

# CONCEPT FOR THE PHYSICAL VIEW OF THE ARCHITECTURE FOR CLIMATE MONITORING FROM SPACE

WMO Space Programme Office

CEOS/CGMS WGClimate

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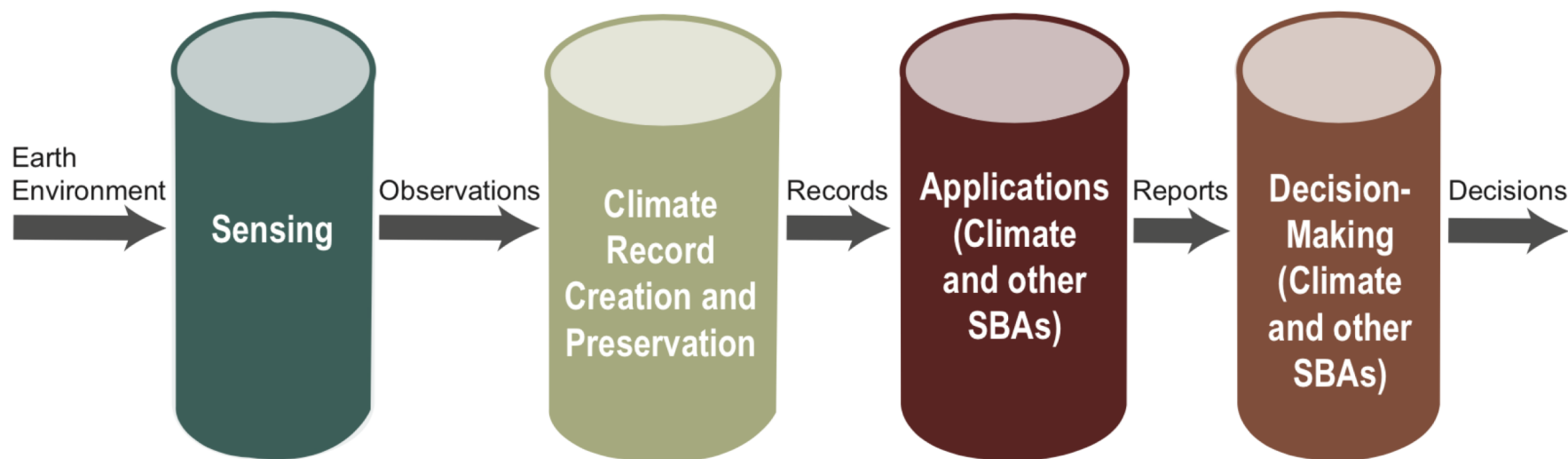


# Background

- WMO Resolution 19 (Cg-XVI) – called for the Development of an Architecture for Climate Monitoring from Space (2011)
  - “major initiative of the WMO Space Programme”
  - “invites CEOS, CGMS, GCOS, GEO and WCRP to collaborate with the WMO Space Programme on the development of the Architecture”.
- Strategy Towards an Architecture for Climate Monitoring from Space (2013)
  - Terminology, logic, implementation roadmap
  - [http://ceos.org/document\\_management/Working\\_Groups/WGClimate/WGClimate\\_Strategy-Towards-An-%20Architecture-For-Climate-Monitoring-From-Space\\_2013.pdf](http://ceos.org/document_management/Working_Groups/WGClimate/WGClimate_Strategy-Towards-An-%20Architecture-For-Climate-Monitoring-From-Space_2013.pdf).



# Logical View



**Figure 6.1: Main Components of a logical view**

4 Pillars



# Physical View

- Physical View of the Architecture for Climate Monitoring from Space to consist of:
  - i. Existing/planned missions, datasets, and key user organizations, agencies, coordination mechanisms (“who does/plans/needs what”);
  - ii. A commitment by agencies, mechanisms, and activities to fulfil the functions identified in the logical Architecture;
  - iii. Regular action by all stakeholders to the Architecture to address/fill gaps where these have been identified and validated.



# Present Status

- WGClimates-9 delivered a report on the ECV-Inventory Gap Analysis Report.
- Contains not only the Gap Analysis but also Action report.
- The action proposed are concerned with implementation of the physical view of Pillar I and Pillar II.
- The physical view of Pillar I has not yet been developed.



# Proposed Concept

- The Physical View of the Architecture for Climate Climate Monitoring from Space should be a virtual constellation composed of virtual sub-constellations providing the observations to derive a single ECV or a group of ECVs.
- The virtual sub-constellations belong to either CEOS members or CGMS members or a combination of both.
- The Physical View is only for Pillars-I and II under the responsibility of the space agencies.
- Physical view for Pillars III and IV still needs to be established by entities dealing with applications (e.g., WMO, GFCS).



# CEOS Virtual Sub-Constellations

- The existing seven CEOS Virtual Constellations to cover the ECVs related to:
  1. Atmospheric Composition Virtual Constellation – (AC-VC)
  2. Ocean Surface Topography Virtual Constellation – (OST-VC)
  3. Precipitation Virtual Constellation – (P-VC)
  4. Land Surface Imaging Virtual Constellation – (LSI-VC)
  5. Ocean Colour Radiometry Virtual Constellation – (OCR-VC)
  6. Ocean Surface Vector Wind Virtual Constellation – (OSVW-VC)
  7. Sea Surface Temperature Virtual Constellation – (SST-VC)





# CGMS “Virtual Sub-Constellations”

- CGMS should establish the following virtual sub-constellations making use of existing CGMS Working Groups:
  1. International TOVS Working Group – Temperature and Humidity Virtual Constellation – (VTP-VC)
  2. International Radio-Occultation Working Group – Radio-Occultation Virtual Constellation – (RO-VC)
  3. International Precipitation Working Group - Precipitation Virtual Constellation – (P-VC)
  4. International Winds Working Group - Atmospheric Motion Vector Virtual Constellation – (AMV-VC)
  5. International Clouds Working Group - Clouds Virtual Constellation – (C-VC)



# Other Virtual Sub-Constellations

- The remaining ECVs not yet covered should be addressed through additional virtual sub-constellations.
- Example: Joint CEOS/CGMS Virtual Constellation for CO<sub>2</sub>/GHG.
- Example: Joint CEOS/CGMS Precipitation Virtual Constellation (CEOS P-VC and CGMS P-VC).



# Governance

- The virtual sub-constellations (CEOS, CGMS, joint) would report to CEOS/CGMS WGClimate, which takes stewardship over the Physical Architecture (Pillars I and II).
- WGClimate would report to a high-level Virtual Climate Constellation Implementation Group composed of heads of space agencies or their deputies.



# Actions and Follow-up

1. CGMS/CEOS WGClimate to provide comments on the proposed concept for the Physical View of the Architecture for Climate Monitoring from Space.
2. WMO Secretariat to prepare updated report to CGMS-46 and to 32<sup>nd</sup> CEOS Plenary.



# Thank you



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