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The Need

There are many different ways to measure cryospheric variables, such as snow, ice, or permafrost. Thus, the measurement procedures, the devices used, their calibration, the frequency and the uncertainty of measurements vary considerably. This puts constraints on data quality and comparability, which is crucial when assessing the current state and evolution of the cryosphere.



The Approach



The WMO establishes and recommends best practices for conducting measurements of physical variables, aiming for data homogeneity and interoperability. Some of the best practices were summarized in the Guide of Instruments and Methods of Observation (CIMO). Measurement best practices of permafrost and seasonally frozen ground are hardly available today and are now being established by a **Permafrost Task Team**, which consists of Global Cryosphere Watch (GCW) members and permafrost experts. **We are defining reference methods for the configuration and operation of stations for in situ observations in both high mountains and polar regions which will be published in the next WMO Guide No. 8.**

The Work

The permafrost best practices:

- address gaps in the existing permafrost monitoring systems
- define methods for establishing and documenting measurement traceability
- recommend instrumental characteristics and calibration procedures
- provide measurements uncertainty evaluation tools
- improve comparability within and among networks
- promote capacity building by recommending the creation of permafrost observation networks and reference sites

The three permafrost variables are:



The Timing



The Links

The permafrost best practices incorporates the work being done in:

- GCOS Permafrost ECV (Global Climate Observing System Permafrost Essential Climate Variable)
- GTN-P (Global Terrestrial Network for Permafrost)
- EAV initiative (Essential Arctic Variables)
- SAV initiative (Shared Arctic Variables)

