

# CEOS-CGMS Joint Working Group on Climate (WGClimate)

John Bates

NOAA

CEOS SIT-29 Meeting

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## Update of Working Group on Climate Major Activities since SIT-28

- Approval of Revised Terms of Reference at CEOS Plenary 2013
- First meeting of Joint CEOS-CGMS Working Group on Climate
- Review of CEOS Strategy for Carbon Observations from Space
- Reporting to the UN Framework Convention on Climate Change (UNFCCC) Subsidiary Body on Scientific and Technological Advice (SBSTA)



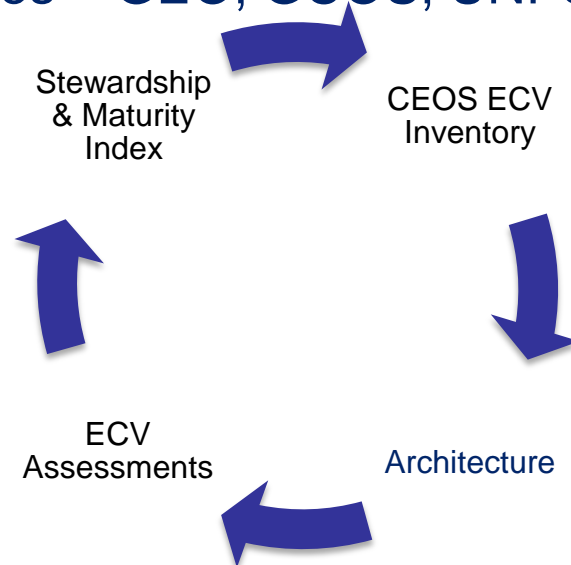
## Approval of Revised Terms of Reference at CEOS Plenary 2013

- WGClimate was pleased that only minor updates to the original Terms of Reference were needed to accommodate inclusion of the Coordination Group for Meteorological Satellites (CGMS)
- CGMS approve the Terms of Reference at their Plenary in July 2013
- A new overarching objectives statement was added:
  - 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 Date Records, through best use of available data to fulfil GCOS requirements (e.g. by identifying and targeting cross-calibration or re-processing gaps/shortfalls );
  - Optimization 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



## First meeting of Joint CEOS-CGMS Working Group on Climate (30+ attendees including 15 CEOS-CGMS space agencies)

- Coordination of CGMS and CEOS
- WGClimate Work Plan
- Climate Monitoring Architecture
- Essential Climate Variable (ECVs) Inventory
- Assessing the Completeness of ECVs
- Coordination with CEOS Carbon Task Force (later)
- Reporting Activities – GEO, GCOS, UNFCCC SBSTA (later)





## Coordination of CGMS and CEOS

- CGMS Secretariat received 10 responses from members for representatives on WGClimate – 8 were able to attend
- Members of the CGMS International Working Groups (TOVS sounder, Precipitation, Radio Occultation, and Winds) were also invited – Radio Occultation attended
- CGMS Action on adding Fundamental CDRs or FCDRs (i.e., instrument observation time series) to the ECV inventory was not accepted
  - Intended users of ECV data base are non-experts. FCDRs are intended for technical experts
  - FCDRs may be useful in assessing ECV ‘opportunities missed’ in the ECV gap analysis via use of WMO OSCAR data base
  - Innovative uses of the ECV inventory, such as applying a graph data base, may provide FCDR information in a useful form already



## WGClimate Work Plan

- WGClimate was the 'guinea pig' for the new form of the CEOS 3-year Work Plan
- Work Plan elements implement WGClimate objectives in sequential order
- Activities include Climate Monitoring, Research, and Services
  - Coordinate development of Climate Data Records (CDRs) and related datasets addressing Essential Climate Variables (ECVs) established by the Global Climate Observing System (GCOS)
  - Continue cooperation with GEO, GCOS, the World Meteorological Organization (WMO), and the Coordination Group for Meteorological Satellites (CGMS) in the development of a space-based system to support climate information and adaptation.



## WGClimate Work Plan – Climate Monitoring, Research, and Services (CMRS)

- *The first 3 CMRS activities form an iterative cycle, acknowledged in the last CMRS activity –*
- **CMRS-1:** ECV inventory (first version) – Tools needed are available
- **CMRS-2:** Gap analysis (first version) – Identify several target ECVs and conduct analysis
- **CMRS-3:** Action plan (first version) – Identify actions Space Agencies can take to mitigate any gaps
- **CMRS-8:** Update of ECV inventory, gap analysis and action plan (version 2) – The above sequence forms the basis for an ongoing analysis cycle, in agreement with the new GCOS plans



## WGClimate Work Plan – Climate Monitoring, Research, and Services (CMRS)

- *The next two CMRS activities seek to assure that climate products are connected to user applications and decision support*
- **CMRS-4:** Case studies linking CDRs to societal applications and informed policy decisions – Identify examples from current work and map it to the Climate Monitoring Architecture
- **CMRS-5:** Contributions to the Global Framework for Climate Services (GFCS) – Work to identify existing examples of Climate Services that can be applied or adapted to the GFCS focus areas





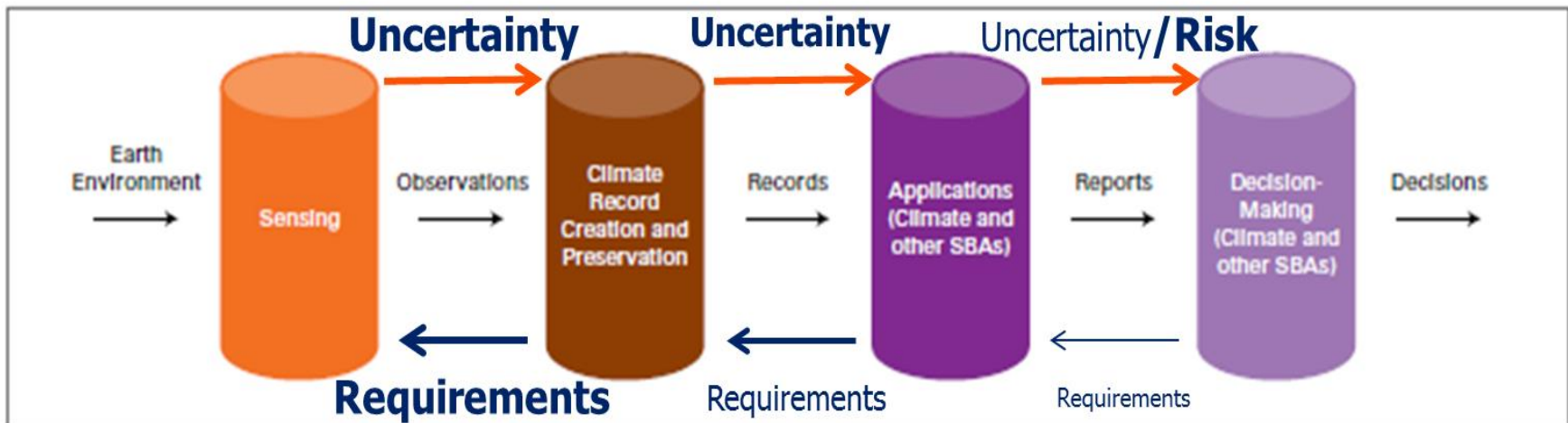
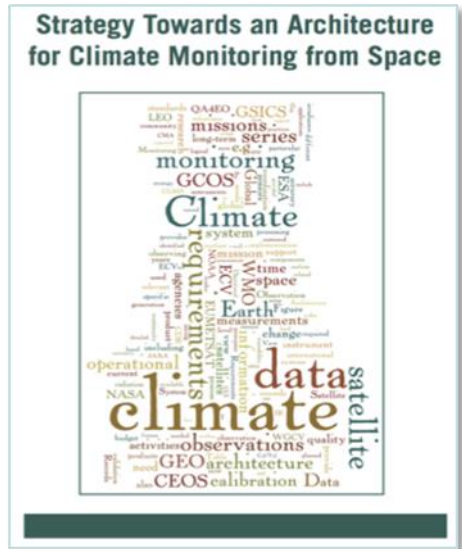
## WGClimate Work Plan – Climate Monitoring, Research, and Services (CMRS)

- *The final two elements identify important interactions with external communities*
- **CMRS-6:** Report to UNFCCC Subsidiary Body for Scientific and Technological Advice-Research and Systematic Observation (SBSTA-RSO) – Details in a later item
- **CMRS-7:** Incorporation of in situ data holdings within the ECV inventory – reuse original ECV questionnaire framework. Data base analysis and follow up will not be done by CEOS



## Climate Monitoring Architecture

- The WGClimate ‘Strategy Towards...’ report primarily focused on the first 2 pillars of the Climate Monitoring Architecture and its logical, or generic, view.
- WGClimate will be focusing on identifying case studies and working with the GFCS to focus on the applications and decision-making pillars.
- A third phase will then identify several example physical architectures that incorporate the end-to-end climate information value chain





## Essential Climate Variable (ECVs) Inventory

- At the WGClimate meeting, members met in breakout groups to use the current inventory and to provide feedback on what tools would be required to complete an assessment of ECVs, gap analysis and recommendations. The following are observations and recommendations on the ECV inventory:
  - Obtaining complete information for the inventory is challenging as it requires input from missions, scientific investigators, and archives
  - Detailed QA/QC of the inventory will be ongoing and iterative. An ongoing user feedback function will need to be supported
  - WGClimate leadership will follow up with ECV developers to ensure their roles and responsibilities are clear and that WGISS is also involved
  - The ECV questionnaire should remain continuously open for input. The questionnaire should be opened for input beyond CEOS and CGMS agencies to ensure a broad capture of all ECVs
- A demonstration of ECV tools is available for CEOS members



## Assessing the Completeness of ECVs

- Metrics to assess the completeness of process (documentation, validation, access, etc.) and scientific applications (fitness for purpose and user requirements) have moved forward within several different venues over the last year
  - WGClimate has coordinated with the GEO QA4EO effort
  - An EU project, CORE-CLIMAX, has proposed a more generic metric assessment that has been evaluated and found useful by the satellite, in situ, and re-analysis communities
    - WGClimate took an action to have its members further evaluate this metric for formal adoption by WGClimate by the end of 2014
  - WGClimate is coordinating with WCRP Data Advisory Committee on scientific assessment metrics. Work is ongoing



## Coordination with CEOS Carbon Task Force

- The WGClimate appreciates the thoroughness and high scientific content of the Carbon Task Force (CTF) Report
- The CTF Report recommends establishment of a Carbon Subgroup within WGClimate. The WGClimate opposes the formation of subgroups and does not agree with this recommendation
- The CTF Report contains actions to: individual CEOS Agencies regarding missions, CEOS Working Groups on Climate and Calibration-Validation, CEOS Virtual Constellations on Ocean Color, Land Surface Imagery and Atmospheric Composition. It is not appropriate for WGClimate to be responsible for tracking all these actions.
- CTF Report actions specifically calling out WGClimate are within the purview of WGClimate activities and will be tracked and reported on
- The WGClimate is willing to report on the CTF Report at the UNFCCC SBSTA-41 in Lima, Peru in December 2014



## Reporting Activities – UN Framework Convention on Climate Change (UNFCCC) Subsidiary Body on Scientific and Technological Advice (SBSTA)

- Next WGClimate reporting is scheduled for 2014 - SBSTA-41 Location: Lima/Peru
- Reporting formally occurs through a national delegation on behalf of CEOS. Thus WGClimate requests the help of the CEOS Chair at the time to help with this. The CEOS Chair in December 2014 will be JAXA (hence Japan is the national delegation) and so WGClimate will work with JAXA on this item
- Topics WGClimate proposes to report on include:
  - CTF Report, any GFOI Report, CEOS addressing GCOS ECV delta, "tools" established in last 18 months: joint Working Group Climate, Architecture, ECV Inventory
- Where possible, we will stress the cooperation between CEOS and GCOS



# Thanks (Merci) and Questions