Copernicus Climate Change Service

Copernicus Workshop on Climate Observation Requirements

Housekeeping + Welcome

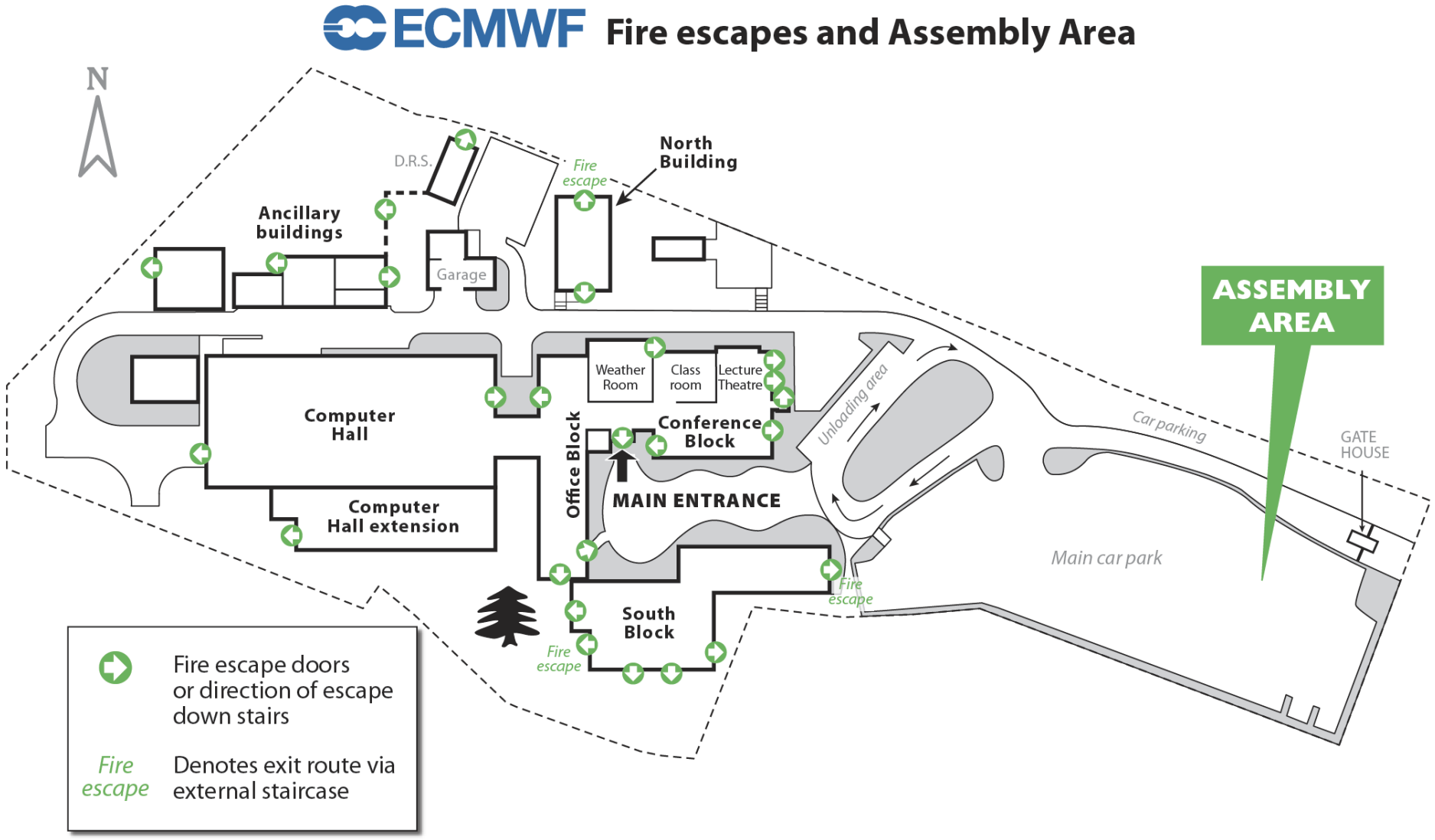
Funded by the European Union

Implemented by ECMWF

Safety

- Fire safety
  - Fire exits
  - Assembly area in car park
  - Do not leave site or return to building unless instructed
- Sign in/out each day at reception

ECMWF grounds



Facilities

- Coffee/teas in the morning will be served on the Concourse located outside this room. Refreshments will also be available in the afternoon for each Working Group.

- Toilets are on the Concourse.

Speakers

- Your presentation should already be uploaded to the ECMWF server.

- If it isn’t, please bring it on a USB stick.

Presentations

- Will be placed on our external website after each day (in pdf format).

http://www.ecmwf.int/en/about/what-we-do/copernicus/copernicus-climate-change-service

- Please let us know if you do not want your talk published.

Mobile phones

Copernicus Workshop on Climate Observation Requirements

Jean-Noël Thépaut

Head of Copernicus Climate Change Service

jean-noel.thepaut@ecmwf.int

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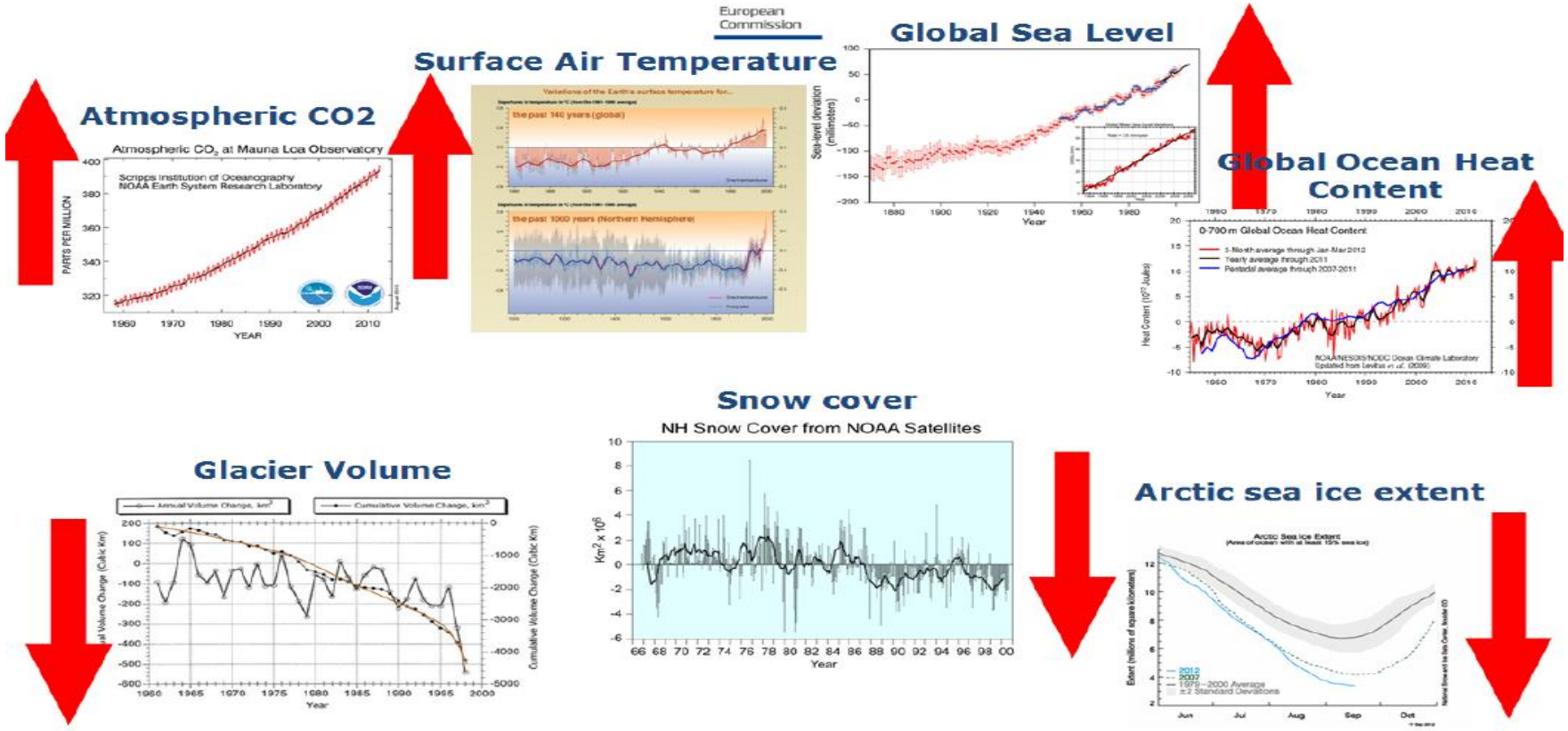
Copernicus Climate Change Service: the road map

From the 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."



Copernicus Climate Change Service: 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

How is the climate changing?

- Earth observations
- Reanalyses

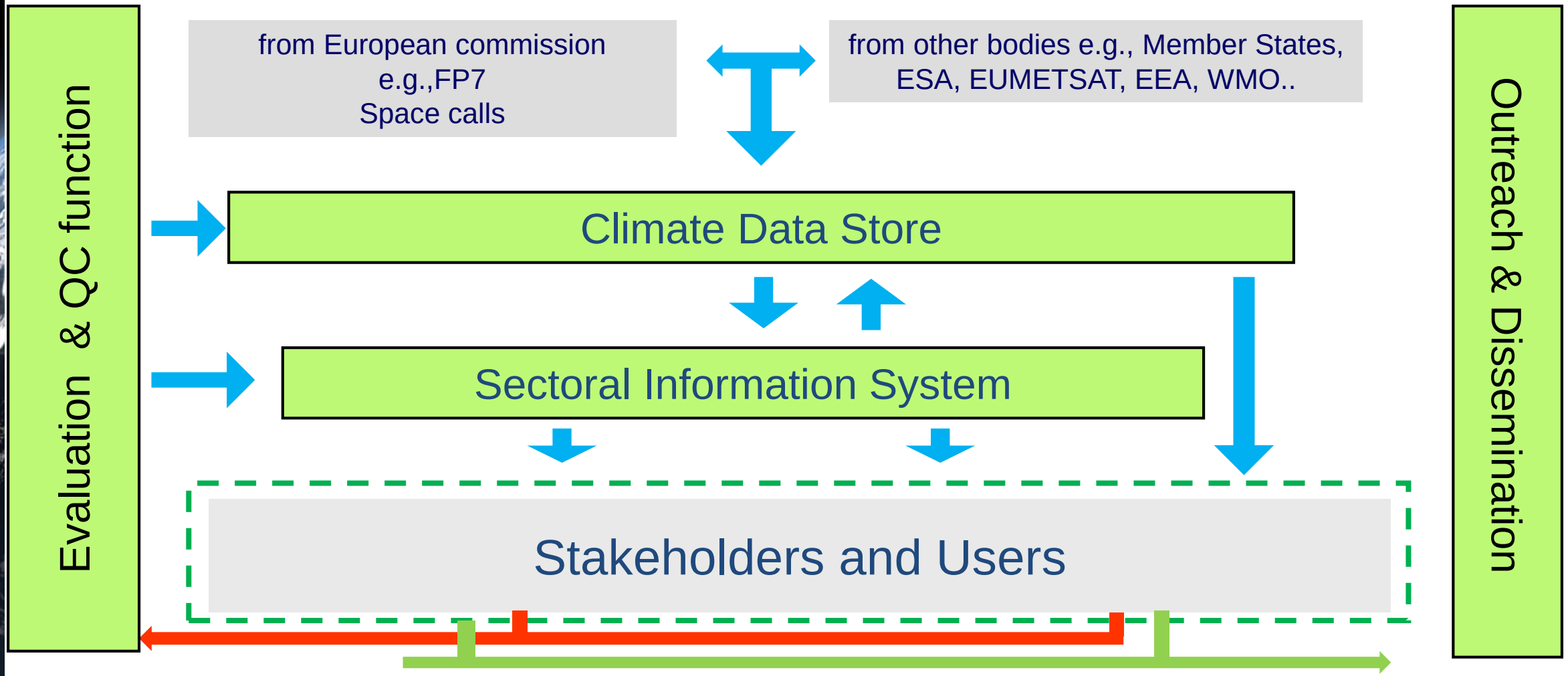
Will climate change continue, accelerate?

- Predictions
- Projections

What are the societal impacts?

- Climate indicators
- Sectoral information

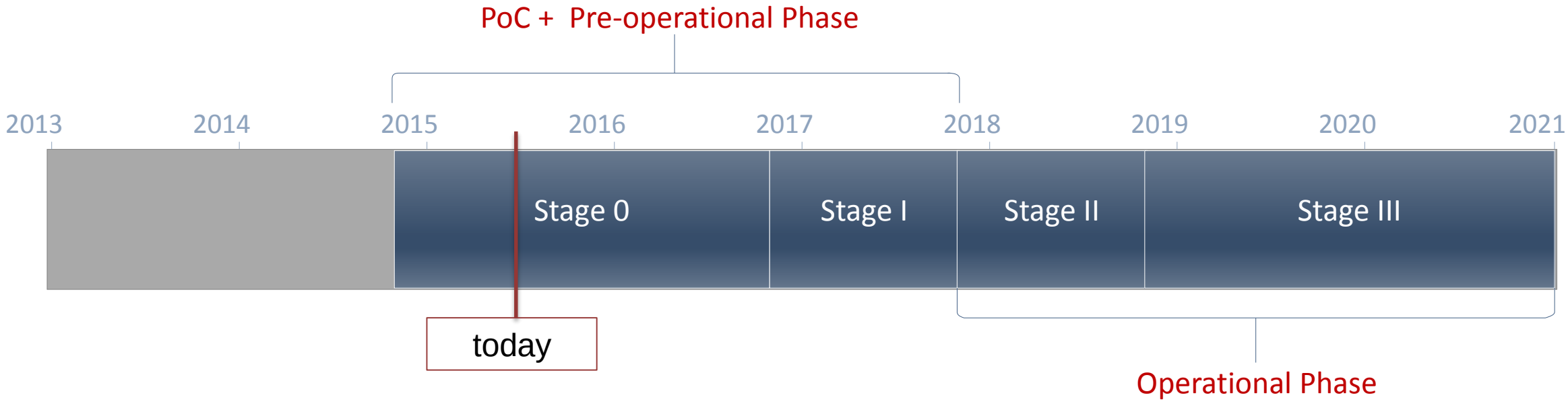
C3S Architecture



Copernicus Climate Change Service (C3S)

Provisional timing

Stage 0 - Proof of Concept
Stage I - Pre-Operational
Stage II - Operational ~20 ECVs, ~5-6 Sectors
Stage III - Operational ~30 ECVs, ~8-10 Sectors



Climate Data Store - ~ 30 ECVs & ~ 10 indicators –
Based on observed, reanalysed and/or model simulated datasets

Copernicus Climate Change Service(C3S)

Indicative list

Consistent Climate Data Store - ~ 30 ECVs & indicators -

Observed, re-analyzed and model projected products

ATMOSPHERE

Surface Air Temperature
Surface Precipitation
Water Vapor
Surface Radiation Budget
Earth Radiation Budget
Carbon Dioxide & Methane
Ozone & Aerosols
Cloud properties
Wind Speed & Direction
Upper Air Temperature
Other Long-Lived GHGs

OCEAN

Ocean Color
Sea Ice
Sea Level
Sea Surface Temperature
Global Ocean Heat Content

CO_2 partial pressure
Ocean Acidity
Sea Surface Salinity
Ocean Salinity
Ocean currents

LAND

Snow Cover
Glaciers & Ice Caps
Albedo
FAPAR
Fire
Ice Sheets
Lakes
Permafrost
Land Cover
Leaf Area Index
Soil Moisture

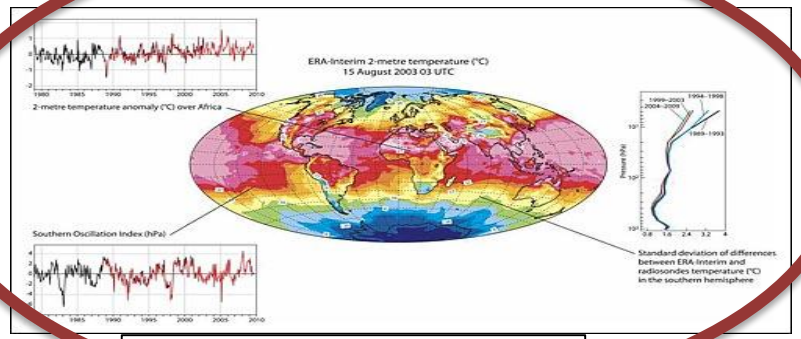
Sectoral Information System – ~ 10 sectors

Agriculture and forestry
Health
Energy
Infrastructure
Coastal areas
Water management
Tourism
Insurance
Marine and fisheries
Disaster risk reduction
Biodiversity
Transportation

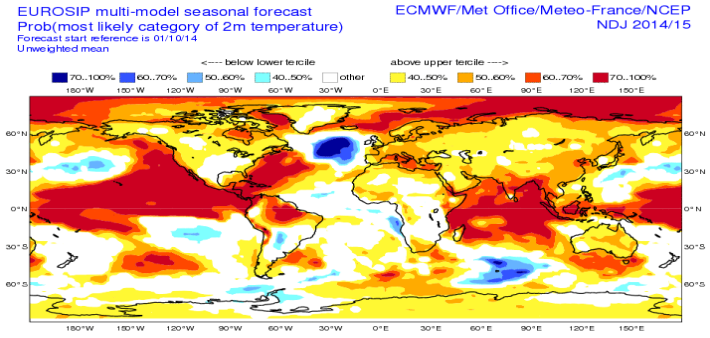
C3S Service elements: Climate Data Store

Series of ECV datasets and climate indicators

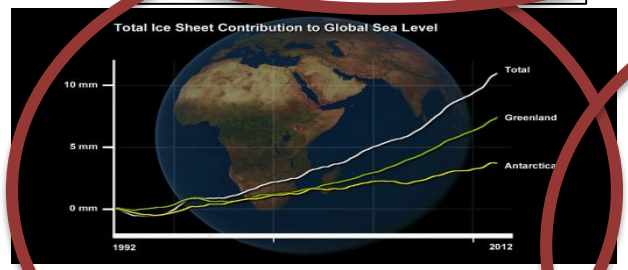
- Observed, reanalysed and simulated
- Relevant to support adaptation/mitigation policies at European level and wider



Reanalyses

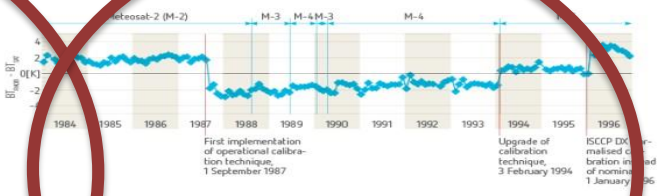


Multi model seasonal forecast products

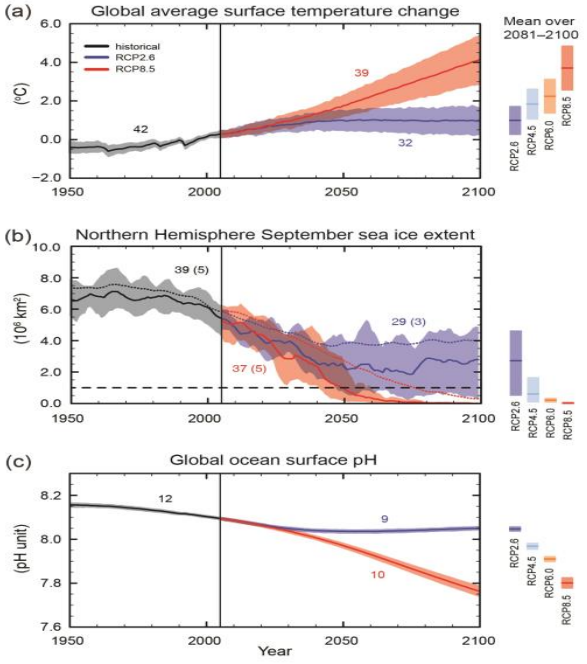


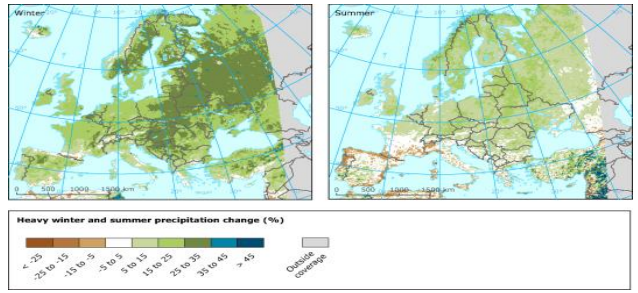
Other ECV datasets

Data collection and data rescue



Data reprocessing





Climate projections

ECMWF

Objectives of the Workshop

The outcome of the workshop will contribute to the development of the observational part of the Climate Data Store

- Guide specific scientific and technical requirements in this area

CDS catalogue will include observations and derived data products for climate applications/services

- Climate data records from satellites
- Collections of in-situ climate observations
- Gridded ECV products derived from observations
- Input observations from model-based reanalyses
- Reference datasets for evaluation of models and climate data products

Guidance is expected in the following areas:

- Data rescue activities for in-situ and satellite observations
- Good practices in homogenisation and data reprocessing
- Metadata, traceability and transparency of climate data products
- Good practices for uncertainty characterization of climate data products

Acknowledgements

Scientific Organising Committee:

Erik Andersson, ECMWF (Chair)

Otis Brown, WCRP Data Advisory Council (WDAC)

Dick Dee, ECMWF

Mark Dowell, EC/JRC

Jörg Schulz, EUMETSAT

Adrian Simmons, GCOS

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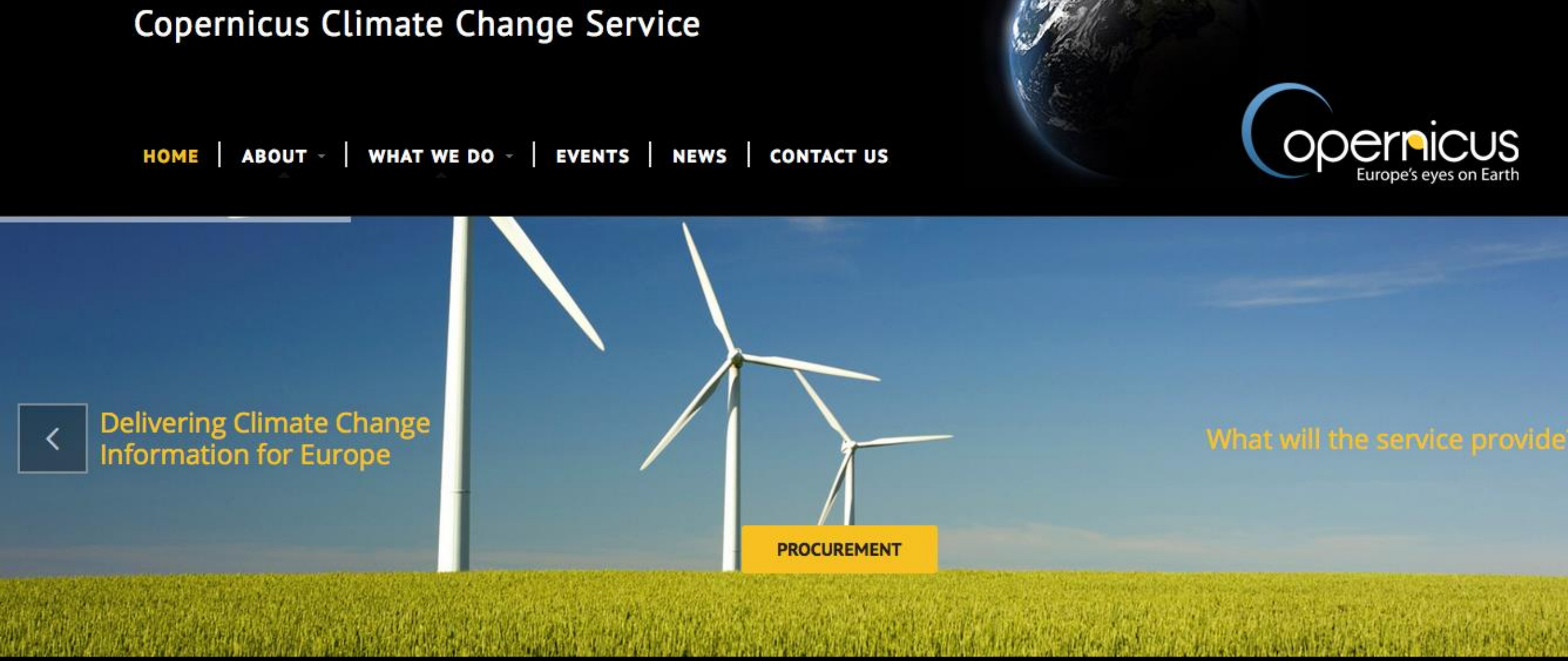
ECMWF support:

Joseph Burgoyne and many more..



Watch this: www.copernicus-climate.eu

The Copernicus Climate Change Service implemented by ECMWF is part of the Copernicus programme coordinated and managed by the European Commission.