



Copernicus Climate Change Service An overview

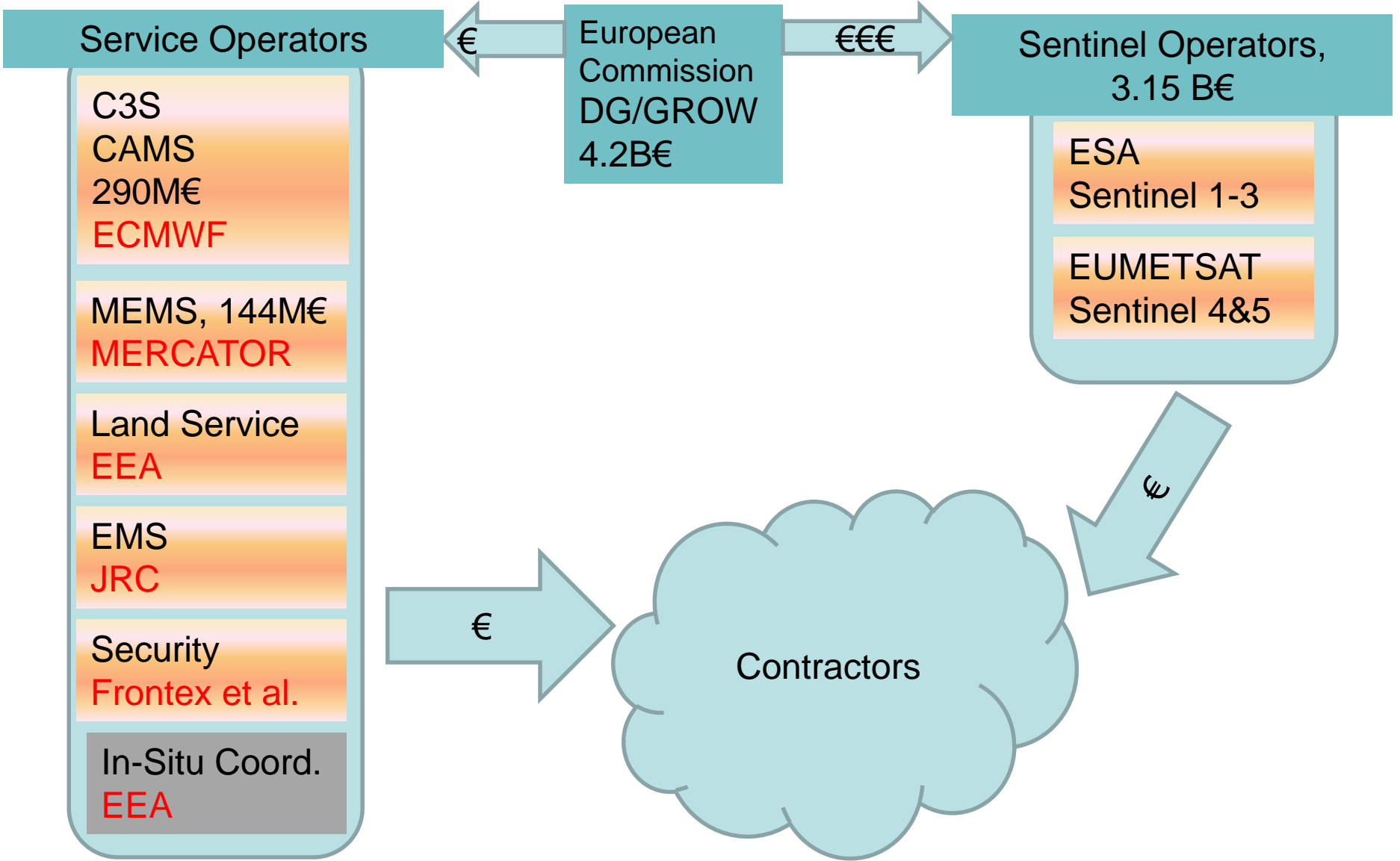
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Outline

- General Framework of Copernicus
- Vision and design of Copernicus Climate Change Service
- What kind of data will be used ?
- From a National Met/Hydro Service point of view :
 - technical challenges
 - political challenges

General Copernicus Framework



C3S in a nutshell

- Vision
 - To be an authoritative source of climate information for Europe
 - To build upon national investments and complement national climate service providers
 - To support the market for climate services in Europe
- Design
 - Climate Data Store
 - Sectoral Information System
 - Evaluation & Quality Control
 - Outreach & Dissemination

See

- <http://www.copernicus.eu/sites/default/files/documents/Copernicus%20Climate%20Change%20Service%20An%20introduction.pdf>

What kind of data will be used in the CDS ?

- Actually we don't know exactly
- Satellite data and derived ECVs are rather straightforward
 - Operated either by ESA, EUMETSAT or national space agencies
 - ESA already has Climate Change Initiative (CCI)
- In-situ data is more complex
 - Networks are owned and operated nationally (and some regionally)
 - NMHSs operate extensive networks that are fit for different purposes. Almost all generate climate datasets but density, resolution, quality, etc. will vary from one network to the other and from one country to another
 - Homogenized datasets are still scarce in countries with little resources and/or capacity
- Others operate networks too : hydrological services, agronomy institutes, energy companies, roadweather operators, airports, port authorities, research institutes & observatories, ski resorts, etc.
- And non-EC countries own and operate networks too

Some technical challenges (1)

- There is no single and comprehensive metadata database
 - Standards (e.g. WIGOS, INSPIRE) are maturing but it is still a long way to full implementation everywhere
 - Who will be tasked to build it ?
- CDS will be a distributed Climate DBMS from a patchwork of existing C-DBMS that :
 - As comprehensive as possible but does not create duplications of instances
 - Respects the ownership (and associated data policies) of the underlying datasets
 - Implements Service Levels and overall quality standards (that may be very different to implement from one owner to another)
 - Acts as a (virtual) central repository of directory & metadata services (metadata standards INSPIRE and WIGOS are a little ≠)
 - Includes much more than observation data (gridded products, reanalyses, projections, seasonal forecasts)

Some technical challenges (2)

- Dataset operators and owners (e.g. NMSs) will need to implement interfaces to the future CDS which requires some effort and raises some issues :
 - Compatibility with existing C-DBMS systems, costs to upgrade
 - Management of discrepancies and filling of gaps
- National Met/Hydro and other Services will (re)design their own Climate Service Provision
 - Will be underpinned by some C3S components,
 - Funding could come if it serves CDS goals,
 - Concentrate on national/regional needs and "downstream services",
 - Impact on science/techniques will be important (downscaling ?)

Some political challenges (1)

- Data policy issues
 - Although EU Members apply PSI, implementation is different from one State to the other
 - This reality will surprise many but there are many valid reasons : the income from the sale of data funds part of the network.
 - If Governments do not compensate the loss of income when a free data policy is applied, networks may suffer
 - The movement towards free and open data everywhere is inevitable but will be slow; it is expected that it will take 5-10 years to achieve.
 - EUMETNET Members have agreed to licence all available data to Copernicus Services
 - There will be no information charge on the data that they own
 - Those (and we expect that others too) that do not have a free and open data policy will require that original datasets cannot be redistributed nor reconstituted (orchestra analogy) without a specific licence
 - There are some additional complexities: e.g. datasets owned by others - whether operated by NMHSs or not, non EUMETNET members, institutes , etc...

Some political challenges (2)

- EC is clearly moving into the service provision arena
 - This can create sovereignty issues wrt national remits (of NMSs and other public services), subsidiarity and single authoritative voice principles
 - C3S creates a paradigm change as NMSs (and other institutes) will have to redesign some of their own climate services by taking into account (i.e. building upon) C3S services as they are deployed
- NMS community through EUMETNET prism is building a new relationship with Copernicus operators as well as the EEA (as in-situ coordinator)
 - An INSPIRE Workgroup is operating
 - An internal project has been established within EUMETNET
 - Risks have been identified
 - The scope of this project remains fuzzy but funding opportunities will be identified

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