

Update on work of the European Environment Agency (EEA) on adaptation and monitoring, reporting and evaluation (MRE) indicators

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European Environment Agency (EEA)

European Environment Agency and EIONET

EEA: EEA member and cooperating countries (Eionet)



- EEA mission: supporting and informing policy development and implementation by **data, indicators and assessments**
- **33 member** and 6 cooperating **countries** (ministries and **environment agencies**)
- Main target audience: **policymakers** at European and national levels
- **Networking:** regular Eionet workshops with all countries, expert meetings
- Supported by **European Topic Centres**



European Environment Agency and Climate-ADAPT

Climate-ADAPT

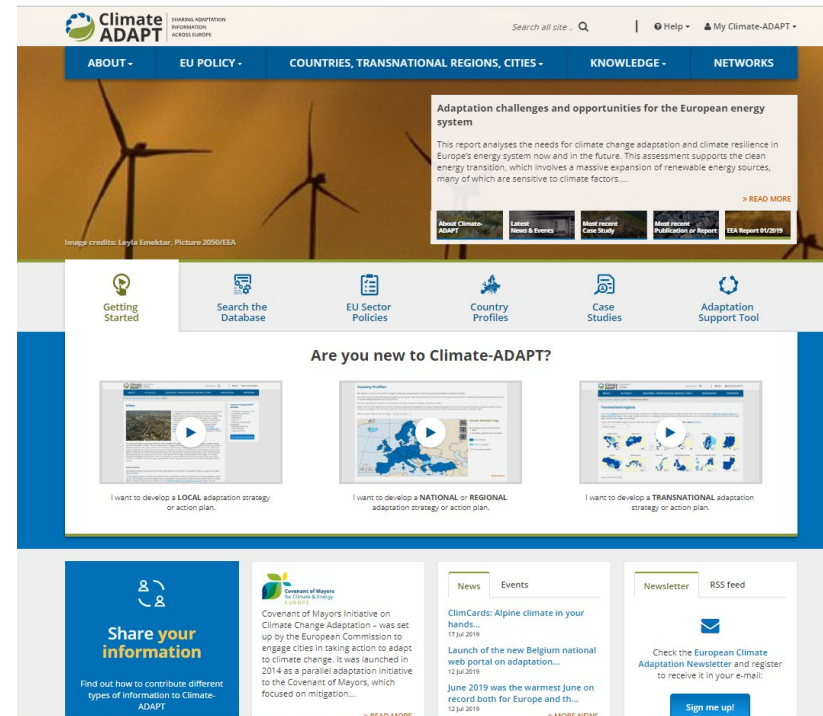
- Launched 2012, supports developing and implementing adaptation strategies, policies and actions
- Partnership between the EC and the EEA; maintained by the EEA with the support of ETC/CCA
- Complementary to national, other platforms

Objectives

1. Facilitate information sharing
2. Assist an effective uptake
3. Contribute to better coordination

Intended users

- Experts and decision makers on EU, transnational, national, sub-national levels
- Research institutes



Copernicus and role of EEA and Eionet



Coordination of in situ EIONET data across services



Implementation of European and local land monitoring

FULL, FREE AND OPEN ACCESS TO DATA



- ATMOSPHERE MONITORING
- MARINE ENVIRONMENT MONITORING
- LAND MONITORING
- CLIMATE CHANGE
- EMERGENCY MANAGEMENT
- SECURITY



Key user of Copernicus data, working closely with climate change service

Copernicus
Europe's eyes on Earth

Link Climate-ADAPT & Copernicus Climate Change Service (C3S)

- To develop an **interactive tool in Climate-ADAPT** to offer the users to access specific climate information data to support the adaptation efforts at different levels in Europe.

Products:

- Observed (reanalysis) and projected climate change indicators
- Multiple options for Climate-ADAPT users regarding climate variables, timeframe, scenarios, spatial aggregation

Types of information:

- Download numerical data: time series, averages, stat. distributions
- Visualise maps and graphs

Future interactive tool in Climate – ADAPT



SHARING ADAPTATION
INFORMATION
ACROSS EUROPE

Search all site .. 🔍

Help ▾

My Climate-ADAPT ▾

ABOUT ▾

EU POLICY ▾

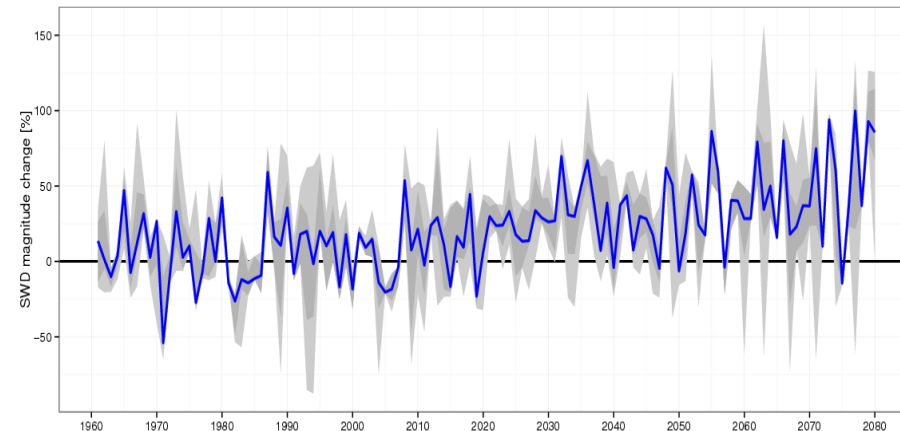
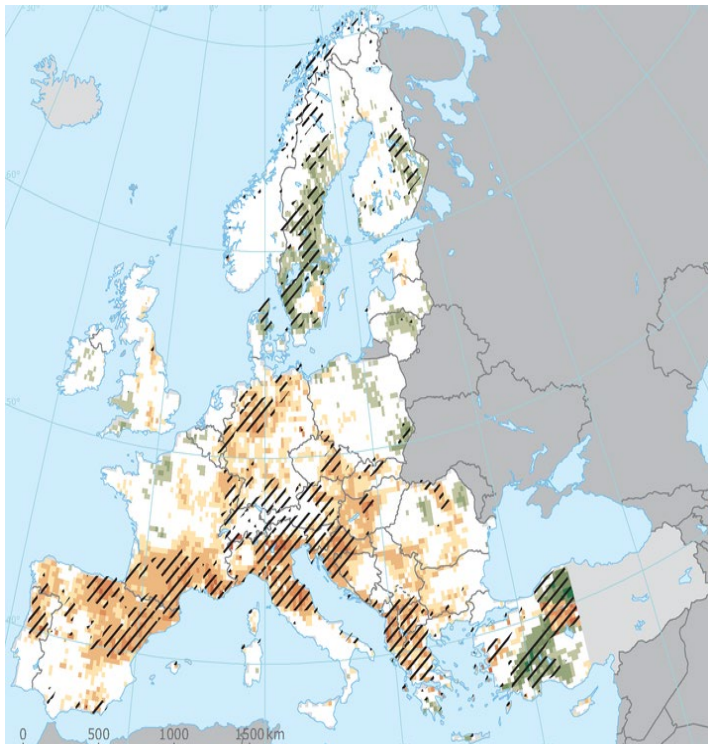
COUNTRIES, TRANSNATIONAL REGIONS, CITIES ▾

KNOWLEDGE ▾

NETWORKS

Home ▸ Knowledge ▸ Adaptation Information ▸ **Copernicus Climate Change Service**

Select indicator: soil moisture



Past trends

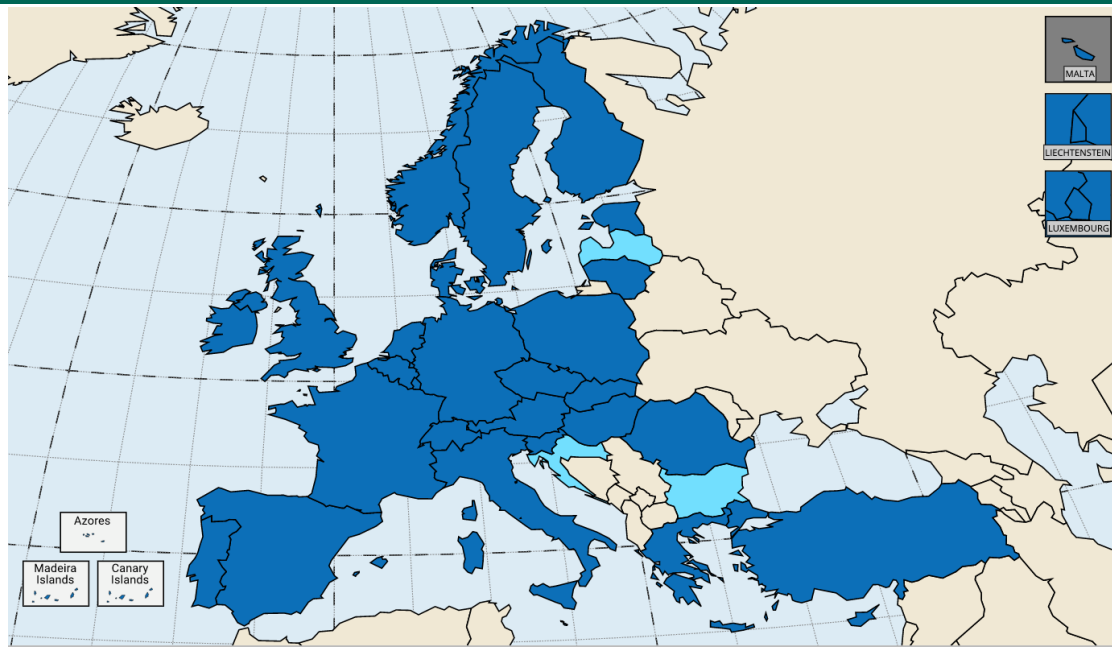
As a spatially and temporally comprehensive set of harmonised soil moisture data over a sufficient soil depth is not available, assessments of past trends in soil moisture rely on hydrological models driven by data on climate, soil characteristics, land cover and phenological phases. These simulations take account of changes in available energy, humidity and wind speed, but disregard artificial drainage and irrigation practices. Modelling of soil moisture content over the past 60 years suggests that there has been little change at the global and pan-European levels [i]. At the sub-continental scale, however, significant trends in summer soil moisture content can be observed (Figure 1). Soil moisture content has increased in parts of northern Europe, probably because of increases in precipitation amounts. In contrast, soil moisture has decreased in most of the Mediterranean region, particularly in south-eastern Europe, south-western Europe and southern France. The substantial increases in soil moisture content modelled over western Turkey should be considered with caution because of the limited availability of climate and soil data in the region, which affects the accuracy of the modelled trends [ii].

Projections

Based on the results of 12 RCMs, the projected changes in soil moisture anomaly (Palmer Drought Severity Index) show a strong latitudinal gradient, from pronounced drier conditions in southern Europe to wetter conditions in northern European regions in all seasons (Figure 2). The largest changes in the soil moisture index between 2021–2050 and the baseline period (1961–1990) are projected for the summer period in the Mediterranean, especially in north-eastern Spain and

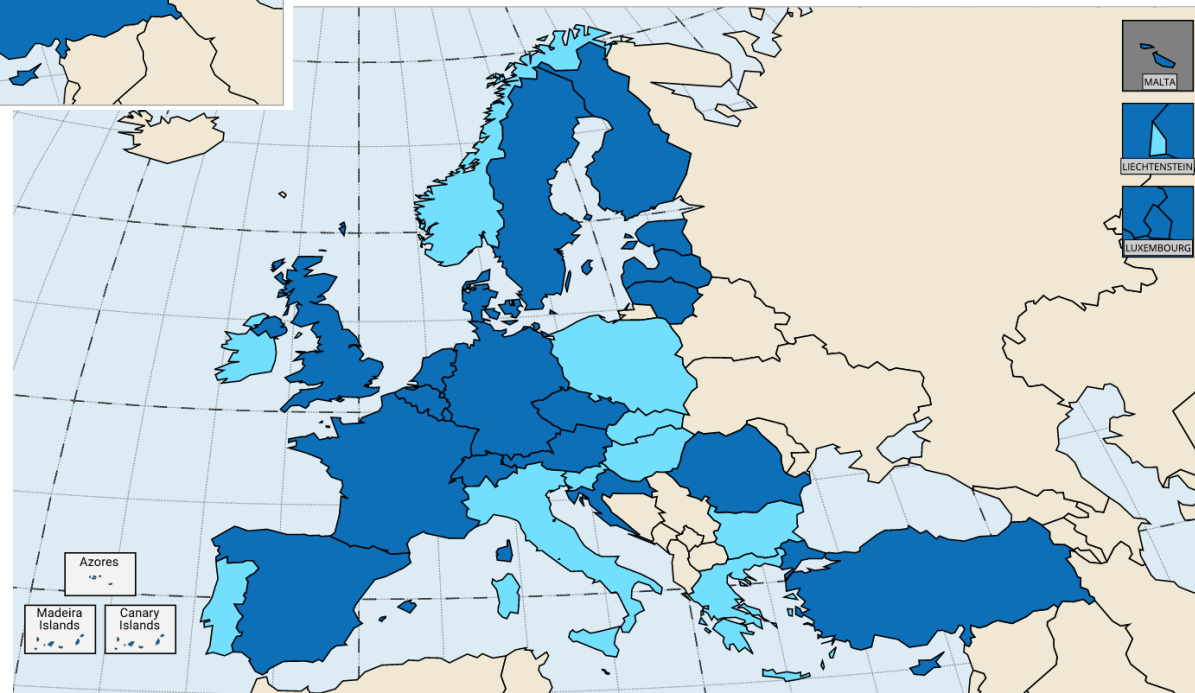
Climate change adaptation in Europe

National adaptation policy processes in Europe



5 EU Member States and 3 EEA member countries have a **national adaptation strategy**

19 EU Member States have **adaptation action plans** (national and/or multi-sectoral)



EEA indicators

EEA Indicators

Set of 122 indicators available at EEA website

- Main focus: climate change (33%)
- Frequency: yearly (40%), 2-6 yr. (60%)
- Country benchmarking: 35%
- Presence of maps: 37%

Main topic	Indicators
Climate change	40
Biodiversity - Ecosystems	24
Water and marine environment	15
Transport	13
Energy	9
Air pollution	6
Resource efficiency and waste	5
Land use	4
Industry	2
Sustainability transitions	2
Environment and health	1
Soil	1
TOTAL	122

The indicators are classified:

- **Descriptive indicators (Type A)** responding to the question: What's happening?
- Performance indicators (Type B): Does it matter? Are we reaching targets?
- **Efficiency indicators (Type C)**: Are we improving?
- **Policy effectiveness indicators (Type D)**: Are the measures working?
- **Total welfare indicators (Type E)**: Are we, on the whole, better off?



EEA 32 indicators on CC, impacts and vulnerability

1. Arctic and Baltic sea ice
2. Global and European sea level
3. Global and European temperature
4. Heating and cooling degree days
5. Economic losses from climate extremes in Europe
6. Hail
7. Wind storms
8. Heavy precipitation
9. Water- and food-borne diseases
10. Meteorological and hydrological droughts
11. Water limited crops
12. Agrophenology
13. Crop water demand
14. Growing season for agricultural crops
15. Extreme temperature and health
16. Floods and health

1. Vector-borne diseases
2. Forest composition and distribution
3. Forest fires
4. Phenology of plant and animal species
5. Distribution shift of plant and animal species
6. Water temperature
7. River floods
8. River flows
9. Distribution shifts of marine species
10. Sea surface temperature
11. Ocean acidification
12. Ocean heat content
13. Glaciers
14. Snow cover
15. Greenland and Antarctica ice sheets
16. Air pollution due to ozone: health impacts and effects on climate



EEA climate change indicators in the SOER2020

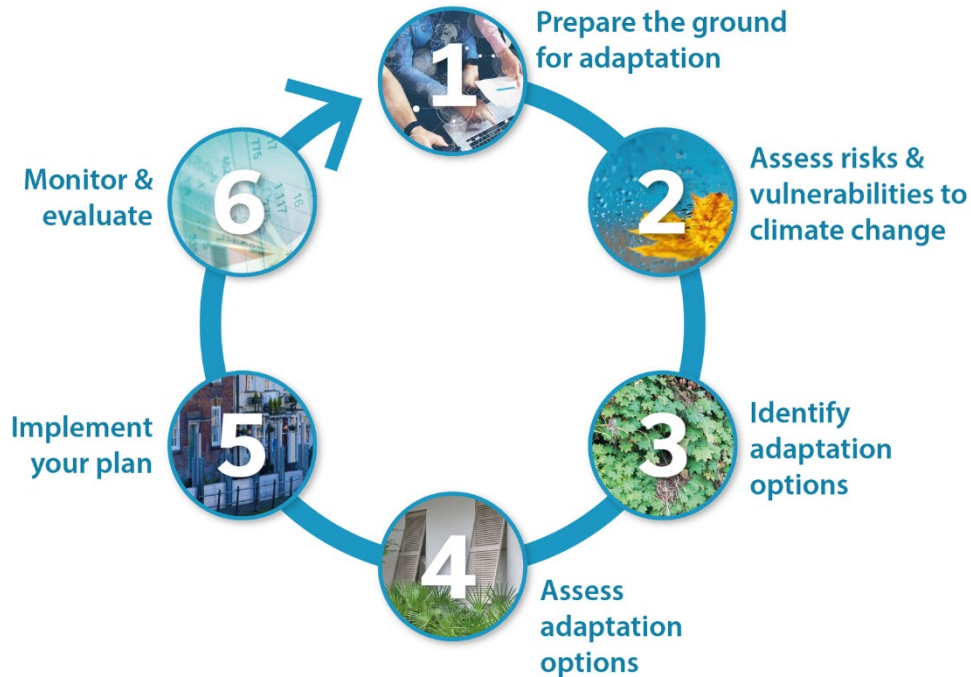
1. SOER2020 will be launched on 4 December 2019
2. The chapter on 'climate change and energy' addresses
 - Climate change mitigation
 - Energy system
 - Climate change impacts and adaptation
 - Climate change finance (briefly)
3. The part on climate change impacts and adaptation cites **17 EEA indicators (CLIM dataset)**, which provide detailed background information online
4. Several of these 17 EEA indicators have already been updated in 2019 or will be updated before publication of the SOER2020

SOER2020 – State and Outlook of the Environment Report (2020)

SOER 2020 Roadmap



Monitoring, Reporting and Evaluation (MRE):



- a key aspect of an iterative adaptation process;
- can help us to understand progress and performance;
- can help us to learn and communicate lessons;
- should inform future policy and practice.
- plays a critical role enabling adaptation to evolve and improve over time.

Adaptation support tool

EEA products on climate change adaptation at various governance levels



National adaptation policy processes in European countries



National monitoring, reporting and evaluation of climate change adaptation in Europe



Indicators for adaptation to climate change at national level - Lessons from emerging practice in Europe



Urban adaptation to climate change in Europe - 2016 Transforming cities in a changing climate

Europe's border regions and maritime areas, like its Arctic and the Mediterranean regions, are facing negative impacts due to climate change. Countries responsible for these transnational areas are already taking action to adapt to changes in weather and climate extreme events (e.g. increased heat waves or heavy rainfalls). This briefing gives an up-to-date overview of how European countries are working together to adapt to climate change impacts in these shared regions, some of which are considered climate change 'hot spots' because they are most vulnerable to dramatic changes.

Transnational adaptation



2020

New report on urban adaptation

European Environment Agency

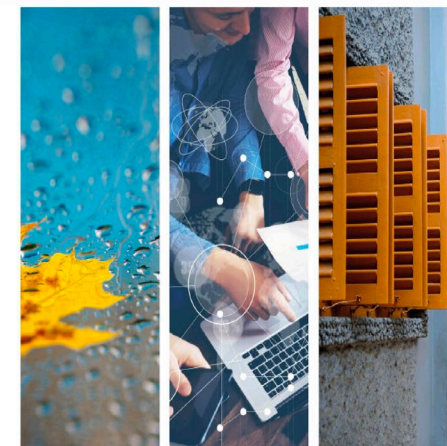


Adaptation indicators in EU MS: *ETC/CCA TP (2018)*

- **Monitoring ‘adaptation’** : is progress is made in national level adaptation? do policies and actions achieve their goals? have impacts been reduced?
- **Indicator categories:**
 - Function: Input, Process, Output, Outcome
 - Content: Exposure; Adaptive capacity; Sensitivity; Composite vulnerability; Hazard
- **Some MS have an operational indicator set** (e.g. AT, DE, FI and UK) from 25 to 150 indicators, often **combined with qualitative descriptive information**
- Potential for reporting to **EU (Energy Union governance)** and **internationally (UNFCCC)**
- **Key knowledge gaps and challenges:**
 - Difficult to set up new monitoring and data collection
 - Existing data is used but is not always fit for purpose
 - Lack of common indicator methodologies

ETC/CCA Technical Paper 2018/3

Indicators for
adaptation to climate change at national level -
Lessons from emerging practice in Europe



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European Environment Agency
European Topic Centre on Climate Change
Impacts, Vulnerability and Adaptation



European Environment Agency



Reporting on adaptation by EU member states

- Until 2019 under the Monitoring Mechanism Regulation, from 2021 onwards under the Energy Union and Climate Action governance regulation
- Implementing act is currently under discussion between Commission and MS
- EEA supports MS (e.g. web template) and presents the information on Climate-ADAPT
- **Knowledge challenges:**
 - Clarity of reporting requirements (definitions of terms etc)
 - Comparability of reported information



The screenshot shows the 'France' profile page on the Climate-ADAPT website. At the top, there is a navigation bar with 'Home', 'Countries, regions and cities', 'Country Profiles', and 'France'. Below this is a map of Europe with France highlighted in blue and red. A dropdown menu labeled 'Choose a country:' shows 'France' selected. Below the map is a horizontal menu with tabs: 'Summary', 'Policy & legal framework', 'Sectors & actions', 'Assessments', 'Engaging stakeholders', and 'Contact'. The 'Summary' tab is active. The main content area contains text about the adaptation process in France, starting with 'The adaptation process, initiated at the national level by the Ministry of the Environment in the late 1990s, is complementary to mitigation actions...' and 'Adaptation Strategies'. It mentions the National Climate Change Adaptation Strategy and the National Adaptation Plan (NAP) 2011-2015. A 'Last update: May 06, 2019' note is visible in the top right corner of the content area.

Future 2020 work

- **Link Climate-ADAPT and C3S:** Graphical user interface to Climate-ADAPT
- Developing with C3S - **European climate hazard indices** for a set of climate hazards
 - reviews climate hazard indices that have been applied in developing adaptation policies in various EEA member countries.
 - *ERA4CS Indecis project*, which has identified 136 climate indices to support sectoral adaptation, as an important source of inspiration
- Making additional C3S climate hazard indicators available in Climate-ADAPT
- **EEA report on MRE of national CCA policies**
- **Key Type Measure classification for adaptation, targets and outcomes**

Thank you

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