Climate Monitoring Architecture and ECV Inventory

Mark Dowell
European Commission – Joint Research Centre
mark.dowell@jrc.ec.europa.eu

Present List of Participants

EC – Mark Dowell, Chair
ESA – Pascal Lecomte
EUMETSAT – Joerg Schulz, Robert Husband
JMA – Yoshihiko Tahara
NASA – Richard Eckman (Eric Lindstrom)
NOAA – John Bates, Suzanne Hilding, Chuck Wooldridge, (Mitch Goldberg)
INPE – (Daniel Alejandro Vila)
WMO – Jerome Lafeuille, Barbara Ryan, Tillmann Mohr, Hye Jin Lee

Review Group:

- GCOS
- GEO
- WCRP

Strategy Report Content

1. Executive Summary and recommendations
2. Introduction, Objectives & Targets
3. Climate Monitoring Principles, Requirements & Guidelines
4. State of the Art
5. Beyond research to operations
6. Climate Architecture definition
7. Mechanisms for Interaction
8. Roadmap for way forward
9. Recommendations

Climate Monitoring Architecture Report

- **Report: final version typeset (NOAA).**
- **Publication: decision to publish the report as a unbranded document (printed by ESA)**

This strategy document is also seen as a foundations for the GFCS Monitoring and Observation Pillar

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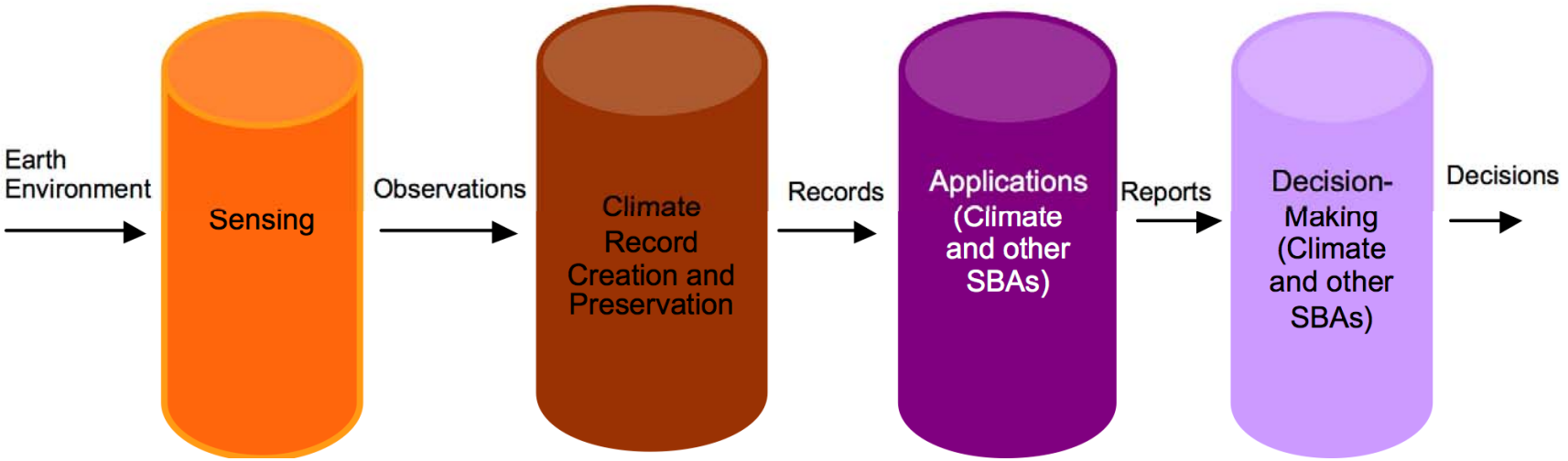
Why do we need a Climate Monitoring Architecture?

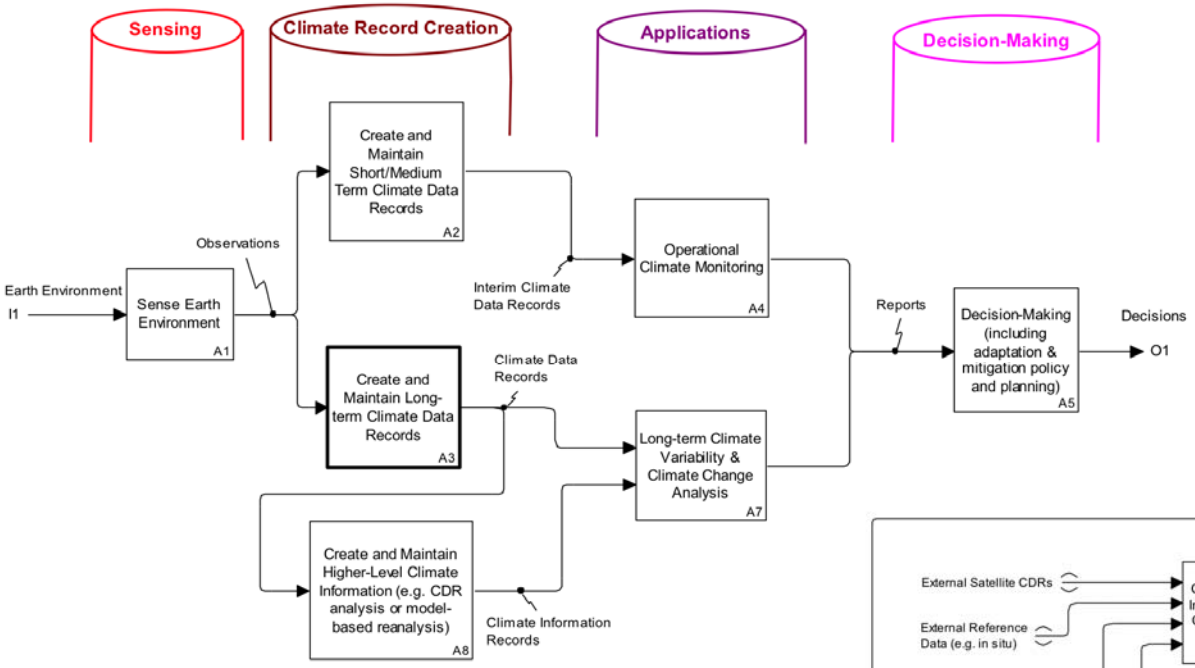
Main "needs/usage scenarios" have emerged for a climate monitoring architecture:

- Assist in promotion of a common understanding of the implementation implications of meeting the various space-related climate monitoring requirements (e.g. from GCOS)
- To support an assessment of the degree to which the currently implemented systems meet the requirements (and the generation of an action plan to address identified shortfalls/gaps/duplication)
- To improve our understanding of the end-to-end information flows and dependencies (i.e. from sensing through to decision-making)

Architecture Pillars

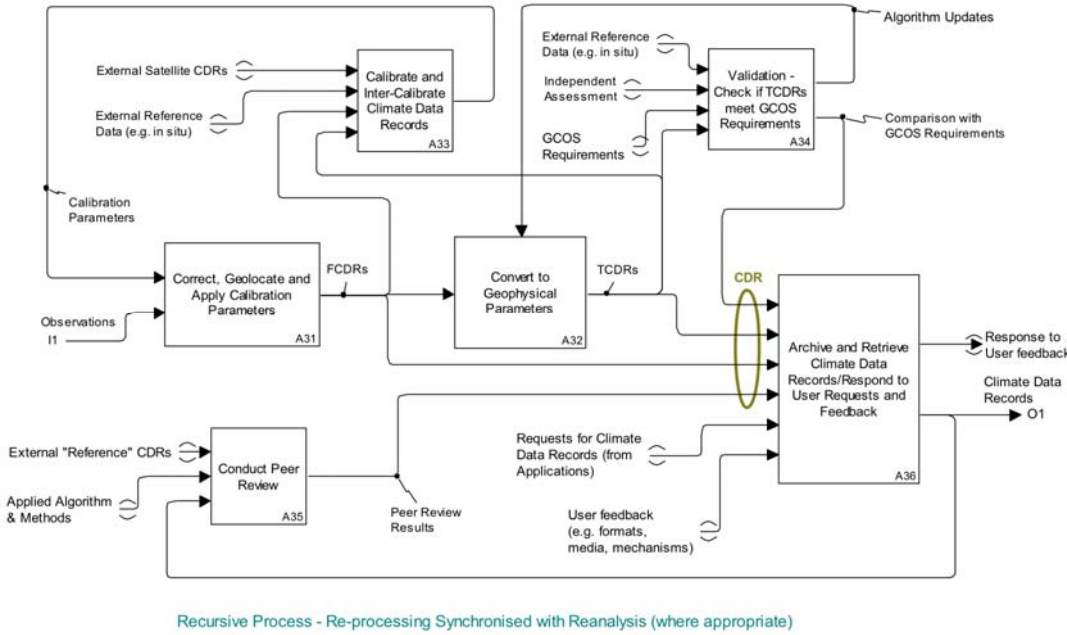


Logical representation



Traceable to GCOS Guidelines and GCOS Climate Monitoring Principles

Traceable from ECV Inventory and physical representation of Climate Monitoring Architecture

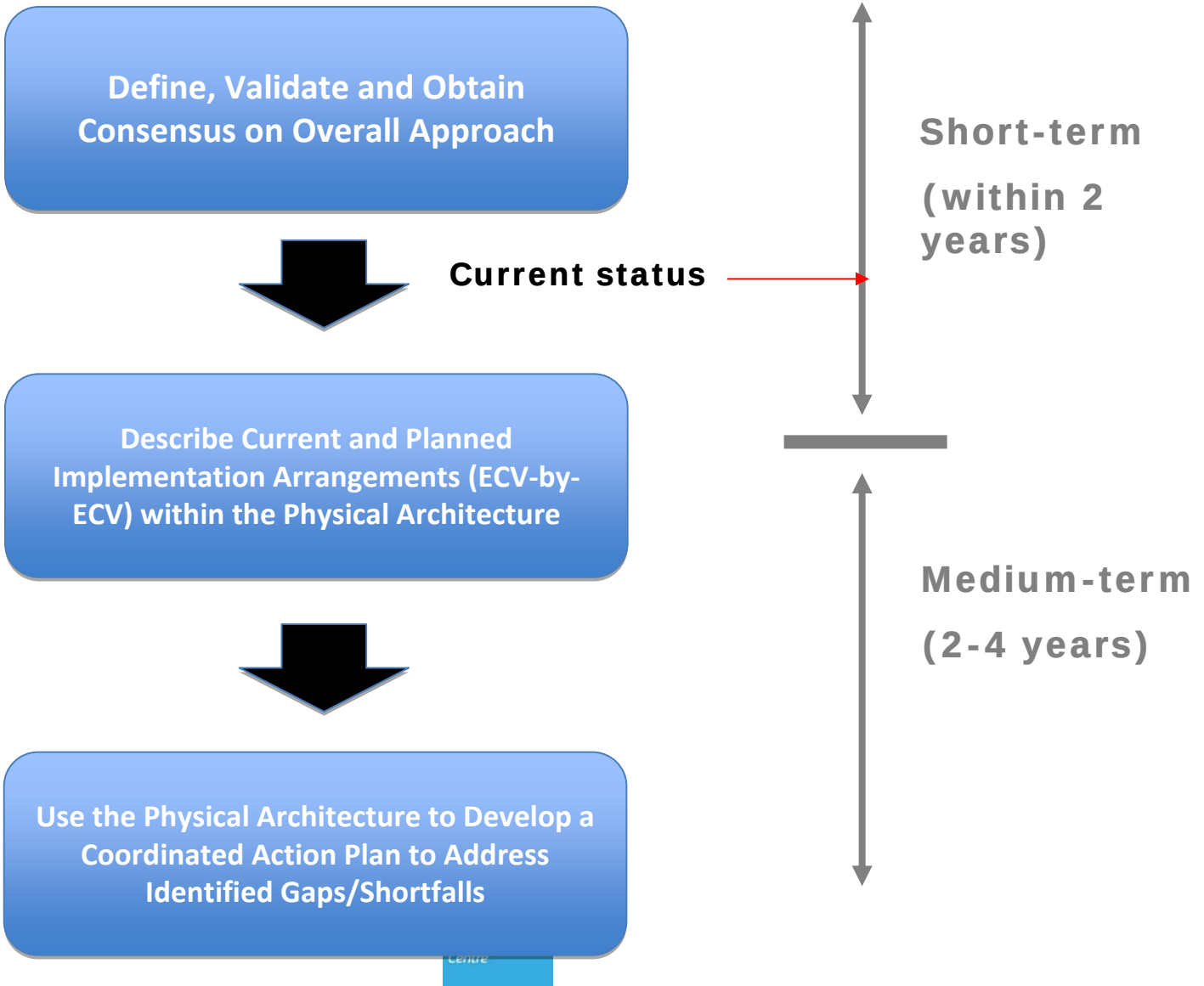


Logical and Physical Architecture

logical view: represents the requirements baseline as a set of interlinked functions and associated dataflows (i.e the target) . Logical view is as stable as the requirements baseline and, once established, should require little maintenance

physical view: describes how the logical view is implemented, i.e. how close we are to achieving the target. Needs to maintained on a regular basis to make sure it appropriately reflects the prevailing status (will take longer to determine)

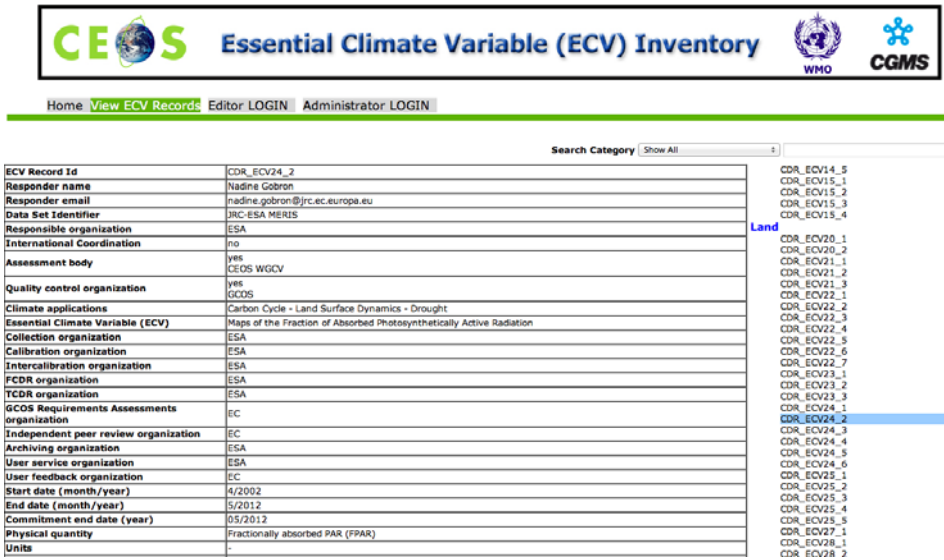
Way Forward


Define, Validate and Obtain Consensus on Overall Approach
Current status
Describe Current and Planned Implementation Arrangements (ECV-by-ECV) within the Physical Architecture
Use the Physical Architecture to Develop a Coordinated Action Plan to Address Identified Gaps/Shortfalls
Short-term (within 2 years)
Medium-term (2-4 years)

ECV Inventory Questionnaire

European Commission

- Joint activity CEOS, CGMS and WMO
- Call released with CEOS MIM in May, responses were due October 5th
- Questionnaire form – through a web interface.
- Responses were requested at the dataset level
- Addresses both existing / past missions and future / planned mission in two separate questionnaires
- Each single entry takes on average 25 minutes to complete



Areas:

1. General
2. Dataset Usage
3. Dataset Stewardship
4. Dataset Properties
5. Dataset Access

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How will we use the ECV Inventory

1. Describes the current and planned monitoring capability on an ECV basis (allow easier response to e.g. GCOS IP)
2. combined perspective of the logical and physical views should enable the definition of an optimum “macroscale” space system configuration and its components
3. used at the ECV/product level to identify gaps and shortfalls
4. formulation of a coordinated action plan to address such gaps and shortfalls…
5. trigger for the medium-term activities that need to be undertaken to sustain the long-term implementation of the architecture

ECV Inventory Response so far

- ECV inventory now contains ~ 215 records submitted for responsible organizations
- At end of October no records were submitted for the following ECVs: carbon dioxide, methane, and greenhouse gases; sea state; sea surface salinity; lakes; above ground biomass; ice sheets
- Some records were incomplete and we encouraged organizations to continue submitting data so we could begin conducting analyses in February 2013

What do we need to accomplish

1. Take note of response received for the ECV Inventory, including balance of past/current and future datasets
   - What are the lessons-learned for improving the process
2. Define a “validation” procedure for the datasets submitted
   - Decide on whether to initiate a new iteration this year
3. Define an agreed approach for analysis of the data and a timeline for undertaking this analysis (SIT, CGMS-41, CEOS Plenary)
4. Investigate relation of CEOS-CGMS-WMO Inventory to other Inventory initiatives (e.g. WCRP/WDAC)
5. Discuss other parallel Architecture activities
   - Case Studies
   - Macroscale space system requirements