#EUSpace

EU SPACE WEEK 2023

7 - 9 November - Sevilla, Spain

Copernicus for environmental monitoring – the CLMS

European Commission

EUSPA European Union Agency for the Space Programme

UE23 PRESIDENCIA ESPAÑOLA CONSEJO DE LA UNIÓN EUROPEA

UCP: Environmental – Climate & Biodiversity

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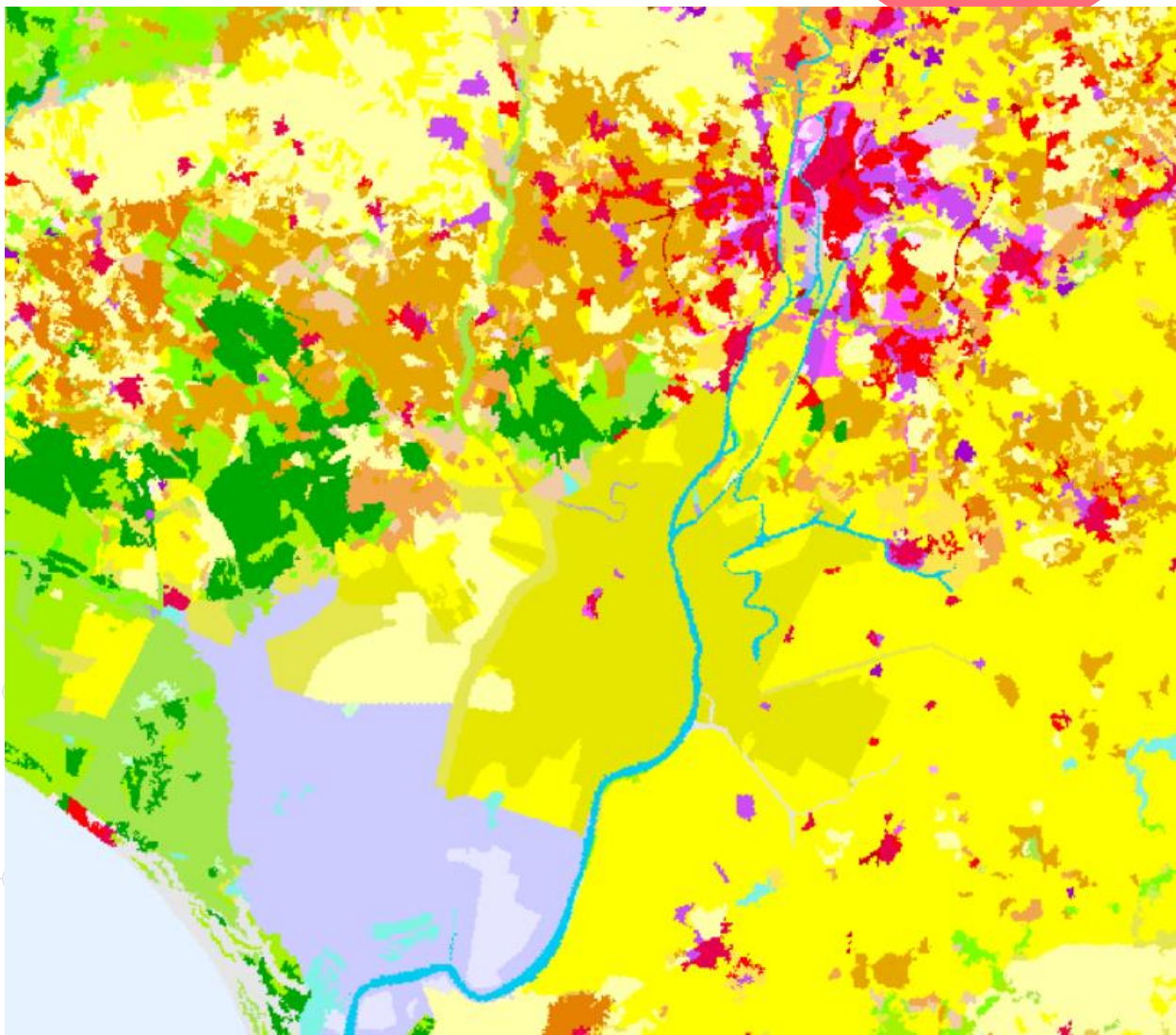
Copernicus Land Monitoring Service

- **Geographical** information on **land cover and its changes, land use, vegetation** state, **water cycle** and Earth's **surface energy variables** on European and global levels for environmental applications
- **Harmonized** and **consistent** in time and space
- Products and manuals are free and open
- Implemented by JRC and EEA
- Website: https://land.copernicus.eu/

- Land cover and land use mapping
- Priority area monitoring
- Bio-geophysical parameters
- Ground motion monitoring
- Satellite data
- Reference and validation data

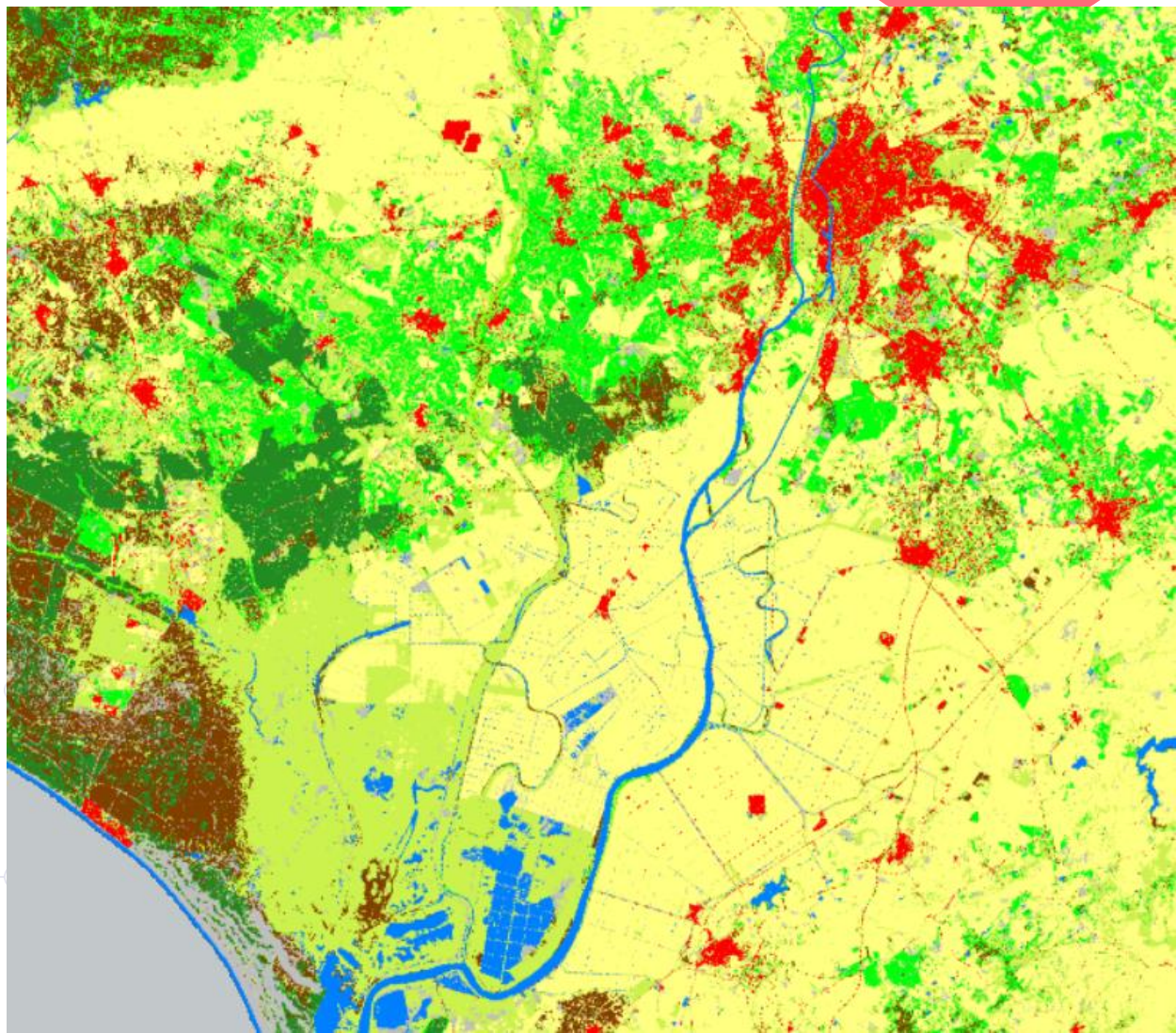
Corine Land Cover

- Spatial resolution: 25/5 ha MMU
- Update frequency: 6 years
- Most recent reference layer: 2018
- Examples of applications:
  - Habitat mapping
  - Impact assessment



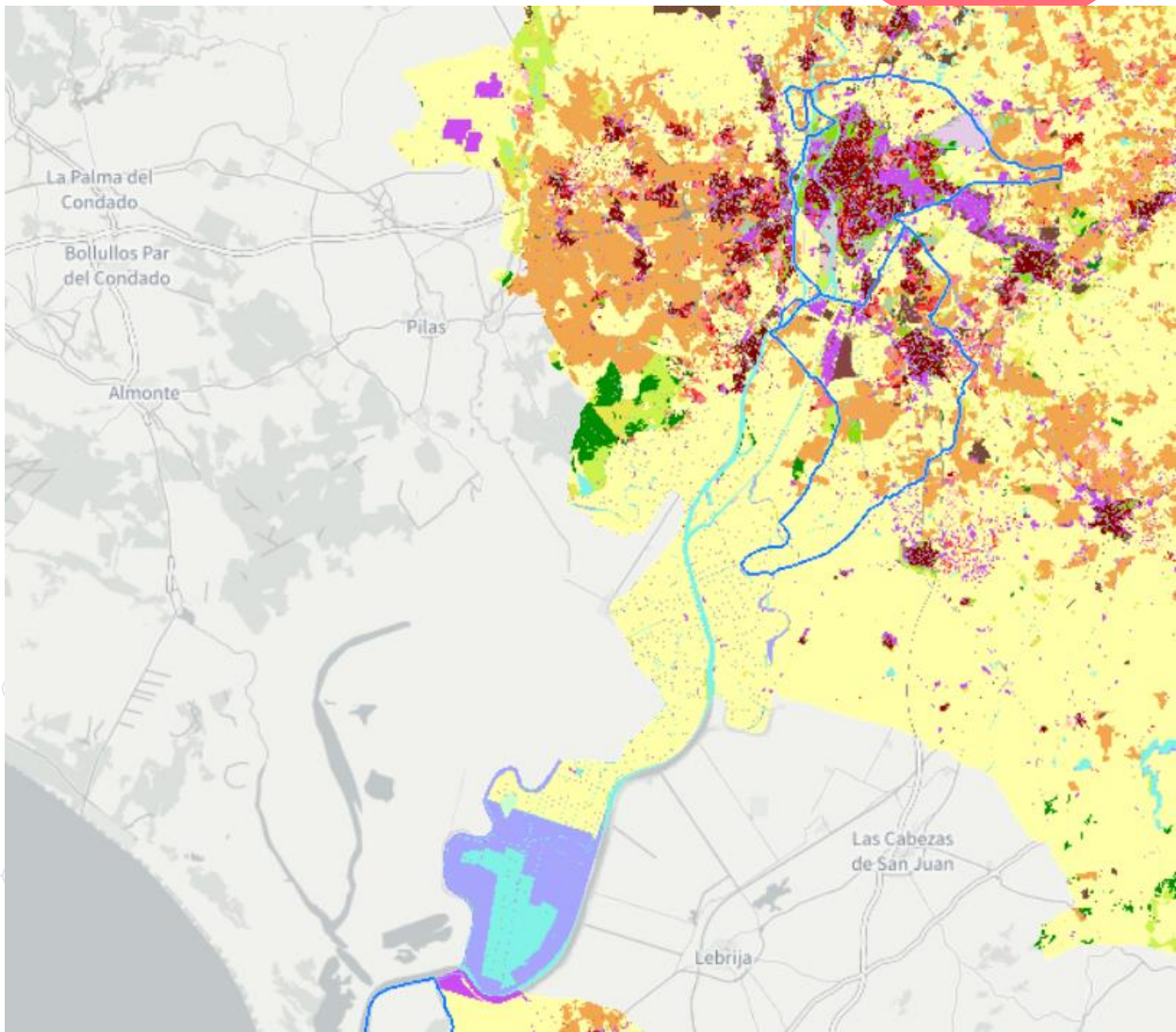
Corine Land Cover+ Backbone

- Spatial resolution: 10 m
- Update frequency: 3 (soon 2) years
- Most recent reference layer: 2018
- Examples of applications:
  - Impact assessment



Urban Atlas

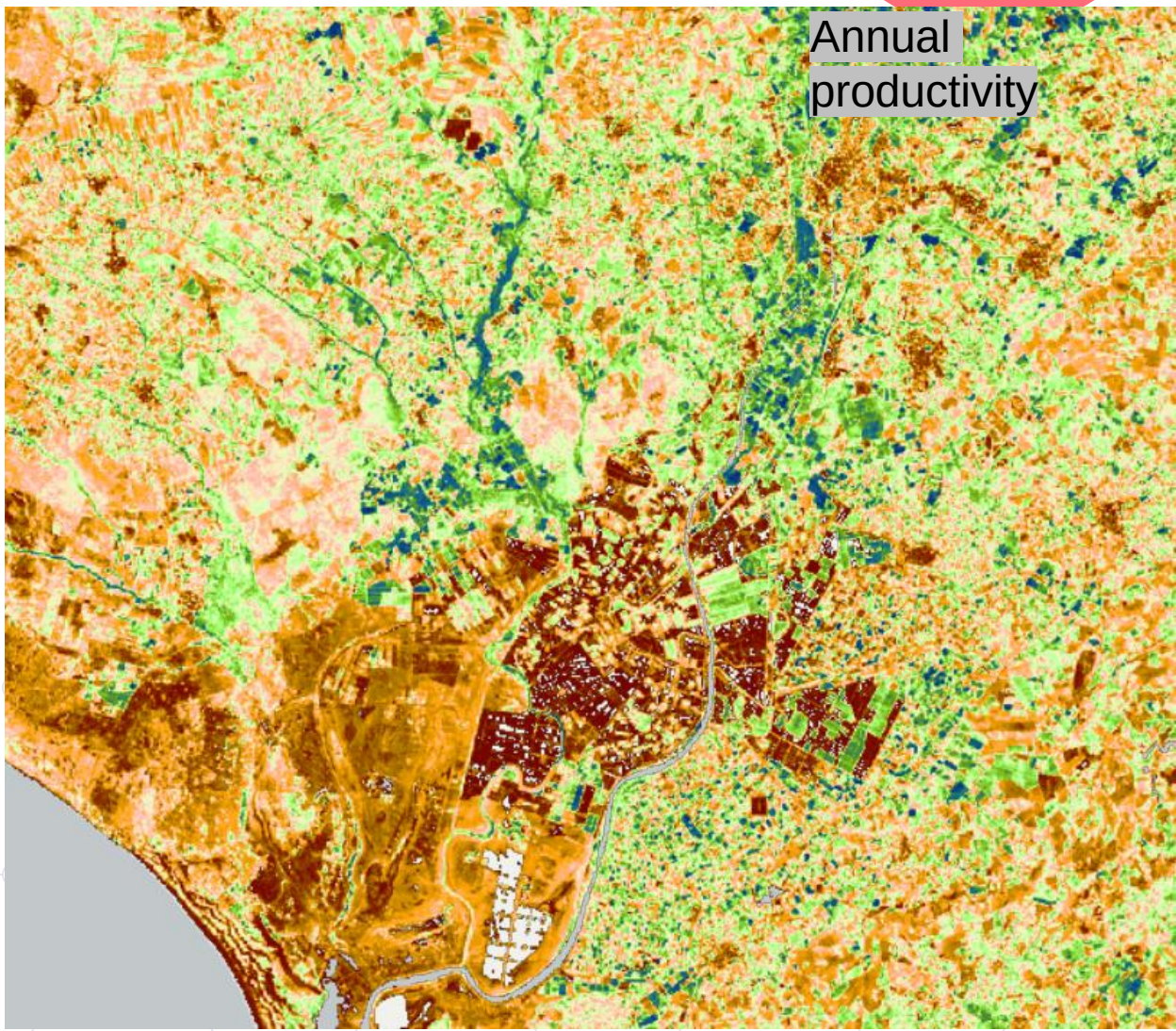
- Spatial resolution: 0,25/1 ha MMU
- Update frequency: 6 years
- Most recent reference layer: 2018
- Examples of applications:
  - Urban planning
  - Designing Green infrastructure
  - Impact assessment



HR Vegetation Parameters

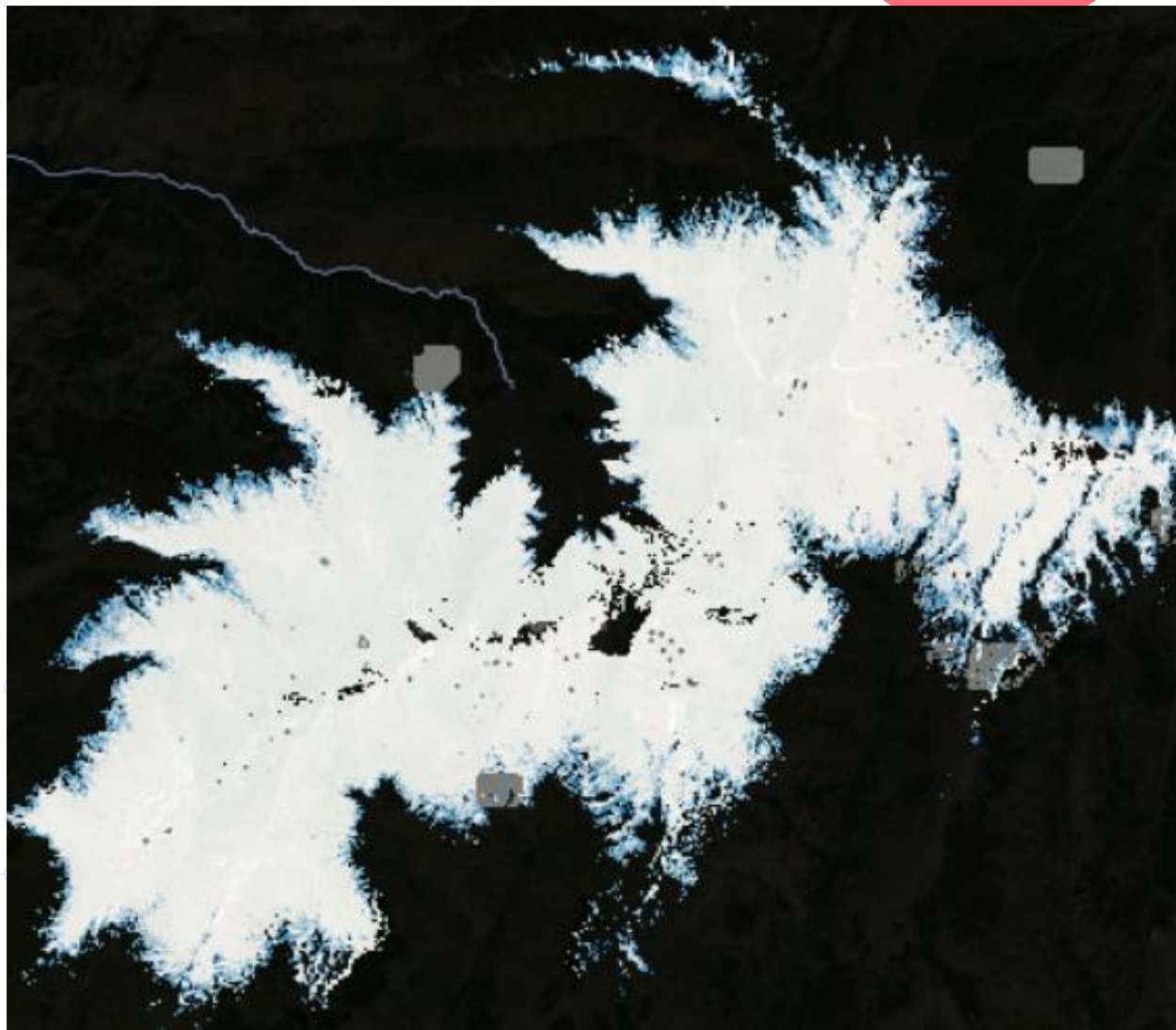
- Spatial resolution: 10 m
- Update frequency: Daily/10-daily/Yearly
- Most recent reference layer: 2022/2023
- Examples of applications:
  - Mapping peatlands and modelling their CO_2 emissions
  - Assessing and adapting to drought impact
  - Biodiversity conservation

Upcoming webinar series:
https://land.copernicus.eu/en/events/high-resolution-phenology-and-productivity-for-drought-impact-assessments



HR Snow & Ice

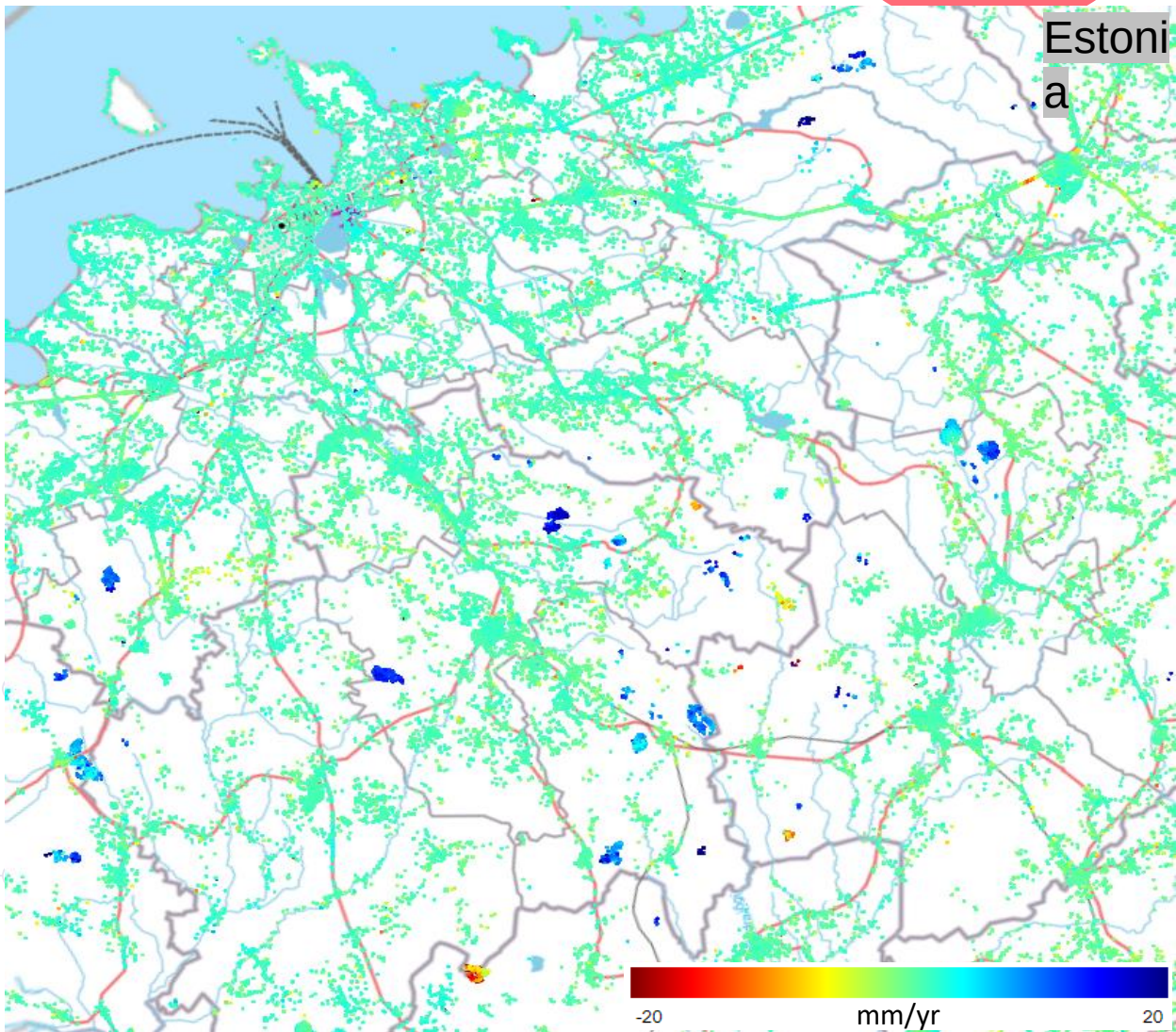
- Spatial resolution: 20 m – 5 km
- Update frequency: Daily/Yearly
- Most recent reference layer: 2023
- Examples of applications:
  - Investigating species' behavior in changing climate
  - Optimising hydropower production
  - Assessing natural hazard risk



European Ground Motion Service

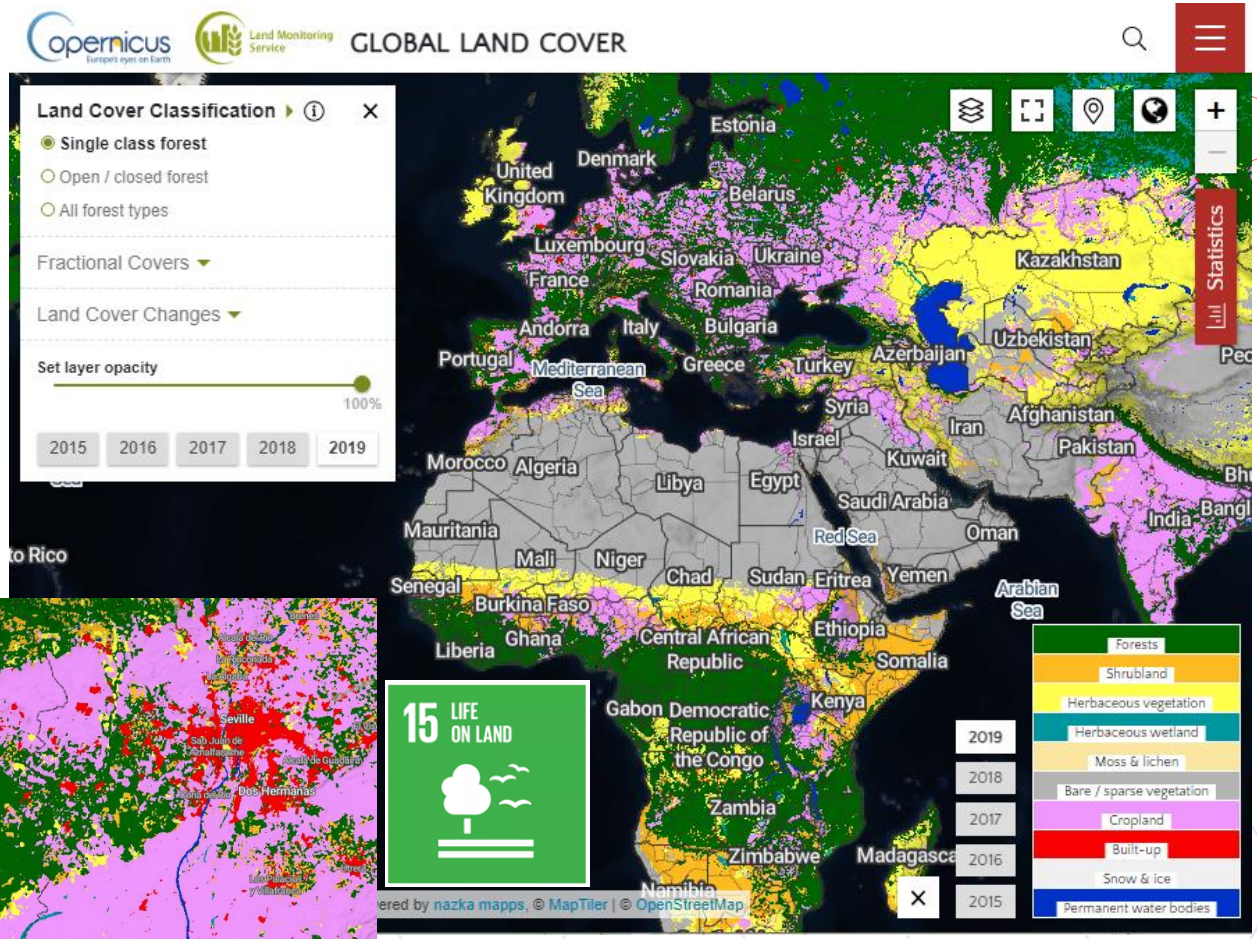
- Spatial resolution: 5x20/ 100x100 m
- Update frequency: Yearly, with time series
- Most recent reference layer: 2015 – 2022
- Examples of applications:
  - Climate change adaptation/ mitigation
  - Urban planning

Webinar series: https://land.copernicus.eu/en/products/european-ground-motion-service?tab=user_outreach



Global Land Cover

- Spatial resolution: 100 m (future -> 10 m)
- Update frequency: Yearly
- Most recent reference layer: 2019 (future 2020 ->present)
- Examples of applications:
  - Support to SDGs
  - Support to CEOS Global Stocktake (GST)
  - Support to Agriculture, Forestry and Other Land Use (AFOLU) Roadmap
  - Convention on Biological Diversity
  - UNCCD Land Degradation Neutrality



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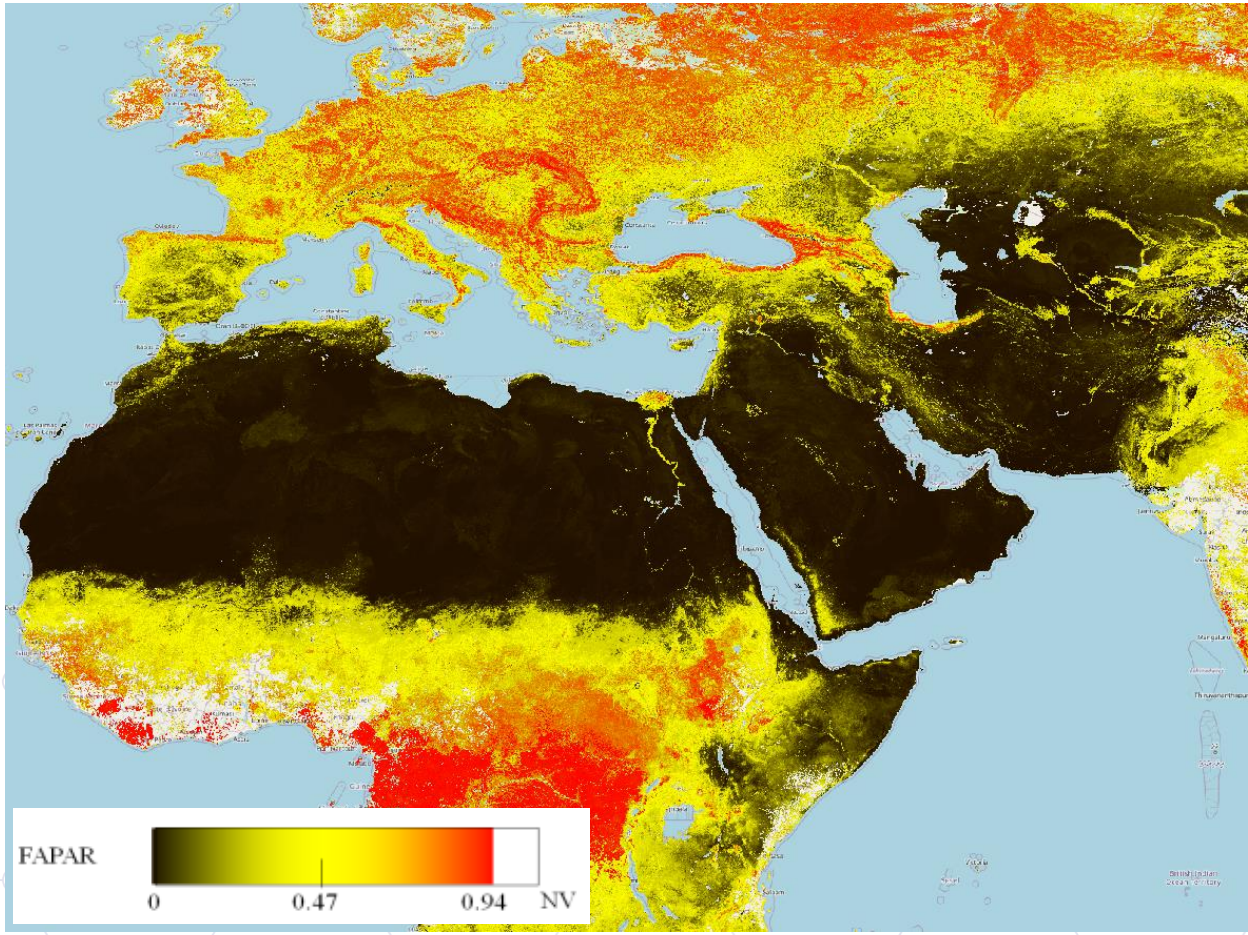
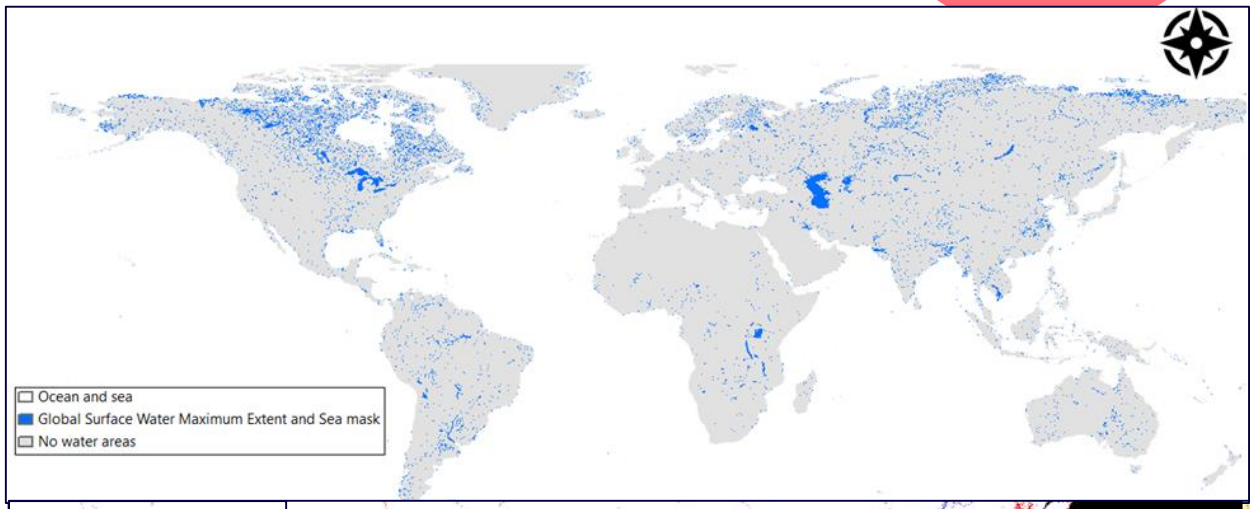
Bio-geophysical variables - Vegetation

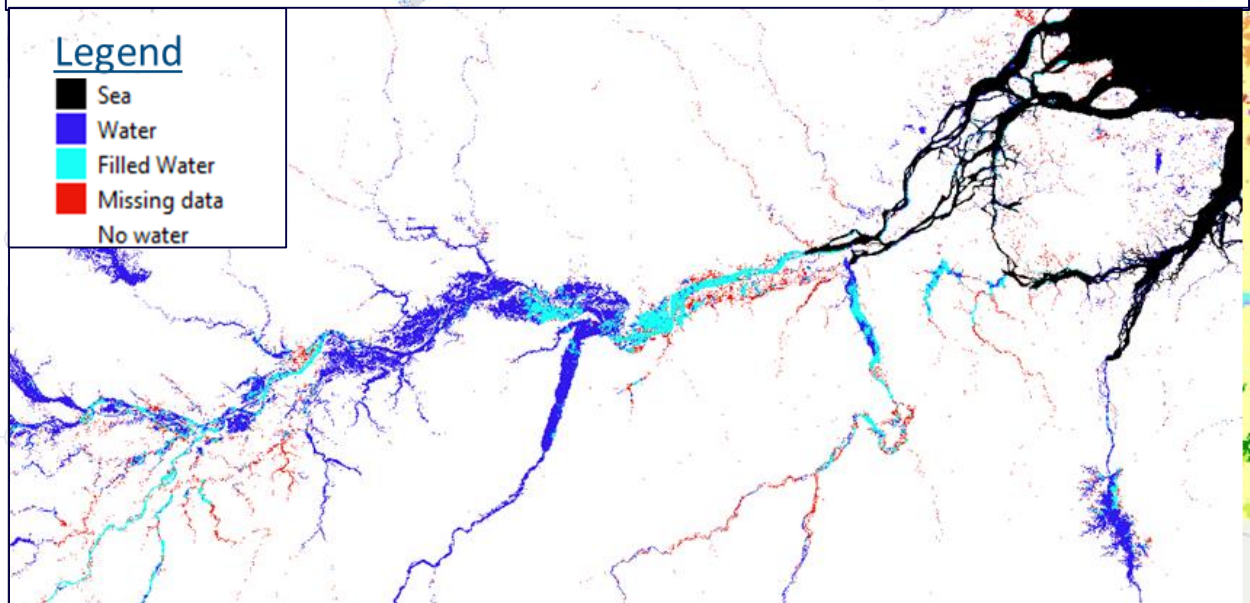
- Spatial resolution: 300 m
- Update frequency: 10-daily
- Most recent reference layer: present
- Examples of applications:
  - Smart-herding systems
  - Vegetation dynamics
  - Phenology comparison
  - Drought impact
  - Crop-insurance
  - Locust-related impact



Water Bodies

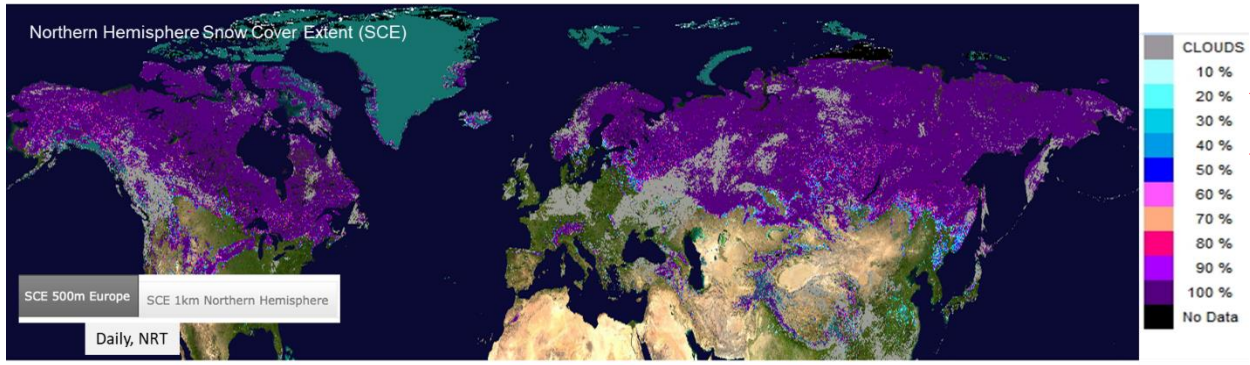
- Spatial resolution: 100m
- Update frequency: Monthly
- Most recent reference layer: present
- Examples of applications:
  - Climate change impact
  - Assessing risk related to natural hazards
  - Wildlife monitoring

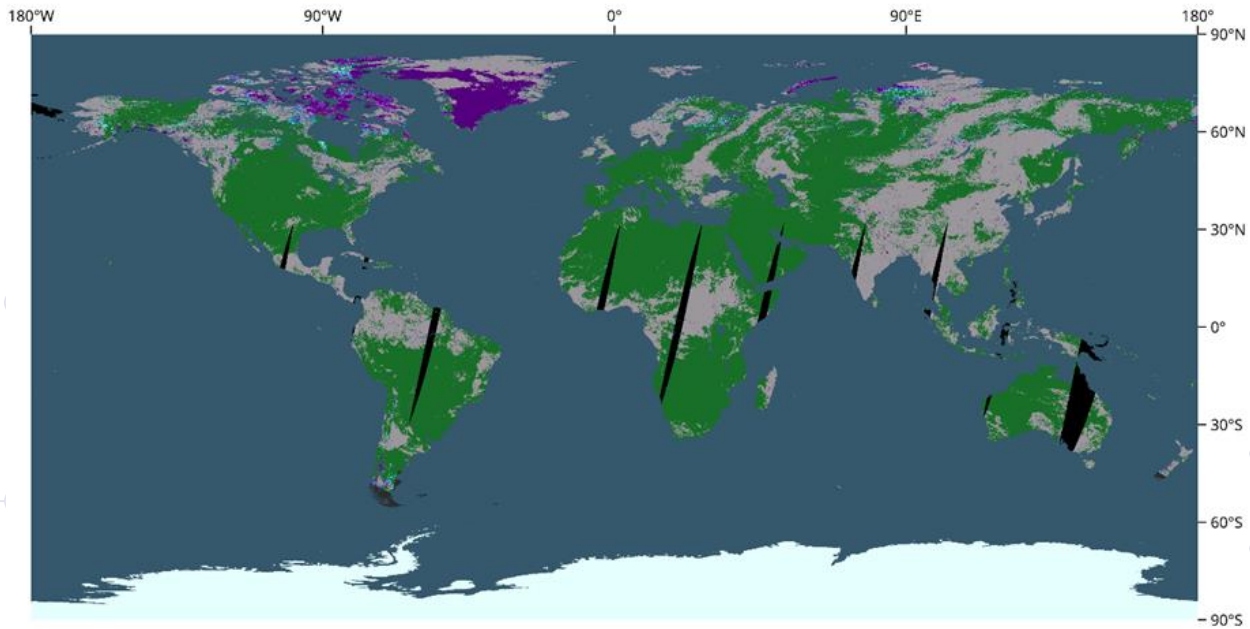




Cryosphere - Snow cover

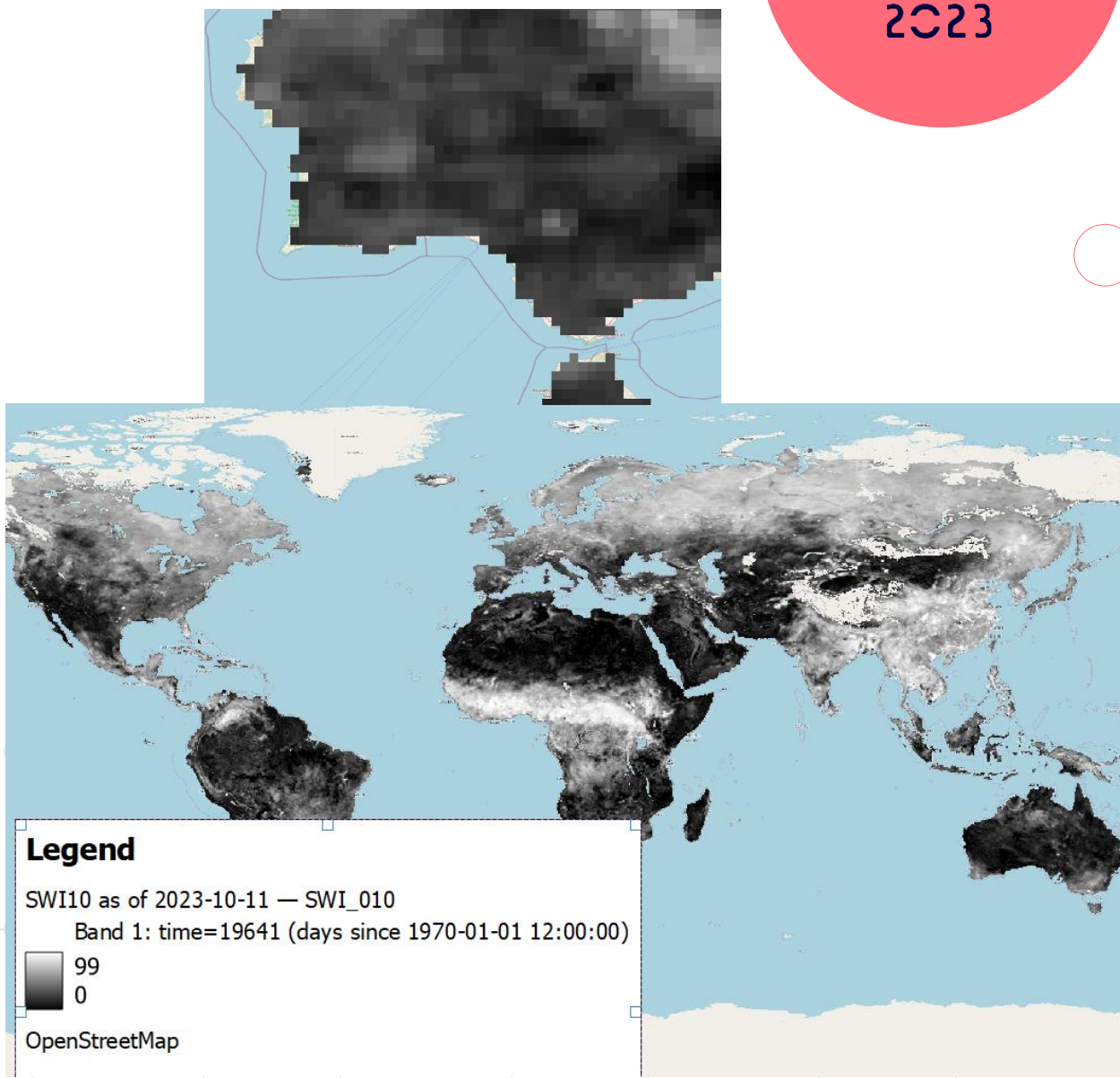
- Spatial resolution: 500m/1km
- Update frequency: Daily
- Most recent reference layer: present
- Examples of applications:
  - Investigating species' behavior in changing climate
  - Investigating impact of climate change
  - Assessing natural hazard risk





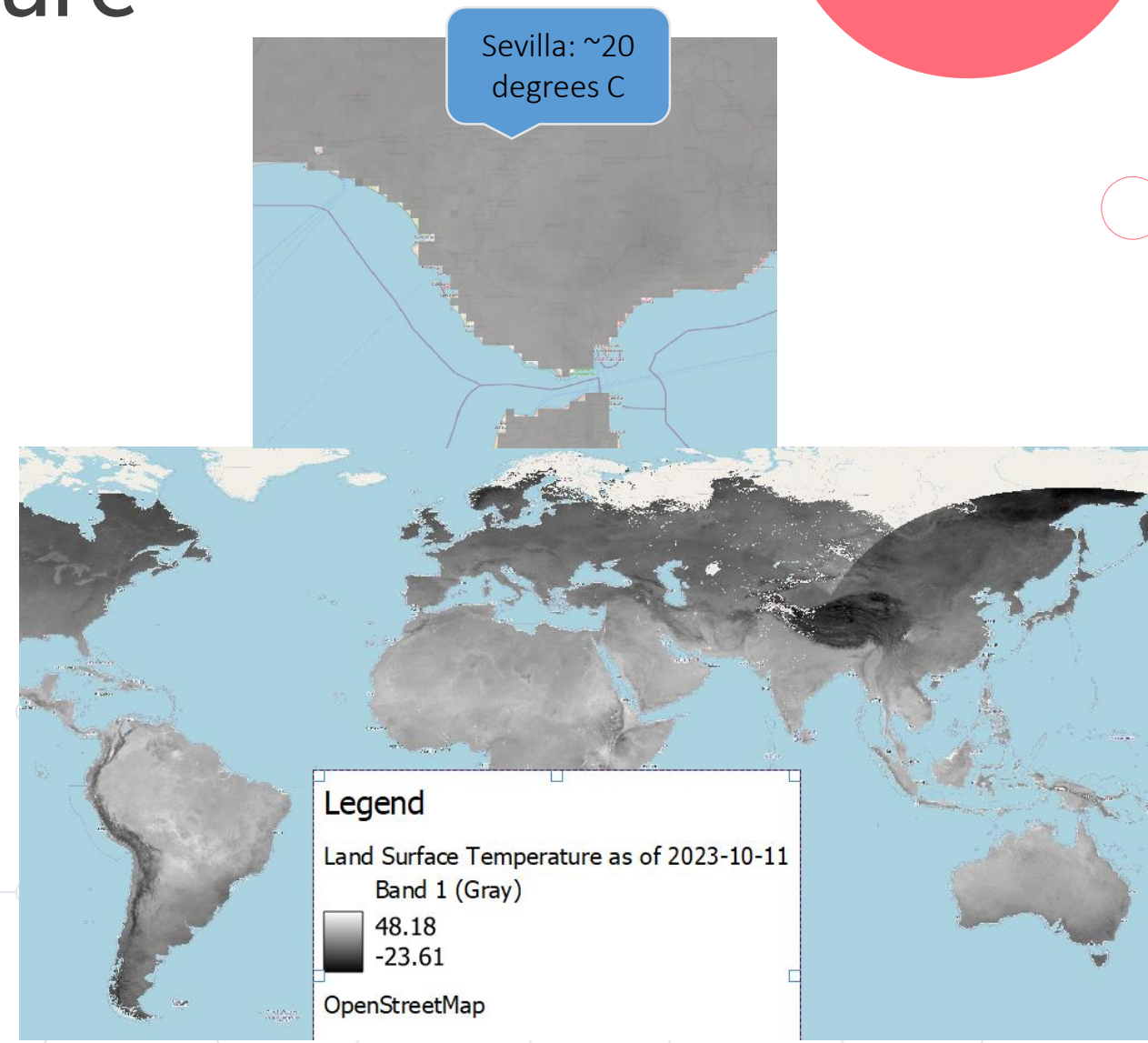
Soil Water Index

- Spatial resolution: 0.1 degree (global)/ 1 km (Europe)
- Update frequency: Daily/10-daily
- Most recent reference layer: present
- Examples of applications:
  - Investigating impact of climate change
  - Assessing natural hazard risk
  - Crop insurance



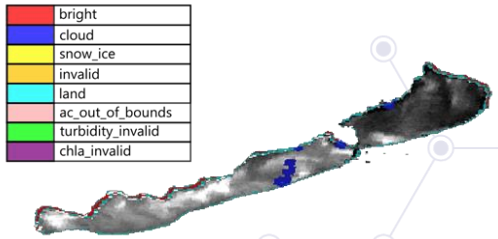
Land Surface Temperature

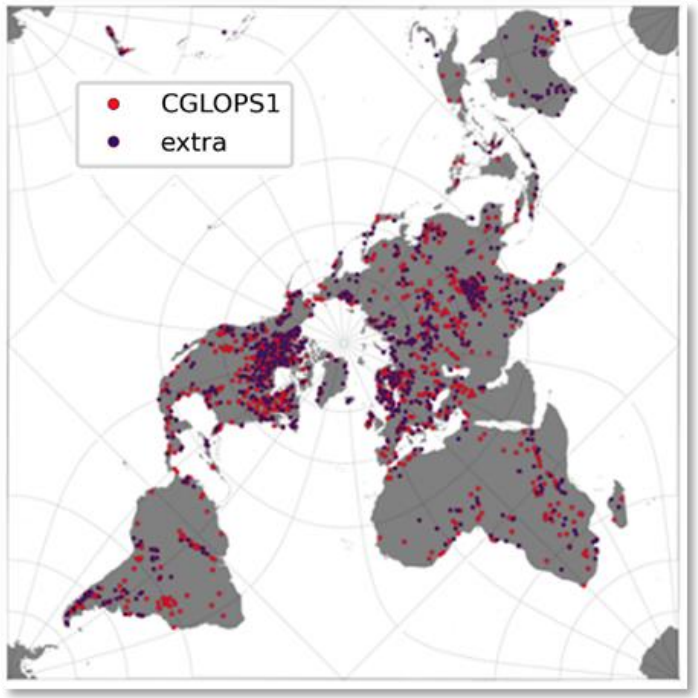
- Spatial resolution: 5 km
- Update frequency: Hourly/10-daily
- Most recent reference layer: present
- Examples of applications:
  - Investigating impact of climate change
  - Monitoring heatwaves

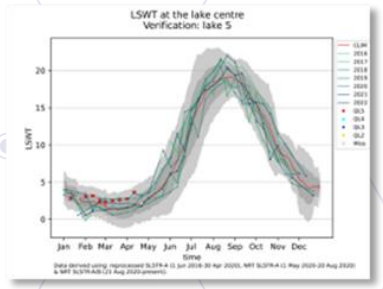


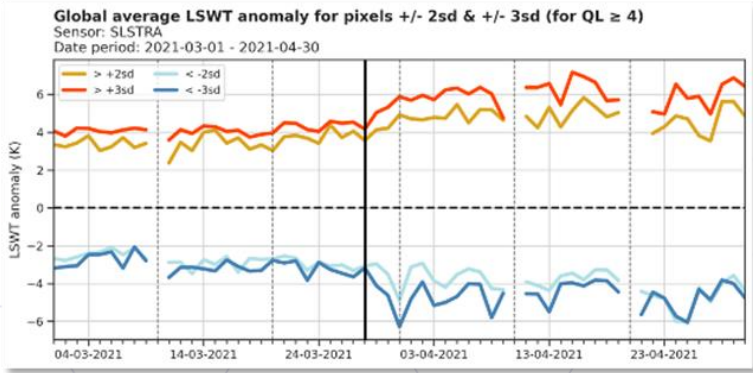
Lake Surface Water Temperature and Quality

- Spatial resolution: 1 km (1020 lakes); 300 (quality)
- Update frequency: 10-daily
- Most recent reference layer: present
- Examples of applications:
  - Investigating impact of climate change
  - Monitoring heatwaves
  - Biodiversity conservation









Thank you!

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https://land.copernicus.eu/

Nov. 8th:
Demo sessions on

- CLC and CLC+
- EGMS

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