COMPETENCIES FOR PROVISION OF CLIMATE SERVICES

In a given institution the list of the competencies to be met and the associated performance criteria, would be determined by its infrastructural capacity. Competencies falling in the areas of quality of climate information and services as well as communication of climatological information with users are considered cross-cutting and should be met, at least at basic levels, by all institutions providing climate services.

The competencies framework is conditioned by:

(1)   The organizational mission, priorities and stakeholder requirements;

(2)   The way in which internal and external personnel are engaged in the provision of climate services;

(3)   The available resources and capabilities (financial, human, and technical);

(4)   National and institutional legislation, rules, organizational structures, policies and procedures;

(5)   WMO guidelines, policies and procedures for climate data and products;

(6)   The dominant weather and climate influences and extremes experienced.

Description of competencies and associated performance criteria:

Competency 1: Create and manage climate data sets

Climate data, metadata and climate data products are gathered and stored in datasets, quality controlled and assessed for homogeneity:

(1)   Conduct climate data preservation and rescue procedures;

(2)   Assess the location and characteristics of the observation sites against the requirements for a climate observation reference network;

(3)   Collect and store in relational databases climate data and metadata;

(4)   Apply quality control processes to climate data and resulting time series;

(5)   Assess climate data homogeneity and adjust inhomogeneous time series;

(6)   Create, archive and document climate datasets;

(7)   Apply spatial and temporal interpolation to ensure data continuity.

Competency 2: Derive products from climate data

Climate data products for science and user applications are derived from different sources of climate data (such as observed and reconstructed time series, reanalysis, satellite and modelled data) applying statistics which describe their spatial and temporal characteristics:

(1)   Identify and retrieve climate data from different sources to generate climate products;

(2)   Compute basic climate products, normals and averages, or anomalies defined relative to a reference period;

(3)   Compute Climate Indices for the monitoring of climate change, climate variability and climate extremes;

(4)   Compute sector-specific Climate Indices and other sector oriented climate products;

(5)   Apply statistical and geo-statistical analysis to monitor the spatial distribution and temporal evolution of climate;

(6)   Create value-added products, such as graphics, maps and reports to explain climate characteristics and evolution, according to the needs of specific sectors such as health, agriculture, water, energy and disaster management.

Competency 3: Create and/or interpret climate forecasts, climate projections and model output.

Climate data, climate data products and climate models output are operated and used to create sub-seasonal and seasonal climate forecasts and future climate projections:

(1)   Locate, select and retrieve climate forecasts and climate models output generated by Regional Climate Centers, Global Producing Centers and other institutions;

(2)   Create sub-seasonal, seasonal and longer scale forecast products;

(3)   Create future climate projections using climate models over selected domain for different scenarios and parametrization;

(4)   Apply statistical and geo-statistical analysis, including downscaling, to monitor the spatial distribution and temporal evolution of model output;

(5)   Evaluate the performance of climate models output and quantify the associated uncertainties;

(6)   Create value-added products, such as graphics, maps and reports to communicate climate forecasts and climate model information.

Competency 4: Ensure the quality of climate information and services

Climate information and services are defined and routinely updated. Best Practices are followed and/or Guidelines and Quality Management Procedures for climate information are created and routinely maintained. Monitoring processes of the climate services are documented and used in quality control activities:

(1)   Create and apply Quality Management processes procedures for climate services;

(2)   Recruit competent personnel and design the organization workforce to develop and deliver climate services;

(3)   Ensure that the institution meets the competency framework at its infrastructural capacity level and has a strategy for sustainable capabilities;

(4)   Provide training to personnel to fulfill their job requirements and expand their capabilities;

(5)   Define and implement a catalogue of climate datasets, products and services, to meet user requirements at the national/regional level;

(6)   Monitor the functions of climate services, including validation of data, products and services;

(7)   Evaluate the impacts and benefits to customers of climate services, including gathering customer comments, suggestions, and complaints;

(8)   Make service improvement decisions based on evaluation results;

(9) Build partnerships with science and service providers and end user stakeholders to improve products and service delivery.

Competency 5: Communicate climatological information with users

Climate science, data and products are communicated to policymakers, stakeholders and the general public:

(1)   Prioritize the communication of climatological information according to social, political and economic relevance;

(2)   Establish effective communication channels with climate services users and build outreach capacities, such as Regional Climate Outlook Forums;

(3)   Conduct and evaluate customer needs analysis on a regular basis;

(4)   Revise climate services and their communication based on user feedback;

(5)   Formulate and deliver, in partnership with users, specific applications to facilitate the understanding and use of the climate products and services;

(6)   Comply with the interfacing requirements of the GFCS and the integration within the WMO WIS system.

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