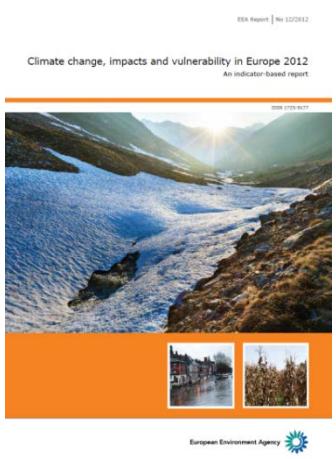
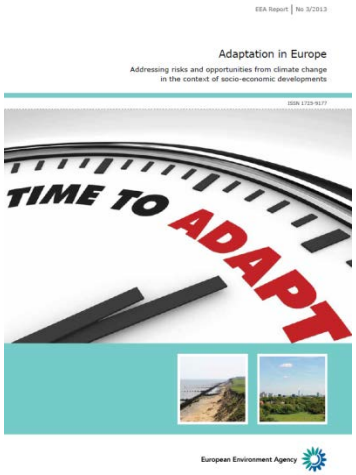
Climate information for European assessments

Blaz Kurnik
Climate change impacts and adaptations (EEA)





European Environment Agency

EEA mission

The European Environment Agency is the EU body dedicated to providing sound, independent information on the environment

We are a main information source for those involved in developing, adopting, implementing and evaluating environmental policy, and also the general public

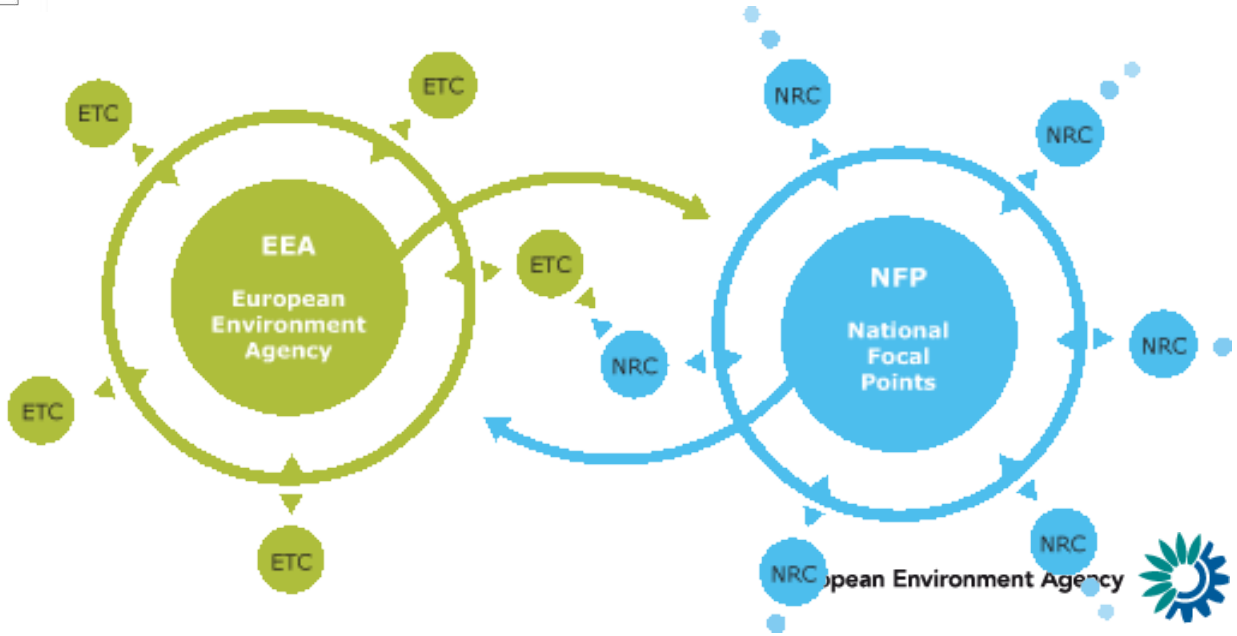
EEA clients are…

- European Commission, European Parliament, Council, EEA member countries (32 + 6 collaborating)
- Policy influencers: NGOs, business, media, advisory groups, scientists, debaters
- General public

EEA structure

About 300 national institutions

- National focal points
- European topic centres
- National reference centres

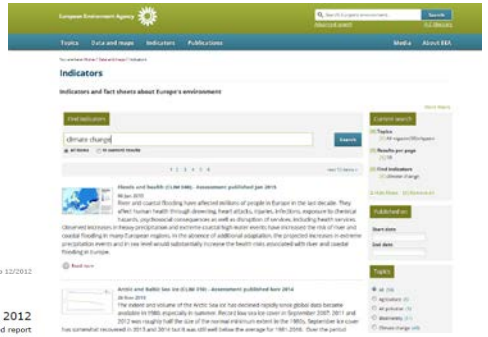


Main EEA products and tasks

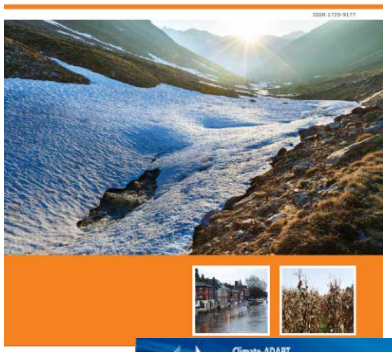
- To maintain regular **flow** of environmental data and data **collection** through the EIONET
- To regularly update environmental **indicators**
- To publish environmental (including climate change) **assessments**
- To maintain environmental **information platforms** (BISE, WISE, Climate-ADAPT)
- To coordinate implementation of two components of **Copernicus land monitorng service** and **Copernicus In-situ** component

Climate change information

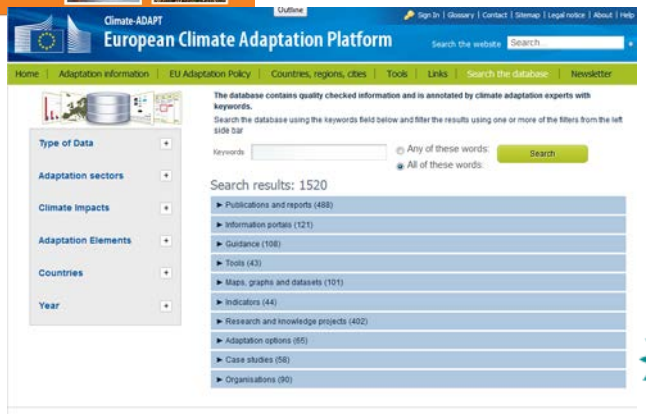
Climate change impacts indicators
(updated every 1-4 years)



Climate change impact reports
(update every 4 years)



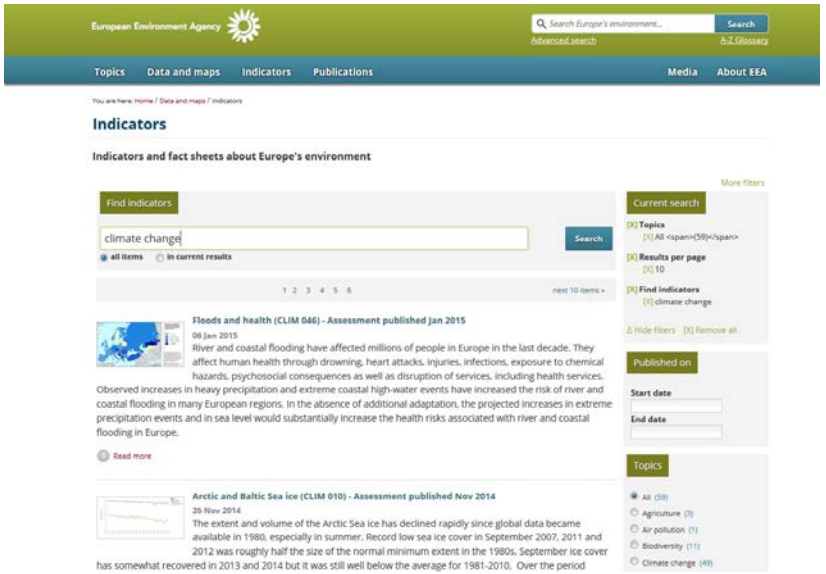
Climate-ADAPT
(updated “daily”)



EEA Climate change impact indicators

EEA climate change impact indicator:

- is a measure that can be used to illustrate and communicate complex environmental phenomena (e.g. climate change) simply
- comprises specification and assessment(s) including key messages
- uses quantitative data on observed changes and projections
- includes information on uncertainties
- has policy defined purposes
- uses well defined criteria
- is published on EEA web pages and in Climate-ADAPT
- supports development of adaptation policies



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Underpinning datasets

Type:

- Climate variables (daily min, max, mean air temperature, total precipitation amount, …)
- Climate indices (drought index, cold spell index, soil moisture index, …)

Sources:

- Research projects and programmes (EURO4M, ERA-CLIM2, UERRA,...)
- Met offices and Climate Services (ECMWF, UK MO, KNMI, …)
- Global and European organisations (WHO, ECDC, CRED, JRC, …)
- Academia, through scientific literature databases
- EIONET and ETC

Criteria:

- Thematic and policy relevance
- Scientific soundness
- Geographical coverage
- Appropriate geographical characterization
- Long time series
- Reliable data supply
- Clear methodology

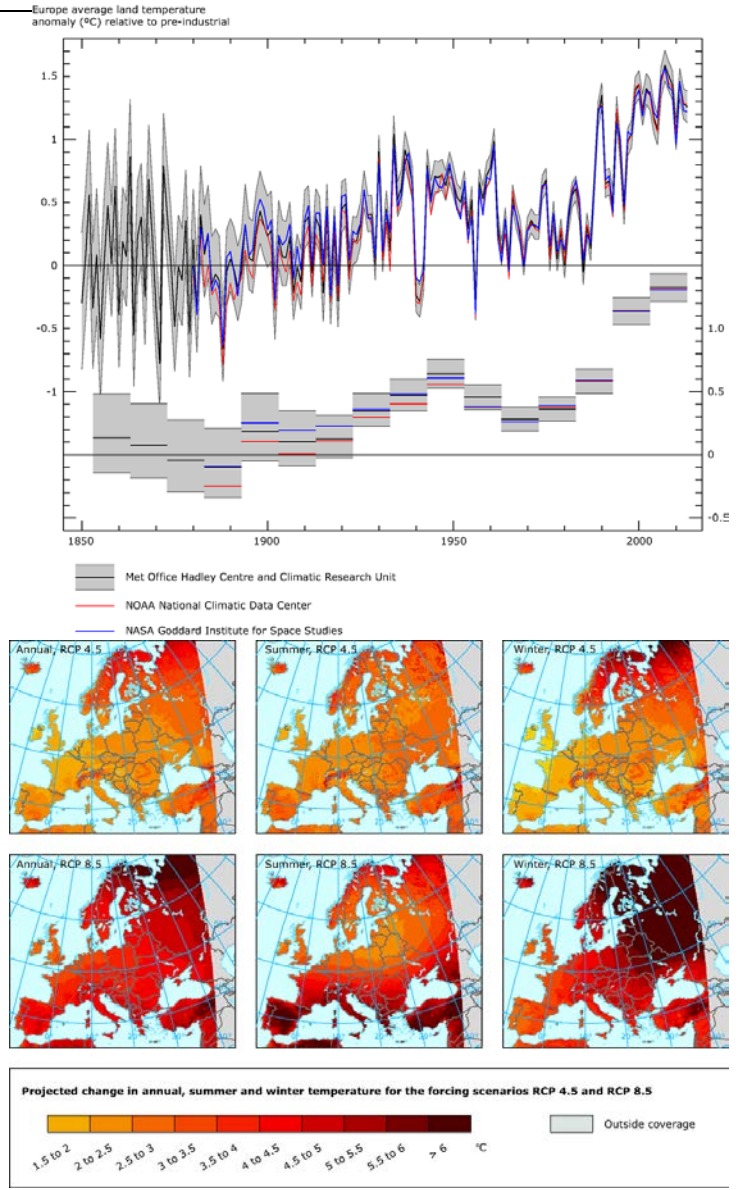
Example: Global and European temperature (CSI012)

Key messages

- The average temperature for the European land area for the last decade (2004–2013) is 1.3°C above the pre-industrial level, which makes it the warmest decade on record.

- Annual average land temperature over Europe is projected to continue increasing by more than global average temperature over the rest of this century, by around 2.4 °C and 4.1 °C under RCP4.5 and RCP8.5 respectively.

- Extremes of cold have become less frequent in Europe while warm extremes have become more frequent.



Example: Extreme precipitation CLIM004

Key messages

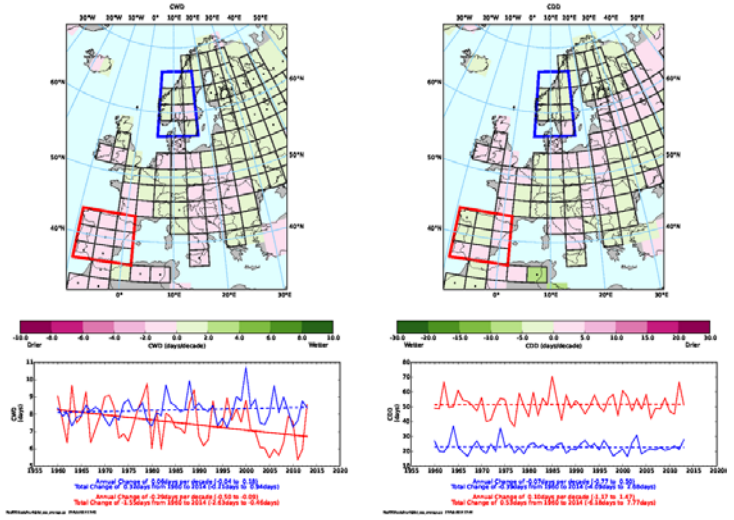
•The length of the wet period has significantly increased in north-eastern Europe and decreased in south-western Europe.

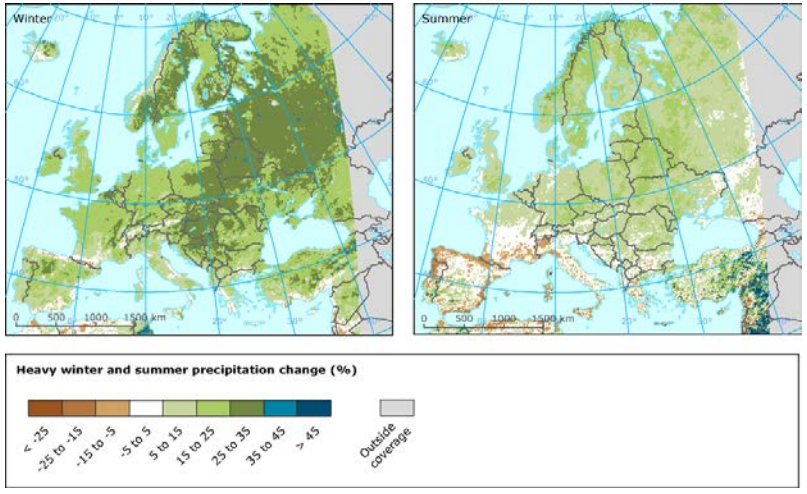
•Data availability is insufficient for assessing trends of extreme daily precipitation across Europe.

• Increasing summer dryness has been observed in central and southern Europe since the 1950s.

•Heavy precipitation events are likely to increase in most parts of Europe, especially in central and eastern Europe in winter.

•The length of dry spells is projected to increase significantly in southern and central Europe, in particular in summer, and to decrease in northern Europe.





Example: Soil moisture CLIM029

Key messages

- Soil moisture capacity and soil moisture content will be affected by rising temperatures and by a decline in soil organic matter due to both changes in climate and land management.
- Soil moisture in summer has significantly decreased in parts of southern Europe and increased in the North.
- Projections (for 2071–2100) show a general reduction in summer soil moisture over most of Europe, significant reductions in the Mediterranean region, and increases in the north-eastern part of Europe.

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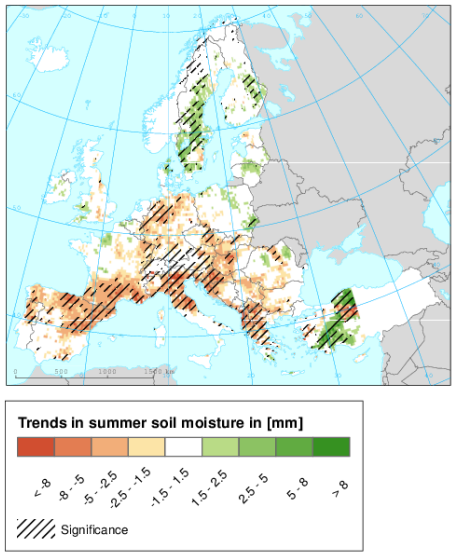
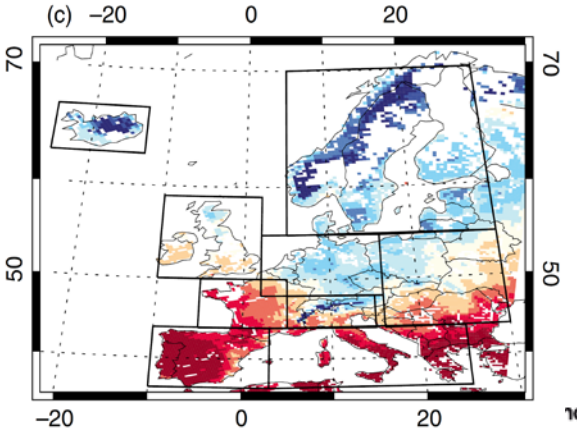




Source: Henrich et al, 2011

Climate change impact report

Changes in the climate system

- Climate variables
- Cryosphere (glaciers, snow and ice)

Climate impacts on environmental systems

- Marine environment and biodiversity
- Coastal zones
- Inland waters (quantity and quality, biodiversity
- Terrestrial ecosystems and biodiversity
- Soil

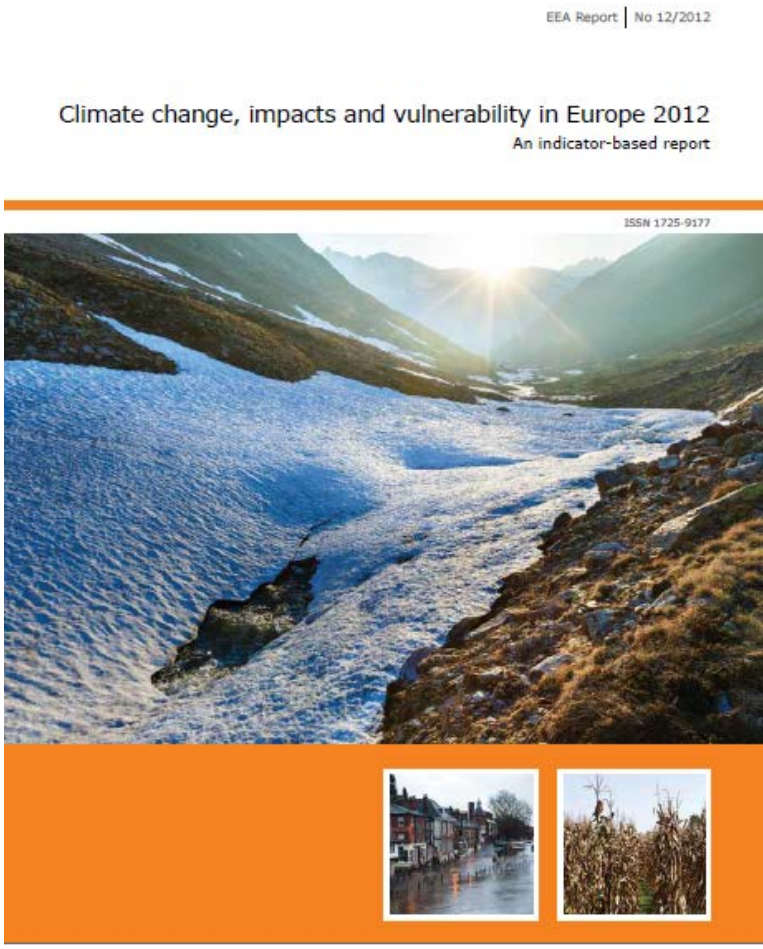
Climate impacts on socio-economic systems and health

- Agriculture
- Forestry/forests
- Energy
- Transport, fisheries (no indicators)
- Human health

Vulnerability indices

Contributors: European Topic Centres (ETCs), WHO, ECDC, JRC (about 90 experts), data from research projects and international databases

New report under preparations, to be published in 2016



Climate-ADAPT

Climate-ADAPT is a partnership between the EC and the EEA with information on:

- observed and projected climate change
- current and future vulnerability of regions and sectors,
- national, sub-national (cities) and trans-national adaptation strategies,
- adaptation case studies and potential adaptation options,
- tools that support adaptation planning,
- overview of relevant EU policy frameworks and processes.

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Climate-ADAPT: collecting and disseminating information on adaptation

Reports

Publications

Guidance documents

National

Transnational

Cities

Information portals

Tools

Case studies

Policy makers

General public

Expert users or contributors

Indicators

Datasets

Maps and graphs

Past to future 1850 - 2100

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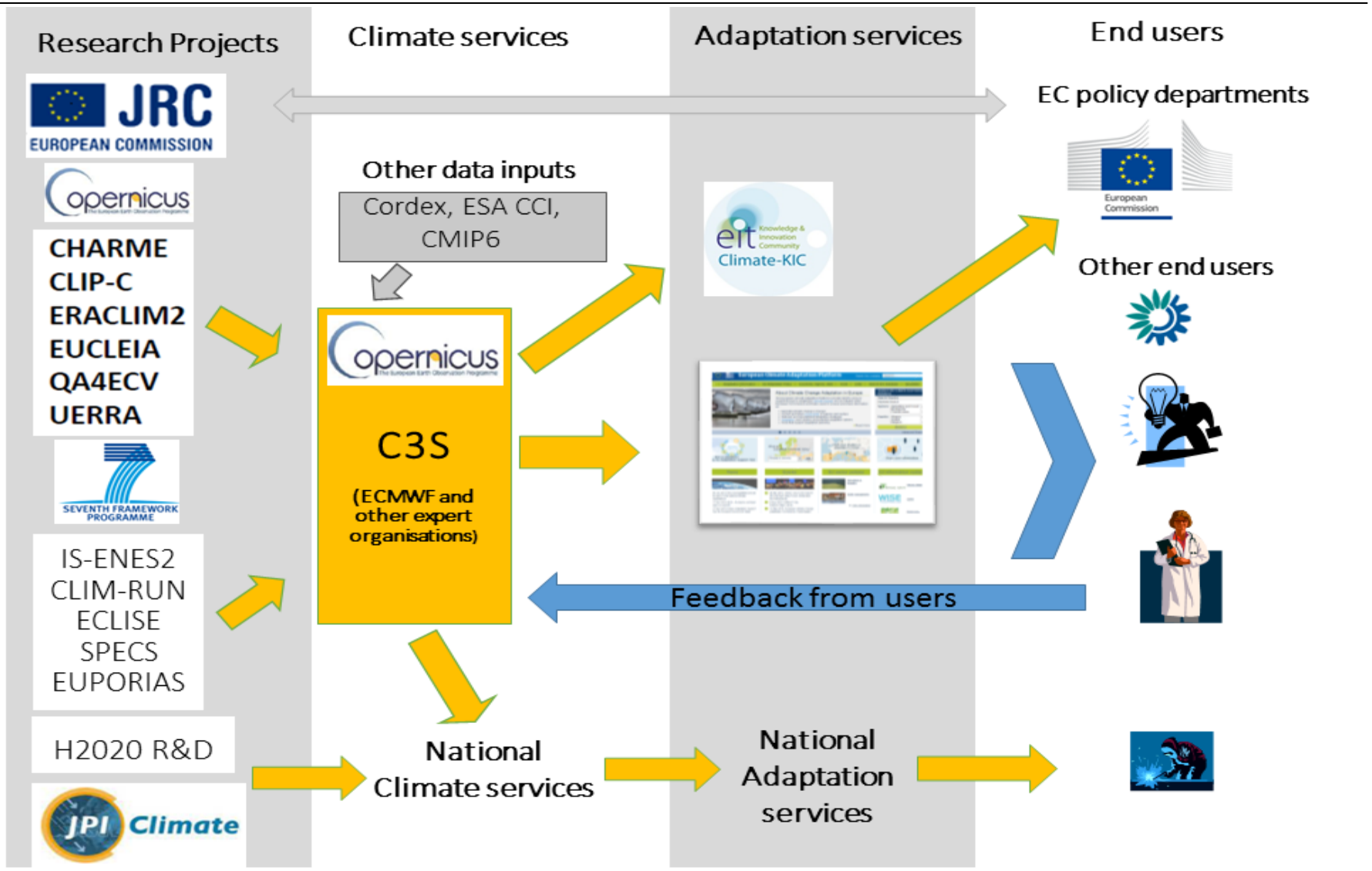
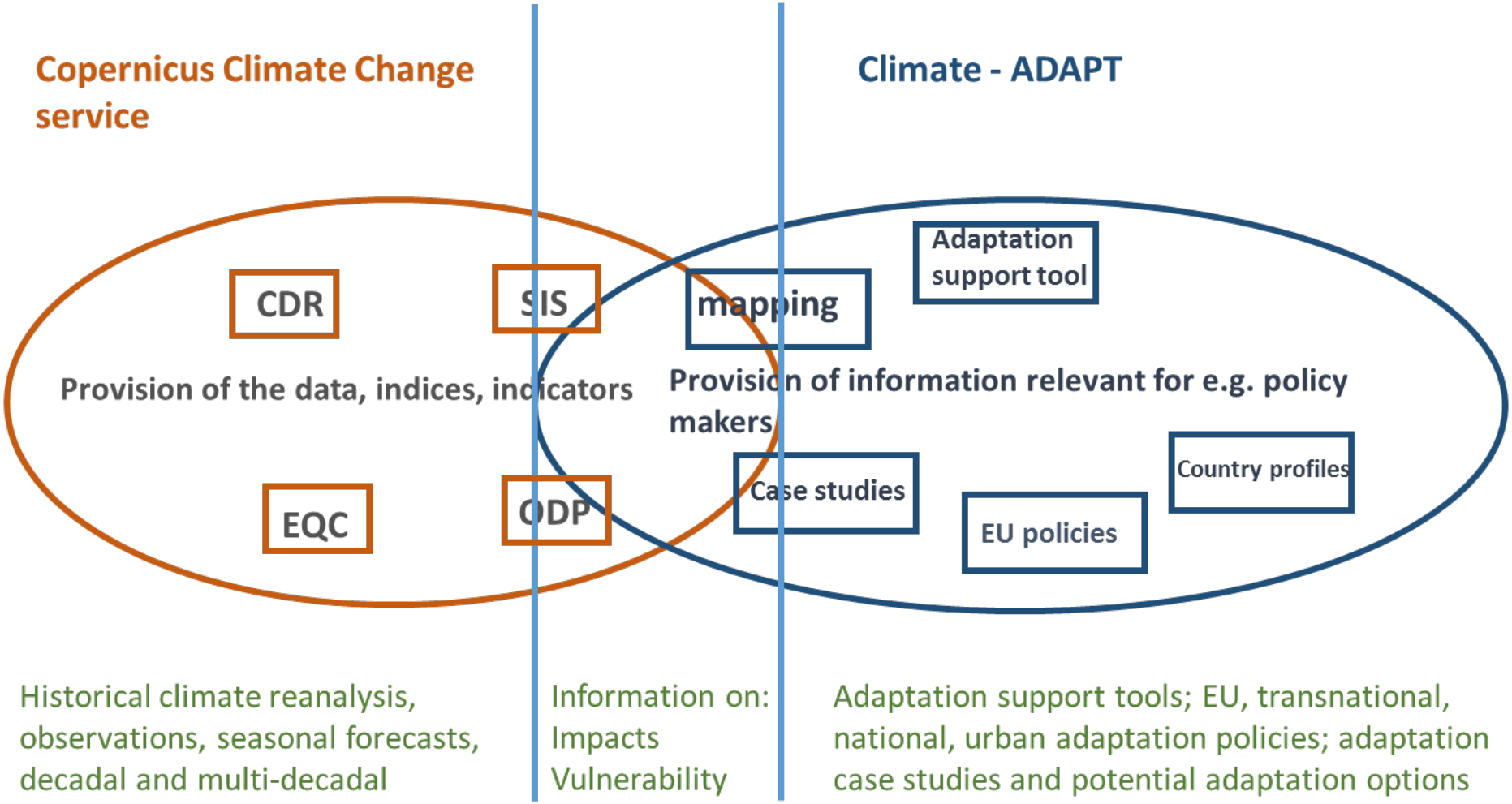
A global view: C3S and Climate-ADAPT



Different focuses of “interest”



Potential future links between C3S and EEA (Climate-ADAPT)

Indicators and assessments

- selected climate variables (from the CDS) or indicators from the SIS could be used as a data source for a subset of the EEA climate and impact indicators,
- C3S could be a key contributor to EEA assessment reports (annual joint updates of climate change report).

Climate-ADAPT

- Inclusion of the C3S pre-operational project reports as a new section (searchable through the database),
- presentation of C3S outputs to the section on (climate change) observations and scenarios or including a new section describing and showing C3S,
- map viewer (for climate change impacts, vulnerability and risks) could be extended or replaced by outputs from C3S including pre-operational projects).

Thank you for your attention

http://www.eea.europa.eu/themes/climate
http://climate-adapt.eea.europa.eu

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Conclusions

- Assessments are based on the **indicators and data – links to CIB**
- Copernicus projects and the planned EU **climate service** and national services are **essential**;
- **Mainstreaming of climate change adaptation** in EU policies is taking place: the European Commission adopted an EU adaptation strategy in April 2013;
- many **EEA member countries** have developed **impacts, vulnerability and adaptation** assessments and several **countries** and **cities** have strategies in place (and some also action plans); also many **transnational** actions have taken place or are planned;
- the European Climate Adaptation Platform **(Climate-ADAPT)** and transnational, national and city level adaptation platforms will support climate change adaptation at various governance levels

- Which climate change observations and scenarios will be selected and at which geographical scales?
- Will complex indicators be included and what is the selection process?
- How to integrate socio-economic including demographic data/scenarios?
- How to achieve consistency in use of climate change scenarios in assessments across countries and cities?
- How will ‘scientific users’ (e.g. biophysical, economic and social modelling) and ‘end users’ be involved?
- Which main ‘end-users’ will be addressed and how?
- Countries, cities
- Sectors : Biodiversity (terrestrial), Marine environment, Coastal, Water management (floods, droughts, quality), Agriculture, Forestry, Infrastructure (energy, transport), Human health, Businesses
- What links are planned with climate adaptation web based information platforms (national and EU-wide, Climate-ADAPT)?

OUT

- Climate-ADAPT is a platform which support Europe in adapting to climate change and helps users to access and share **data** and **information** on climate change.

- An EEA indicator is a measure that can be used to illustrate and communicate complex environmental phenomena (e.g. climate change) simply (includes assessment, specification and **data** visualisation/figures).

- An EEA assessment (in a form of a report) provides **information** about European environment to support users and stakeholder (decision makers).