#EUSpace

EU SPACE WEEK 2023

7 - 9 November - Sevilla, Spain

Copernicus Climate Change Service For Climate Risks and Biodiversity

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UE23 PRESIDENCIA ESPAÑOLA CONSEJO DE LA UNIÓN EUROPEA

Climate Change

All the climate data you had always dreamed of and never dared asking

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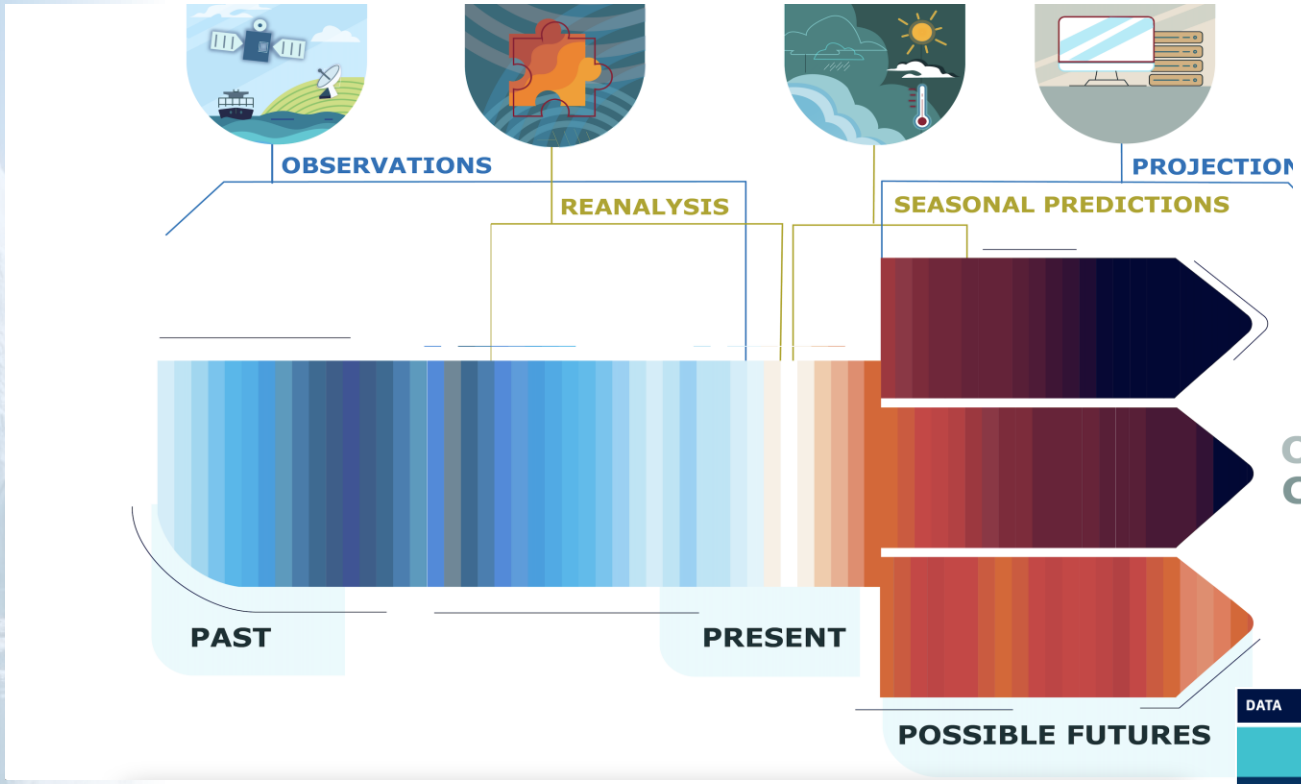
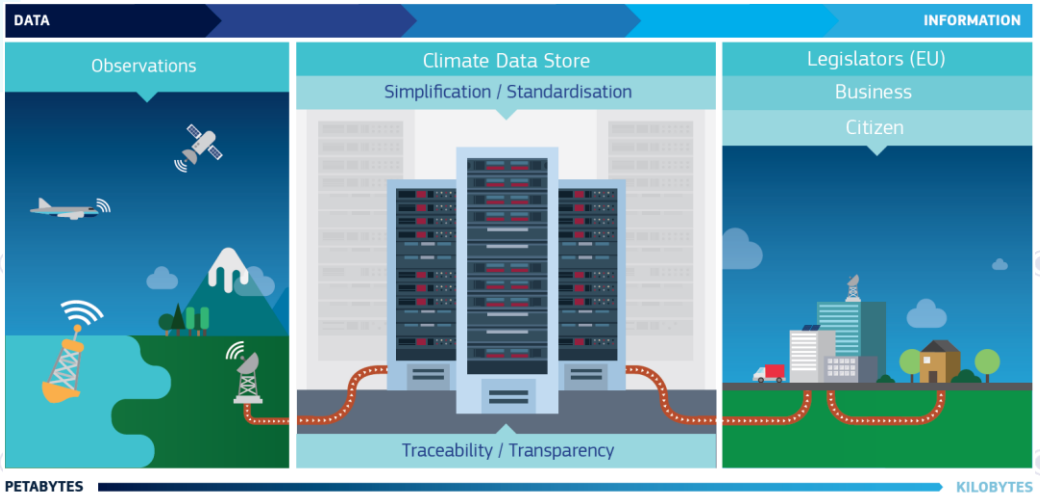


climate.copernicus.eu
cds.climate.copernicus.eu

Operational (not research)
Unrestricted **OPEN AND FREE**

Typical download: ~100 TB /day
Typical number of requests: 500k/day

- Global - Regional climate datasets
- Sectoral datasets (energy, water, agriculture,biodiversity, extremes,..)
- Open source applications running on a cloud platform and able to generate tailored indicators on the fly



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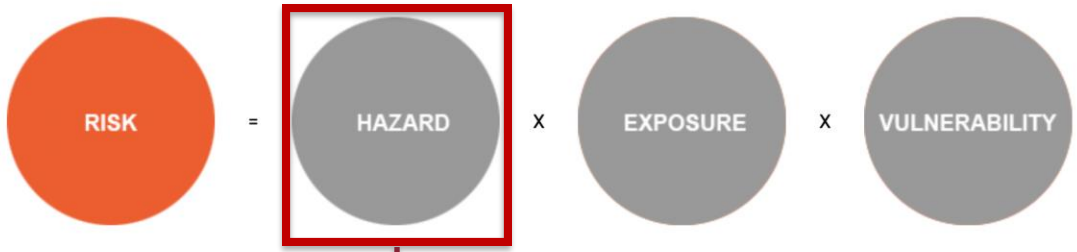
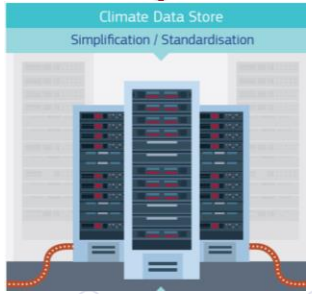
Climate risks

Climate risks:

1. *Acute physical risks result from the increasing frequency and severity of extreme events (such as heat waves or floods).*
2. *Chronic physical risks arise from long-term climatic shifts (such as rising average temperatures)*

UNDRR Global Assessment Report, 2015





C3S has a wealth of information to support climate impact studies (across various sectors)

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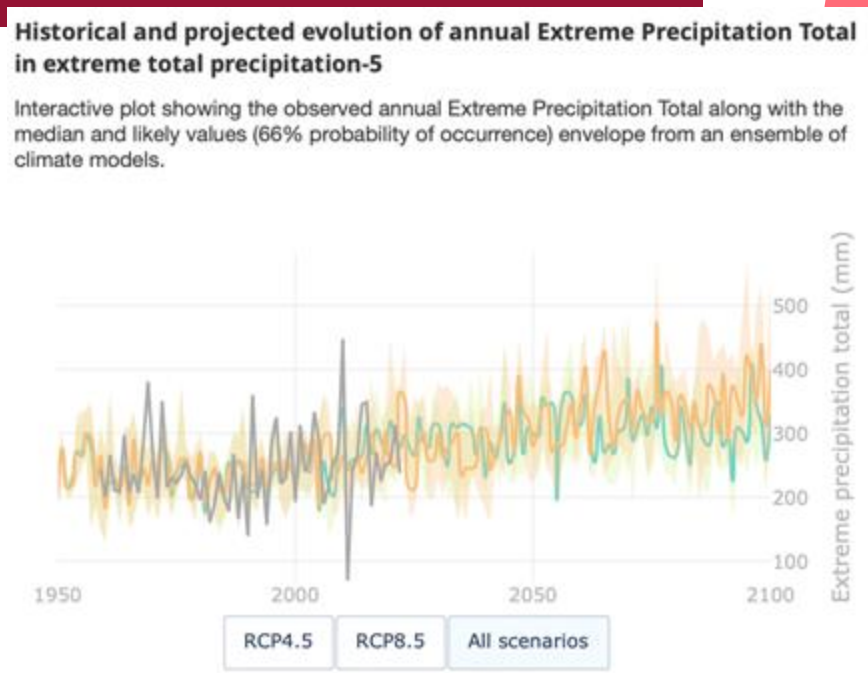
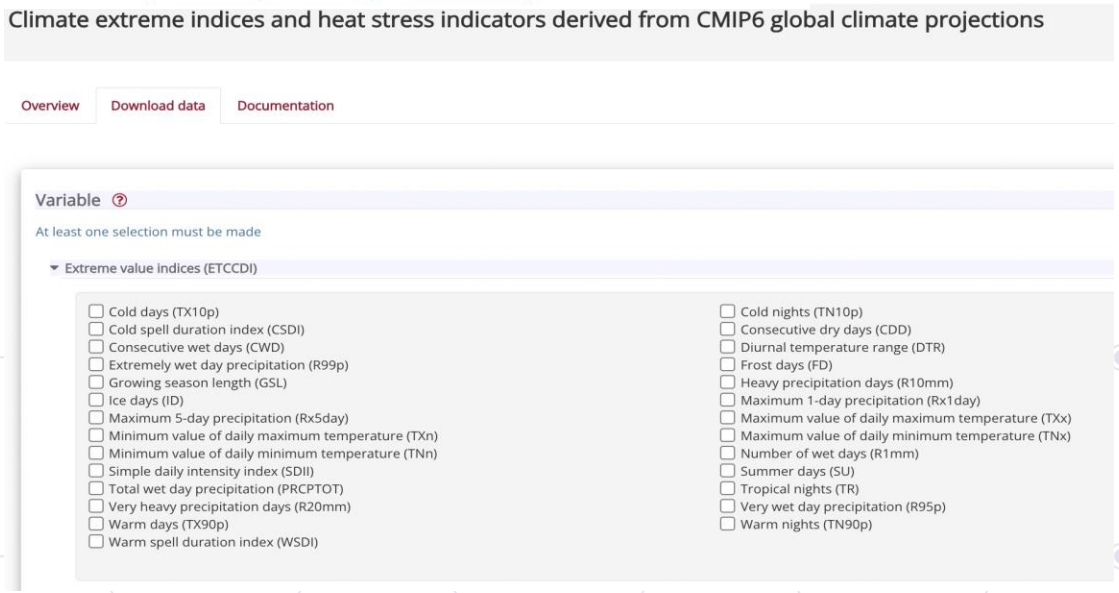
Climate Impacts: indicators and extremes

Climate Change

- Climate Impact Indicators can characterise past, current and future climate hazards (using observations, reanalysis, climate projections and predictions)
- A Climate Impact Indicator (CII) is an aggregated quantitative measure to show the impact of climate change on nature and society. Commonly, show **frequency, duration and intensity** changes based on established thresholds or percentiles
- C3S have data and applications to support assessment of acute and chronic risks climate adaptation applications (based in local to global datasets, past and future)
- C3S data is used to support European Climate Risk assessment (EEA), our data underpins the European Climate Data Explorer (EEA) and numerous C3S and downstream applications





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Climate Impacts on Biodiversity

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- Biodiversity can be affected by climatic and non-climatic drivers
- - Climate drivers (e.g., warming temperatures and precipitation changes) can impact ecosystems in several ways, including:

- Phenology (natural life cycles)
- Growth & Fitness (of both species & ecosystems)
- Species & community dynamics
- Ecological process & functions

→

- Species abundance
- Species richness
- Species composition
- Ecosystem services

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Overview of Copernicus Climate Change Service Co-Development in Key Sectors

Climate Change

Agriculture

Insurance

Biodiversity

Shipping

Coastal areas

Storm surges

Energy

Tourism

Health

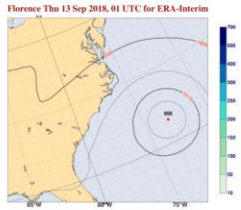
Water management

Infrastructure

Global bioclimatic indicators from 1979 to 2018 derived from reanalysis

Dataset | Biodiversity | Reanalysis | Global | Land (biosphere)

affects ecosystems, the services they deliver, and nature's **biodiversity**. They are specifically relevant



Downscaled bioclimatic indicators for selected regions from 1979 to 2018 derived from reanalysis

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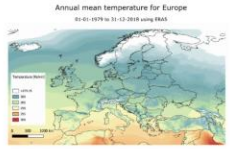
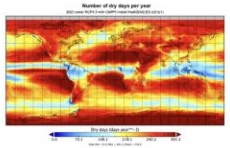


Global bioclimatic indicators from 1950 to 2100 derived from climate projections

Dataset | Biodiversity | Climate projections | Global | Land (biosphere)

's **biodiversity**. They are specifically relevant for applications within the **biodiversity** and



Downscaled bioclimatic indicators for selected regions from 1950 to 2100 derived from climate projections

Dataset | Biodiversity | Climate projections | Global | Land (biosphere)

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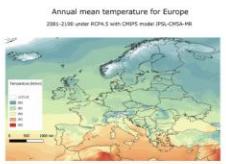
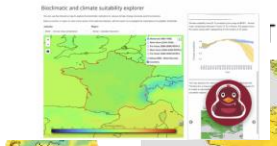


Bioclimatic indicator and climate suitability explorer

Application | Biodiversity | Global | Land (biosphere)

variety of **biodiversity** and wildlife conservation applications. Users can further explore the indicators



Benchmarks of good practice

Quality assured data

Tools

TICAL EXAMPLES

Documentation

Tools and applications

Case studies

Sector relevant data

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Climate Change

Datasets & Applications to Support Biodiversity: Assessment of Climatic Suitability

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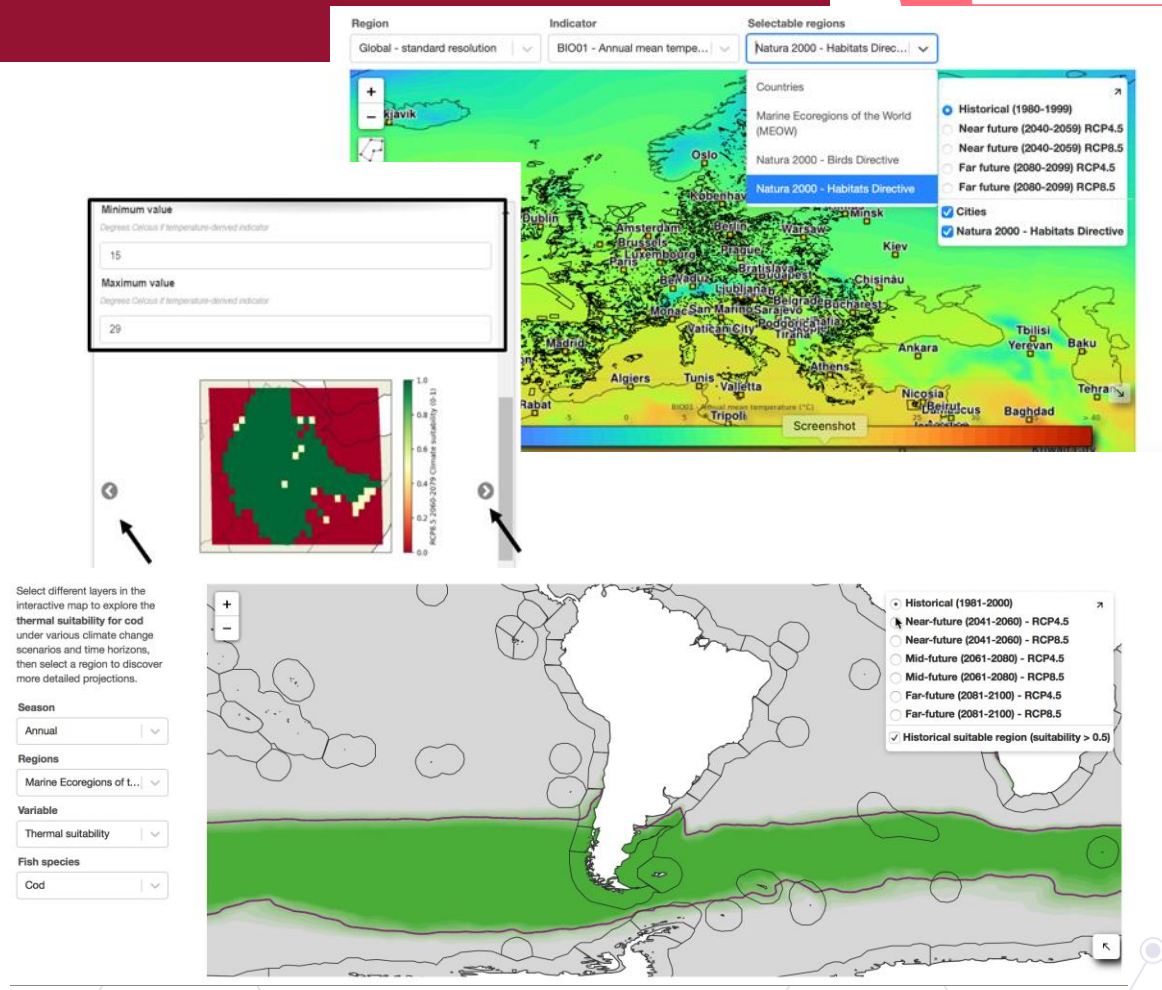
- Interactive applications to visualize and explore key bioclimate indicators (Europe & Global)
- Explore per country or by Natura 2000 site
- User can use a species 'climatic envelope' to help identify if and when a species may become stressed, or impacted by climate change
- Dedicated demonstrator applications for:
  - European grasslands,
  - Hedge species (flora)
  - Marine fish species & Marine Protected Areas (MPA)

Exploring the impact of climate suitability on key species & European landscapes



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Thank you for your attention

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