

using space data to provide space for the environment

# Explanations on the Pan-European 10 x 10 km grid

to be used in reporting under Resolution No. 8 (2012)

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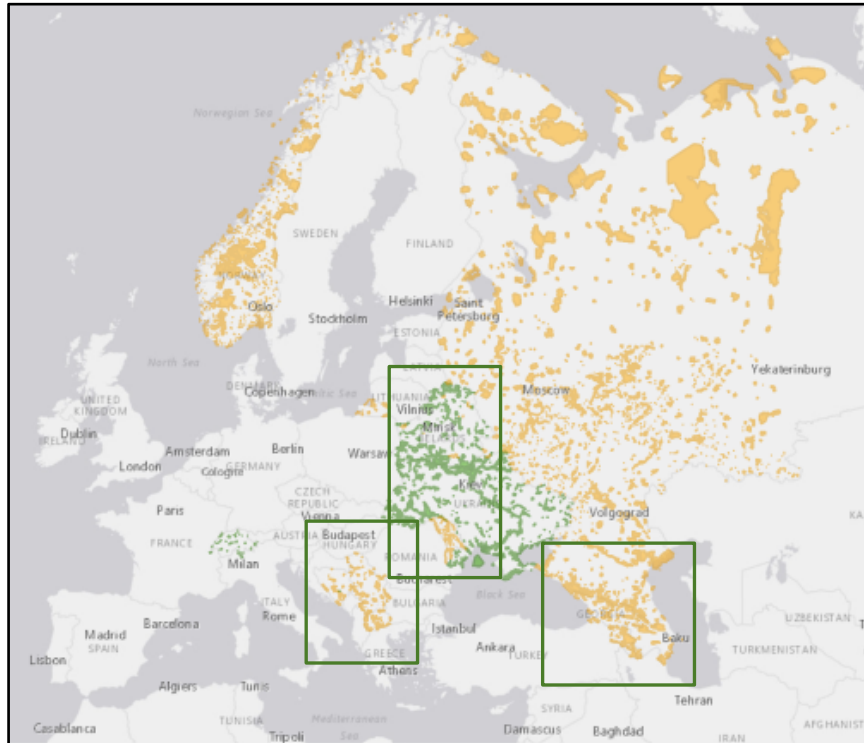
CHRISTOPHER PHILIPSEN

EUROPEAN TOPIC CENTRE ON BIOLOGICAL DIVERSITY (ETC/BD) /

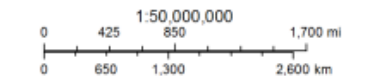
SPACE 4 ENVIRONMENT LUXEMBOURG

# Overview

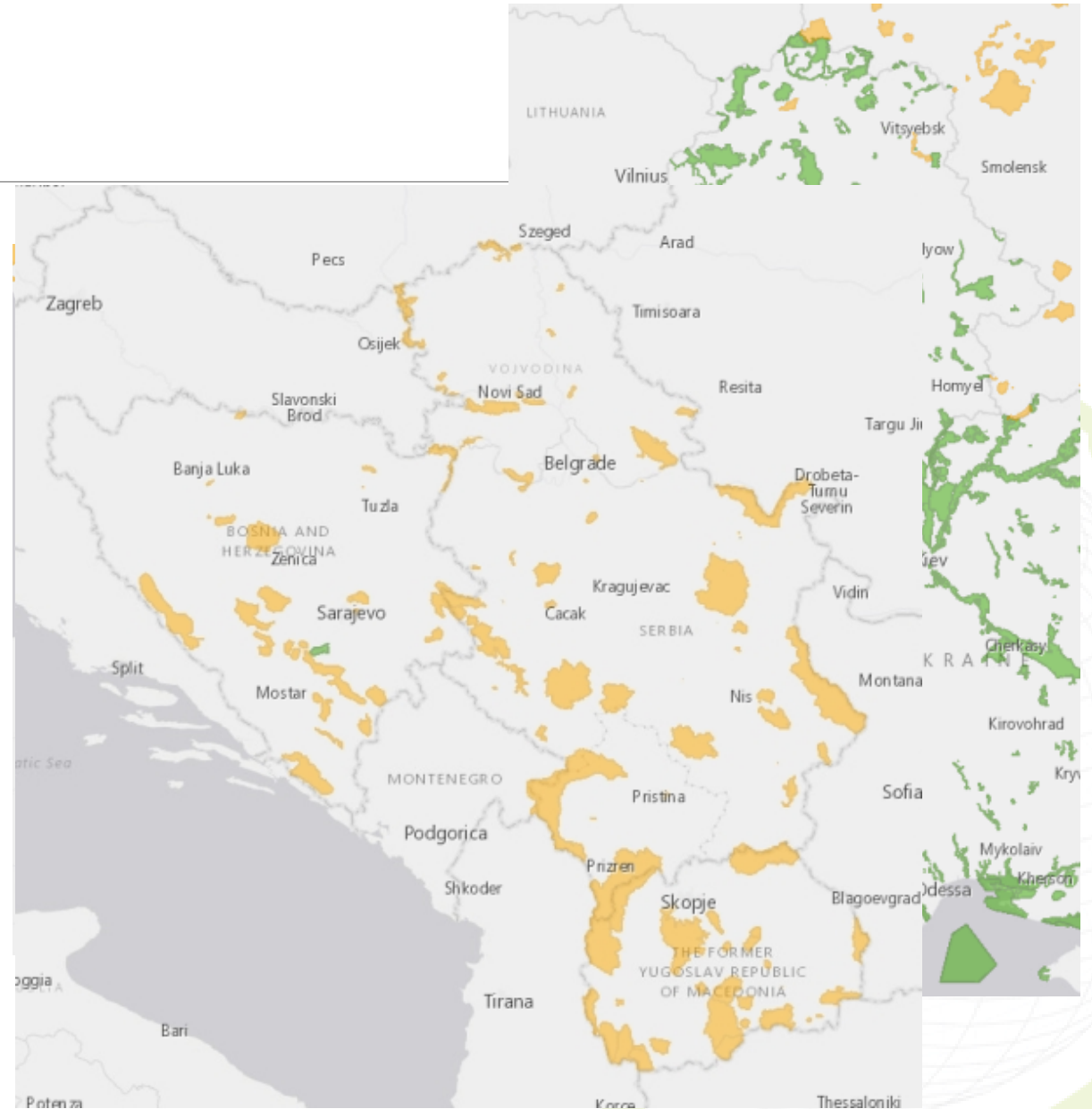
**Emerald Network**



- Candidate sites
- Adopted sites

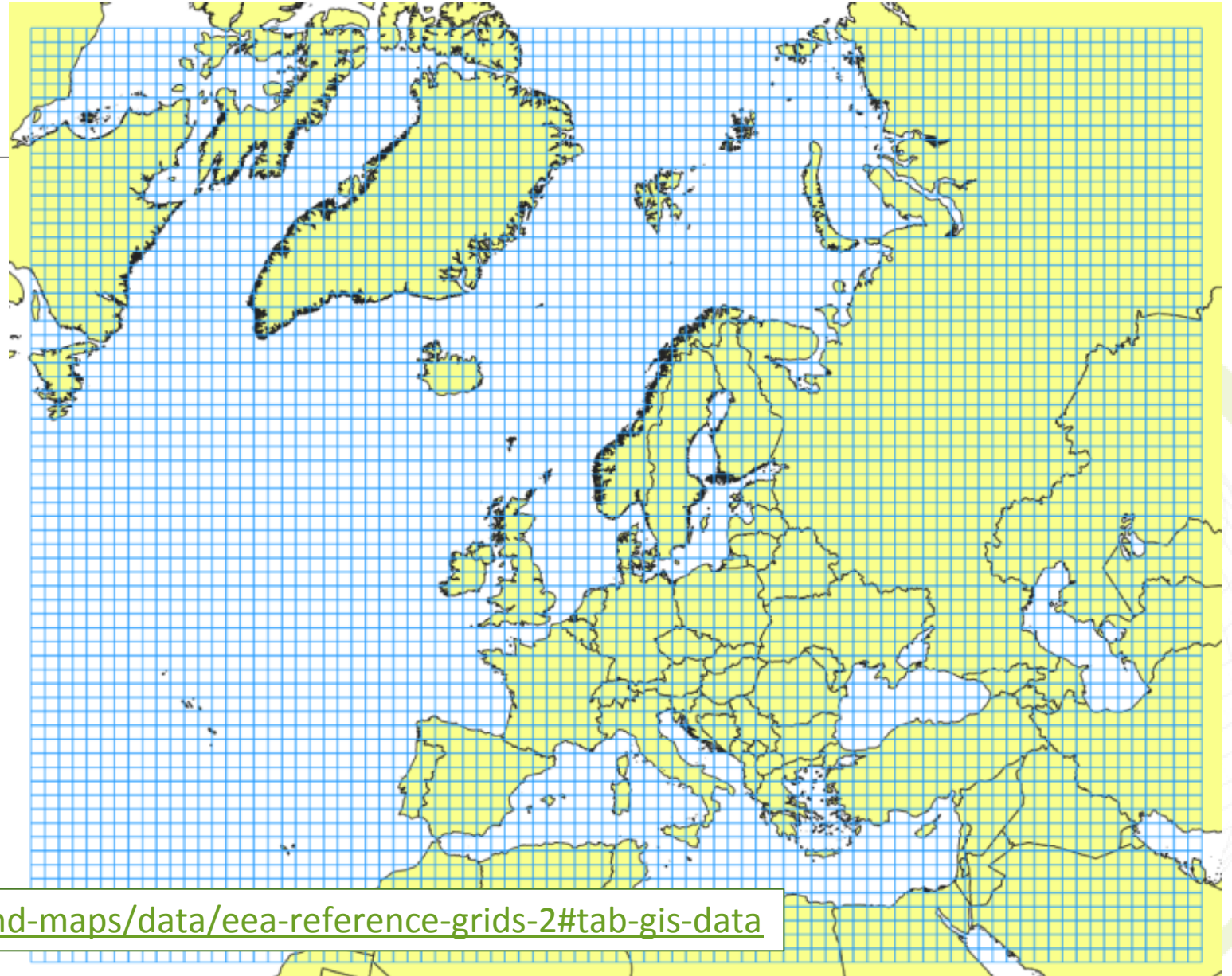


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# Overview

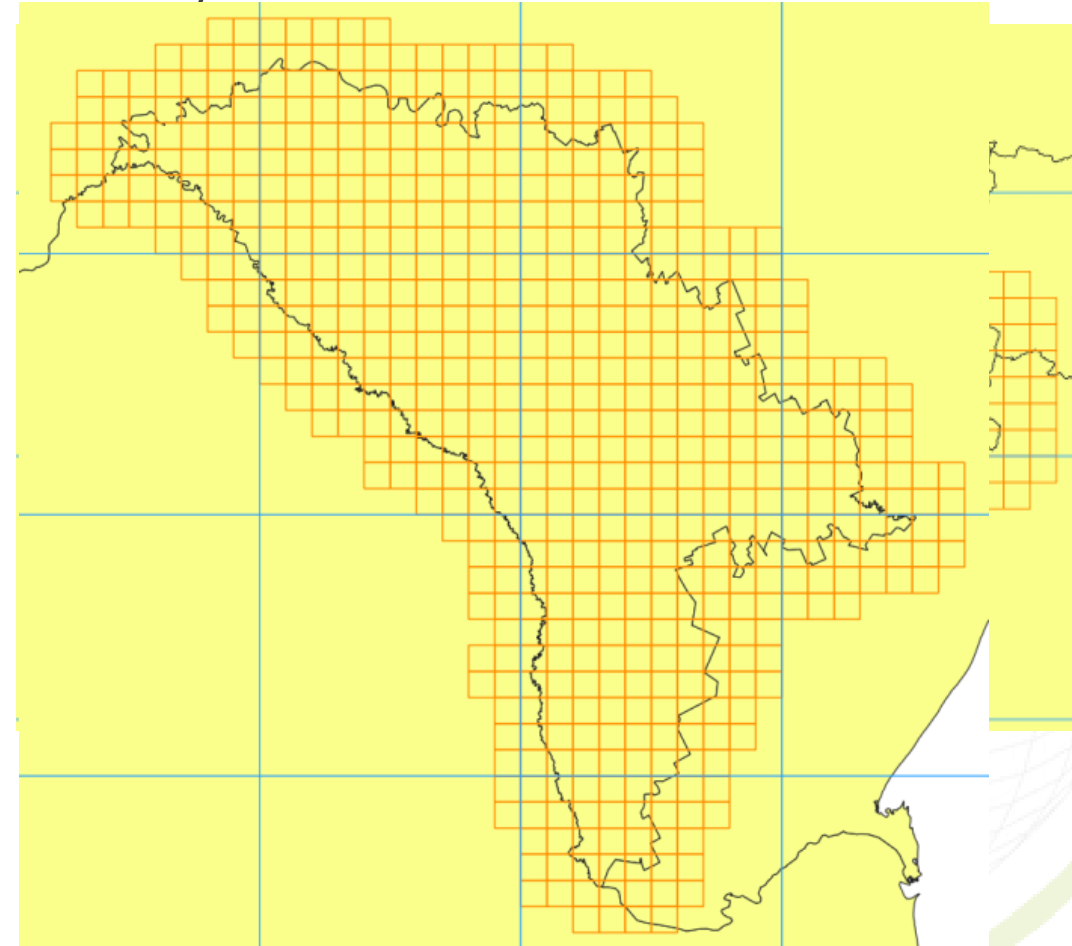
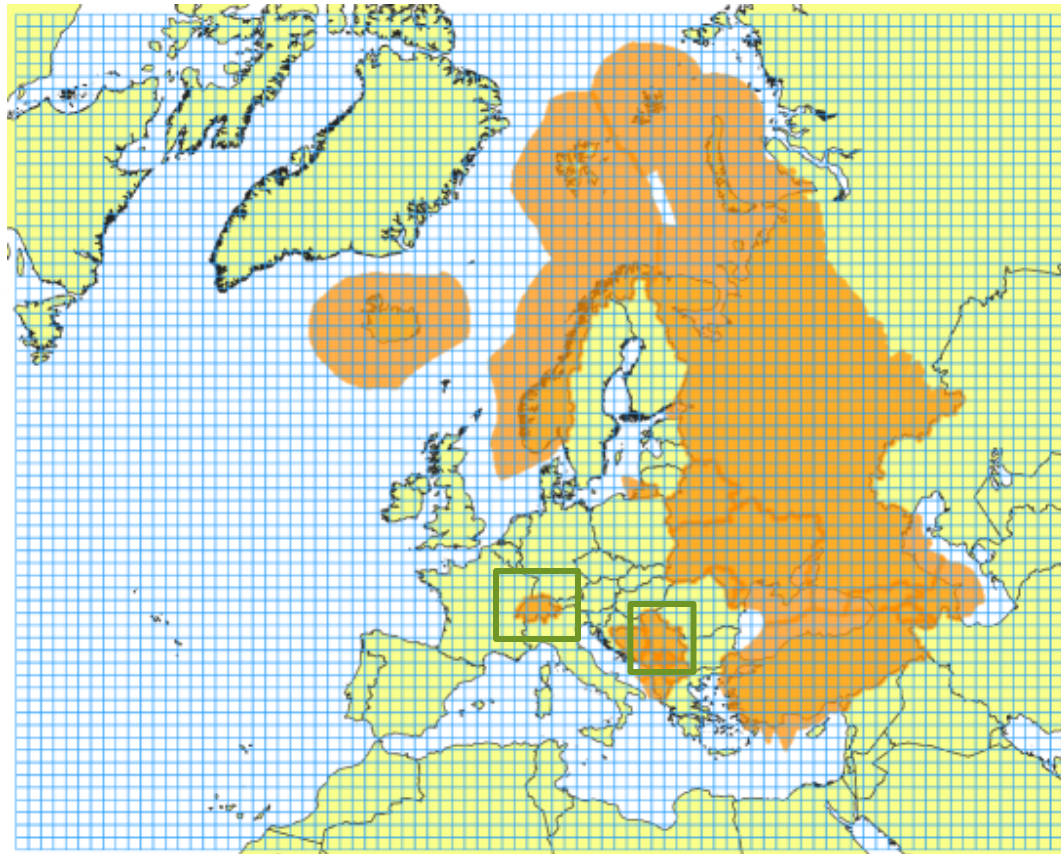
- Pan-European grid system covering EU member states as well as EEA cooperating countries and neighbouring countries to the East
- Different grid mesh sizes of the EEA Reference Grids available from EEA SDI/data catalogue
  - 1km
  - 10km
  - 100km



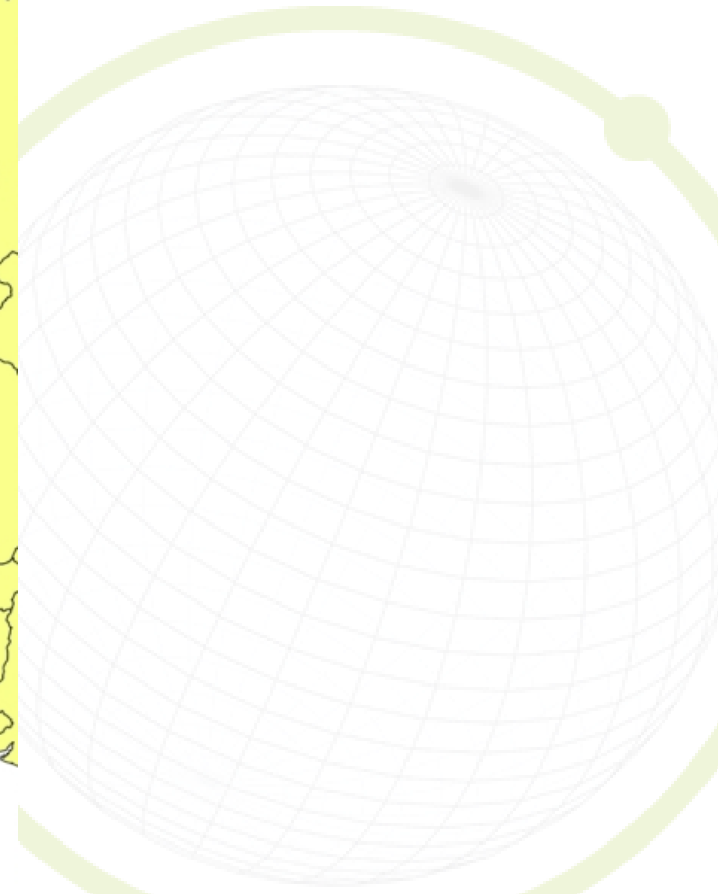
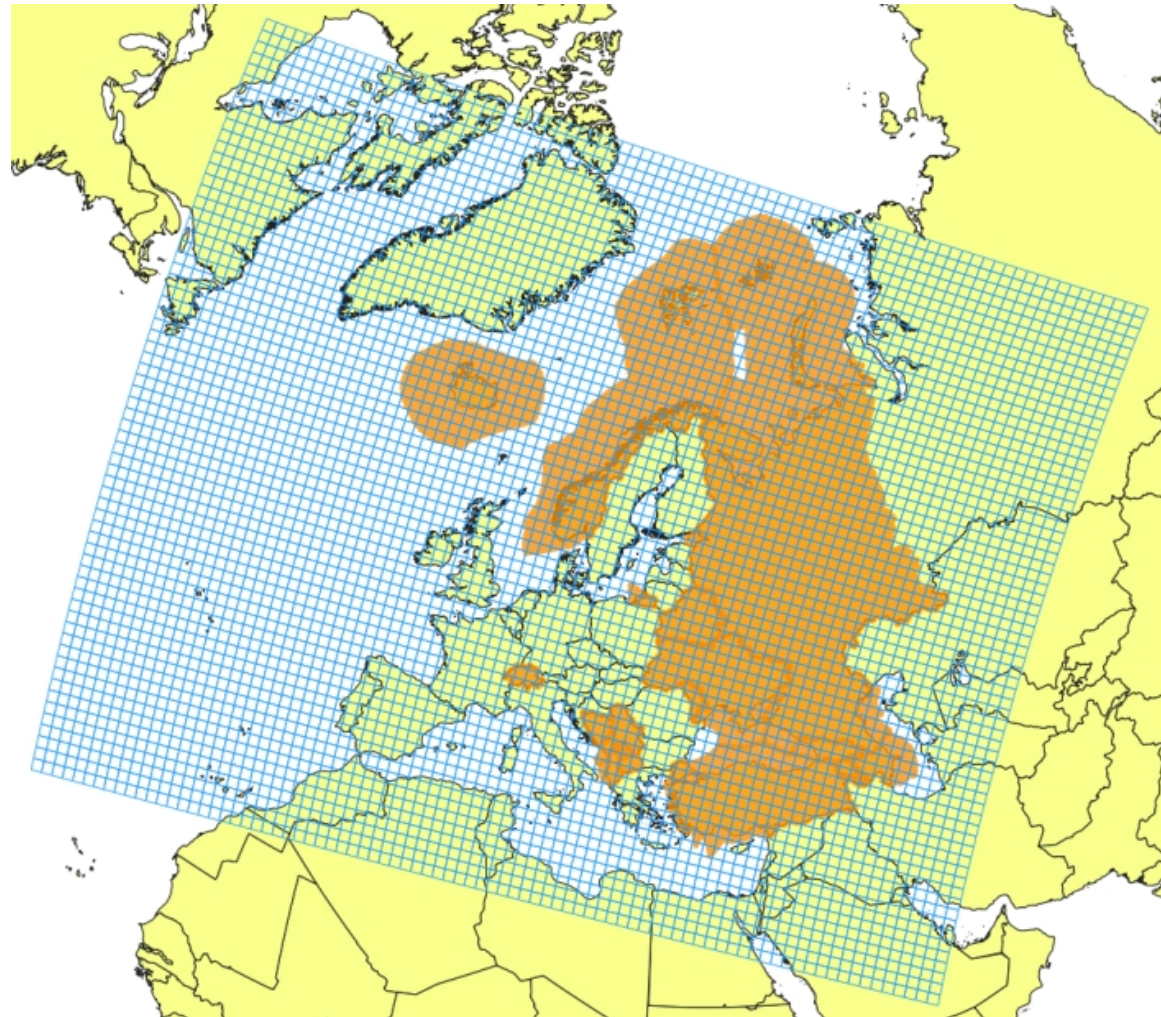
<https://www.eea.europa.eu/data-and-maps/data/eea-reference-grids-2#tab-gis-data>

# Pan-European Grid system

- Grids spanning from parts of eastern Canada to central Russia / Barents Sea to northern Africa
  - Covering territory of ENI neighbouring countries too



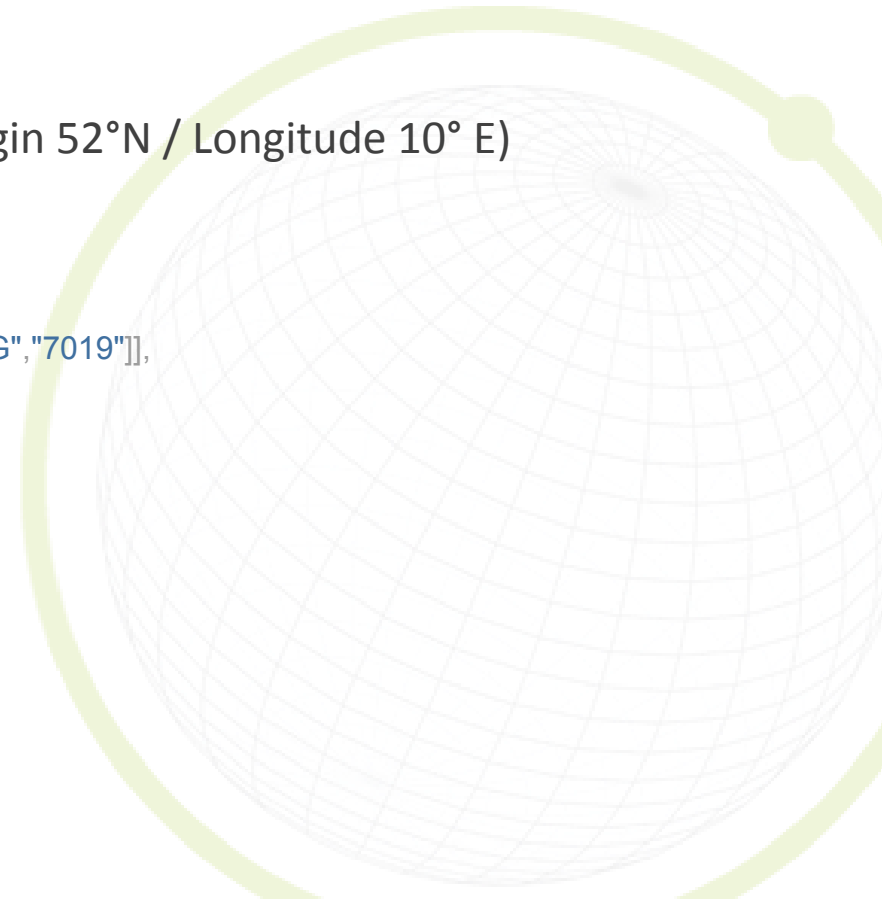
# Pan-European Grid system (re-centred on E-Europe)



# Pan-European Grid system

- Grids spanning from parts of eastern Canada to central Russia / Barents Sea to northern Africa
  - Covering territory of ENI neighbouring countries too
- Projection used: EPSG:3035 - ETRS89 / LAEA Europe
  - Centralized on Europe using 10° E as central meridian (Latitude of origin 52°N / Longitude 10° E)

```
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GEOGCS["ETRS89",  
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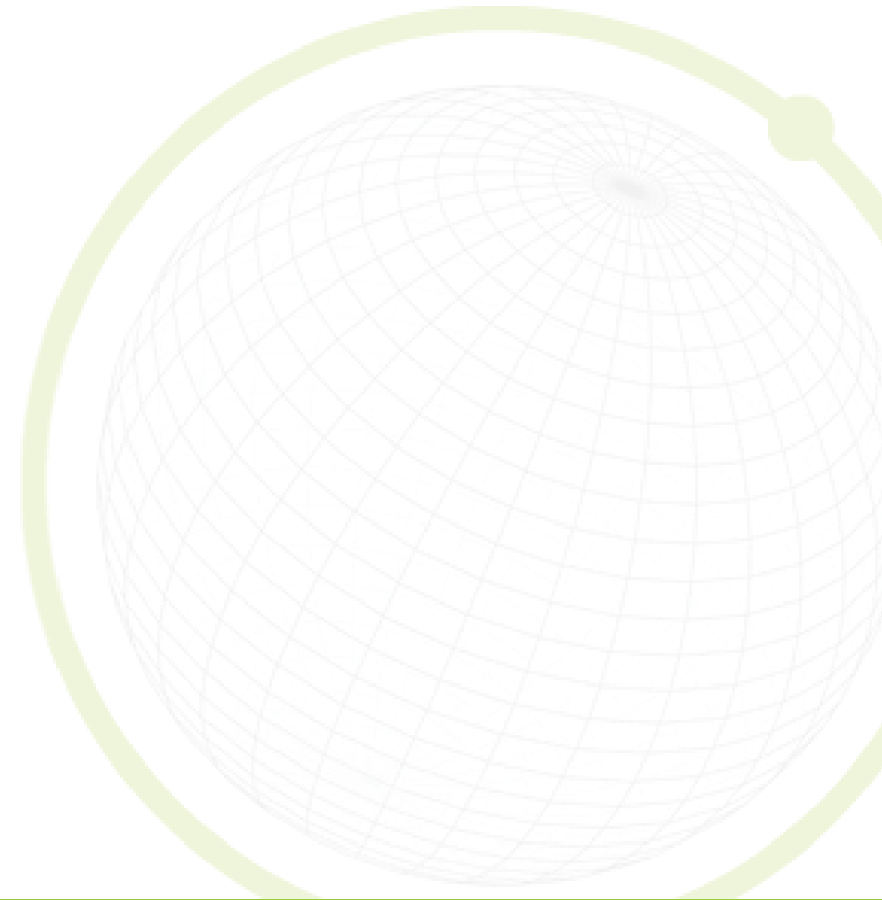
# Pan-European Grid system

- Grid cells attributed with unique id based on location
  - Grid cells id (CELLCODE) constructed from lower left corner in ETRS89 LAEA (EPSG:3035)

e.g. 10kmE448N362

10km grid      North 3,620,000m

East 4,480,000m



# Country reporting

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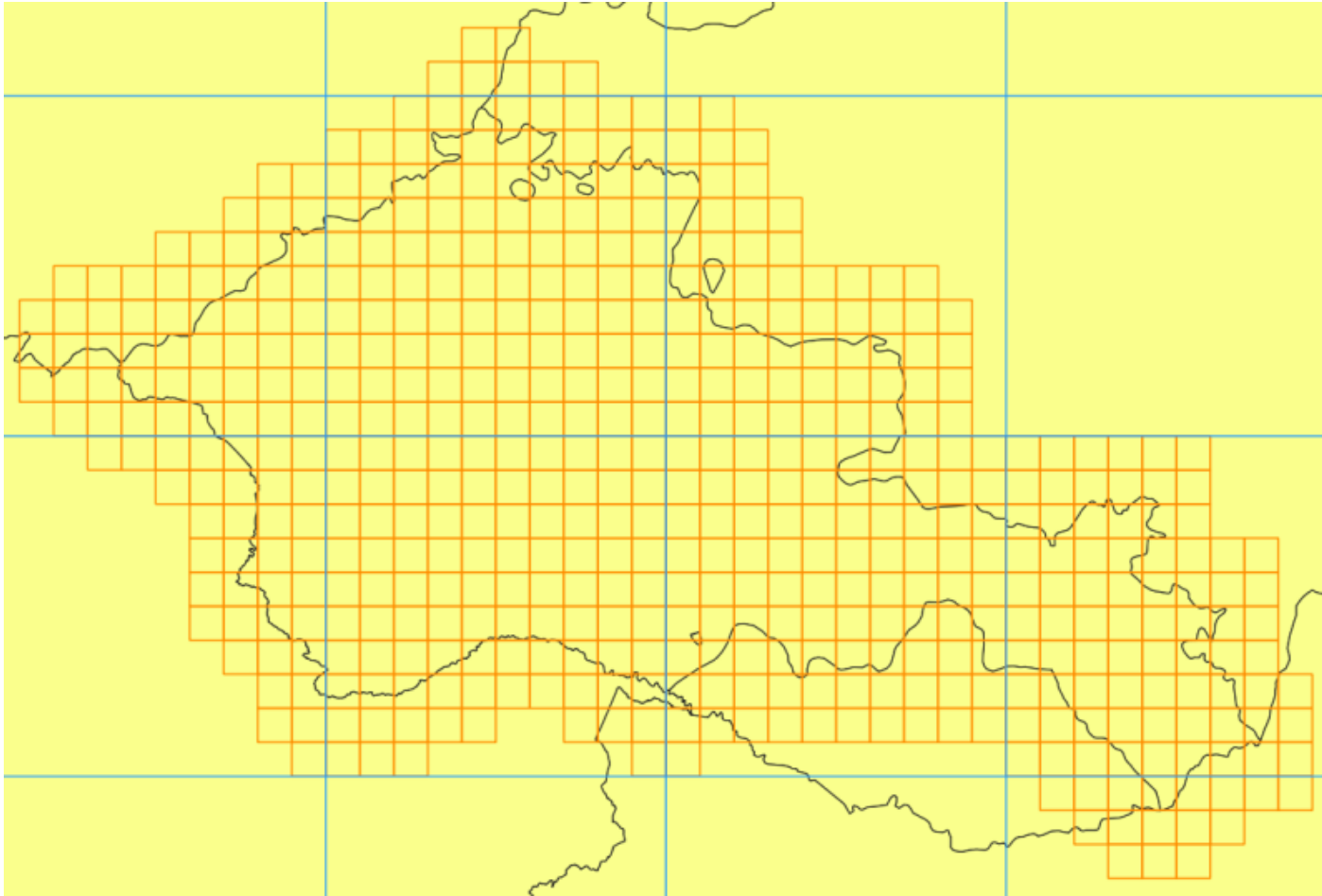
- In framework of Bern convention countries are asked to report their national data on distribution information using the 10x10km grid.
- In framework of the ENI-SEIS II East project EEA/EC has provided country specific grids as excerpt from the Pan-European grid adding a buffer of 20 km around country borders
  - Grids are available online:
    - Access to the grids for all groups of countries (ENI, EIONET and Russia) via the webpage for the workshop:  
<https://www.coe.int/en/web/bern-convention/-/workshop-on-reporting-under-res-8-2012->



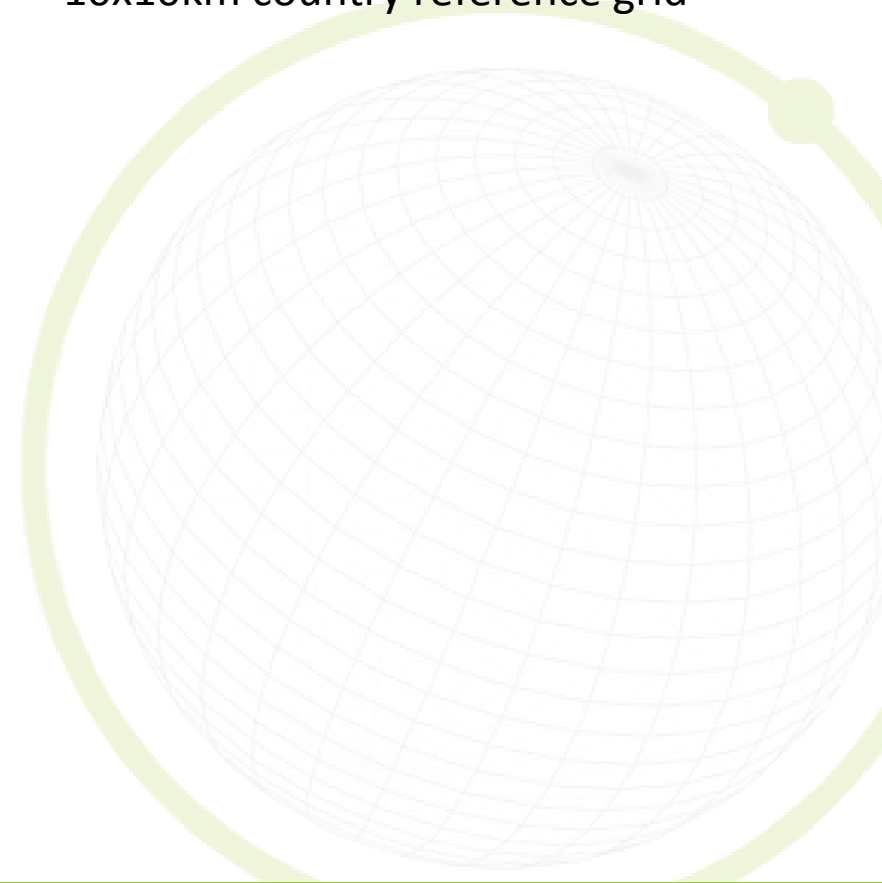
# Country 10x10km grids

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space **4** environment

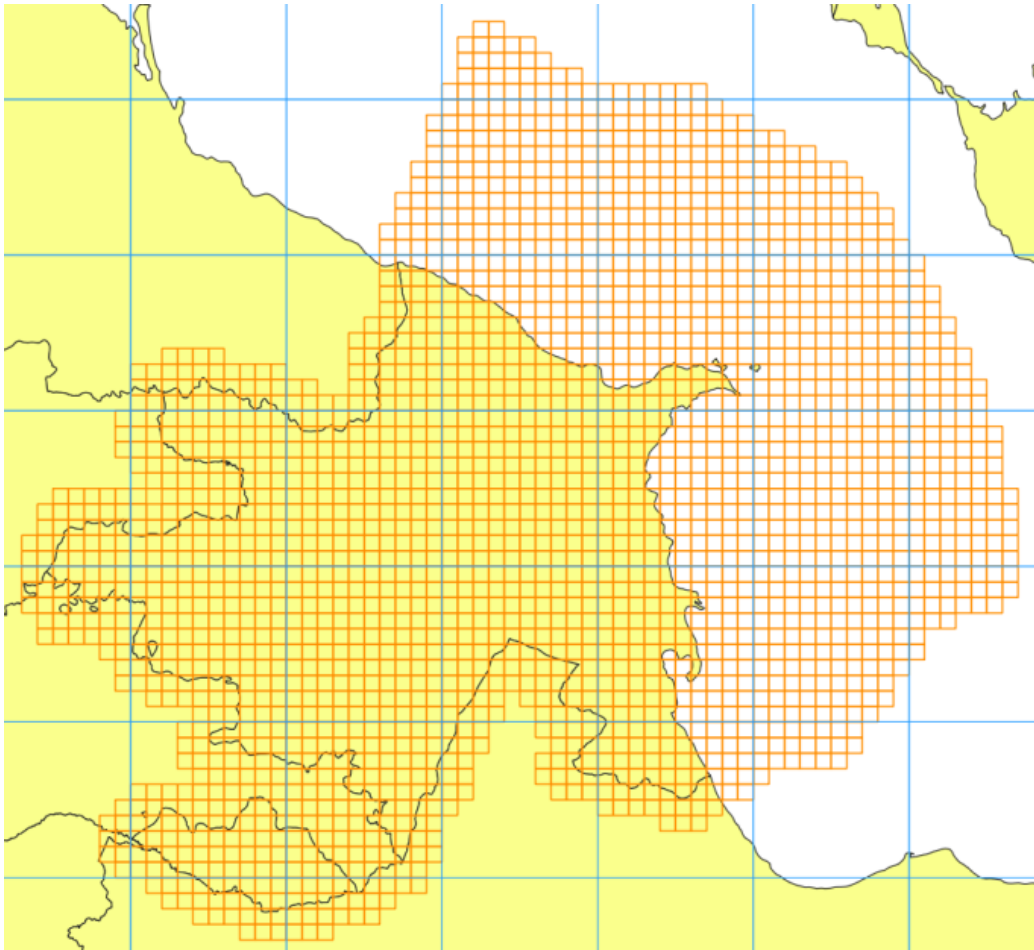


Armenia  
10x10km country reference grid

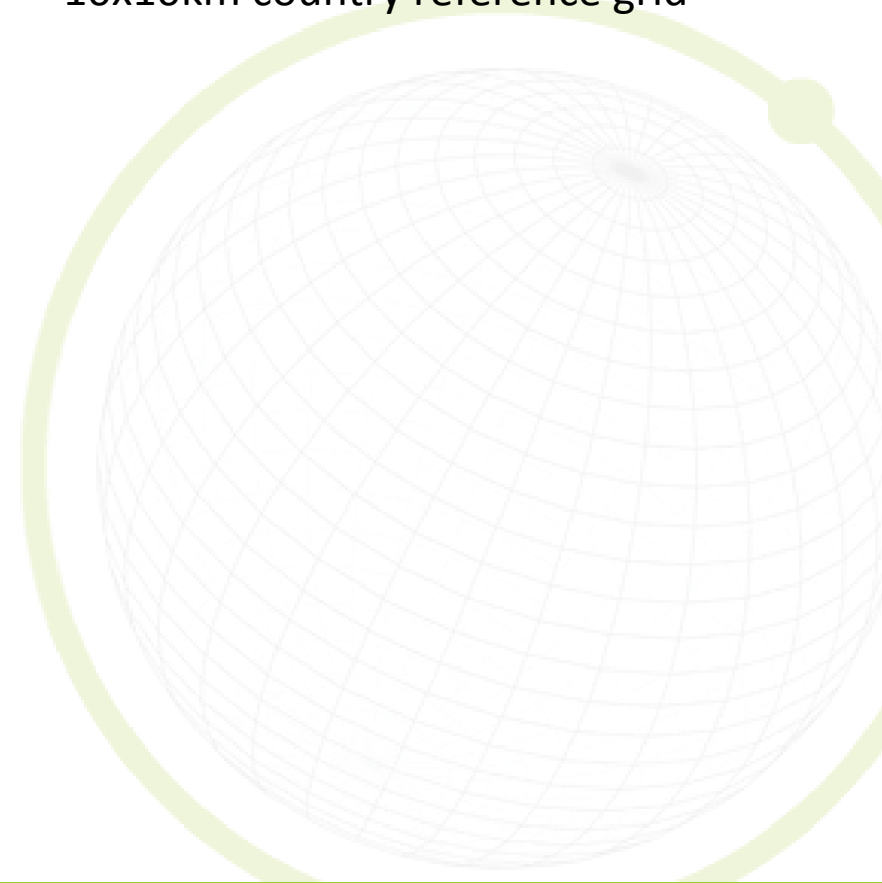


# Country 10x10km grids

space **4** environment

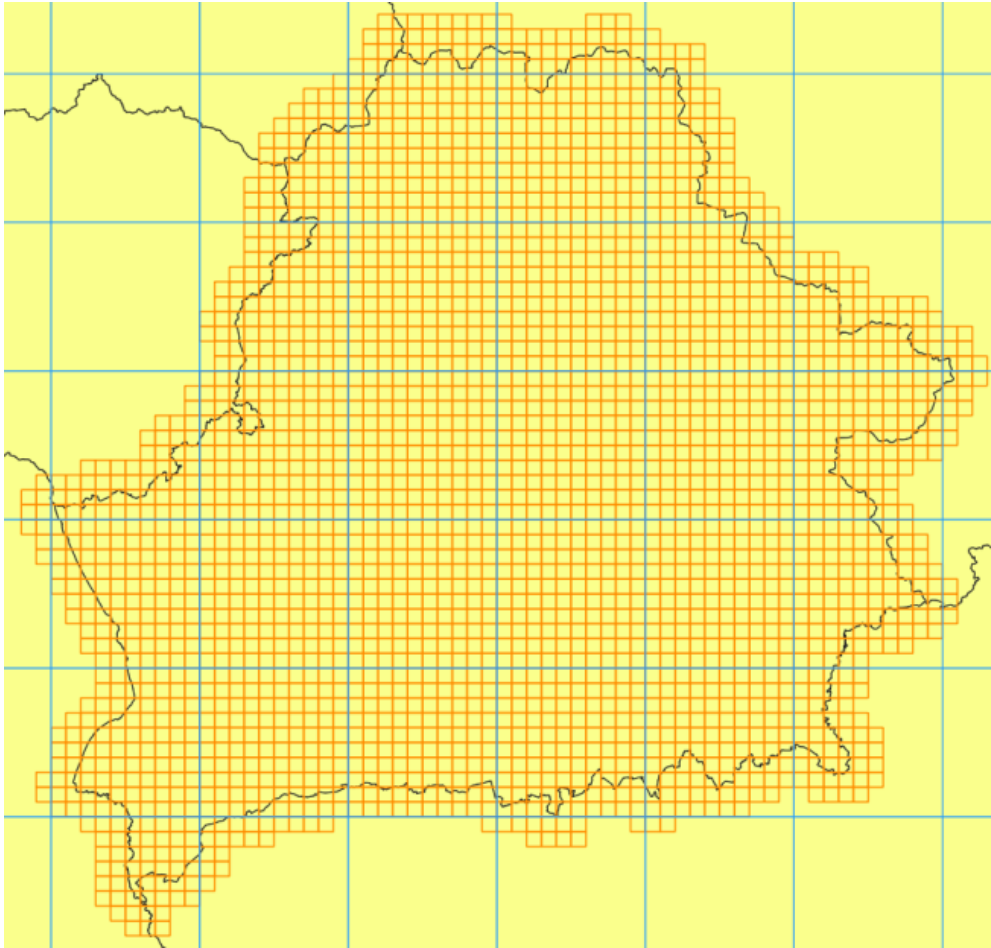


Azerbaijan  
10x10km country reference grid

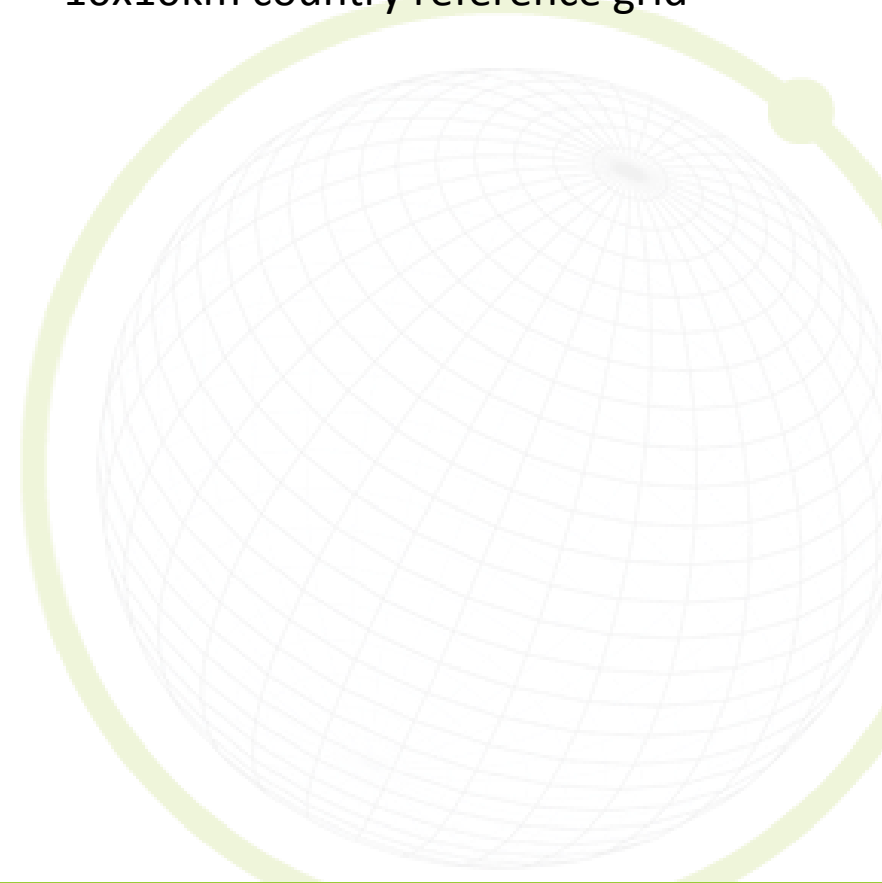


# Country 10x10km grids

space **4** environment

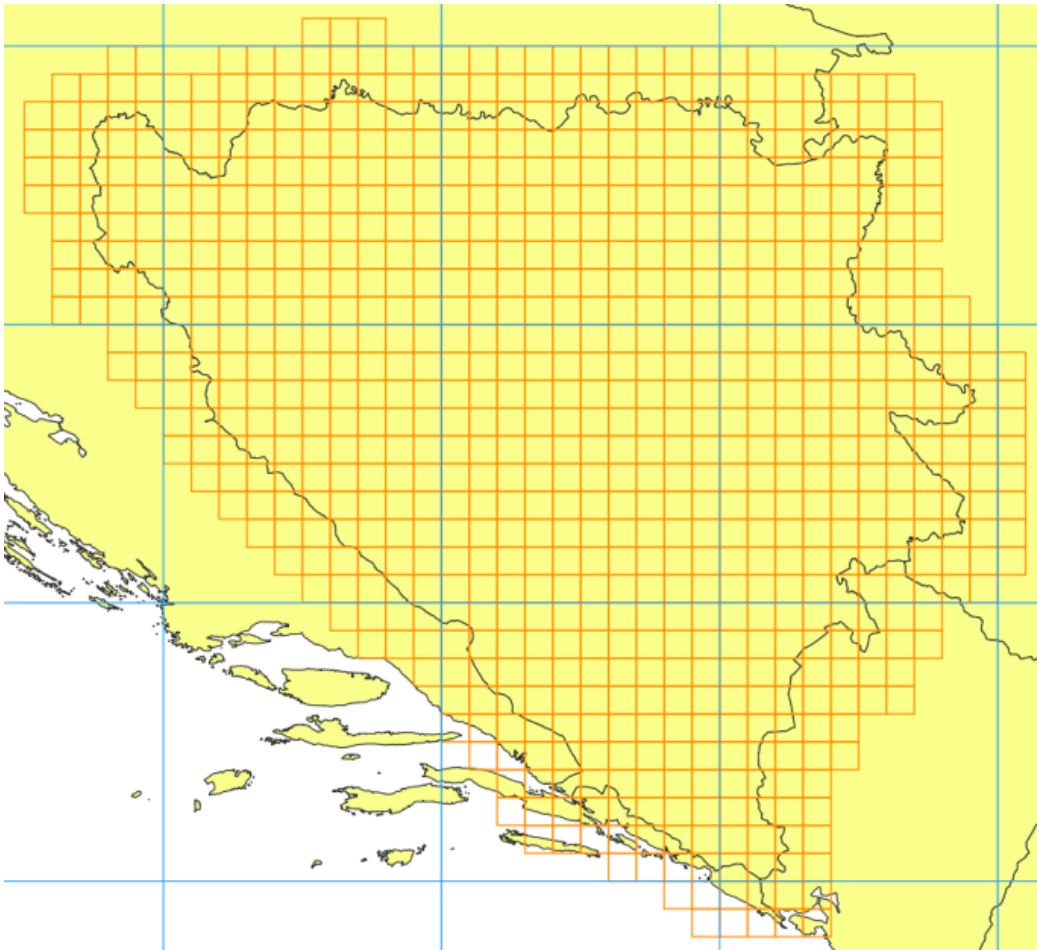


Belarus  
10x10km country reference grid

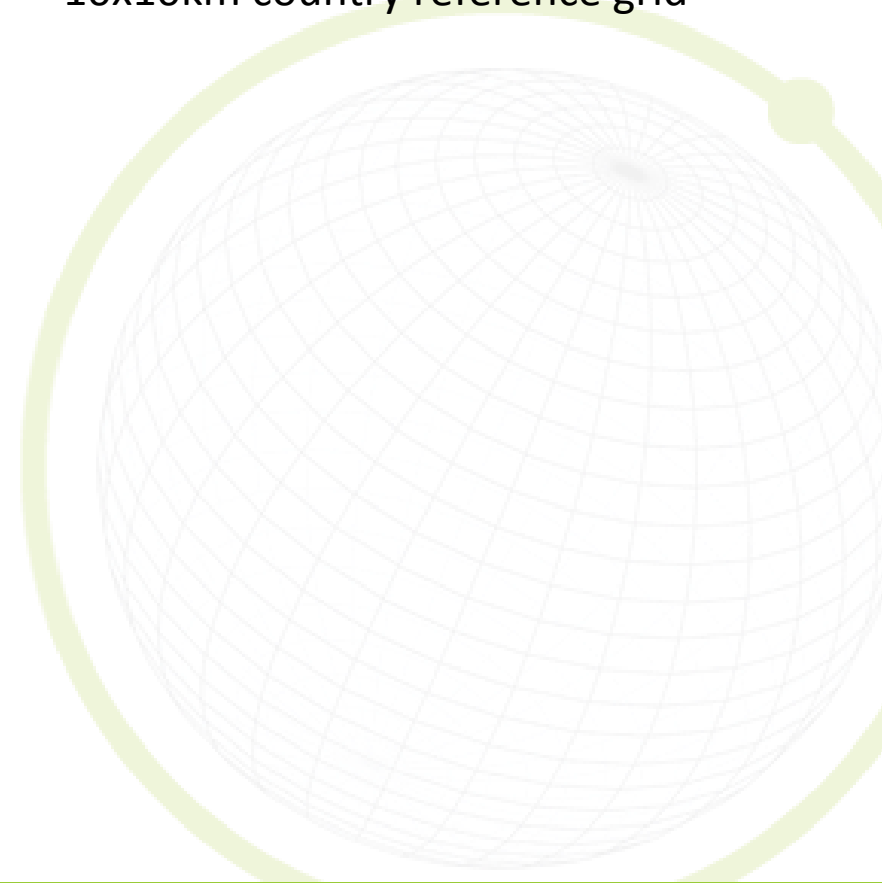


# Country 10x10km grids

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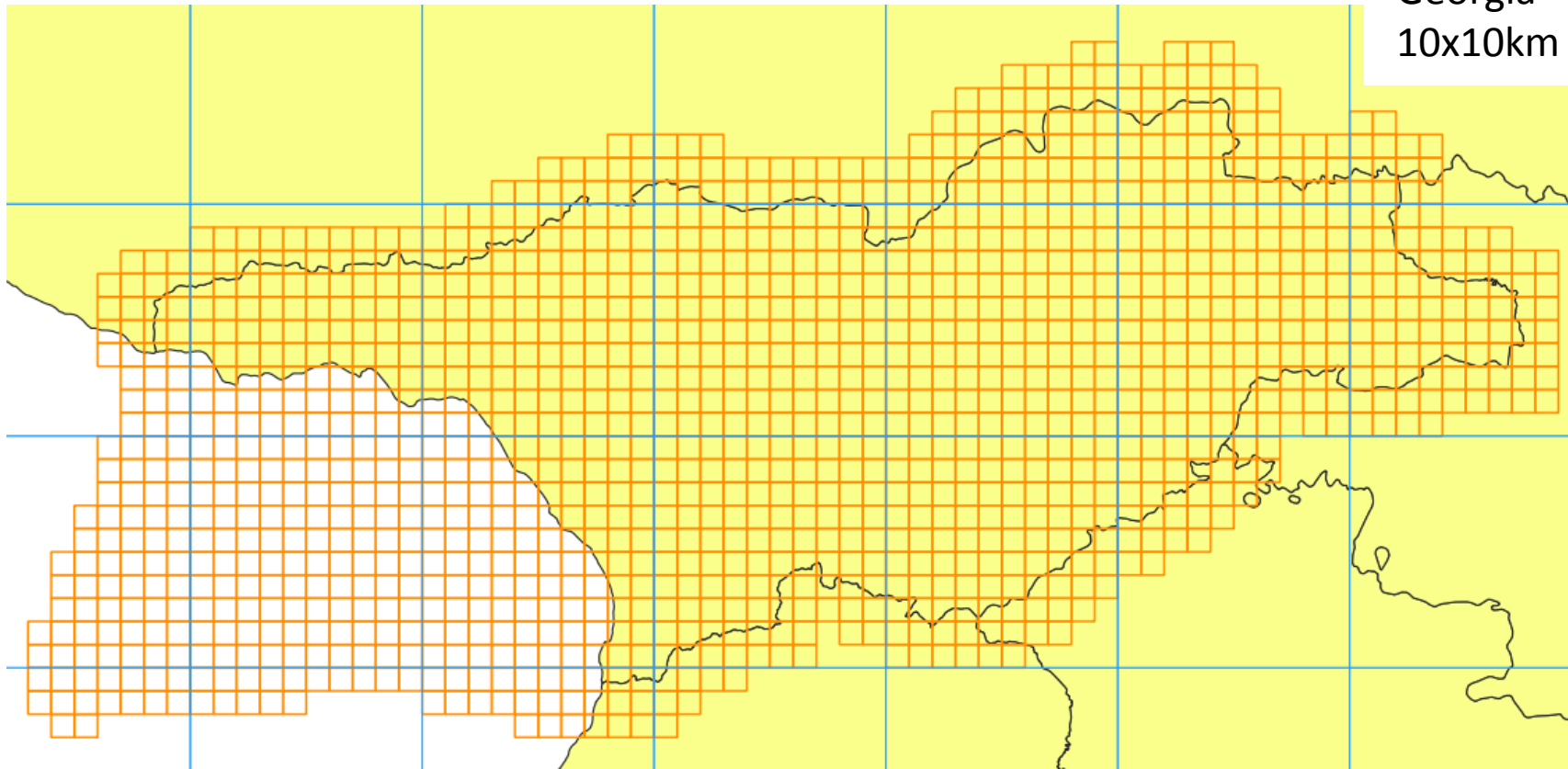


Bosnia and Herzegovina  
10x10km country reference grid

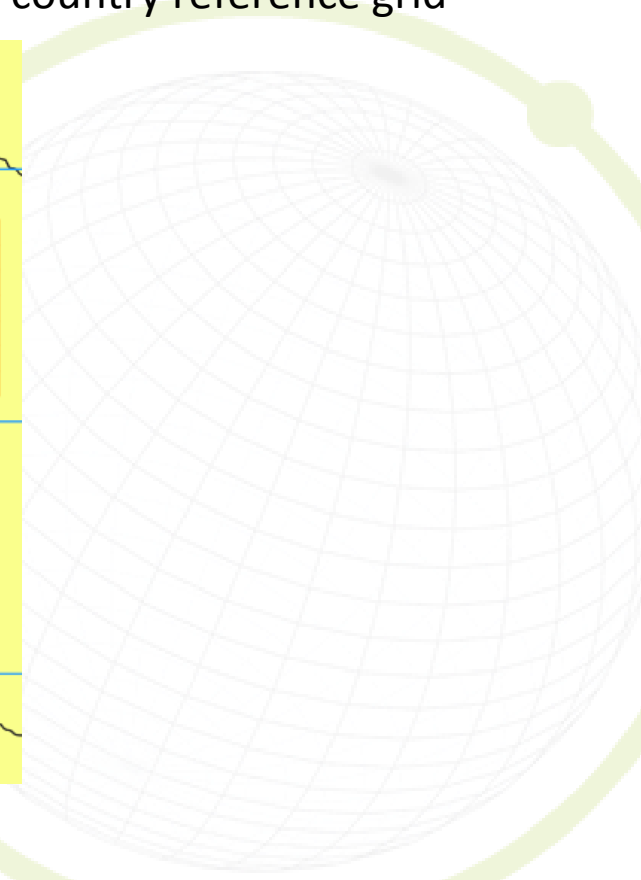


# Country 10x10km grids

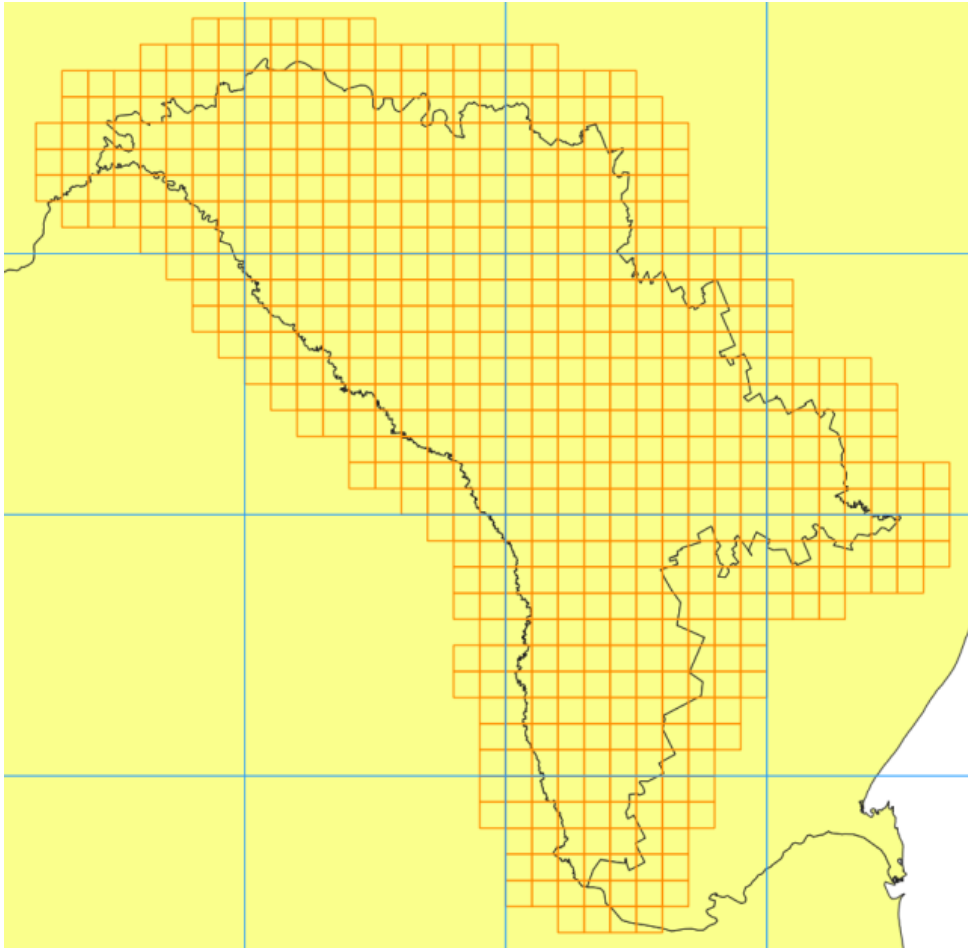
space **4** environment



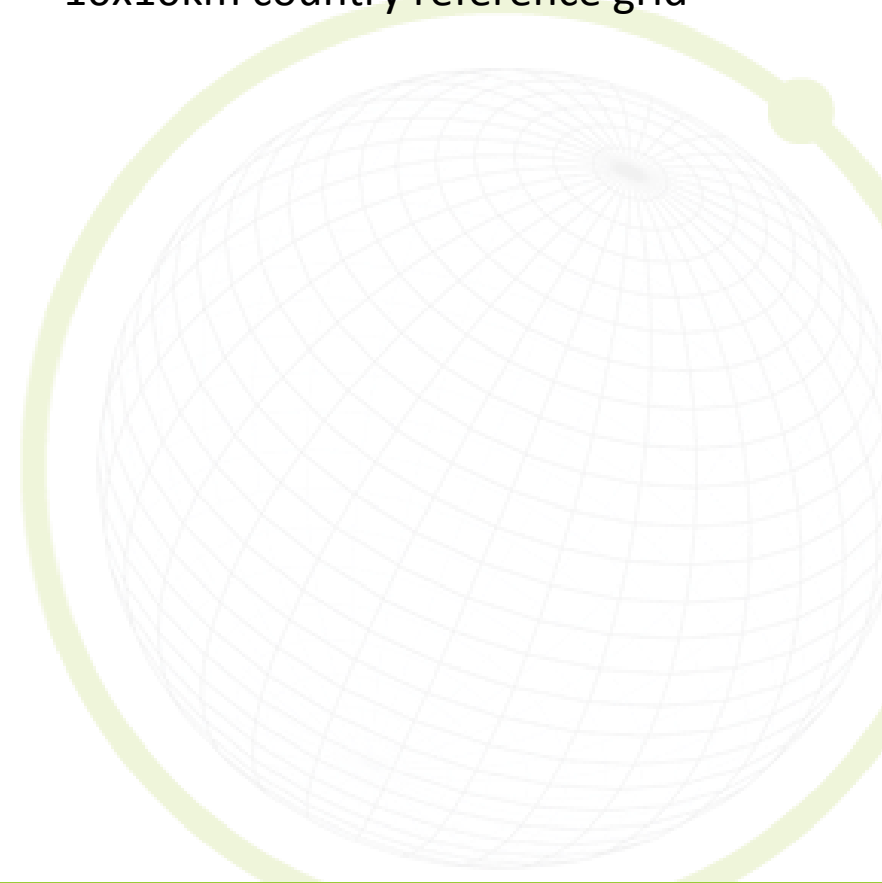
Georgia  
10x10km country reference grid



# Country 10x10km grids

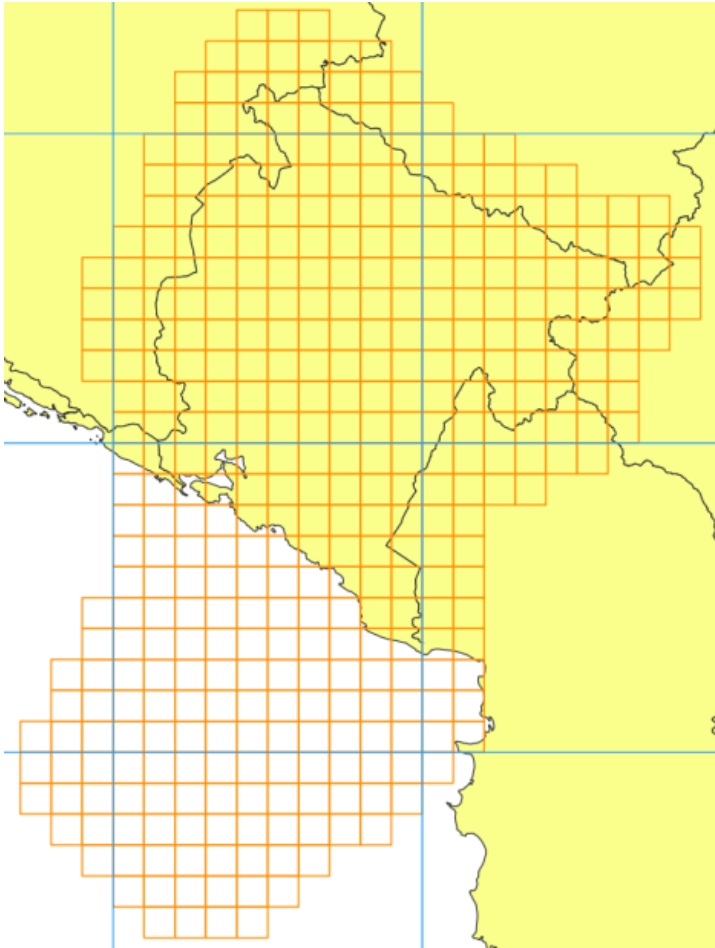


Republic of Moldova  
10x10km country reference grid

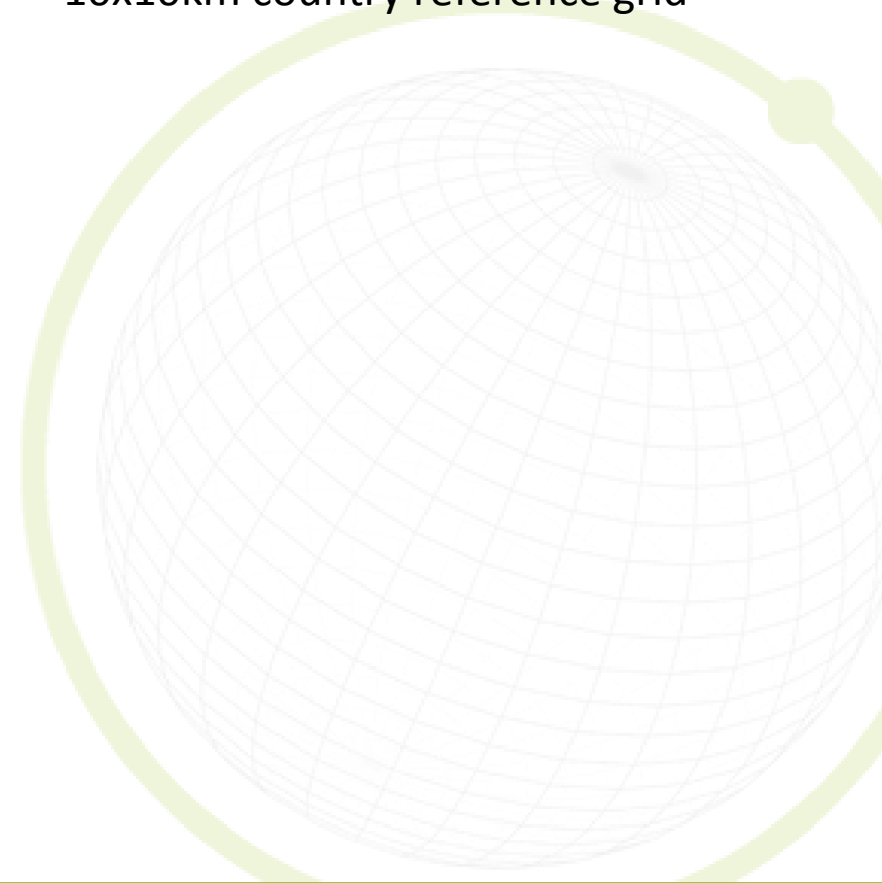


# Country 10x10km grids

space **4** environment

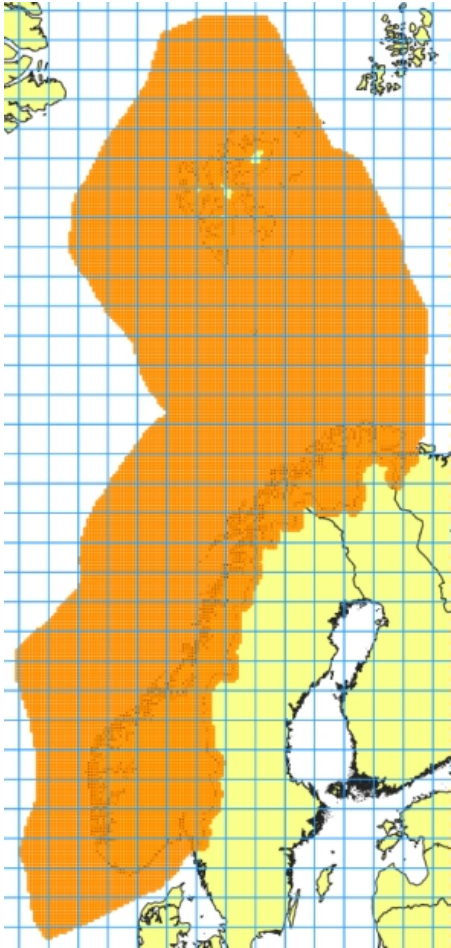


Republic of Montenegro  
10x10km country reference grid

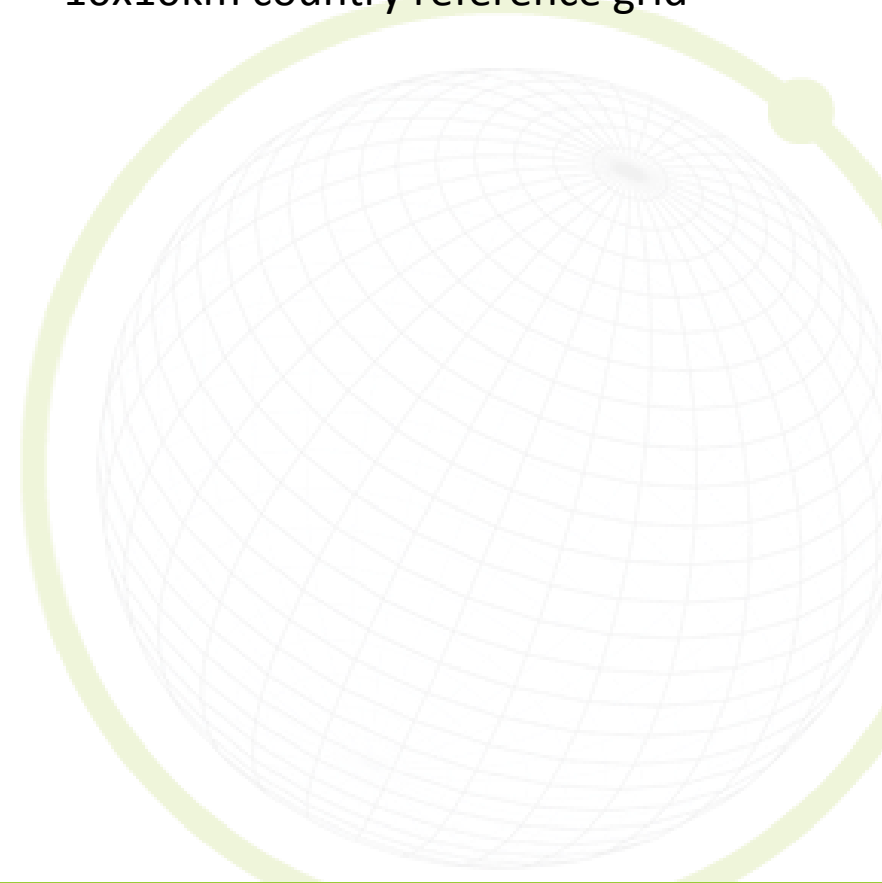


# Country 10x10km grids

space **4** environment



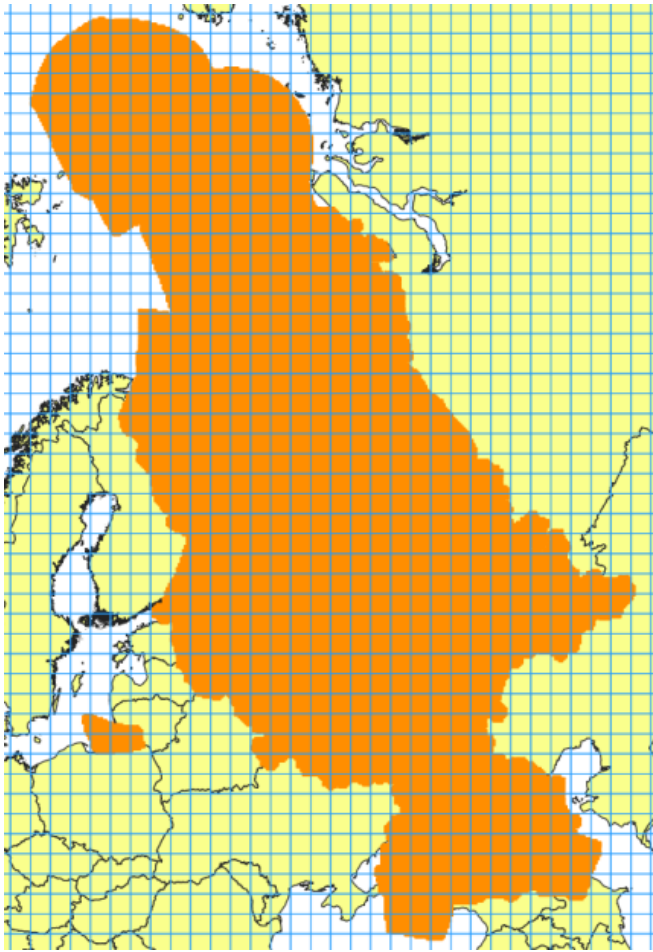
Norway  
10x10km country reference grid



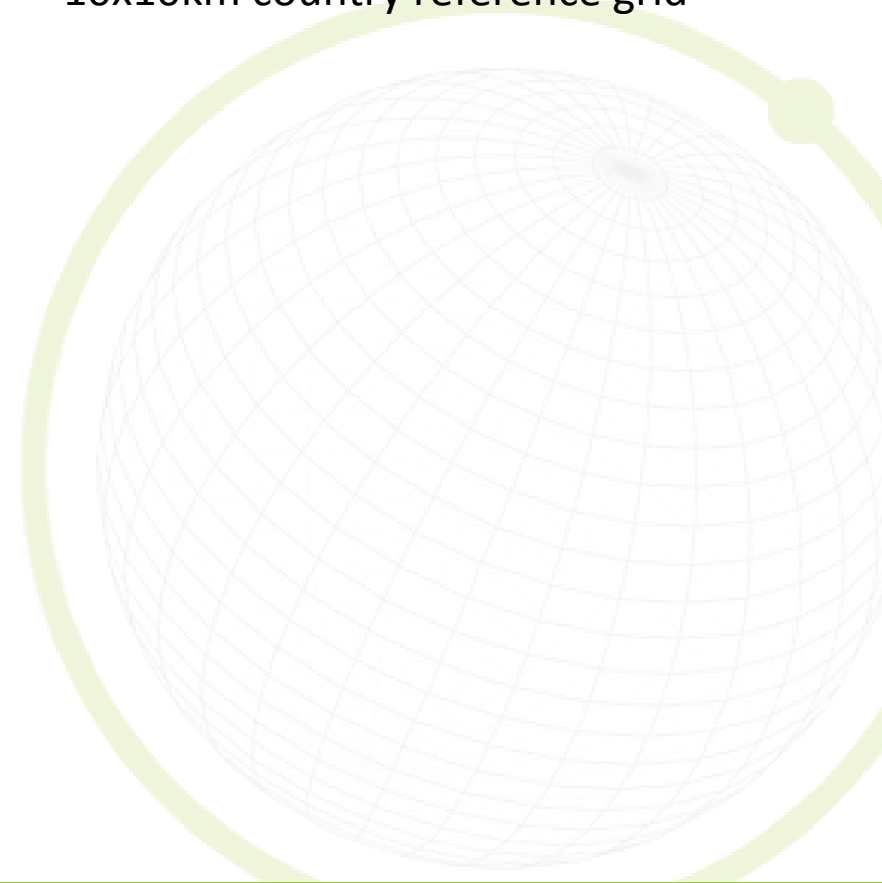


# Country 10x10km grids

space **4** environment

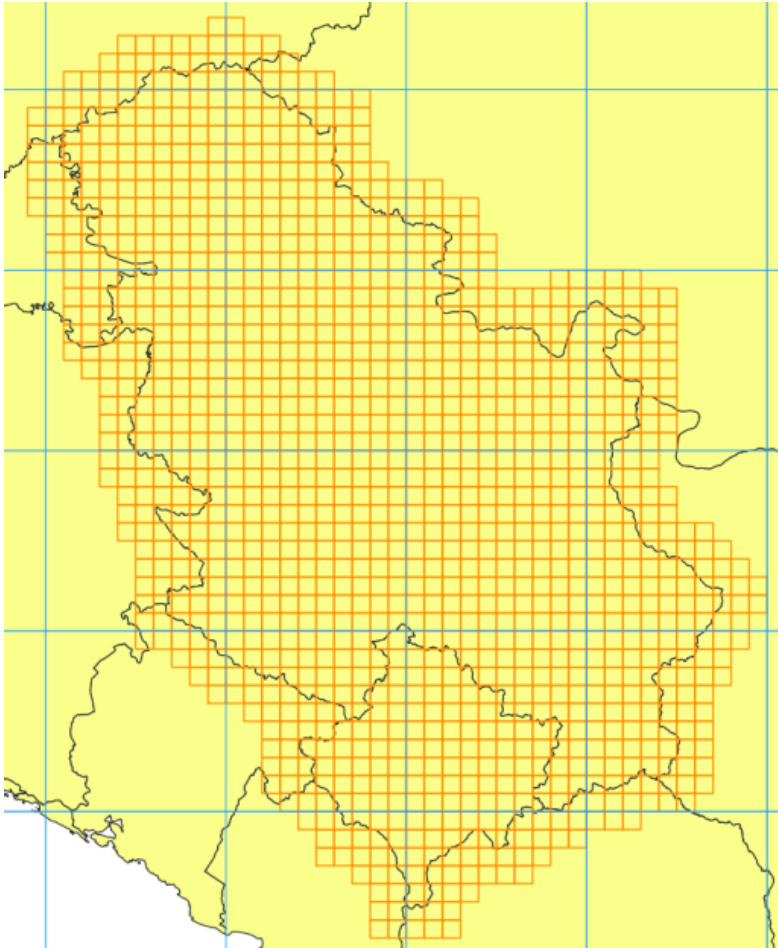


Russia  
10x10km country reference grid

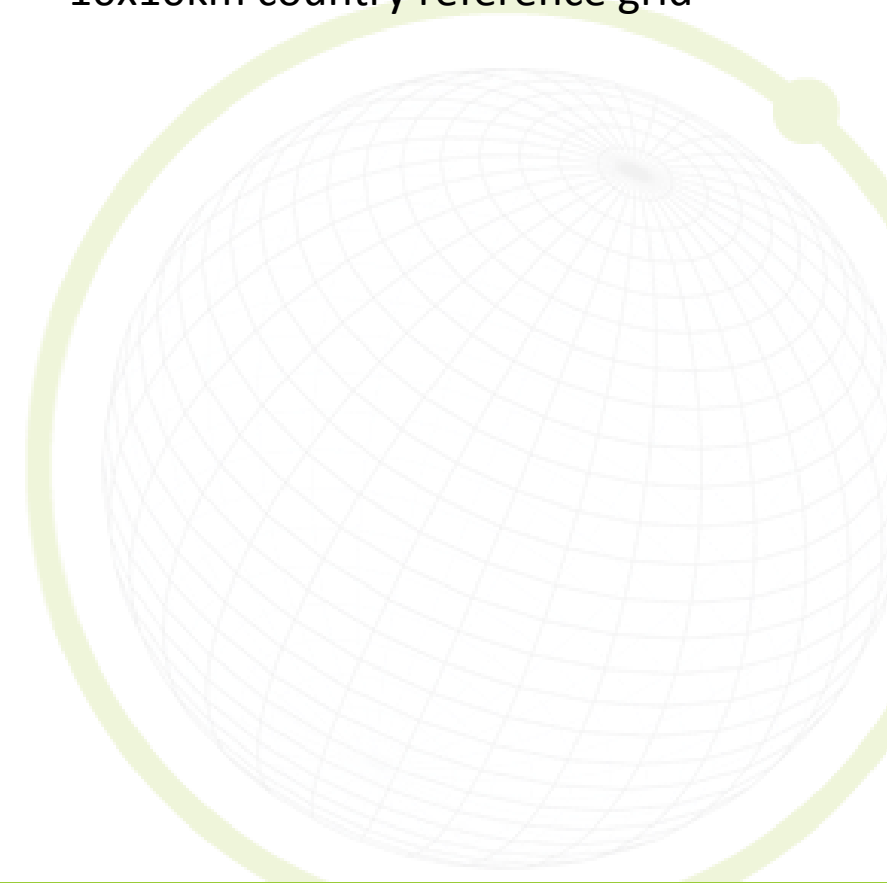


# Country 10x10km grids

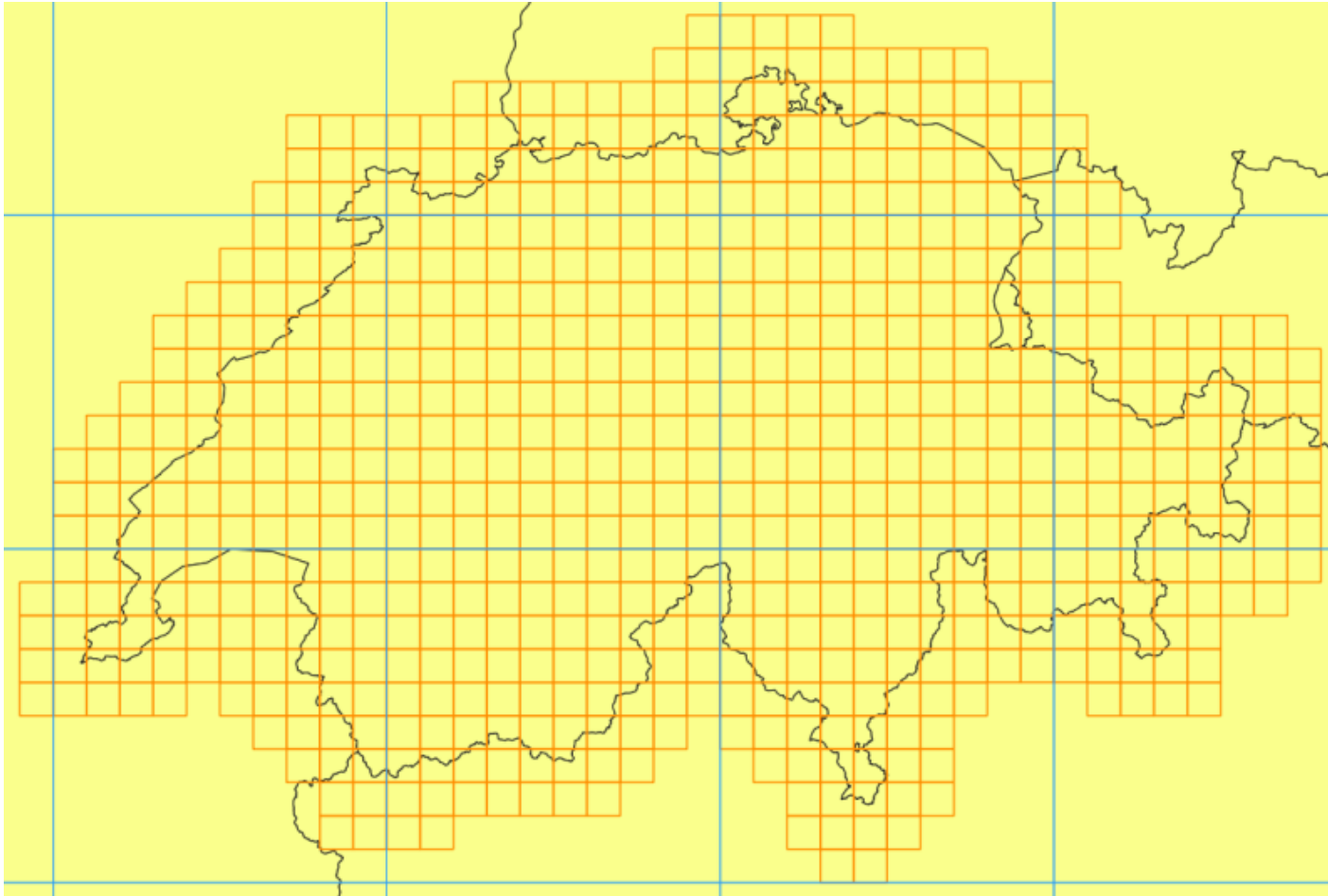
space **4** environment



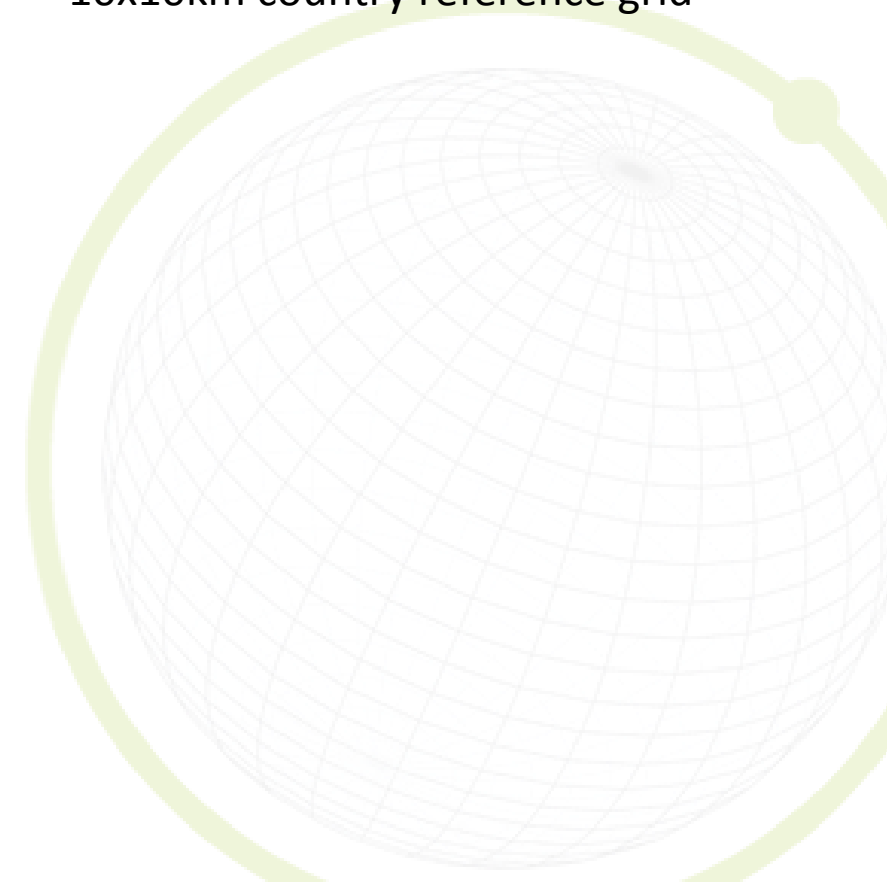
Serbia  
10x10km country reference grid



# Country 10x10km grids

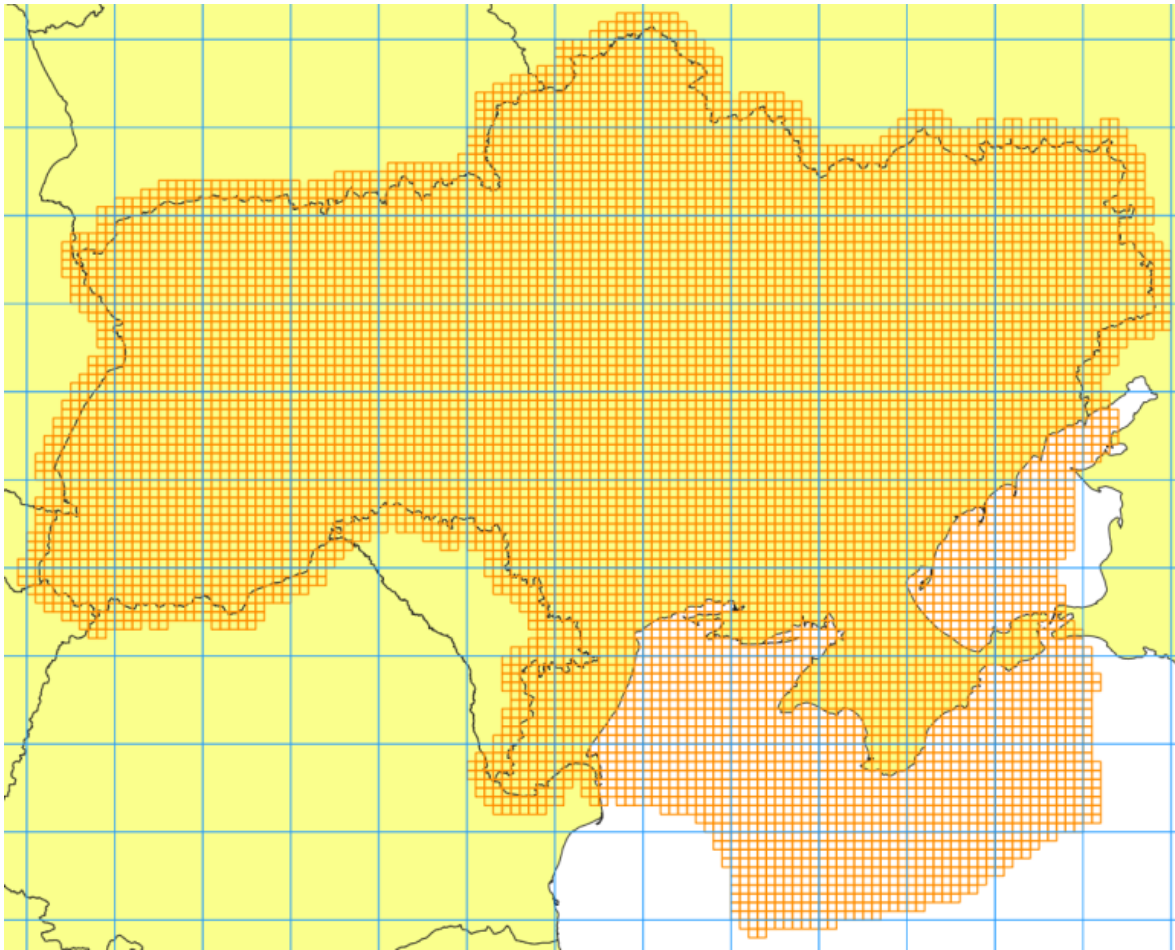


Switzerland  
10x10km country reference grid

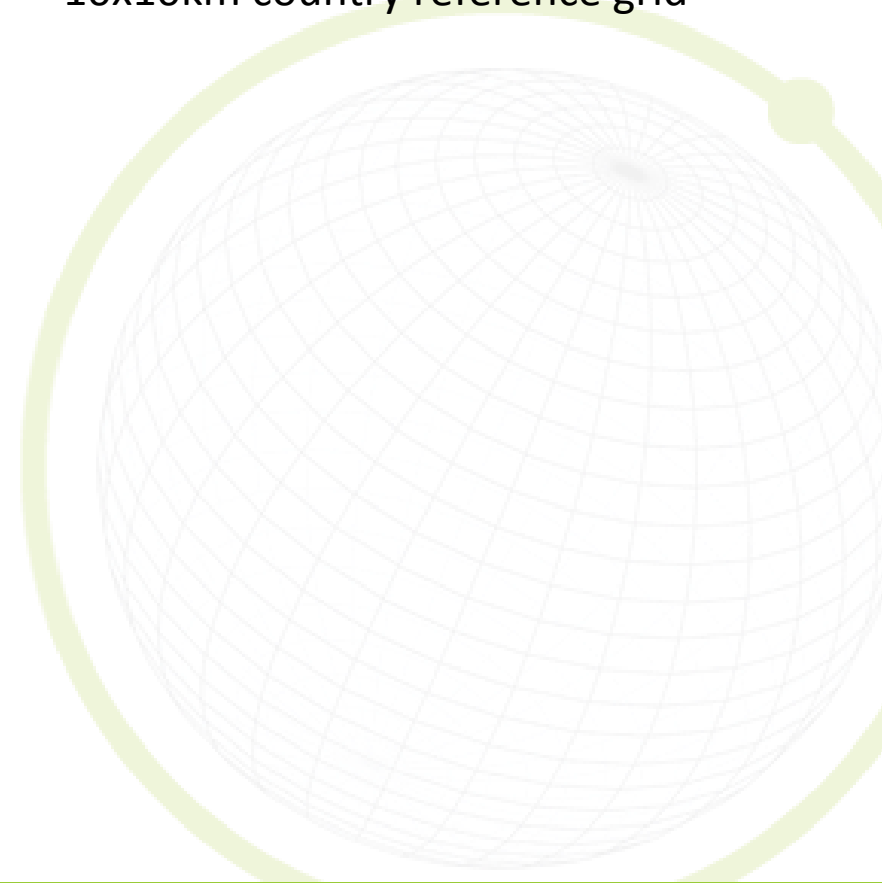


# Country 10x10km grids

space **4** environment



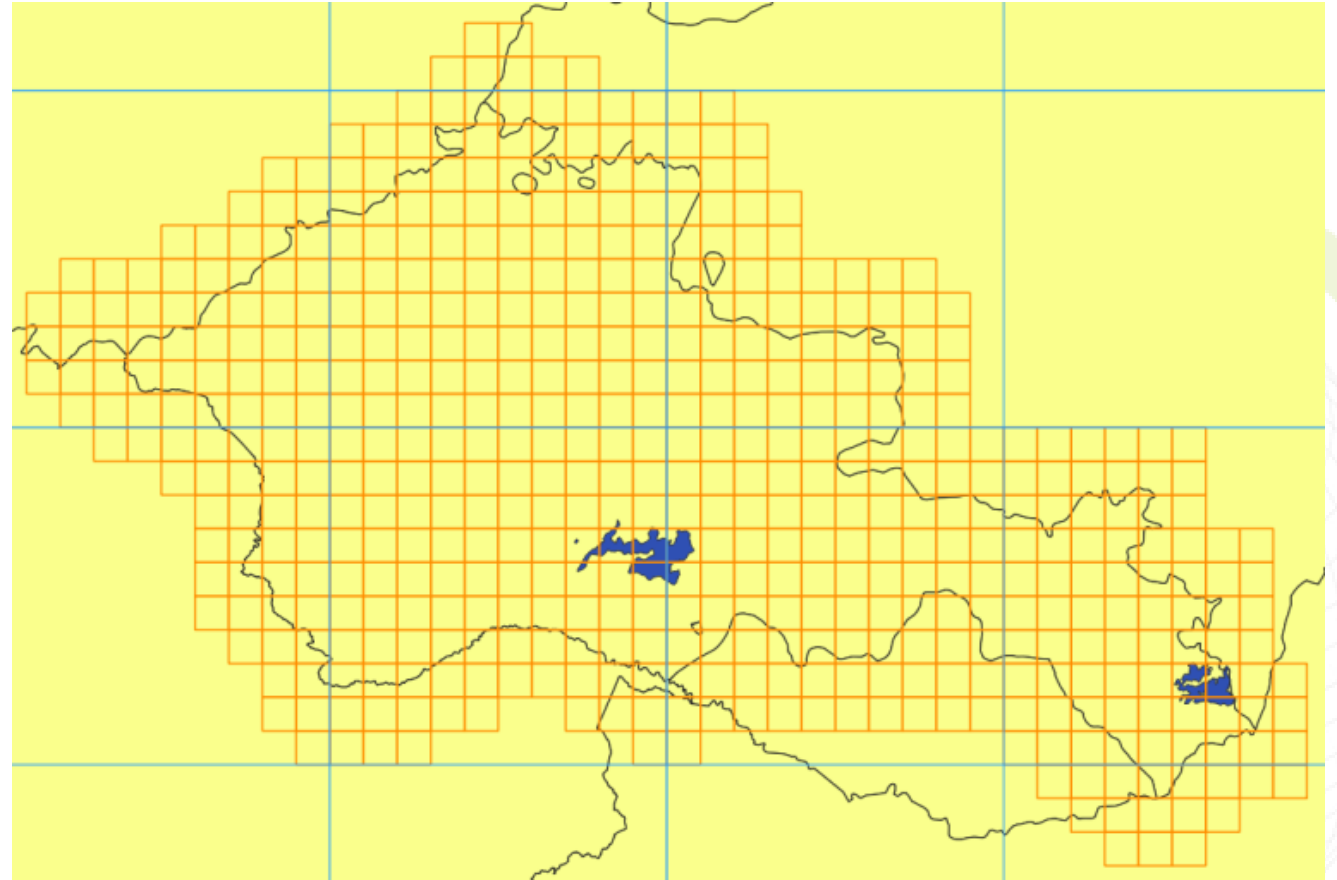
Ukraine  
10x10km country reference grid



# Transformation national data to EEA grid

## ➤ Example

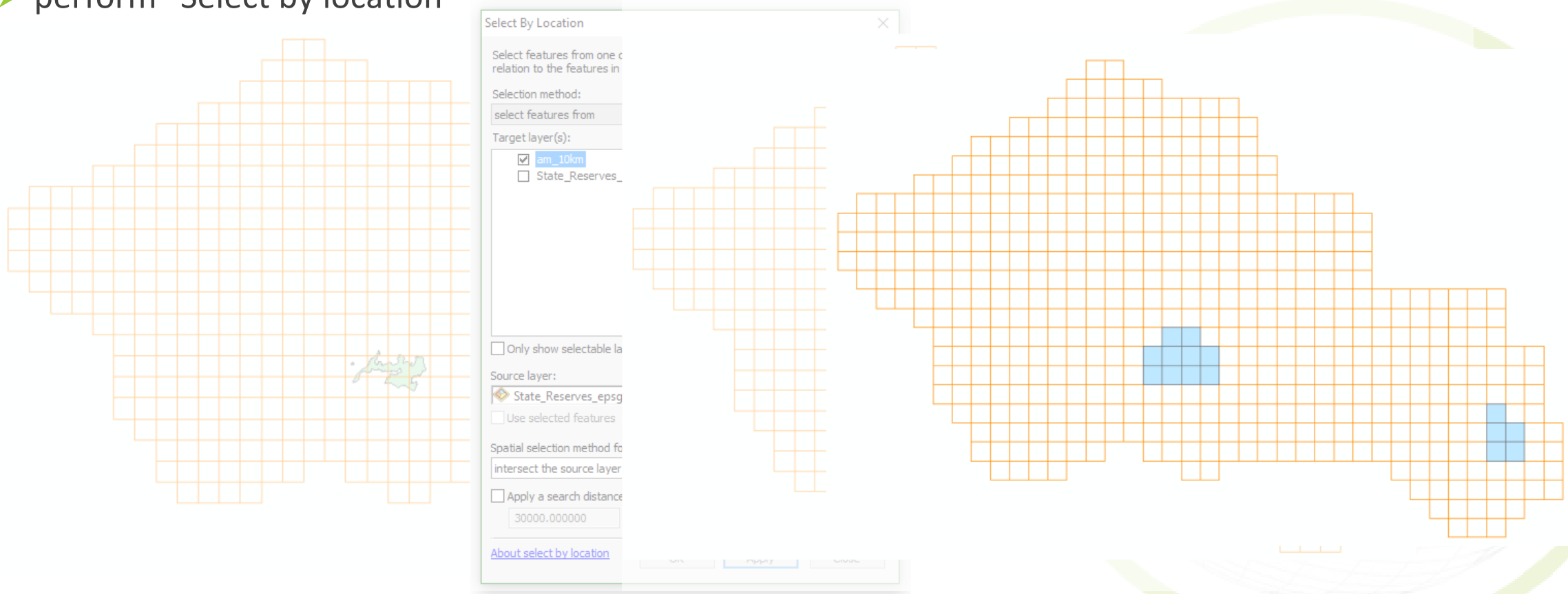
- State reserves in Armenia<sup>1</sup>
  - 3 reserves
  - CRS used EPSG:32638 (WGS84 UTM zone 38N)
    - Reprojection needed (more reliable position)
    - Link to grid cells
      - ▶ Reproject to epsg:3035
      - ▶ Select by location
- OR
- ▶ Perform union/intersect or spatial join between dataset and grid



<sup>1</sup> AUA Acopian Center for the Environment (<http://ace.aua.am/gis-and-remote-sensing/vector-data/>)

# Intersect selection method (basic)

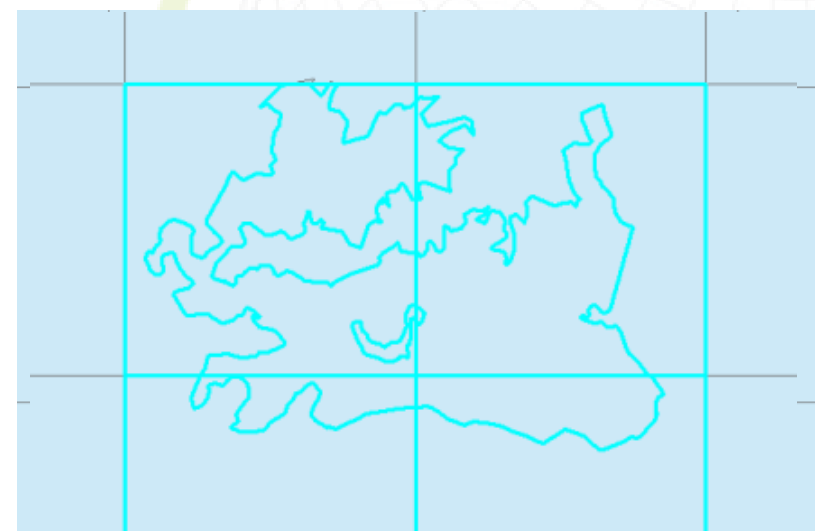
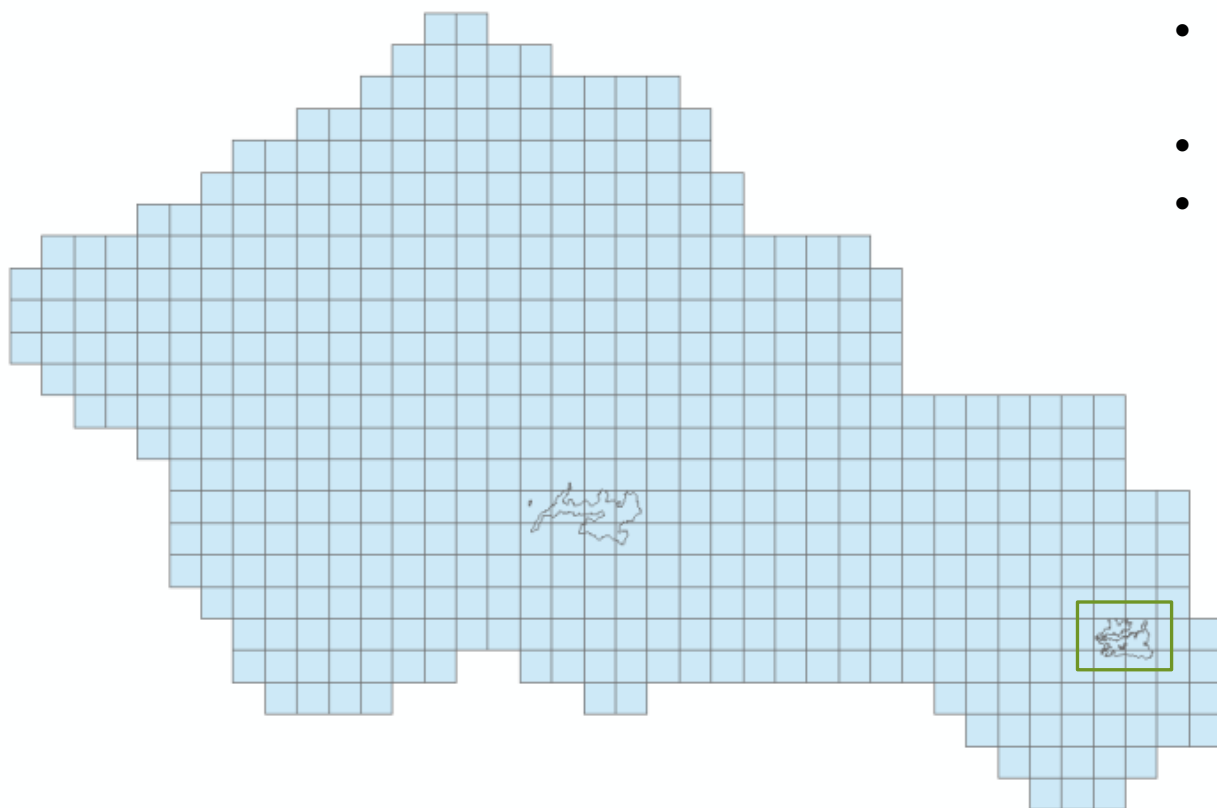
- Load country grid and reprojected national data
- perform “Select by location”



# Union method

- Perform union (polygon) or intersect (lines) process on grid and national data
- Allows for application of thresholds (e.g. grid cell affected if area affected > 1 sqkm/1%)

- Add new field to store the area after being “cut” by the grid
- Calculate area of parts
- Select all cells where area of species/habitat/site > threshold







# Thank you for your attention!

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European Topic Centre on Biological Diversity

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European Environment Agency  
European Topic Centre on  
Biological Diversity

