



WMO Climate System Monitoring

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Long time series of climate data with high quality and spatial and temporal resolution are required for assessing climate change, calibration of climate proxy records and satellite data and the validation of climate models and projections. In addition climate data is needed to produce useful climate information for applications in the various socio-economic sectors.

Climate data requires certain procedures for its collection and documentation (Metadata). Even small changes in measurement techniques and sites have to be documented very carefully because they add non-climate related variability to the observations. The Global Climate Observing System (GCOS) has determined the most important climate variables (Essential Climate Variables) and established the GCOS surface network (GSN) consisting of more than 1000 stations worldwide. These stations were identified as the world's best stations for global climate monitoring for which climate data are shared with international data centres for global climate assessment.

Climate observations have to be converted into climate data records to make use of it for climate change studies. They have to be quality controlled, checked for homogeneity and afterwards the data sets have to be adjusted. WMO promote international initiatives to assist countries in using scientific methods and tools for data homogenization. This is achieved through workshops where participants have the chance to learn how to apply these techniques on their own data.

Most of the available climate time series cover only the second half of the 20th century. Therefore it is important to rescue data available on paper format to avoid its loss, and then digitalize and make it available in modern electronic media for easy use by the research community. WMO supports the establishment of international and regional collaboration on Data Rescue, Metadata and the use of a sound information system for their discovery and access. The WMO Mediterranean Data Rescue initiative (MEDARE) is an example of such a successful collaborative enterprise that brings together NMHSs, universities and research centers to enhance the availability of high quality climate data in the Greater Mediterranean Region. These regional initiatives contribute to enable nations having common climate concerns to develop cooperative Climate Risk Management (CRM) to support climate change adaptation strategies. Following this example other initiatives were already started like in West Africa (WADARE) and South East Asia.

The presentation will show current WMO activities in Data Rescue, climate observations and monitoring and climate watch activities in support of the Global Framework for Climate Services (GFCS) which was decided at the third World Climate Conference WCC-3 in 2009. In addition it will provide a summary of most recent WMO publications assessing climate change like the WMO statement on the status of the global climate and the Decadal Global Climate Summary which will be published in October 2012.