# The GCOS Reference Upper-Air Network (GRUAN) in Ny –Ålesund

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GRUAN stands for Global Climate Observing System Reference Upper Air Network, an international climate reference observing network initiated by the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the United Nations Environment Programme (UNEP) and the International Council for Science (ICSU). Its objective is to collect highly precise long-term data on the vertical distribution of atmospheric parameters.

The highest priority is on the climate variables temperature, water vapor and pressure in the altitude range between the surface and the middle to upper stratosphere. Currently the largest challenge is the observation of water vapor in the upper troposphere and lower stratosphere, and great efforts are being undertaken to expand the current capabilities to observe this climate variable using in situ sounding instrumentation.

The AWIPEV research base with its radiosounding program is the world's first measurement station to be certified according to the standards of GRUAN. Additional calibration measurements on ground have been implemented prior to each radiosonde launch, and extended metadata collection allows for traceability of the measurements. Since April 2012, the Ny-Alesund radiosonde data are available as GRUAN data product. Also weekly ozone sondes are fed into the data stream, and the GRUAN ozone profile product will soon be available.

Within GRUAN, data redundancy is an important issue. Regarding water vapor, an important backbone of all other measurements will be the integrated water vapor column retrieved by GNSS (Global Navigation Satellite System) radio occultation. In Ny-Alesund, a GNSS receiving system is operated by GFZ as part of the AWIPEV research base. GFZ is also building up the GRUAN GNSS Data Central Processing Centre.

All GRUAN data products are intended to provide long-term high quality climate records, to constrain and calibrate data from more spatially-comprehensive global observing systems (including satellites and current radiosonde networks), and to fully characterize the properties of the atmospheric column.

topic: monitoring activities

presentation preference: poster

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