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CONOPS

PREAMBLE

In order to efficiently deliver climate services in support of the Global Framework for Climate Service (GFCS), a reliable underpinning data platform is essential. Such a data platform should make available and accessible data that are of high quality, transparent and properly documented, with adequate, complete and standardized metadata; timely, discoverable and accessible; continuous, homogeneous and as far as possible free of gaps and of multidisciplinary nature. Adequate modern management systems are required to integrate many data sources in an interoperable manner; they should conform with best practices, including WMO and international technical standards for data management and metadata. Such systems need to conform with the basic characteristics of:

- Being well documented with clear procedures;
- Having well established governance and administration;
- Being secure and service oriented
- Making best use of existing technology and
- Having the ability to evolve or migrate to future technology with minimum cost

International collaboration is needed to assess and address gaps in existing data management practices, and to develop solutions based on the principles listed above. For these reasons the international meteorological community recommended the development of an initiative that federates efforts, capabilities, and technologies to achieve efficient data management to support the delivery of high quality climate services. The WMO Commission for Climatology (CCL) side by side with the WMO Commission for Basic Systems (CBS) agreed to work together with other technical commissions, co-sponsored programmes and partners, to develop a High Quality-Global Data Management Framework for Climate (HQ-GDMFC). This document represents the Concept of Operations (ConOps) for this initiative, which will guide the design and implementation of the Framework.

I. INTRODUCTION

The Commission for Climatology (CCL) at its fifteenth session in 2010 stressed the importance of climate data in supporting, among other applications, the operation of the GFCS and re-emphasized the critical and necessary collaboration of all members to ensure high quality, timely and accessible climate data from all possible sources encompassing land and marine data and including in-situ, space based and proxy data. It recommended the development of a High Quality-Global Climate Data Management System (HQ-GCDMS).

In the process of achieving this goal, additional consultations have been carried out through various mechanisms, including an international workshop on climate data requirements held in Nanjing, China in 2013; discussions with the Inter-Commission Group on WMO Integrated Observing Systems (ICG-WIGOS); and with the Commission for Basic System (CBS) at its extra-ordinary session, in 2014. The outcome of these consultations established plans for a Framework aimed at federating existing efforts amongst key WMO programs towards ensuring data are of the required quantity and quality necessary for climate monitoring, research, and developing high quality climate services. Therefore the idea of setting up a High Quality-Global Data Management Framework for climate was born. The Commission for Climatology (CCL) revisited the idea and endorsed it in its work-plan for the intersession period 2014-2018. The CCL agreed to lead the development of the HQ-GDMFC through an Inter-Programme Expert Team on Climate Data Modernization Programme involving in particular CBS, with contributions from other relevant Commissions and Programmes.

Congress in its seventeenth session, in 2015, considered the HQ-GDFMC initiative and its purpose to examine and make recommendations for improving existing practices in managing climate data and its quality control, as well as better harvesting the potential of other data forms to improve climate services, including those pertaining to remote sensing, climate models, third party data and volunteer observations. The Framework will therefore provide an opportunity for addressing inconsistencies and gaps in the definitions and practices relevant to climate data management. Congress emphasized the need to develop a Concept of Operations (ConOps) for the HQ-GDMFC to be submitted for consideration by the WMO Executive Council.

The Extraordinary session of the Commission for Basic Systems (CBS) session in September 2014 endorsed CCL's proposal to establish a cross-program Expert Team – Climate Data Modernization Program (IPET-CDMP), designed to strengthen the management of climate data through the creation of a HQ-GDMFC, and publication of a Manual on Climate Data Management. The overall aim of this initiative is to examine and make recommendations to improve existing practices in managing climate data, as well as making more effective use of other data forms to improve climate services, including remote sensing and climate model data. It will seek to address inconsistencies and gaps in the definitions and practices relevant to climate data management, and provide a stronger regulatory basis for climate data management processes. The HQ-GDMFC Manual will also provide best-practice guidance on various methods, procedures, and techniques in climate data management, including development of tools and infrastructure in relation to climate-focused activities such as data rescue and preservation; archival; procedures for quality control and assurance; calculation of statistics and climate parameters; homogenization and adjustments, among others. This initiative will collaborate closely with a wider cross-programme initiative aimed at modernizing all WMO programmes' data management infrastructure and processes and will include quality management systems for climate data management such as change management.