



Helping Europe respond to the impact of climate change

## CLIPC: From Big Data Science to Big Data Decisions

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**CLIPC: Constructing Europe's Climate Information Portal**  
CLIPC will provide access to climate datasets, and software and information to assess indicators for climate impact.

- Duration: 3 years, start Dec 2013
  - Consortium: 22 Partners
  - Coordination: Martin Jukes, STFC
  - Lead: STFC ([www.stfc.ac.uk](http://www.stfc.ac.uk))
  - Budget: 6 million €
- A “one-stop-shop” platform will provide data and information on climate and climate impacts

## Objectives

- Harmonised Data Access
- Harmonised Data
- Systematic generation of climate impact indicators
- Ranking and Aggregation of impact indicators
- Provision of clear information of data quality
- Visualisation and Manipulation of data
- Convergence with Marine Service
- **Harmonised services**

## Background

- Users
- Science
- Technology
- Standards

## Outcome

- The CLIPC Portal



# Four aspects of the platform

## Users

Review 50+ FP7 surveys;  
Foci: climate science, impact science,  
boundary work, end user;  
Ongoing conversation.

## Science

- Complex ensembles;
- Addressing bias;
- Assessing and communicating uncertainty.

## Technology

- View, Compare and Combine functions;
- Reliance on standards, reliable meta-data;

## Standards

- File meta-data;
- Vocabularies;
- Catalogue records;
- Uncertainty fact sheet;

# User Engagement

## D2.1: User Requirements, Part 1 ([w3id.org/clipc/docs/D2\\_1](http://w3id.org/clipc/docs/D2_1))

- light review of 55 FP7 projects;
- detailed reviews of 11 of these;
- identified 4 key user categories;
- → user consultation strategy. ★

## D2.2: User Requirements, Part 2 ([w3id.org/clipc/docs/D2\\_2](http://w3id.org/clipc/docs/D2_2))

- online survey; telephone interviews; workshops; ★
- identified priorities:
  - *multiple routes to data;*
  - *easy access to ancillary information;*
  - *personalised browsing.*

## User Categories

- Climate Scientist
- Impact Scientist
- Boundary worker (e.g. environment agency, consultancy)
- End user (e.g. decision maker)

## MS6: User Evaluation Report ([w3id.org/clipc/docs/MS6](http://w3id.org/clipc/docs/MS6))

- virtual workshops for specific user groups;
  - discussion of prototype options;
  - preparing for final event:
    - October 20<sup>th</sup>, Brussels
- [tinyurl.com/CLIPCworkshopRegister](http://tinyurl.com/CLIPCworkshopRegister)*

## Bias

There are many techniques for dealing with bias. CLIPC has contributed to the “Bias Correction Inter-comparison Project” which identified a lack of agreement between methods.

## Ensembles

Climate model ensembles are difficult for users. Objective methods for providing reduced ensembles have been investigated .. but cause problems for the uncertainty assessment.

# Standards

## File meta-data standards

- *Climate projections:*
  - *global;*
  - *regional;*
- Regional re-analysis (with UERRA);
- Observations (space) (with ESA CCI);
- Observations (in situ);
- Impact Indicators;

CMIP style

## Vocabularies

CF Standard Names  
Essential Climate Variables  
Platforms  
Sensor  
..... and many more

## Catalogue

INSPIRE compliant (UK Gemini profile);  
Keywords as SKOS identifiers;

Also:

- Dataset uncertainty/quality assessment;
- Using OGC services (WPS, WMS, CSW);
- “Open door” data policy;



# Technology

**CLIPC Portal**  
Flexible user interface

**climate4impact.eu**  
Service integration

Imports data via  
OPeNDAP from multiple  
sources; exports via OGC  
services

KNMI  
FTP  
server

Earth System Grid Federation (ESGF)  
Globally distributed data broker

Data published through ESGF or  
placed on KNMI server.

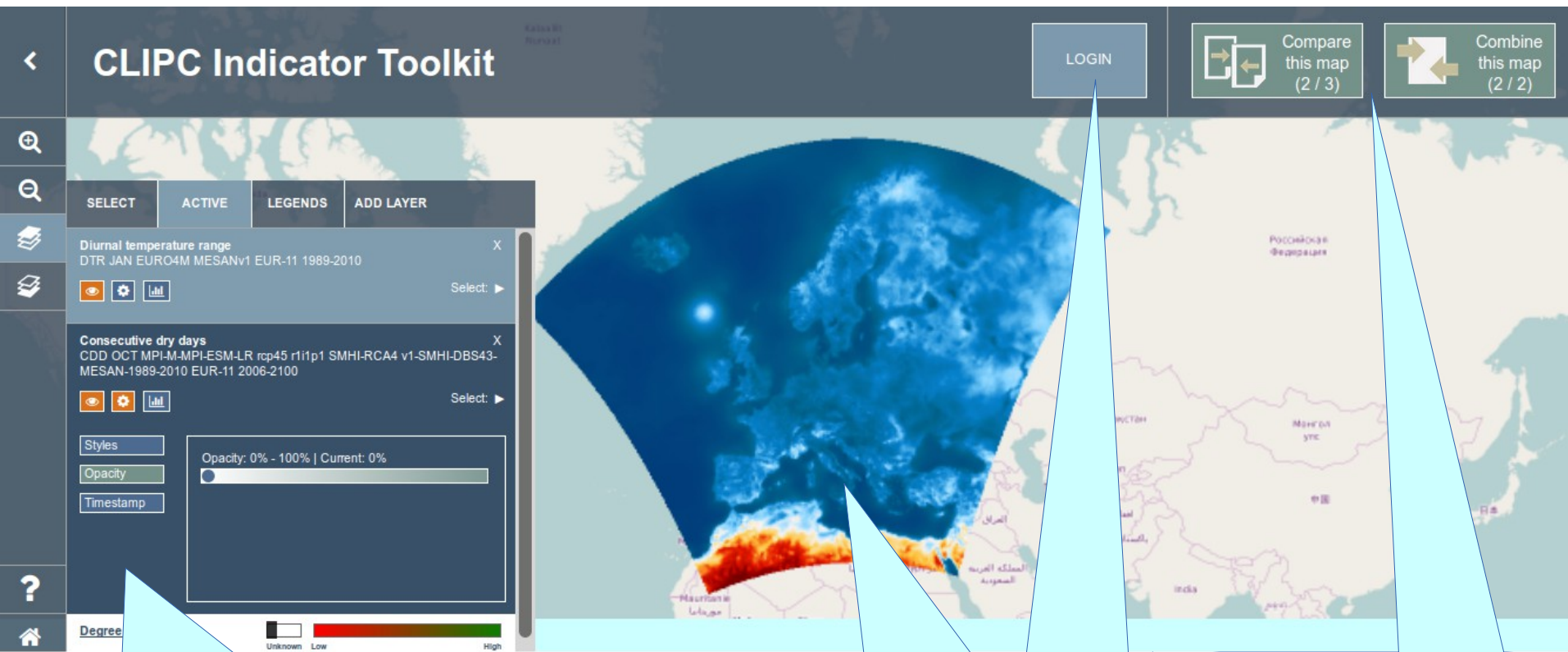
Global projections; regional projections;  
regional re-analysis; satellite  
observations; in situ observations.

Climate Change Impact  
Indicators

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## CLIPC Data Viewer

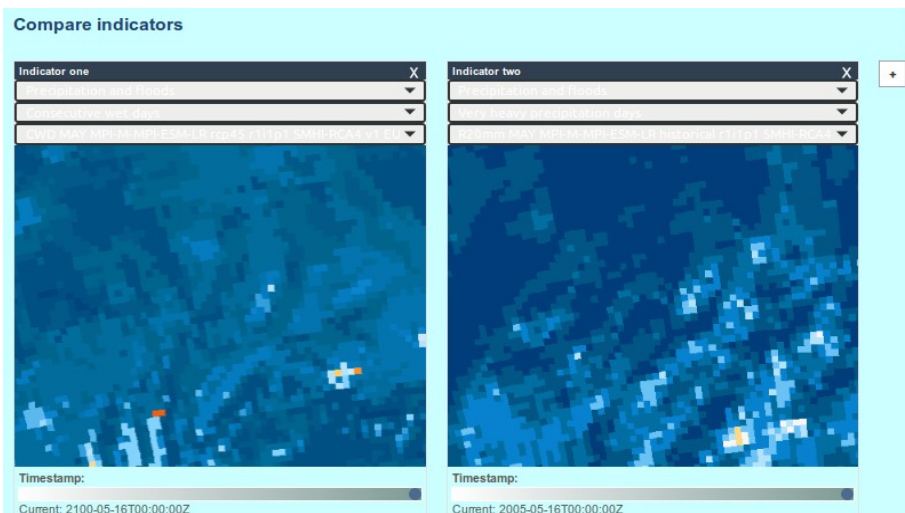


Collapsing box for settings, data selection and ancillary information

Full screen data display

Additional views to compare and combine data

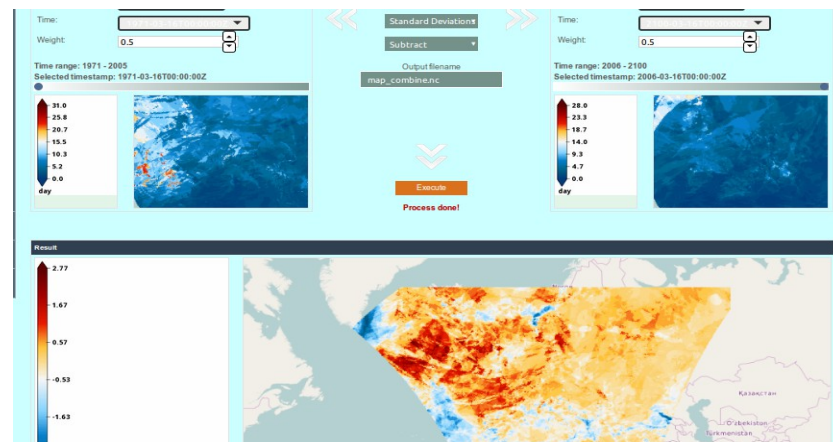
Logon to access "MyData"



The **compare** tool allows 2 or more datasets to be viewed next to each other; also provides a metadata comparison.

The **combine** tool allows datasets to be combined to produce a new data set.

Login with social media account gives access to personal history and data products.



# Conclusions

- **The CLIPC portal** provides a rich data viewing and processing portal built on a scalable data service infrastructure;
- **Conflicting requirements** for the user interface lead to separate viewers for (1) climate science data (time series of gridded data from models and observations) and (2) climate change impact indicators (e.g. flood risk);
- **User engagement and data standards** both played important roles in promoting communication among the many science and technology specialities;

Final evaluation workshop: October 20<sup>th</sup>, Brussels.  
See <http://tinyurl.com/CLIPCworkshop>  
Or: see “News” section of [www.clipc.eu](http://www.clipc.eu)

# THANK YOU!