



Copernicus Climate Change Service (C3S):

Status and plans

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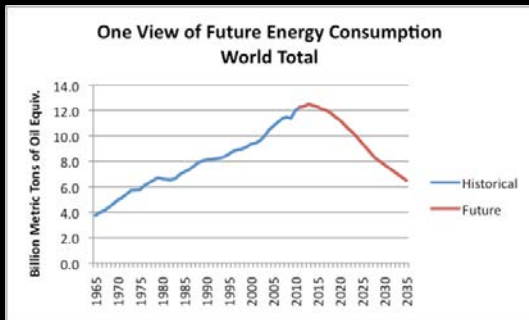
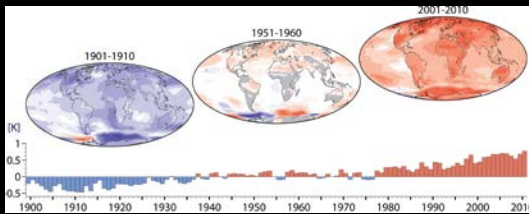
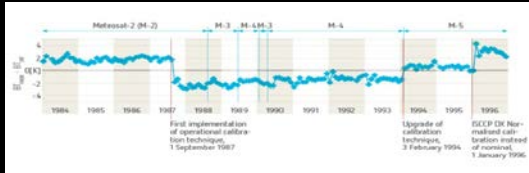
C3S Vision

- 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





C3S Vision



How is climate changing?

- Earth observations
- Reanalysis

Will climate change continue/accelerate?

- Predictions
- Projections

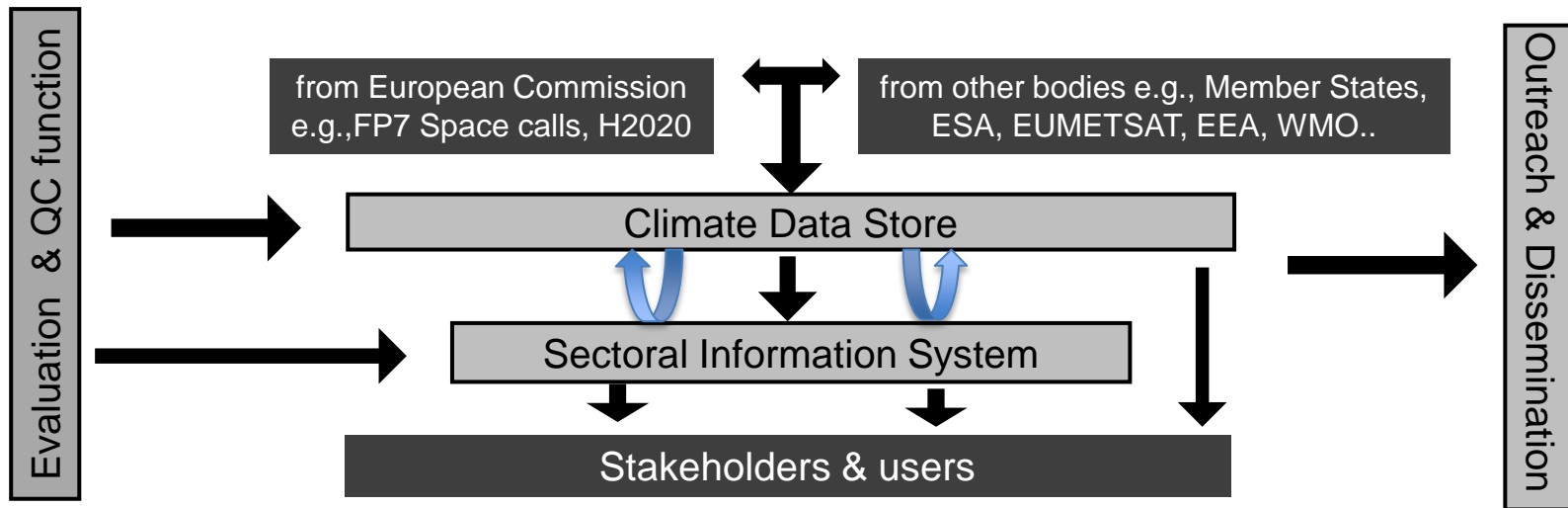
What are the societal impacts?

- Climate indicators
- Sectoral information

C3S in a nutshell

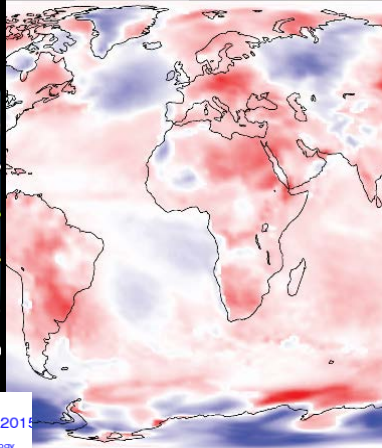
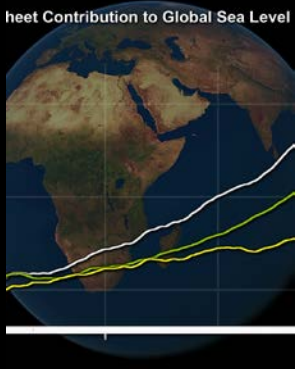
C3S Service Element

organisation





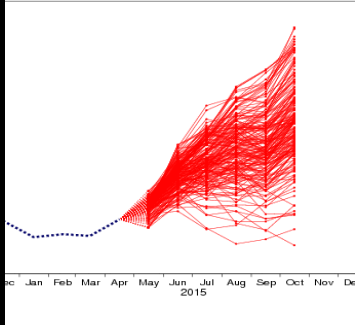
Heat Contribution to Global Sea Level



C3S Service elements: Climate Data Store

- Essential Climate Variables for atmosphere, ocean, land and Climate Indicators
 - Observed, re-analysed and simulated data
 - In support of adaptation/mitigation policies at global and European level

NINO3.4 SST anomaly plume
EUROSIP multi-model forecast from 1 May 2015
ECMWF, Met Office, Météo-France, NCEP
Monthly mean anomalies relative to NCEP OIv2 1981-2010 climatology



2014 globally the warmest year on record – or not?

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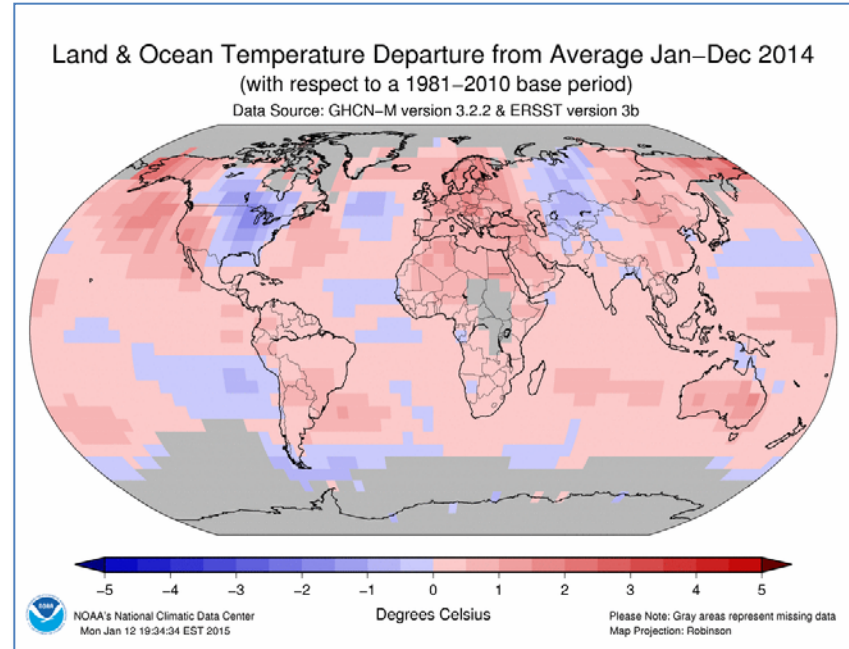
2014 warmest year on record, say US researchers

By Mark Kinver
Environment reporter, BBC News

© 16 January 2015 | Science & Environment

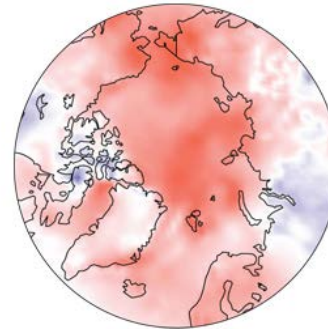
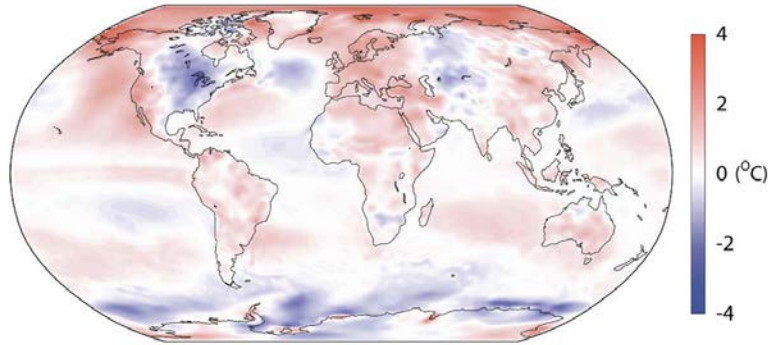


A sculpture called "We're fryin' out here" at a beach in Sydney

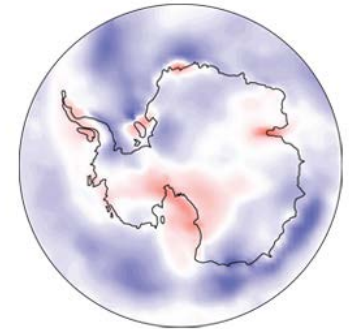


Estimates based on station data alone do not account for variability at high latitudes

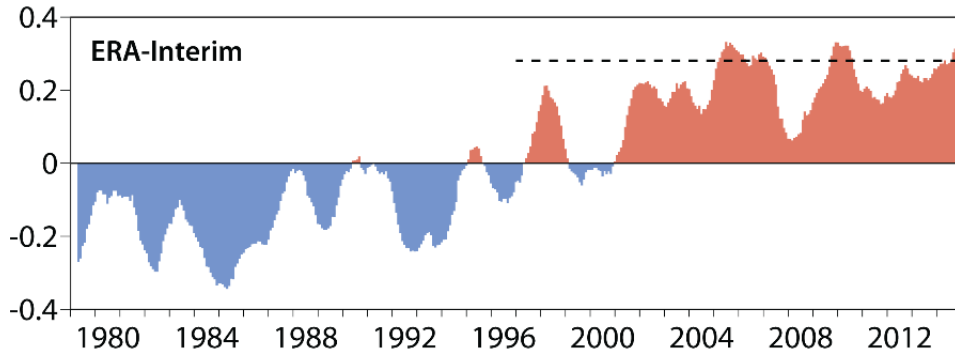
Reanalysis provides a truly global view...



Arctic pattern of temperature anomalies



Antarctic pattern of temperature anomalies



- ERA-Interim estimates for 2014 are slightly cooler than those from station data alone
- **Mainly due to the Antarctic**
- Consistent with independent observations of sea-ice extent

ERA-Interim

ERA5

Model version	August 2006 (IFS Cy31r2)	June 2015 (IFS Cy41r2)
Model boundary conditions	As in forecasting (inconsistent SST)	Appropriate for climate (CMIP5, HadISST.2)
Spatial resolution	79 km global 60 levels to 10 Pa	31 km global 137 levels to 1 Pa
Time period	1979 - present	1979–present (extension to ~1950?)
Dissemination	Monthly	Monthly for ERA5; daily for ERA5T
Observations	Mostly ERA-40, GTS	Various reprocessed CDRs
Radiative transfer	RTTOV7	RTTOV11
Analysis method	4D-Var 1D+4DVar rain	10-member EDA All-sky radiance assimilation
Variational bias corrections	Satellite radiances	Radiances, ozone, aircraft, surface pressure, radiosondes



C3S Service elements: Sectoral Information System

- Tailored climate indicators for primary users:
 - Institutional users at European level (EEA, Climate-ADAPT, ...)
 - Science users, innovation and business development
- Data and tools to support public and commercial applications, policy development and strategic planning

~ 30 ECV datasets and ~ 10 sectors to be addressed by 2020-2021

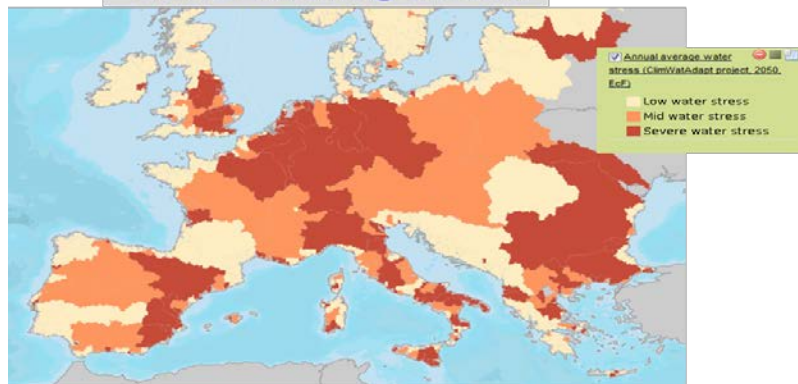
C3S Service elements: Sectoral Information System

Tailored climate indicators for primary users:

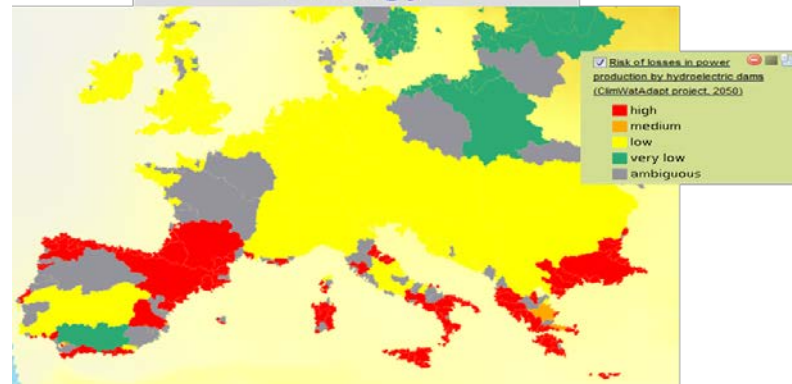
- Institutional users at European level, EEA Climate-Adapt,...
- Science users, innovation and business development

Data and tools to support public and commercial applications, policy development and strategic planning

Water management



Energy



- ~ 30 ECV datasets and ~ 10 Sectors to be addressed by 2020-2021

Credit: EEA



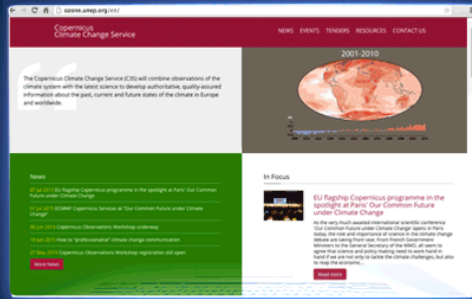


C3S Service elements: Evaluation and Quality Control

- Ensures C3S delivers state-of-the-art climate information to end-users
- Identifies gaps in the Service
- Bridges Copernicus with Research Agenda in Europe (e.g. H2020, national research projects)
- Monitors continually, quality of C3S products and services
- "Quality Assurance" body



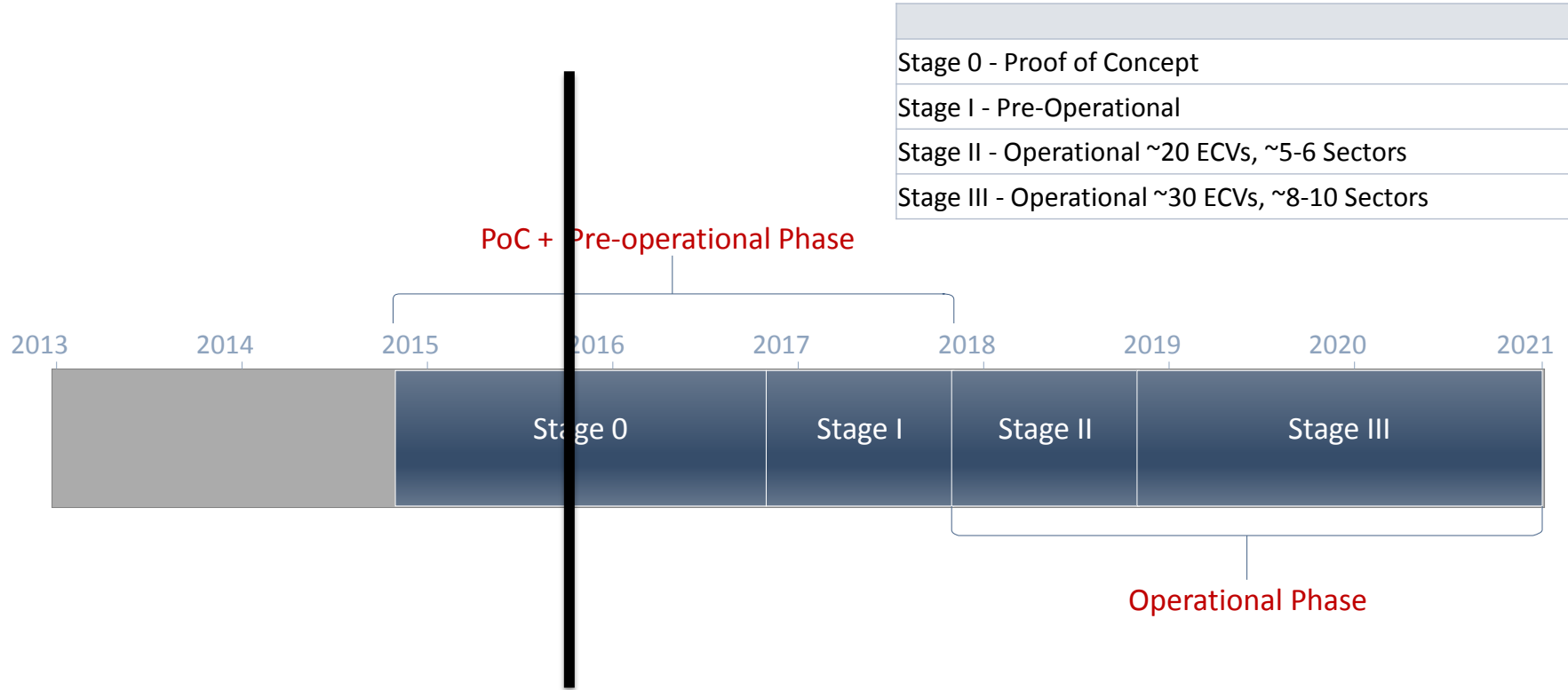
C3S Service elements: Outreach & Dissemination



- Web content provision & management
 - Coherence throughout C3S, interfaces between service elements, pan-European dimension...
- Public outreach
 - All media
 - Annual State of Climate for Europe
 - Downstream service providers
- Coordination with national outreach efforts
 - On communicating events, findings, etc
 - National workshops

Copernicus Climate Change Service (C3S)

Provisional timing





C3S is user driven

Please let us know your
feedback, requirements
ideas ...

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