

8. INSPIRE ESPUS školenie „INSPIRE sieťové služby & OGC APIs“

Praktické príklady

8. INSPIRE ESPUS školenie

"INSPIRE sieťové služby
& OGC APIs"



Online formát

Termín: 21.10.2022

Miesto: MS Teams

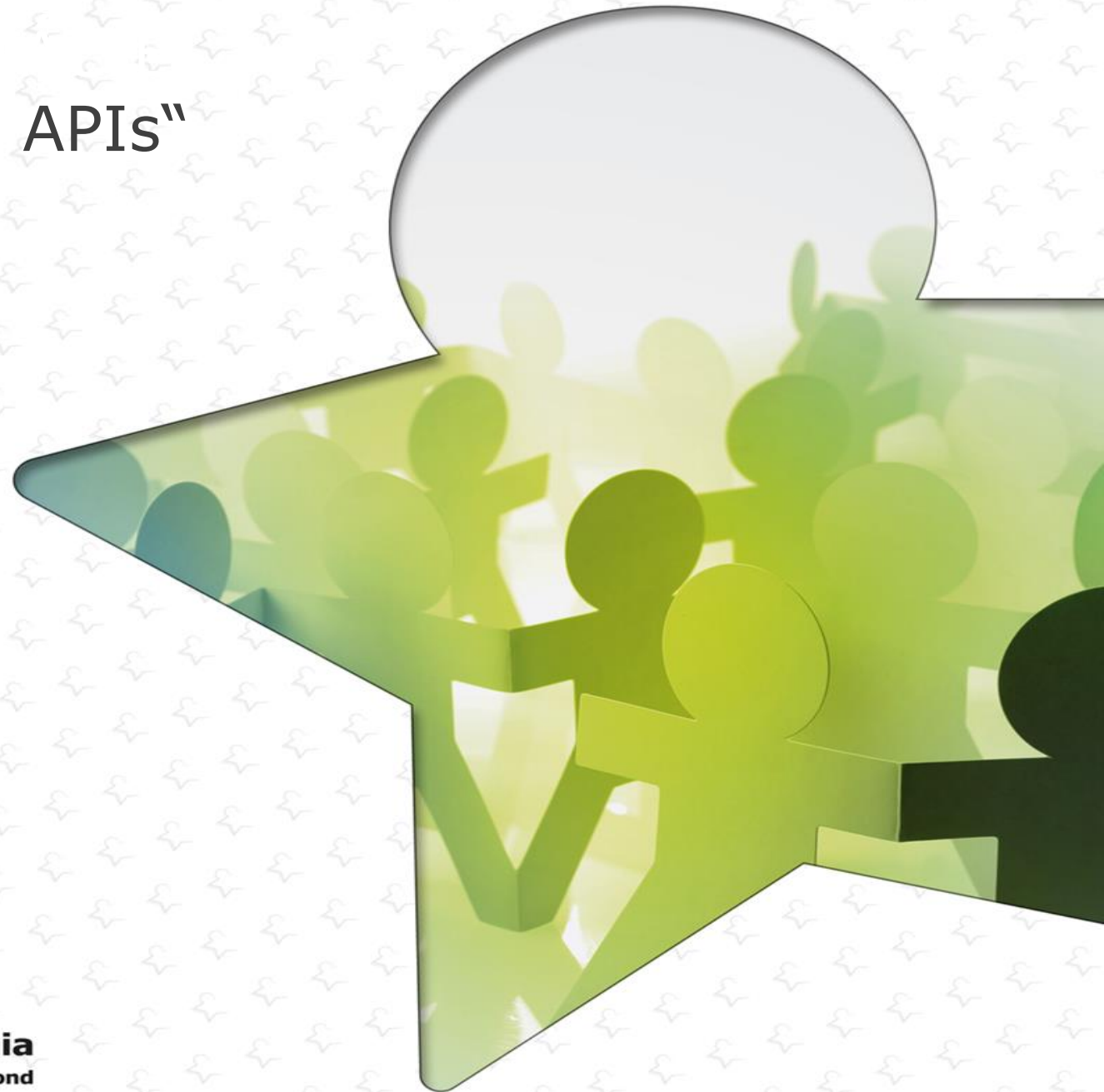


Operačný program
Efektívna
verejná správa



Európska únia
Európsky sociálny fond

Tento projekt je podporený z Európskeho sociálneho fondu





8. INSPIRE ESPUS školenie „INSPIRE sieťové služby & OGC APIs“ Praktické príklady

21.10.2022

Prehľad

Praktické ukážky využitia INSPIRE sieťových služieb a OGC API

1. Príklad využitia zobrazovacích služieb vo webových klientoch
2. Príklady využitia sieťových služieb v desktopových klientoch
3. Príklady využitia sieťových služieb v HTTP klientoch
4. Príklad stiahnutia väčšieho objemu údajov z ukladacej služby
5. GeoE3: Projekt preklápania OGC WXS do OGC API
6. IBL Data Server for 2022 Bratislava Climathon

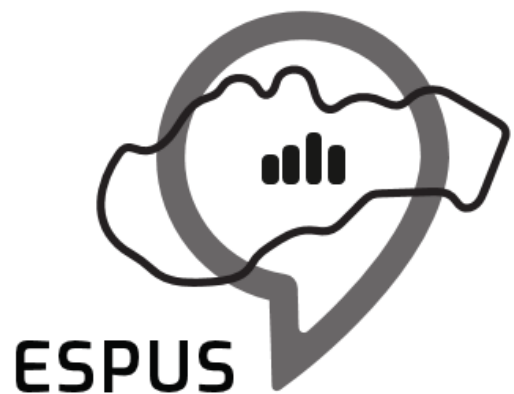


Prehľad

Praktické ukážky využitia INSPIRE sieťových služieb a OGC API

- **Zadanie:** vyhľadať, analyzovať a pracovať s INSPIRE sieťovými službami a OGC API
- **Vstupné údaje:** INSPIRE sieťové služby a OGC API
- **Riešenie:** práca vo webových a desktopových aplikáciách
- **Výstup:** pripojené, stiahnuté a spracované priestorové údaje zo sieťových služieb a OGC API
- **Výsledok:** schopnosť pracovať s INSPIRE sieťovými službami a OGC API





Efektívna správa priestorových údajov a služieb

Praktické ukážky využitia INSPIRE sieťových služieb

Praktická ukážka: Príklad 1

Príklad využitia zobrazovacích služieb vo webových klientoch

- Pripojenie cezhraničných zobrazovacích služieb INSPIRE Správne jednotky SK, CZ, HU

The screenshot displays a web GIS interface. On the left, a layer list titled 'Vrstvy a podkladové mapy' contains several layers, including two INSPIRE View Services, 'Adresné body', 'Ulice', and 'Územnosprávne členenie'. Below the list are thumbnails for 'ZBGIS', 'SATELITNÁ', and 'ORTOFOTO'. The main map area shows a yellow-shaded region with a red outline, labeled 'Česká republika 1' and 'Slovenská republika'. A search bar at the top contains 'Vyhľad'. On the right, there are navigation controls like zoom in (+), zoom out (-), and a 'TEST' button. At the bottom, a browser's developer tools network tab is open, showing a request to an INSPIRE WMS service. The response is a PNG image of the Slovak Republic map area.

Praktická ukážka: Príklad 2

Príklady využitia sieťových služieb v desktopových klientoch

- Pripojenie cezhraničných zobrazovacích služieb INSPIRE Správne jednotky SK, CZ, HU
- Pripojenie ukladacích služieb typu WFS a WCS

Praktická ukážka: Príklad 3

Príklady využitia sieťových služieb v HTTP klientoch

- curl / wget
- Chrome plugin
 - Talend API Tester - Free Edition
- JMeter

curl / wget

Príkazy:

```
curl -o "gc.xml"
```

```
"https://zbgisws.skgeodesy.sk/inspire_administrative_units_wms/service.svc/get?service=wms&request=GetCapabilities"
```

```
wget -O "gc.xml"
```

```
"https://zbgisws.skgeodesy.sk/inspire_administrative_units_wms/service.svc/get?service=wms&request=GetCapabilities" --no-check-certificate
```

Talend API Tester - Free Edition

The screenshot displays the Talend API Tester Free Edition interface. The top navigation bar includes the Talend logo, 'API Tester', 'Requests', 'Scenarios', 'Help', and 'Free Edition'. The left sidebar shows 'HISTORY', 'REPOSITORY', and 'MY DRIVE' (with 'NO SAVED DATA'). The main workspace is a 'DRAFT' request configuration for a POST method to the URL `https://zbgisws.skgeodesy.sk/inspire_administrative_units_wfs/service.svc/post`. The 'HEADERS' section contains a 'Content-Type' header set to 'application/json'. The 'BODY' section contains an XML payload for a WFS GetCapabilities request. The bottom panel shows 'HISTORY', 'ASSERTIONS', 'HTTP', and 'DESCRIPTION' tabs, with a '+ Add assertion' button and suggestions for 'Status code is in range 2XX' and 'Body content exists'.

API Tester | Requests | Scenarios | Help | Free Edition

HISTORY | REPOSITORY | MY DRIVE | NO SAVED DATA

DRAFT

Save as

METHOD: POST | SCHEME :// HOST [":" PORT] [PATH ["?" QUERY]] | `https://zbgisws.skgeodesy.sk/inspire_administrative_units_wfs/service.svc/post` | length: 78 byte(s) | Send

QUERY PARAMETERS

HEADERS | Form | BODY | Text

Content-Type : application/json

+ Add header | Add authorization

```
1 <wfs:GetCapabilities service="WFS" version="2.0.0" count="3"
2   xmlns:wfs="http://www.opengis.net/wfs/2.0" xmlns:fes="http://www.open
3   xmlns:cp="http://inspire.ec.europa.eu/schemas/cp/4.0" xmlns:xsi="http
4   xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://schemas.ope
5 </wfs:GetCapabilities>
```

Top | Bottom | Collapse | Open | 2Request | Copy | Download

HISTORY | ASSERTIONS | HTTP | DESCRIPTION | + Add

+ Add assertion | Suggestions: Status code is in range 2XX, Body content exists

Export | Import | + Project

JMeter

Download from WFS.jmx (C:\Users\Dusan\Desktop\Download from WFS.jmx) - Apache JMeter (5.5)

File Edit Search Run Options Tools Help

00:00:01 0 0/1

Test Plan

- Filtrovane WFS - HTTP GET
 - HTTP GET Request UGKK
 - HTTP GET Request ESPUS
 - View Results Tree
- Filtrovane WFS - HTTP POST
- Stiahnutie údajov z WFS

HTTP Request

Name: HTTP GET Request UGKK

Comments: POLYGON ((18.87 49.015, 18.87 49.020,18.88 49.020,18.88 49.015,18.87 49.015))

Basic Advanced

Web Server

Protocol [http]: https Server Name or IP: inspire.skgeodesy.sk

HTTP Request

GET Path: /eskn/rest/services/INSPIREWFS/kn_wfs_inspire/GeoDataServer/exts/InspireFeatureDownload/service

Redirect Automatically Follow Redirects Use KeepAlive Use multipart/form-data Browser-compatible headers

Parameters Body Data Files Upload

Send Parameters With the Request:

Name:	Value	URL Encode?	
service	WFS	<input type="checkbox"/>	text/plain
count	500	<input type="checkbox"/>	text/plain
REQUEST	GetFeature	<input type="checkbox"/>	text/plain
version	2.0.0	<input type="checkbox"/>	text/plain
namespaces	xmlns(cp,http://inspire.ec.europa.eu/schemas/cp/4.0)	<input type="checkbox"/>	text/plain
TYPENAMES	cp:CadastralParcel	<input type="checkbox"/>	text/plain
BBOX	49.015,18.87,49.020,18.88	<input type="checkbox"/>	text/plain

Detail Add Add from Clipboard Delete Up Down

Praktická ukážka: Príklad 4

Príklad stiahnutia väčšieho objemu údajov z ukladacej služby

The screenshot shows the Apache JMeter 5.5 interface. The title bar reads "Download from WFS.jmx (C:\Users\Dusan\Desktop\Download from WFS.jmx) - Apache JMeter (5.5)". The menu bar includes File, Edit, Search, Run, Options, Tools, and Help. The toolbar contains various icons for file operations and execution. The left sidebar shows a Test Plan tree with the following structure:

- Stiahnutie údajov z WFS
 - Používateľom definované premenné
 - HTTP Request**
 - Ulož odpoveď do súboru
 - Strom výsledkov
 - Výsledky v tabuľke
 - Report

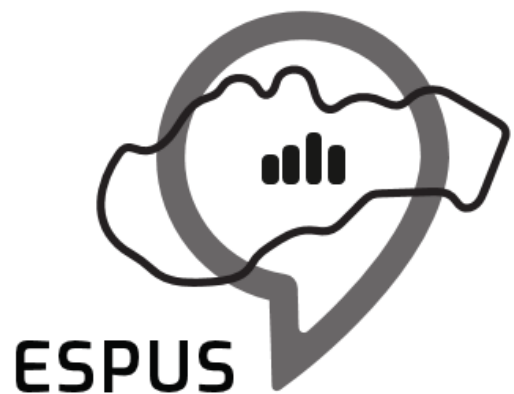
The main window displays the configuration for the selected "HTTP Request" element. The "Name" field is set to "HTTP Request". The "Basic" tab is active, showing the following settings:

- Web Server:** Protocol [http], Server Name or IP: 46.229.225.194, Port Number: [empty]
- HTTP Request:** Method: GET, Path: /geoserver/ad/wfs, Content encoding: [empty]
- Options: Redirect Automatically, Follow Redirects, Use KeepAlive, Use multipart/form-data, Browser-compatible headers

The "Parameters" tab is also active, showing a table for "Send Parameters With the Request":

Name:	Value	URL Encode?	Content-Type	Include Equals?
REQUEST	GetFeature	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
VERSION	2.0.0	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
TYPENAMES	ad:Address	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
COUNT	10	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
SERVICE	WFS	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>
STARTINDEX	\$(startIndex)	<input type="checkbox"/>	text/plain	<input checked="" type="checkbox"/>

At the bottom of the parameters section, there are buttons for "Detail", "Add", "Add from Clipboard", "Delete", "Up", and "Down".



Efektívna správa priestorových údajov a služieb

Praktické ukážky využitia OGC API

Praktická ukážka: Príklad 5

Pripojenie OGC API Features do QGIS

The screenshot displays the QGIS desktop environment. On the left, the 'Browser' panel shows a tree view of data sources under 'WFS / OGC API - Features', with 'okres_3' selected in the 'Layers' panel below. The central map area shows a yellow-shaded map of Slovakia with black outlines representing administrative boundaries. On the right, the 'Processing Toolbox' is open, showing various tool categories. Below it, the 'Debugging/Development Tools' panel is active, displaying a list of network requests. The request at index 46 is highlighted, showing a GET request to the OGC API Features endpoint for collections.

```
Requests
▶ 44 GET http://46.229.225.194/geoserver/ogc/features?SERVICE=WFS&
▶ 45 GET http://46.229.225.194/geoserver/ogc/features
▶ 46 GET http://46.229.225.194/geoserver/ogc/features/collections
▶ 47 GET http://46.229.225.194/geoserver/ogc/features
▶ 48 GET http://46.229.225.194/geoserver/ogc/features/api?f=applic.
▶ 49 GET http://46.229.225.194/geoserver/ogc/features/collections/.
▶ 50 GET http://46.229.225.194/geoserver/ogc/features/collections/.
```

Praktická ukážka: Príklad 5

GeoE3: Projekt preklápania OGC WXS do OGC API



MORE INFORMATION AT [GEOE3.EU](https://geo.e3.eu)

Praktická ukážka: Príklad 5

Pripojenie SK OGC WxS služieb na platformu GEOE3

- start date 01/03/2022
end date 30/09/2023
- Participants: FI, NO, NL, ES, EE

Better access and interoperability of Geospatial data /other data

- Usability of metadata information – e.g. dashboards
- Integration with other data (e.g. statistics, weather data)
- Accessibility through European Data Portal (DCAT.AP)

Dynamic harmonisation of geospatial data based on use cases and new APIs

- Example Cloud Platform which will demonstrate use cases and then used for national platform implementatios through different APIs and tools

Build an ecosystem based on national platforms

- eLearning videos
- Innovation events
- Benefits

Praktická ukážka: Príklad 5

Pripojenie SK OGC WxS služieb na platformu GEOE3

- Re-publikácia OGC WxS služieb do OGC API

Praktická ukážka: Príklad 5

Pripojenie SK OGC WxS služieb na platformu GEOE3

- WFS:

1.) Buildings:

https://zbgisws.skgeodesy.sk/inspire_buildings_wfs/service.svc/get?service=WFS&version=2.0.0&request=GetCapabilities

2.) 3D INSPIRE buildings:

https://zbgisws.skgeodesy.sk/inspire_buildings_wfs/service.svc/get?service=WFS&version=2.0.0&request=GetFeature&typenames=bu-core2d:Building&count=5

3.) Roads:

https://zbgisws.skgeodesy.sk/inspire_transport_networks_wfs/service.svc/get?service=WFS&version=2.0.0&request=GetCapabilities

- WCS:

1.)DTM:

https://zbgisws.skgeodesy.sk/inspire_elevation_wcs/service.svc/get?service=WCS&version=2.0.1&request=GetCapabilities

- WMTS:

1.) ZBGIS:

https://zbgisws.skgeodesy.sk/zbgis_wmts_new/service.svc/get?SERVICE=WMTS&VERSION=1.0.0&REQUEST=GetCapabilities

2.) ORTO:

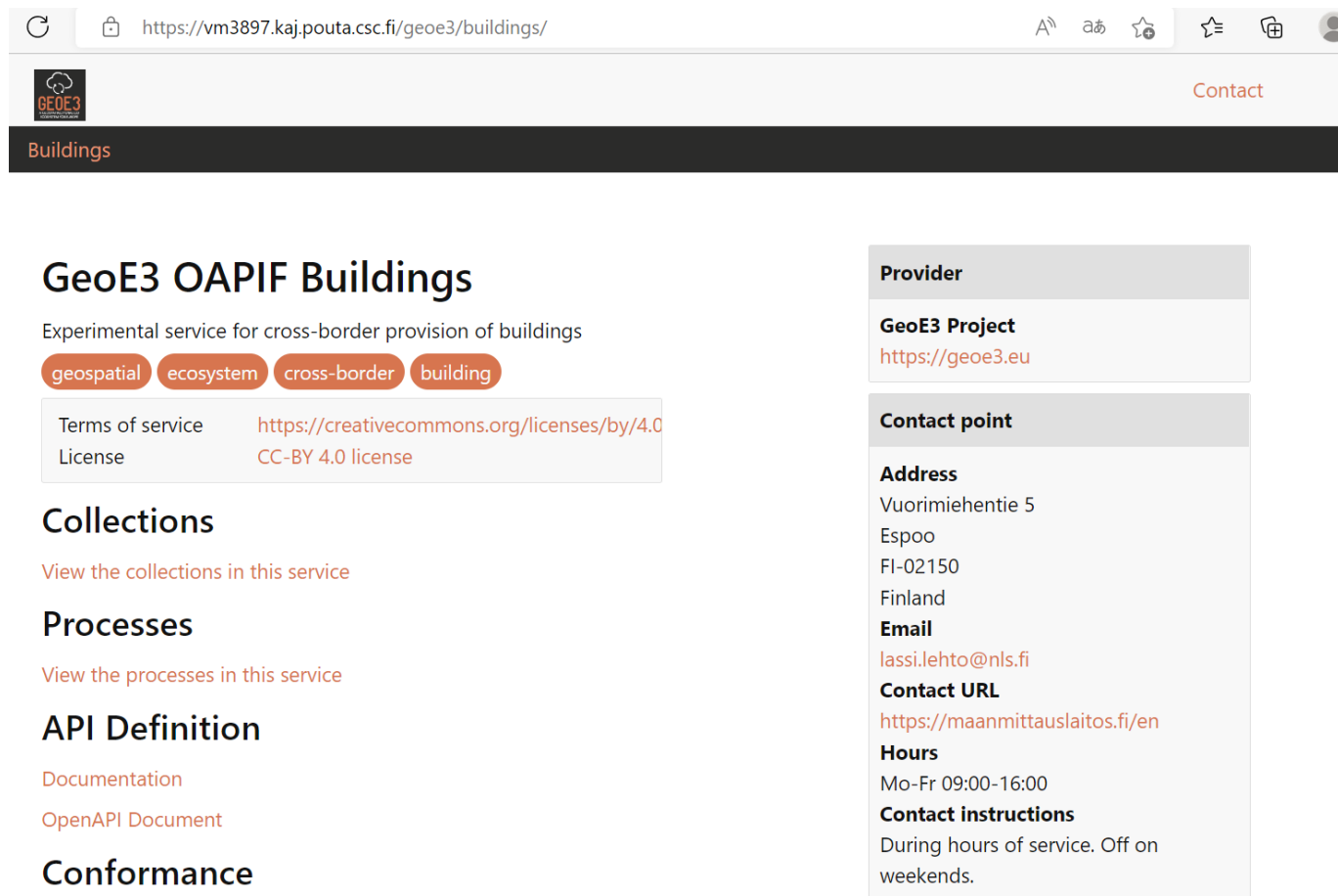
https://zbgisws.skgeodesy.sk/zbgis_ortofoto_wmts/service.svc/get?request=GetCapabilities&service=WMTS

3.) OSM:

<https://tiles.geocloud.sk/mapproxy/service?REQUEST=GetCapabilities&SERVICE=WMTS>

Praktická ukážka: Príklad 5

Prvé pripojenia - Budovy



https://vm3897.kaj.pouta.csc.fi/geoe3/buildings/

GeoE3

Contact

Buildings

GeoE3 OAPIF Buildings

Experimental service for cross-border provision of buildings

geospatial ecosystem cross-border building

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Collections

[View the collections in this service](#)

Processes

[View the processes in this service](#)

API Definition

[Documentation](#)
[OpenAPI Document](#)

Conformance

Provider

GeoE3 Project
<https://geoe3.eu>

Contact point

Address
Vuorimiehentie 5
Espoo
FI-02150
Finland

Email
lassi.lehto@nls.fi


Contact URL
<https://maanmittauslaitos.fi/en>

Hours
Mo-Fr 09:00-16:00

Contact instructions
During hours of service. Off on weekends.

Praktická ukážka: Príklad 5

Prvé pripojenia - Budovy

 [Contact](#)

[Buildings](#) / [Collections](#)

Collections in this service

Name	Type	Description
Finland	feature	Buildings from NLSFI
Norway	feature	Buildings from Kartverket
The Netherlands	feature	Buildings from Kadaster
Spain	feature	Buildings from Spanish Cadastre
Estonia	feature	Buildings from Maa-Amet
Slovakia	feature	Buildings from UGKK
Buildings metadata	record	Buildings metadata for GeoE3 countries (FI, NO, ES, NL, EE)

Praktická ukážka: Príklad 5

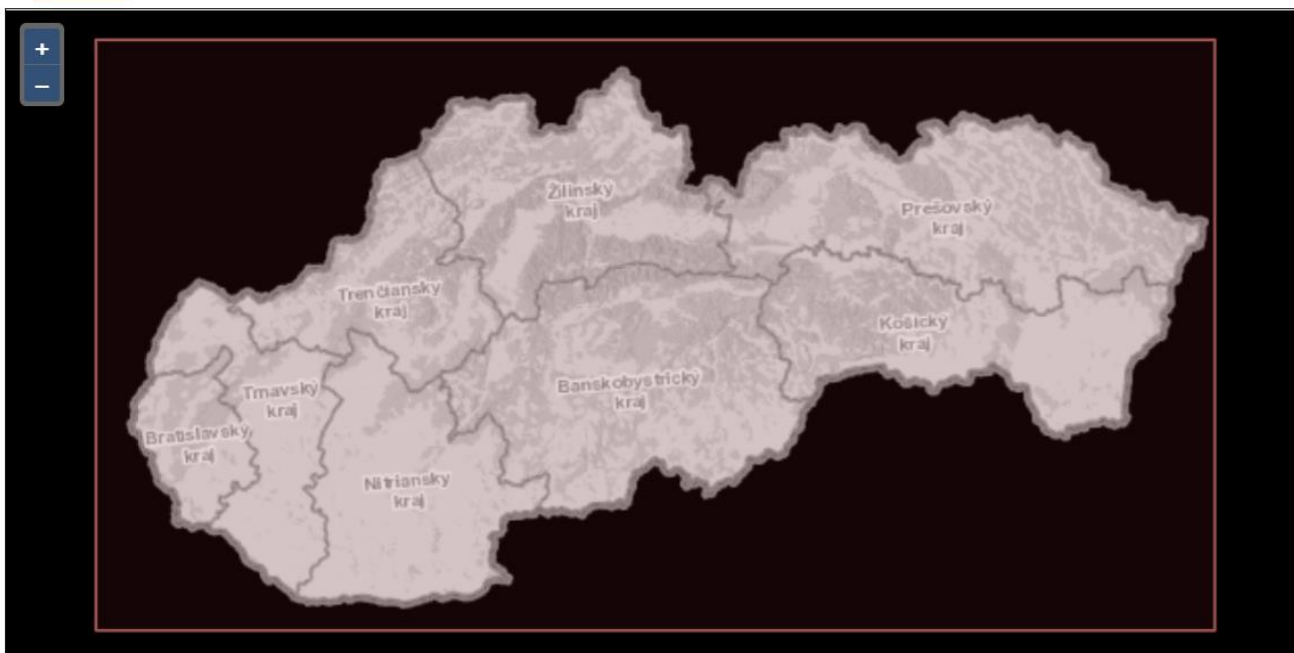
Prvé pripojenia - Budovy

[Contact](#)[Buildings](#) / [Collections](#) / [Slovakia](#)

Slovakia

Buildings from UGKK

buildings

[View](#)

Queryable

- [Display Queryables of "Slovakia"](#)

Links

- [information \(text/html\)](#)
- [This document as JSON \(application/json\)](#)
- [This document as RDF \(JSON-LD\) \(application/ld+json\)](#)
- [This document as HTML \(text/html\)](#)
- [Queryables for this collection as JSON \(application/json\)](#)
- [Queryables for this collection as HTML \(text/html\)](#)
- [items as GeoJSON \(application/geo+json\)](#)
- [items as RDF \(GeoJSON-LD\) \(application/ld+json\)](#)
- [Items as HTML \(text/html\)](#)

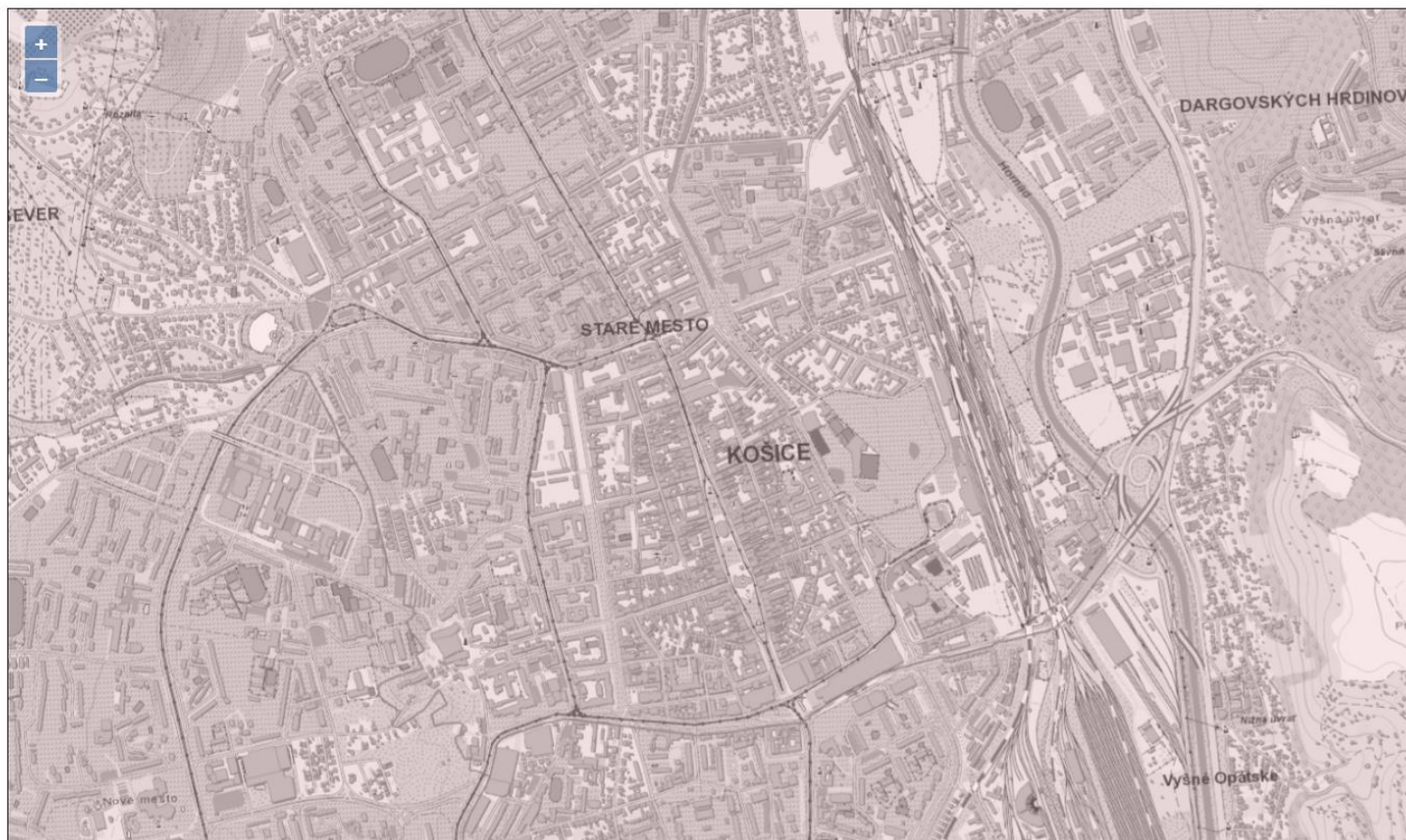
Praktická ukážka: Príklad 5

Prvé pripojenia - Budovy



Contact

Zoom in to see the items in this collection.



Praktická ukážka: Príklad 5

Prvé pripojenia – Doprava - cesty

Roads

GeoE3 OAPIF Roads

Experimental service for cross-border provision of roads

geospatial ecosystem cross-border roads

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Collections

[View the collections in this service](#)

API Definition

[Documentation](#)

[OpenAPI Document](#)

Conformance

[View the conformance classes of this service](#)

Provider

GeoE3 Project

<https://geoe3.eu>

Contact point

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Finland

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lassi.lehto@nls.fi

Contact URL

<https://maanmittauslaitos.fi/en>

Hours


Mo-Fr 09:00-16:00

Contact instructions

During hours of service. Off on weekends.

Praktická ukážka: Príklad 5

Prvé pripojenia – Doprava - cesty

Contact

Roads / Collections

Collections in this service

Name	Type	Description
Finland	feature	Roads from NLSFI
Slovakia	feature	Roads from UGKK

◀ ▶

Praktická ukážka: Príklad 5

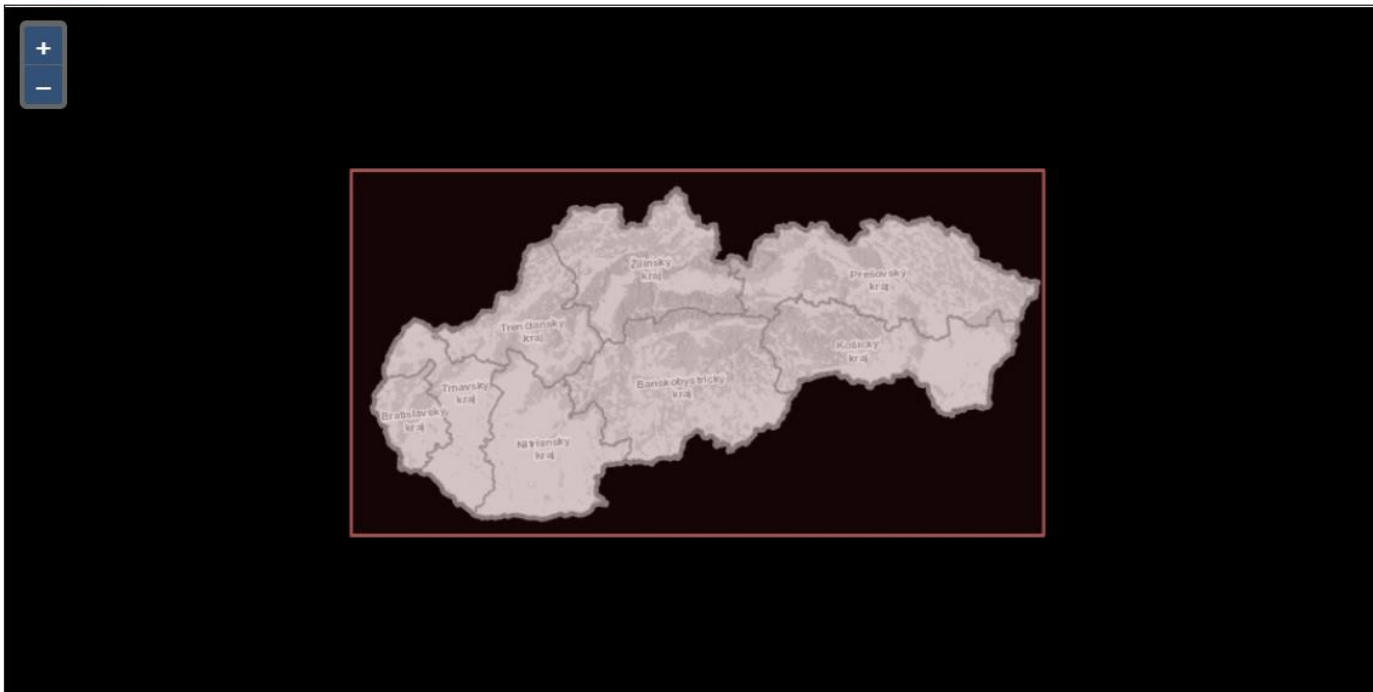
Prvé pripojenia – Doprava - cesty

Roads / Collections / Slovakia

Slovakia

Roads from UGKK

roads



Praktická ukážka: Príklad 5

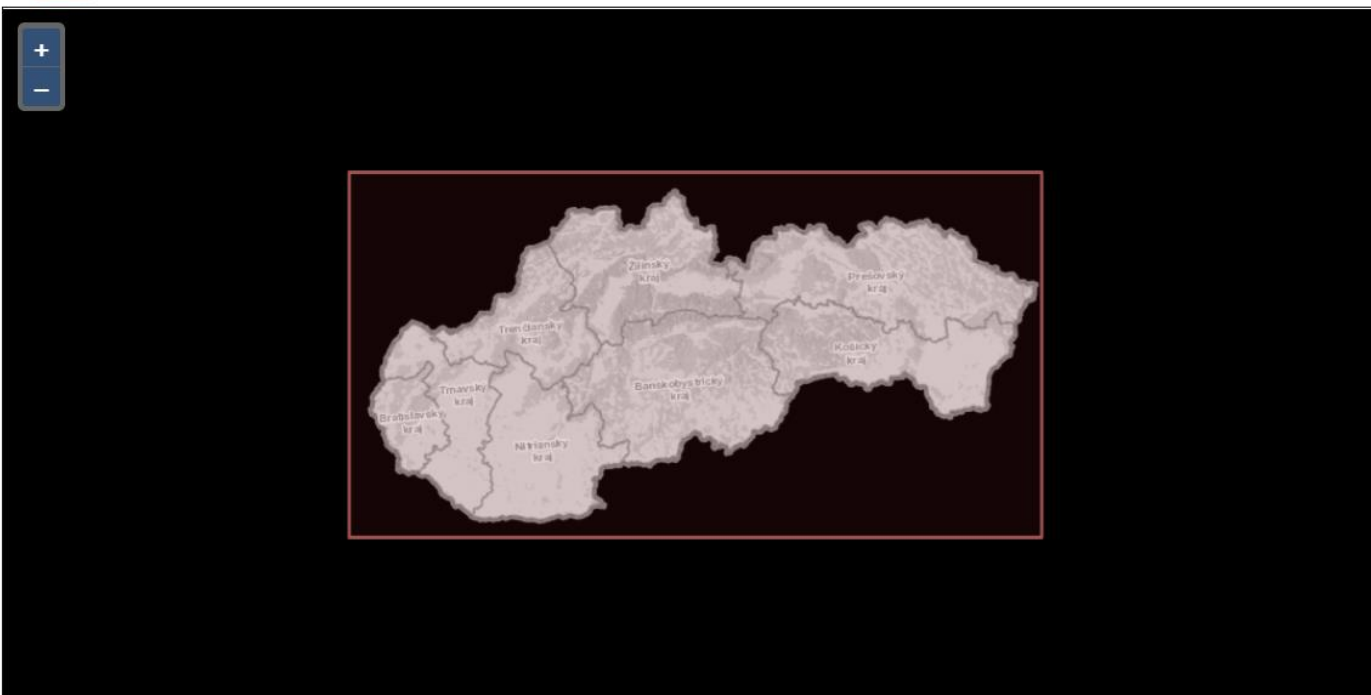
Prvé pripojenia – Doprava - cesty

Roads / Collections / Slovakia

Slovakia

Roads from UGKK

roads



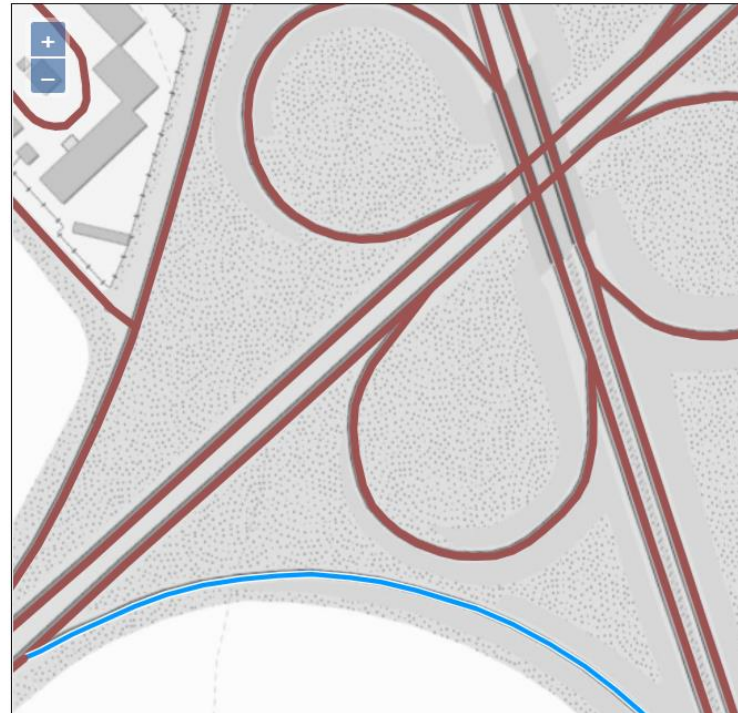
Praktická ukážka: Príklad 5

Prvé pripojenia – Doprava - cesty

[Roads](#) / [Collections](#) / [Slovakia](#) / [Items](#) / [netElementL2017649](#)

Slovakia

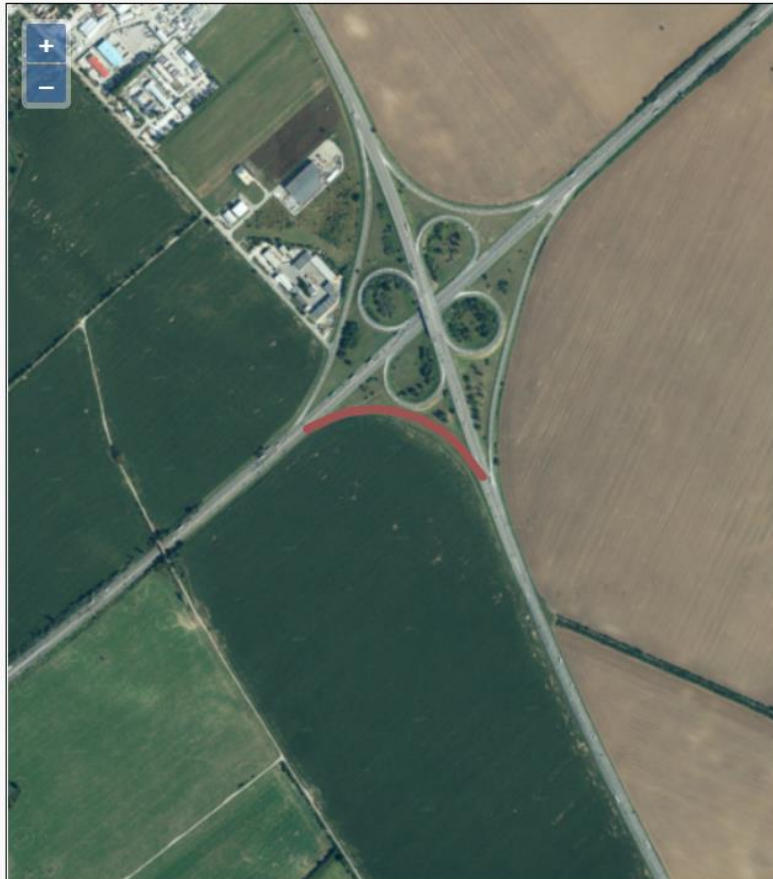
Zoom in to see the items in this collection.



Praktická ukážka: Príklad 5

Prvé pripojenia – Doprava - cesty

Roads / Collections / Slovakia / [Items](#) / netElementL.2017649



inspireId_localId	ROL_F9B12B39-C6FA-4C83-9DB0-AB8328804DEA
inspireId_namespace	SK.ZBGIS.TN.
beginLifespanVersion	2017-10-31T00:00:00Z
endLifespanVersion	null

Praktická ukážka: Príklad 5

Prvé pripojenia – DTM

DTM

GeoE3 OGC API Coverages for DTM

Experimental service for cross-border provision of Digital Terrain Model

geospatial ecosystem cross-border dtm

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License	CC-BY 4.0 license

Collections

[View the collections in this service](#)

API Definition

[Documentation](#)

[OpenAPI Document](#)

Conformance

[View the conformance classes of this service](#)

Provider

GeoE3 Project
<https://geoe3.eu>

Contact point

Address

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FI-02150
Finland

Email

lassi.lehto@nls.fi

Contact URL

<https://maanmittauslaitos.fi/en>

Hours

Mo-Fr 09:00-16:00

Contact instructions

During hours of service. Off on weekends.

Praktická ukážka: Príklad 5

Prvé pripojenia – DTM

DTM / Collections

Collections in this service

Name	Type	Description
Finland	coverage	DTM of Finland
Norway	coverage	DTM of Norway
The Netherlands	coverage	DTM of the Netherlands
Spain	coverage	DTM of Spain
Estonia	coverage	DTM of Estonia
Slovakia	coverage	DTM of Slovakia
DTM metadata	record	Digital Terrain Model metadata for GeoE3 countries (FI, NO, ES, NL, EE)

Praktická ukážka: Príklad 5

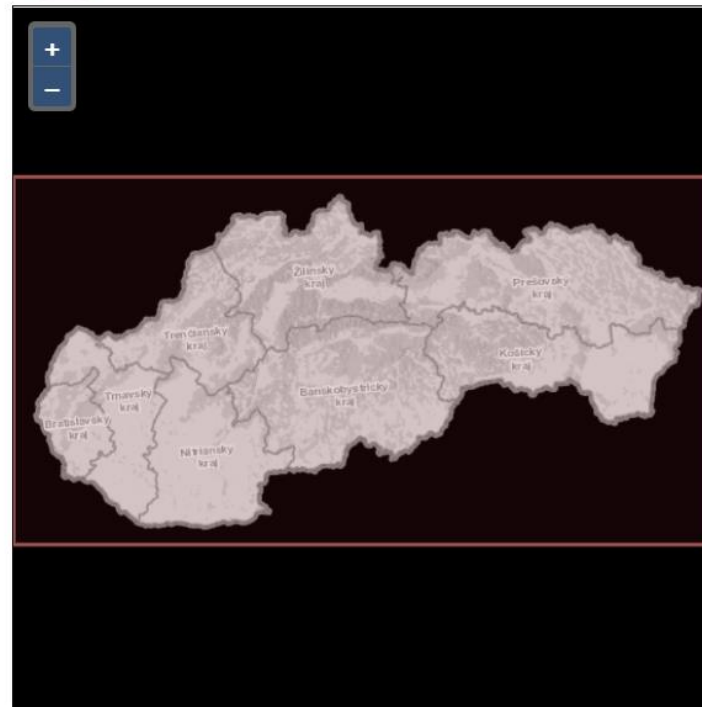
Prvé pripojenia – DTM

[DTM](#) / [Collections](#) / [Slovakia](#)

Slovakia

DTM of Slovakia

dtm



Praktická ukážka: Príklad 5

Prvé pripojenia – DTM

DTM / Collections / Slovakia / Coverage



Praktická ukážka: Príklad 5

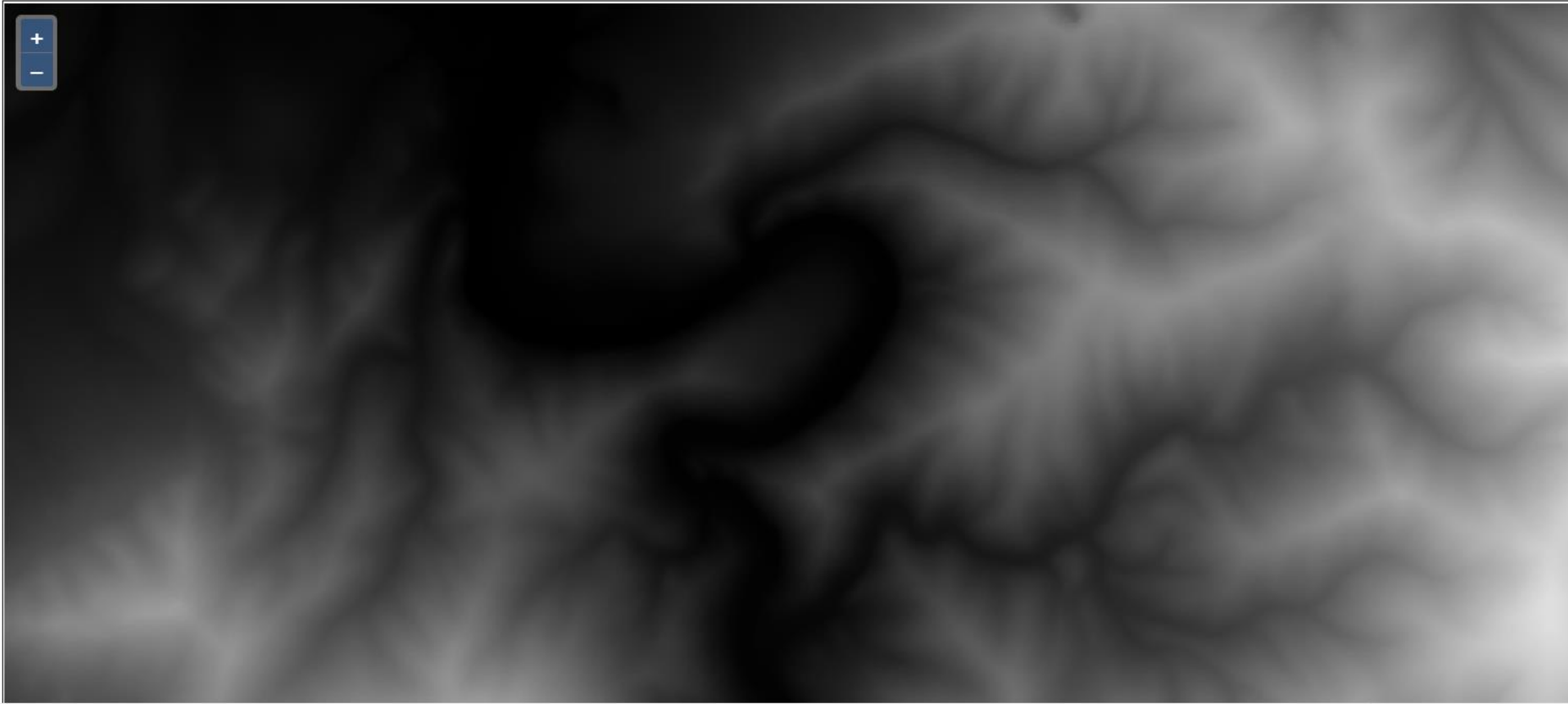
Prvé pripojenia – DTM

DTM / Collections / Slovakia / Coverage



GTiff ▾

Download



Praktická ukážka: Príklad 5

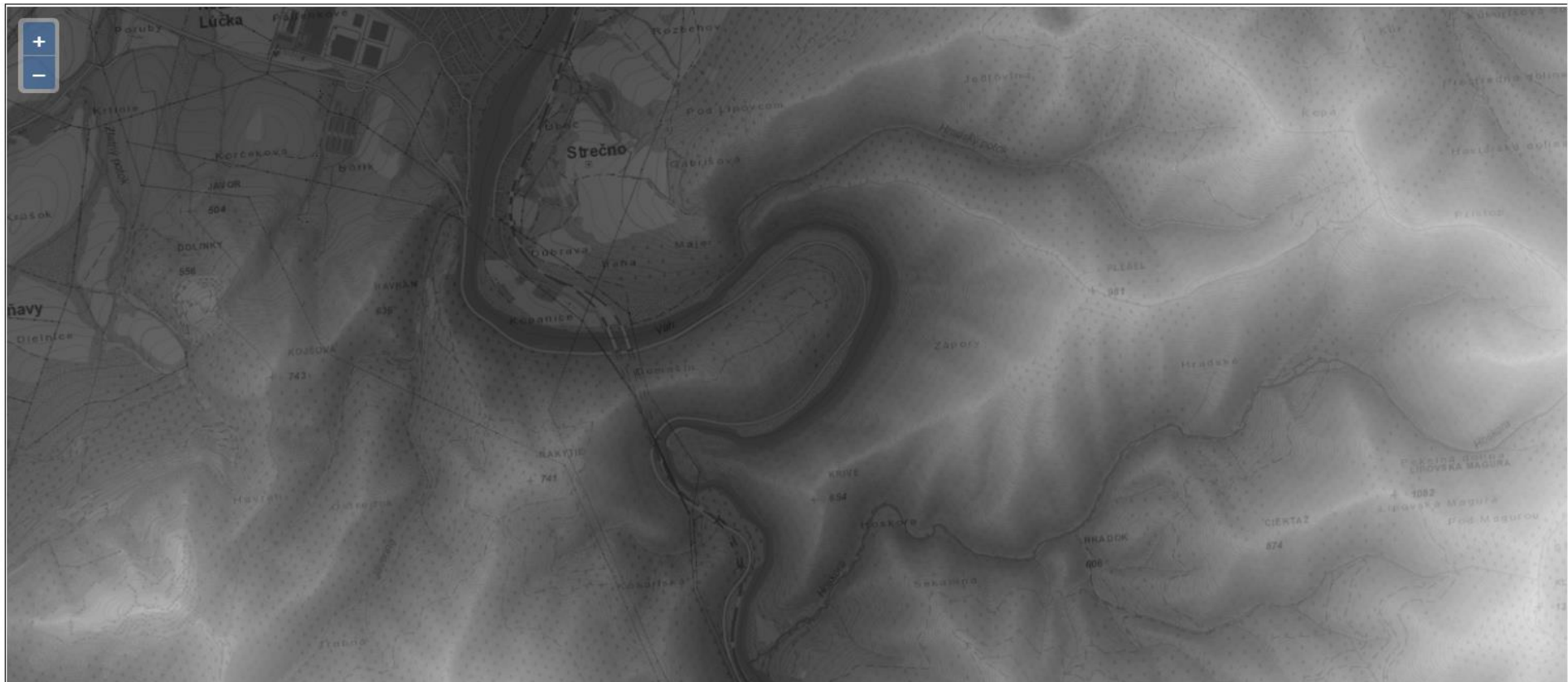
Prvé pripojenia – DTM

DTM / Collections / Slovakia / Coverage



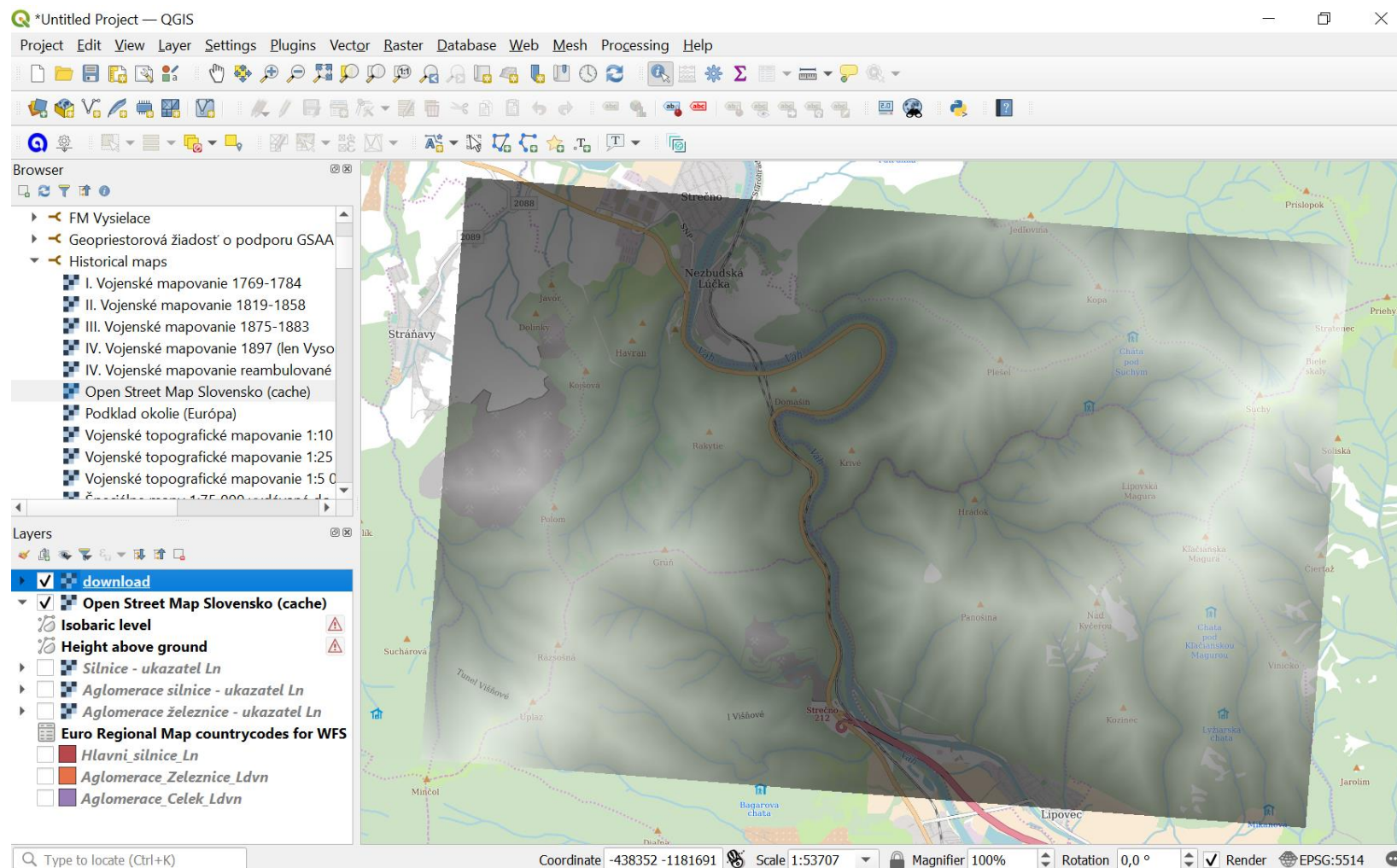
GTiff ▾

Download



Praktická ukážka: Príklad 5

Prvé pripojenia – DTM



Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon



IBL Data Server for 2022 Bratislava Climathon

Welcome to IBL data server for 2022 Bratislava Climathon. Below you can find a summary of the available data with a few example data queries to provide you a kick-start. If you have any questions about the data or the API, feel free to drop an email at climathon@iblsoft.com

IBL Data Server for 2022 Bratislava Climathon

Welcome to IBL data server for 2022 Bratislava Climathon. Below you can find a summary of the available data with a few example data queries to provide you a kick-start. If you have any questions about the data or the API, feel free to drop an email at climathon@iblsoft.com

Numerical Weather Prediction (NWP) Data

GFS

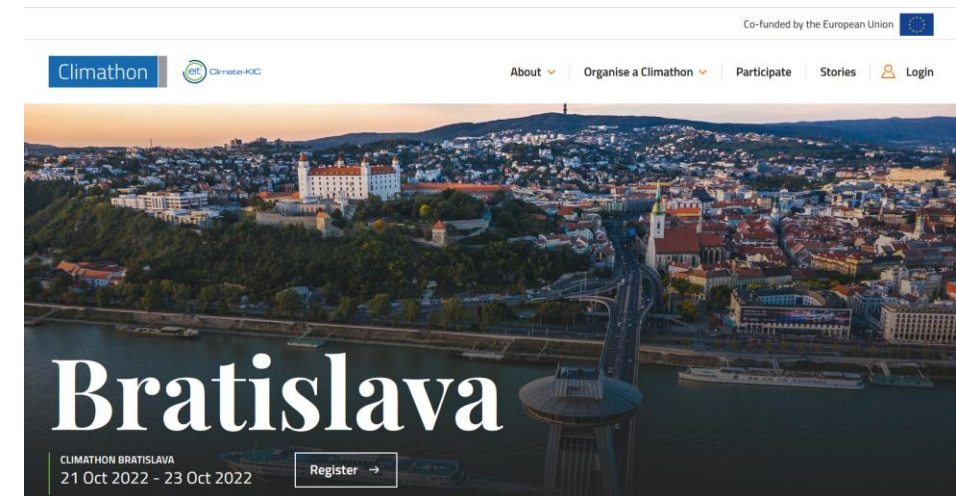
- Weather forecast model
- Website: <https://www.ncei.noaa.gov/products/weather-climate-models/global-forecast>
- Covers the whole globe
- Spatial resolution ~50 km
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/gfs-0.5deg/edr>
 - API description: <https://climathon.iblsoft.com/data/gfs-0.5deg/edr/api?f=HTML>

Query Examples

1. Formal description of the GFS data available in the server (a.k.a. metadata):
<https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections>
2. Temperature in 2 metres above ground; IBL office location; October 24th 2022 09:00 UTC; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT\(17.1785 48.1628\)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT(17.1785 48.1628)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON)
3. Accumulated rain between October 24th 06:00 UTC and October 24th 12:00 UTC (6h interval); IBL office location; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT\(17.1785 48.1628\)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT(17.1785 48.1628)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON)

Note: You might need to update the value of 'datetime' parameter to a more recent time. The server keeps GFS data only for the past two days. When outside of this interval, the server will respond with HTTP 204 (No Content).

See [API documentation](#) for more information about the *position* query.



Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

Numerical Weather Prediction (NWP) Data

GFS

- Weather forecast model
- Website: <https://www.ncei.noaa.gov/products/weather-climate-models/global-forecast>
- Covers the whole globe
- Spatial resolution ~50 km
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/gfs-0.5deg/edr>
 - API description: <https://climathon.iblsoft.com/data/gfs-0.5deg/edr/api?f=HTML>

Query Examples

1. Formal description of the GFS data available in the server (a.k.a. metadata):
<https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections>
2. Temperature in 2 metres above ground; IBL office location; October 24th 2022 09:00 UTC; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT\(17.1785 48.1628\)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT(17.1785 48.1628)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON)
3. Accumulated rain between October 24th 06:00 UTC and October 24th 12:00 UTC (6h interval); IBL office location; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT\(17.1785 48.1628\)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT(17.1785 48.1628)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON)

Note: You might need to update the value of 'datetime' parameter to a more recent time. The server keeps GFS data only for the past two days. When outside of this interval, the server will respond with HTTP 204 (No Content).

See [API documentation](#) for more information about the *position* query.

Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

Numerical Weather Prediction (NWP) Data

The screenshot displays the QGIS desktop environment. The main map area shows a street map of Bratislava with a red dot marking a specific location. The Browser panel on the left lists various data sources, including 'data', 'download', and 'Open Street Map Slovensko (cache)'. The Layers panel at the bottom left shows the 'data' layer is active. The Identify Results panel on the right provides detailed metadata for the selected feature.

Feature	Value
data	
Name	287.955 K
(Derived)	
(Actions)	
Name	287.955 K
description	temperature
timestamp	24. 10. 2022 09:00:...
begin	NULL
end	NULL
altitudeMode	NULL
tessellate	-1
extrude	0
visibility	-1
drawOrder	NULL
icon	NULL
model_name	IBL - NCEP/GFS 0.5 ...
model_run	2022-10-21T00:00:...
model_forecast	PT81H
validity	2022-10-24T09:00:...
level	2m

Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

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- Covers the whole globe
- Spatial resolution ~50 km
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/gfs-0.5deg/edr>
 - API description: <https://climathon.iblsoft.com/data/gfs-0.5deg/edr/api?f=HTML>

Query Examples

1. Formal description of the GFS data available in the server (a.k.a. metadata):
<https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections>
2. Temperature in 2 metres above ground; IBL office location; October 24th 2022 09:00 UTC; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT\(17.1785 48.1628\)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/height-above-ground/position?coords=POINT(17.1785 48.1628)¶meter-name=temperature&z=2&datetime=2022-10-24T09:00:00Z&f=CoverageJSON)
3. Accumulated rain between October 24th 06:00 UTC and October 24th 12:00 UTC (6h interval); IBL office location; output in CoverageJSON format:
[https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT\(17.1785 48.1628\)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON](https://climathon.iblsoft.com/data/gfs-0.5deg/edr/collections/single-layer_3/position?coords=POINT(17.1785 48.1628)¶meter-name=total-precipitation_gnd-surf_stat:acc/PT6H&datetime=2022-10-24T12:00:00&f=CoverageJSON)

Note: You might need to update the value of 'datetime' parameter to a more recent time. The server keeps GFS data only for the past two days. When outside of this interval, the server will respond with HTTP 204 (No Content).

See [API documentation](#) for more information about the *position* query.

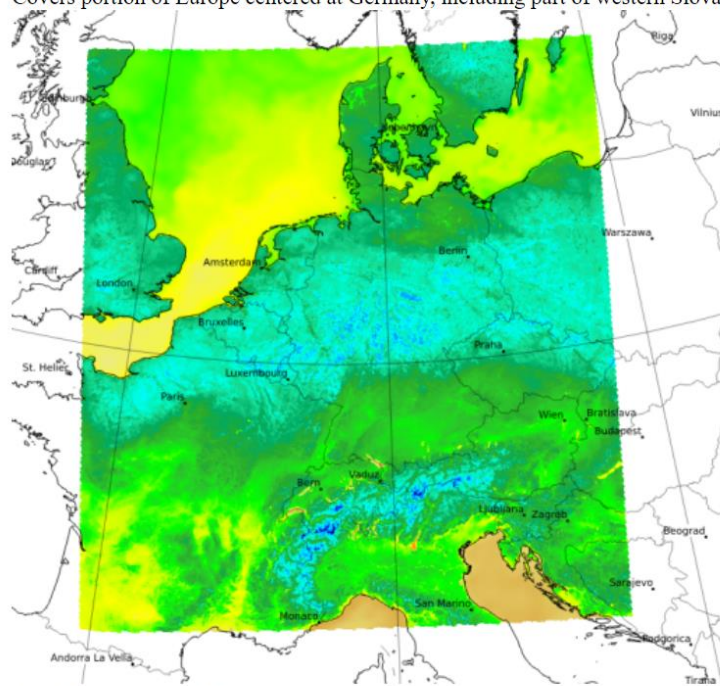
Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

ICON-DE

- Weather forecast model
- Website: https://www.dwd.de/EN/research/weatherforecasting/num_modelling/01_num_weather_prediction_modells/icon_description.html
- Covers portion of Europe centered at Germany, including part of western Slovakia (roughly up to Nitra):



- Spatial resolution ~2.2 km
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/icon-de/edr>
 - API description: <https://climathon.iblsoft.com/data/icon-de/edr/api?f=HTML>

Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

Climate Data

ERA5-Land Monthly Means

- Climate re-analysis dataset = estimate of the state of the atmosphere based mostly on observational data
- Means over a period of one month
- Covers time span 1950-2022 (historical data)
- Website: <https://www.ecmwf.int/en/era5-land>
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/era5-land-monthly-means/edr>
 - API description: <https://climathon.iblsoft.com/data/era5-land-monthly-means/edr/api?f=HTML>

Query Examples

1. Formal description of the ERA5-Land data available in the server:
<https://climathon.iblsoft.com/data/era5-land-monthly-means/edr/collections>
2. Time series of average January snow depths at IBL office location from 2000 to 2005:
[https://climathon.iblsoft.com/data/era5-land-monthly-means/edr/collections/single-layer/position?coords=POINT\(17.1785 48.1628\)¶meter-name=snow-depth_gnd-surf_stat:avg&datetime=2000-01,2001-01,2002-01,2003-01,2004-01,2005-01&f=CoverageJSON](https://climathon.iblsoft.com/data/era5-land-monthly-means/edr/collections/single-layer/position?coords=POINT(17.1785 48.1628)¶meter-name=snow-depth_gnd-surf_stat:avg&datetime=2000-01,2001-01,2002-01,2003-01,2004-01,2005-01&f=CoverageJSON)

Note: ERA5-Land Monthly Averages dataset contains averages of meteorological variables over a period of one month. In time axis, 00:00 UTC of the first day of a month represents the whole month, e.g., time axis coordinate 2000-01-01T00:00:00 represents the whole month of January 2000.

Praktická ukážka: Príklad 6

IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

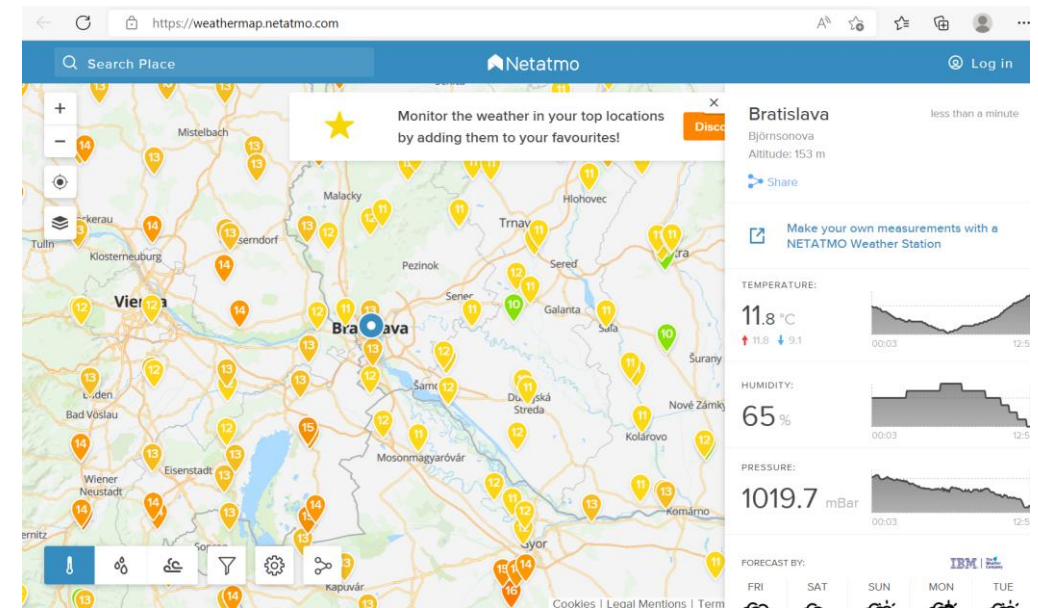
Local Observational Data

Netatmo

- Website: <https://weathermap.netatmo.com>
- Collection of publicly available Netatmo data in Bratislava
- 5-minute measurement interval
- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/netatmo/edr>
 - API description: <https://climathon.iblsoft.com/data/netatmo/edr/api?f=HTML>

Query Examples

1. Formal description of the Netatmo data available in the server: <https://climathon.iblsoft.com/data/netatmo/edr/collections>
2. All measurements within 2 km from IBL office location: [https://climathon.iblsoft.com/data/netatmo/edr/collections/publicdata/radius?coords=POINT\(17.178548.1628\)&within=2&within-units=km](https://climathon.iblsoft.com/data/netatmo/edr/collections/publicdata/radius?coords=POINT(17.178548.1628)&within=2&within-units=km)



Praktická ukážka: Príklad 6

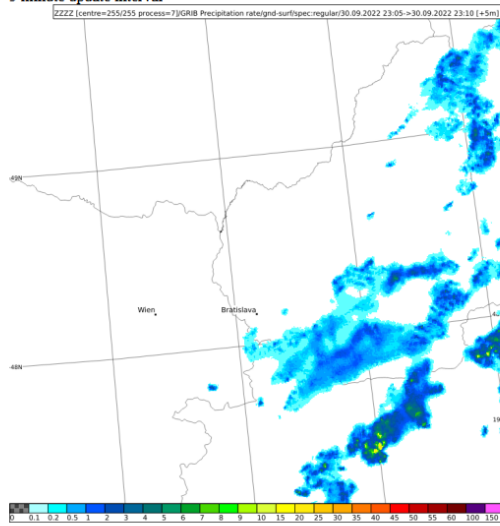
IBL Data Server for 2022 Bratislava Climathon

Dátové zdroje:

Nowcasting

Radar Precipitation

- Provided by Meteopress (<https://www.meteopress.cz>)
- High-resolution forecast of rainfall for the next 90 minutes
- 5 minute update interval



- Data access (OGC API EDR): <https://climathon.iblsoft.com/data/radar-nowcasting/edr>

Query Examples:

1. Formal description of data: <https://climathon.iblsoft.com/data/radar-nowcasting/edr/collections/single-layer>
2. Latest precipitation forecast (all time frames) within 10km from IBL office location: [https://climathon.iblsoft.com/data/radar-nowcasting/edr/collections/single-layer/radius?coords=POINT\(17.1785 48.1628\)&crs=CRS:84&within=10&within-units=km](https://climathon.iblsoft.com/data/radar-nowcasting/edr/collections/single-layer/radius?coords=POINT(17.1785 48.1628)&crs=CRS:84&within=10&within-units=km)

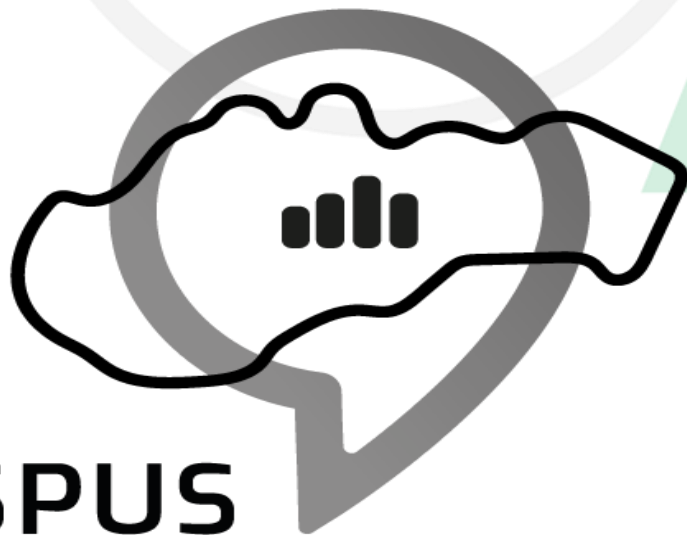
Note: Don't forget to include 'crs=CRS:84' parameter. Native projection of the data is Mercator, thus need to reproject in order to be able to write the query coordinates in degrees of longitude/latitude.



Ďakujem za pozornosť!

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