

Copernicus Climate Change Service – C3S -

European Commission,
DG GROW, Copernicus Unit

C3S Team



*Exeter, UK
05-07, October 2016*





Copernicus regulation (EU) 377/2014:

"the Climate Change service shall provide information to increase the knowledge base to support **adaptation and mitigation policies**. It shall in particular contribute to the **provision of Essential Climate Variables (ECVs), climate analyses, projections and indicators** at temporal and spatial scales relevant to adaptation and mitigation strategies for various Union's sectoral and societal benefit areas."



Climate Data Store

- ECVs past, present and future
- Observed, reanalysed and simulated
- Derived climate indicators
- Tools to support adaptation and mitigation at global and European level

Sectoral Information System



Evaluation and Quality Control

- Monitors quality of C3S products and services
- Ensures C3S delivers state-of-the-art climate information to end-users
- Identifies gaps in service provision
- Bridges Copernicus with the research agenda in Europe (e.g. H2020, national research projects)

Outreach and Dissemination

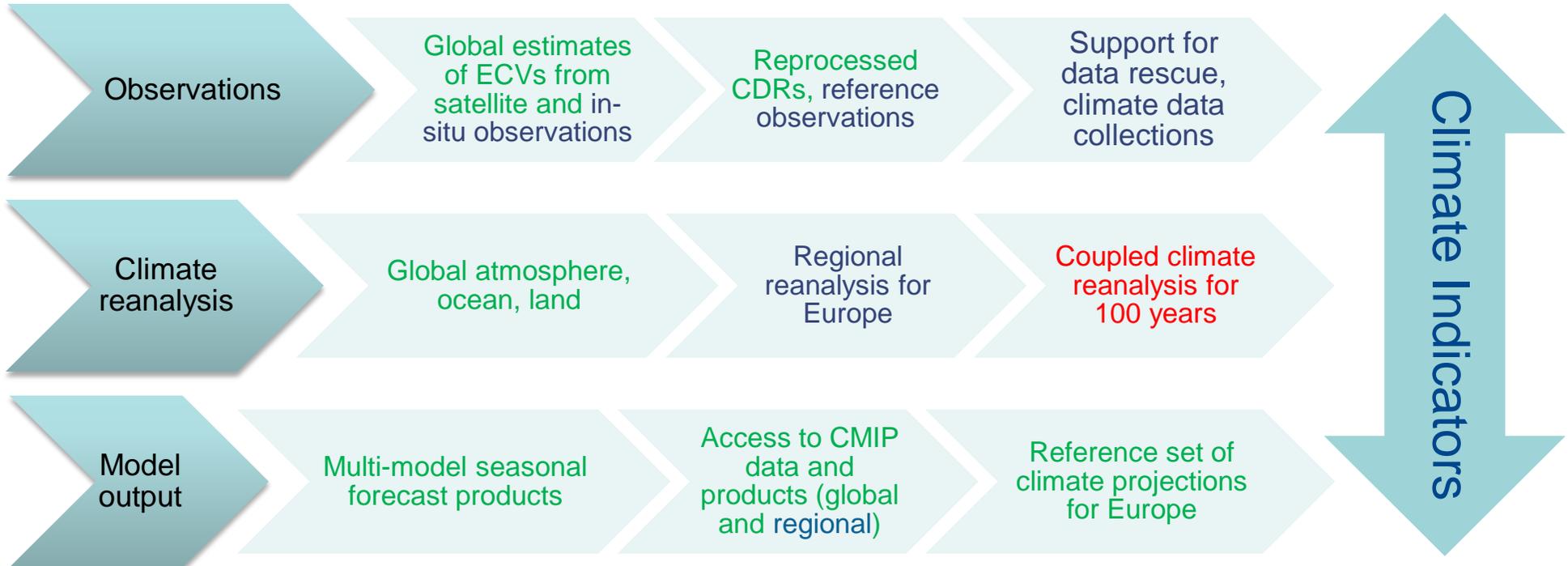
- Web content
- Public outreach
- Coordination with national outreach
- Liaison with public authorities
- Conferences, seminars
- Training and education

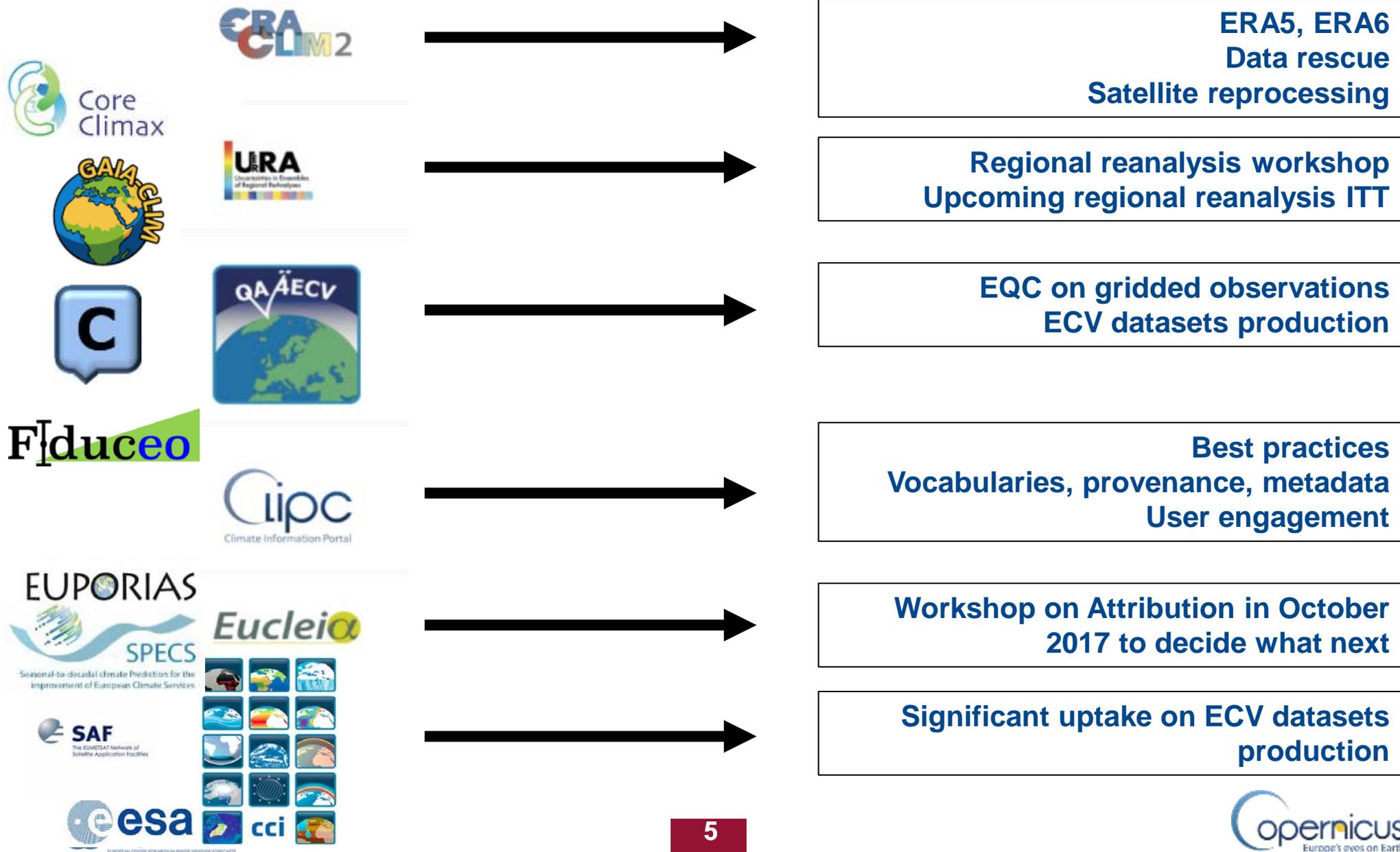


Scientific basis:

- Essential Climate Variables as defined by GCOS
- GCOS Status Report (GCOS-195)
- IPCC, CMIP

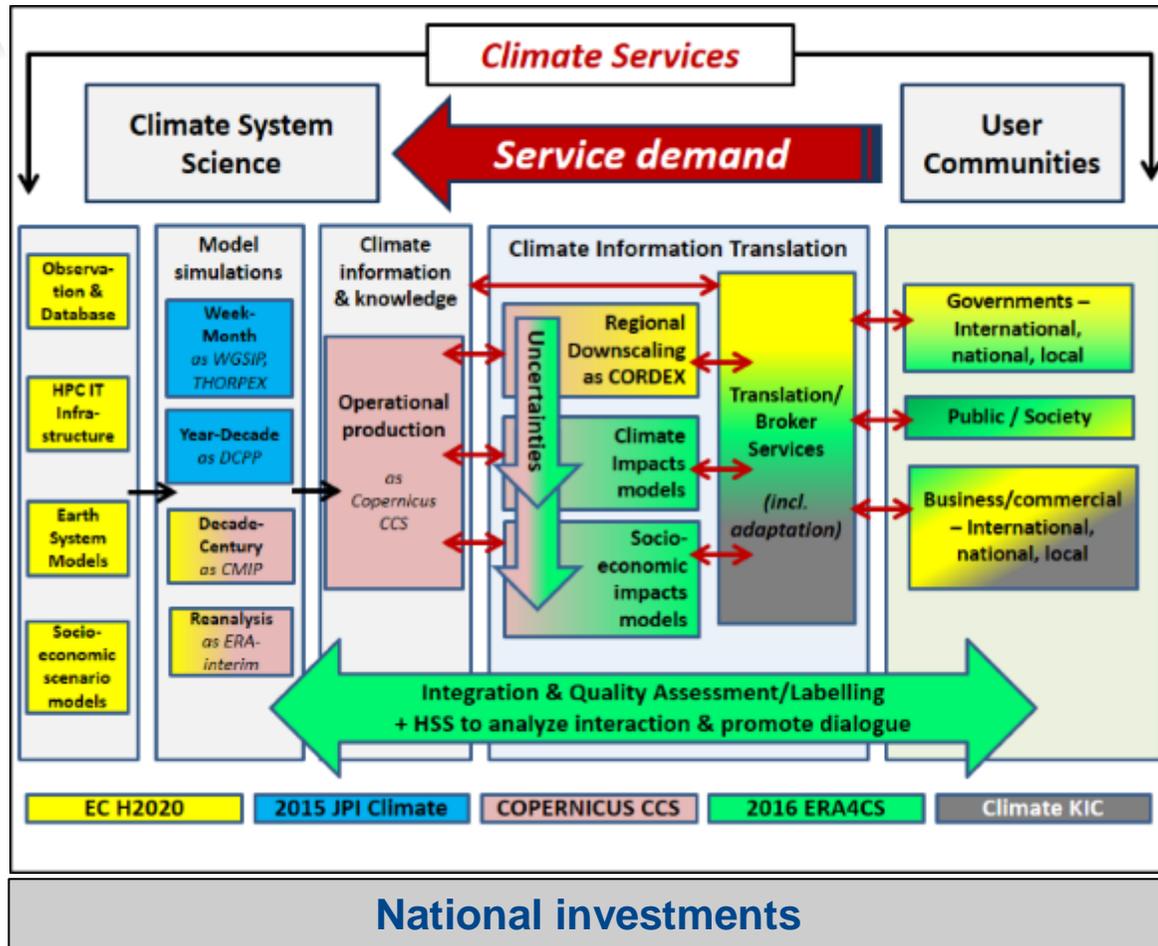
- Action engaged
- In preparation (PIN or ITT out)
- Not started



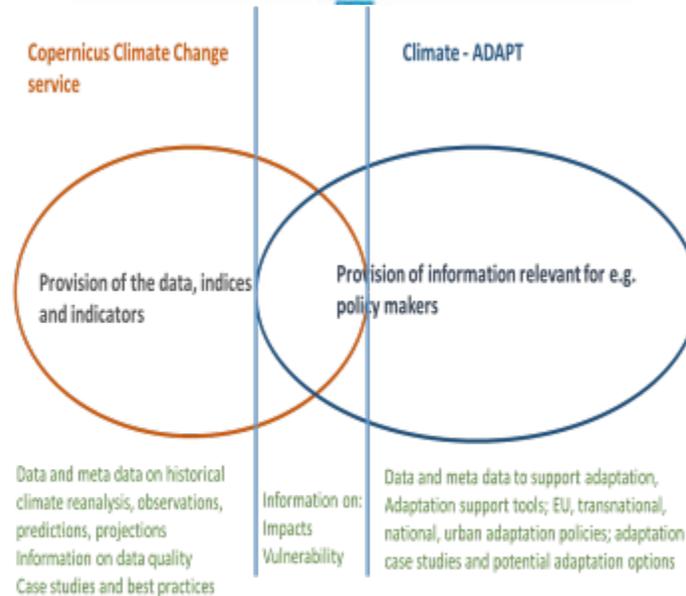




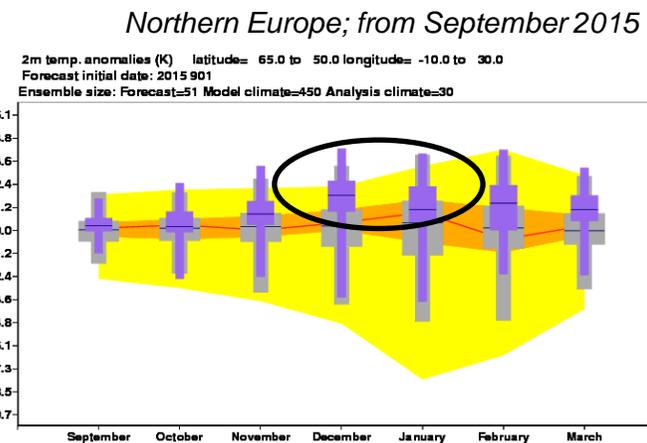
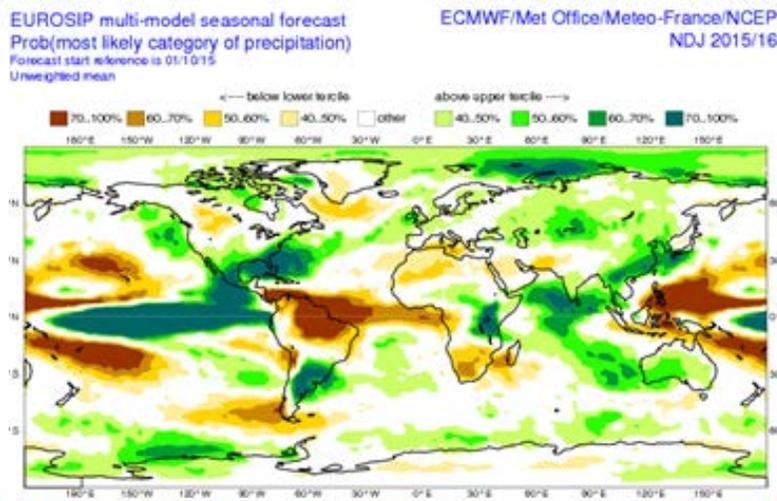
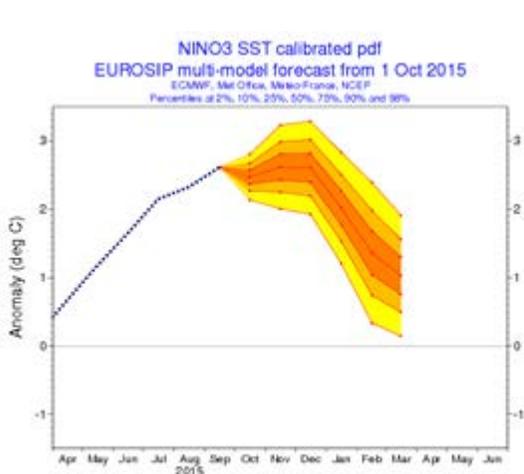
GFCS



A European research and innovation Roadmap for Climate Services



Credit: P. Monfray, JPI Climate
André Jol, EEA



- Set of atmosphere & ocean variables, 1x1 degree grid, at daily or sub-daily resolution, from 6-month forecasts.
- Graphical products (e.g. time series for indices, maps, climagrams).
- Processed data (e.g. indices, probabilities, inputs for sectoral applications).
- Core providers: **Met Office, Météo France, ECMWF, CMCC & DWD**.
- First set of products to be available from Q4 2016.

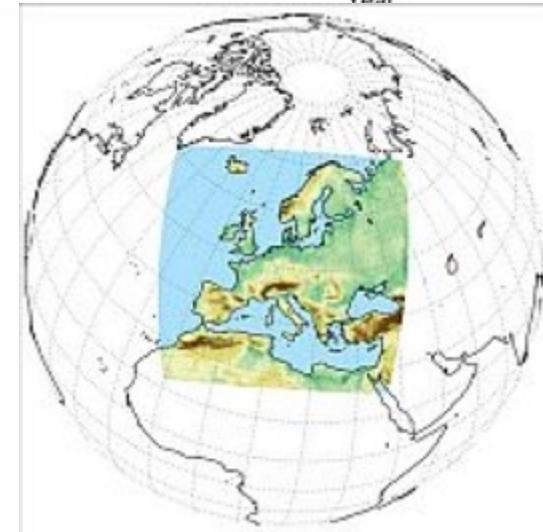
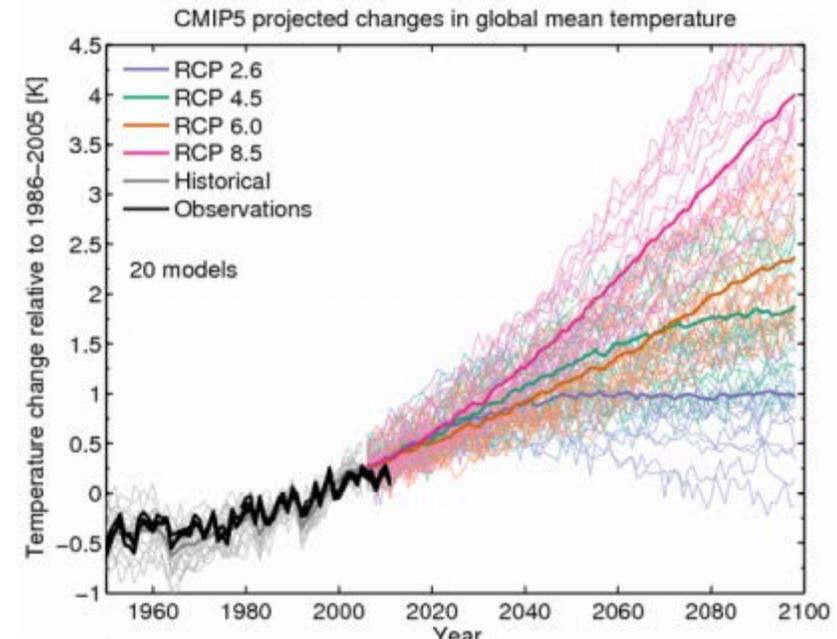


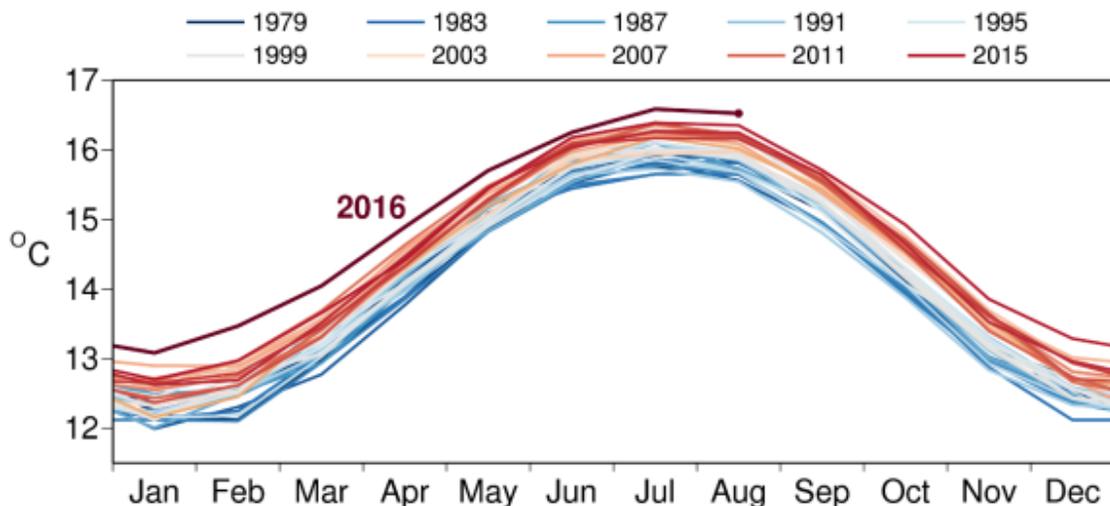
□ Global Climate Projections:

- Provision of support to one Earth System Grid Federation (**ESGF**) node in Europe
- **Multi-model** product generation
- Roadmap toward a reference set of climate projections for Europe (**EUCP**)
- 3 contracts being finalised

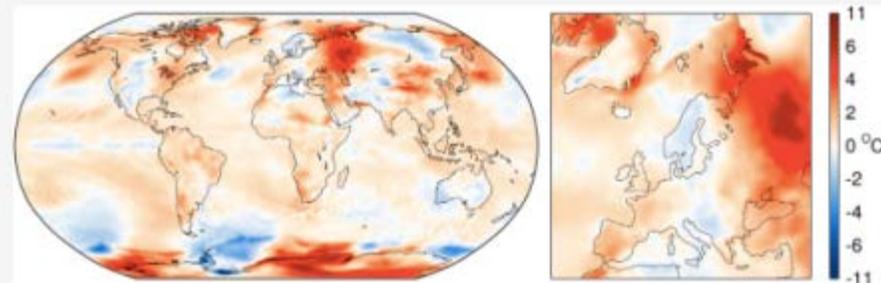
□ Regional Climate Projections:

- Provide access to existing **CORDEX** simulations for European domains and to boundary conditions derived from GCM simulation through the CDS.
- Definition and generation of a “3-D matrix” (RCM-GCM-RCP) of **RCM projections**.
- ITT published

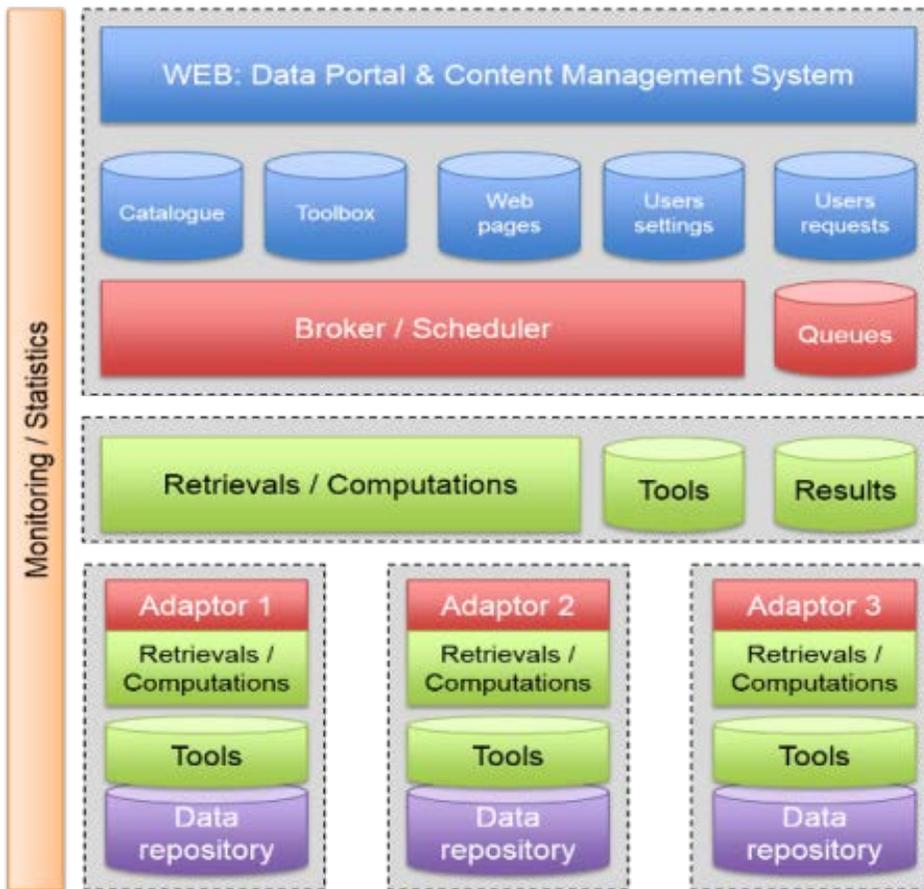




Average surface air temperatures for August 2016



- Production of **ERA-interim** is accelerated to feed a monthly State of Climate – published one week after the end of each month -
- 16 **warmest years** on record: 1998 and 2001-2015
- the latest 15-months beat a **record** for each month
- **ERA 5** is currently in production



❑ Centralised Web portal:

- **Content Management System** (articles, news, events)
- **Browsing/searching** CDS product catalogue, tools catalogue, ...
- Manages users' **data retrieval** and **computation requests**

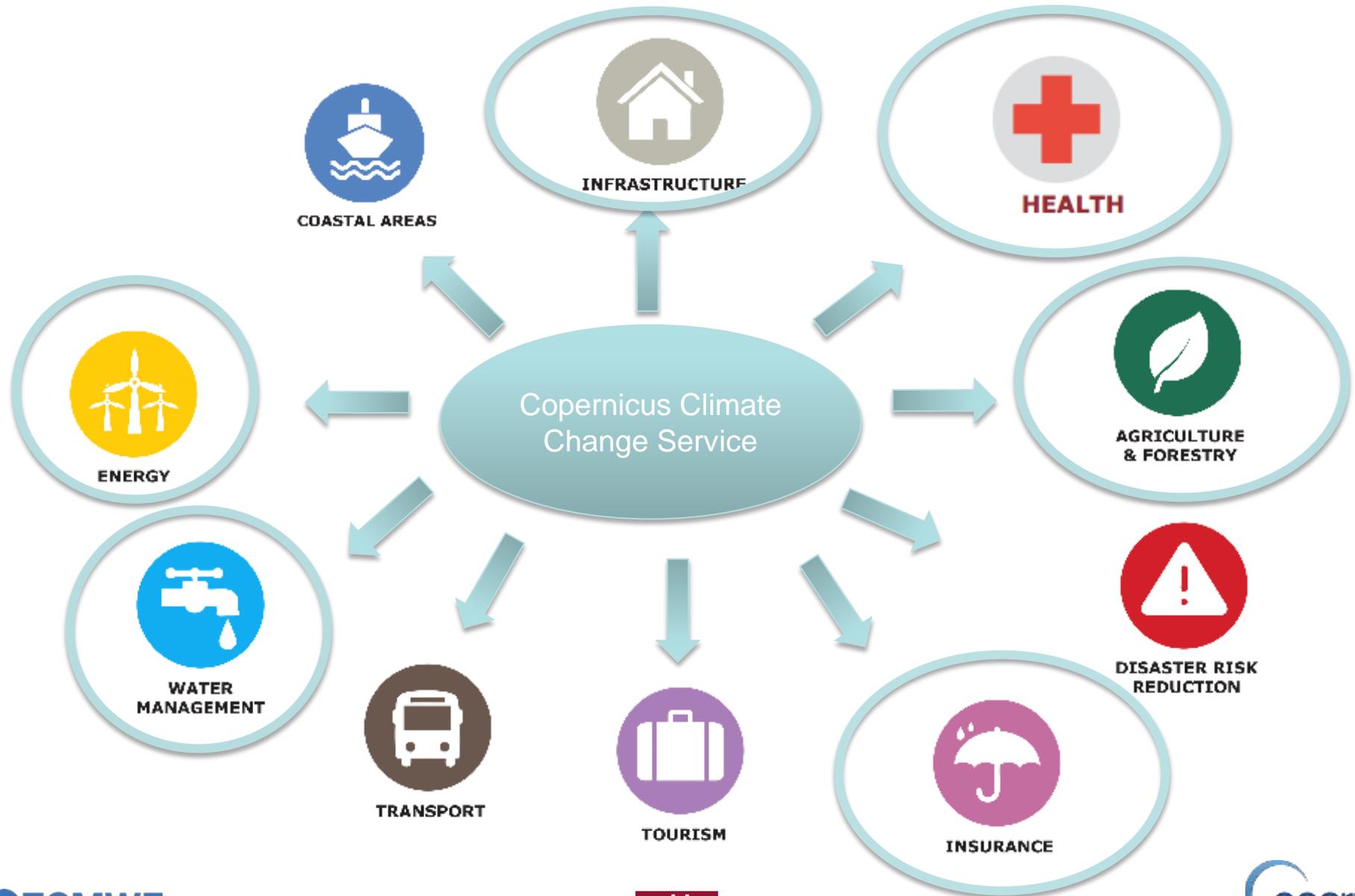
❑ Broker-Scheduler:

- **Dispatches** data retrieval and computation requests to the relevant data repositories (including from other services)
- Implements **quality of service**

❑ Distributed data repositories:

- Located at different data providers, **seamlessly** available via CDS
- May implement basic **tools** to perform analytics on **local data**

- CDS **development** - July 2016 - (alpha version planned – January 2017)
- CDS **toolbox**– September 2016





❑ **SIS water management:**

- SWICCA (Service for Water Indicators in Climate Change adaptation) – **lead SMHI (Sweden)**
- EDgE (End-to-End demonstrator for improved decision making in the water sector in Europe) – **Lead CEH (UK)**

❑ **SIS energy:**

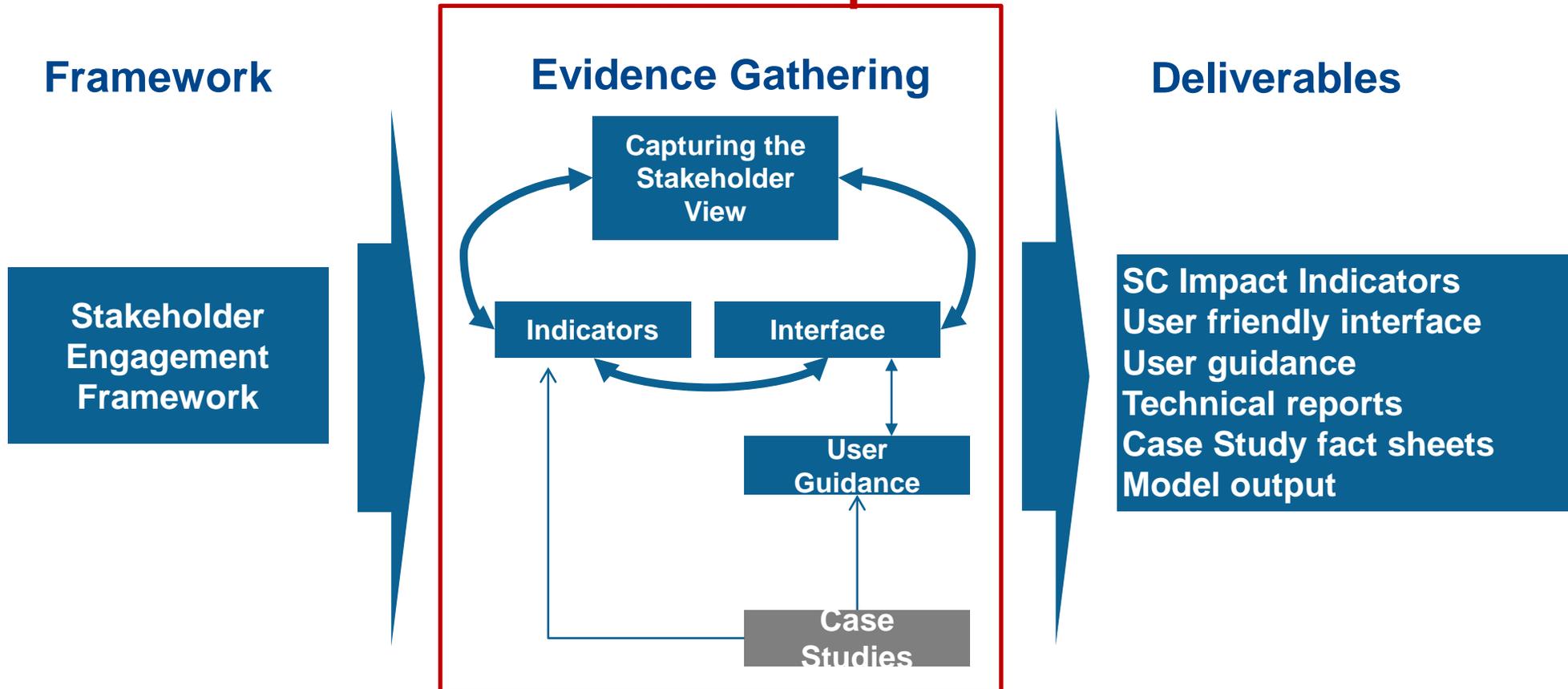
- CLIM4ENERGY (Climate for Energy) – **Lead CEA (France)**
- ECEM (European Climatic Energy Mixes) – **Lead UEA (UK)**

❑ **SIS others:**

- AgriCLASS (Agriculture Climate Advisory Services) – **Lead Telespazio – Vega (UK)**
- WISC (Windstorm Information Service) – **Lead CGI (UK)**
- URBAN-SIS (touching health, infrastructure,..) – **Lead SMHI (Sweden)**



Focus Groups



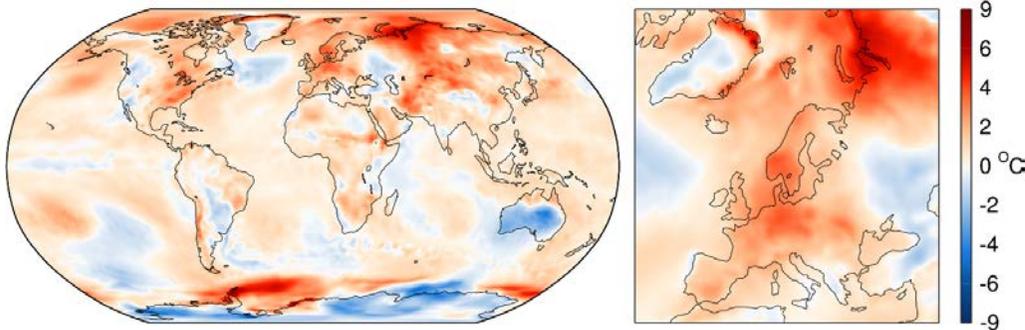


year	Events
2016	<p>Regional reanalysis workshop (March 2016)</p> <p>SIS Workshop (October 2016)</p>
2017	<p>C3S first General Assembly (March 2017)</p> <p>EQC workshop (June 2017)</p> <p>Attribution Workshop (October 2017)</p> <p>International Conference on reanalysis (November 2017)</p>



European Commission

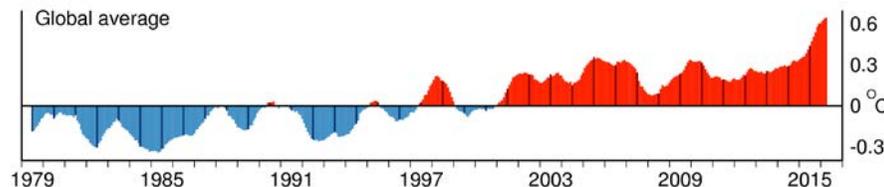
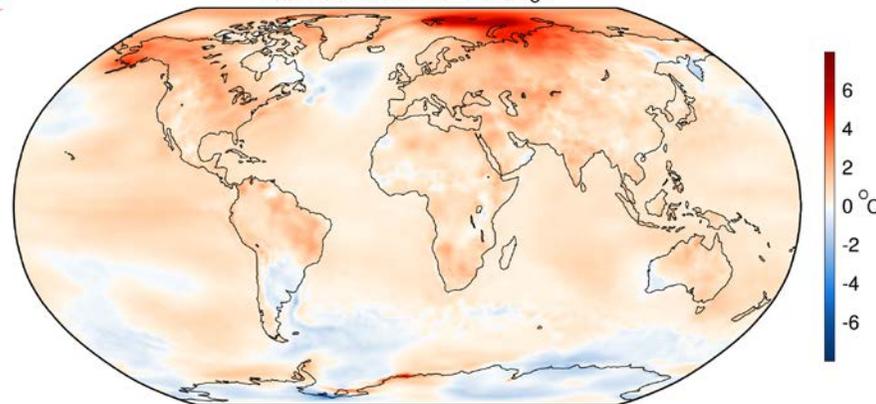
Copernicus Climate Change Service



Average surface air temperature September 2016



Surface air temperature averaged from 201510 to 201609 relative to its 1981-2010 average

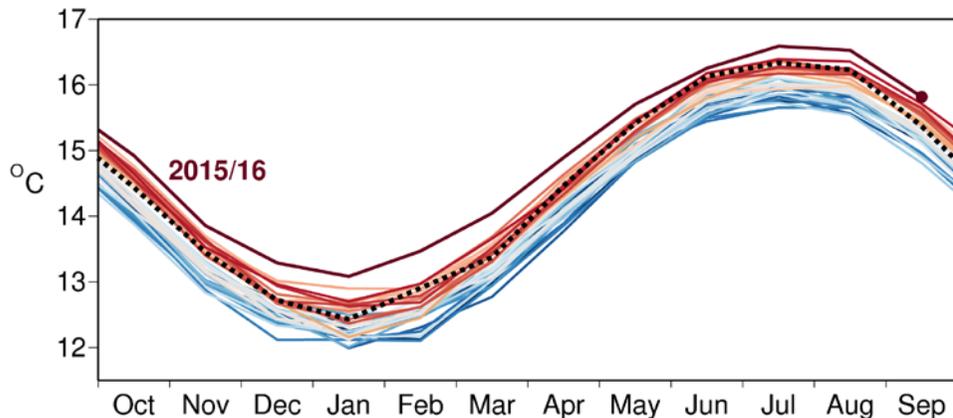


Average surface air temperature anomalies for the last 12 months (201510 to 201609)



Monthly global-mean temperatures from 1979 to 2016

- 1981/82
- 1985/86
- 1989/90
- 1993/94
- - - 1997/98
- 2001/02
- 2005/06
- 2009/10
- 2013/14
- 2015/16



climate.copernicus.eu