Space Climate Observatory

Presentation

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CNES – DIA/TEC

International framework

Illustration by David Parkins
Nature 514, 30–31, Oct. 2014

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UN World Conference on Disaster Risk Reduction
2015 Sendai Japan

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

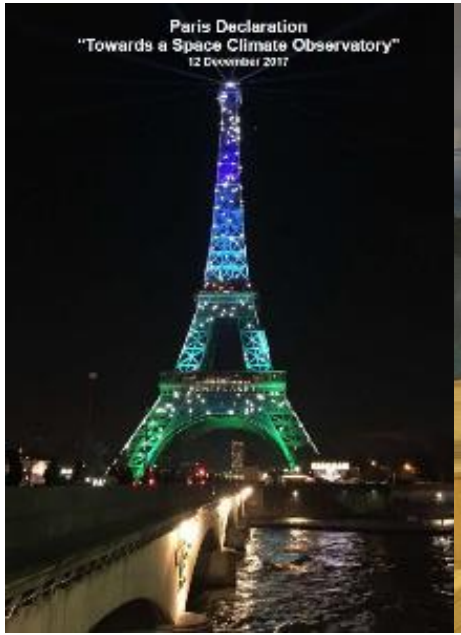
MARRAKECH
COP22|2016|CMP12

COP23 FIJI
UN CLIMATE CHANGE CONFERENCE
BONN 2017

One Planet Summit – Paris, December 11th, 2017

Paris Declaration "Towards a space Climate Observatory"

- "The heads of the world's space agencies have proposed the creation of a **Space Climate Observatory (SCO)** to act as a hub between space agencies and the international scientific community."



One Planet Summit – Paris, December 11th, 2017

French Government Identifies 12 key One Planet Commitments

Creation of a Space Climate Observatory

Instigated by the French Space Agency, a Space Climate Observatory has been created in order to provide States and the scientific community with all the space data necessary for monitoring the health of our planet. This initiative is supported by all European space agencies, as well as other States including China, India, Israel, Japan, Russia, Mexico, Morocco and the United Arab Emirates. Access to interoperable space-based earth observation data will be a significant step forward in the earth monitoring system.

Scope

SPACE CLIMATE OBSERVATORY

Focus on

- **Satellite data**
  - Earth observations at global, national and local level
- **Climate change and its impacts**
  - Humankind, both as cause and as the victim of their impacts (temperature increase, sea level rise and hazards)
- **a joint Observatory**
  - A World Heritage system

Scope

Monitoring climate change

- Atmospheric CO_2 concentration,
- Global temperature, Clouds and Precipitation change,
- Sea level rise, Droughts and floods…

Tracking the impacts of climate change

- Environmental impacts
- Social and human impacts
- Biodiversity reduction
- Economical costs

Adapting to climate change

- Resources: land use, agricultural practices, relocation, water use…
- Population: Migration of people, food security…
- Socio-economic development paths

Principles

- International coordination is mandatory
  - Transparency
  - Open to any organization (beyond the space agencies 'declaration in Paris)
  - Collaborations / Partnerships

- Complementary with the existing programs / initiatives
  - WMO-IOC-UNEP-ICSU/GCOS (ECV), CEOS, CGMS, WG-Climate, Copernicus-C3S…
  - Reference Document: “Implementation of the climate monitoring architecture from space”, 2013

- “Best effort”
  - Joint efforts
  - Sharing of capabilities (expertise, computing)

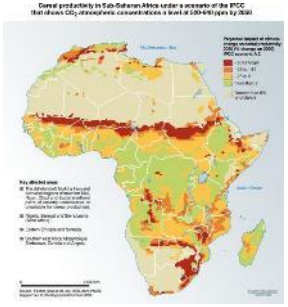
- Open access

- At international but also national level :
  - Across sectors, institutions, research community, and sub-national area (territories)

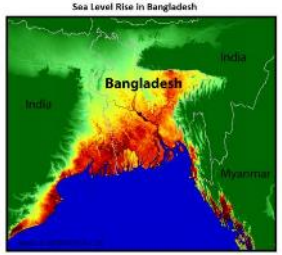
Country, sub-national / Territorial Stakes

Climate Change Impacts

Continental scale



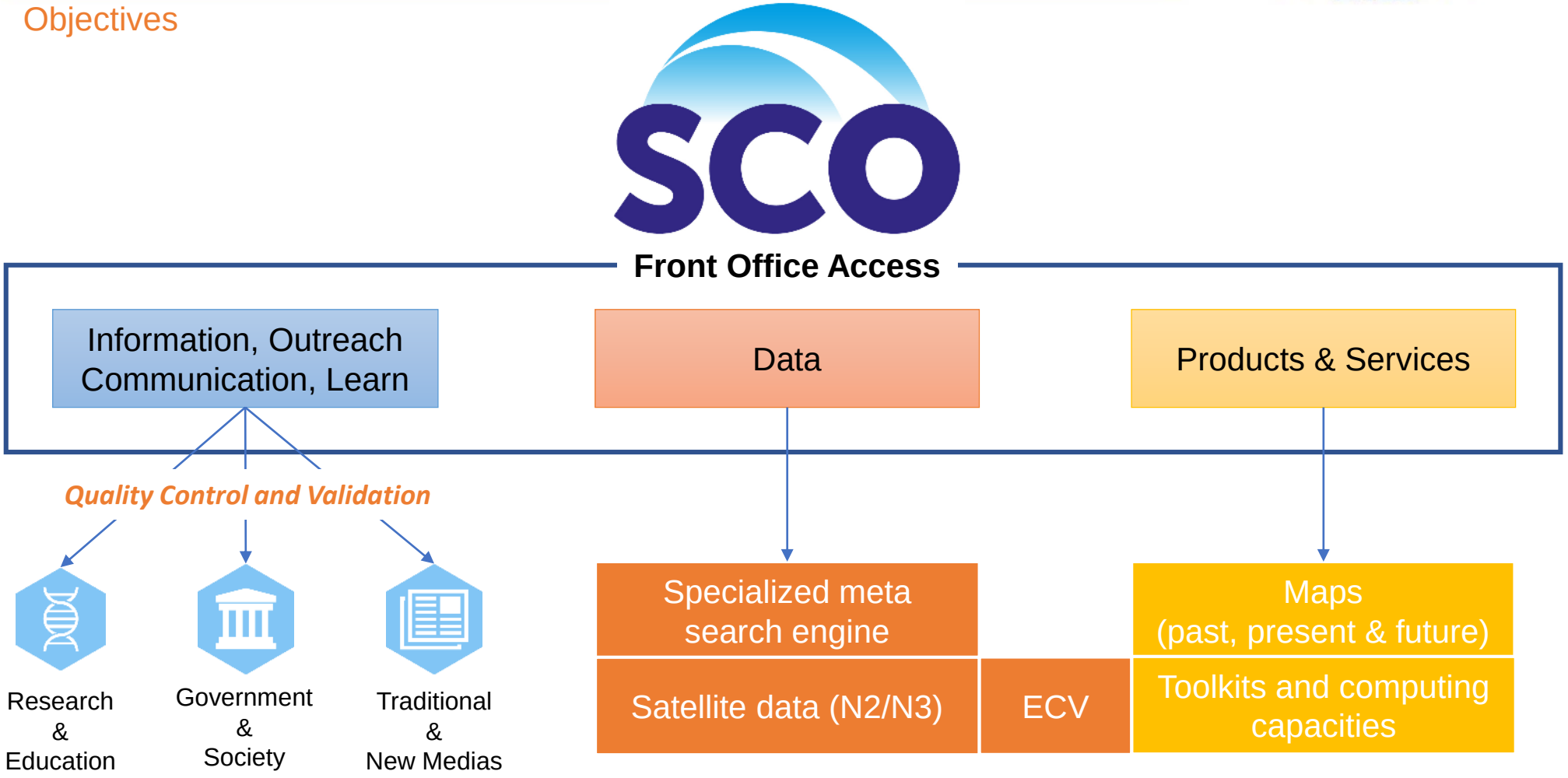
Country scale



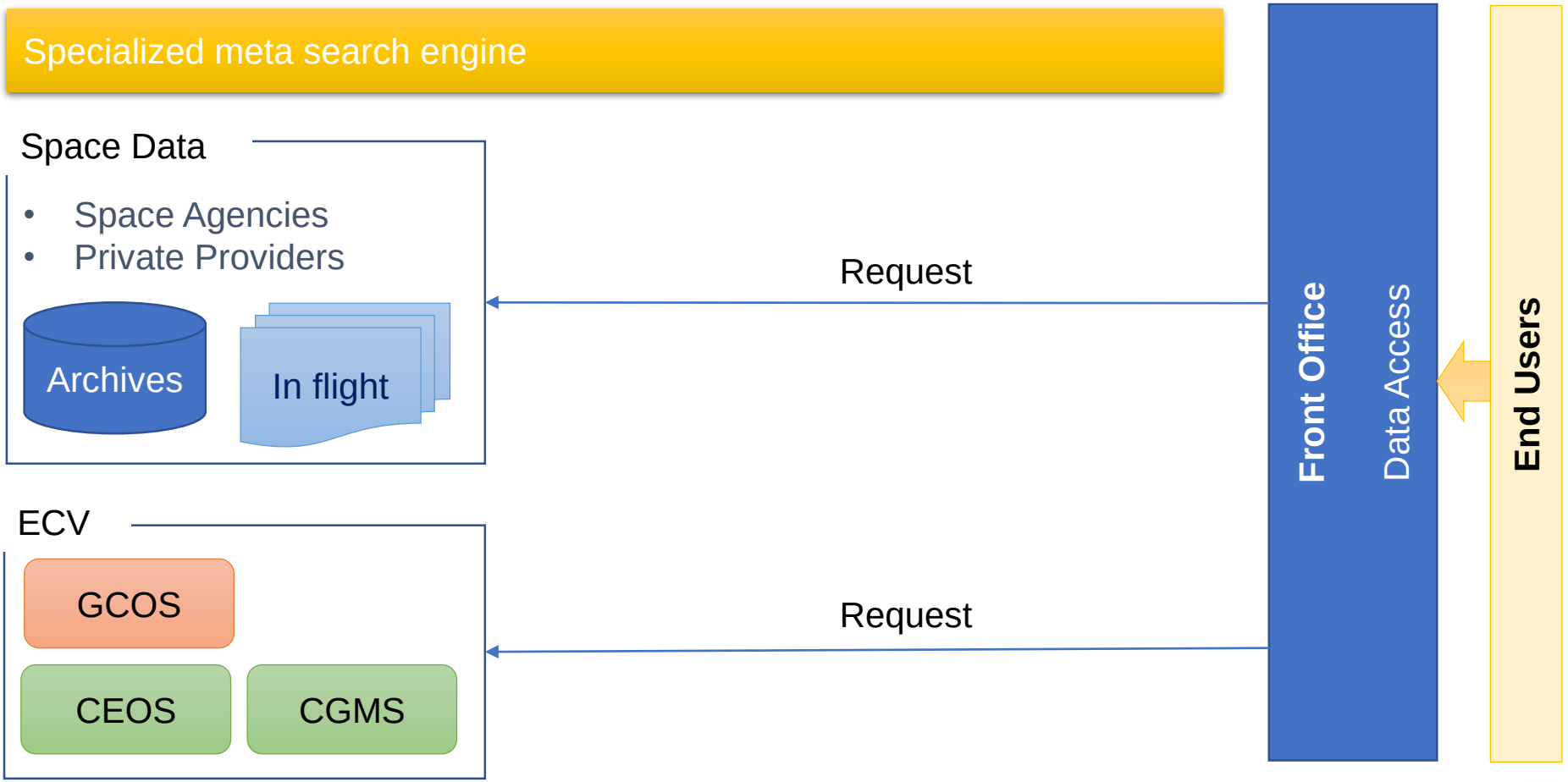
Territorial scale

- Climate change impacts are worldwide but there are also specific impacts at national, sub-national and territory levels
- Need to implement attenuation and adaptation policies
  - Decision Making
  - Meaningful stakeholder involvement
- Public access to data, tools and knowledge products
  - Countries level involvement
  - A need for indicators and derived space products: specific needs
- Need to marshal our forces through collaboration, partnerships, knowledge networks
    - Co-development (bilateral and / or multilateral cooperation)

Objectives



Data access


Specialized meta search engine
Space Data
Space Agencies
Private Providers
Archives
In flight
ECV
GCOS
CEOS
CGMS
Request
Request
Front Office
Data Access
End Users

The Essential Climate Variables (ECV)

Example of sea level rise

WG Climate

WMO-IOC-UNEP-ICSU/**GCOS** Requirements for Essential Climate Variables

CEOS, CGMS, Space Agency Development and implementation of Earth observation capabilities

Current

ECV production initiatives (e.g. CCI*)

ECV products

Climate Reanalysis

Climate Modelers

Climate Services

Intercomparison

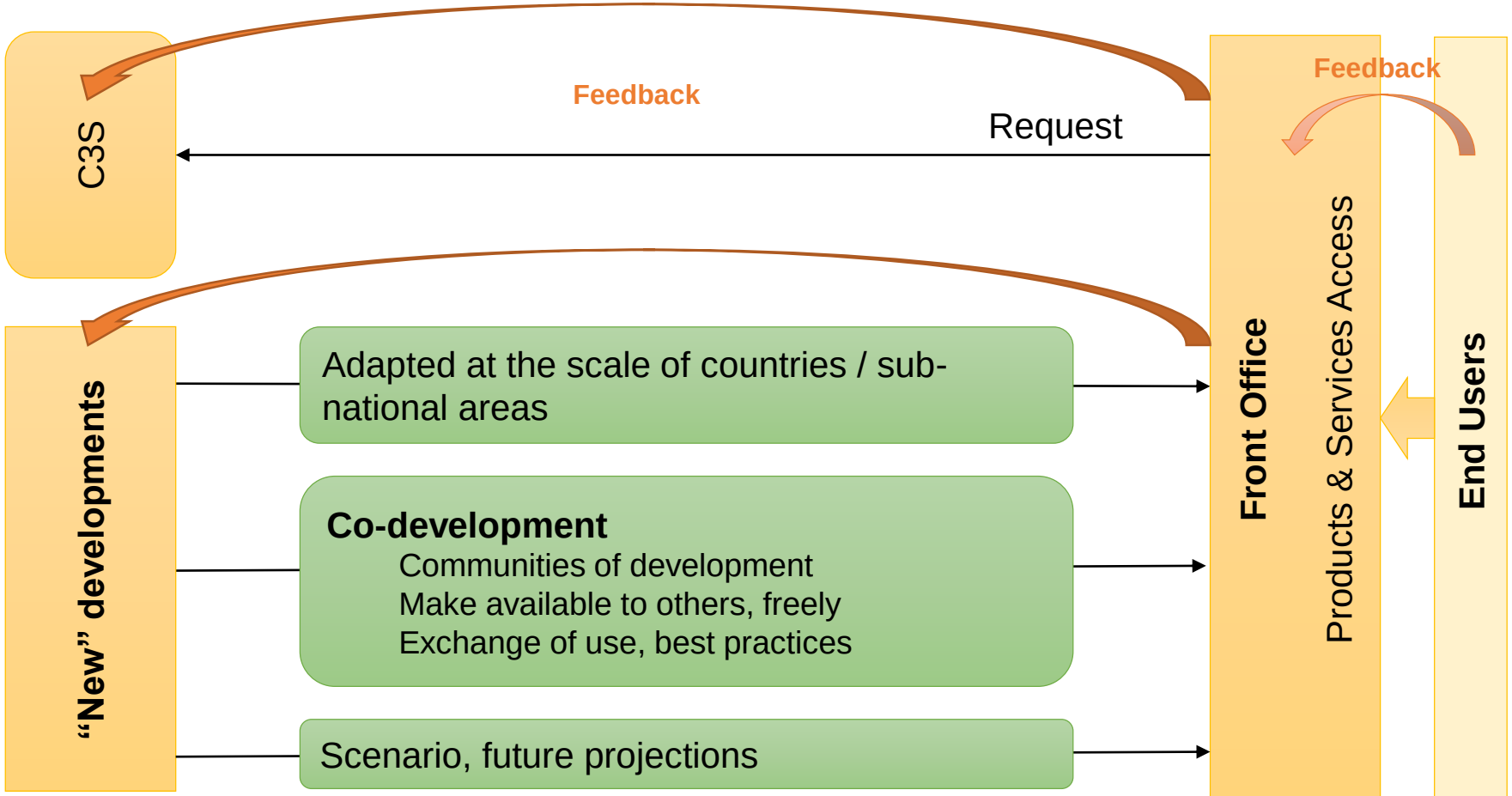
go_greener_oz Flickr Creative Commons

End Users

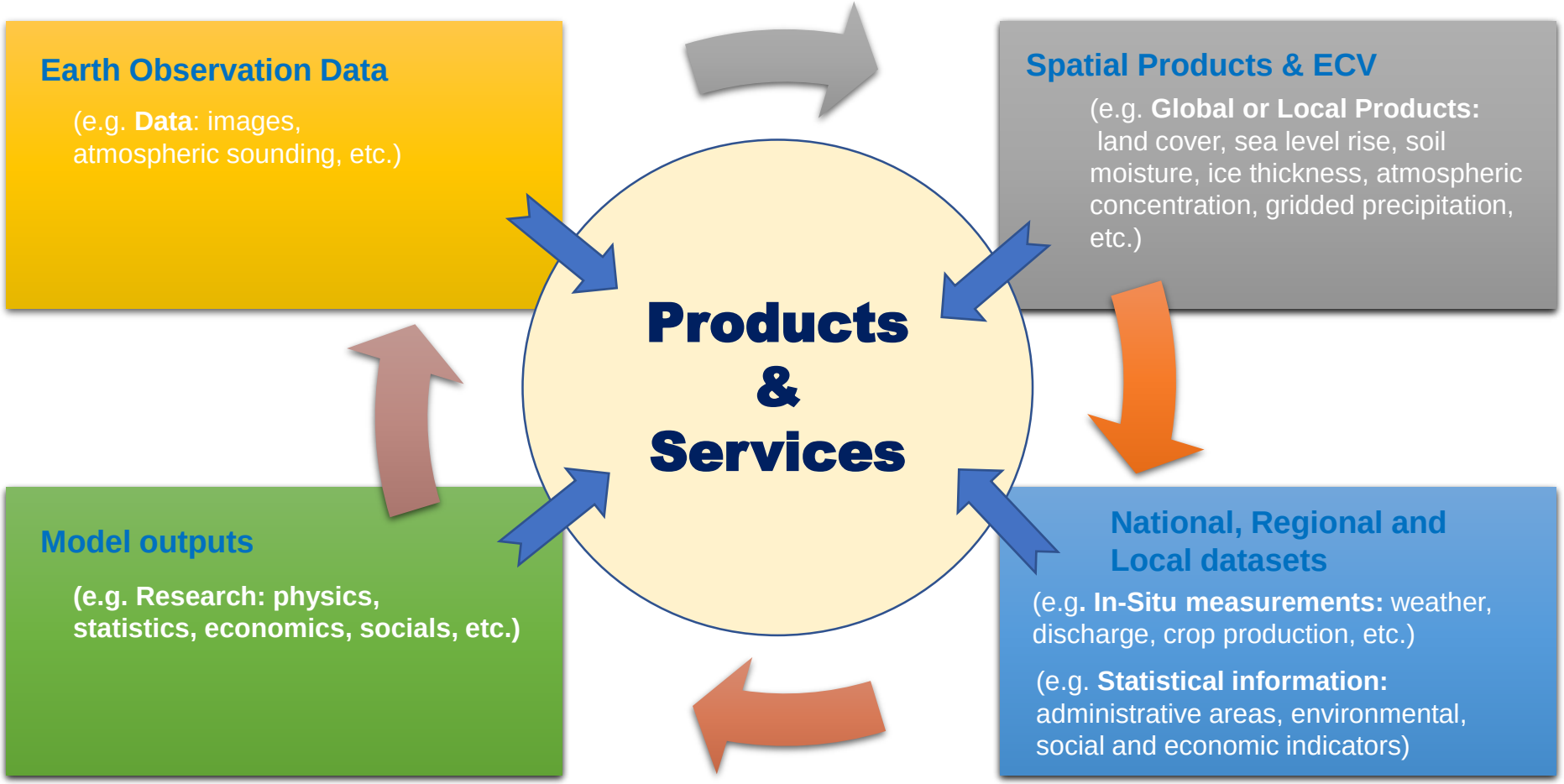
GAP

*CCI: Climate Change Initiative

Products & Services



Products & Services



Space Climate Observatory

Architecture

National
Space Research
Data Center

National
Products & Services

Space Agencies

Committee on Earth Observation Satellites

CGMS

China Space Agency

UAE SPACE AGENCY

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International
Climate Organization

GCOS
GLOBAL CLIMATE OBSERVING SYSTEM

opernicus
Europe's eyes on Earth
Climate Change Service

WCRP
World Climate Research Programme

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SCO – Front Office
Information, Data, Products & Services access

End Users

Schedule

- **11 Dec. 2017** — Paris Declaration “Towards a space Climate Observatory”
  Space Agencies
- **12 Dec. 2017** — One Submit Planet “Creation of a Space Climate Observatory”
  French Government – Commitments N°5
- **2 Feb 2018** — Nomination of a Head of SCO Program and Project Manager
  CNES
- **Apr. 2018** — Nomination of a SCO Working Group
  Space Agencies, Organizations
- **Jun. 208** — Toulouse Space Show (TSS) - First demonstrator
  CNES, CNSA, CRTS, ESA, EUMETSAT and Partners
- **Until Nov.** — **SCO Working Group: Planning and documents**
- **Dec. 2018** — Signature of an International Agreement or Charter on SCO

Toulouse Space Show

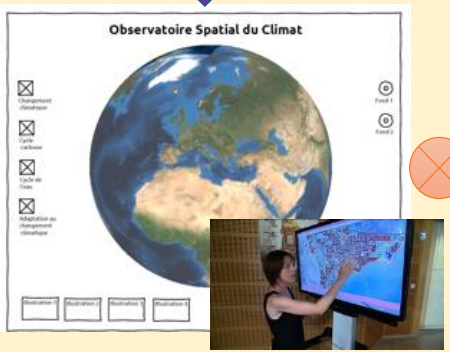
SCO

TOULOUSE SPACE SHOW '18 26-27-28 juin 2018

First Demonstrator

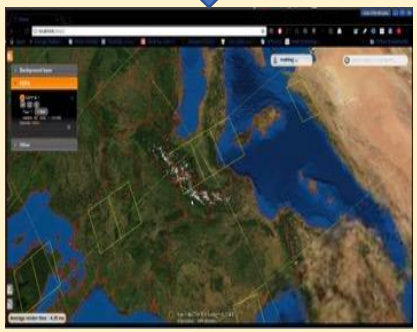
Scenario from global to local

Data



SCO Kiosk

SCO Web



SCO Data Front office

WWW

TelekomCloud

THANK YOU for YOUR ATTENTION

ANY QUESTIONS ?

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SCO
SPACE CLIMATE OBSERVATORY