

Enhancing the user experience – documentation and guidance on the C3S ECEM Demonstrator



Climate Change

C3S European Climatic Energy Mixes (ECEM)
Webinar Programme
22 September 2017

Clare Goodess
University of East Anglia





The European Climatic Energy Mixes (ECEM) Demonstrator



☒ Countries ☐ Clusters

Time Period **Historical**

Variables **Climate**

? **Global Horizontal Irradiance**

Temporal Resolution **1 month**

Month **All months**

Statistics **Absolute values**

Country **None**

New graph

Refresh graph

Add to graph

Labels Off

Close Graphs

Reset Map

[Click here for help and information...](#)

Welcome to the ECEM demonstrator

Hello and welcome to the ECEM demonstrator! You are now viewing monthly solar radiation but feel free to explore the wide range of climate and energy variables we have prepared for you.

Use the quick tutorial button below to get a quick view of the features of the demonstrator. If you want to get straight into it, just skip the tutorial and take a look around. You can always run the tutorial at any time from the **About** window.

[Quick Tutorial](#)

[Skip Tutorial](#)

Historical Global Horizontal Irradiance - Statistics: Absolute values

Jan 1979 Dec 2016

January 1979

Legend 1Wm^{-2} 341Wm^{-2} No Data

Feedback

FTP



☒ Countries ☐ ClustersTime Period HistoricalVariables Climate? Global Horizontal IrradianceTemporal
Resolution 1 monthMonth All monthsStatistics Absolute valuesCountry None

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The Legend panel

For timeseries data, such as historical and projection data, this panel has a slider which shows the extent of the data's date range. Move the slider to refresh the map colours. For all data, this panel also has the legend for the map and a download button.

Below the slider are the filter (🔍) and player controls. The filter not only filters the slider and player but also any graphs that are plotted while the filter is active.

Below the player controls are the legend and the 🗑 icon to change it.

Finally, in the top right corner of the panel are two icons. Click on the download icon (📄) to download the data displayed in the map (namely for all countries or clusters but subject to any current filter). All data is downloaded in CSV format. Click on the print icon (🖨) to copy the map and the legend into a new window. This new window may then be printed directly, or right-click on the map and/or legend to save the image.

Horizontal Irradiance - Statistics: Absolute values



Dec 2016

January 1979

Wm⁻² 341Wm⁻²

No Data

Feedback

FTP



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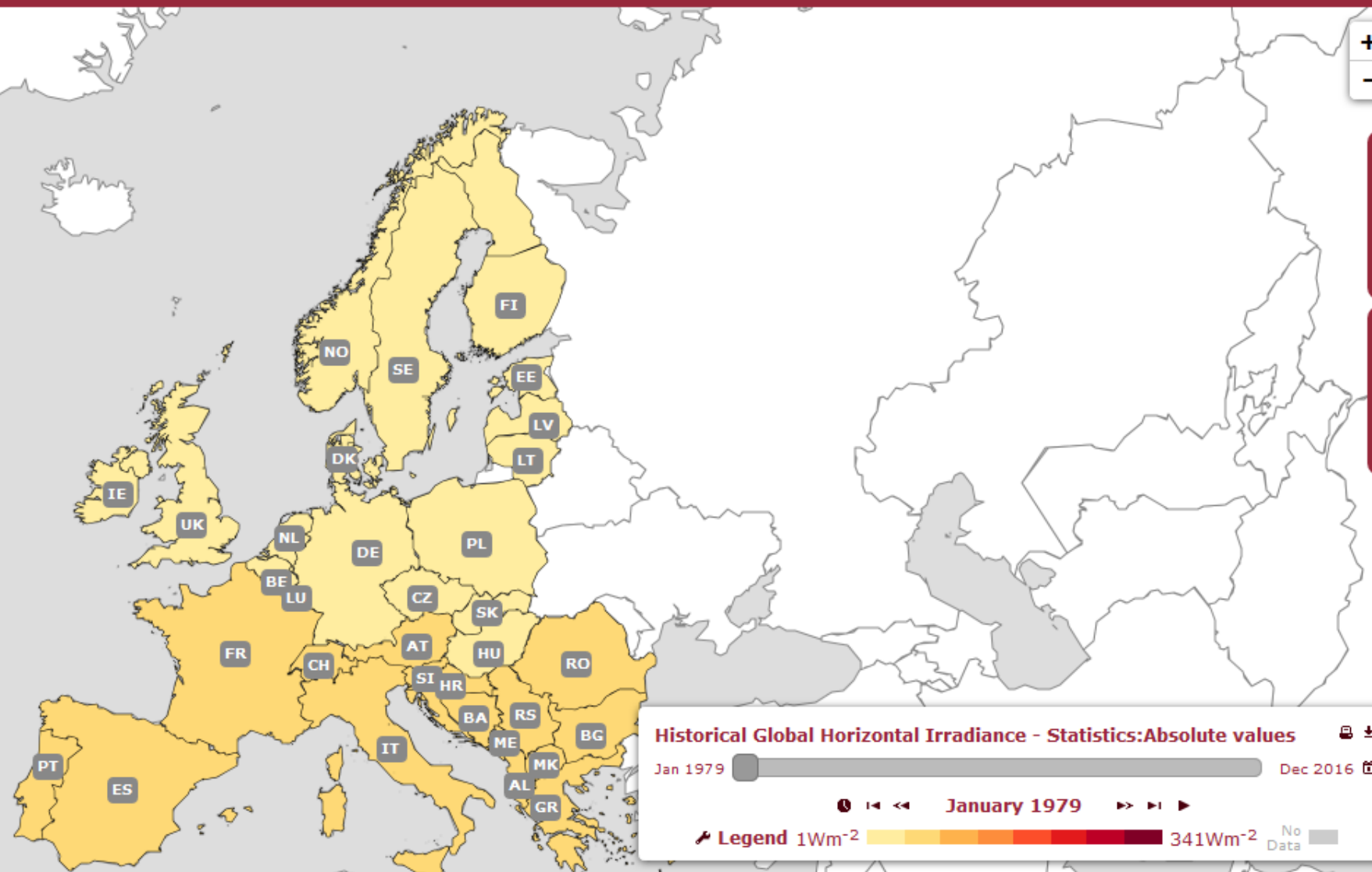
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About the demonstrator

Please Note This demonstrator is in Beta test with documentation, guidance, functionality and data still being generated and reviewed for inclusion.

The ECEM Demonstrator is a **Proof of Concept** with a number of limitations. The developers are not liable for consequences due to decisions taken on the basis of the data displayed in and provided through the Demonstrator.

RESOURCES

Mapping:

Cluster borders: [e-Highway2050 project \(European cluster model of the Pan-European transmission grid report\)](#)

Country borders: Generated by aggregating clusters by country

Projection: [EPSG:3035](#) Lambert azimuthal equal-area projection ETRS89 / ETRS-LAEA

Open Source software:

HTML, CSS, JavaScript plus...

JavaScript plugins: [jQuery](#); [jQuery-UI](#); [jQuery-csv](#); [Blob](#) and [FileSaver](#) (downloading CSVs); [Spectrum](#) (colour picker); [html2canvas](#) and [Leaflet-image](#) (saving the map and its legend); [Spin.js](#) (when something is taking a while to happen)

Mapping: [Leaflet](#) and [Proj4Leaflet](#)

Graphs: [Highcharts](#)

Other:

Additional Icons: [Icons8](#)

Project background:

[C3S European Climatic Energy Mixes \(ECEM\)](#)

[Copernicus Climate Change Service \(C3S\)](#)

[Copernicus](#)

Version 2.0 (21/9/17)

Changes

Map Tutorial

Graph Tutorial

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Global Horizontal Irradiance - Statistics: Absolute values

Dec 2016

Legend 1Wm^{-2} 341Wm^{-2} No Data



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Introduction

The main purpose of the ECEM Demonstrator is to enable the energy industry and policy makers to assess how well energy supply will meet demand in Europe over different time horizons, focusing on the role climate has on energy supply and demand.

It gives users the capability to explore high-quality climate and energy data sets and to easily:

- (i) produce maps and time series plots of these climate and energy variables,
- (ii) modify the appearance of these maps and plots, and
- (iii) download the underlying data and/or the maps and plots.

Different levels of help and guidance are provided including **Key Messages** and **Event Case Studies** which illustrate the types of information which the Demonstrator offers for the benefit of the energy sector. Documentation (including **Variable Fact Sheets**) is provided on all the data sets embedded in the Demonstrator to ensure transparency and that users have appropriate information to judge the quality and reliability of these data for their own particular applications.

Getting started

Help menu

View and download data

Metadata

Close

Irradiance - Statistics: Absolute values



Dec 2016

January 1979



Legend: 1 Wm^{-2}

341 Wm^{-2}

No Data

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▸ Introduction

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▸ View and download data

▾ Metadata

- Variable Fact Sheets provide metadata for the climate and energy variables produced by ECEM. These can be accessed by clicking the ? beside the variable name in the control panel (top left of the screen) or from the option in the help panel (lower left of the screen). Some metadata is included in the filename of the downloaded csv files (maps only).

▸ Definitions

Close

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Beta Version

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Variable fact sheets

A series of fact sheets which provide metadata for the climate and energy variables produced by ECEM. Click on any image to read the fact sheet about that variable:



Wind Speed

Close

Historical Global Horizontal Irradiance - Statistics: Absolute values

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EUROPEAN CLIMATIC ENERGY MIXES (ECEM)

VARIABLE FACT SHEET ECEM VFS C04

Wind speed
(10 m & 100 m height)

*A series of fact sheets which
provide metadata for the
climate and energy variables
produced by ECEM*



1 General

- 1.1 Description
- 1.2 Units
- 1.3 Links
- 1.4 Data format
- 1.5 Keywords
- 1.6 Contact

2 Dataset coverage

- 2.1 Geographic area
- 2.2 Temporal resolution
- 2.3 Time period
- 2.4 Spatial resolution

3 Usage

- 3.1 License conditions
- 3.2 Citation(s)

4 Lineage statement

- 4.1 Original data source
- 4.2 Tools used in production of indicators

5 Data quality

Appendix



The European Climatic Energy Mixes (ECEM) Demonstrator



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Methods & assumptions

Product overview

[Historic climate variables](#)[Energy variables](#)[Seasonal forecasting](#)[Climate projections](#)[Cross-cutting issues](#)[Close](#)[Feedback](#)[FTP](#)



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Methods & assumptions

▼ Cross-cutting issues

- ▶ Data and model sources and provenance
- ▶ Processing and reliability of observed data (climate and energy)
- ▶ Climate models used for forecasts and projections
- ▶ Transfer functions, statistical and physical models used to calculate energy variables
- ▶ Skill and reliability of forecasts and projections
- ▶ Guidance on confidence and uncertainty
- ▶ Underlying assumptions
- ▶ Known limitations
- ▶ What information can be deduced from the data?
- ▶ How can the data be used?

Close

Irradiance - Statistics: Absolute values

Dec 2016

January 1979

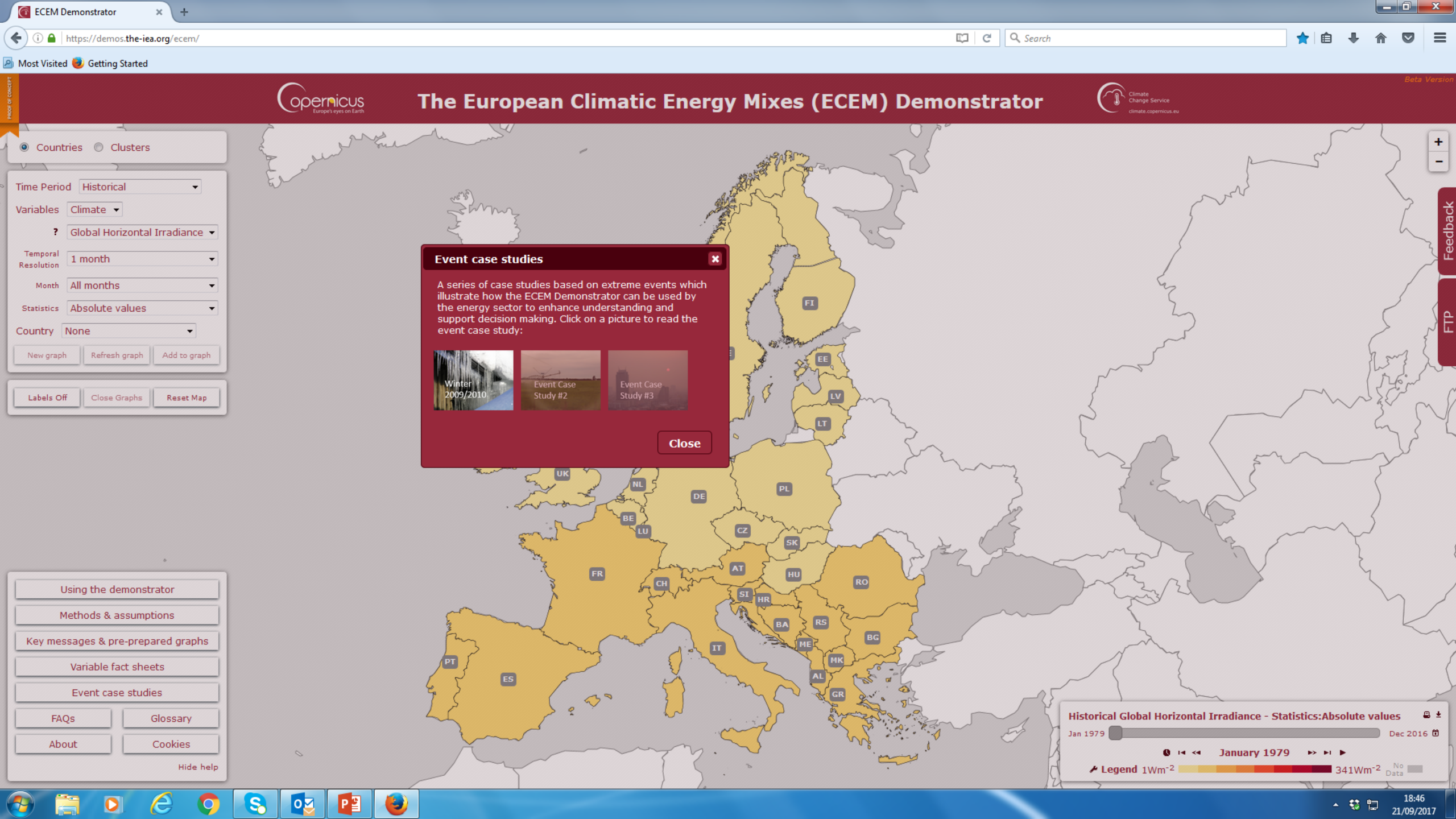
▶ ▶ ▶ ▶ ▶

341Wm⁻²

No Data

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Key messages & pre-prepared graphs

Key Messages

A series of Key Messages for the European energy sector based on the analysis of data in the ECEM Demonstrator. Click on any title to read the key message:

[A warming Europe](#)[A warmer future](#)

Pre-prepared Graphs

Close

Historical Global Horizontal Irradiance - Statistics: Absolute values

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January 1979 **Legend** 1Wm^{-2} 341Wm^{-2} No Data

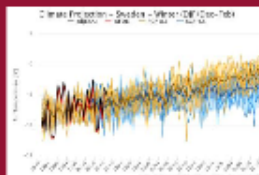
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EUROPEAN CLIMATIC ENERGY MIXES (ECEM)

KEY MESSAGES ECEM KM 02

A warmer future



A series of Key Messages for the European energy sector based on the analysis of data in the ECEM Demonstrator.

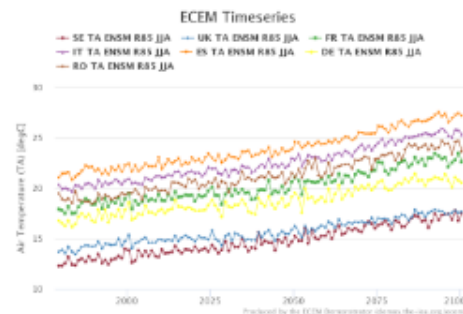


Key messages: A warmer future

- Climate model projections for Europe indicate major warming of about 3 to 5 °C on average by 2100 for a high greenhouse gas emissions scenario
- These trends are robust when considering variability across different models, although there is some uncertainty in the magnitude of warming
- The projections indicate more frequent high temperature extremes. For Spain and a high emissions scenario, for example, almost every year after about 2050-2070 (depending on model) is indicated to be warmer than the summer of 2003
- Warming of this magnitude is likely to impact energy demand as well as solar and hydro supply

How do we know the future will be warmer?

Climate projections for Europe show warming continuing to the end of the century under a high greenhouse gas emissions scenario (RCP8.5). The plot below shows projections (as the average of seven different regional climate models (RCMs)) for summer (June, July and August) for seven countries (Sweden, UK, France, Italy, Spain, Germany and Romania).



For more information visit
www.ecem.climate.copernicus.eu
or contact the ECEM team at
support@ecem.climate.copernicus.eu

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▸ Key Messages

▾ Pre-prepared Graphs

Guidance on the graphs that are available in the ECEM Demonstrator. Click on any title to read the guidance:

Full-View Climate Projection Timeseries Plots

Close

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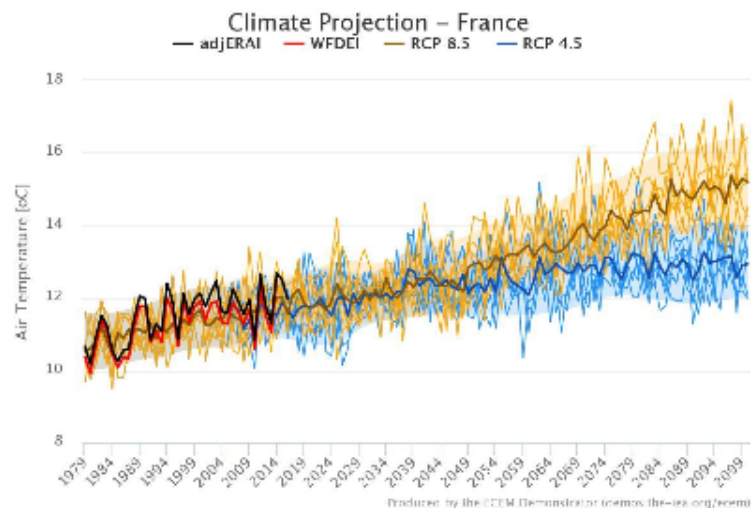


C3S ECEM Demonstrator - Pre-prepared graphs

FULL-VIEW CLIMATE PROJECTION TIME-SERIES PLOTS

The full-view climate projection time-series plots are provided to allow comparison of models and scenarios in the same plot while also appropriately representing their uncertainty. Historical data are also over-plotted to allow an assessment of the climate models.

The Demonstrator selection menu gives users full control in choosing which variable, time resolution and country/cluster to view. The example here is for annual temperature for France:



How is model and scenario spread represented?

To represent the spread across climate models, we show individual models (thin orange and blue lines) as well as an estimate of model spread (the shaded orange and blue areas, obtained by applying an 11-year smoothing algorithm to the maximum and minimum values at each data point).

To represent the influence of different greenhouse gas emissions pathways, we show a higher business-as-usual scenario (RCP8.5 in orange) as well as a lower mitigation scenario (RCP4.5 in blue).

How do I interpret possible signals in projections?

To represent the general pattern of change and to help determine if there is a robust signal of change, we also show the ensemble mean (thick orange and blue lines), i.e., the average across all available models. It is recommended to look at the range across models as well as the ensemble mean. This is particularly important for variables such as precipitation where the direction of change

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Frequently Asked Questions

▼ How often are changes to the demonstrator implemented?

Users can keep track of when changes are made by looking at the version number which can be found in the **About** details.

Version 1.0 was launched on 1 September 2017. For subsequent versions, **About** also gives a list of the Changes from the previous versions in terms of both New Functionality and Bug Fixes.

In the lead-up to the pre-operational launch at the beginning of November 2017, it is anticipated that version updates will be provided once or at most twice a month.

► When will the pre-operational/operational system be available?

► How do I get in touch with you?

Close

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