



FP-7 CORE-CLIMAX: How to ensure sustainable, transparent, and traceable generation of climate data records?

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Developing Global Climate Observing System (GCOS) Essential Climate Variable (ECV) Climate Data Records (CDR) poses many challenges because of the broad applications supported by climate data, the complexities of data record generation, and the difficulties in sustaining the activities over extended periods of time. Thus, to underpin science and services that support decision and policy making with respect to mitigation and adaptation in the context of a changing Earth climate, it is essential to assess the capability and capacity of the existing and developing CDR generation activities. This is one major objective of the FP7 CORE-CLIMAX project which supports international coordination on CDR generation for the establishment of the Copernicus Climate Change Service. The project systematically assessed the capacity of ongoing European activities on CDR generation, such as EUMETSAT Satellite Application Facility network, ESA Climate Change Initiative, major EU projects on reanalysis (ERA-CLIM) as well as well known in situ data climatology such as GPCC, ECA&D, BSRN, HadSST and others. For such a capacity assessment, in a most objective way as possible, tools are needed to assess the state of completeness and sustainability of the end-to-end systems which produce the data records and to assess the fitness-for purpose of the data records for applications. The CORE-CLIMAX project employs a three step approach for such assessments which consists of: (a) a Data Record Inventory (DRI) providing the technical specifications of data records, (b) a System Maturity Matrix (SMM) which assesses whether CDR generation procedures are compliant with the “best practices” developed and accumulated by the scientific and engineering communities over long times, and (c) an Application Performance Metric (APM) which is envisaged to provide suggestions that support users to select data records for their particular application. The fit for purpose test is based on the closeness of data record attributes (technical and scientific, e.g. uncertainty) to individual user requirements. The APM can be designed as an interactive tool that to be used interactively via the internet. It is based on information in data record inventories such as the CEOS-CGMS WG Climate ECV inventory for space-based CDRs. The CORE-CLIMAX project has used these tools within a capacity assessment workshop in January 2014 that assessed more than 30 CDRs generated from in situ and satellite data as well as global reanalysis. The presentation will provide detailed descriptions of the tools, examples on how to use them, and provides an overview on the outcomes of the CORE-CLIMAX workshop on European capacity for sustained generation of ECV CDRs.