

# TERMS OF REFERENCE

## CEOS/CGMS WORKING GROUP ON CLIMATE (WG Climate)

The over-arching goal of the CEOS/CGMS Working Group on Climate (WG Climate) will be to improve the systematic availability of Climate Data Records through the coordinated implementation, and further development of the architecture for climate monitoring from space.

More specifically, the coordination shall be designed to achieve three main objectives:

- Provision of a structured, comprehensive and accessible view as to what Climate Data Records are currently available from satellite missions of CEOS and CGMS members or their combination;
- Creation of the conditions for delivering further Climate Data Records, including multi-mission Climate Data Records, through best use of available data to fulfil GCOS requirements (e.g. by identifying and targetting cross-calibration or re-processing gaps/shortfalls );
- Optimisation of the planning of future satellite missions and constellations to expand existing and planned Climate Data Records, both in terms of coverage and record length, and to address possible gaps with respect to GCOS requirements.

To achieve these objectives the CEOS/CGMS Working Group on Climate will:

- Define and implement a consistent Climate Monitoring Architecture for space-based observations,
- Review and assess, on behalf of CEOS and CGMS, the generation of Fundamental Climate Data Records (FCDRs) and derived Essential Climate Variable (ECV) climate products supported by member space agencies, complementary with existing entities and roles,
- Assess the compliance of satellite missions and products with the GCOS Climate Monitoring Principles and with the “Guideline for the Generation of Datasets and Products meeting GCOS Requirements” (GCOS-143),
- Identify multi-agency implementation teams for each product and review their actions, and ensure that a coherent implementation plan exists for each and every product taking full account of pertinent international initiatives,
- Make recommendations to the above teams and receive recommendations from them, for transmission to CEOS and CGMS Principals,
- Ensure coherence of climate product generation supported by space agencies, including other relevant international activities.

In the context of the UN Framework Convention on Climate Change (UNFCCC) and other international coordination mechanisms, it will:

- Ensure a plan is put in place for the development of a joint CEOS/CGMS response, which has broad consultation across the community, and provides the basis for future planning and priority setting by space agencies in response to climate information needs, including:
  - The update of the CEOS/CGMS Response to GCOS requirements, and
  - The update of reports to SBSTA/UNFCCC on CEOS/CGMS climate actions, as requested,
- Support the work of GCOS in defining and delivering the Essential Climate Variables required by the UNFCCC,
- Provide guidance to CEOS and CGMS on climate-related Tasks involving international coordination mechanisms (such as GEO and GFCS), and produce relevant reports on behalf of CEOS and CGMS Plenaries,
- Support and advice on the overall relation of CEOS and CGMS to the UNFCCC and its subsidiary bodies, to the IPCC and other international coordination mechanisms such as GFCS.

Considering the specific importance of greenhouse gas monitoring as stated in the Conference of the Parties (COP) 21 Paris Agreement, it will:

- Coordinate activities of CEOS and CGMS defining and implementing an integrated global carbon observing system including a targeted observing system for monitoring the column concentrations of CO<sub>2</sub>, CH<sub>4</sub> and other greenhouse gases from space as well as ensuring that these activities are integrated into a broader approach on greenhouse gas monitoring, i.e. WMO IG<sup>3</sup>IS, GCOS, and GEO-C;
- Oversee the implementation of the CEOS Carbon strategy;

In addition, it will:

- Undertake an analysis, of the extent to which the current status of production of satellite climate records meets the GCOS requirements, including an analysis of the consistency of definitions of ECVs,
- Work with the relevant CEOS and CGMS mechanisms (i.e. Virtual Constellations, Scope-CM,...) to ensure a coherent and consistent approach to the provision of climate records across the various topical areas,
- Promote openness, traceability and access to climate data, codes and products,
- Facilitate the inter-comparison of model outputs with data by identifying a subset of parameters key to the IPCC needs and encourage providers to deliver the necessary data in the required form,
- Interact with Science programs such as WCRP and IGBP to assist them in enabling their analysis, assessment and feedback to space agencies on the production of climate records,

- Build on the work of relevant internal and external activities and initiatives (e.g. CEOS WGCV, GSICS and QA4EO) to support the calibration and validation underpinning the production of Climate Data Records,
- Coordinate with existing in situ networks to integrate complementary measurements and observations and, subject to a feasibility assessment, provide the database infrastructure for recording the availability of ECV-relevant in situ data records (with WMO and WCRP being responsible for soliciting and coordinating such in situ contributions),
- Track the progress of the detailed Actions Plans developed by CEOS and CGMS in the CEOS/CGMS Response to the GCOS IP for all of the ECVs involving space-based observations.

The working group shall be led by a Chair serving a term of 2 years; alternately drawn from meteorological and non-meteorological space agencies. A vice-chair will also be elected with the intention to ensure a smooth transition at the end of the chairmanship. Arrangements shall also be put in place to ensure unique and consistent reporting to both CEOS and CGMS Plenaries.

The Working Group will define its rules of procedure, based on established practices for the conduct of CEOS and CGMS Working Groups. This includes the creation of dedicated activities or sub groups.

## **Glossary of Terms**

CDR:	Climate Data Record
CEOS:	Committee on Earth Observation Satellites
CGMS:	Coordination Group for Meteorological Satellites
CH <sub>4</sub>	Methan
CO <sub>2</sub>	Carbon Dioxide
ECV:	Essential Climate Variable
FCDR:	Fundamental Climate Data Record
GCOS:	Global Climate Observing System
GEO:	Group on Earth Observations
GEO-C	GEO Carbon and GHG Initiative
GFCS:	Global Framework for Climate Services
GHG	Green House Gas
GSICS:	Global Space-based Inter-Calibration System
IGBP:	International Geosphere-Biosphere Programme
IG3IS	Integrated Global Greenhouse Gas Information System
IPCC:	Intergovernmental Panel on Climate Change
QA4EO:	Quality Assurance Framework for Earth Observation
SBSTA:	Subsidiary Body for Scientific and Technological Advice
SCOPE-CM:	Sustained and Co-Ordinated Processing of Environmental Satellite Data for Climate Monitoring
UNFCCC:	United Nations Framework Convention on Climate Change
WCRP:	World Climate Research Programme
WGCV:	(CEOS) Working Group on Calibration and Validation
WMO:	World Meteorological Organisation