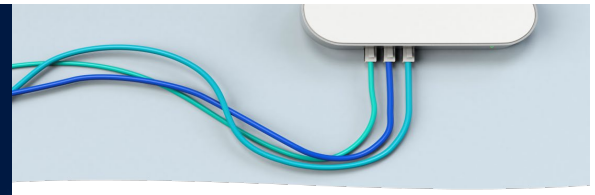
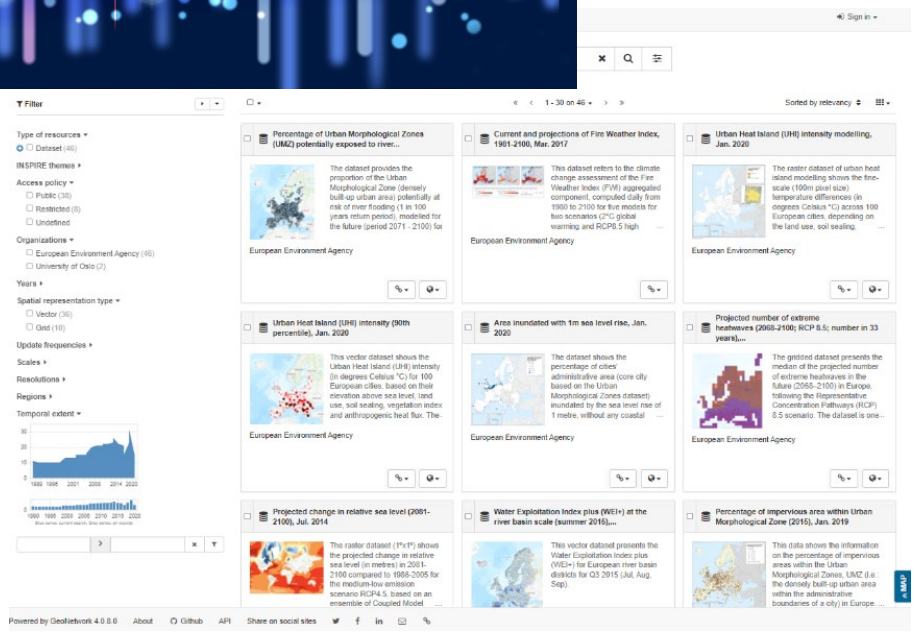




Mainstreaming GEOSS data sharing and management principles in support of Europe's environment

Digitalisation and Green Data

Jose Miguel RUBIO IGLESIAS
Stefan JENSEN

European Environment Agency

European Environment Agency

Mainstreaming GEO Data Principles in support of Europe's environment

- **Service Level Agreement** with EC/DG RTD (Horizon 2020 WP 2018-2020)

- Duration: 36 months **(2021-2023)**

- Focus on **improving access to in-situ data for key environmental and climate policies**

- Budget: **1,5 M €**

- Supporting **European contribution to GEO**

GEO Data Sharing & Management Principles

Data Sharing Principles

- Open data and metadata
- Registration and attribution if necessary
- Minimal restrictions when open data is not possible
- Minimum time delay

https://www.earthobservations.org/documents/open_eo_data/GEO_Strategic_Plan_2016_2025_Implementing_GEOSS.pdf

Data Management Principles

Data (and metadata) shall be:

- Discoverable
- Accessible
- Usable
- Preserved
- Curated

DMP label			
	Discoverable	1	D
	Accessible	2	A
	Standard encoding using	3	Usability
	Well documented metadata	4	
	Traceable	5	
	Quality documented	6	
	Preserved	7	Preservation
	Periodically verified	8	
	Reviewed and refreshed	9	Curation
	Tagged with permanent ID	10	

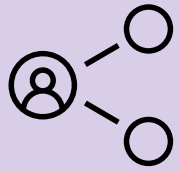
https://www.earthobservations.org/documents/open_eo_data/GEO_Strategic_Plan_2016_2025_Implementing_GEOSS_Reference_Document.pdf

Work structure

WP0
Project Management

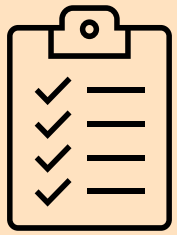
WP1
Improving the value of sharing GEOSS data

[GEO Data WG]
[In Situ data providers]



WP2
Interoperability and quality requirements

[User requirements]



WP3
Standard processes to facilitate re-use of data

[Showcases on Climate Adaptation]

WP4
Representing European Caucus

[Programme Board]
[EuroGEO]

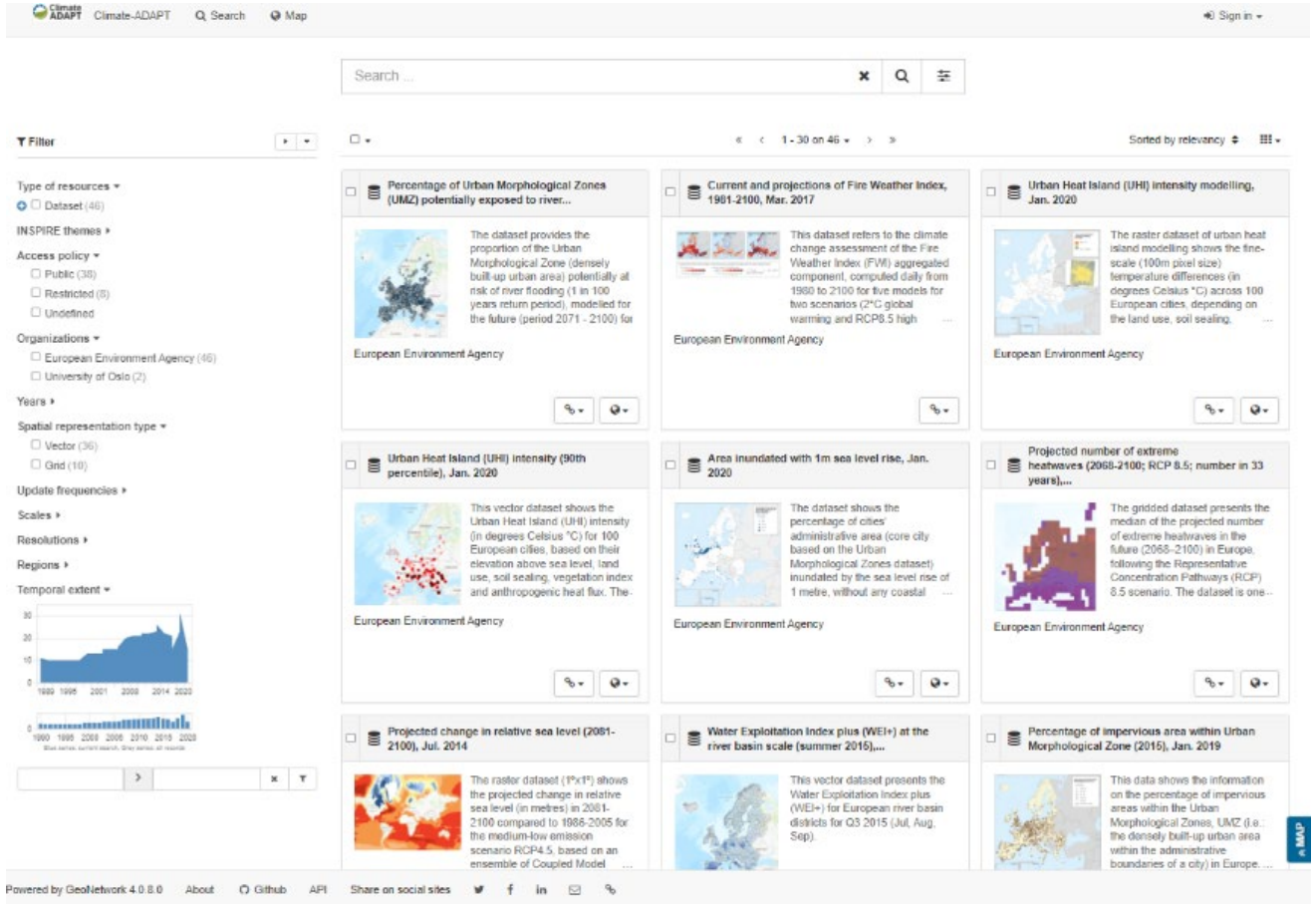
Showcases: climate adaptation as policy driver

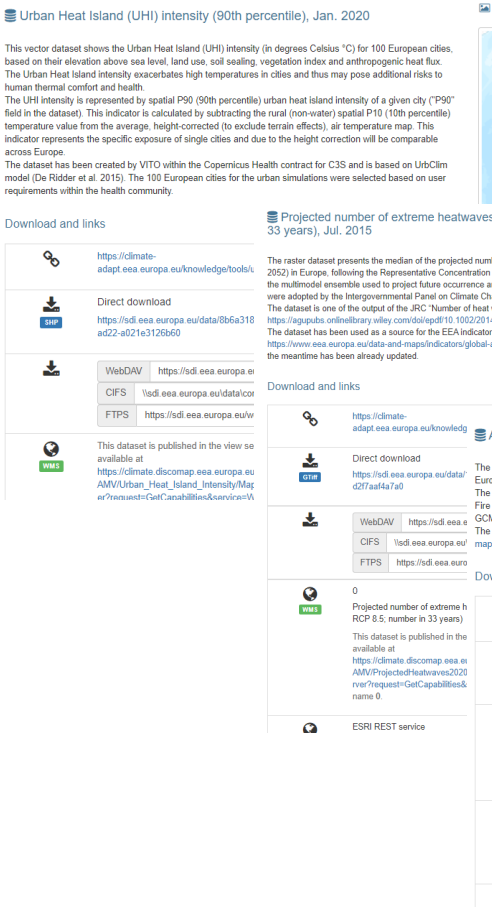
Main goal: fostering **improved data sharing and management** in the context of **climate adaptation related policies and initiatives**

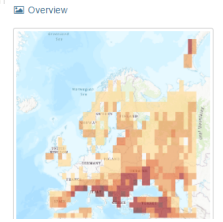
Better data and statistics at pan-European level in support of the EU strategy on adaptation to climate change.	Activity #1: Support accessibility, re-usability and interoperability of data on **losses and damage by weather and climate extremes.**
	Activity #2: Support accessibility, re-usability and interoperability to **climate adaptation datasets in support of the Mission on Adaptation to Climate Change and the Digital Twin of on Climate Change adaptation**
	Activity #3: Support accessibility, re-usability and interoperability of data related to **climate change impacts on human health and well-being**
Providing access to data supporting the mainstreaming of climate resilience considerations in key community systems.	Activity #4: Support accessibility, re-usability and interoperability of relevant in-situ data on **wet terrestrial ecosystems**
	Activity #5: Support accessibility, re-usability and interoperability of **relevant historical in-situ data to facilitate the restoration of free-flowing rivers**

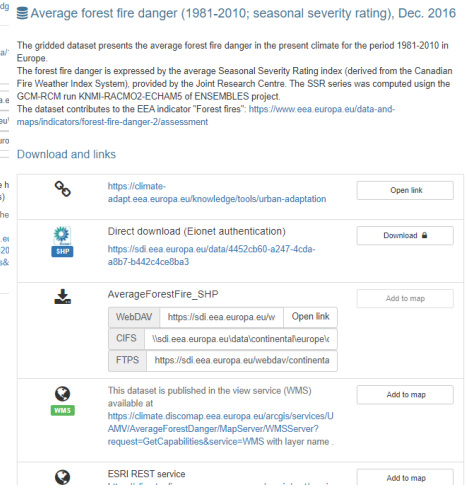
Climate adaptation as policy driver – early results

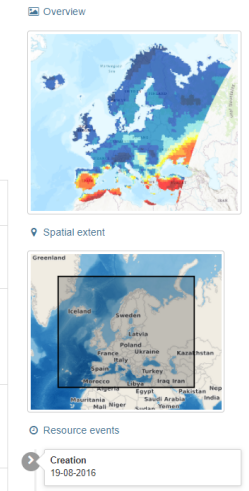
Climate change adaptation [metadata catalogue]











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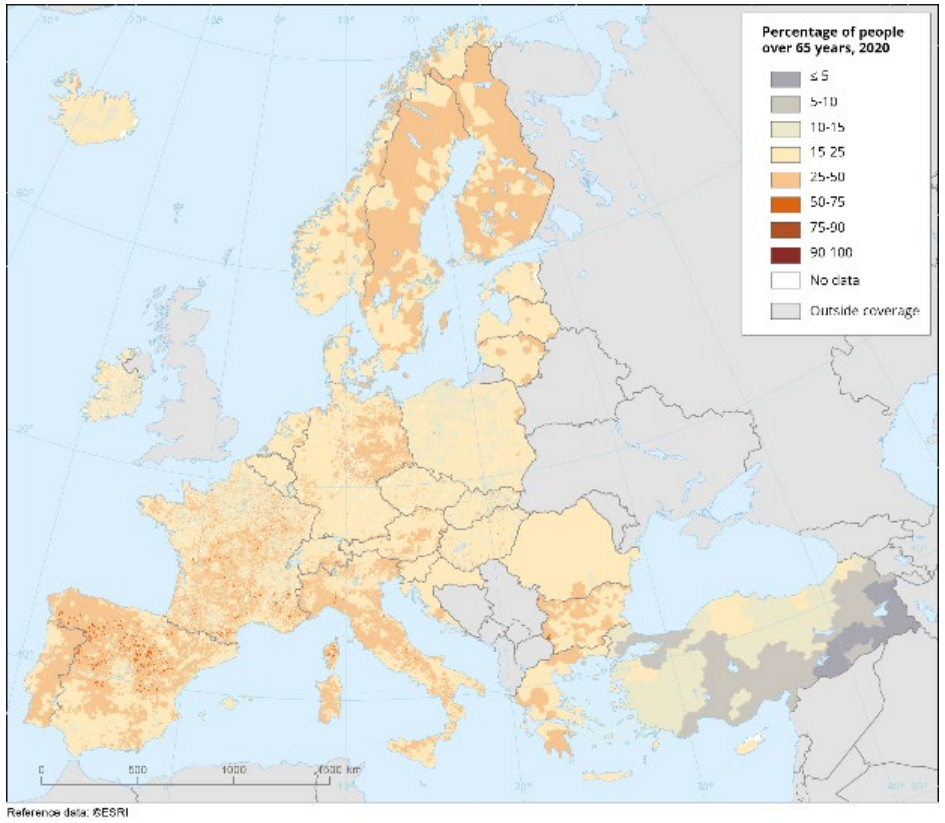
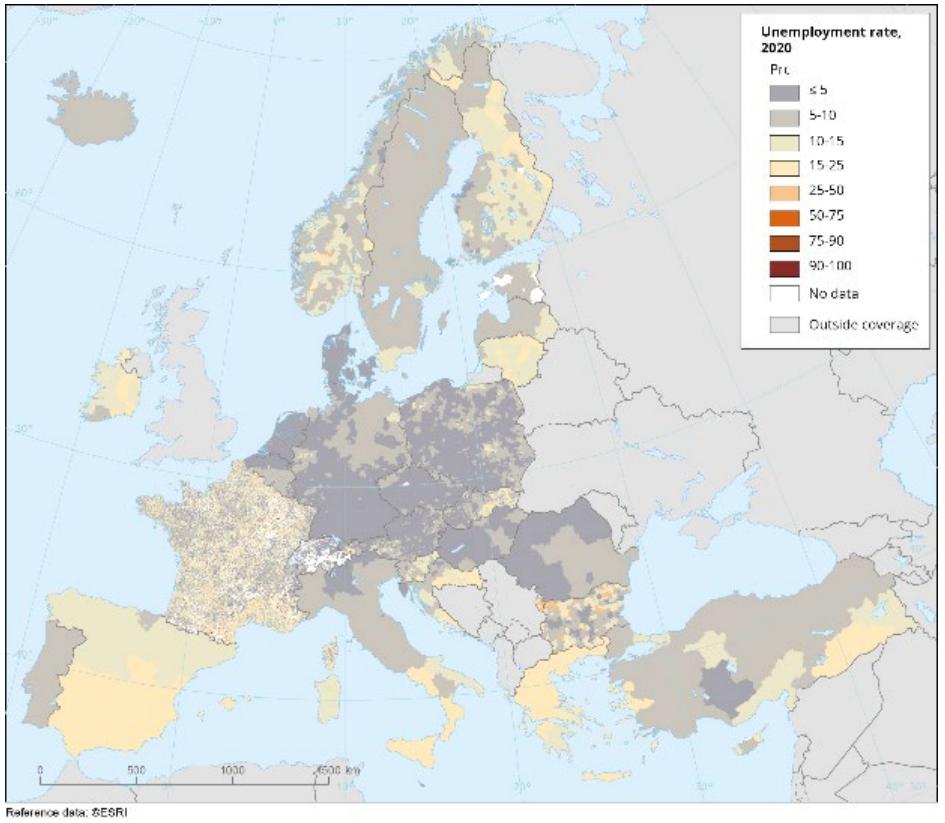
Climate adaptation as policy driver – early results

Mapping of socio-economic and demographic data at LAU level for climate adaptation assessments





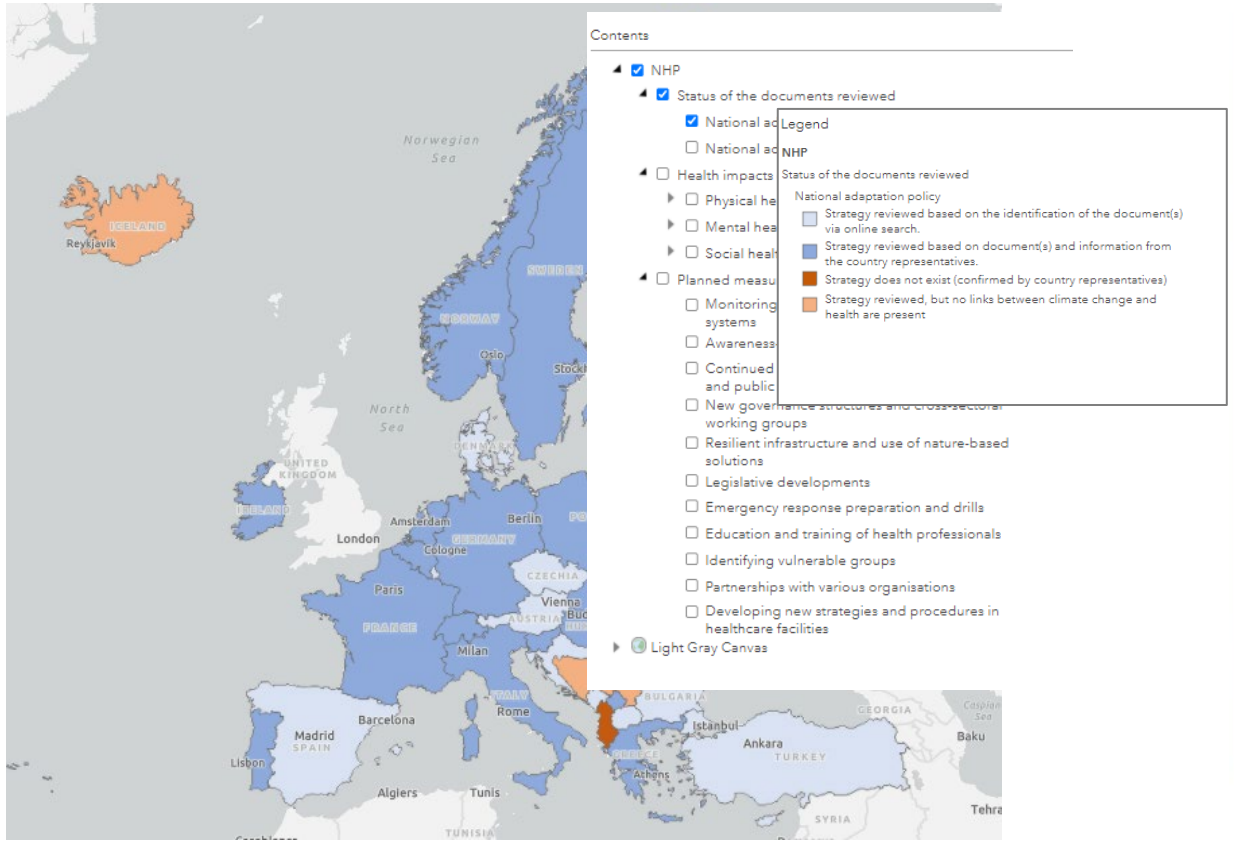
Percentage of population over 65 years (2020)

Percentage of unemployed people in working age population (2020)

European Environment Agency

Climate adaptation as policy driver – early results

Improved access and visualisation of relevant socioeconomic and statistical data for climate adaptation assessments



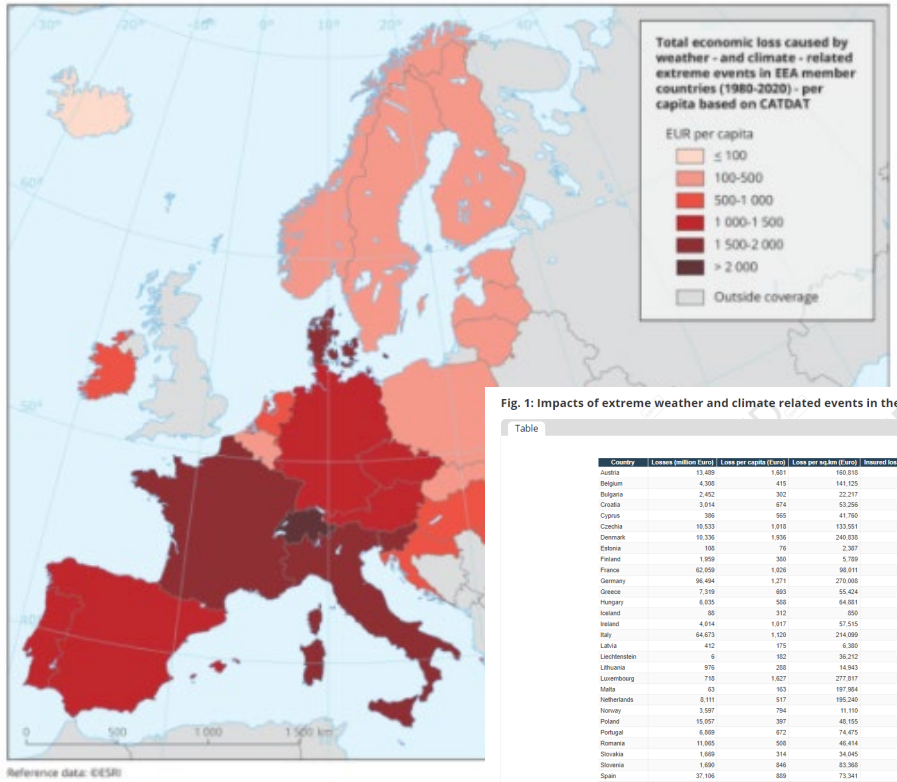


Fig. 1: Impacts of extreme weather and climate related events in the EEA member countries (1980-2017)

Table

Country	Losses (million Euro)	Loss per capita (Euro)	Loss per sq.km (Euro)	Insured losses (million Euro)	Insured losses (%)	Fatalities
Austria	13.489	1.601	160.810	4.196	31	595
Belgium	4.308	415	141.125	2.531	59	2.168
Bulgaria	2.452	302	22.217	129	5	205
Croatia	3.014	674	53.256	74	2	722
Cyprus	386	565	41.760	8	2	77
Czechia	10.533	1.018	133.551	3.554	34	229
Denmark	10.336	1.936	240.836	6.307	61	42
Estonia	106	76	2.387	33	31	9
Finland	1.959	360	5.789	397	20	4
France	62.059	1.026	98.011	30.961	50	23.415
Germany	96.494	1.271	270.008	45.188	47	9.856
Greece	7.319	693	55.424	113	2	2.431
Hungary	6.035	588	64.881	137	2	703
Iceland	88	312	859	43	50	52
Ireland	4.014	1.017	57.515	2.059	51	69
Italy	64.673	1.120	214.099	2.918	5	20.657
Latvia	412	175	6.380	49	12	103
Liechtenstein	6	182	36.212	3	58	8
Lithuania	976	288	14.943	7	1	69
Luxembourg	716	1.627	277.817	424	59	130
Malta	63	163	197.984	26	41	7
Netherlands	8.111	517	195.240	3.771	46	1.729
Norway	3.597	784	11.110	1.977	55	48
Poland	15.057	397	48.155	1.027	7	1.217
Portugal	6.569	672	74.475	584	9	3.108
Romania	11.065	588	46.414	60	1	1.310
Slovakia	1.669	314	34.045	106	6	112
Slovenia	1.690	846	83.368	203	12	241
Spain	37.106	889	73.341	4.508	12	14.611
Sweden	4.272	479	9.741	1.165	27	46
Switzerland	10.805	2.809	455.431	9.621	51	1.169
Turkey	4.405	70	5.622	635	14	1.682
United Kingdom	50.504	848	203.208	35.106	70	3.535

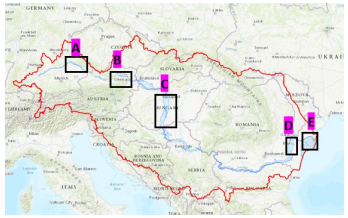
Data, Metadata and Services on National Adaptation Strategies (NAS) and Public Health Strategies (PHS)

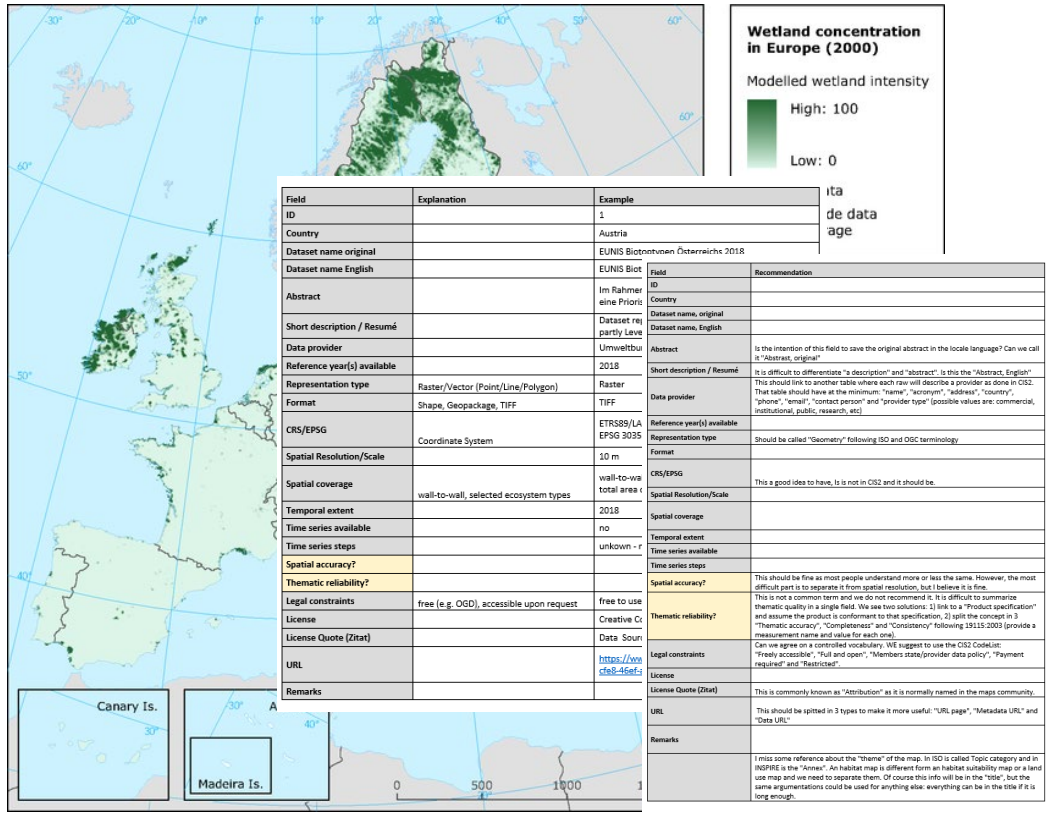
Accessibility to aggregated data on economic losses due to weather and climate extreme events

European Environment Agency

Climate adaptation as policy driver – early results

Improved access to in-situ data relevant for nature restoration targets





Field	Explanation	Example
ID		1
Country		Austria
Dataset name original		EUNIS Biotopty
Dataset name English		EUNIS Biot
Abstract		Im Rahmer eine Prioris
Short description / Resumé		Dataset re partly Leve
Data provider		Umweltbu
Reference year(s) available		2018
Representation type	Raster/Vector (Point/Line/Polygon)	Raster
Format	Shape, Geopackage, TIFF	TIFF
CRS/EPSG	Coordinate System	ETRS89/LA EPSG 3035
Spatial Resolution/Scale		10 m
Spatial coverage	wall-to-wall, selected ecosystem types	wall-to-wa total area
Temporal extent		2018
Time series available		no
Time series steps		unkown - r
Spatial accuracy?		
Thematic reliability?		
Legal constraints	free (e.g. OGD), accessible upon request	free to use
License		Creative C
License Quote (Zitat)		Data Sour
URL		https://ww cfe8-46ef-a
Remarks		

Field	Recommendation
ID	
Country	
Dataset name, original	
Dataset name, English	
Abstract	Is the intention of this field to save the original abstract in the locale language? Can we call it "Abstrast, original"
Short description / Resumé	It is difficult to differentiate "a description" and "abstract". Is this the "Abstract, English"
Data provider	This should link to another table where each raw will describe a provider as done in CIS2. That table should have at the minimum: "name", "acronym", "address", "country", "phone", "email", "contact person" and "provider type" (possible values are: commercial, institutional, public, research, etc)
Reference year(s) available	
Representation type	Should be called "Geometry" following ISO and OGC terminology
Format	
CRS/EPSG	This a good idea to have, Is is not in CIS2 and it should be.
Spatial Resolution/Scale	
Spatial coverage	
Temporal extent	
Time series available	
Time series steps	
Spatial accuracy?	This should be fine as most people understand more or less the same. However, the most difficult part is to separate it from spatial resolution, but I believe it is fine.
Thematic reliability?	This is not a common term and we do not recommend it. It is difficult to summarize thematic quality in a single field. We see two solutions: 1) link to a "Product specification" and assume the product is conformant to that specification, 2) split the concept in 3 "Thematic accuracy", "Completeness" and "Consistency" following 19115:2003 (provide a measurement name and value for each one).
Legal constraints	Can we agree on a controlled vocabulary. WE suggest to use the CIS2 CodeList: "Freely accessible", "Full and open", "Members state/provider data policy", "Payment required" and "Restricted".
License	
License Quote (Zitat)	This is commonly known as "Attribution" as it is normally named in the maps community.
URL	This should be splitted in 3 types to make it more useful: "URL page", "Metadata URL" and "Data URL"
Remarks	
	I miss some reference about the "theme" of the map. In ISO is called Topic category and in INSPIRE is the "Annex". An habitat map is different form an habitat suitability map or a land use map and we need to separate them. Of course this info will be in the "title", but the same argumentations could be used for anything else: everything can be in the title if it is long enough.

Support accessibility, re-usability and interoperability of relevant historical in-situ data to facilitate restoration of free-flowing rivers

Promote accessibility to national and sub-national in situ datasets on wetlands

European Environment Agency

Digitalisation and Green Data: Implementing the EEA-Eionet strategy 2030

Digitalisation Framework

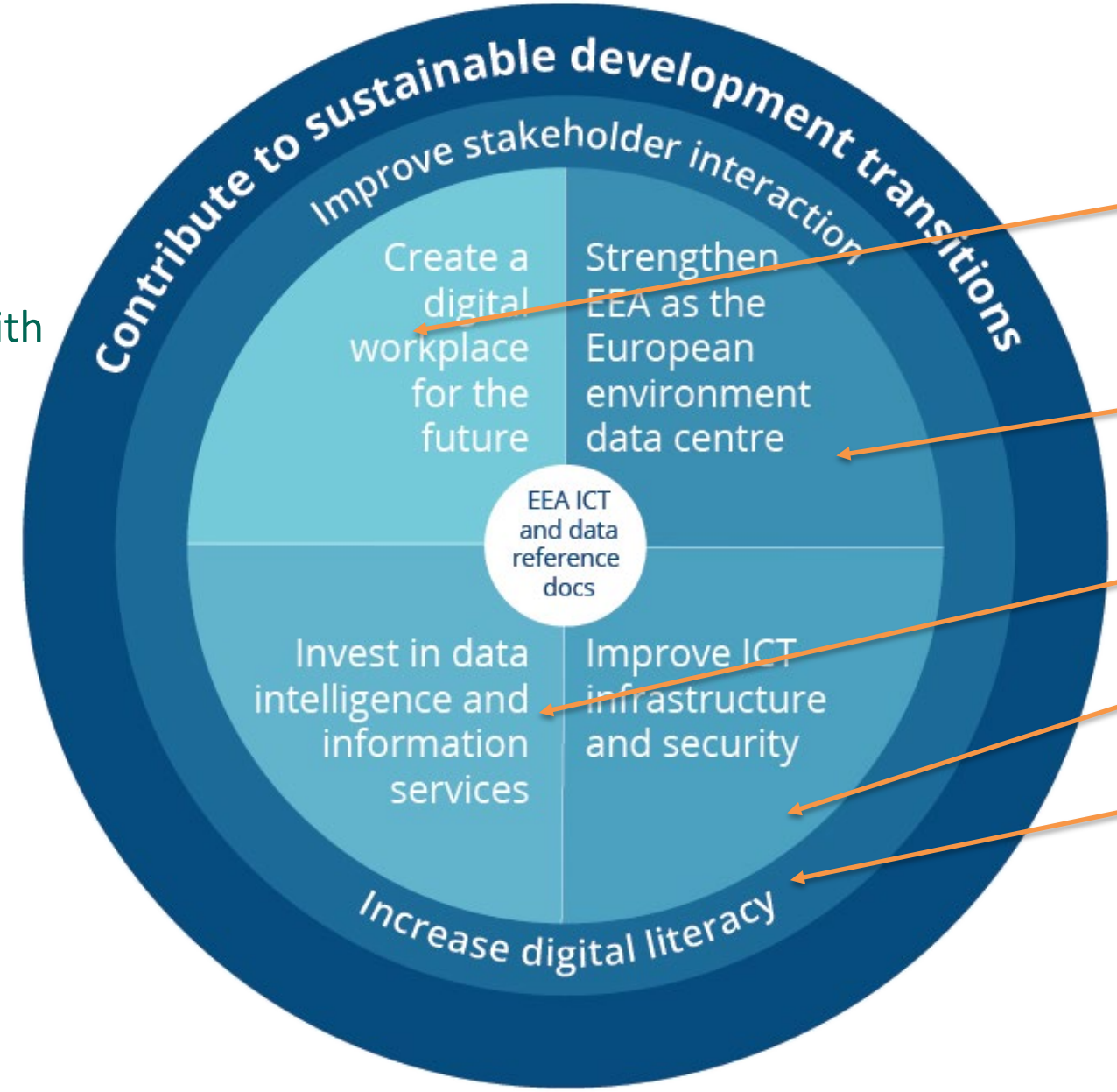
available as of April 2021 to:

Link EEA-Eionet **strategy** with implementation **activities**

Identify activity areas

List needed **actions**

Establish a dynamic **roadmap** collecting concrete **activities**



Key Roadmap activities in 2022

Better collaboration tools

Modernised data sharing
- Reportnet 3.0
- EEA data hub
- Copernicus

Advanced data analytics
- 2 Digital Twins

Improved Cybersecurity

New learning and Development programs

European Environment Agency

Digitalisation and Green Data: Key roadmap activities in 2022

- **Eionet 2.0 – better collaboration tools**
  - New groupware: MS-Teams with additions
- **Reportnet 3**
  - Continue system developments to include large data flows including energy and climate data (e.g. cars and vans from industry)
  - Migrate dataflows from Reportnet 2
- **New Copernicus Contribution Agreement (CCA) for 2021-2027 on Land Monitoring (CLMS) and in situ services.**
  - Increased budget responsibility and product set, including an user uptake plan for 2022 and beyond
- **Advanced data analytics**
  - Digital Twins on the water cycle and on Climate Adaptation in preparation as partnership projects
- **Cybersecurity**
  - Two-factor authentication for Reportnet 3 and Eionet
  - Zero-trust architecture
  - Preparations for Cybersecurity and Information security regulations

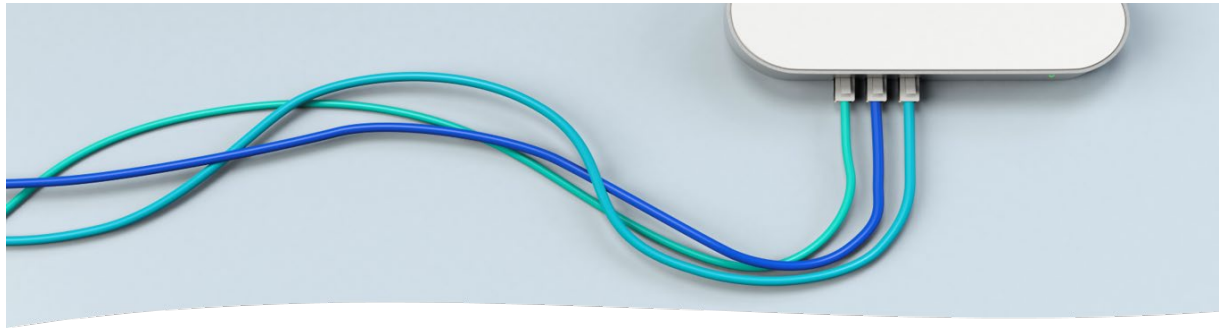
EEA Data hub the data module of the EEA web presence project

CONCEPT

- **Strengthen the European Environment Agency as a central reliable provider of high-quality environmental data in order to solidify EEA as the European data center for environmental data**

OBJECTIVE

- Provide easy simple access to environmental data.
- Ensure credible, high quality trustworthy data that underpin the traceability of EEA products
- Modernise Data and maps — European Environment Agency (europa.eu)



TARGET USERS

- Experts, data analysts, researchers

TIMING

- Development April 21 – December 22, full launch March 2023

MAIN COMPONENTS

- Data store and access points. Public file share, API's to access data, web services, map services
- Meta data service including support for meta data standards, an editor, a catalogue, an API, contextual search
- Data hub web module: user interface with search functionality, data download, metadata handling

European Environment Agency

RELATED DEVELOPMENTS - World Environment Situation Room (UNEP) Main page | WESR (unep.org)

New European Topic Centre on Data integration and digitalisation (ETC-DI)

EEA signed the Framework partnership agreement 2022-2026 and a Specific agreement 2022

Work program:

- *eReporting* exploring options of ETC support for data flows management (improvements)
- *Thematic data integration:* largely focused on land and soil as basis for data integration in thematic assessments.
  - Supporting new EU Soil Strategy to 2030
- *Data intelligence:* main focus on data engineering and exploring new **data analytics** methods e.g. Artificial intelligence/Machine learning, and capacity building in this area
- *Copernicus support:* focus on technical assistance and user uptake support

Learning and development programme

Main goal is capacity building for the network

parts of this can be shared with UNECE/UNEP and partners as in 2021

Digitalisation webinars in planning

based on interest by European Protection Agency (EPA) network

to be rolled out to Eionet in next phases

For two new Eionet groups **land systems** and **data and digitalisation**: ETC/DI support planned

Copernicus User Uptake Support activities for CLC+ and LULUCF instance development and Common Agriculture Policy (CAP)

Many thanks for your attention!

Jose.Rubio@eea.europa.eu

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