SCOPE-CM
Minutes of the
10th Executive Panel Meeting

23-24 March 2015
WMO, Geneva, Switzerland

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Table of Contents

Document Change Record

Issue / Revision	***Date***	***Changed Pages / Paragraphs***
1.0	27 March 2015	First draft submitted to the SEP-10 participants for review
2.0	1 May 2015	Final minutes

1 WELCOME AND INTRODUCTION

The Sustained, Co-Ordinated Processing of Environmental Satellite Data for Climate Monitoring (SCOPE-CM) is a coordination activity under WMO auspices, consisting of a network of agencies and operators of environmental satellite systems and interfaces with WCRP, GCOS, CGMS, CEOS and GEO. SCOPE-CM promotes a network of partners ensuring continuous and sustained provision of high-quality datasets for climate monitoring, in response to requirements stated by GCOS. Dr. Ed Kearns, the new chair of SCOPE-CM, opened and welcomed the participants, in particular the hosting WMO and the SCOPE-CM secretariat for the preparation of the meeting. Dr. Wenjian Zhang, Director of the WMO Observing and Information Systems Department, welcomed the panel experts and the invited guests. Dr. Zhang thanked the SCOPE-CM partners for the hard work and success already achieved through the project. He reminded them of the challenges they face to promote the climate services. He explained that WMO would like to see the climate services become operational in a similar way as the WMO did for the weather services several years ago, and identify a catalogue of satellite products for climate services. SCOPE-CM was thanked for providing a good opportunity to perform climate services better through the provision of climate data records, bringing partners together and facilitating multi-agency collaboration.

It was reminded that during this meeting discussion should take place on:
- strategic direction to adopt for the next phases of SCOPE-CM,
- tactical progress through the maturity assessment of CDR generation projects,
- how SCOPE-CM could encompass more aspects of operational climate monitoring, in particular the inclusion of interim CDRs into future sustainment activities.

2 APPROVAL OF THE SEP MEETING AGENDA

The panel adopted the agenda of the meeting. The final meeting agenda is given in appendix A.

3 OVERALL SCOPE-CM STATUS

The SCOPE-CM secretariat (Dr. Marie Doutriaux-Boucher) gave a presentation summarizing the SCOPE-CM project. She recalled the SCOPE-CM concept and stressed that during the successfully completed Phase 1 of the project, the international collaborations network and the structure of the project were established. She presented the Phase 2 of the project that is now entering its second year. Ten projects are taking part in SCOPE-CM. There have been no additional project joining SCOPE-CM this year. Two projects generate Fundamental Climate Data Records (FCDRs) and 8 projects generate Thematic Climate Data Records (TCDRs). Nine of the ten projects are active. All of these active projects have produced a status report and a plan for next year that will be presented during the meeting. There are quite

good collaborations within and between projects as shown in Figure 1. She reminded the group that additional participation is welcome for phase 2. She pointed out that there is no TCDR yet included for the ocean, or the cryosphere.

The SCOPE-CM project has now an active webpage regularly updated by the secretariat: http://www.scope-cm.org. The group agreed that this page will continue to be password protected to enable secure sharing of internal documents, but still maintains open and transparent communications with interested parties.

Lothar Schueller recommended to the group that SCOPE-CM should not concentrate on responding to users requirements but continue to concentrate on improving the CDR generation system via increasing its multi-agency collaborations and networking. SCOPE-CM should stay focused on its multi-agency efforts for CDR generation.

Tillmann Mohr pointed out that some space agencies are missing in the SCOPE-CM partners such as CMA, KMA, ROSHYDROMET/ROSCOSMOS, and others pointed out ISRO/IMD as well. An action (Reference SEP-10-01) was agreed to invite those agencies as new partners, through formal invitations as well as through continued working-level collaboration.

Tillmann Mohr pointed out the SCOPE-CM activity is a main contribution to the second pillar of the Architecture for Climate Monitoring from Space (climate record creation and preservation).

4 SCM-PROJECTS: PRESENTATION OF THE SCM PROJECTS CONTENT, PLAN AND ACTIVITIES

The nine active participating projects in SCOPE-CM were presented by the project leader or a representative of the leader. It was decided that project 4 (AMV for Monsoon and Cyclone studies in Indian Ocean region) be retired since it did not fulfil the criteria for a SCOPE-CM project. The advancement of each project varies, mostly depending on resources available. SCOPE-CM phase 2 TCDR and FCDR generation projects show successes based on coordination that may result in real cost savings at the individual agency level. There are many interactions between projects as shown in Figure 1. Several projects rely on the projects generating FCDR and TCDR.

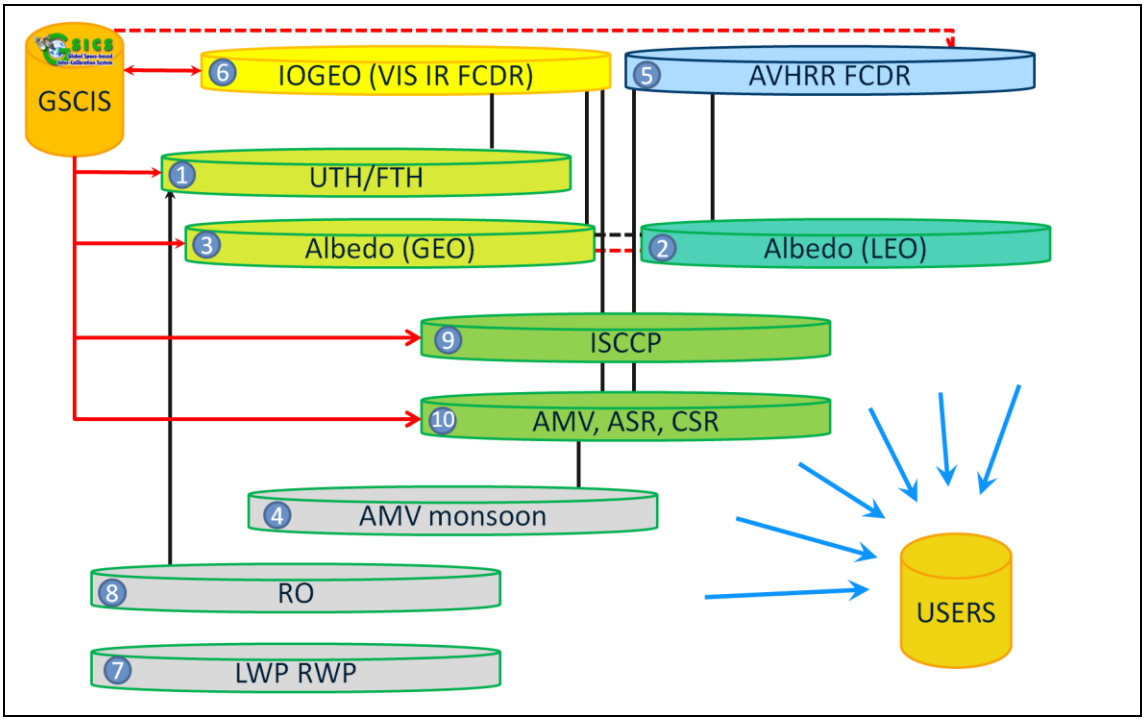


Figure 1: *Conceptual view on SCOPE-CM project interactions.*

The project leaders presented progress during the first year (2014) and presented their plans for the coming year. Some of the project leaders did a maturity assessment of their project.

A complete description of each of the nine projects can be found at http://www.scope-cm.org/projects/. The slides presented during this meeting can be found at http://www.scope-cm.org/meetings/SEP10/presentations/.

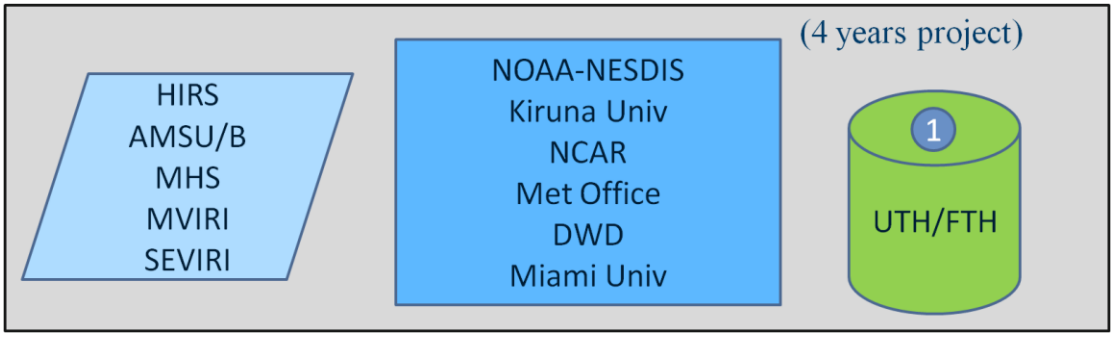
SEP emphasized that within the SCOPE-CM project, an effort should be made to ensure that each project leader provides a maturity assessment of its project. It was agreed that this assessment should be based on the new maturity matrix system resulting from the CORE-CLIMAX project, as presented by Jörg Schulz.

SEP would like to have more visibility about the operational status and the sustainability of the F/TCDR generation for each project. These should be based upon the rate of progression of a project towards a higher maturity, and the level of institutional commitment and support for the project. In addition, there were questions related to the feasibility of production and/or possible demand of an "interim" CDR (or ICDR) for each project. While the eventual importance of ICDRs to meet the needs of emerging climate services was recognized, the group maintained that an ICDR must be a secondary concern only after the full CDR was sustained successfully in production.

It was noted that it is not the SCOPE-CM SEP's responsibility to install mechanisms to review the generated FCDR/TCDR. Each project has a leader that should be responsible for its own review. The review cycle governance should be discussed within each project, recognizing that each institution has its own review process that will depend on the produced dataset. The SEP sees no point in harmonising the product review cycle. The only review that is appropriate for the SEP is the maturity assessment of the product generation in order to gauge progress towards and operational state and aid in identifying future opportunities for collaboration and efficiency gains.

SEP agrees that a SCOPE-CM "label" could be applied to the produced CDR datasets as a result of multi-agency collaboration within SCOPE-CM. That would increase the SCOPE-CM visibility and promote other collaborations among the climate community.

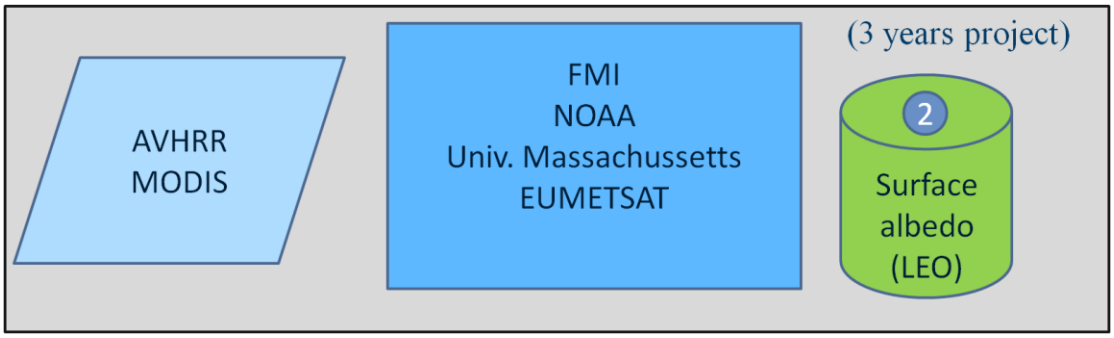
4.1 SCM-01 Upper tropospheric humidity (John Bates)



John Bates presented the SCM-01 project on behalf of Lei Shi. The project uses data sources from multiple sensors on board both polar orbiting and geostationary satellites. The project aims at advancing maturity levels established by the SCOPE-CM Maturity Matrix Model through multi-agency cooperation. Various studies have been carried out based on UTH/FTH datasets. Many of these have been published in peer reviewed literature during the last years. The datasets were just updated for 2014 (3 month lag), with the possibility of a daily ICDR. These products have institutional support from NOAA's National Centers for Environmental Information (NCEI, formerly NCDC).

SEP noted that there are three independent UTH/FTH products and asked if there is a possibility to have, in addition to the independent products, a combined or integrated product that would be more accessible/usable by some climate users.

4.2 SCM-02 Albedo from Polar Orbiters (T. Manninen)

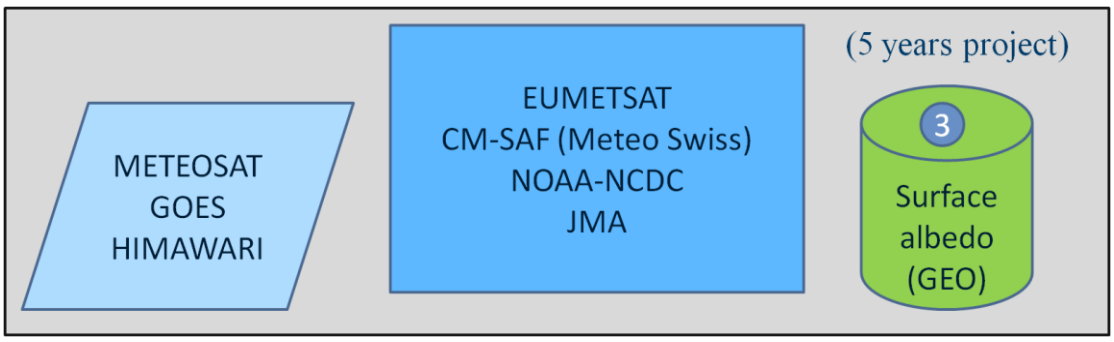


T. Manninen presented the project which aims at estimating surface albedo using data from several LEO satellite instruments, thus benefiting from increased temporal sampling. The method is demonstrated using AVHRR and MODIS images. The quality aims at the GCOS requirements (1, 2, 3).

The project will combine MODIS and AVHRR reflectance. This year the project has started using MODIS only as the AVHRR GAC data (from SCM-05) are still not available.

At the end of this first year, the maturity of this project is low because the algorithm is under development and not yet sustained. During next year the maturity is expected to increase.

4.3 SCM-03 Land Surface Albedo from geostationary satellites



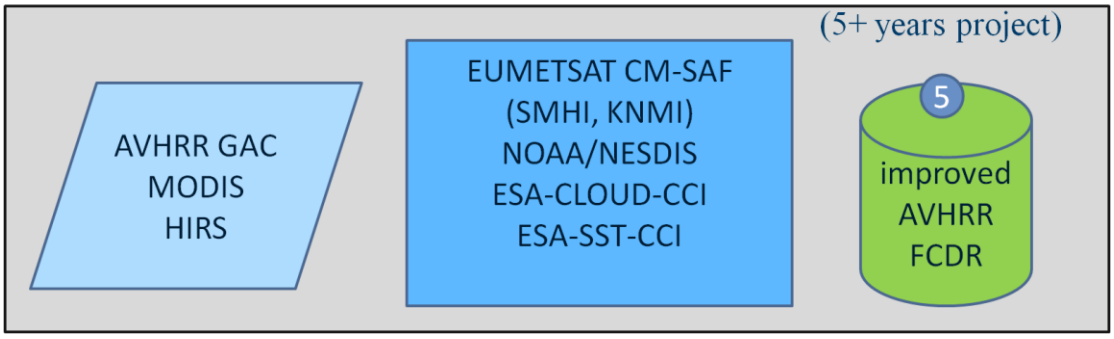
The project was presented by Alessio Lattanzio. The land surface albedo retrieval from geostationary satellites project has been very active this year. Project partners were able to hold a meeting at EUMETSAT in fall 2014 to discuss and decide on next steps. The venue of a new project member from CM-SAF (Meteo Swiss) was beneficial to the introduction of cloud masking in the product derivation. All agencies are now using the same ECMWF reanalysis data for the albedo retrieval. Coordinated product validation activities have been initiated both in EUMETSAT and NOAA

(Jessica Matthews). The project has also started collaborative software development and sharing, which is expected to lead to cost savings at individual agency level.

SEP asked about the possibility of producing an Interim Climate Data Record for albedo. J. Schulz said that producing such product (or any ICDR) would be possible at low cost if done on a monthly basis for example, but a 3-5 day latency product will be much more expensive. The group noted that there is unclear demand for an albedo ICDR with low latency.

Rainer Hollmann informed the SEP that the CM-SAF catalogue has a weekly surface albedo available over Europe.

4.4 SCM-05 AVHRR FCDR (R. Hollmann)

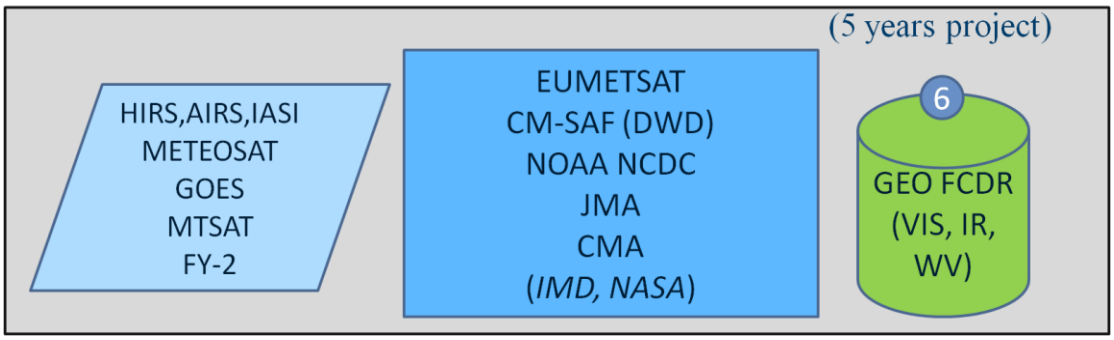


This project was presented by Rainer Hollmann on the behalf of K-G. Karlsson. The project is defined for improving AVHRR FCDR through international collaboration. The AVHRR GAC dataset offers the longest data record (1978-present) of observations from a single high resolution multispectral passive sensor. This is of high interest for climate change studies and is used as input for several TCDRs. The project works along three components: 1- the upgraded visible calibration corrections (Andy Heidinger) 2- the revised infrared calibration (Jon Mittaz) 3- the revised navigation based image retrieved (coast-line matched) update of orbital model (yaw, pitch, roll correction). These 3 activities will continue next year and enjoy institutional support. The infrared calibration including the provision of estimates of uncertainty will be greatly enhanced by the EU Horizon 2020 project FIDUCEO (including a thorough revision of the AVHRR infrared calibration procedure) that started 1 March 2015.

SEP noted that this project is a remarkable example of an integrative component bringing all partners together and leading to the generation of a really useful FCDR feeding other projects (e.g. SCM-10, SCM-02). This will be an FCDR of initial maturity that should progress to higher maturity quickly. The techniques should be applicable/extensible to MODIS and VIIRS imagers.

Linkages to GSICS should be discussed in more detail, possibly through a workshop

4.5 SCM-06 Inter-calibration of passive imager Observations from time-series of GEOstationary satellites (R. Roebeling)

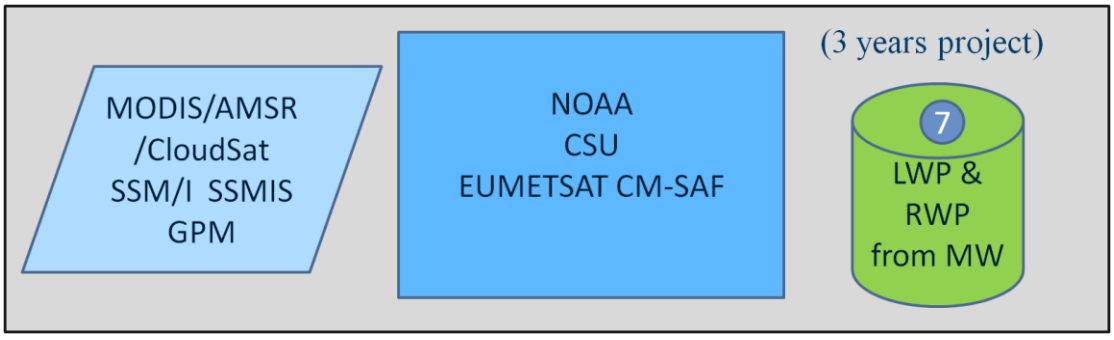


All partners of the inter-calibration of passive imager observations from time-series of geostationary satellites project have been very active this year. More partners are becoming part of the project: the China Meteorological Administration (CMA) became an official partner of the project, and India Meteorological Department (IMD) and NASA are considering becoming new project partners during 2015. The project also plans to expand and to be able to produce in the future (2018-2020) a continuous, gridded FCDR (the so-called GEO-Ring) of inter-calibrated radiances for IR and WV that spans the globe (excepting the poles). This implies that the project will be able to collect all available existing IR and WV GEO data from all space agencies.

SEP welcomes that this idea of gridded GEO FCDR generation as a highly usable and extensible product, and would like to further explore the need for this FCDR (via WCRP/CGMS), which TCDRs could be based upon a gridded FCDR, and to set up more active collaboration including more partners.

Lothar Schueller suggested that an Indian representative be invited to the SCOPE-CM executive panel. John Bates indicated that there is an action in the upcoming CGMS plenary to invite ISRO to join. This could be used to get an ISRO representative as a member in the SEP.

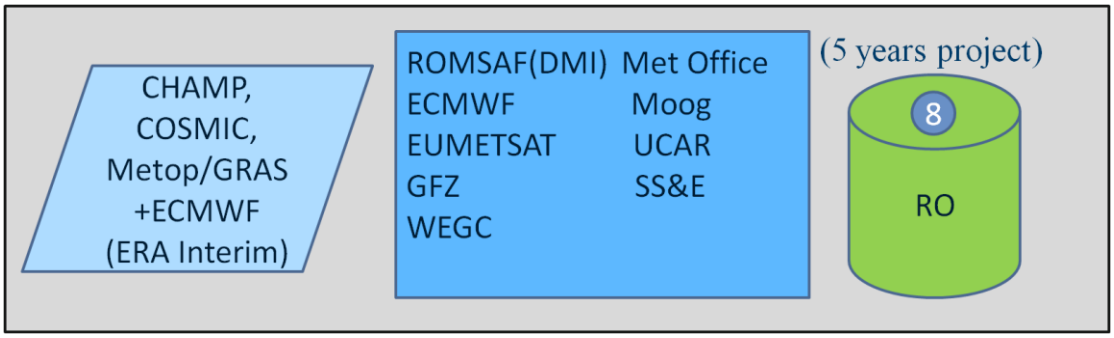
4.6 SCM-07 liquid water path and rain water path climatologies in the GPM era (R. Hollmann)



The project was presented by Rainer Hollmann on behalf of Ralf Bennartz. The CDRs to be generated in the project should make the bridge between the heritage MW imagers and the GPM era. The project is moving forward as planned with collaboration between UW-Madison/Vanderbilt (USA), DWD, and Colorado State University (USA).

SEP noted that project progress is benefiting from existing activities (HOAP LWP will be released this year) and that there is little evidence of critical collaborative dependencies within the dedicated SCOPE-CM framework.

4.7 SCM-08 Radio Occultation based gridded climate data sets (RO-Clim)



The project was presented by Hans Gleisner from ROM-SAF (DMI) that became the leader of the project in replacement of A. von Engeln from EUMETSAT in March 2014. The radio occultation project, RO-CLIM, covers the generation of climatological data from RO and model data. The RO-CLIM project largely builds upon the informal ROtrends collaboration between six RO processing centres, extended with expertise on RO technology, re-analysis, and climate modelling. The core of this project is an activity that existed before SCOPE-CM. The RO data are quite recent and exist since 2001. A significant CDR attribute and RO benefit is that the RO CDR has no intercalibration issues, and produces an FCDR (bending angle) as well as multiple TCDRs. The problem of RO-CLIM is that structural errors are difficult to characterize. The aim of the project is to improve the understanding of error characteristics. Each project partner will provide its own dataset. The output of this project will be a FCDR and an ensemble TCDR dataset (generated from 5 different, independent retrieval methodologies).

SEP held that an ensemble dataset with associated mean and spread would be useful to some climate users, including obs4MIPS activities.

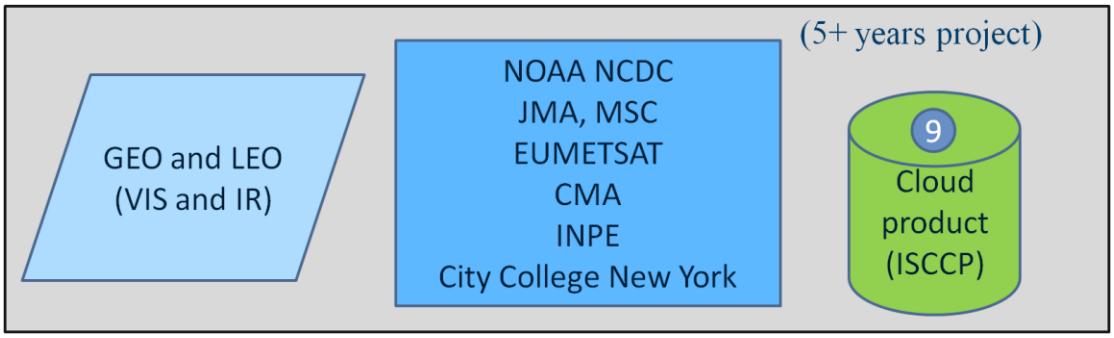
Stephan Bojinski mentioned an initiative of the Committee on Space Research (COSPAR) which is seeking support by WMO for reviewing the “standard ionosphere”. An expression of interest in this activity by the RO community would

support advancing the initiative. One source of error (and difference between solutions given the competing computational methods) is the characterization of the ionosphere at the top of the RO profile.

W. Zhang was positive about this project and the possibility of getting 15 years of unique data (though considered "short" by other SCOPE-CM CDR standards). This will be very valuable and worth pursuing because of the current lack of information in the upper stratosphere.

While there are not many opportunities for collaboration with other SCOPE-CM projects on CDR production, there may be many opportunities to collaborate on ensemble construction, user requirements, and dissemination of CDRs.

4.8 SCM-09 Sustained production of the International Satellite Cloud Climatology Project (ISCCP) cloud products



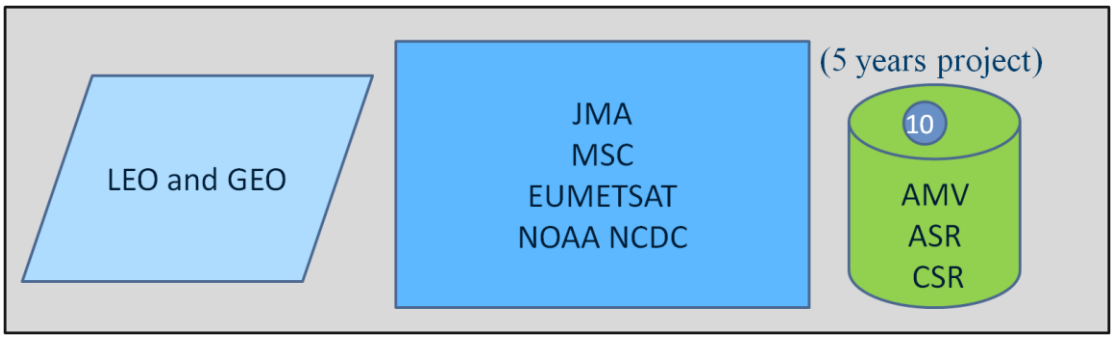
Ken Knapp presented the project advancement remotely via webex. The project aim is to capture the capability at NOAA/NCDC from NASA GISS to process ISCCP at higher resolution and to extend the ISCCP data record from 1981 to 2014. This requires good international collaboration. This project interacts internally but also with other SCOPE-CM projects: it will work with SCM-03 to compare the ISCCP coefficients with LAGS calibration, and to compare resulting albedo products; it will also interact with SCM-06 because both project IR and visible inter calibration that should be compared. It will interact with SCM-10 because both projects should deliver clear sky radiances.

SEP asked about the TCDR sustainability and possibility of operational production. It seems that the sustainability and the infrastructure support in NOAA to the ISCCP production needs improving but should be feasible on NOAA infrastructure. The current TCDR generation mostly relies on multiprocessor servers provided by The North Carolina State Cooperative Institute for Climate and Satellites (CICS). If the project were to move towards frequent operational processing, and/or ICDR

production, more resources (IT, manpower) would be needed to support quality control and production.

SEP inquired about the possibility to distribute the processing software to the various partners to run locally as done in SCM-03 for example. SEP also enquires about the possibility to improve the existing ISCCP software to cope with GOES-R imager resolution.

4.9 SCM-10 Atmospheric Motion Vectors and Clear/All Sky Radiances from historical meteorological satellites in geostationary and polar orbit (A. Okuyama)



This project is now led by Arata Okuyama from JMA, who replaces Toshi Kurino on the SEP. The major objective of this project is to provide Atmospheric Motion Vectors (AMV), Clear Sky Radiances (CSR) and All Sky Radiances (ASR) for the use in global and potentially regional Numerical Weather Prediction (NWP) model-based reanalysis. The project is interacting with SCM-06 as well as GSICS. Discussions have been initiated between EUMETSAT and JMA on a potential creation of global AMV products. In addition, the project activities were coordinated with the International Wind Working Group (IWWG). The project is of high interest for the (IWWG) that would benefit from the ongoing inter comparison activities taking place.

Jörg Schulz indicated that EUMETSAT had reprocessed MSG AMV for the period 2004-2013, and the data were available.

SEP encourages the project to get feedback from reanalysis users that uses the TCDR to gain insight into possible future operational requirements.

5 DISCUSSION OF OPERATIONAL USER REQUIREMENTS AND SCOPE-CM PROJECTS' RELATIONSHIPS TO CLIMATE SERVICES AND ASSESSMENTS

The goal of SCOPE-CM activities was discussed.

The FCDRs and TCDRs represent long, mature data records produced in a dedicated processing environment using satellite data. FCDR and TCDR generation will normally be consolidated every 3-5 years after major scientific development or sensor corrections. Naturally, the temporal extent of such a time series has a fixed start and end date. Those records can be extended in time by so called Interim Climate Data Records (ICDR) that extends the FCDRs and TCDRs in a physically consistent manner until the next major retrospective consolidation of the records. User needs for Interim Climate Data Records were discussed. Among the nine projects several were identified as potential candidates to produce ICDRs. The AMV and CSR (SCM-10) are also good potential candidates for ICDR generation because anticipated reanalysis activities will increase the need for low latency/ timeliness. A potential problem will appear that is the consistency between agencies ICDR generation timeliness. It was agreed that all SCOPE-CM projects should explore the need, requirements and the potential cost of ICDR generation before significant investments are made (Action 10-09).

The main focus of SCOPE-CM should remain on FCDR and TCDR generation, and its sustainability in a collaborative environment.

6 OPERATIONAL ENVIRONMENTS AND SUPPORT FOR SCOPE-CM ACTIVITIES: SYSTEMS, STEWARDSHIP, AND PROCESSES, AND MONITORING (D. ARNDT, R. HOLLMANN)

Two presentations were given, 1- by Derek (Deke) Arndt, Chief, Monitoring Branch, National Centers for Environmental Information (USA/NOAA) and 2- by Rainer Hollmann, the Co-lead of WMO CCl Task Team on the Use of Remote Sensing for Climate Monitoring Satellite-Based Climate Monitoring, Deutscher Wetterdienst (DWD CM-SAF). The presentation can be found in the SCOPE-CM website (http://www.scope-cm.org/meetings/SEP10/presentations/)

Deke Arndt presented the different aspects of the NOAA products to be considered for operational climate monitoring. The five aspects of the data products are frequency, resolution in time and space, the latency, the completeness and the consistency (see http://www.ncdc.noaa.gov). He showed a few examples of products

monitoring and display, including anomaly maps and event frequency statistics/rankings. He noted that the main frequency of climate information production was monthly at NOAA, while during certain events (e.g. extreme drought) that this frequency may quicken to weekly.

Ed Kearns noted that no satellite data are presently used in what Deke Arndt presented. The reasons Deke gave for this are mainly the tradition of working with ground-based datasets, the size of satellite data which are perceived as too large), and lack of understanding on how to analyze satellite data. Deke noted that it will be important to synchronize the "base period" of satellite data with the base period used by the in-situ climate community.

Stephan Bojinski wondered if error and confidence information are given with the products generated at NOAA NCEI. Deke Arndt explained that these matter mainly for the science community, whereas the general public and commercial customers do not generally find error and confidence levels very important. As an exception, the insurance and reinsurance sectors are interested in using such information.

The link between latency and error can also be of interest. Generally a short latency will lead to bigger uncertainty in the error than long latency. However, short latency disallows for thorough analysis of error, but does not mean larger errors.

The question of climatologies was addressed, and whether it is better for users to have preassembled datasets, or to let users do the assembling of data into a climatology. It seems that Knowledge of the assembling rules is important for the user, so a preassembled climatology of specific TCDR can be helpful to user or climate service provider.

Rainer Hollmann presented the operational climate monitoring from space. He presented the Task Team on Use of Remote Sensing Data for Climate Monitoring (TT-URSDCM) who has the role to promote the use and assess the suitability in climatology of space-based data, radar data and data from other remote sensing platforms. Rainer reminded the SEP of the principle of TCDR/FCDR/ICDR production (see Figure 2). He presented the EUMETSAT CM SAF Satellite Application Facility on Climate Monitoring activities.

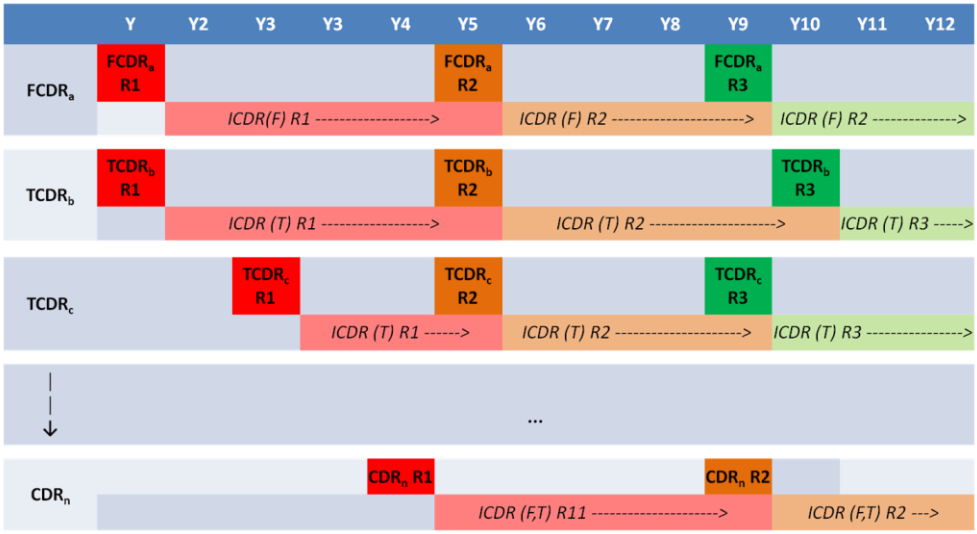


Figure 2 *Schematic representation of processing events for the generation of FCDRs and TCDRs as well as ICDR processing to continue Fundamental and Thematic Climate Data Records close to real time. It is assumed that several CDR productions run in parallel.*

Dr. Zhang thanked the two presenters and advertised the WMO Statement on the status of the global climate 2014, released on the same day 24 March 2015 (https://www.wmo.int/media/sites/default/files/1152_en.pdf). He reminded the SEP that only few WMO regional centers use satellite data today, and that it is important to promote the value of using satellite data for climate services.

Some discussion took place on the latency of products from WMO Regional Climate Centers (RCC). The RCC products of the RAVI (Europe) are generated on a monthly timescale but most of other centers produce monthly or annually products. Monitoring the drought in the US will require weekly product generation.

7 DISCUSSION OF THE SCOPE-CM IMPLEMENTATION PLAN – UPDATES OR REVISIONS? (E. KEARNS)

IMPLEMENTATION PLAN

The SCOPE-CM implementation plan for phase 2 has been issued in 2012. In light of the discussion held in this session, the plan should be reviewed for its validity and be updated as appropriate (Quote Action). Details on the duration of phase 2, milestones, the frequency of upcoming calls for proposals should be agreed in the revised plan. More emphasis should be put on the unique value of SCOPE-CM to foster multi-agency collaboration and sustainability of processing. The revision should also highlight the contribution by SCOPE-CM to the second pillar of the Architecture for

Climate Monitoring from Space. The SEP should also consider how to consider results from the update of the GCOS implementation plan in 2016.

CONSIDERATION FOR NEW PROJECTS

SEP underlined the importance to get new projects in SCOPE-CM. Projects in the ocean, land or cryosphere domains could be beneficial. The call for additional collaborative projects in these areas should be linked to Action 10-01.

It is useful to have a clear view on cross-interactions between SCOPE-CM projects, to identify efficiencies and best practices. Dependencies between SCOPE-CM and other international projects/groups (e.g. GSICS, CEOS, CGMS VC, SAFs, CCI) are very important. An overall dependency diagram should be produced, since the interactions/dependencies can be very difficult to understand.

ICDR DEVELOPMENT

The current SCOPE-CM is not an operational entity, but building towards one. SEP advised that the primary focus should continue to be on quality-focussed, sustained CDR production. However, ICDRs for **some** CDRs are important for operational climate monitoring and SCOPE-CM projects were asked to explore the technical feasibility, resource requirements and user needs for reducing latency in CDR production such that best practices can be identified.

MATURITY ASSESSMENT

SEP pointed out the importance of the maturity assessment of the produced climate data record. Each product should get increasingly mature during the lifetime of the project. SEP recommended to have the maturity assessment done every year and using the latest version (colour coded) of the maturity assessment. The documentation of this maturity assessment will be circulated. As SCOPE-CM has no funding, a self-assessment of maturity should be done individually by each project. At SEP meetings each project should report on its maturity status. A table could be produced with the current maturity status of each project.

Name	SSM/I FCDR
Origin	CM SAF; contact.cmsaf@dwd.de
Spatial Characteristics	Pixel resolutions varying with channels.
Temporal Characteristics	Jul 1987 – Dec 2008

Software Readiness	Metadata	User Documentation	Uncertainty Characterisation	Public access, feedback, and update	Usage
Coding Standards	Standards	Formal description of scientific methodology	Standards	Public Access/Archive	Research
Software Documentation	Collection level	Formal validation report	Validation	Version	Decision support system
Numerical Reproducibility and portability	File level	Formal product user guide	Uncertainty quantification	User feedback mechanism	
Security		Formal description of operations concept	Automated quality monitoring	Updates to record	
Legend					
1	2	3	4	5	6

Figure 3: *Example of Maturity matrix (from core-climax European ECV CDR capacity assessment report, 2015).*

FCDR INVENTORY

John Bates, Chair of the Joint CEOS-CGMS WG Climate noted that it is carrying an action for the CGMS Plenary in May regarding the pilot FCDR inventory:

> • *Conduct an initial analysis of available FCDRs past and current available for or planned for use in the current set of SCOPE-CM projects using CEOS, CGMS, and WMO satellite data bases;*
> • *Identify SCOPE-CM ECV projects that are or may be able to use the above FCDRs;*
> • *Assess availability of the above FCDRs for the future;*
> • *Following the first ECV gap analysis, consider FCDRs that may be useful in assessing ECV opportunities in the future ECV gap analysis.*

The SCOPE-CM Projects are developing FCDRs that will both have a useful past record and are sustainable given the anticipated observing system of the future:

1. GEO-Ring IR and Visible FCDR (30+ years)
2. AVHRR IR and Visible FCDR (30+ years)
3. RO Bending Angles (13 years)

There are a number of other FCDRs from collaborators that are available but not as collaborative products (e.g. HIRS Ch 12 BT, SSMI-SSMI/S).

The SCOPE-CM ECVs/TCDRs that depend on these include many from ISSCP, albedo, UTH, etc. but there are many more candidates (LST, SST, sea ice, snow cover).

SCOPE-CM will make a request to CGMS for continued support for operational production, access to additional data (e.g. GEO coverage over the Indian Ocean data).

8 ACTION REVIEW FROM PREVIOUS AND CURRENT MEETINGS

8.1 Actions from SEP10

Action Number	Actionee	Action
ACTION-SEP-10-01	Chair	Write a WMO letter to all CGMS satellite operators (including CMA, KMA, Russian, ISRO) to invite their involvement in SCOPE-CM and FCDR generation.
ACTION-SEP-10-02	Chair with SEP support	Review implementation plan, including but not limited to how to best invite land, ocean, and cryosphere collaborative CDR projects
ACTION-SEP-10-03	Secretariat	Circulate the 'new' colour code maturity matrix
ACTION-SEP-10-04	John Bates via CGMS ?	To invite ISRO to become a SEP member
ACTION-SEP-10-05	Chair/secretariat	To review the SCOPE-CM implementation plan
ACTION-SEP-10-06	All projects	Assess CDR generation maturity using the new matrix
ACTION-SEP-10-07	All projects	To assess the sustainability of the project (data dependencies, institutional support, labour)
ACTION-SEP-10-08	All projects	The review cycle governance should be discussed within each project
ACTION-SEP-10-09	All projects	To evaluate the feasibility, the potential cost, and user demand, of ICDR generation for the generated FCDR or TCDR
ACTION-SEP-10-10	SCM-01	Give some user guidance on a combined/ensemble product or how the group of products should be used (clear specification on application, potential integration of the three products in one...)
ACTION-SEP-10-11	SCM-09	To investigate the possibility to distribute the software to partners to distribute the generation among partners. ---

8.2 Action review from Previous Meetings

This section provides an overview of the action status.

Action Number	Actionee	Action	Status at SEP10	Remarks
ACTION-SEP-07-02	Pilot Project 2 leader (CM SAF)	CM SAF to take a lead to develop a SCM-project proposal on SSM/I and SSMIS FCDR, integrating the CM SAF, CDR-Programme and X-CAL activities.	Open	No related LoI submitted. Leave it open until next year.
ACTION SEP-07-05	Secretariat	Secretariat to collect links to the SCOPE-CM Pilot Project activities in order to be able to promote the achievements (e.g. presentations and web pages).	Close	The SCOPE-CM web page is regularly updated.
ACTION SEP-08-01	Secretariat	Secretariat with SEP chair to investigate a publication of the SCOPE-CM Phase 2 concept and the first SCM-projects as "Meeting summary" e.g. EOS transactions of the American Geophysical Union.	Open	It is proposed to provide if possible a "Meeting Summary" of SEP10 to promote the project.
ACTION-SEP-09-01	All	Assess product maturity	Close	A new action to assess product maturity with the new maturity matrix has been open.
ACTION-SEP-09-02	Secretariat	To collect and generate an interaction matrix between projects. To generate an overall dependency diagram between SCOPE-CM and others (GSICS, CEOS, CGMS VC, SAFs, CCI)	Close	
ACTION-SEP-09-03	All	To contribute to the ECV inventory database	Close	by reference to the FCDR inventory action
ACTION-SEP-09-04	All	To federate dataset generation and address the release mode	Open	This is on going
ACTION-SEP-09-05	Secretariat	To update website	Close	
ACTION-SEP-09-05	All	Inquire from SCM projects on usage/plans to use THREDDS.	Open	This is ongoing
ACTION-SEP-09-06	SCM-01	Interaction with SCM-08		

Action Number	Actionee	Action	Status at SEP10	Remarks
ACTION-SEP-09-07	SCM-02/SCM-05	To collaborate. SCM-02 to give its requirements to SCM-05	Close	
ACTION-SEP-09-08	SCM-03	To investigate the possibility to include the direct/diffuse fraction to the downward flux density in the albedo product.	Close	
ACTION-SEP-09-09	SCM-05	To organise a workshop with GSICS	Open	This is ongoing
ACTION-SEP-09-10	SCM-06	Investigate how to put in place a to allow the project to feedback GSICS	Close	SCM-06 leader has actively participate to GSICS workshop in March 2015
ACTION-SEP-09-11	SCM-07	To produce a flow-diagram to identify various contributions to the project and to point out input/outputs	Close	See Figure 1
ACTION-SEP-09-12	SCM-08	To inform secretariat in case of lead's change	Close	Hans Gleisner (DMI/ROM SAF) became the leader.
ACTION-SEP-09-13	SCM-09	To provide an update on the project plan. To investigate the possibility of a 'global' product (LEO + GEO) interaction with SCM-05	Open	This is ongoing

8.3 SCOPE-CM executive panel changes

Some changes took place in 2014 in executive panel membership. The chair has been taken by Ed Kearns (NOAA) after the SEP-09 meeting in July 2014. Jonathon Ross (SANSA) replaced Kerry Sawyer as CEOS observer from the 1st of December 2014. André Obregón became the new GEO representative replacing Espen Volden since November 2014. Finally in early 2015, Toshiyuki Kurino has been replaced on the SEP by Arata Okuyama as JMA representative. SEP members thanked Toshi Kurino for his active participation in SCOPE-CM during the last years.

8.4 SCOPE-CM Webpage

EUMETSAT, as SCOPE-CM secretariat, updated the website hosting the SCOPE-CM project, http://www.scope-cm.org.

A webpage for SCM-10 has been created (in October 2014). The meeting item has been populated with document related to the SEP-09 (in April 2014), the webex meeting (in November 2014), and the SEP-10 meeting (in December 2014). All meetings page can be found in http://www.scope-cm.org/meetings.

9 ANY OTHER BUSINESS

No any other business.

10 DATE AND PLACE OF THE NEXT MEETING

The SEP plans to have its 11th meeting within a year. Preferably it should be collocated with other relevant meetings and/or conferences. SEP members will seek and identify synergistic opportunities for the meeting via email and establish the date and location by June 2015.

APPENDIX A AGENDA

SCOPE-CM 10th Executive Panel Meeting ***WMO Premises, Room C2, Geneva, Switzerland***	
Monday, 23 March 2014 (13:00 – 17:00)	
1.	**Welcome and Introduction** (Chair, E. Kearns)
2.	**Approval of the SEP meeting agenda** (Secretariat, M. Doutriaux-Boucher)
3.	**Overall SCOPE-CM status** (M. Doutriaux-Boucher)
4.	**SCM-Projects: Presentation of the SCM-projects content, plan and activities (20 min each)**
	4.1 – SCM-01 Tropospheric Humidity (J. Bates)
	4.2 – SCM-05 AVHRR FCDR (R. Hollmann)
	4.3 – SCM-06 Inter-calibration of Passive Imager Observations from time-series of GEO Stationary Satellites (R. Roebeling)
	4.6 – SCM-10 Atmospheric motion vectors and clear/all sky rediances from historical meteorological satellites in geostationary and polar orbit (A. Okuyama)
	4.4 – SCM-09 Sustained production of the International Satellite Cloud Climatology Project (ISCCP) cloud products (K. Knapp -webex-)
	Tuesday 24th March 2015 (9:30-16:00) – Press room -
	4.7 – SCM-02 Albedo Polar Orbiters (T. Manninen)
	4.8 – SCM-03 Albedo Geostationary (A. Lattanzio)
	4.9 – SCM-07 Liquid Water Path and Rain Water Path Climatologies in the GPM era (R. Hollemann)
	4.10 – SCM-08 Radio occultation based gridded climate data sets (H. Gleisner)
5.	**Discussion of operational user requirements and SCOPE-CM projects' relationships to climate services and assessments**
6.	**Operational environments and support for SCOPE-CM activities: systems, stewardship, and processes, and monitoring (**Deke Arndy, Rainer Hollman, and A. Okuyama**)**
7.	**Discussion of the SCOPE-CM implementation plan – updates or revisions? (**E. Kearns**)**
8.	**Action review from previous and current meetings**
10.	**Any other business**
11.	**Date and Place of the next meeting**
Adjourn	

APPENDIX B SEP 10 PARTICIPANTS

The table shows the list of participants to the meeting with their current affiliation and there function with respect to this SCOPE-CM executive panel meeting. 19 persons attending the meeting, D. Arndt and K. Knapp attended via a webex connection.

Name (email)	Affiliation	Function
Derek Arndt (derek.arndt@noaa.gov)	NOAA	Chief, monitoring branch NOAA's Center for Environmental Information
John Bates (john.j.bates@noaa.gov)	NOAA/NCEI	NOAA representative
Stephan Bojinski (sbojinski@wmo.int)	WMO Space Programme	WMO representative
Marie Doutriaux-Boucher (marie.doutriauxboucher@eumetsat.int)	EUMETSAT	Secretariat
John Dwyer (dwyer@usgs.gov)	USGC	Observer
Hans Gleisner (hgl@dmi.dk)	DMI/ROM SAF	Leader of SCM-08
Rainer Hollmann (rainer.hollmann@dwd.de)	EUMETSAT/CM-SAF	CM-SAF director, Representative leaders of SCM-05 and SCM-07
Ed Kearns (ed.kearns@noaa.gov)	NOAA/NCEI	Chair
Ken Knapp (ken.knapp@noaa.gov)	NOAA/NCEI	Leader of SCM-09
Alessio Lattanzio (alessio.lattanzio@eumetsat.int)	EUMETSAT	Leader of SCM-03
Terhikki Manninen (terhikki.manninen@fmi.fi)	FMI/CM-SAF	Leader of SCM-02
Tillmann Mohr (tillmann.mohr@t-online.de)	WMO (?)	Observer
Andre Obregon (aobregon@geosec.org)	GEO	GEO representative
Arata Okuyama (okuyama.arata@met.kishou.go.jp)	JMA	JMA representative and leader of SCM-10
Thomas Piekutowski (thomas.piekutowski@asc-csa.gc.ca)	CSA	Observer
Rob Roebeling (rob.roebeling@eumetsat.int)	EUMETSAT	Leader of SCM-06
Lothar Schüller (lothar.schueller@eumetsat.int)	EUMETSAT	EUMETSAT-SAF reresentative
Jörg Schulz (joerg.schulz@eumetsat.int)	EUMETSAT	GEWEX representative
Wenjing Zhang	WMO	Observer

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