



Perspectives on user expectations from European Policy including international engagement

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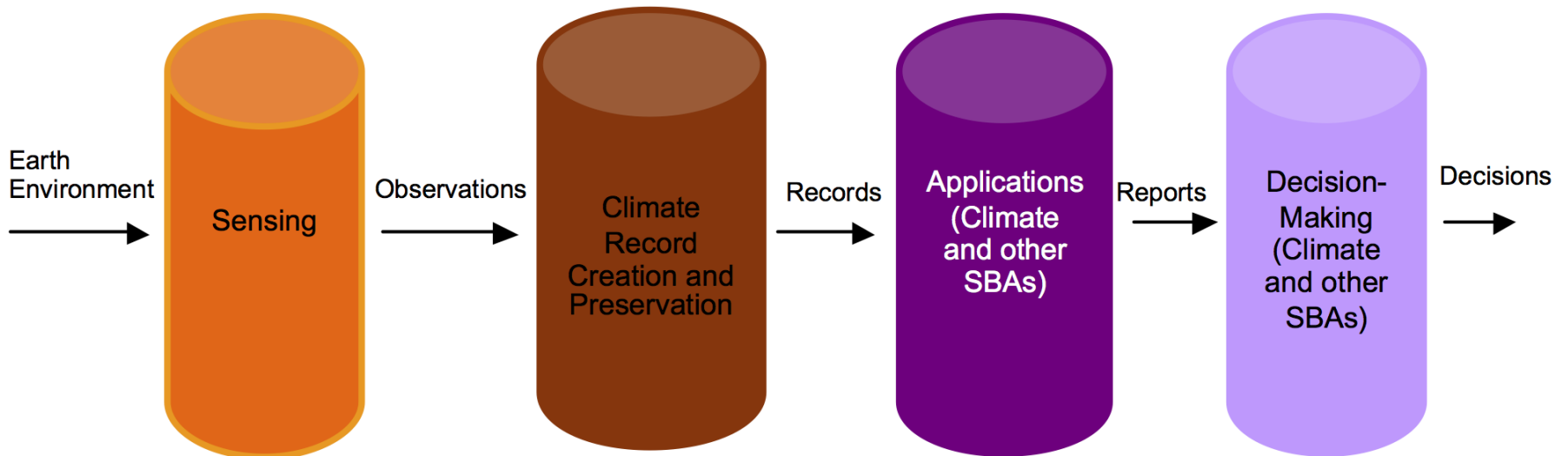
Institute for Environment and Sustainability

European Commission – Joint Research Centre

A User Driven Process: requirements defined by users at multiple levels



End-to-End



EU Policy – the C3S “landscape”



Better informed decision-making by addressing gaps in knowledge about adaptation

AGRI
CLIMA
ECHO
ENV
MARE
MOVE
ENER
CONNECT
REGIO
SANCO

Sector from EU Strategy on Adaptation to Climate Change

- Agriculture and Forestry
- Energy
- Biodiversity
- Forestry
- Marine Environment
- Maritime Spatial Planning
- Transport
- Energy
- Disaster risk prevention and management
- Health

8 Regulations
5 Directives
4 Decisions
18 Communications

Regulation (EU) No 1306/2013
Regulation (EU) No 1308/2013
Regulation (EU) No 1307/2014
Regulation (EU) No 1305/2013
Decision No 529/2013/EU
DECISION No 2010/477/EU
Decision No 1313/2013/EU
DIRECTIVE 2008/56/EC
Directive 2007/60/EC
Directive 2000/60/EC
REGULATION No 2152/2003
REGULATION No 1255/2011
DECISION No 661/2010/EU
Regulation (EU) No 1315/2013
Regulation (EU) No 1316/2013
REGULATION 1300/2013
DECISION No 1082/2013/EU



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Assess "performance" and fitness-for-purpose of products, Services Interfaces & Infrastructure

e.g.

CLIMA – CLIMATE-ADAPT & REDD+,

AGRI – CAP, Food Security,

ENV - MSFD, Habitat

MOVE – Maritime safety ,

MARE – Maritime Spatial Planning,

REGIO – Human Settlement Analysis,

ECHO – Disaster prevention and Emergencies,

EEAS – Global maritime surveillance

DEVCO – Degradation, Reconstruction,

**EU Policy
DG**

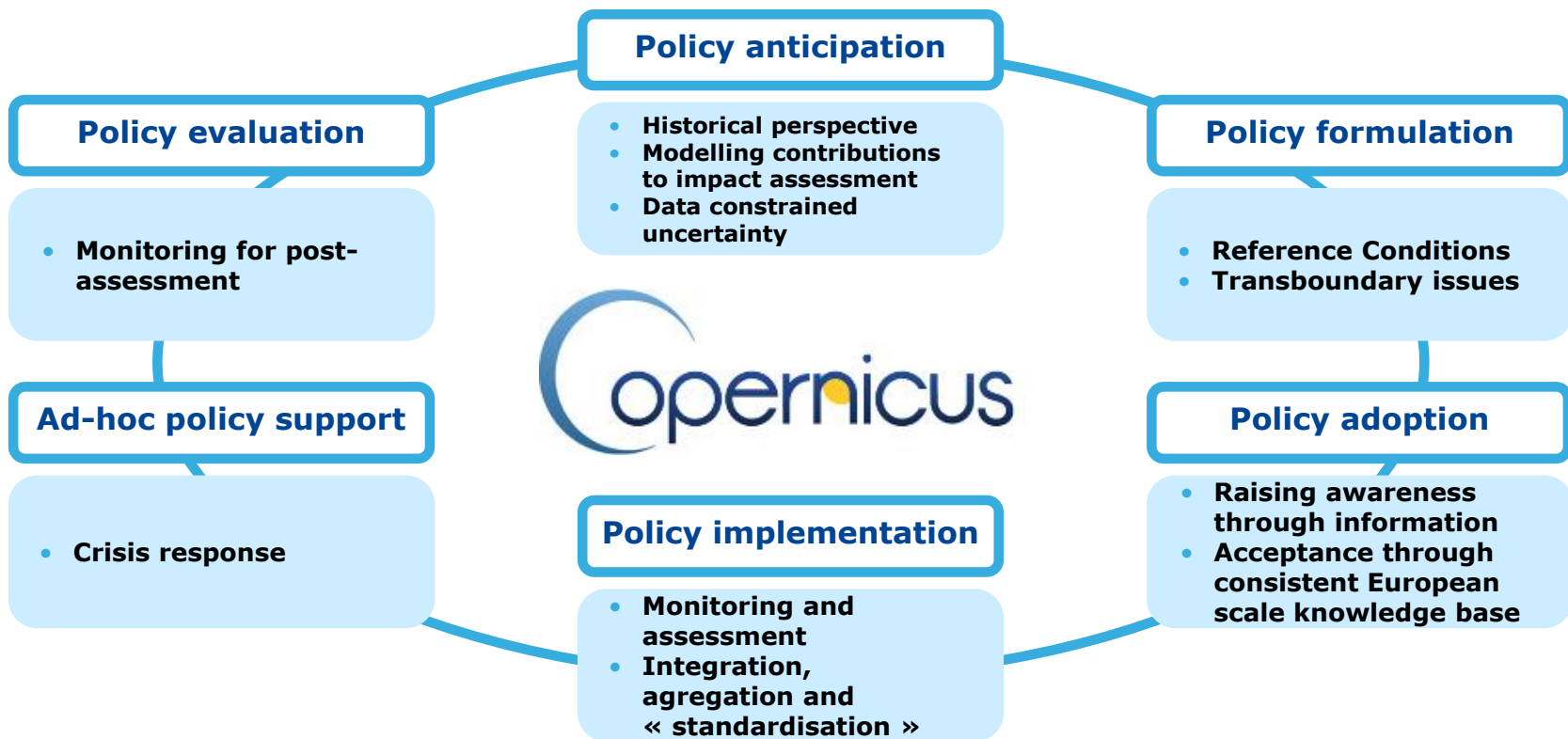
Translate requirements

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**Copernicus
Programme**

From Horizon 2020 Regulation : "A considerably increased exploitation of data from European satellites can be achieved if a concerted effort is made to coordinate and organise the processing, validation and standardisation of space data."

Copernicus Service contributions to the Policy Cycle



Mainstreaming

Climate policy mainstreaming means that actors whose main tasks are not directly concerned with mitigation of, or adaptation to, climate change also work to attain these goals. For instance, the EU climate and energy package sets emission reduction targets for several sectors. However, reaching sector-specific targets often requires measures in other sectors as well.

Mainstreaming of climate change (mitigation and adaptation) into EU sectoral policies and EU funds, including marine and inland water issues, forestry, agriculture, biodiversity infrastructure as well as buildings, migration and social issues, is an essential component of a successful comprehensive policy.

Climate policy mainstreaming has begun at the strategic level by the agreement of the European Council to place energy and climate goals amongst the Europe 2020 strategy's 5 headline targets.

Geographic scale:

Global; EU; trans-boundary; national; regional.

Information “types”:

Documents (e.g. publications and reports);
Datasets; Maps; Indicators; Tools; Databases;
Multimedia sources.

Good search and discovery facilities and are crucial.

Information Complexity

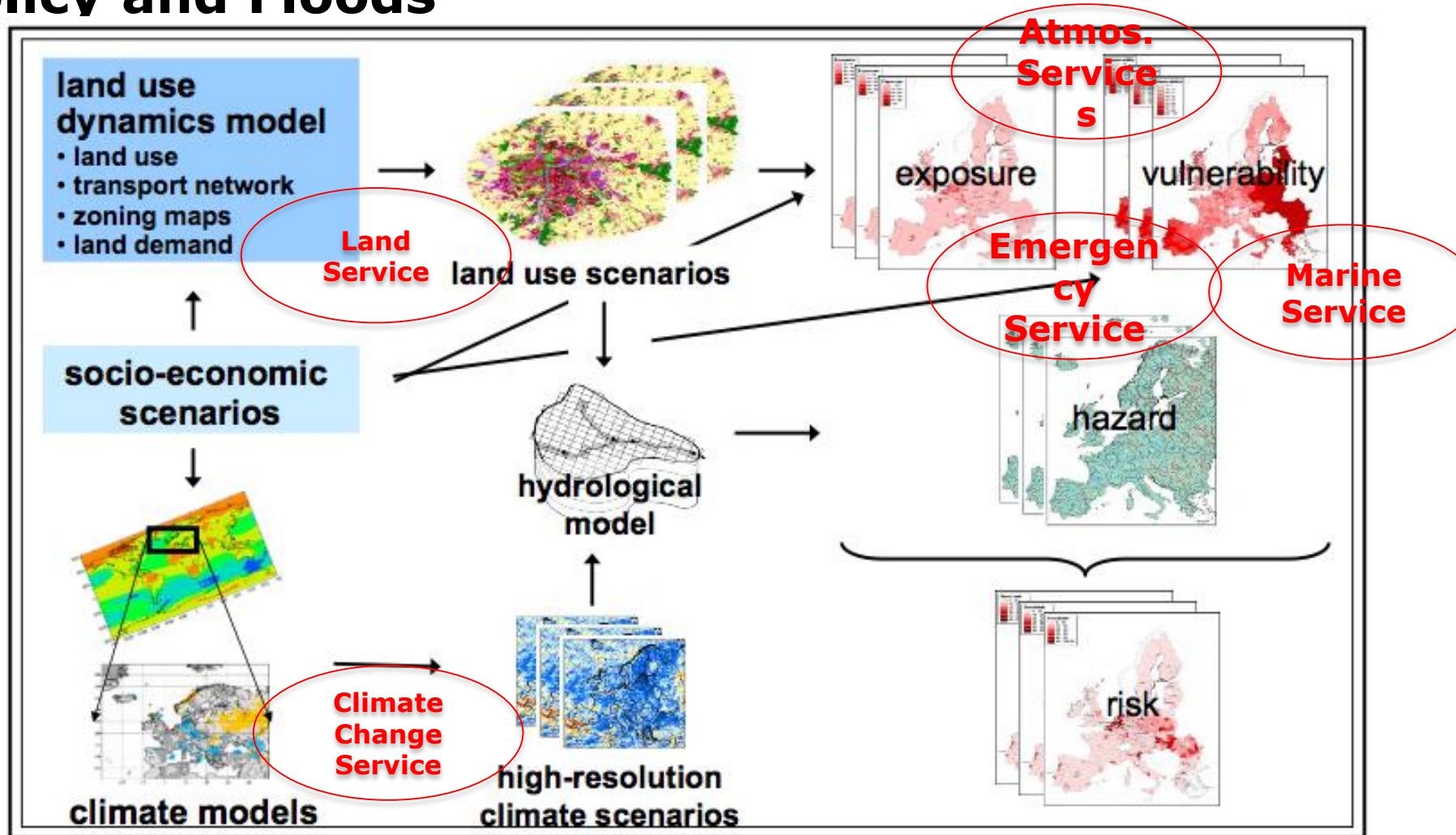
Layering information based on its complexity in such a way that users are not directly exposed to the most complex information, but are gradually lead to that level of detail will allow users to effectively exploit the knowledge available

Keep it simple... but not too simple i.e. identify adequate way of communicating uncertainties at different levels

Information interface

The CDS should consider both one-stop data portal for more expert users as well as dedicated sectoral portals on specific thematic. (ideally using common backend infrastructure)

Crosscutting: Impact Assessment of Climate Change Policy and Floods



International engagement

“Copernicus should be considered as a European contribution to building the Global Earth Observation System of Systems (GEOSS) developed within the framework of the Group on Earth Observations (GEO).” Copernicus Regulation 2014

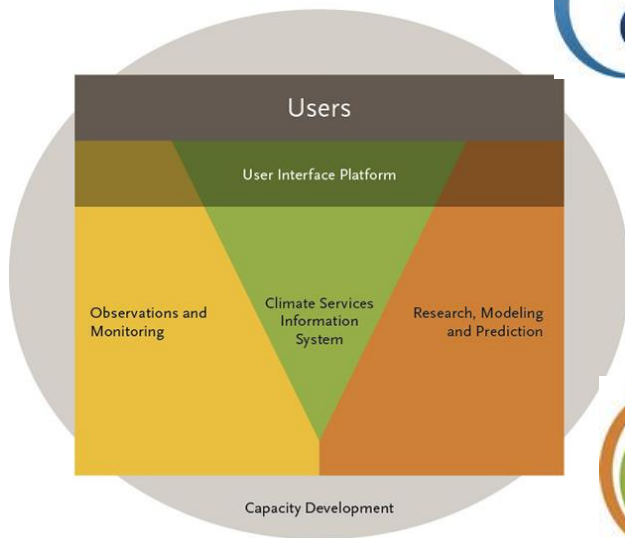
THE GLOBAL EARTH OBSERVATION
SYSTEM OF SYSTEMS



Copernicus

Full free and open data policy
Considerable complementarity of
non-EU third party datasets to
Copernicus Services

GEO



International dimension from Regulation

“[The Copernicus Climate Change] service should be consistent with, and contribute to international initiatives conducted under the aegis of the World Meteorological Organization (WMO) and in particular the Global Framework for Climate Services (GFCS) and the Global Climate Observing System (GCOS). When in its operational phase, the [Copernicus Climate Change] service should constitute a significant contribution to the GFCS at the European scale, particularly the GFCS’s Climate Services Information System and Observations and Monitoring components.”

European Commission Systematic Observations and UNFCCC

- Countries listed as 'Annex 1 Parties' to the UN Framework Convention on Climate Change (UNFCCC) are expected to report every four years on their progress in implementing the decisions approved by the Conference of the Parties (COP).
- The last report, known as the 6th National Communication (NC/6) under the Convention (or the 3rd under the Kyoto Protocol) was due by January 1st, 2014.
- The European Commission, being a signatory Party to the UNFCCC, is required to report on its own activities, independently of and in addition to national reports.
- UNFCCC's Expert Review Team, who recommended that the NC/6 report address the issue of "free and open international exchange of data and information" and provide a more structured approach in the chapter on "research and systematic observation".

European Engagement

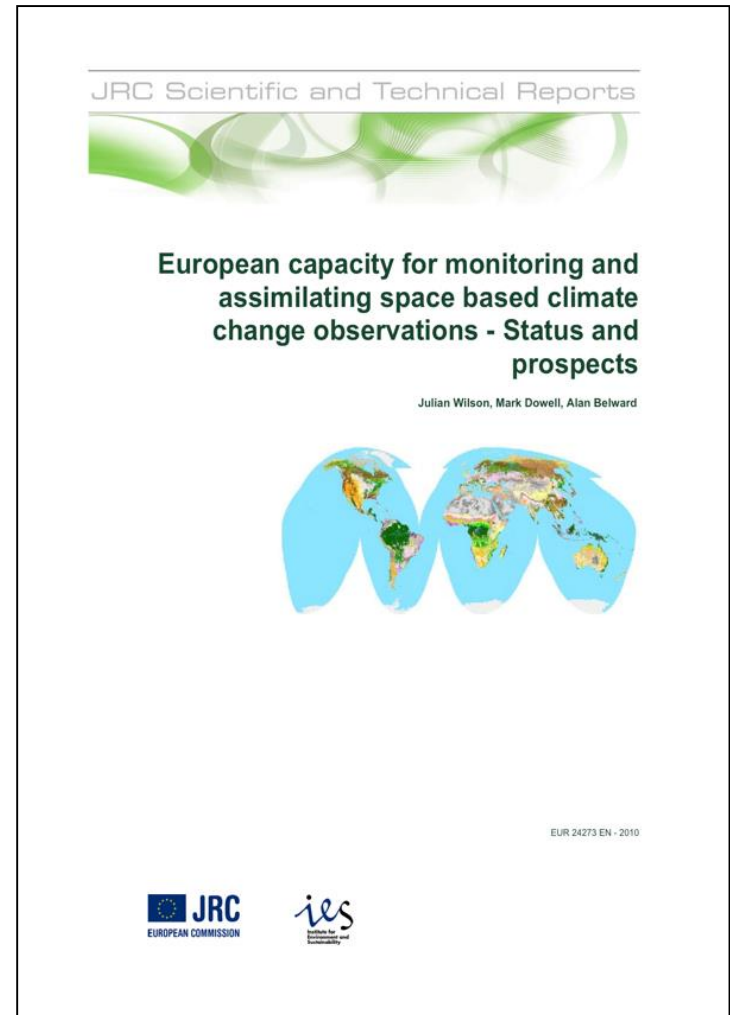
Space Council September 2008

1. **Recognised space & CC as key priorities**
2. **Asked for study on need for full access to standardised data**
3. **Called on EC to define how GMES services and European space observation archives can contribute most effectively to the provision of data**

Study published as a JRC Scientific and Technical Report, includes:

1. Overview of European capacity
2. Gap analysis
3. Infrastructure issues
4. Programmatic and governance adequacy discussion

Provides a European perspective: participants included ESA, EEA, EUMETSAT, EUMETNET, ECMWF



Requirements: Global Climate Observing System – Essential Climate Variables (ECVs)



World Climate Conferences

1990 – WCRP – World Climate Research Programme. **SCIENCE**

2000 – GCOS – Global Climate Observing System. **OBSERVATIONS**

2010 – GFCS- Global Framework for Climate Services. **SERVICES**

Essential Climate Variables (ECVs) that are both currently feasible for global implementation and have a high impact on UNFCCC requirements

Domain	Essential Climate Variables
Atmospheric (over land, sea and ice)	<p>Surface: Air temperature, Wind speed and direction, Water vapour, Pressure, Precipitation, Surface radiation budget.</p> <p>Upper-air: Temperature, Wind speed and direction, Water vapour, Cloud properties, Earth radiation budget (including solar irradiance).</p> <p>Composition: Carbon dioxide, Methane, and other long-lived greenhouse gases; Ozone and Aerosol, supported by their precursors.</p>
Oceanic	<p>Surface: Sea-surface temperature, Sea-surface salinity, Sea level, Sea state, Sea ice, Surface current, Ocean colour, Carbon dioxide partial pressure, Ocean acidity, Phytoplankton.</p> <p>Sub-surface: Temperature, Salinity, Current, Nutrients, Carbon dioxide partial pressure, Ocean acidity, Oxygen, Tracers.</p>
Terrestrial	River discharge, Water use, Ground water, Lakes, Snow cover, Glaciers and ice caps, Ice sheets, Permafrost, Albedo, Land cover (including vegetation type), Fraction of absorbed photosynthetically active radiation (FAPAR), Leaf area index (LAI), Above-ground biomass, Soil carbon, Fire disturbance, Soil moisture.

These programmes report directly to the United Nations Framework on Climate Change (UNFCCC) and there Parties are expected to support them.



GCOS (2010) Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC. GCOS-138, Geneva, 180 pp

4 March 2015

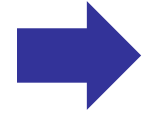
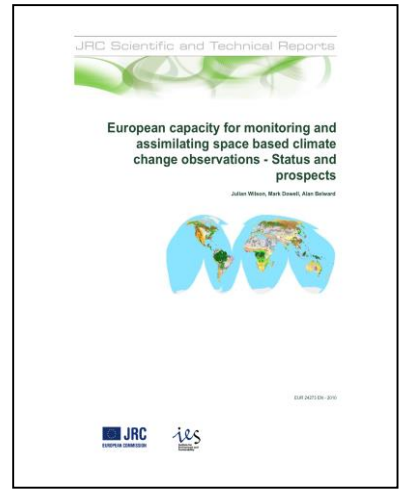
International coordination



EU Capacity Study: Request by Space Council

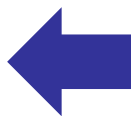
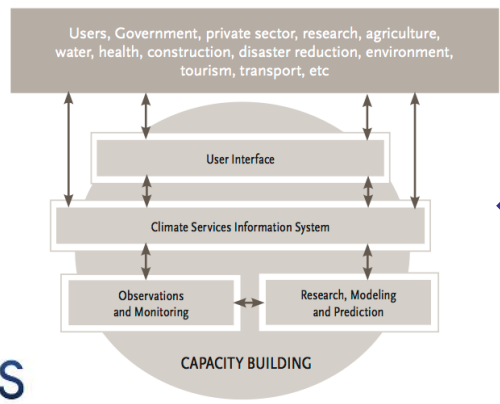
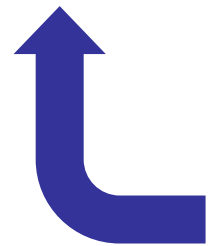
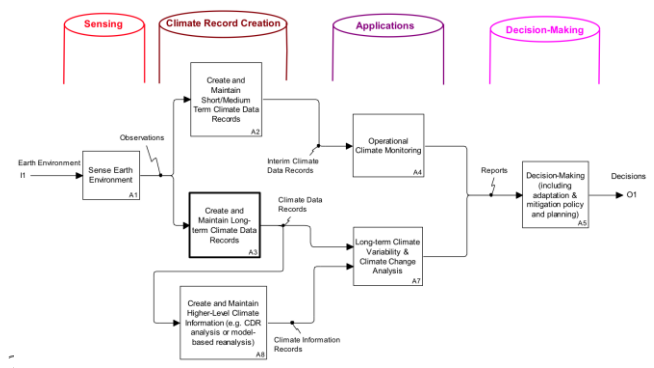


Requirements



“Coordinate and encourage collaborative activities between the world’s major space agencies in the area of climate monitoring”

Climate Monitoring Architecture



Global Framework for Climate Services

4 March
Joint
Research
Centre

Architecture for Climate Monitoring

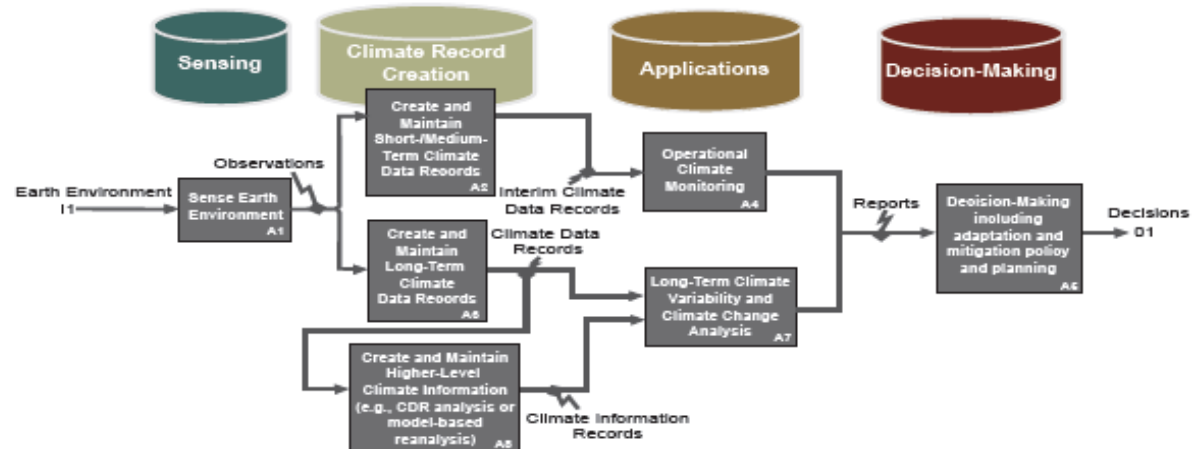


Strategy Towards an Architecture for Climate Monitoring from Space

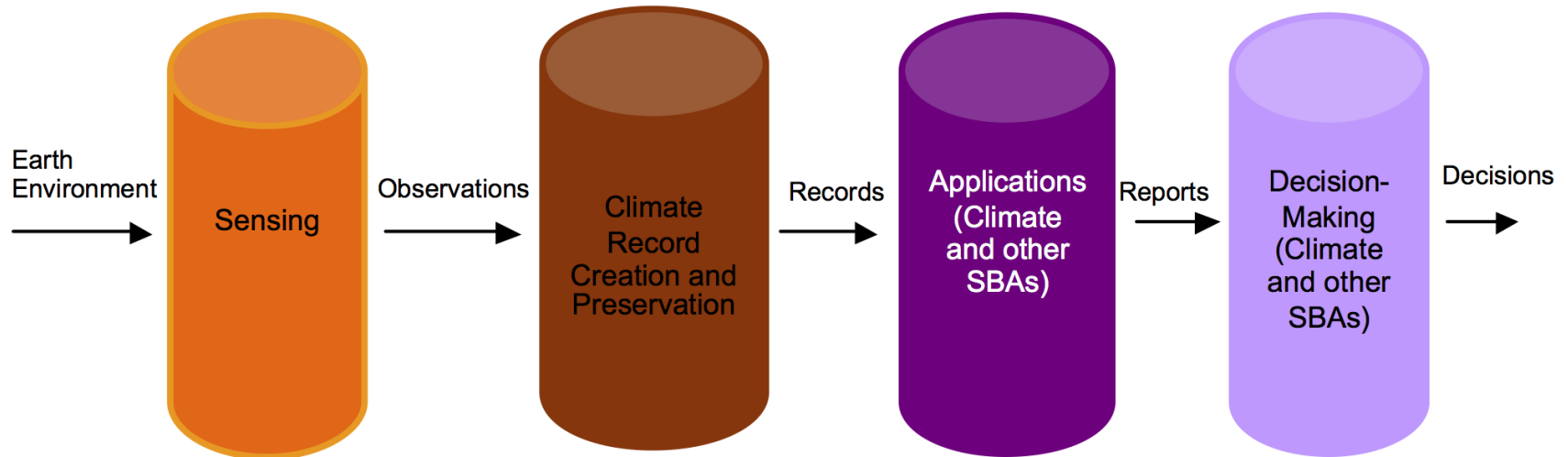


'Strategy Towards an Architecture for Climate Monitoring from Space' jointly with CGMS and WMO

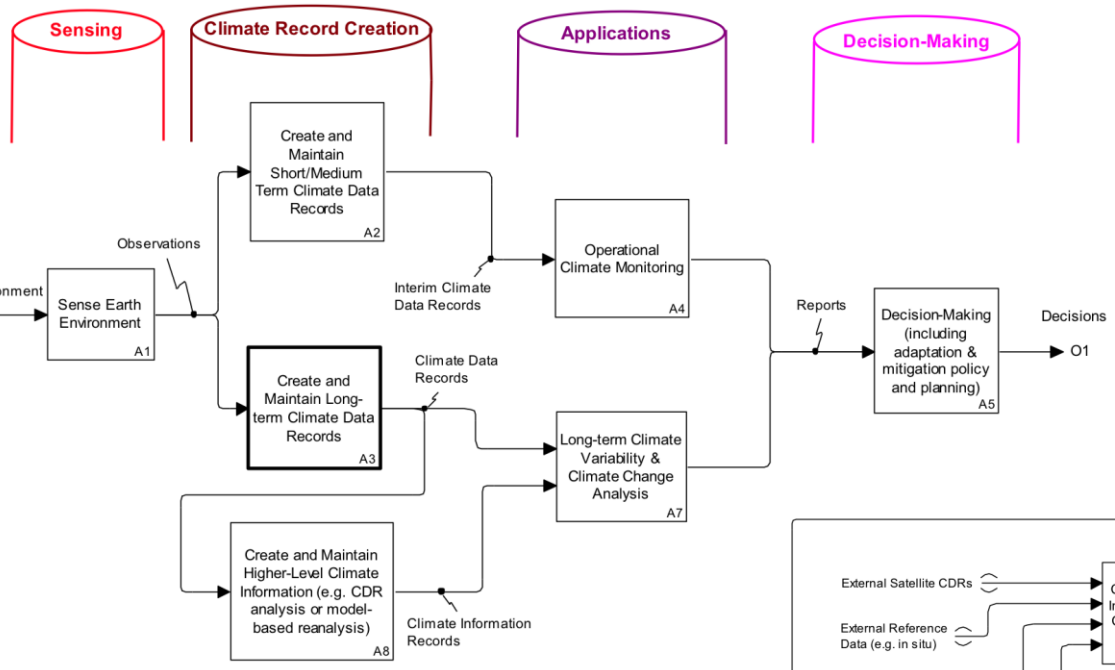
- Report can be found on the CEOS WGClimate web site (also on CGMS and WMO)
- Published 2013
- Foundation for the Observation and Monitoring Pillar of GFCS



Architecture Pillars

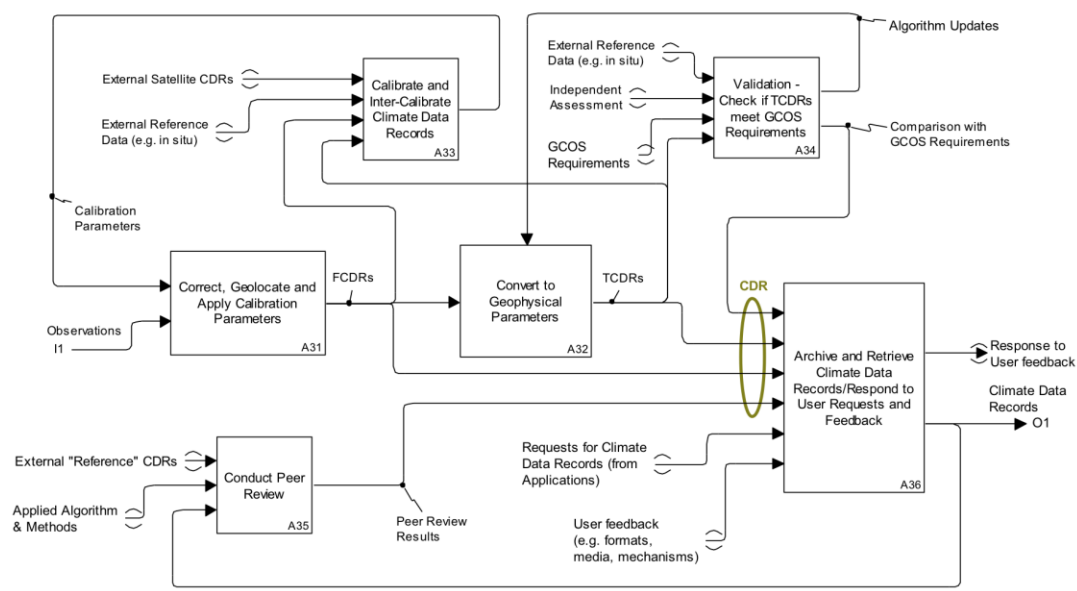


Logical representation



Traceable to GCOS Guidelines and GCOS Climate Monitoring Principles

Traceable from ECV Inventory and physical representation of Climate Monitoring Architecture



Guideline for the Generation of Datasets and Products Meeting GCOS Requirements



1. Full description of all steps taken in the generation of FCDRs and ECV products, including algorithms used, specific FCDRs used, and characteristics and outcomes of validation activities
2. Application of appropriate calibration/validation activities
3. Statement of expected accuracy, stability and resolution (time, space) of the product, including, where possible, a comparison with the GCOS requirements
4. Assessment of long-term stability and homogeneity of the product
5. Information on the scientific review process related to FCDR/product construction (including algorithm selection), FCDR/product quality and applications
6. Global coverage of FCDRs and products where possible
7. Version management of FCDRs and products, particularly in connection with improved algorithms and reprocessing
8. Arrangements for access to the FCDRs, products and all documentation
9. Timeliness of data release to the user community to enable monitoring activities
10. Facility for user feedback
11. Application of a quantitative maturity index if possible
12. Publication of a summary (a web-page or a peer-reviewed article) documenting point-by-point the extent to which this guideline has been followed

Hot off the Press – ~~Post~~-2015 SDGs

A Global Partnership for Poverty Eradication and Sustainable Development after 2015



Brussels, 5.2.2015
COM(2015) 44 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Global Partnership for Poverty Eradication and Sustainable Development after 2015

“KEY COMPONENTS OF THE GLOBAL PARTNERSHIP –
MONITORING, ACCOUNTABILITY AND REVIEW
To support this improved data availability and quality
opportunities provided by technological progress, in
particular new information and communication
technologies, to exploit large volumes of data ("big
data") and to strengthen real-time monitoring and
disaggregated data gathering, should be harnessed.
In addition to socio-economic data, geo-spatial
information such as data retrieved from the EU
Copernicus programme, the Global Earth
Observation System of Systems and the Global
Climate Observing System”

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