



data.  
europa.  
eu  
academy 

# Introduction to Geospatial Data

*29 September 2021*



**data.europa.eu** The official portal  
for European data



# Introduction



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*Capgemini Invent*  
Support to EU Institutions  
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Geospatial expert



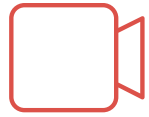
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*52°North*  
Geospatial and real-  
time data expert

Supported by  
**Christian Autermann** (*52°North*)  
**Jan van Zadelhoff** (*con terra*)

# Agenda of today

- Opening
- Introduction to data.europa.eu and the data.europa academy
- Introduction to geospatial data and how to find it on data.europa.eu
- Break
- How to access and use geospatial data from data.europa.eu
- Break
- Discussion
- Q&A and summary
- Feedback poll and closing

# Rules of the game



The training will be recorded



Please mute yourselves during the training

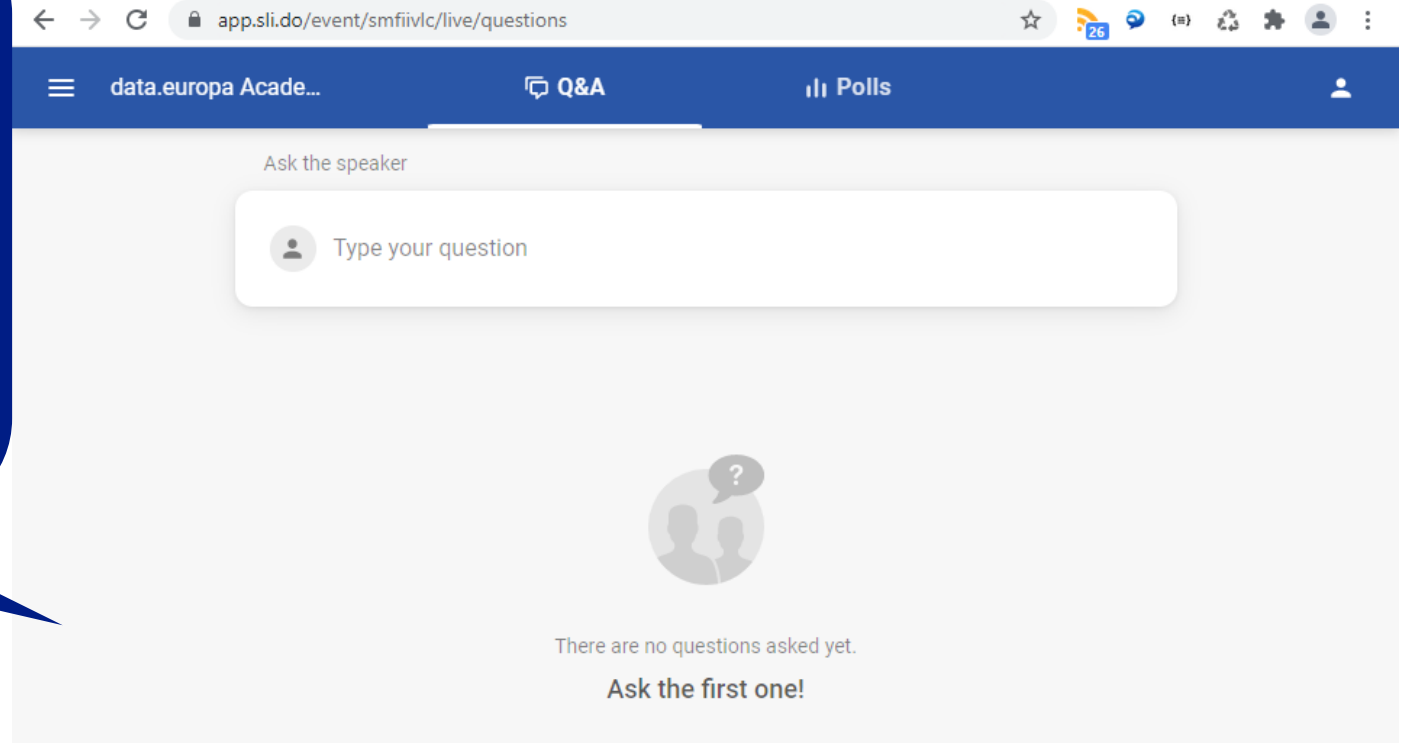
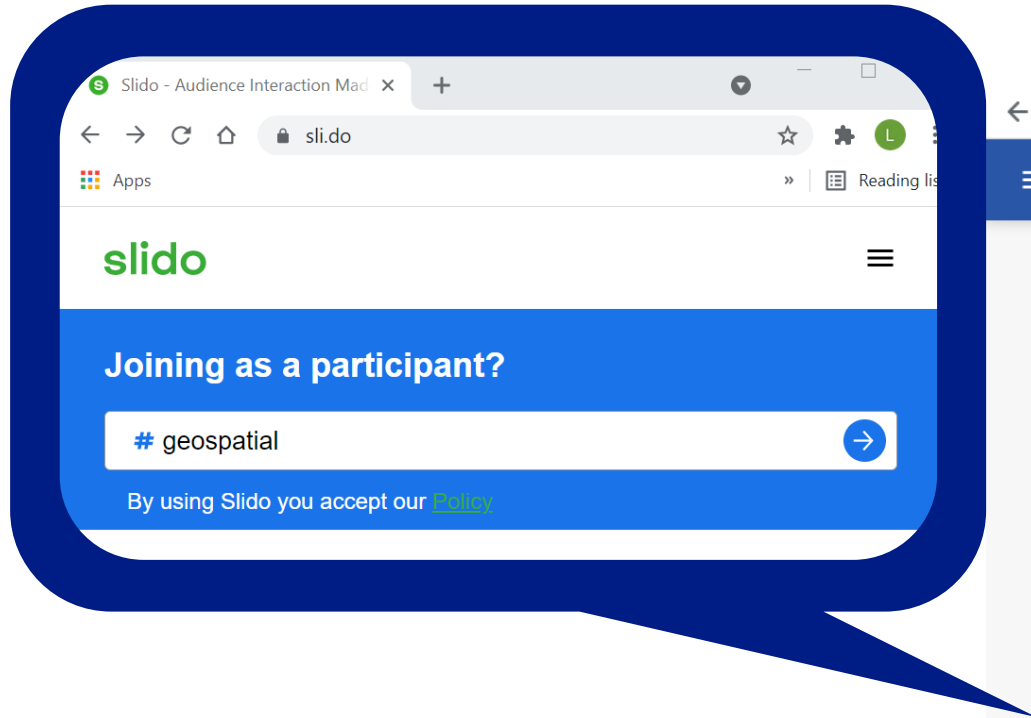


Please reserve 3 min after the training to help us improve by filling in our feedback form



For questions, please use [sli.do](#). Vote for the questions that are of most interest to you, those will be discussed later

# Ask your questions in sli.do using the code *geospatial*



# Data.europa.eu provides access to open data from Member States and EU institutions



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**Data.europa.eu** provides access to open data from European, national and geo data portals

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**Data.europa.eu** supports data providers from Member States and EU institutions in publishing open data

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**Data.europa.eu** engages with the open data community to stimulate the re-use of open data

# This is the first training of the *data.europa academy*, which offers learning to the open data community



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The **data.europa academy** serves the open data community in becoming more knowledgeable about open data

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In the **data.europa academy** you can find training courses ranging from the open data basics to new trends and challenges in the open data landscape

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The **curriculum** is constantly updated with new courses and new learning material based on research and best practices

Find your course on [data.europa.eu/academy](https://data.europa.eu/academy)

A close-up photograph of a hand with a diamond ring pointing to a hand-drawn map on a textured, light-colored surface. The map features dashed lines forming a grid, a red 'X' mark, and a red scribble. The background is a blurred map of the world.

Where are you now?

Please go to [sli.do](https://sli.do)  
and enter *geospatial*

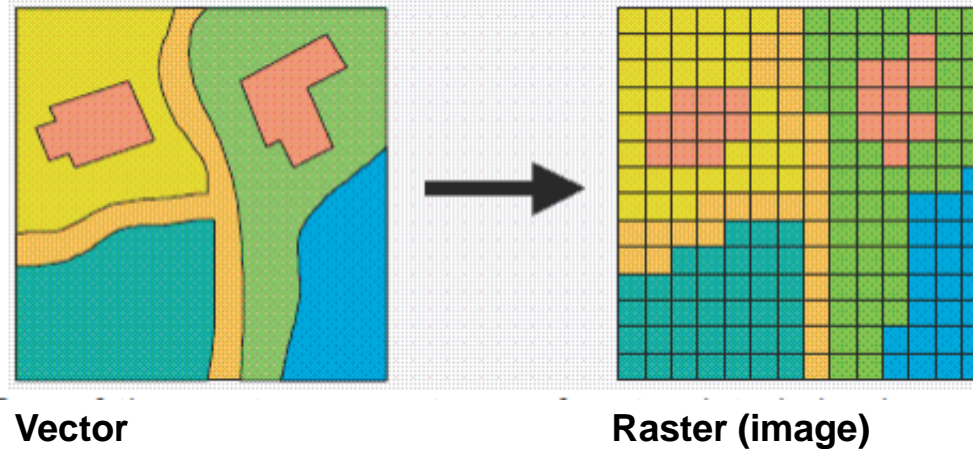


# Introduction to geospatial data

- Data often has a *location* component
- Geodata contains information on properties that are linked to a position on earth
- The geospatial context will often uncover interesting revelations
- Information on the *where* often makes data more meaningful

# Geospatial data types

- Different ways to represent the same geographic feature
- Vector vs. raster data

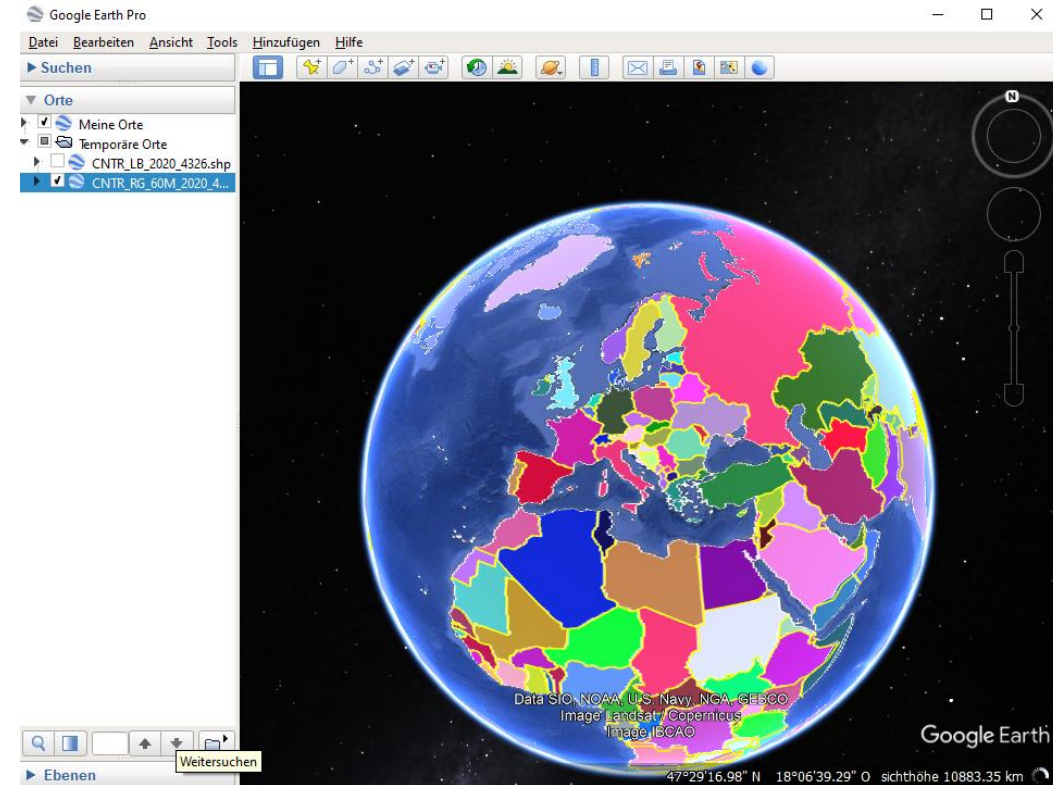


- Coordinates (x, y)

We will talk about *indirect* references to location later (e.g., by including a postal code or administrative area).

# Geospatial data formats

- Shape
- GeoJSON
- GPX
- GeoTiff
- GeoPackage
- GML (Geographic Markup Language)
- KML (Keyhole Markup Language)
- ...



# Geospatial Services

- Geospatial information is often delivered via geoservices, e.g.
  - OGC
    - Web Map Service (WMS)
    - Web Map Tile Service (WMTS)
    - Web Feature Services (WFS)
    - OGC API Features
    - ...
  - INSPIRE
    - View Services
    - Download Services
    - ATOM Feeds



<https://inspire.ec.europa.eu/>

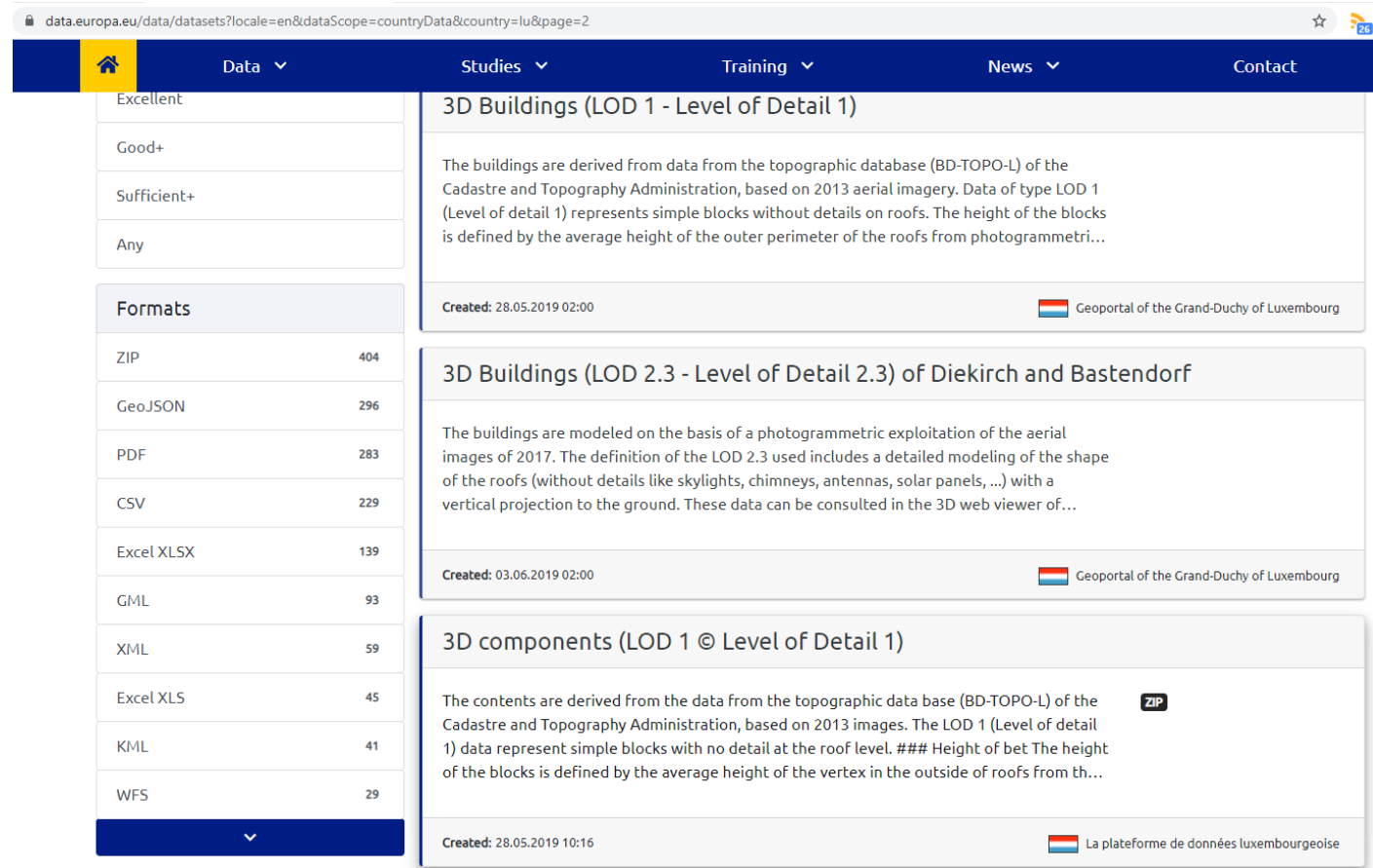


Open Geospatial Consortium  
<https://www.ogc.org>

# Geospatial data on data.europa.eu

## Demo

- [data.europa.eu](https://data.europa.eu)



The screenshot shows the website interface with a navigation bar and a list of datasets. The 'Data' menu is open, showing a filter sidebar on the left and a list of dataset cards on the right.

Quality	Count
Excellent	
Good+	
Sufficient+	
Any	

Format	Count
ZIP	404
GeoJSON	296
PDF	283
CSV	229
Excel XLSX	139
GML	93
XML	59
Excel XLS	45
KML	41
WFS	29

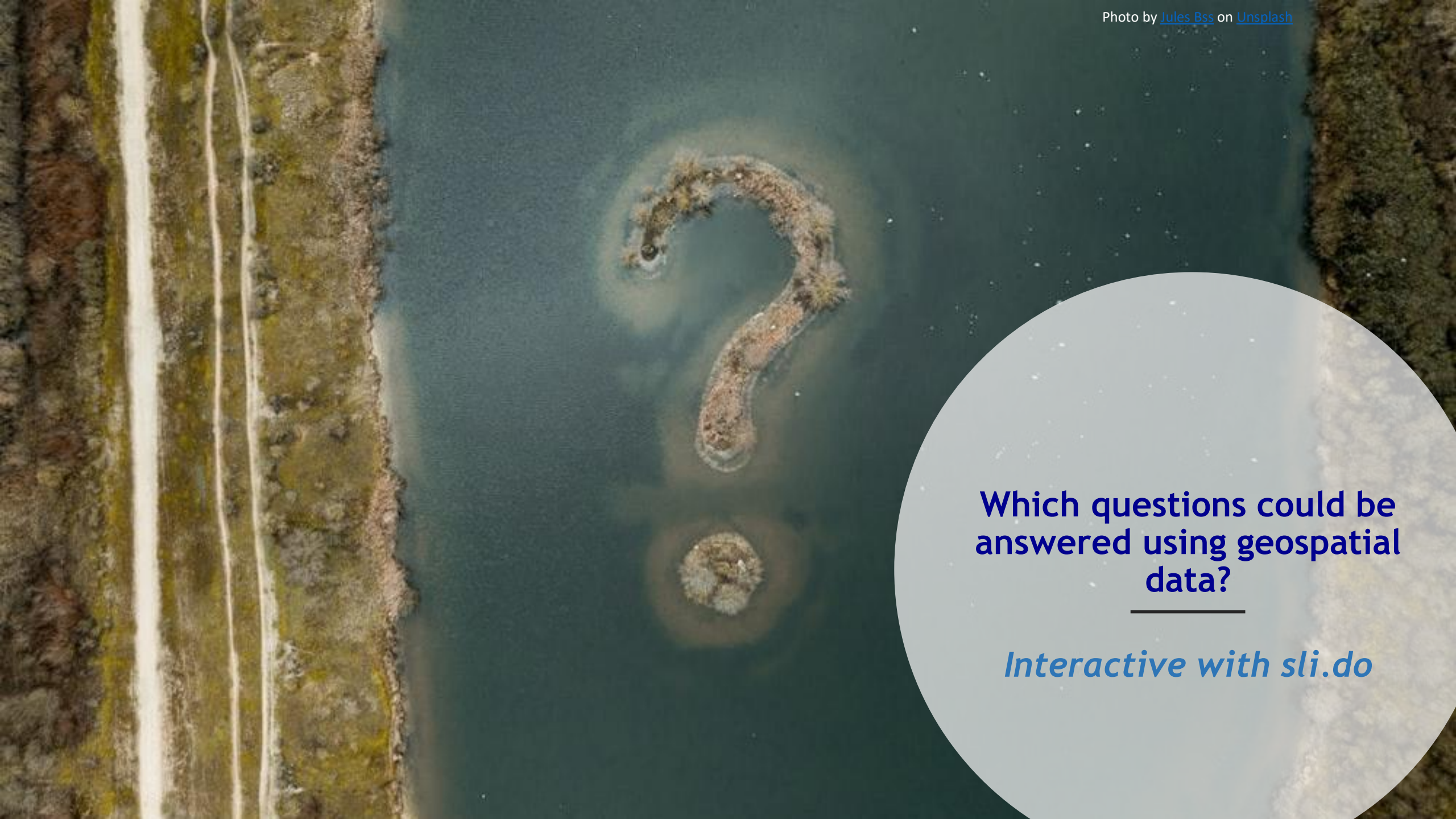
  

Dataset Title	Description	Created	Source
3D Buildings (LOD 1 - Level of Detail 1)	The buildings are derived from data from the topographic database (BD-TOPO-L) of the Cadastre and Topography Administration, based on 2013 aerial imagery. Data of type LOD 1 (Level of detail 1) represents simple blocks without details on roofs. The height of the blocks is defined by the average height of the outer perimeter of the roofs from photogrammetri...	28.05.2019 02:00	Geoportal of the Grand-Duchy of Luxembourg
3D Buildings (LOD 2.3 - Level of Detail 2.3) of Diekirch and Bastendorf	The buildings are modeled on the basis of a photogrammetric exploitation of the aerial images of 2017. The definition of the LOD 2.3 used includes a detailed modeling of the shape of the roofs (without details like skylights, chimneys, antennas, solar panels, ...) with a vertical projection to the ground. These data can be consulted in the 3D web viewer of...	03.06.2019 02:00	Geoportal of the Grand-Duchy of Luxembourg
3D components (LOD 1 © Level of Detail 1)	The contents are derived from the data from the topographic data base (BD-TOPO-L) of the Cadastre and Topography Administration, based on 2013 images. The LOD 1 (Level of detail 1) data represent simple blocks with no detail at the roof level. ### Height of bet The height of the blocks is defined by the average height of the vertex in the outside of roofs from th...	28.05.2019 10:16	La plateforme de données luxembourgeoise



**Questions?**

*[sli.do](#)*

An aerial photograph of a winding river. In the center of the river, there is a small, narrow island that is shaped like a question mark. The water is a deep blue-green color, and the surrounding land is a mix of brown and green vegetation. The question mark island is the central focus of the image.

**Which questions could be answered using geospatial data?**

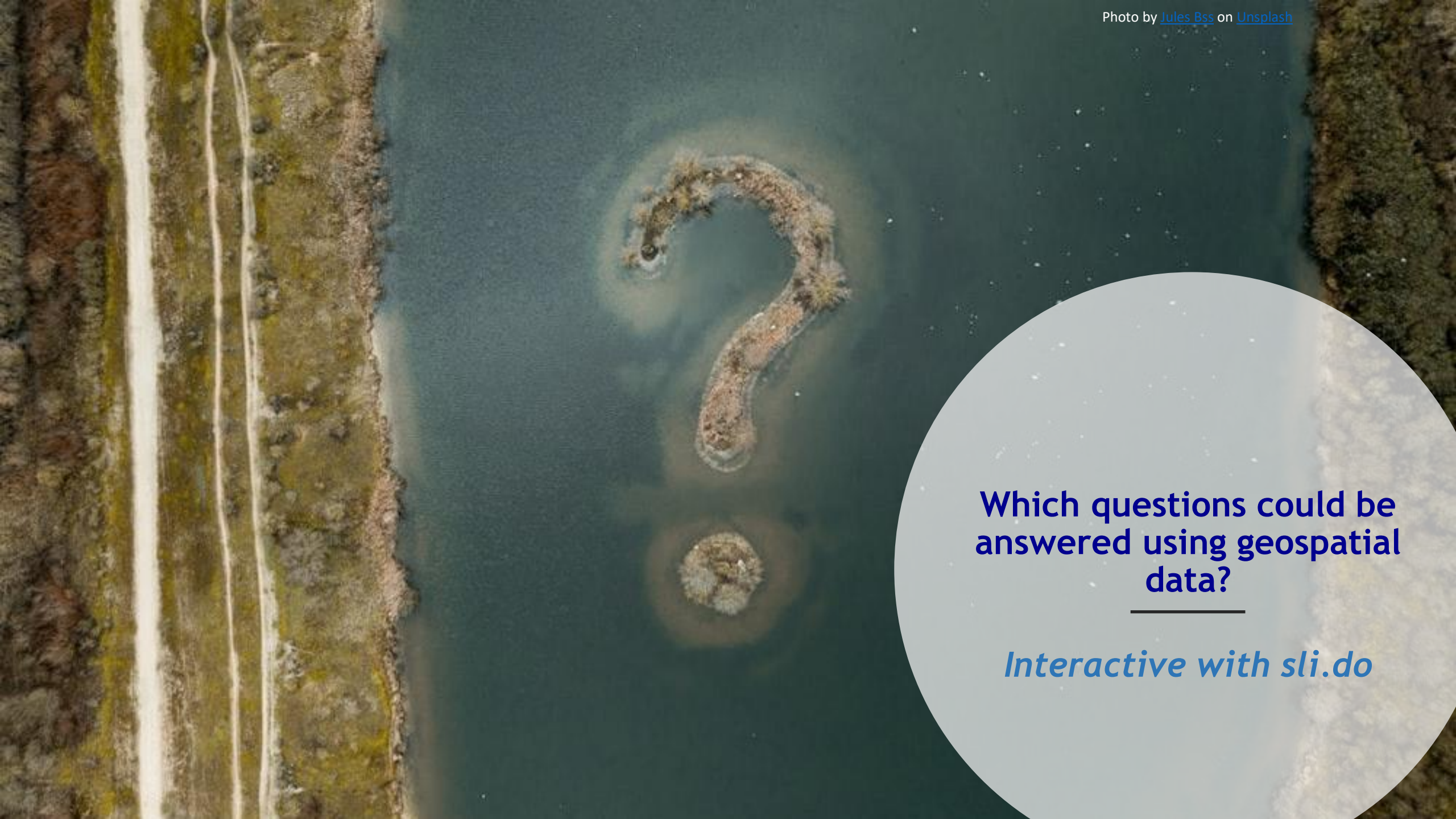
*Interactive with [sli.do](#)*



# Break

Please be back  
in 5 minutes!



An aerial photograph of a winding river. In the center of the river, there is a small, narrow island that is shaped like a question mark. The water is a deep blue-green color, and the surrounding land is a mix of brown and green vegetation. The question mark island is the central focus of the image.

**Which questions could be answered using geospatial data?**

*Interactive with [sli.do](#)*

# How to access and use geospatial data

- Geodata usually includes coordinates
  - Can be used in Geographical Information Systems (GIS)
- What if the data you want to display on a map contains no coordinates?

*Demo* [data.europa.eu](https://data.europa.eu)

Find an interesting dataset to work with

# Find an interesting dataset

- COVID-19 weekly situation update
  - Contains no coordinates (“geometry”) *but* a country code

country	country_code	continent	population	indicator	weekly	year_w	rate_14_day	cumulative
Afghanistan	AFG	Asia	38928341	cases	532	2021-37	3,31121226	154712
Afghanistan	AFG	Asia	38928341	deaths	20	2021-37	1,515605302	7191
Albania	ALB	Europe	2845955	cases	5927	2021-37	420,1050263	162953
Albania	ALB	Europe	2845955	deaths	37	2021-37	22,83943351	2580
Algeria	DZA	Africa	43851043	cases	1532	2021-37	8,200489097	201600
Algeria	DZA	Africa	43851043	deaths	116	2021-37	6,248426064	5694
Andorra	AND	Europe	76177	cases	57	2021-37	93,20398545	15140
Andorra	AND	Europe	76177	deaths	0	2021-37	0	130
Angola	AGO	Africa	32866268	cases	2861	2021-37	14,70200389	53307
Angola	AGO	Africa	32866268	deaths	49	2021-37	3,955423232	1388
Anguilla	AIA	America	15002	cases	35	2021-37	233,3022264	331

The screenshot shows the data.europa.eu website interface. At the top, there is a search bar with the text "Search site content" and a search icon. Below the search bar is a navigation menu with options: Data, Studies, Training, News, and Contact. The main content area is titled "Datasets" and features a search filter for "covid-19". A map of Europe is visible on the left side. The search results show "429 datasets found". The first result is "COVID-19 Coronavirus data - weekly (from 17 December 2020)". The description of this dataset states: "The dataset contains a weekly situation update on COVID-19, the epidemiological curve and the global geographical distribution (EU/EEA and the UK, worldwide). Since the beginning of the coronavirus pandemic, ECDC's Epidemic Intelligence team has collected the number of COVID-19 cases and deaths, based on reports from health authorities worldwide. This...". Below the description are links for HTML, Excel XL, RSS feed, XML, JSON, and CSV. The second result is "COVID-19 testing", with a description: "These data files contain information about COVID-19 testing rate and test positivity, by country and by region. They are updated weekly. The figures are based on multiple data sources. The main source is data submitted by Member States to the European Surveillance System (TESSy). When not available, ECDC compiles data from public online sources. EU/EE...".

# Find geodata with country codes

The screenshot shows the data.europa.eu website interface. At the top, there is a navigation bar with a home icon, 'Data', 'Studies', 'Training', 'News', and 'Contact' menus. A search bar is located in the top right corner. Below the navigation bar, the main heading 'data.europa.eu' is displayed, followed by the tagline 'The official portal for European data'. Three statistics are shown: 82 Catalogues, 36 Countries, and 1 237 811 Datasets. A 'Search datasets' section features a grid of 13 icons representing various data categories: Agriculture, Fisheries, Forestry & Foods; Economy & Finance; Education, Culture & Sport; Energy; Environment; Government & Public Sector; Health; International Issues; Justice, Legal System & Public Safety; Population & Society; Regions & Cities; Science & Technology; and Transport. A search input field is provided below the grid. At the bottom of the search section, there are three links: '> DATA CATALOGUES', '> ALL DATASETS', and '> EU INSTITUTIONS DATASETS'.

# Combine the data

## COVID-19 situation data (JSON) (from ECDC)

```

10216     "cumulative_count": 2181137,
10217     "source": "Epidemic intelligence, national weekly data"
10218   },
10219   {
10220     "country": "Andorra",
10221     "country_code": "AND",
10222     "continent": "Europe",
10223     "population": 76177,
10224     "indicator": "cases",
10225     "weekly_count": 5,
10226     "year_week": "2020-11",
10227     "cumulative_count": 5,
10228     "source": "Epidemic intelligence, national weekly data"
10229   },
10230   {
10231     "country": "Andorra",
10232     "country_code": "AND",
10233     "continent": "Europe",
10234     "population": 76177,
10235     "indicator": "cases",
10236     "weekly_count": 108,
10237     "year_week": "2020-12",
10238     "rate_14_day": "148.33873741418",
10239     "cumulative_count": 113,
10240     "source": "Epidemic intelligence, national weekly data"
10241   },

```

## Country areas - GeoJSON (from ESTAT)

```

12460     ]
12461   },
12462   "properties": {
12463     "CNTR_ID": "AD",
12464     "CNTR_NAME": "Andorra",
12465     "NAME_CNTR": "Andorra",
12466     "ISO3_CODE": "AND",
12467     "ISO2_CODE": "AD"
12468   },
12469   "id": "AD"
12470 },
12471 {
12472   "type": "Feature",
12473   "geometry": {
12474     "type": "Polygon",
12475     "coordinates": [
12476     [
12477     [
12478       56.266,
12479       25.625
12480     ],
12481     [
12482       56.365,
12483       25.503
12484     ],
12485     [
12486       56.374,
12487       24.98
12488     ],

```



# Demo: Transform with FME to create KML

MULTI → NONE (C:\Projekte\EC\DEU\Academy\Demo\_EDP\Demo\EDP\_Covid19.fmw) - FME Workbench 2021.1

File Edit View Readers Transformers Writers Run Tools Help

Navigator

- CNTR\_RG\_20M\_2016\_4326 [GE...]
- nationalcasedeath [JSON]
- Transformers (46)
- Disabled Transformers (17)
- Upgradeable Transformers (31)
- Disabled Connections (11)
- Bookmarks (11)
- User Parameters (2)
- FME Server Parameters
- Web Connections

Transformer Gallery

- All (493)
- Categorized
- Embedded Transformers
- FME Hub
- Recent (1)
- Search Results

Accessing the Covid-19 Data

Data Source:  
<https://data.europa.eu/data/datasets/covid-19-corona-virus-data-weekly-from-17-december-2020?locale=en>  
<https://opendata.ec.europa.eu/covid19/nationalcasedeath/json/>

get current ...ata from web

- Creator
- HTTPCaller\_3
- JSONFragmenter\_4
- AttributeRemover
- JSONFeature

Extraction of data from calendar week (cw) a week ago / two weeks ago

- Tester\_4
- AttributeCreator\_3
- Tester\_3
- Tester\_8
- cases and deaths last week
- cases
- deaths
- Tester\_6
- Tester\_7
- cases and deaths two weeks ago
- cases
- deaths
- Tester\_9

# Combining the data

## COVID-19 situation data (CSV) (from ECDC)

country	country_code	continent	population	indicator	weekly	year_w	rate_14_day	cumulative
Afghanistan	AFG	Asia	38928341	cases	532	2021-37	3,31121226	154712
Afghanistan	AFG	Asia	38928341	deaths	20	2021-37	1,515605302	7191
Albania	ALB	Europe	2845955	cases	5927	2021-37	420,1050263	102953
Albania	ALB	Europe	2845955	deaths	37	2021-37	22,83043351	2580
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Anguilla	AIA	America	15002	cases	35	2021-37	233,3022264	331

## Country areas - GeoJSON (from ESTAT)

gisco-services.ec.europa.eu/distribution/v2/countries/geojson/CNTR\_RG\_60M\_2020\_4326.geojson

```

12460 ]
12461 },
12462 "properties": {
12463   "CNTR_ID": "AD",
12464   "CNTR_NAME": "Andorra",
12465   "NAME_ENGL": "Andorra",
12466   "ISO3_CODE": "AND",
12467   "ID": "AD"
12468 },
12469 "id": "AD"
12470 },
12471 {
12472   "type": "Feature",
12473   "geometry": {
12474     "type": "Polygon",
12475     "coordinates": [
12476       [
12477         [
12478           56.266,
12479           25.625
12480         ],
12481         [
12482           56.365,
12483           25.503
12484         ],
12485         [
12486           56.374,
12487           24.98
12488         ],

```

## The demo uses ArcGIS Online

- Commercial service by Esri
- Free developer account <https://developers.arcgis.com/sign-up/>

COVID-19 Coronavirus data - we x Content - My Content x +

52north.maps.arcgis.com/home/content.html?view=table&sortOrder=desc&sortField=modified&folder=sjirka#content

Home Gallery Map Scene Notebook Groups Content Organization

Simon Jirka sjirka

Content My Content My Favorites My Groups My Organization Living Atlas

New item Create app Search sjirka Table Date Modified Filter

Folders

Filter folders

All My Content

sjirka

Filters

Categories

No Categories Yet

Categories allow members to organize items consistently and provide a simple way to browse content in the organization.

Set up organization categories

Item type

- Maps
- Layers
- Scenes
- Apps
- Tools
- Files
- Insights
- Notebooks

Location

Drag and drop your content here.

You can also click **New item** to upload a file, link a service, and create an item; or click **Create app** to build a web app.



COVID-19 Coronavirus data - we x Countries x +

52north.maps.arcgis.com/home/webmap/viewer.html?useExisting=1

Home Countries Open in new Map Viewer New Map Simon

Details Add Basemap Analysis Save Share Print Directions Measure Bookmarks Find address or place

About Content Legend

Make your own map

It's easy to make your own map. Just follow these steps:

- 1. Choose an area.**  
Pan and zoom the map to an area or search by its name or address.
- 2. Decide what to show.**  
Choose a Basemap then Add layers on top of it.
- 3. Add more to your map.**  
Add map notes to draw features on the map.  
Display descriptive text, images, and charts for map features in a pop-up.
- 4. Save and share your map.**  
Give your map a name and description then share it with other people.

0 300 600mi

Drake Passage

POWERED BY esri

Esrri, HERE, Garmin, FAO, NOAA

Trust Center Contact Esri Report Abuse Contact Us

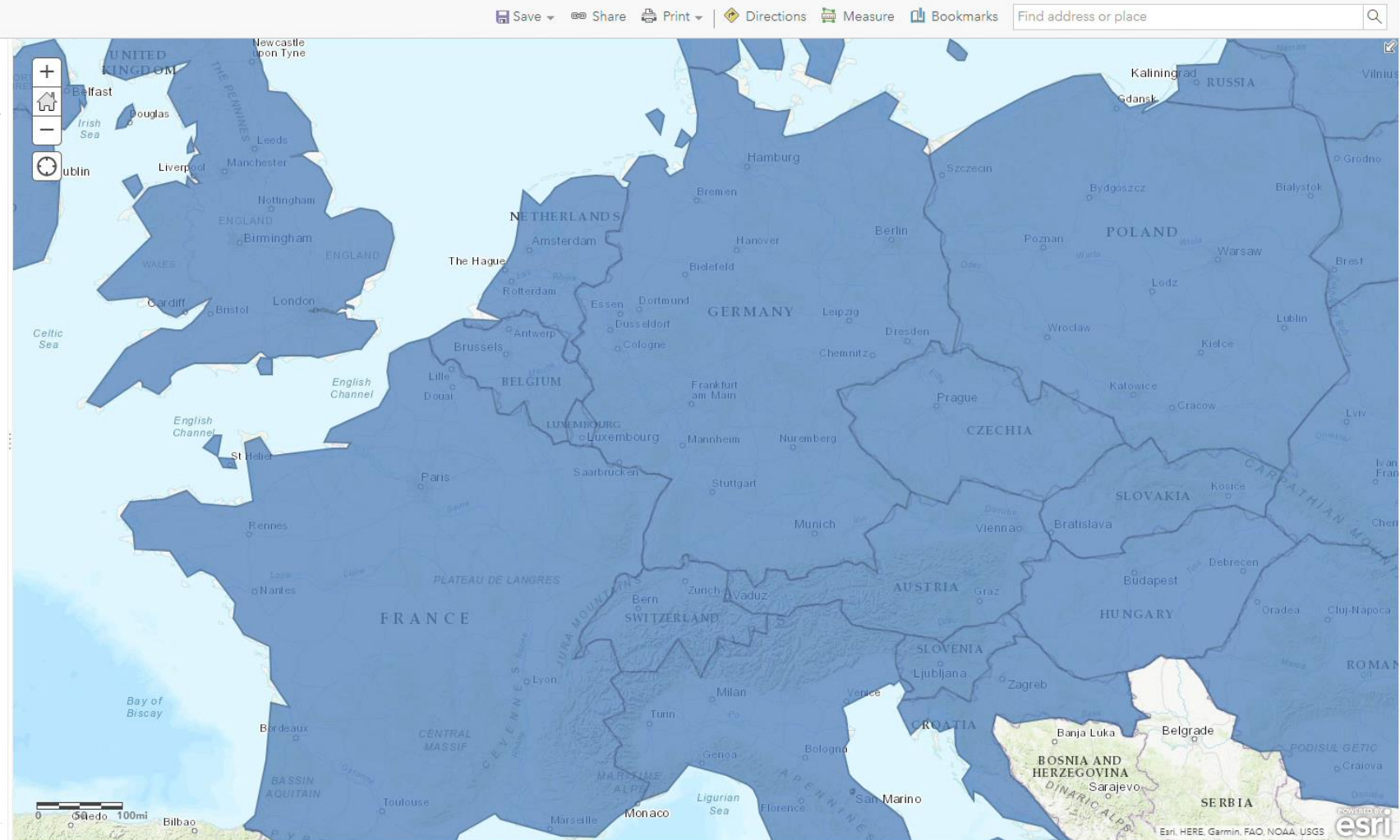
Details Add Basemap Analysis

About Content Legend

Contents

- Join Features to Countries
- Countries
- Topographic
- covid data - covid data

Trust Center Contact Esri Report Abuse Contact Us



# Demo - summary

- Found 2 datasets on data.europa.eu
  - COVID-19 weekly situation update (from ECDC)
    - CSV (comma separated values)
    - Contains no coordinates (“geometry”)
  - Country areas (from ESTAT)
    - GeoJSON
    - contains geometry
- Created a new datasets from the 2 sources
- Displayed the data on a map

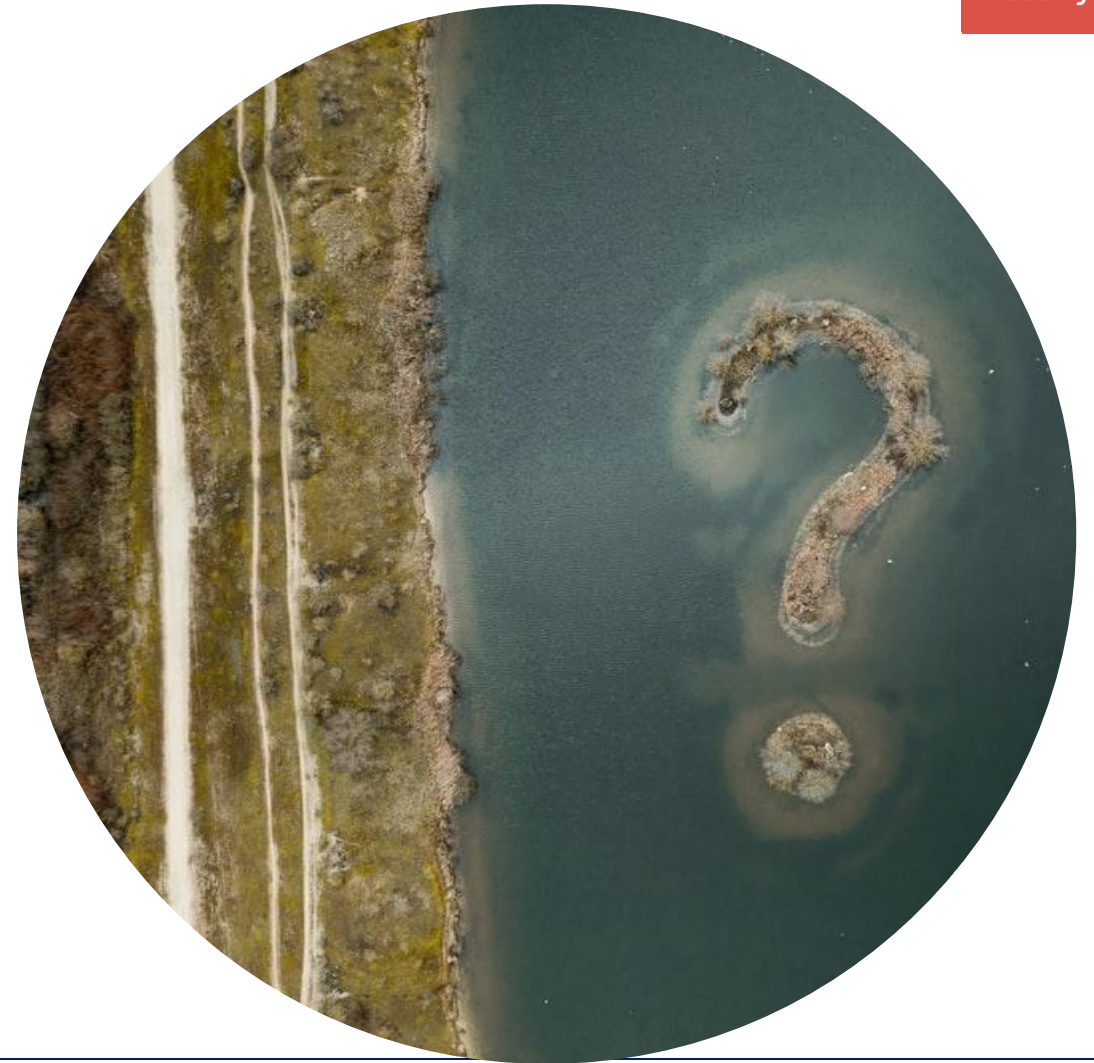


**Questions?**

*[sli.do](#)*

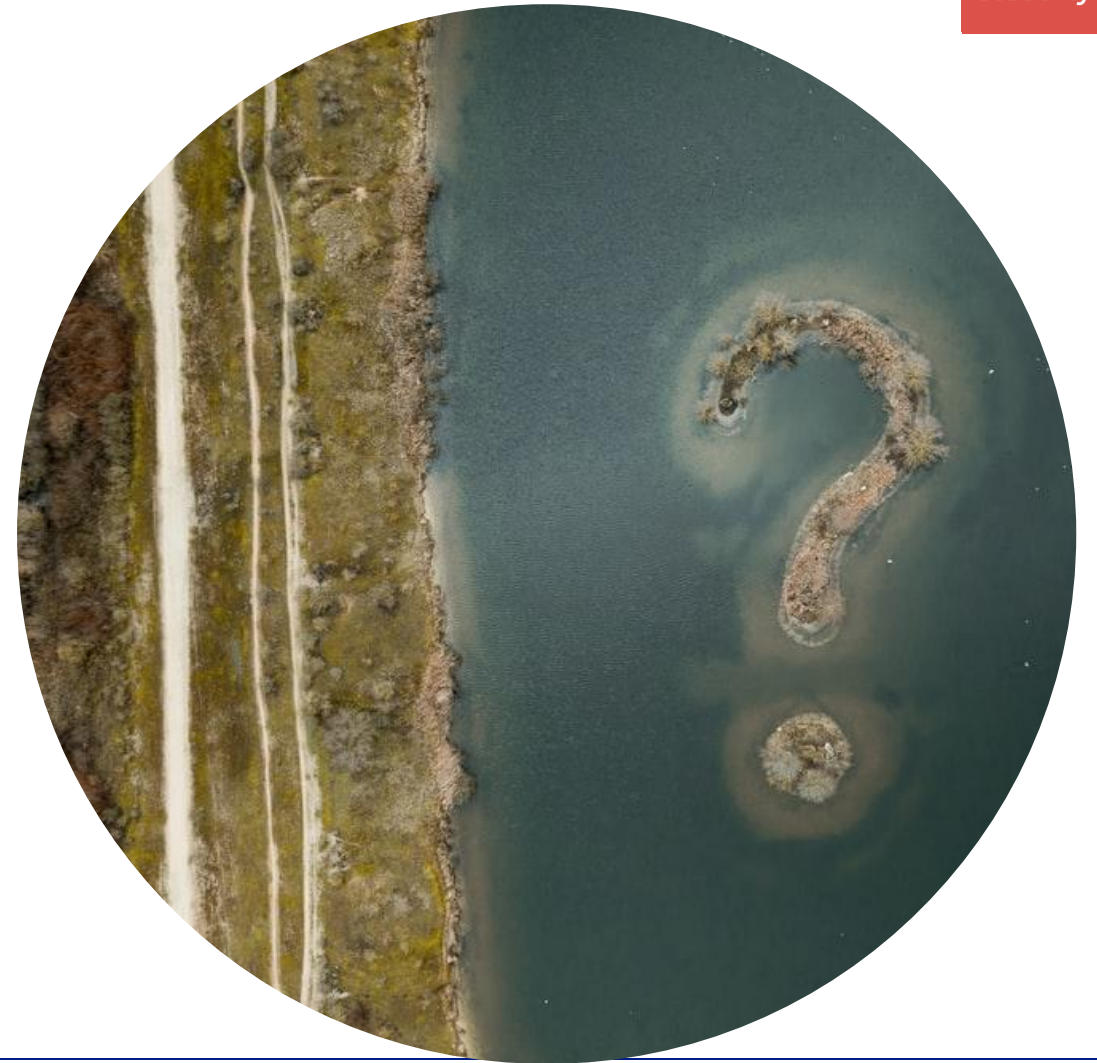
*Interactive with sli.do*

**What challenges do you see with finding or using geospatial data?**



*Interactive with sli.do*

**How could the reuse of geospatial data be encouraged?**





# Break

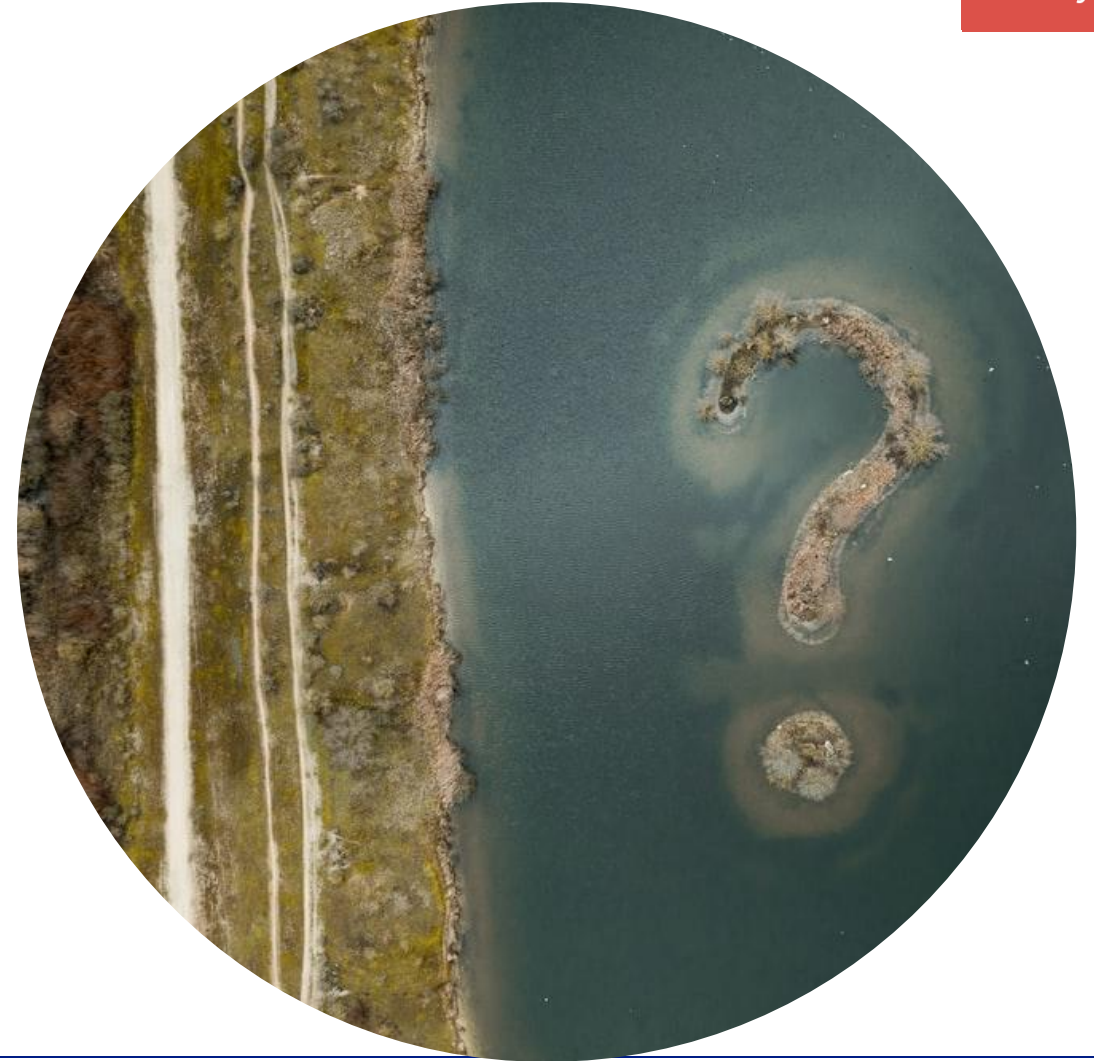
Please be back  
in 5 minutes!

*Interactive with sli.do*

***Look at your answers:***

**What challenges do you see with finding or using geospatial data?**

**How could the reuse of geospatial data be encouraged?**





# Summary

- How to find and use geospatial data from data.europa.eu
  - Where the data comes from
  - Formats for geodata
  - Geoservices
- Use of indirect geospatial information (Country codes)
- Shared ideas on
  - uses for geodata
  - challenges for finding or using geodata
  - how reuse of geospatial data could be encouraged

THANK YOU

**One word or line  
on your  
experience today**

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on [sli.do](#)

Please  
provide us  
your  
feedback!





data.  
europa.  
eu  
academy 

# Thank you very much!

[info@data.europa.eu](mailto:info@data.europa.eu)



**data.europa.eu** The official portal  
for European data

