Climate Information Portal

Climate Information Platform for Copernicus

Helping Europe respond to the impact of climate change

CLIPC : Demonstrating the MyCLIPC toolkit for viewing and processing climate impact indicators

Peter Thijsse (MARIS), Wim Som de Cerff (KNMI), et al. – 11 October 2016

www.clipc.eu

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Outline

1. Introduction to CLIPC
2. Exploring with the MyCLIPC Impact Indicator Toolkit (background & screens)
3. Underlying dataset catalogue, processing services, and techniques

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1. What is CLIPC?

- The CLimate Information Portal for Copernicus project aims to develop:
  - A portal to access climate data and information
  - Tools and services for working with them

- One of the FP7 precessor projects for EU C3S – Copernicus Climate Change Service (comparable to CMEMS)

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1. What is CLIPC?

- Aimed at climate scientists, (socio-economic) impact researchers, boundary workers. NOT End-users / decision makers
- Data: Climate observations and projections data and impact indicators
- Standards: Use existing standards, but also expand existing vocabularies and data and metadata standards
- Re-use existing concepts, components and services as much as possible but also innovate

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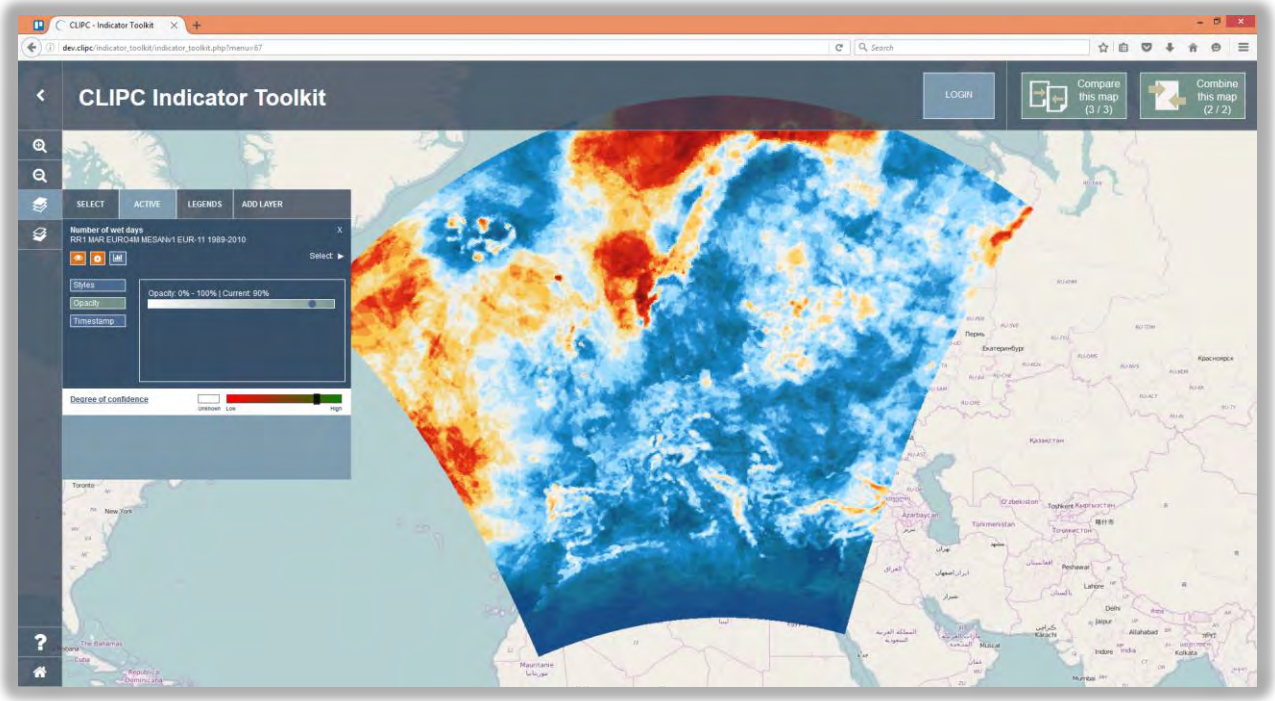
2. Exploring with the indicator toolkit



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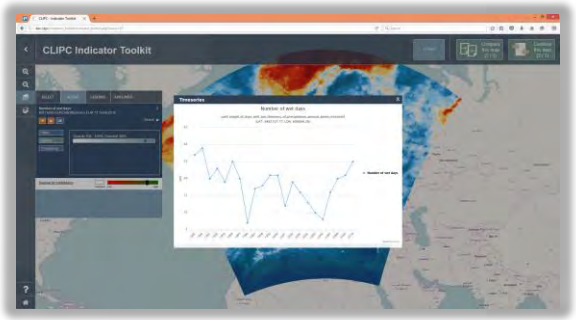
Approach for the toolkit

CLIPC discussions have focused on a virtual user “Jake Smart” as a boundary worker.

“What should he need to create an advice?”

- Explore the datasets (time series, histogram, etc)
- The possibility to view set of indicators per theme: Thematic approach
- Function “compare”: compare indicators visually and via metadata.
- Function “combine”: Combine 2 indicators into a third via calculation/algorithm selection
- All integrated in one user interface



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Basic software for toolkit developments

- OpenLayers 3 /JavaScript / Php
- KNMI Adaguc visualization server. Visualises **NETCDF CF** data from an OpenDAP server.
- Processing runs via KNMI's Climate4Impact WPS services.

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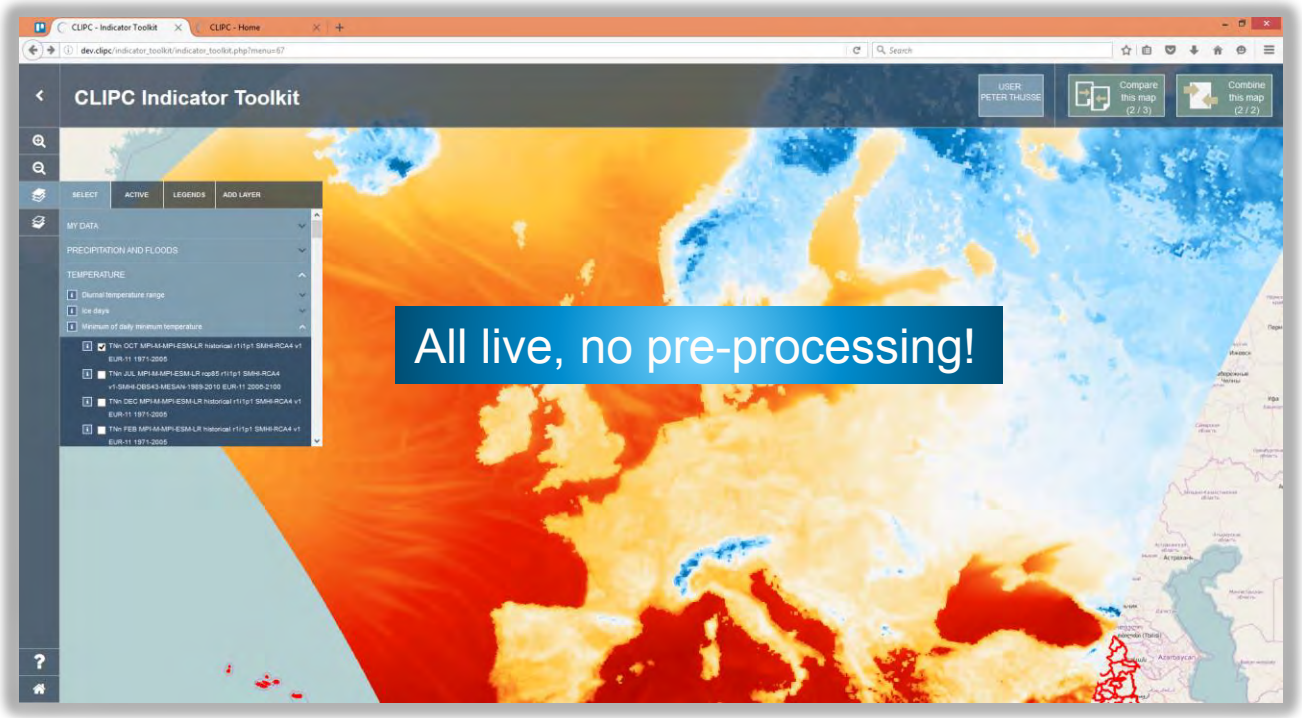
Features of the indicator toolkit



Try yourself via
http://www.clipc.eu/indicator_toolkit/indicator_toolkit.php

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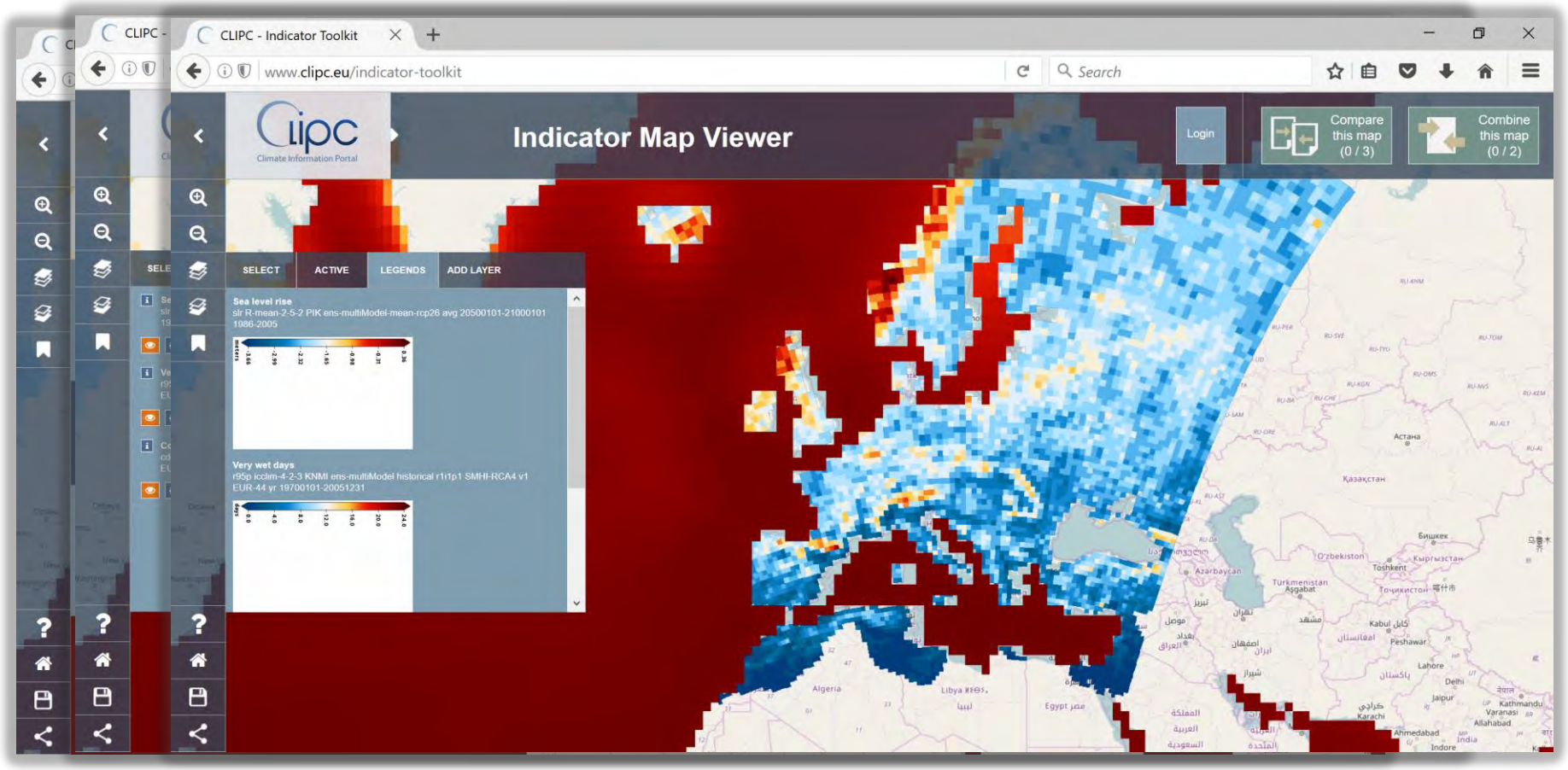
Select and view indicator datasets



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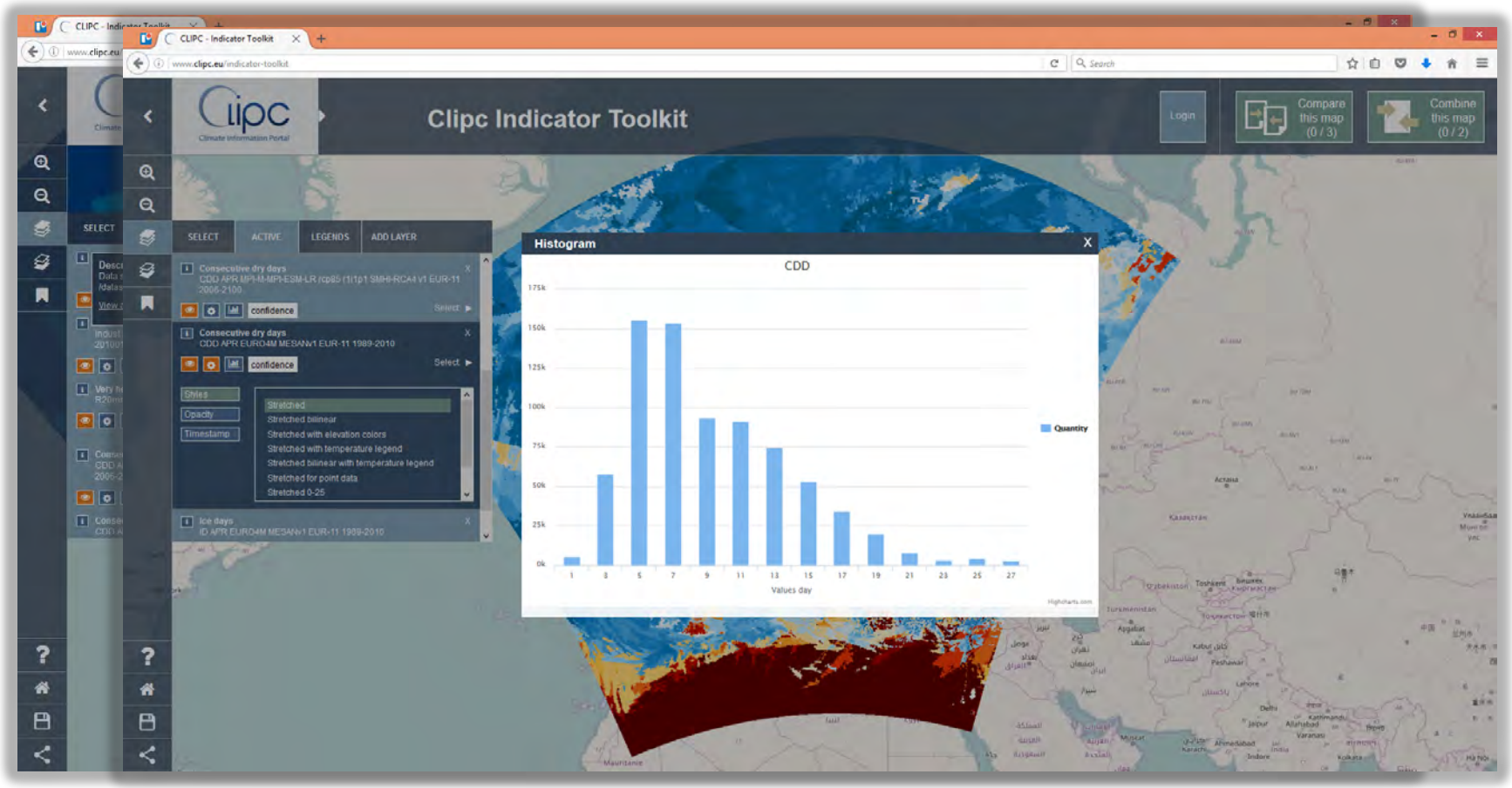
Check metadata, timestamp, histogram



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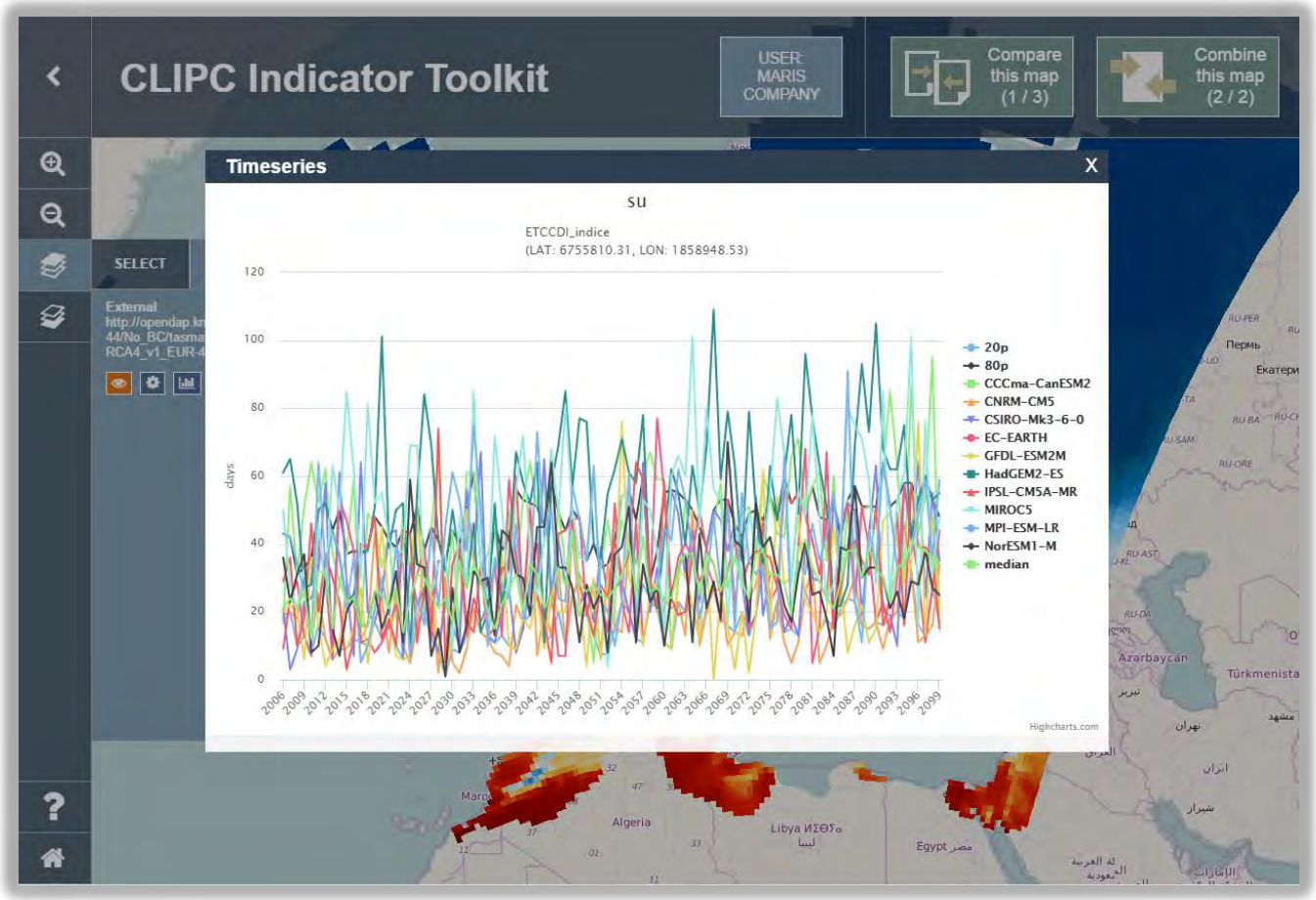
View timeseries - Ensembles



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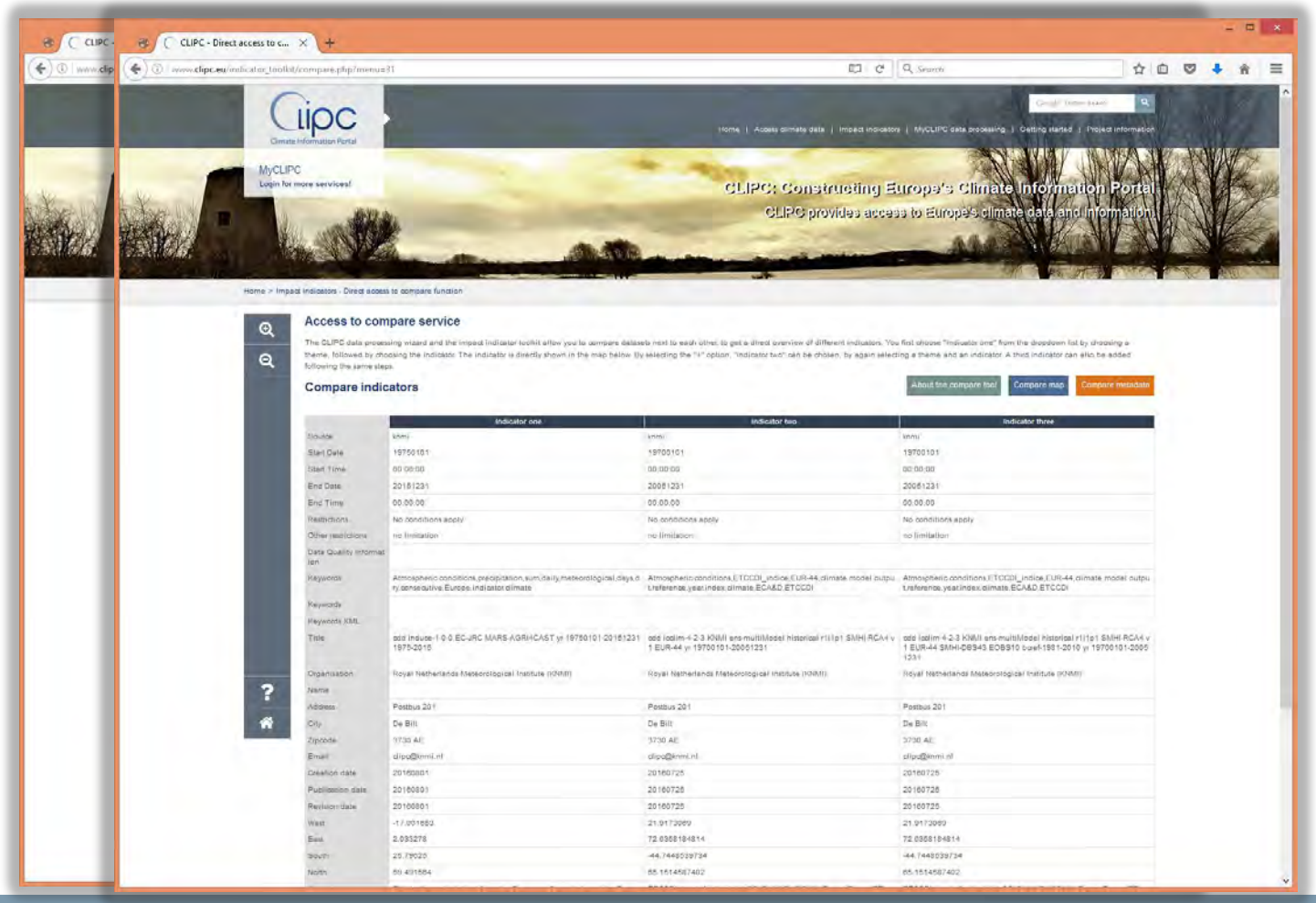
Compare indicator datasets (maps and metadata)



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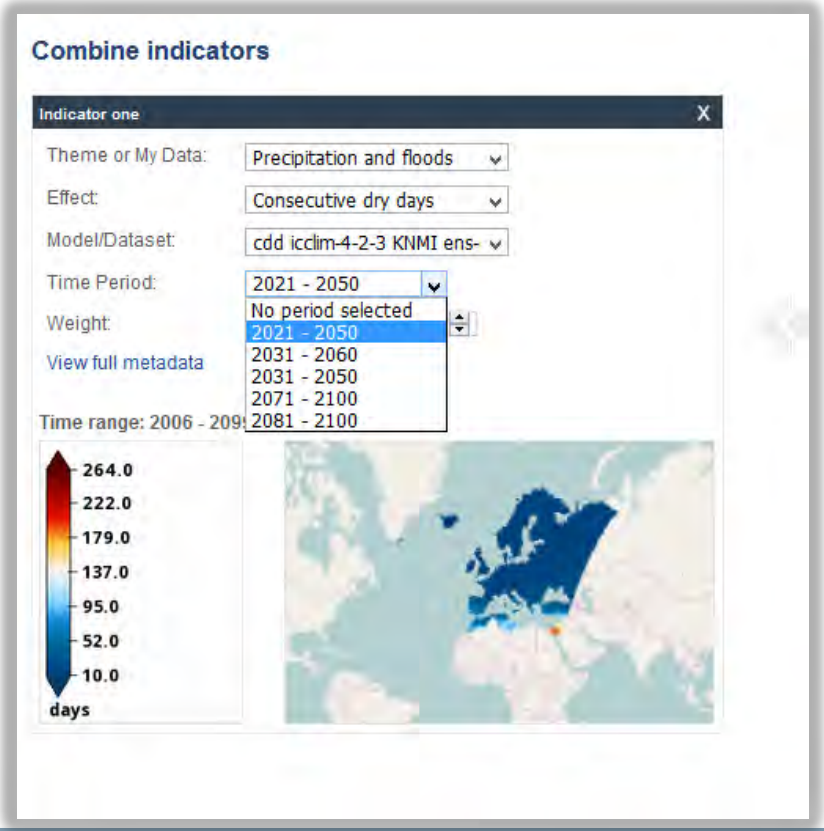
Combine indicators – create time period averages

Calculating averages over 20/30 years on the fly



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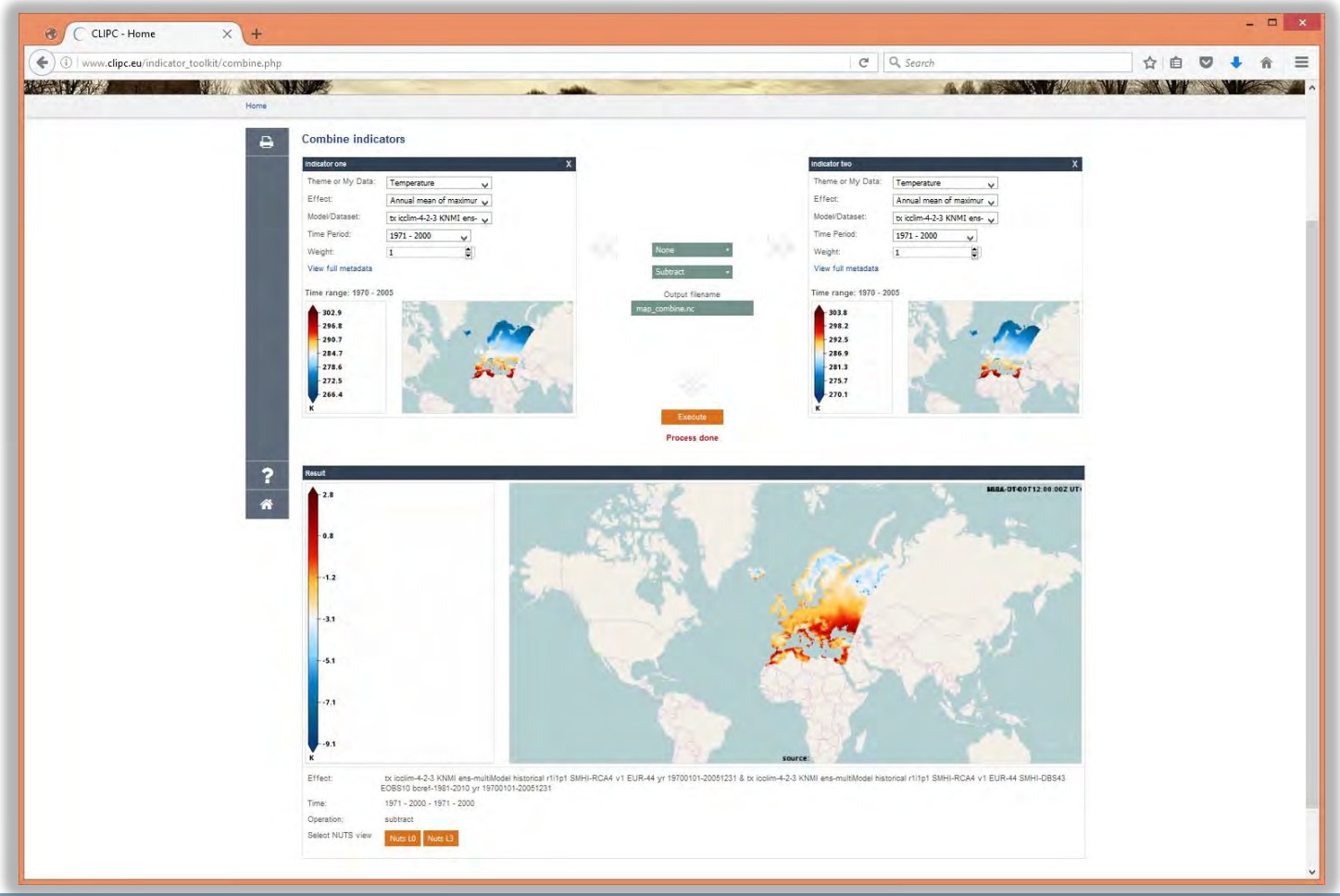
Combine indicators – subtract = difference map



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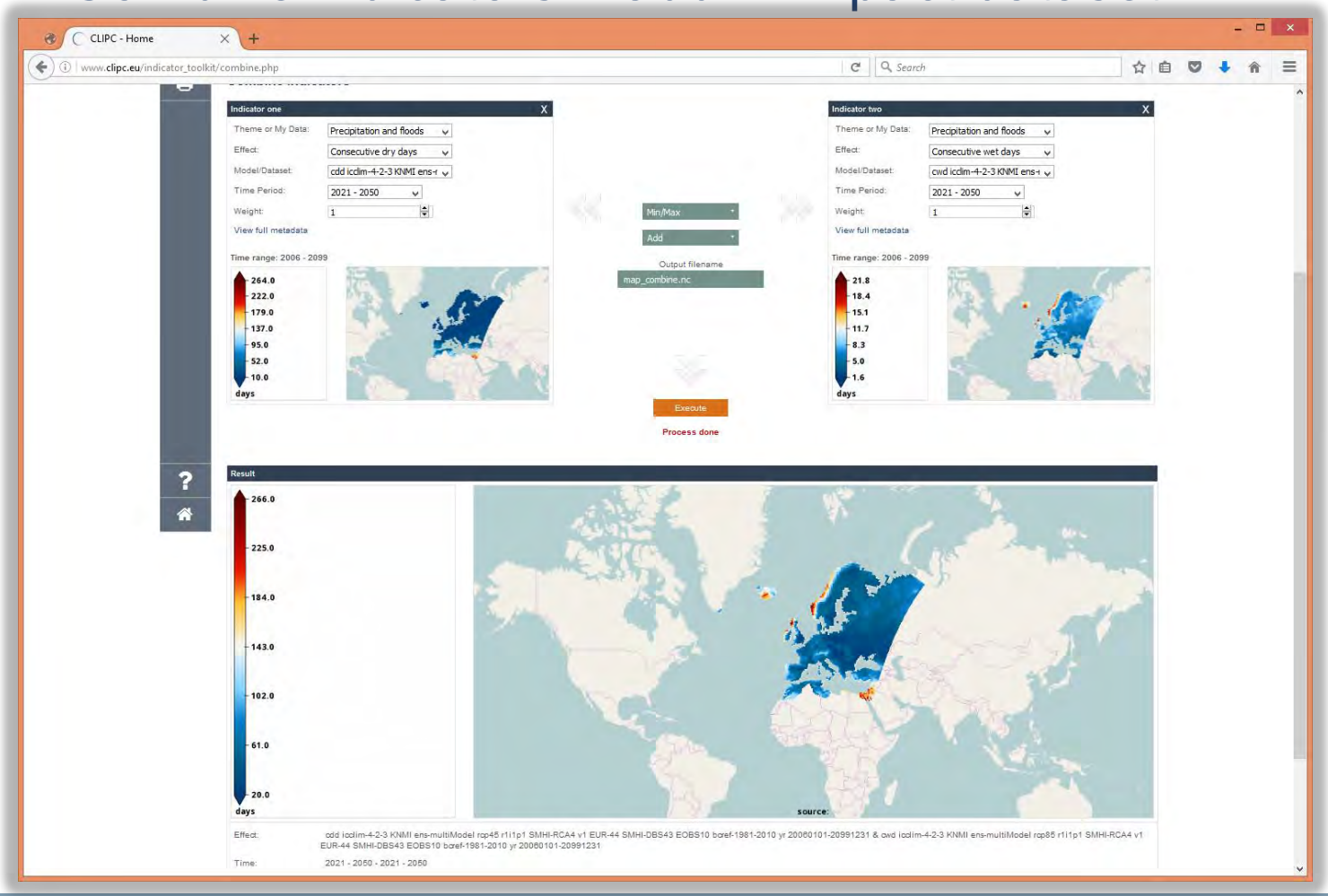
Combine indicators – add = Impact dataset



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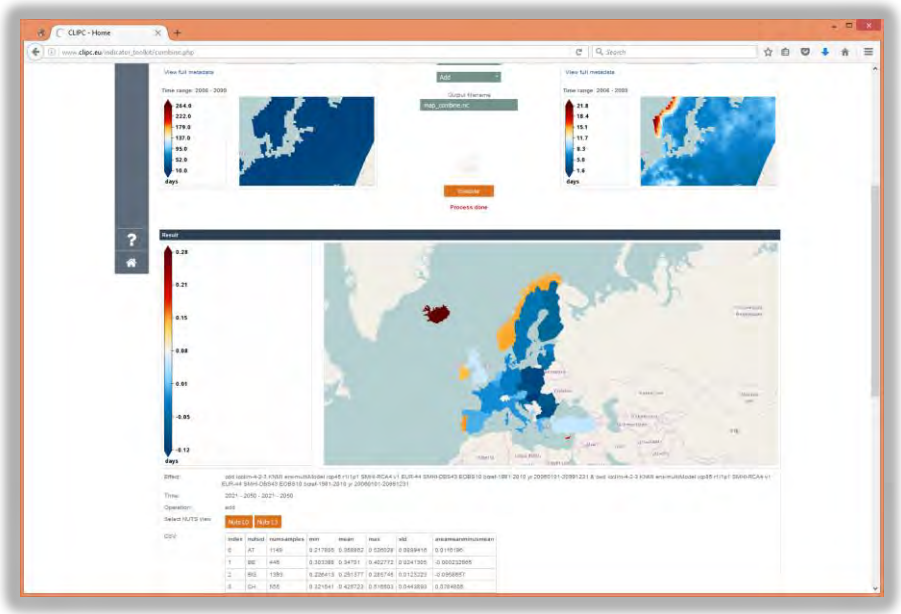
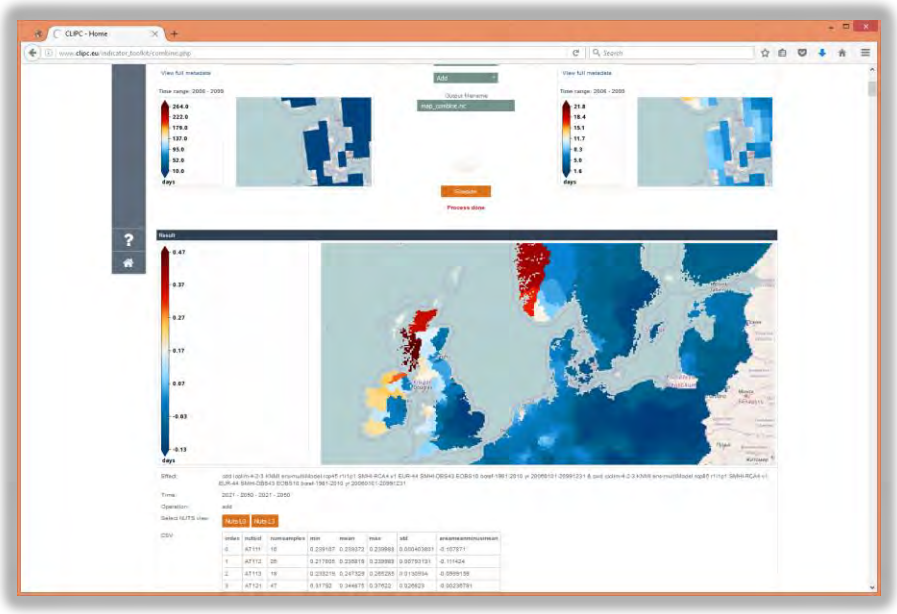
Combine indicators – average the result over areas (NUTS = EU Admin regions)

NUTS 0 (Countries)



NUTS 3 (Departments)



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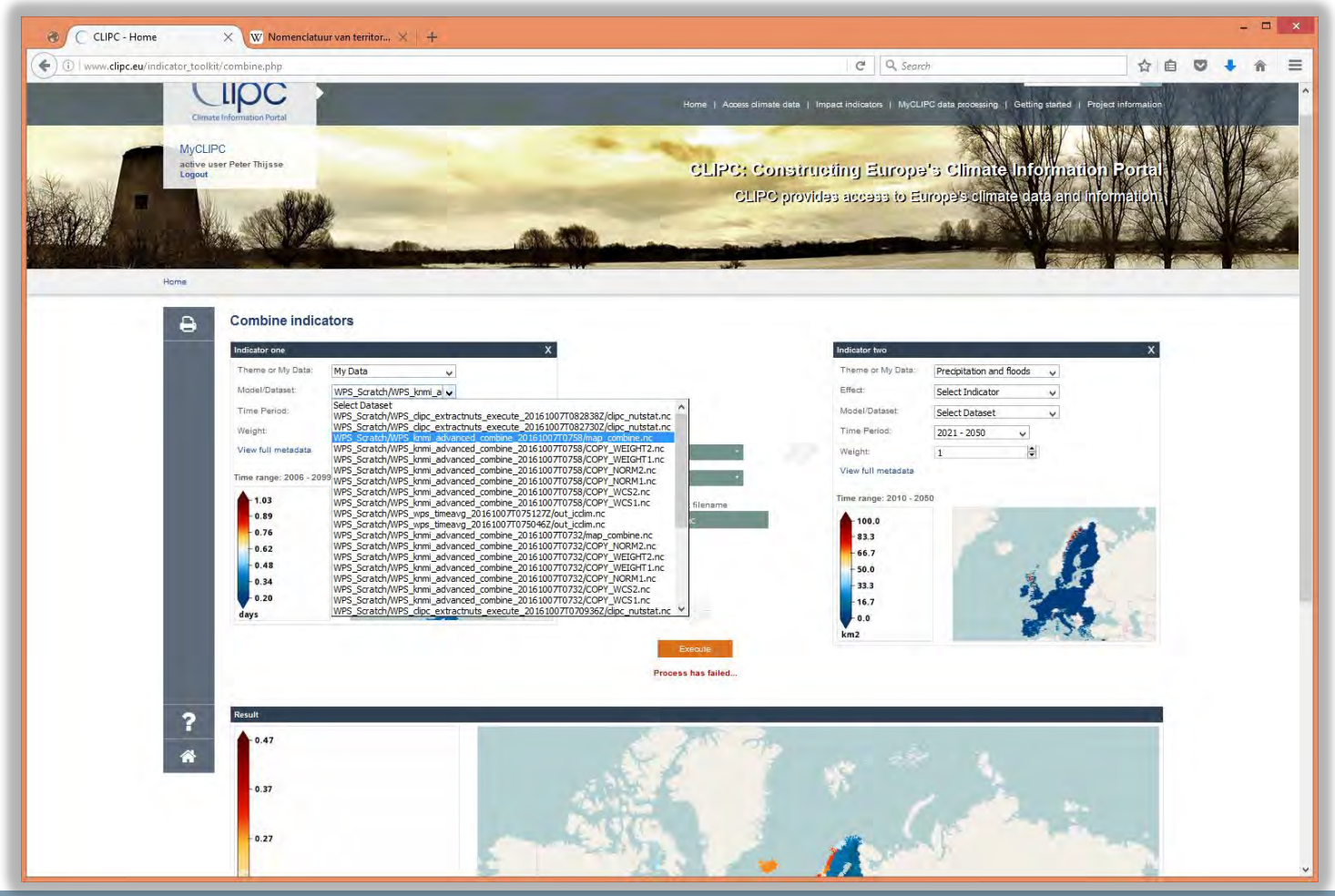
Re-use your output



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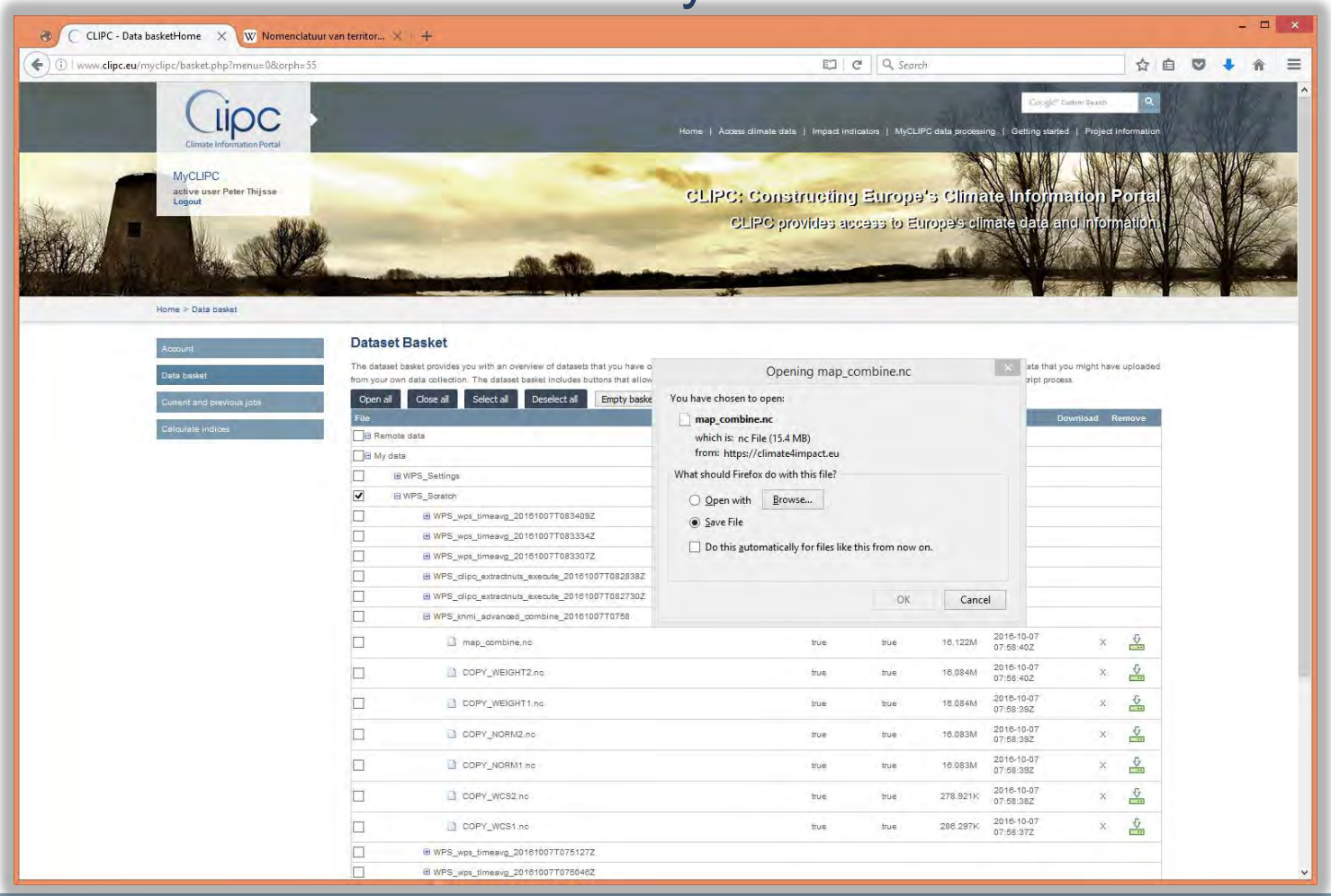
Or download from your “basket”



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3. Underlying dataset catalogue, processing services, and techniques

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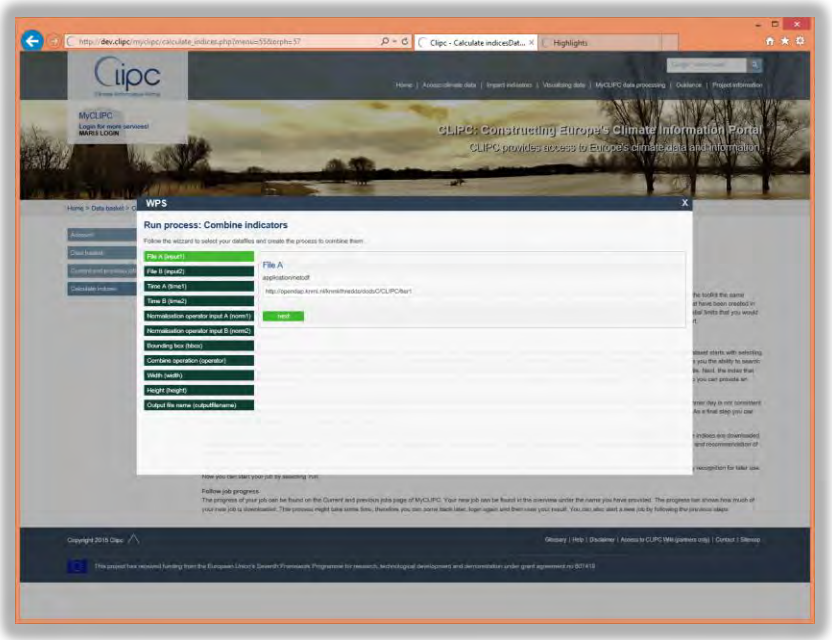
Wizard access to MyCLIPC processing services

- Processing datasets/indicators yourself, in the toolkit and via “wizards” on top of WPS’s
- Users login before being able to use the tools. This provides the user their own “working environment” and allows to save datasets, view job progress, etc.
- Results can be used, previewed, saved and shared.



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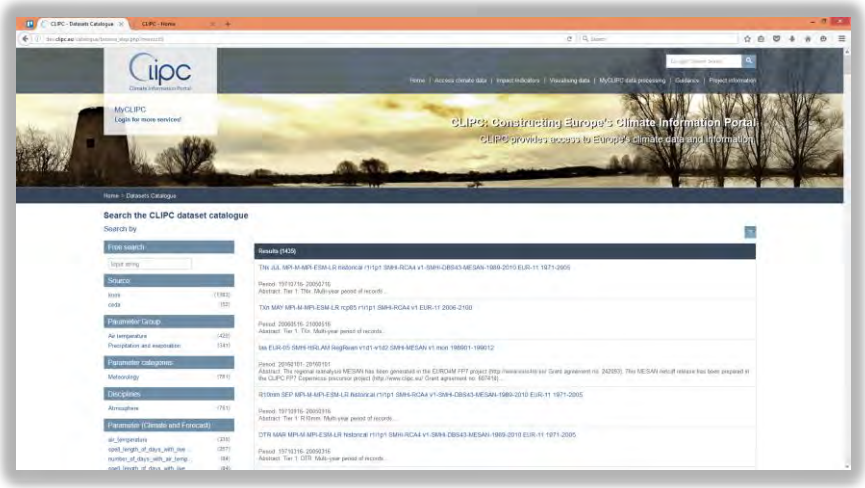
Dataset catalogue

- Dataset catalogue:
  - Overview of CLIPC validated climate datasets (ESGF – STFC server) and climate impact indicators (KNMI server)
  - First goal: Harvesting daily latest status and is input data for the toolkit
  - Second goal: Harmonising the metadata (ISO19139) as much as possible. The catalogue offers search and view of the datasets metadata.



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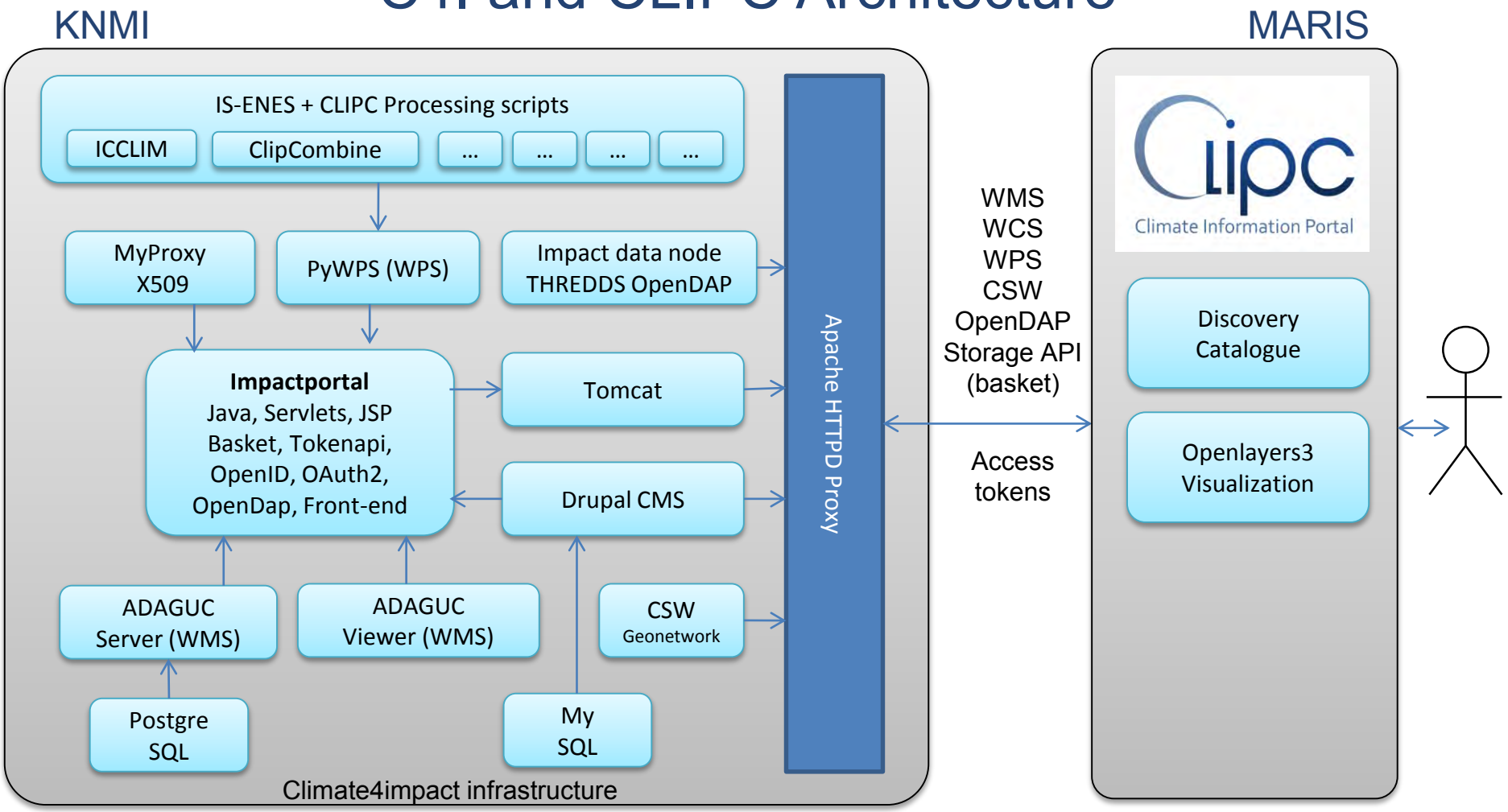
C4I and CLIPC Architecture



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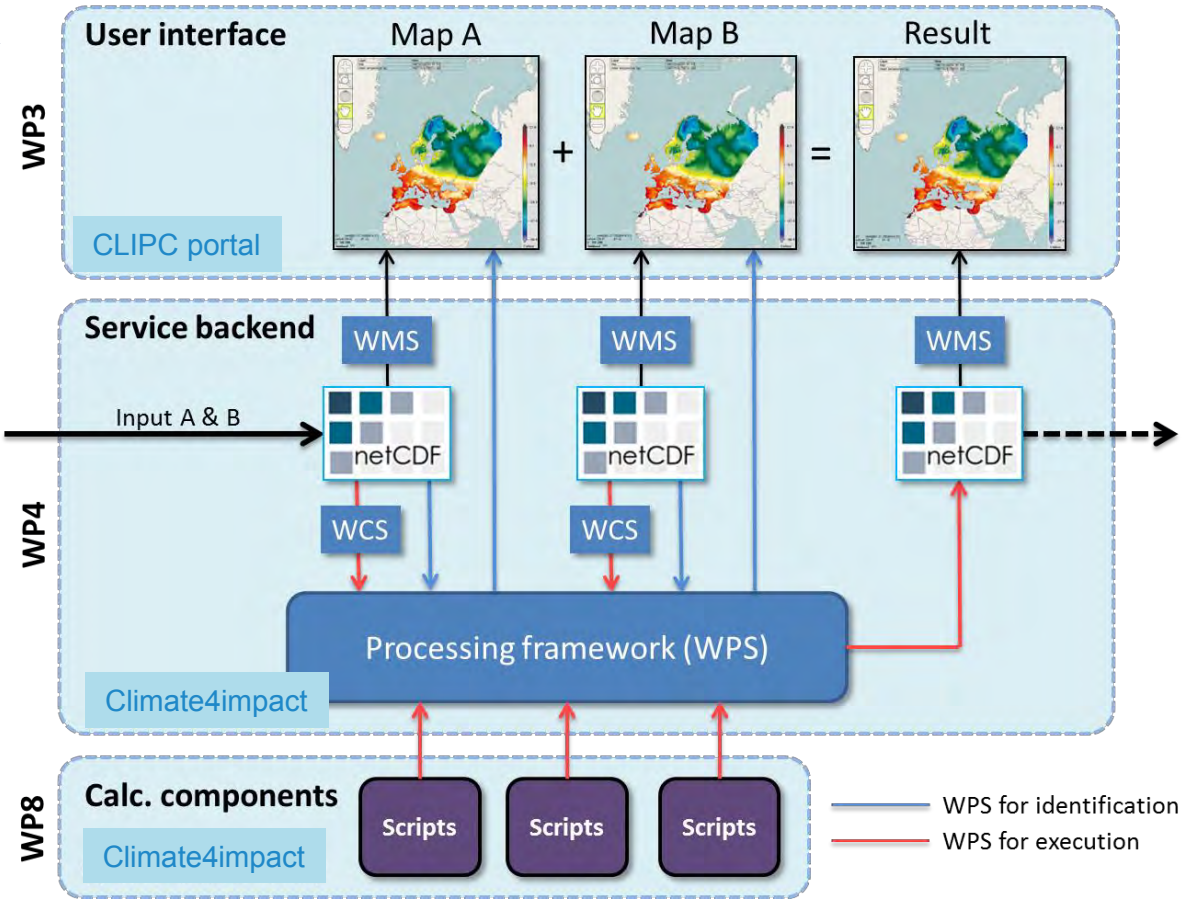
Toolkit integration and indicator processing

Implementation Framework

- Normalization functions:
  - Linear
  - Standard deviation
  - Min/max
- Calculations supported:
  - Add
  - Subtract
  - Multiply
  - Divide
- Easy extendable with new calculations
- Next: combining NUTS and Raster data
- Integrated in portal (see demo)



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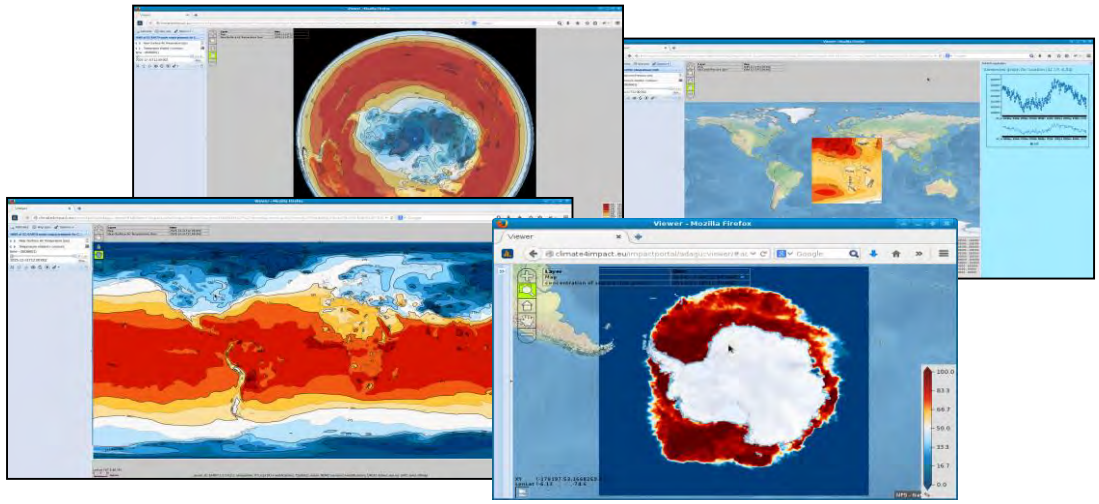
Use of open standards and Open Source software:

- Data access over OPeNDAP → THREDDS
- Online analysis using WPS → PyWPS and ICCLIM
- Online visualization using WMS → ADAGUC
- Subsetting using WCS → ADAGUC
- Metadata using CSW → Geonetwork
- Single Sign On → OpenId, OAuth2, delegation using MyProxy X509, Access Tokens



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Final message

- Lots of parallels with opportunities in marine domain (SeaDataCloud, CMEMS, EMODNet)
- Standardisation of datasets and metadata is key
- Focus on the user, offer matching services, and technically there is a massive potential

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ThankYou
Merci
Hvala
Kop
Salamat
Tack
kun
Gra
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Khopjai
Gomapsupnida
Kruthagnathalu
Arigatou
Dhonnobaad
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Dhanyavaadaalu
Dank
Takk
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