An Update on the Status of the Global Climate Observing System (GCOS) Reference Upper Air Network (GRUAN)

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The balloon-borne, ground-based and satellite-based systems used to make measurements of upper atmosphere climate variables often undergo changes in instrumentation, data processing methods, retrieval techniques, and calibration. These changes are often poorly documented and very seldom are measurement series reprocessed to ensure long-term homogeneity of the climate data record. To address this specific deficiency of the global climate monitoring network, the World Meteorological Organization and GCOS called for the establishment of a new state-of-the-art global network of high quality measurements of essential climate variables in the upper atmosphere. The establishment of GCOS Reference Upper Air Network (GRUAN) is now underway and 16 sites participating in the implementation phase of GRUAN are providing, or are about to start providing, reference quality measurements that adhere to GRUAN operating protocols.

This presentation outlines the structure of GRUAN, defines what a reference measurement is, what GRUAN operating protocols have been established to ensure that measurements are of reference quality, what measurement systems will be operating at GRUAN sites, what data products are expected to flow from those systems, and provides an overview of the data currently flowing from GRUAN sites and the data expected to start flowing in the near future. The focus of the presentation will be to describe the value of GRUAN measurements to the global climate monitoring community and in particular how the robust derivation of measurement uncertainties on all GRUAN measurements enhances their scientific utility.

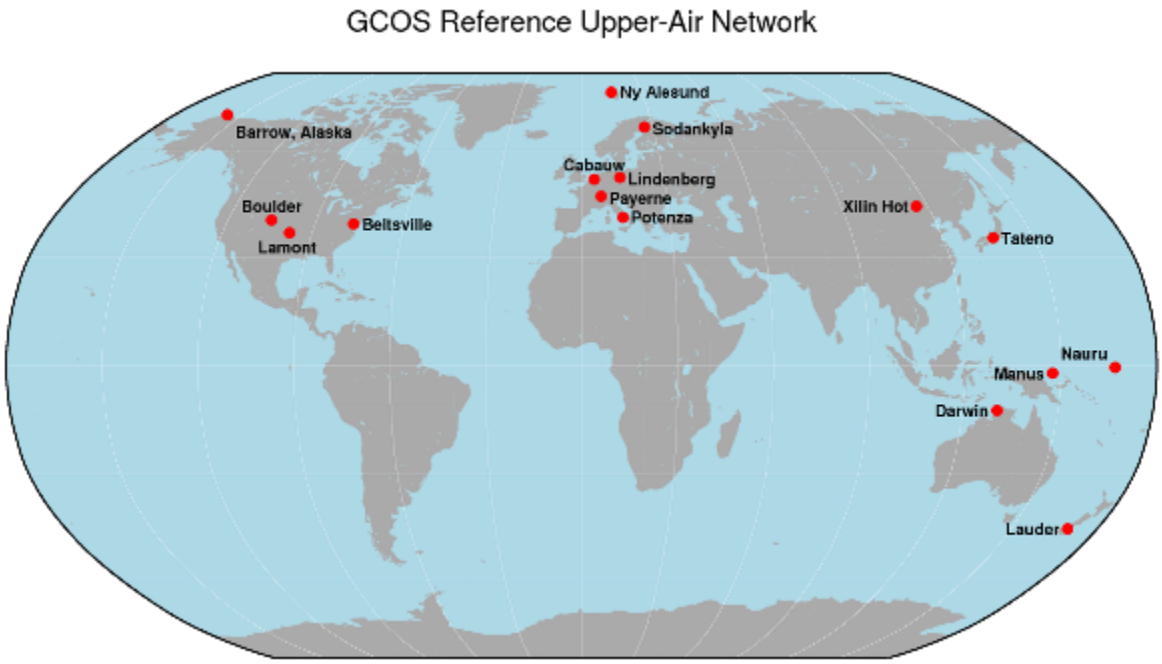

Figure 1. The sites currently operating within GRUAN.