

## **THE ENVIRONMENTAL RESEARCH STATION SCHNEEFERNERHAUS: OVERVIEW AND POTENTIAL FOR CLIMATE RESEARCH**

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The environmental research station Schneefernerhaus (UFS) located at 2650 m height just below the summit of Germany's highest mountain Zugspitze was established in 1998 by the state of Bavaria as its centre for Altitude and Climate Research. It offers well-equipped laboratories, observation and experimental decks, offices, overnight accommodation, conference and meeting facilities to the national and international scientific community. Year-around access is provided by cable cars and - for cargo transport and special events - by a directly linked cogwheel train. Under the umbrella of an observatory (GAW Global Station) UFS combines the long-term continuous characterization of the atmospheres physical and chemical properties with basic research (alternating scientific users and field campaigns) and applied studies (SME's, industry).

Together with the Observatory Hohenpeissenberg of the German Weather Service (DWD) the UFS forms one of the 24 global stations in the world-wide network of the "Global Atmosphere Watch"-Programme (GAW) of the World Meteorological Organisation (WMO). The data set gathered by DWD and the Federal Environment Agency (UBA) since the setup of the UFS allows a first site characterization in terms of meteorology and trace gas distributions. For example, clear sky conditions and overcast situations both exist about 40 % of the time while during the rest (~20 %) of the time the station is within clouds. Information on mean yearly and diurnal cycles can be found on the UFS web site <http://www.schneefernerhaus.de>.

The basic instrumentation of the UFS is increasingly extended with automated remote sensing instrumentation. An example is a 14 channel microwave radiometer for the continuous monitoring of the liquid water path, humidity and temperature profiles. This information supports dedicated field campaigns with active (micro rain radar) and passive (polarized millimetre wavelength) instruments for the investigation of snow crystal properties.