

Climate Change

Climate Data For The Energy Sector – An Introduction

Samuel Almond and C3S colleagues, ECMWF

Sectoral Information System Officer, Copernicus Climate Change Service







C3S - An operational climate service turning PB of data in kB of information

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Implemented by ECMWF as part of The Copernicus Programme opernicus



Climate Change We provide authoritative information about the past, present and future climate, as well as tools to enable climate change mitigation and adaptation strategies by policy makers and businesses.



~102 000 users

100+ datasets

cds.climate.copernicus.eu cds.climate.copernicus.eu/portfolio/









Operational Energy Service









Past to the present day

Near Future

Mid Century to End Century

Europe's eyes on Earth



https://climate.copernicus.eu/operational-service-energy-sector







Operational Energy Service

Information on:

- Key meteorological variables
- Energy related variables: energy demand and production from solar, wind, hydropower **Timescale**: Past period, Near Real Time, Near Future and Mid Century **Further needs:**
- Efficiency in the way it is computationally run
- Simplicity in the way it is presented, maintained and documented



Climate and energy indicators for Europe from 1979 to present derived from reanalysis Climate and energy indicators for Europe from 1979 to present derived from reanalysis

Climate and energy indicators for Europe from 2005 to 2100 derived from climate projections Climate and energy indicators for Europe from 2005 to 2100 derived from climate projections





Operational Energy Service – Application & Data Products

Climate Data Store - Application Preview





Climate Change

The C3S Climate Data Store



What else may we find in the Climate Data Store?





PAST: Maps without gaps: global and regional atmospheric reanalysis

ERA5: A full-observing-system global reanalysis for the atmosphere, land and ocean waves

New, higher resolution, more and better input data Most popular dataset in the CDS : **59,000 users**; order of 400 Tb weekly downloads available from **1950 onwards** (ERA5 Back extension: 1950 - 1978) daily updates 5 days behind real time About 100 billion observations have been used so far

Florence Thu 13 Sep 2018, 01 UTC for ERA5

FUTURE: Regional Climate Projections



1: South America (SAM) 2: Central America (CAM) 3: North America (NAM) 4: Europe (EUR) 5: Africa (AFR) 6: South Asia (WAS) 7: East Asia (EAS) 8: Central Asia (CAS) 9: Australasia (AUS) 10: Antarctica (ANT) 11: Arctic (ARC) 12: Mediterranean (MED) 13: Middle East North Africa (MNA) 14: South-East Asia (SEA)



Europe's eyes on Earth





NEAR FUTURE: Seasonal Predictions



C3S seasonal prediction multi-system large set of variables





Energy Case Studies









In

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Samuel.Almopnd@ecmwf.int



