

CGMS lessons learned towards vibrant weather and climate monitoring

Dr Tillmann Mohr – Former Director
General EUMETSAT

Dr Don Hinsman – Former Director
WMO Space Programme

CGMS Lessons-learned (1)

Global System Coordination

- Architecture for weather monitoring from space
- Global baseline for geostationary coverage
- Global contingency planning & data sharing
- Optimisation GOS
- WMO Vision Space-based GOS in 2025

Data Systems

- Common standard for IDCS
- Integrated strategy for data dissemination
- Standardisation data dissemination formats
- Common approach to data archival
- Coordinated planning for the analogue to digital transition
- Coordination of Radio Frequency Allocations and Protection

CGMS Lessons-learned (2)

Products

- Coordinated approach to calibration and inter-calibration (GSICS)
- Coordinated framework for generating climate data records from space observations (SCOPE-CM)
- Coordinated framework for providing standard software for now casting (SCOPE-NWC)
- Improving quality of sounding products and AMVs

Services

- Training Policy - use of meteorological and other satellite data
- Development of the Virtual Training Laboratory

Prefix

- For 50 years, environmental satellites have monitored weather, oceans, land and atmosphere at daily through monthly scales
- Outstanding CGMS partnership between satellite operators and user communities (WMO and IOC) responded to requirements leading to significantly improved services to society
- Most important environmental issue facing mankind for decades - climate change
- GFCS Implementation Plan and Governance Structure approved by Extraordinary WMO Congress 2012
- CGMS members must position themselves to best respond to demands for climate data, product and support to climate services
- Within next decade, all satellite operators will launch new generation of satellite with significantly improved payloads serving weather and climate monitoring

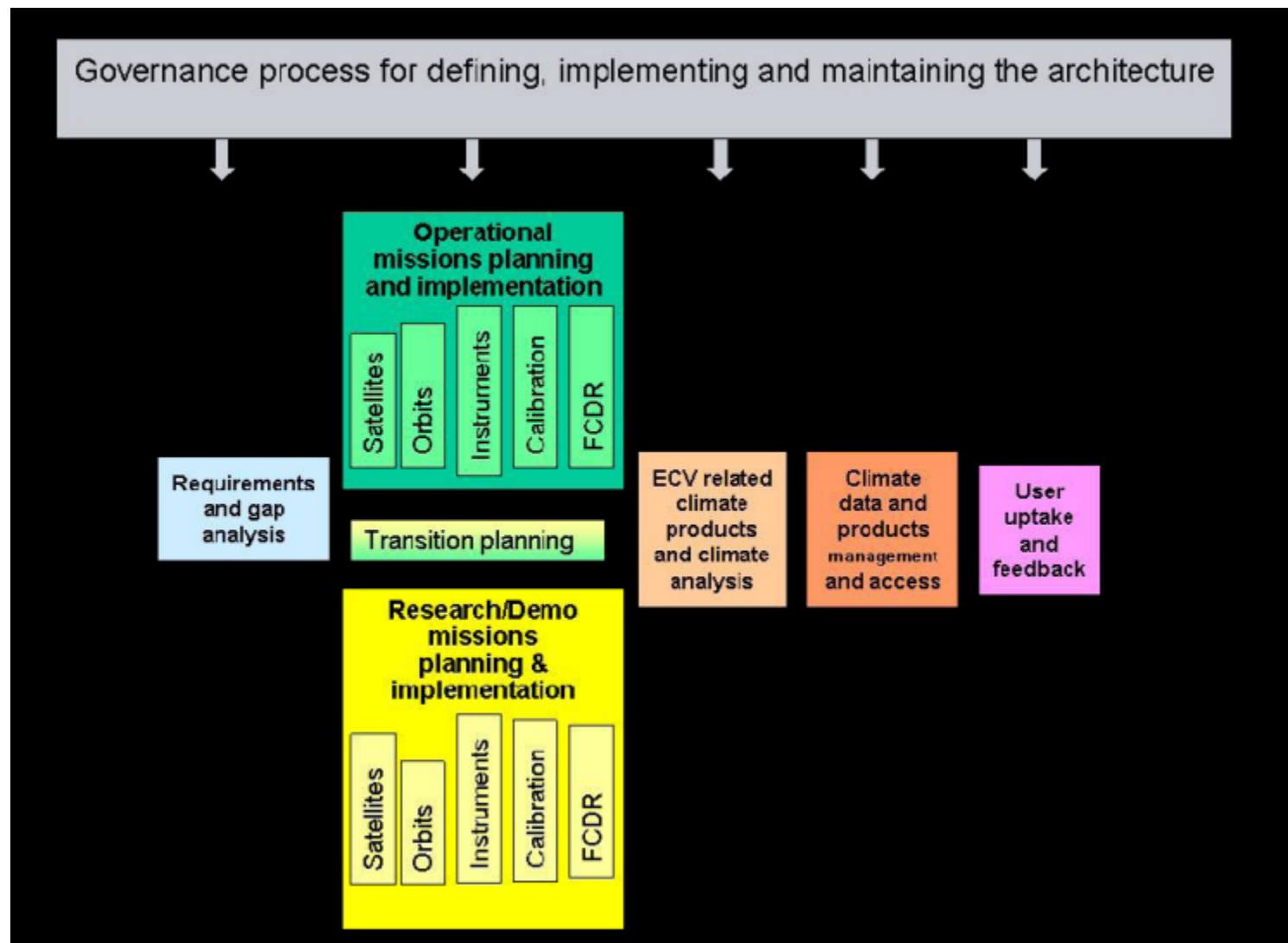
Architecture (1)

The satellite operators represented in CEOS and CGMS, and WMO and GEO agreed early 2011 to develop an architecture for climate monitoring from space

The architecture will have the following functional components:

- Analysis of user requirements
- Observing capacities
- ECV product generation
- Data management, access and dissemination
- User interface
- Coordination and governance

Architecture (2)



Architecture (3)

The draft logical architecture was agreed by CEOS and CGMS and finalized in March 2012. EC of WMO endorsed it in June 2012. The physical architecture is under development.

A first step is to document the current and planned implementation arrangements, ECV-by-ECV, by the individual satellite agencies. (An inventory of the current and planned long-term production of Thematic Climate Data Records at the level of individual satellite agencies).

Architecture (4)

The last step will be the identification of the satellite constellations in terms of instruments and orbits required for providing the relevant satellite data sets for the production of ECVs.

It is expected that the final document will be available at the end of August 2013 for the approval by CEOS, CGMS and WMO. The architecture will become part of the space component of the WIGOS (Manual of WIGOS).

A high level discussion is required on the necessary governance structure for the implementation phase. A joint CGMS – CEOS Implementation Group seems the most

Preparing for New Generation Satellites

- Prepare for coordinated generation of new products and services, especially ECVs
- Prepare for usage of data, product and services (User Conferences, Virtual Laboratory, etc.)
- Rapidly bring SCOPE-CM to operational phase with expanded set of ECVs

Recommendations (1)

General

- HLPP adequate however it is only a five-year plan and not prioritized
- CGMS should endorse two primary long-term goals for the next 25 years:
 - Continue and improve weather monitoring
 - Greatly expand to cover climate monitoring at climate scales
- The second primary long-term goal should be addressed in three phases:
 - Up to 5 years (Climate monitoring architecture established)
 - 5-10 years (First constellations implemented)
 - 10-25 years (Full implementation)
- HLPP should respond to weather/climate requirements
 - WMO should continually (every 5 years) update the WIGOS space component up to a 25 years timeframe supporting all WMO Programmes and including GFCS

Recommendation (2)

Specific

- Preparations for use of data/products from the new generation of satellites – generation of new space ECVs
- CGMS should immediately lead establishment of joint CEOS/CGMS Implementation Group for the Architecture for Climate Monitoring from Space
- CGMS should develop enhanced access to all ECVs for the Climate Service Information System of GFCS
- CGMS should expand Virtual Laboratory concept to teach GFCS participants use of existing and new ECVs
- CGMS should foster establishments on new focus groups beyond IWWG, IPWG, ITOVS, etc.