

PROPOSED APPROACH FOR JOINT CEOS/CGMS COORDINATION OF CLIMATE-MONITORING ACTIVITIES

1. BACKGROUND

Following a WMO/GCOS workshop in January 2011, a "badgeless" *Ad Hoc* Writing Group was formed to develop a "Strategy Towards an Architecture for Climate Monitoring from Space". As part of this activity, a logical view was developed for the architecture, together with a roadmap for the establishment of a physical inventory of available resources.

The *Ad Hoc* Writing Group subsequently generated a questionnaire to establish the inventory of available and planned resources. Based on the questionnaire responses, it is expected that a first consolidated view of the architecture, in the form of an inventory of available and planned resources, will be available during the course of 2013.

The availability of this initial version of the architecture will be a major milestone, and an appropriate trigger to consider its long-term stewardship, as well as the arrangements for its sustained implementation and maintenance. It is therefore essential that, once this initial version of the architecture is available, a mechanism is in place to set the priorities and organise/coordinate the work of the partners contributing to the architecture, as well as to identify potential gaps.

Considering the success of the approach adopted for development of the architecture through the *Ad Hoc* Writing Group, which enabled all major space agencies to contribute via a coordinated CEOS and CGMS approach, it is proposed to adopt a similar collaborative approach for the future. This would enable the architecture to become the implementation reference for the response of space agencies to the GCOS requirements. Indeed, the development of such a long-term planning and coordination mechanism is essential to secure the "buy-in" of all the potential contributors to the architecture.

To this end, a first discussion on a possible joint CEOS/CGMS approach took place at the CEOS Plenary meeting in Bangalore on 24-27 October 2012 under the Chairmanship of ISRO. The CEOS Plenary discussion was positive and considered that this matter should be initially handled within the CEOS SIT, leading to further consideration at the 2013 CEOS Plenary.

Following the encouraging signals at Bangalore, a discussion took place at the 40th meeting of CGMS held in Lugano on 4-8 November 2012. This discussion was also positive, in favour of a coordinated approach among CEOS and CGMS agencies on climate monitoring, through a joint mechanism to be developed. Building on the support expressed by CGMS Members, and in preparation for this next phase of activities, an action was placed on the CGMS Secretariat (EUMETSAT) at CGMS-40 to explore further the possibility to coordinate Climate-related activities with CEOS in line with the work done for the preparation of the Architecture for Climate Monitoring from Space and to report to CGMS-41 in July 2013 in Japan. During these discussions it was acknowledged that the natural interface within CEOS on this matter would be the Chair of the CEOS Strategic Implementation Team (SIT), with

the expectation that this matter would be addressed at the upcoming SIT-28 meeting planned for 12-14 March 2013 in Hampton.

In this perspective, EUMETSAT has liaised with the Chairman of the CEOS Working Group on Climate, Dr Mark Dowell, who attended both the CEOS and the CGMS Plenary meetings to report on the Architecture, in order to review the substance of the relevant CEOS and CGMS discussions and to propose a way forward on coordination.

This paper reflects the outcome of this discussion, addressing:

- The benefits to be expected from continued CGMS-CEOS coordination on climate monitoring;
- The proposed approach for joint CEOS/CGMS coordination on climate monitoring;
- The proposed schedule.

2. RATIONALE FOR JOINT CEOS/CGMS COORDINATION

The benefits of a structured approach to CEOS/CGMS coordination are expected to include:

- adoption of the global architecture for climate monitoring from space as the coordinated implementation reference for the response of space agencies to the GCOS requirements;
- better coverage of the GCOS ECVs and other Climate Data Records, thereby improving their availability and utility in science and services;
- greatly improved control and assessment of ECV CDR quality through common quality assessment methods;
- greater visibility and certainty about the overall status, facilitating the overlaying of strategic guidance/priorities onto activities;
- optimisation of resource utilisation, in particular that of the scientific teams working on the production of ECVs, thematically coordinated in CEOS through the Virtual Constellations (VCs) mechanism and in CGMS through the International Science Working Groups (ISWGs);
- assessment of possible research opportunities to support the development of GCOS ECVs and other Climate Data Records.

3. PROPOSED APPROACH FOR JOINT CEOS/CGMS COORDINATION

In line with the CEOS and CGMS Plenary discussions, it is proposed that a joint Climate CEOS/CGMS Working Group be established with the over-arching objective of coordinating activities aimed at improving the systematic availability of Climate Data Records through the implementation, and further development of the architecture for climate monitoring from space.

The purpose of this coordination would be to achieve three main goals:

- providing a structured, comprehensive and accessible view as to what Climate Data Records are currently available from satellite missions of CEOS and CGMS agencies or their combination ;
- delivering or creating the conditions for delivering further Climate Data Records, including multi-mission Climate Data Records, making the best use of available data to fulfil GCOS requirements (e.g. by identifying and targetting cross-calibration or re-processing gaps/shortfalls);
- optimising 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 goals, the joint CEOS/CGMS Climate Working Group would engage in a coordinated manner with existing groups and initiatives; with this dialogue being structured according to GCOS ECV, groups of ECVs or other needed Climate Data Records. This structured dialogue would be based on "Lead" and "contributing" entities being identified for thematic areas; with the aim of making the best use of existing expertise and experience and covering the maximum range of ECVs.

Implicit in this proposal is the assumption that the work of the *Ad Hoc* Writing Group, the CGMS groups dealing with Climate monitoring, and the CEOS Working Group on Climate would be subsumed within this new joint CEOS/CGMS Climate Working Group, which would become the steward of the architecture for climate monitoring from space on behalf of space agencies.

For its *modus operandi* and terms of reference, it is expected the joint CEOS/CGMS Climate Working Group would take benefit from some of the arrangements established for the CEOS Working Group on Climate, but with an expanded scope to cover a broader range of ECVs and communities. This joint Climate Working Group would also have the mandate to respond to evolving requirements stemming from global initiatives, such as those maintained by GCOS.

From a governance perspective, it is proposed that there is a traditional Chair/Vice-Chair arrangement (i.e. as per the current CEOS WGClimate) with a balanced representation from CEOS and CGMS. The Chair of the joint CEOS/CGMS Working Group will prepare workplans for the activities of this joint Climate Working Group, which will be presented to the respective CEOS and CGMS plenary meetings for comment and endorsement. It is anticipated that routine reporting to the two plenaries, and the provision of feedback, would be conducted in parallel using the existing arrangements; with the focus of the reporting to each plenary tailored to the generally distinct areas of interest of CEOS and CGMS.

3. PROPOSED SCHEDULE

Ideally, the new arrangements should be planned during the course of 2013 and put in place in the course of 2014. This would allow a clean transition between the activities of the *Ad Hoc* Writing Group (completion of the initial version of the architecture) and the start of the work of the joint CEOS/CGMS Climate Working Group.

To achieve this schedule, it is proposed to first discuss the matter at the CEOS SIT meeting on 12-14 March 2013. Based on the outcome of this discussion, a more detailed proposal would then be submitted for approval at CGMS-41 in July 2013 and at the CEOS plenary in the autumn of 2013. Following approval by the Plenaries, the detailed implementation arrangements will be discussed with the objective to converge on the Terms of Reference during the course of 2014. This discussion might take place in the context of the *Ad Hoc* Writing Team.