically each measurement and observation at Lomnický štít is associated with some problems. The worst of them is the huge icing all over the year. Several times the icing was so heavy that even strongly heated instruments were damaged (especially wind sensors).

In spite of these problems all reported values of this station are very important, mainly for forecasters - as indicator of forthcoming weather changes (front crossing etc.) and not only for the region of the Tatras (mountain rescue service, tourism, transportation) but for the whole Slovakia as well.

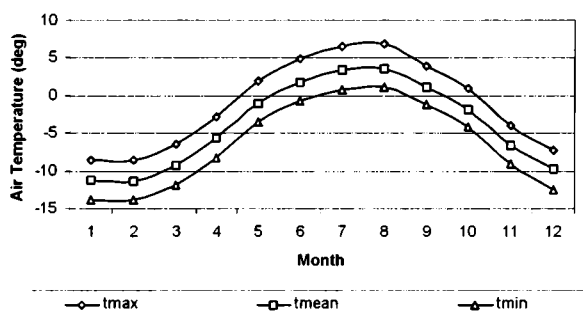


Fig. 1. Annual course of air temperature at Lomnický štít in the period 1961 – 1990 (tmax – mean maximum temperature, tmean – mean temperature, tmin – minimum temperature).

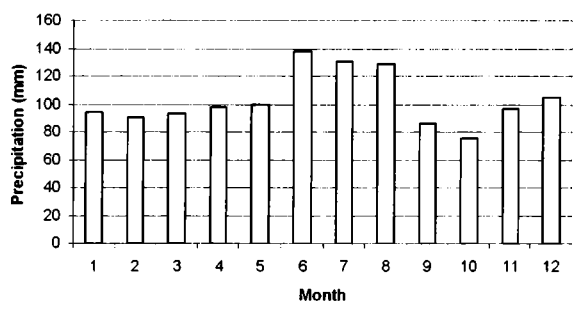


Fig. 2. Annual course of precipitation sum at Lomnický štít in the period 1961 – 1990.

References:

Petrovič, Š., 1963: Climatological conditions of Lomnický štít, based on 20-years observations, *Meteorologické zprávy*, 16, 129 – 136, (in Slovak).

Nieplová, E. and P. Pindják, 1992: Fünzig Jahre meteorologische Beobachtungen auf dem Lomnický Štít. 88. - 89. Jahresbericht des Sonnblickvereines, 1990 - 1991. Wien, Kommissionsverlag von Springer – Verlag.

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Auszug aus dem 88.-89. Jahresbericht des Sonnblick-Vereines

Fünzig Jahre meteorologische Beobachtungen auf dem Lomnický štít Elena NIEPLOVÁ, Pavol PINDJÁK, Bratislava

Ununterbrochene und regelmäßige meteorologische Beobachtungen in diesem Gebiet nahmen ihren Anfang in den 60er und 70er Jahren des 19. Jahrhunderts. Die ältesten ganzjährigen Wetteraufzeichnungen stammen aus Liptovský Hrádok (1881), Štrbské Pleso (1902) und Starý Smokovec (1905). Die Versuche, ein meteorologisches Observatorium auf dem Hochbergsgipfel zu gründen, waren jedoch nicht erfolgreich. Der anwachsende Erholungsreiseverkehr und die Bergtouristik in den 30er Jahren dieses Jahrhunderts gaben Anlaß zur Errichtung der Schwebeseilbahn Tatranská Lomnica-Skalnaté Pleso-Lomnický štít. Auf Verlangen namhafter Meteorologen und Geographen - Dr. F. Vitásek, Dr. A. Gregor und Dr. R. Schneider - wurden in die Aufbaupläne des Stationsgebäudes auch die Räume für das meteorologische Observatorium eingebunden, und der Bau wurde den Bedürfnissen der meteorologischen Beobachtungen angepaßt. Mit dem Bau wurde im Jahre 1936 begonnen; im Laufe des Sommers 1940 war das Gebäude fertiggestellt, und nach der Installation der meteorologischen Geräte wurde mit der regelmäßigen Beobachtungstätigkeit im Observatorium begonnen. Diese wurde nur im Zeitabschnitt von 21. Jänner 1945 bis 31. Dezember 1946 durch Kriegereignisse unterbrochen.

