



#NEWSNIEZKA

Śnieżka is the queen of the Karkonosze Mountains, and we can proudly say that we take care of it with all our strength. Now we are move one with the **#NewSniezka** project. Thanks to that, it will become a meeting place for all of us – mountain lovers, hikers, meteorology, and nature enthusiasts. It is a challenging project because the weather conditions prevent the work from being carried out all year round, as you can read from the observatory history sheets. When forecasting the weather for you, we will endeavor to check it also for the repair and maintenance teams and help them finish the works quickly.

QUEEN ŚNIEŻKA

Śnieżka, the highest (1602 m above sea level) mountain of the Karkonosze Mountains, is majestic and has a special place on the map of Poland and Europe. It is an inspiration for tourists and athletes racing to beat its reaching records. Śnieżka can be inaccessible and dangerous due to the winds blowing at a dizzying speed, making it an insurmountable fortress. Then we – the people of IMGW-PIB – are able to reach it by way of the High Mountain Meteorological Observatory of IMGW-PIB, which was launched at Śnieżka summit in 1974, to watch and analyze thousands of atmospheric data which we provide to the headquarters and meteorological services of the European countries. Śnieżka, the highest (1602 m above sea level) mountain of the Karkonosze Mountains, is majestic and has a special place on the map of Poland and Europe. It is an inspiration for tourists and athletes racing to beat its reaching records. Śnieżka can be inaccessible and dangerous due to the winds blowing at a dizzying speed, making it an insurmountable fortress. Then we – the people of IMGW-PIB – are able to reach it by way of the High Mountain Meteorological Observatory of IMGW-PIB, which was launched at Śnieżka summit in 1974, to watch and analyze thousands of atmospheric data which we provide to the headquarters and meteorological services of the European countries.



WHAT DO WE WANT TO DO?

The analyzes of changes and restructuring **#NewSniezka** 2025 have been conducted since the end of 2019, when the IMGW-PIB management held a series of meetings with one of the authors of the WOM Śnieżka – Waldemar Wawrzyniak. Unfortunately, the Covid 19 pandemic has slowed down design processes. Currently, **#NewSniezka** is one of the priority projects implemented by IMGW-PIB. The lower disc, called the restaurant, will become a meeting place for all enthusiasts of hiking, nature, and the mountains in the Karkonosze Mountains in the next four years. The investment may amount to approximately EUR 3.3 million. The Institute has planned activities, adapting the work to the possibility of doing them in the summer and winter seasons.

OUR PLAN:

2021

Works securing the roof sheathing of two WOM Śnieżka discs – the middle and the top – will begin.

2022

Reinforcement of the outer construction of the lower disc (restaurant). Development of design documentation of the water, sewage, and energy installations for all utility buildings of WOM Śnieżka. Development of design and cost estimate documentation for the lower (restaurant) disc's general renovation.

2023-2025

Construction, installation, sewage, telecommunication, and energy works for all WOM Śnieżka facilities.

2023-2025

General renovation of the lower (restaurant) disc.

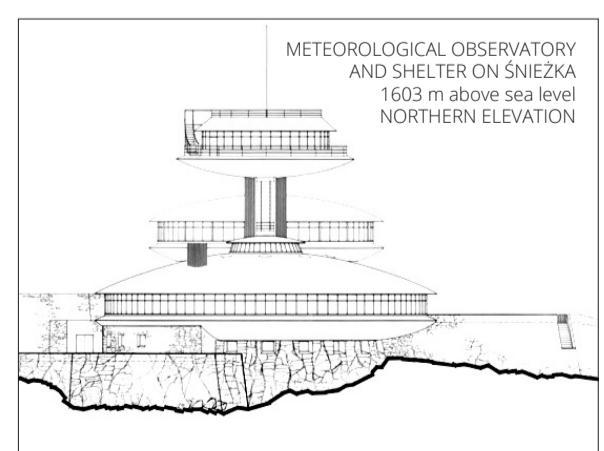
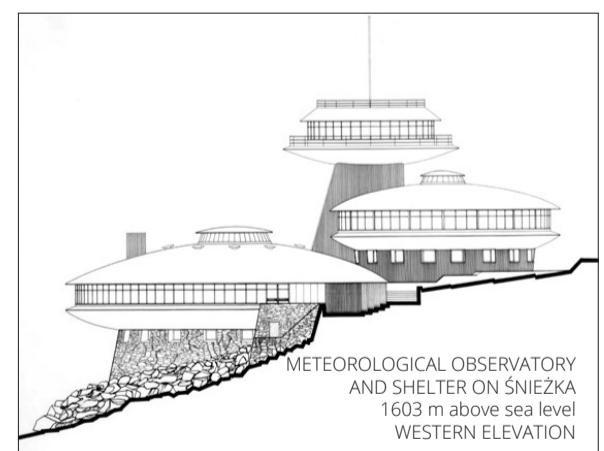
NATIONAL SYMBOL

The High Mountain Meteorological Observatory building on Śnieżka is one of the symbols and the most original architectural designs in Poland. The conceptual project, created in 1964 by Witold Lipyński and Waldemar Wawrzyniak, was completed a decade later. Why such a crazy idea? In the 1950s and 1960s, Lipyński was known for his futuristic designs of objects with characteristic curves and arches – "I was suggested by groups of rock formed by erosion, characteristic for the Karkonosze Mountains. I borrowed the future shape of the objects from the piles of elliptical boulders. There was also an aerodynamic aspect that dominated the construction of airplanes, which I read a lot about as a fond glider" – he reported in scientific publications. Many believe that his vision, combined with his understanding of weather conditions, shaped the design. The team led by Lityński and Wawrzyniak was joined by: Andrzej Sokolski and Zbigniew Katoła – responsible for the construction, Mieczysław Kubrak – electrician, Stanisław Jeżewski – sanitary installations.

The entire WOM Śnieżka complex consists of three lumps in the form of discs, diameters of 13, 20, and 30 meters, with a total usable area of 1,560 m². The building elements were made in a mixed construction: reinforced concrete-brick and steel-reinforced concrete, placed on a rock. The skeletons of the discs were made entirely of steel coated with wood and a millimeter-thick aluminum sheet.

The investment was progressing slowly due to the weather conditions. It happened that no works were carried out for several days. Wind, fog, snowfall slowed down the building

work, and it was even impossible in winter. It is noteworthy that the construction team hiked from Karpacz to the summit every day. They could be accommodated halfway in the shelter on Równia only since 1970. It was an enormous effort. Four years later, everyone could enjoy the success – the decade-long construction odyssey at 1603 m above sea level ended the unique and beautiful construction of the WMO on Śnieżka.



THE KEY POSITION IN WORLD METEOROLOGY



The Observatory on Śnieżka, due to the continuous measurement sequence since 1880, is an ideal place to analyze climate change. These data are unique because the Śnieżka summit is devoid of local human influences. WOM Śnieżka is one of the two Polish observatories of the IMGW included in the global system of high-mountain stations of the World Meteorological Organization (WMO), obliged to conduct continuous research and measurements.



IMWM-PIB MEASUREMENTS AT WOM ŚNIEŻKA

- air temperature measurement using a dry and wet-bulb thermometer (hourly);
- measurement of atmospheric pressure using a digital barometer (hourly);
- measurement of wind direction and mean speed (hourly);
- measurement of extreme temperatures/max. and min./ in 12-hour cycles (hourly);
- continuous recording of these parameters using the MAWS automatic station (current);
- measurement of precipitation amount in 6-hour cycles using the HELLMAN rain gauge and registration of precipitation using the SEBA rain gauge equipped with heating;
- measurement of snow cover with a portable snow stake;
- measurement of water equivalent of snow with a weight snow stake;
- measurement of the sunshine time using a heliograph and electronically;
- measurement of global solar and diffuse solar radiation.

Another direction of research carried out at the Observatory is chemical pollution of air and precipitation. Since 1980, continuous tests of the content in the air of SO_2 and SO_4^{2-} have been carried out, and since 1988 – NO_3^- , NH_4^+ , Cl^- aerosols. In 1989, measurements of NO_2 were started, and in 1990, the sum of aerosols and gases ($\text{NH}_3 + \text{NH}_4^+$), ($\text{HNO}_3 + \text{NO}_3^-$). In 1996, the scope of observation was extended to include the surface ozone. Simultaneously, the range of measurements of pollution content in precipitation and rime was systematically increased. Currently, their scope includes: pH, conductivity, SO_4^{2-} , NO_3^- , NH_4^+ , Cl^- , Na^+ , K^+ , Ca^{2+} , Mg^{2+} . Air pollution data from WOM Śnieżka are used to assess the transboundary pollution transmissions. They are a part of the pollution background measurement program under the EMEP and WMO monitoring (precipitation and greenhouse gases). Śnieżka has one of the longest uninterrupted air pollution measurement sequences in Poland and the longest in the Karkonosze Mountains.



MUSIC ON ŚNIEŻKA

Adrian Karma is a composer, musician, and producer. A romantic for whom man and nature are the most important. He came up with the idea to play on Śnieżka in 2020, during another of his many hikes around his beloved Karkonosze Mountains. "The Karkonosze Mountains have many other beautiful places on their map. After climbing Śnieżka, it turned out that the restaurant I remember from my childhood was closed. We have been looking for an original place to record live sessions for a long

time. The thoughts came together very quickly. The place seemed perfect to me. Anyone who has had the opportunity to enter inside knows how magical this place is, and the Institute immediately agreed. I work on my music every day alone. I compose and record myself, but the live session is another story. I invited my friends to this adventure; the music was created that will hit my debut album". – Adrian Karma tells about his project.

Music video: https://youtu.be/AR3RTNv_I5c

INTERESTING FACTS

ŚNIEŻKA'S RECORDS:

- The highest temperature +25.2°C (August 2, 1982).
- The lowest temperature -33.9°C (February 9, 1956).
- The strongest measured mean wind 65 m/s, or 234 km/h (February 21, 2004). The maximum wind measurement possible by the sensor lasted for more than two hours.
- The maximum daily precipitation of 239 mm (July 30, 1897).

The Queen of the Karkonosze Mountains is called by many the Queen of Strong Gales. On average, wind speed here is 43-47 km/h, and in winter months, 90 km/h.

Due to the specific shape of the Karkonosze Mountains, the wind measured on Śnieżka can be stronger than the wind blowing at the same height, beyond the mountains' range. However, information about the wind force at the summit allows verifying the forecasts of a strong wind blowing from the top towards the valleys ("fen" – the more popular name of such a wind is "halny" in the Tatras), which can also cause a lot of damage in inhabited areas.

