

**STRATEGY TOWARDS AN
ARCHITECTURE FOR CLIMATE
MONITORING FROM SPACE**
Report on Behalf of CEOS-CGMS
Writing Group

Mark Dowell
EC/JRC

January WMO-GCOS meeting

- Agreement that climate architecture is needed
- Fully integrated architecture needed
 - *In situ* observations must be included
- It's complex but shouldn't stop us from moving forward
- WMO lead is positive and commendable
- Discussion on GEO Tasks
 - General consensus is that coordinated activities led by WMO will contribute eventually to re-scope/leverage/strengthen existing GEO Task CL-09-02

Key Discussion Points con't

- Discussion about applying GCOS Climate Monitoring Principles (GCMPs)
 - To the extent possible, space agencies will apply GCMPs
- Each organization or group to focus on its relevant activities and respective mandates
- Research to operations paradigm is too simplistic in climate context and to the extent we can avoid these words, we want to talk about a continuum

Conclusions of January Meeting

- Agreed to develop a strategy for climate monitoring architecture
- Identified writing group
 - CEOS – Four/Five from Working Group Climate
 - CGMS – Four/Five TBD
 - WMO Secretariat – Barb Ryan, Jerome Lafeuille
- Identified review group
 - GEO Secretariat
 - GCOS
 - WCRP
- Develop strategy for developing the architecture (draft due end of August 2011)

No logo / Badgeless Activity

List of Participants

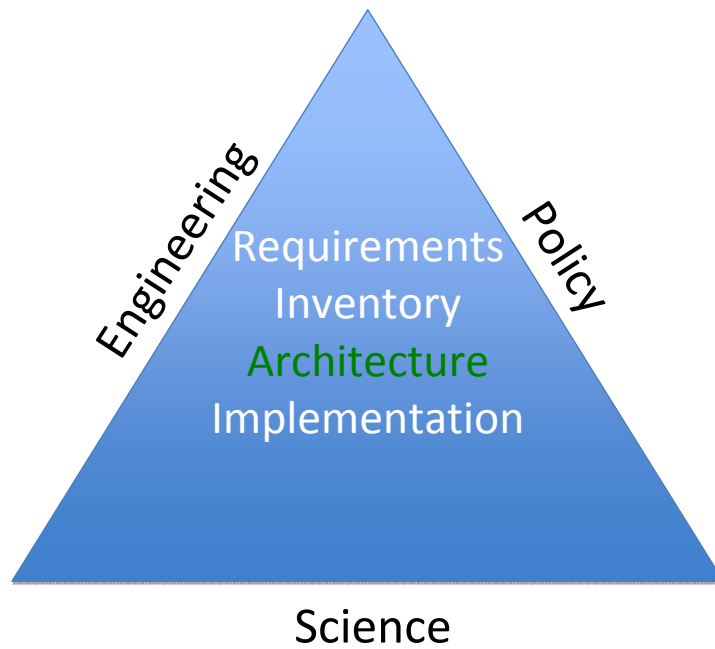
- EC – Mark Dowell, Chair
- ESA – Pascal Lecomte
- EUMETSAT – Joerg Schulz, Robert Husband
- JMA – Yoshihiko Tahara
- NASA – Richard Eckman (Eric Lindstrom)
- NOAA – John Bates, Suzanne Hilding, Chuck Wooldridge, (Mitch Goldberg)
- INPE – (Daniel Alejandro Vila)
- WMO – Jerome Lafeuille, Barbara Ryan,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

- Review Group:
 - GCOS – Carolin Richter
 - GEO – Seonkyun Baek
 - WCRP – (Ghassem Asrar)

Meeting of writing team 3-4 March 2011 (Geneva)

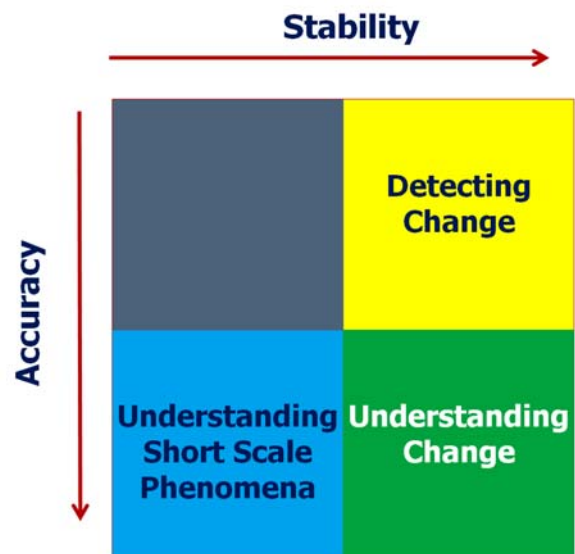
Outline

- **Executive Summary and recommendations**
- **Introduction, Objectives & Targets**
- **Climate Monitoring Principles, Requirements & Guidelines**
- **State of the Art**
- **Beyond research to operations**
- **Climate Architecture definition**
- **Mechanisms for Interaction**
- **Roadmap for way forward**
- **Recommendations**
- **Conclusions**



Climate Monitoring Principles, Requirements & Guidelines

- Why are specific requirements necessary?
- What requirements are relevant?
- What is the source of requirements?
- What is the impact of user requirements on instrument requirements and satellite operations?
- What requirements result for data processing, archiving and distribution?

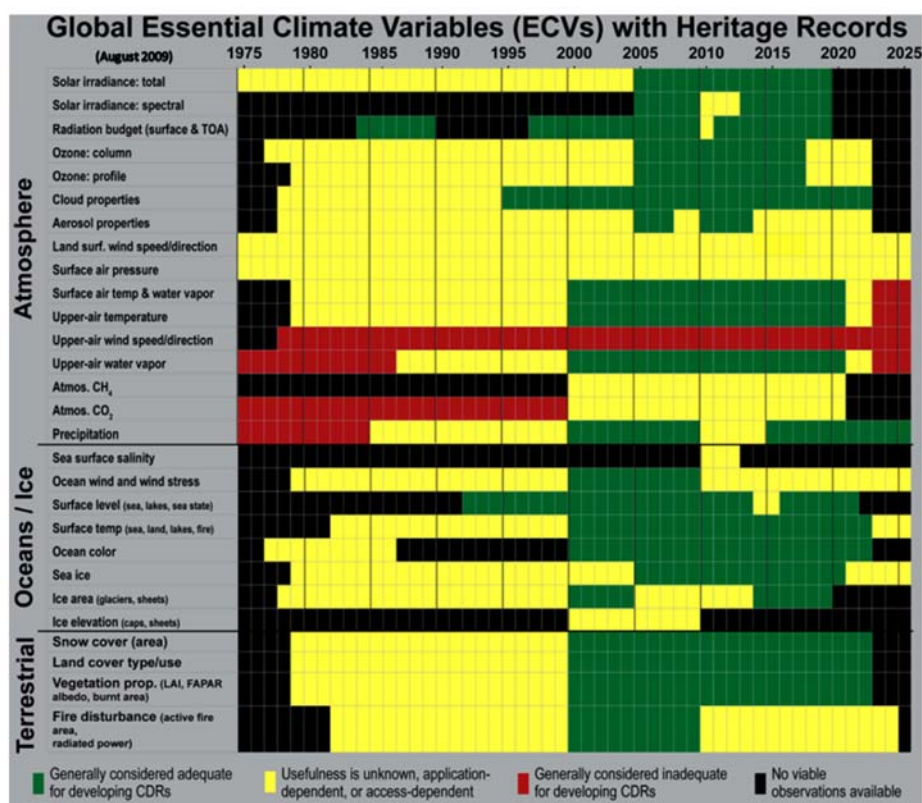


Stephens (2003)

State of the Art

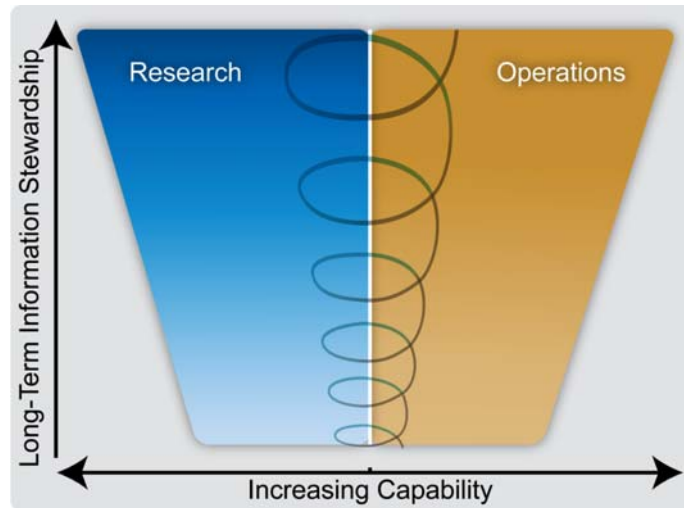
- Heritage of past satellite missions
- Current and planned satellite missions for climate
- Gap analyses of satellite missions compared with GCOS requirements for ECVs
- Satellite instrument calibration activities
- Processing of Climatic Data Record
- Overall comments on the state of the art

Example gap analysis

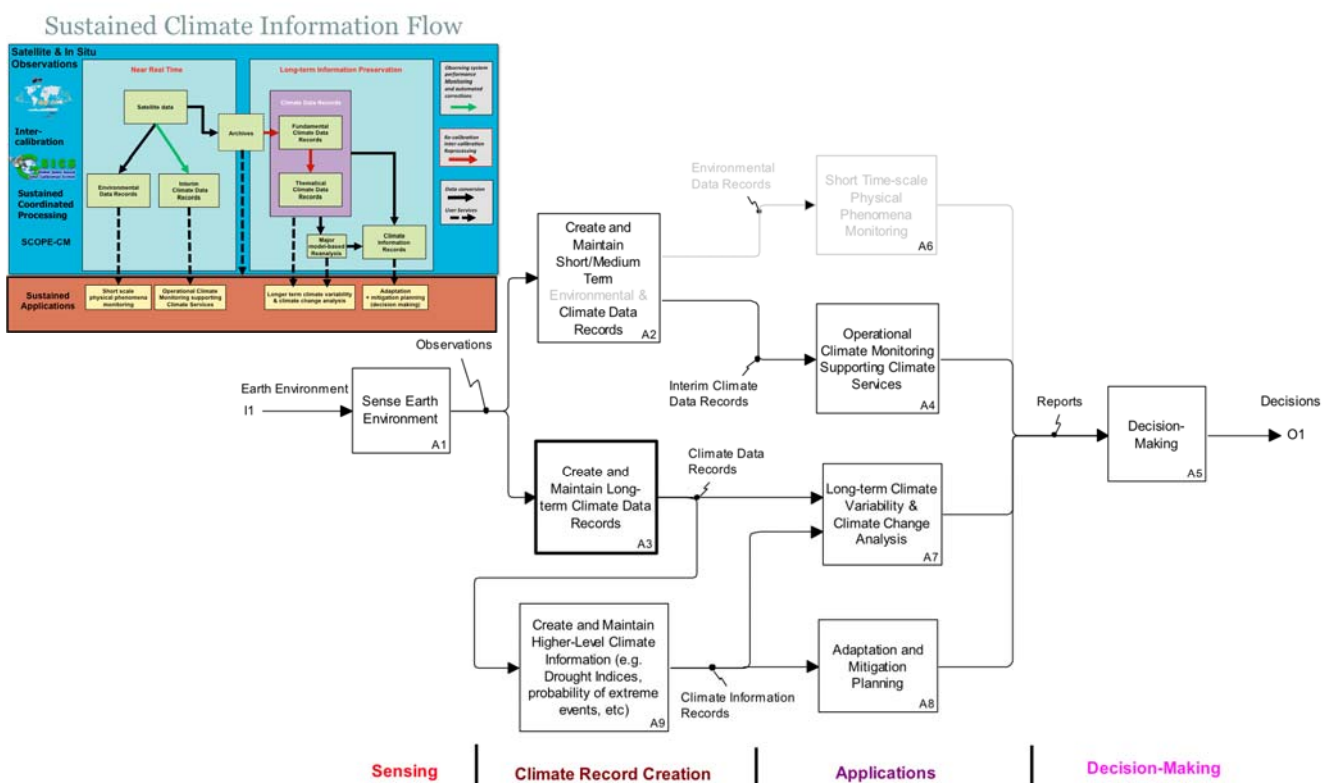


Research AND Operations

A holistic view of the interdependency of research and operations needed for sustained and routine climate monitoring.



Logical Architecture



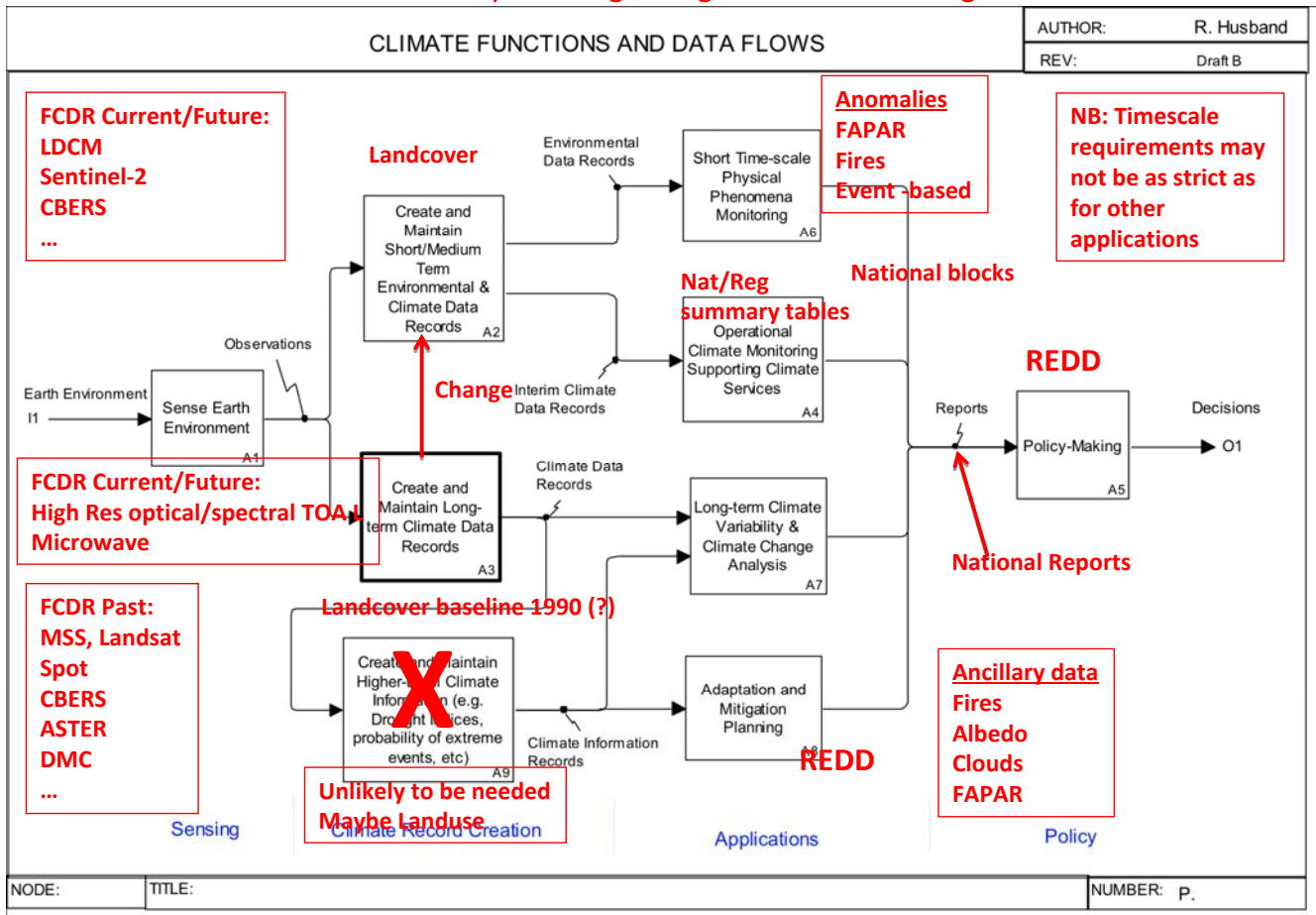
Logical and Physical Architecture

- **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 be maintained on a regular basis to make sure it appropriately reflects the prevailing status (will take longer to determine)

Way Forward

- Architecture roadmap – strategy to implementation
- Logical architecture
- Map case studies onto logical architecture
- Stewardship analysis & database characterizing requirement efforts
- Iterative effort to “walk” decision maker through mapping their own policies-application on architecture
- Physical Architecture
- Implementation Plan

NB: Continuity in change obligation is on reducing rate



Timeline

- 15 April – Drafts of extended chapter outlines to be sent to Mark Dowell.
- 04 May – First draft of entire extended outline to be sent to Writing Team for review.
- 15 June – First draft of individual chapters to be sent to Mark.
- 30 June – Revised complete draft sent to Writing Team.
- 15 July – Writing team to provide feedback for second draft of report, including formatting of illustrations, graphics and insert boxes.
- 15 August – Report sent to review group.
- 5 September – Comments due on report from review group
- 12 September – Final report sent to CEOS and CGMS