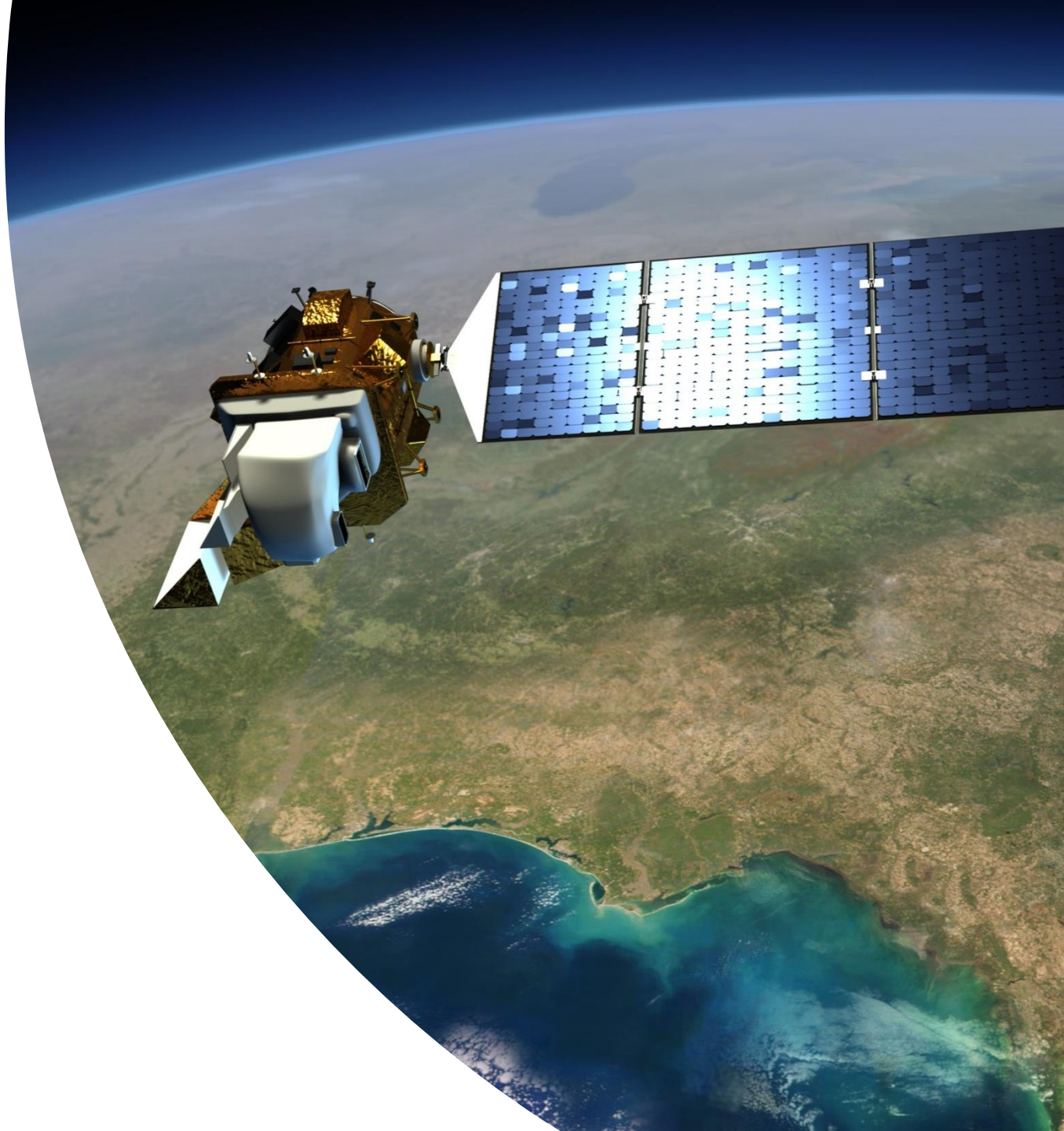
ÚSTAV GEOGRAFIE
Prírodovedecká fakulta UPJŠ v Košiciach

# Základy diaľkového prieskumu Zeme –

## cvičenia



Mgr. Katarína Onačillová, PhD.

# Základné info

Prednášky: doc. Mgr. Michal Gallay, PhD.

Cvičenia: Mgr. Katarína Onačillová, PhD.

Kontakt: katarina.onacillova@upjs.sk

13 týždňov → ± 13 cvičení

Povolená 2x absencia

Dáta ukladané na:

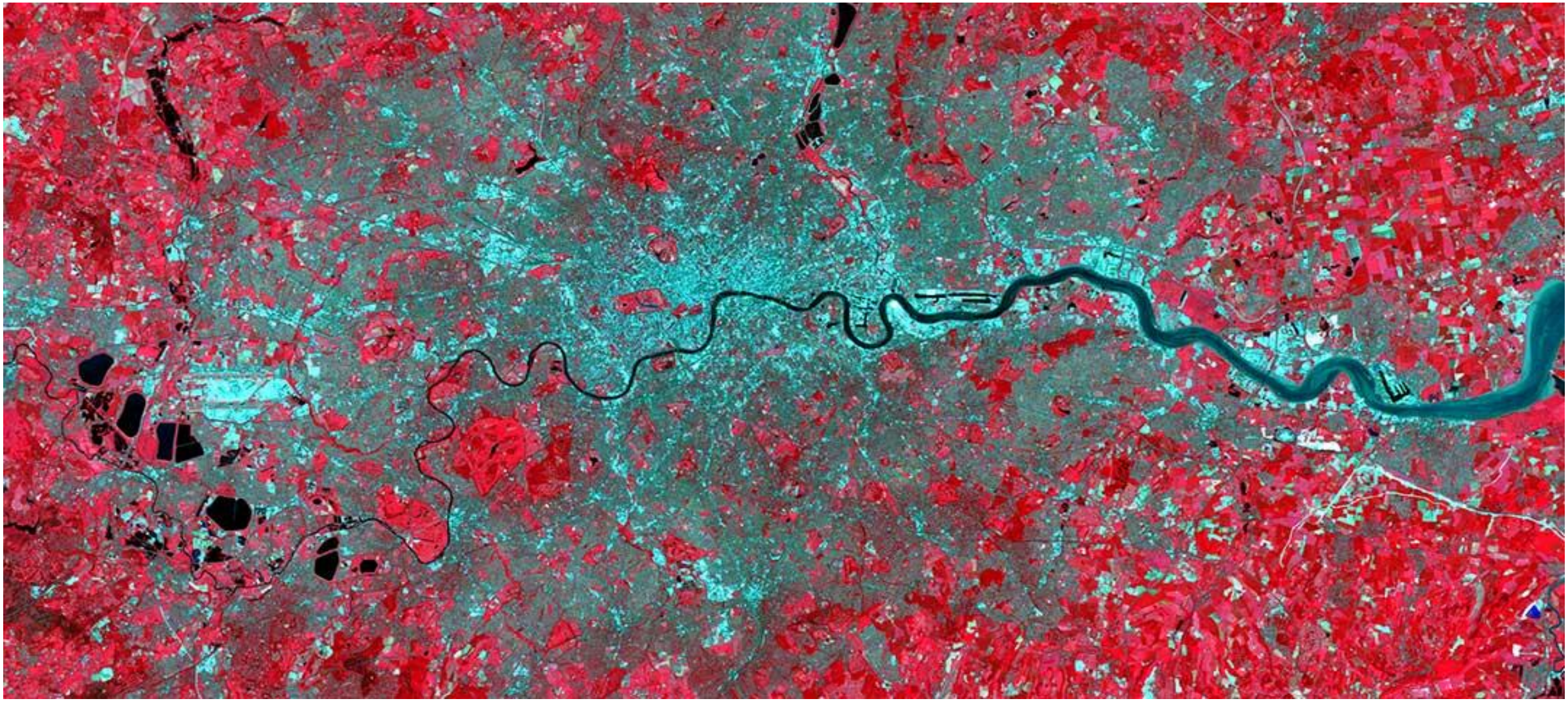
https://uge-share.science.upjs.sk/webshared/Vyucba/Zaklady_DPZ/

+ na MS Teams

# Podmienky na absolvovanie predmetu

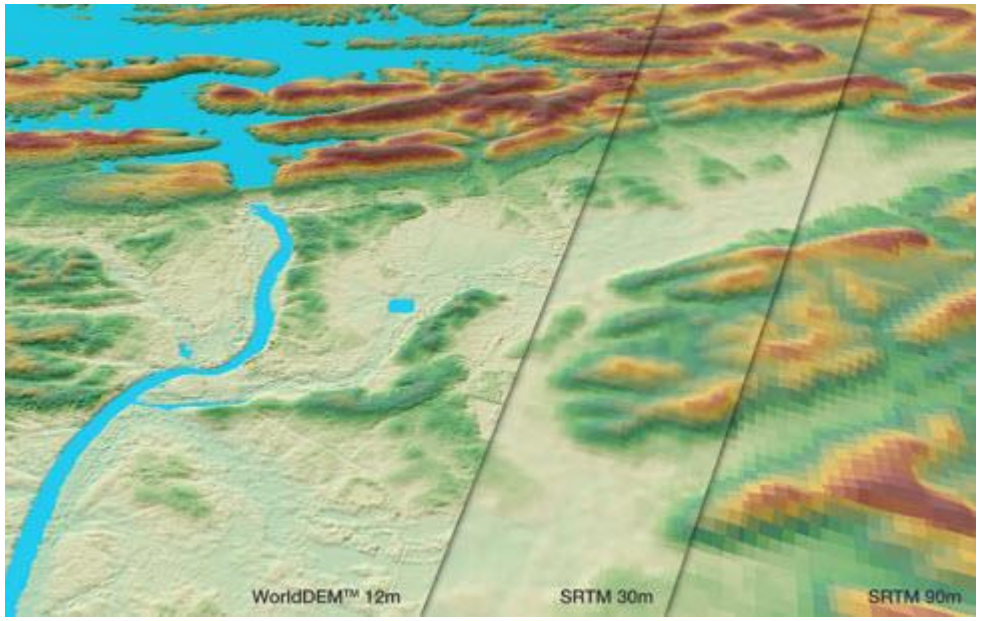
- 2x písomný test z prednášok (v polovici a na konci semestra)
- 1 semestrálna práca
- skúška v skúškovom období

*Na skúšku sa môže prihlásiť študent, ktorý v priebežnej kontrole (2 testy, 1 semestrálna práca) získal hodnotenie minimálne na úrovni známky E (min. 50 bodov zo 100).*



“Diaľkový prieskum Zeme je veda, technológia a umenie získavania informácií o objekte, území, jave na základe analýzy dát získaných zariadením, ktoré nie je v priamom fyzickom kontakte s týmto skúmaným objektom, územím alebo javom” Lillesand et al. (2007)

# Cv. 1. Zdroje DPZ údajov na webe a interpretácia metadát



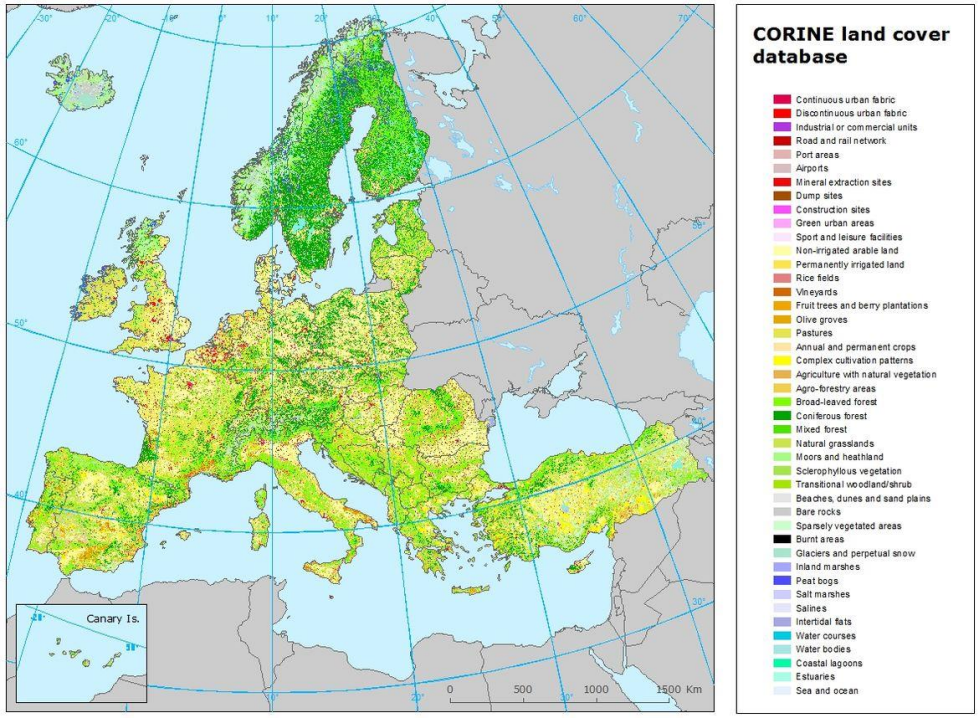

# Zdroje DPZ dát

## Earth Explorer (USGS)

https://earthexplorer.usgs.gov/

## Sentinel (ESA)

https://sentinels.copernicus.eu/web/sentinel/home




## WorldDem (Airbus Defence & Space)

http://www.intelligence-airbusds.com/worlddem/

## Corine Land Cover (Copernicus)

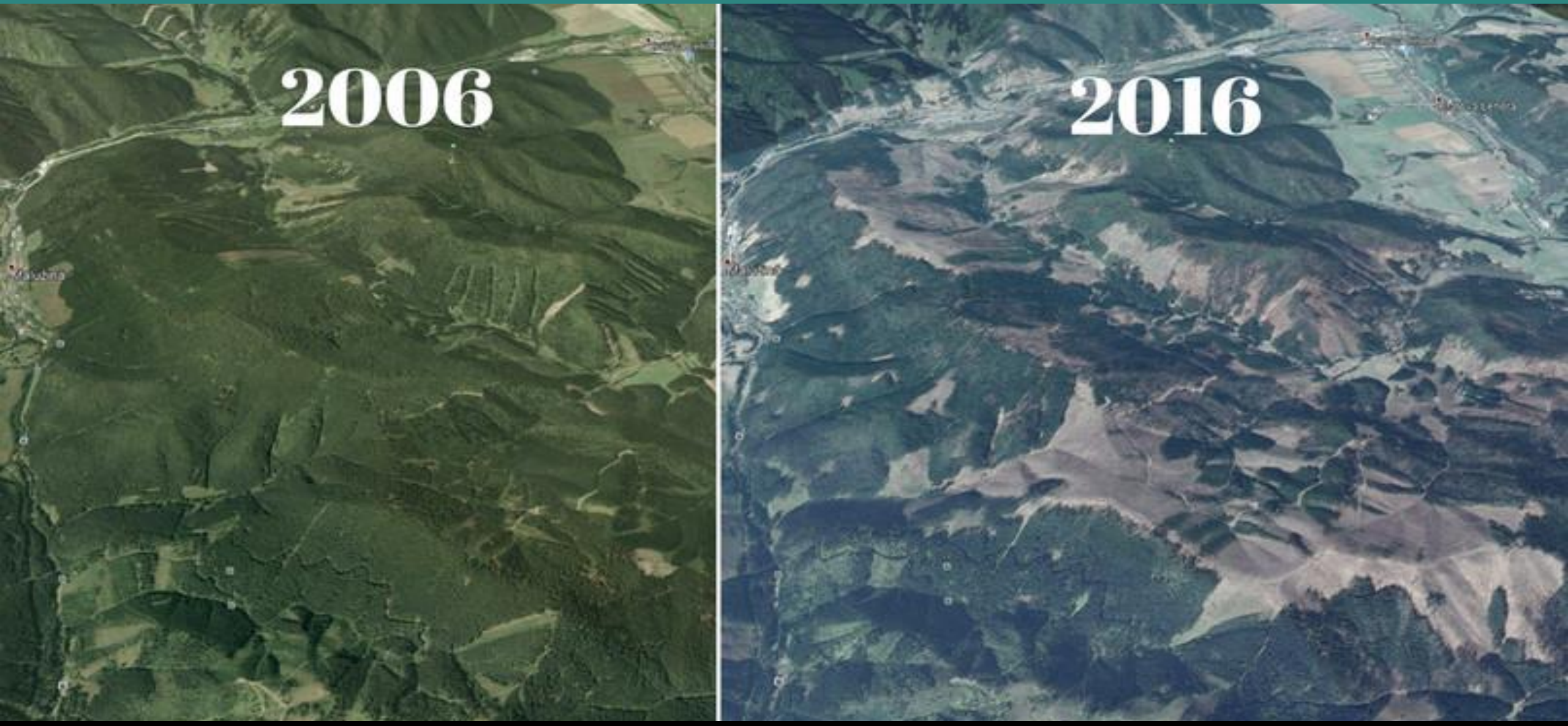
https://www.eea.europa.eu/publications/COR0-landcover

## Urban Atlas

http://land.copernicus.eu/local/urban-atlas

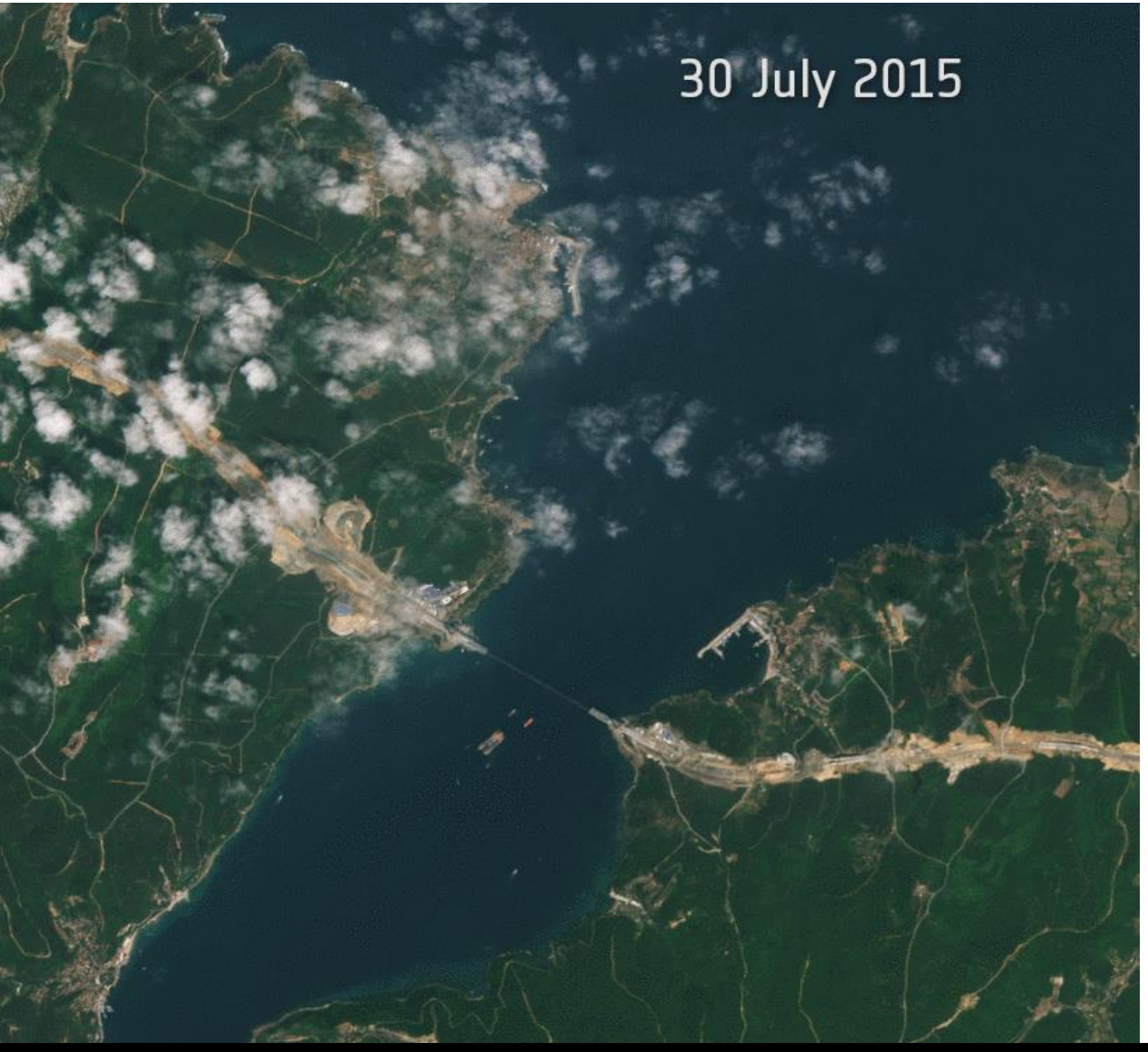
## Google Earth, Google Maps, súkromné spoločnosti...

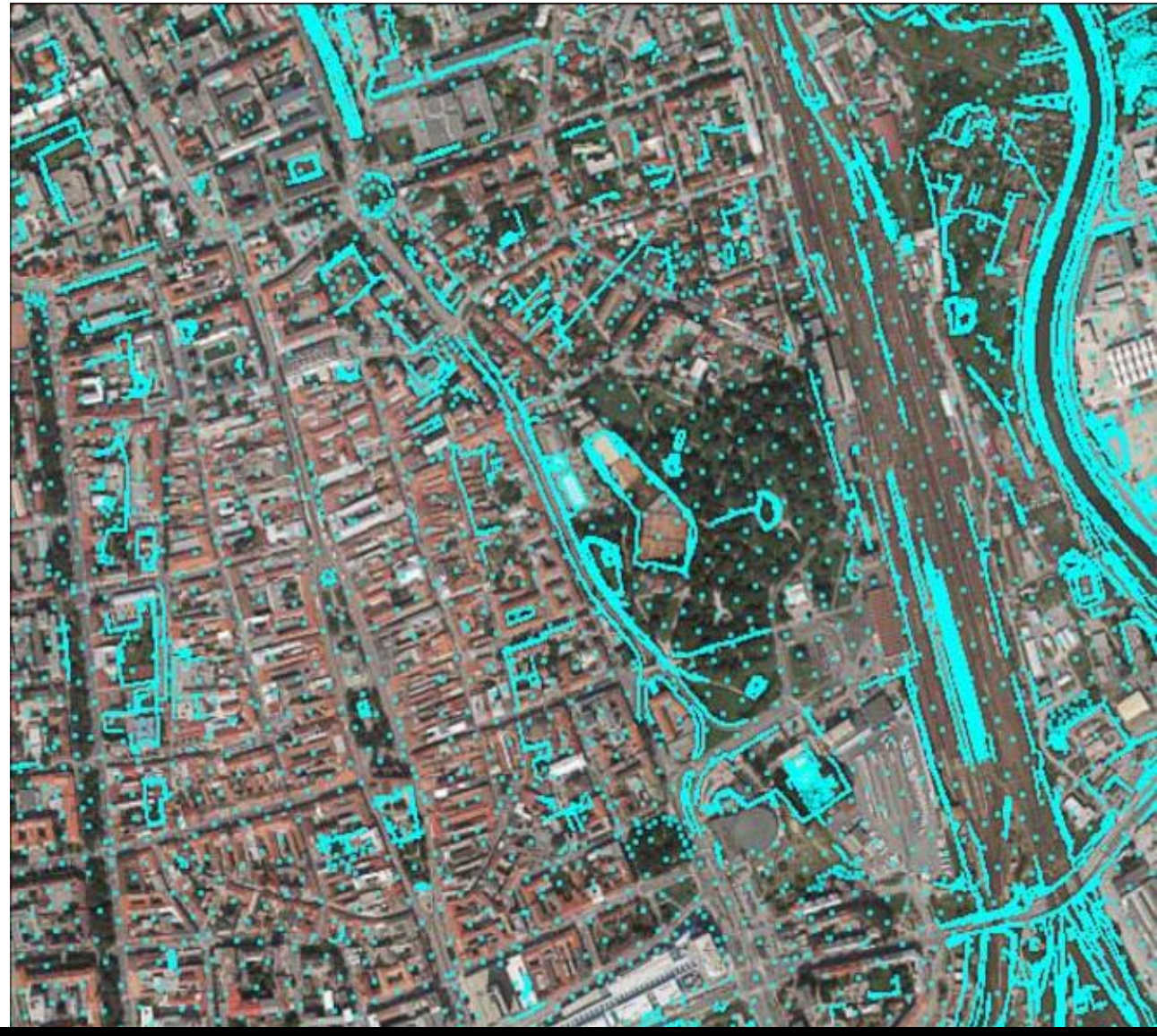
# ZMENY V KRAJINE




Rozdiel v zalesnení oblasti Malužiná (Nízke Tatry) medzi rokmi 2006 a 2016. Zdroj: Google Earth

# ÚZEMNÉ PLÁNOVANIE



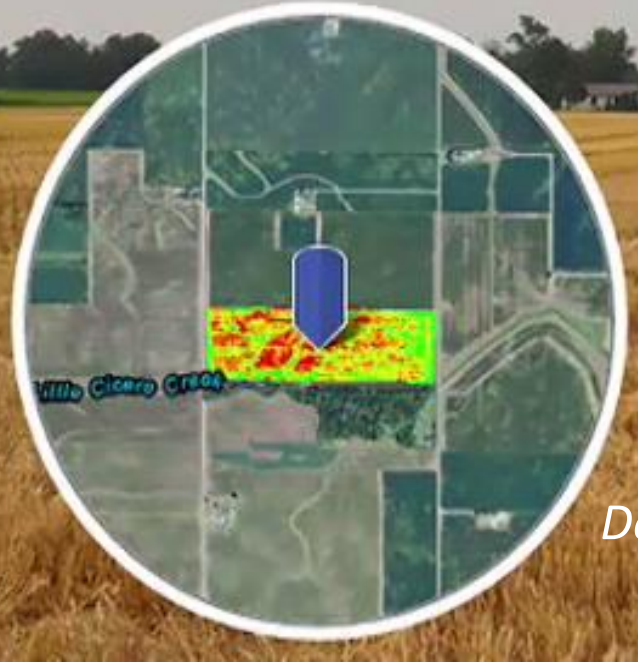



17 scén zo satelitu Sentinel-2A ukazuje ročný pokrok vo výstavbe 3. Bosporského mostu v Istanbule, Turecku. Zdoj: ESA

# POĽNOHOSPODÁRSTVO

*Využitie GIS, komplexných nástrojov pre analýzu, senzorov*

*Informácia v reálnom čase*



*Delenie polí na zóny*

# ŽIVELNÉ POHROMY- požiare

Animácia ukazuje požiar a jeho následky – zdevastovanú oblasť 35 km SV od Atén v Grécku.

Zdroj: ESA

# ŽIVELNÉ POHROMY- záplavy

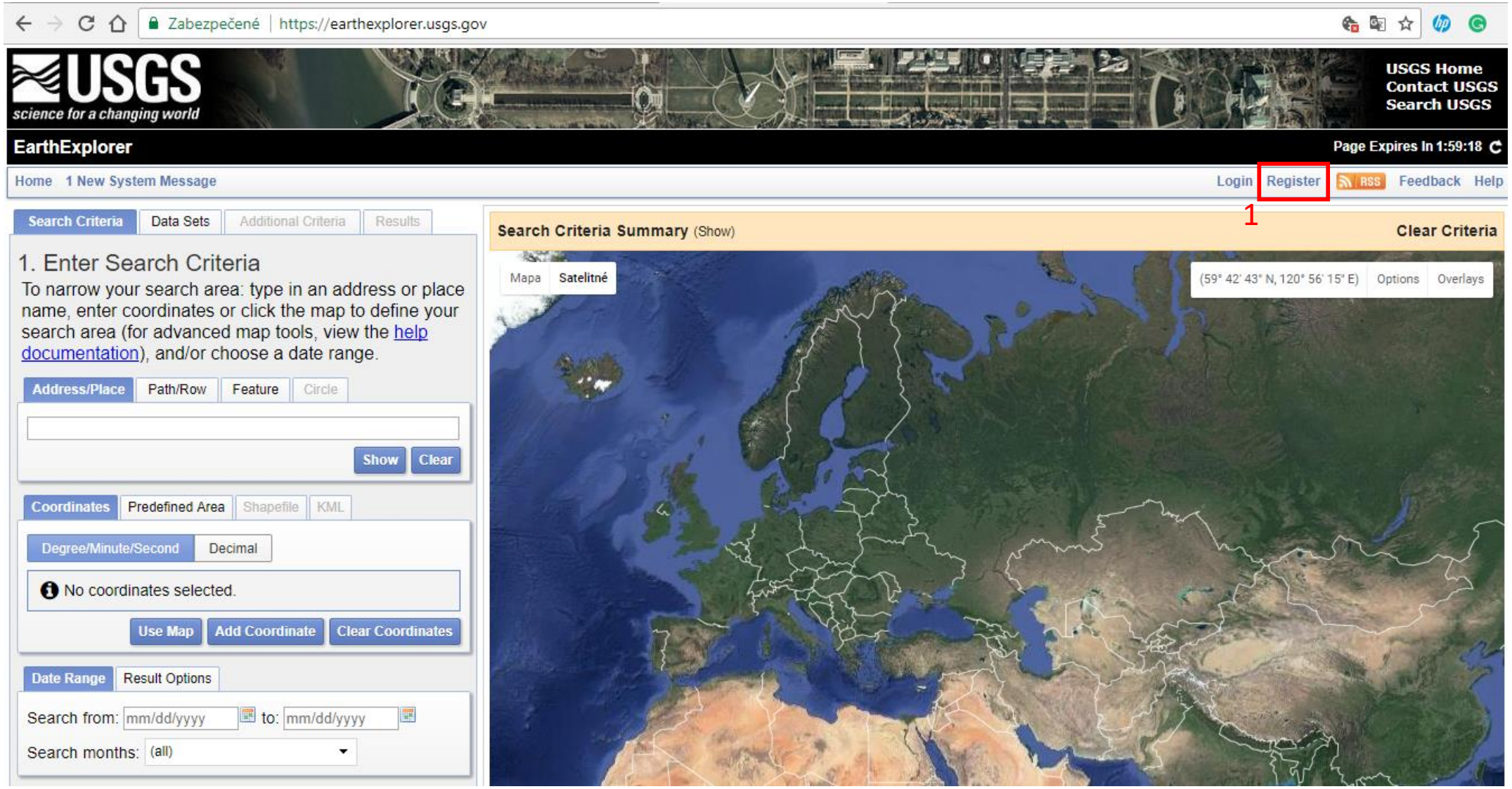
Záplavy v Indonézii.

Zdroj: ESA

1

# Earth Explorer
# – registrácia a stiahnutie datasetu

1.1 Registrácia na web stránke **Earth Explorer** http://earthexplorer.usgs.gov/ od Geologickej služby Spojených štátov (USGS) a prihlásenie sa.



2

# User Registration

User Credentials | Contact Demographic | Contact Information | Complete Registration

*Registration and login credentials are required to access all system features and download data from USGS EROS web services. To ensure privacy and security, ERS uses Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS) to encrypt user authentication.*

*To register, please create a username and password. The information gathered from the registration process is not distributed to other organizations and is only used to determine trends in data usage. Review USGS Privacy Policies.*

*The Cancel button can be used to exit the registration process at any time and information entered will be lost.*

**Username**

**New Password**

**Confirm New Password**

Type the text

Privacy & Terms

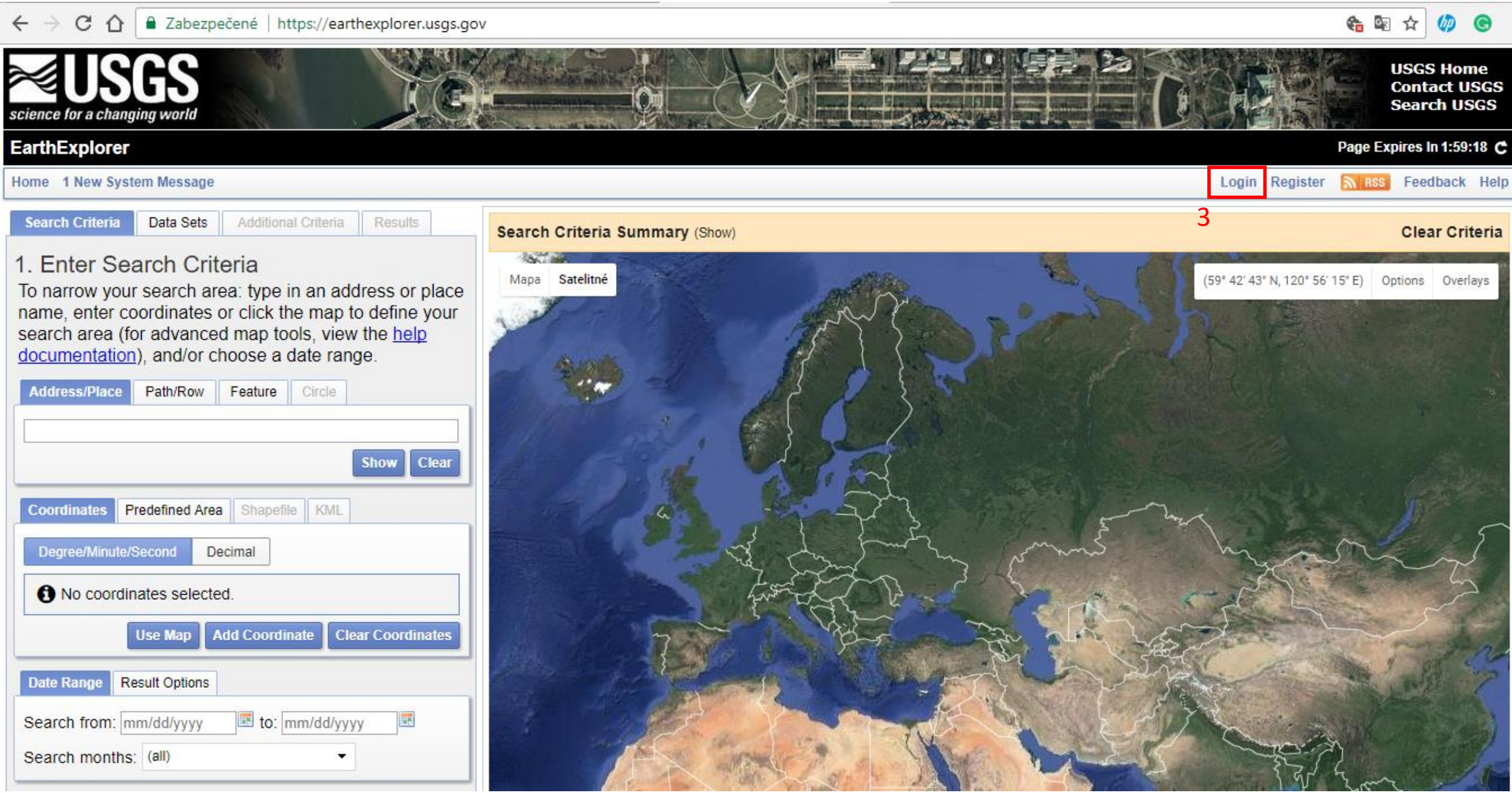
Continue

**Username Requirements**

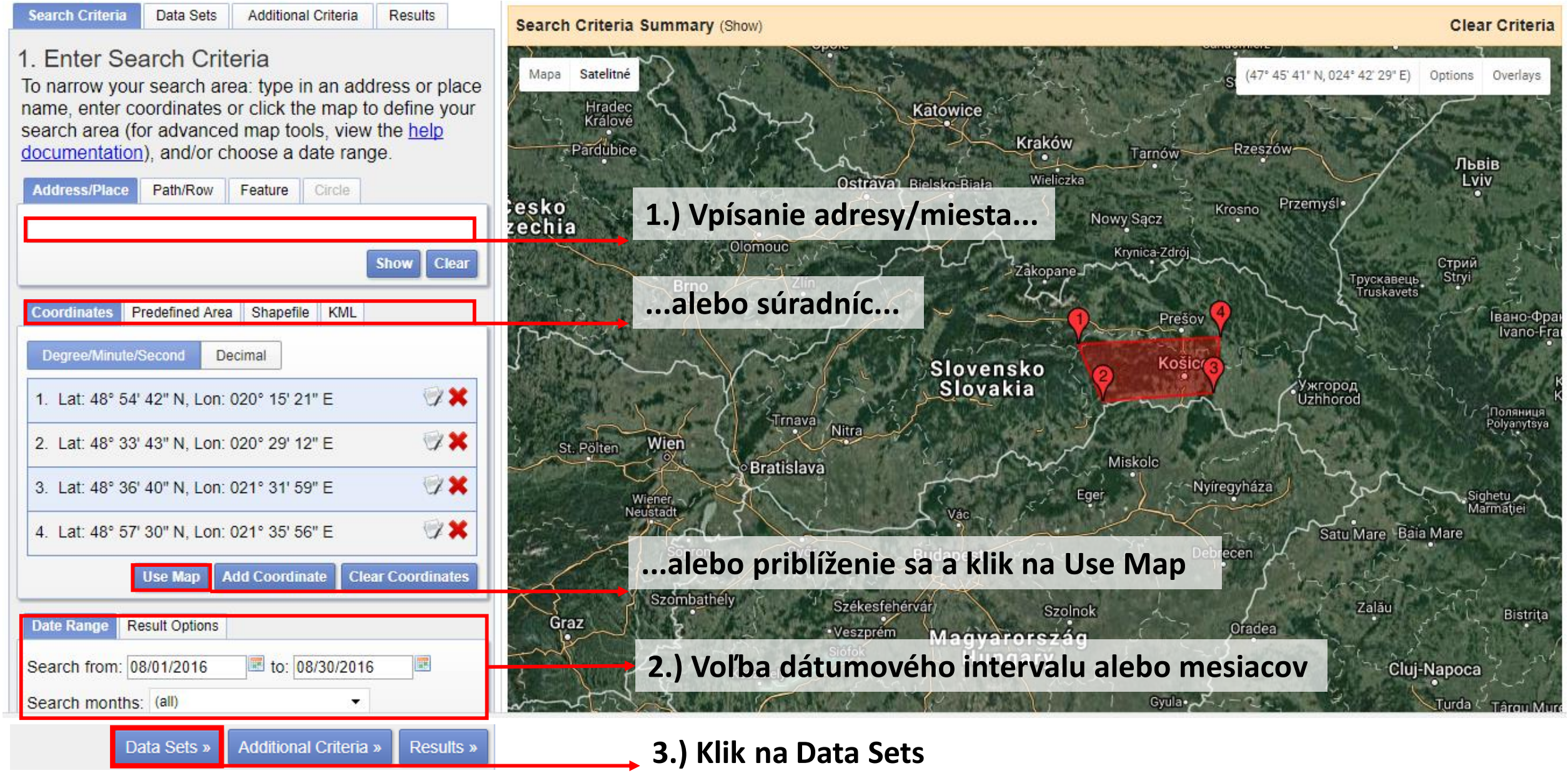
Must be between 4 and 30 characters
May contain alphabetic and numeric characters
May only contain the following special characters
- period "."
- at sign "@"
- underscore "_"
- dash "-"

**Password Requirements**

Must be between 8 and 16 characters
Must contain at least one alphabetic character
Must contain at least one numeric character
May only contain the following special characters
- comma ","
- hyphen "-"
- period "."
- pipe "|"
- pound "#"
- underscore "_"


Zabezpečené | https://earthexplorer.usgs.gov
USGS
science for a changing world
USGS Home
Contact USGS
Search USGS
EarthExplorer
Page Expires In 1:59:18
Home
1 New System Message
Login
Register
RSS
Feedback
Help
3
Search Criteria
Data Sets
Additional Criteria
Results
1. Enter Search Criteria
To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the help documentation), and/or choose a date range.
Address/Place
Path/Row
Feature
Circle
Show
Clear
Coordinates
Predefined Area
Shapefile
KML
Degree/Minute/Second
Decimal
No coordinates selected.
Use Map
Add Coordinate
Clear Coordinates
Date Range
Result Options
Search from: mm/dd/yyyy to: mm/dd/yyyy
Search months: (all)
Search Criteria Summary (Show)
Clear Criteria
Mapa
Satelitné
(59° 42' 43" N, 120° 56' 15" E)
Options
Overlays

# 1.2 Vyhraničenie záujmovej oblasti a zadanie požadovaného obdobia zhotovenia snímky.



# 1.3 Výber datasetu (datasetov) (napr. Landsat 8 OLI/TIRS, Landsat 7 ETM+, a pod.)

Search Criteria | Data Sets | Additional Criteria | Results

## 2. Select Your Data Set(s)

Check the boxes for the data set(s) you want to search. When done selecting data set(s), click the *Additional Criteria* or *Results* buttons below. Click the plus sign next to the category name to show a list of data sets.

Use Data Set Prefilter (What's This?)

Data Set Search:

- Global Fiducials
- Global Land Survey
- HCMM
- ISERV
- Land Cover
- Landsat Archive
  - Collection 1 Level-1
  - Pre-Collection Level-1
    - [x] L8 OLI/TIRS
    - [ ] L8 OLI/TIRS Pre-WRS-2
    - [x] L7 ETM+ SLC-off (2003-present)
    - [ ] L7 ETM+ SLC-on (1999-2003)
    - [ ] L4-5 TM
    - [ ] L1-5 MSS
  - Collection 1 Higher-Level (On-Demand)
- Landsat Legacy
- NASA LPDAAC Collections

Clear All Selected | Additional Criteria » | Results »

**Search Criteria Summary** (Show) — **Clear Criteria**

# 1.4 Výber prídavných kritérií

Search Criteria | Data Sets | **Additional Criteria** | Results

### 3. Additional Criteria (Optional)

If you have more than one data set selected, use the dropdown to select the additional criteria for each data sets.

Data Sets:
L8 OLI/TIRS ▾

**Cloud Cover**

All
Less than 10%
Less than 20%
Less than 30%
Less than 40%

**Výber parametrov (napr. oblačnosť menšia ako 10%)**

**Date L1 Generated (Ex. YYYY/MM/DD)**

to

**Day/Night Indicator**

All
Day
Night

**Výber indikátora (napr. snímka za deň/noc)**

**Nadir/Off Nadir**

All
Nadir
Off Nadir

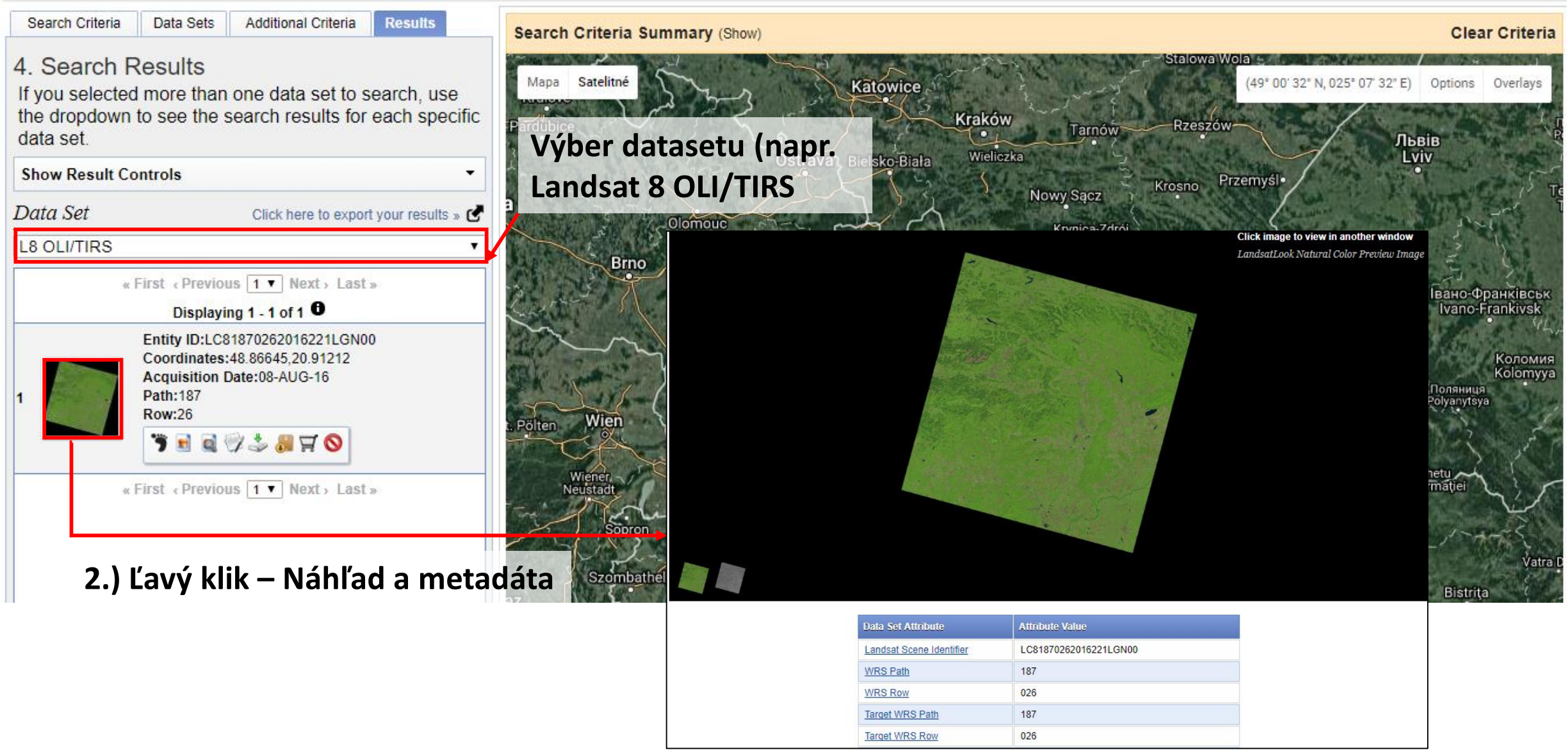
**Processing Software Version**

All
LPGS_2.5.1
LPGS_2.5.0
LPGS_2.4.0
LPGS_2.3.0

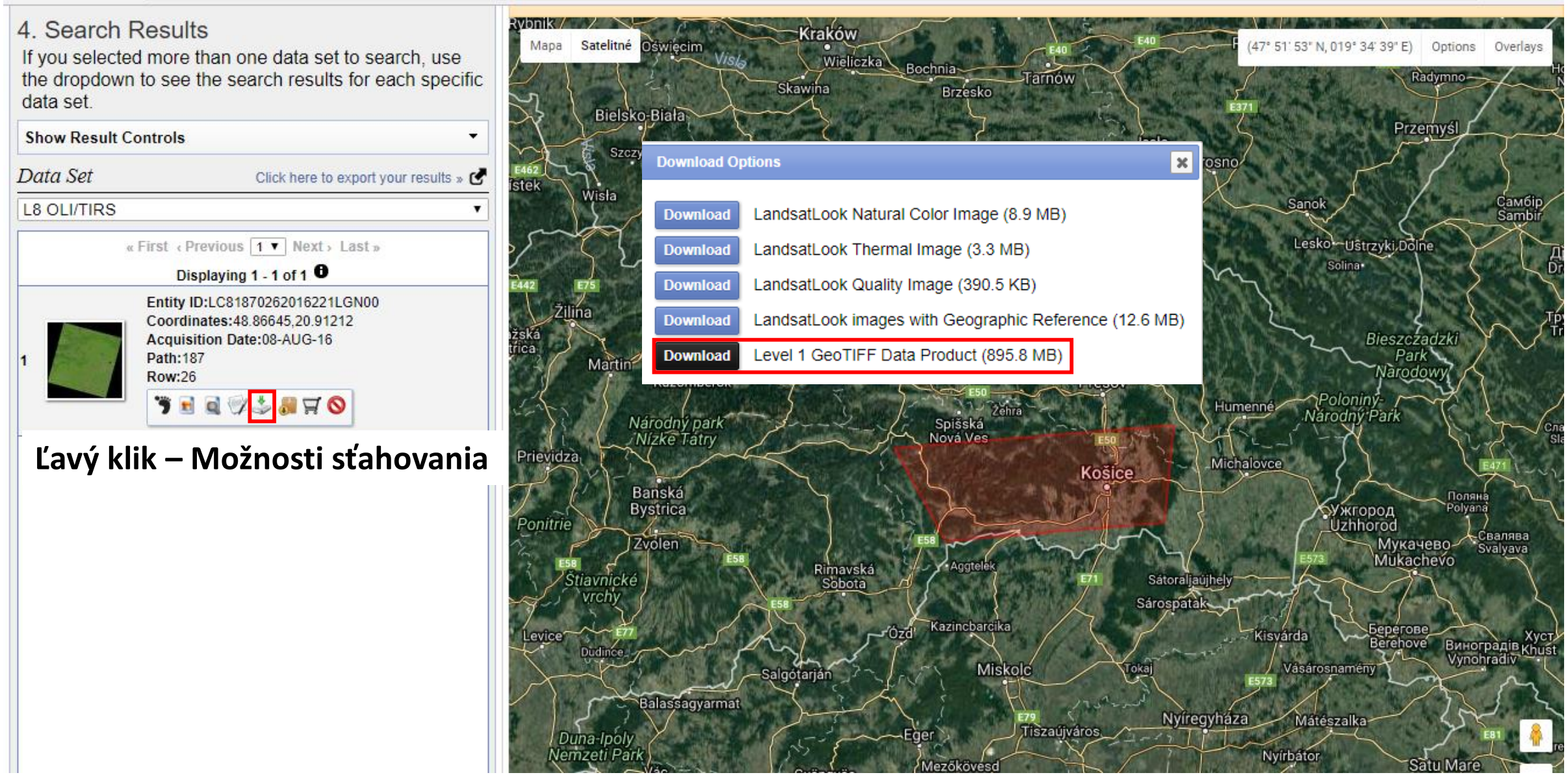
Clear All Criteria | Results »

**Search Criteria Summary** (Show) — **Clear Criteria**

# 1.5 Výsledky a výber datasetu na stiahnutie



# 1.6 Stiahnutie vybraného datasetu (napr. full dataset = Level 1 GeoTIFF Data Product)



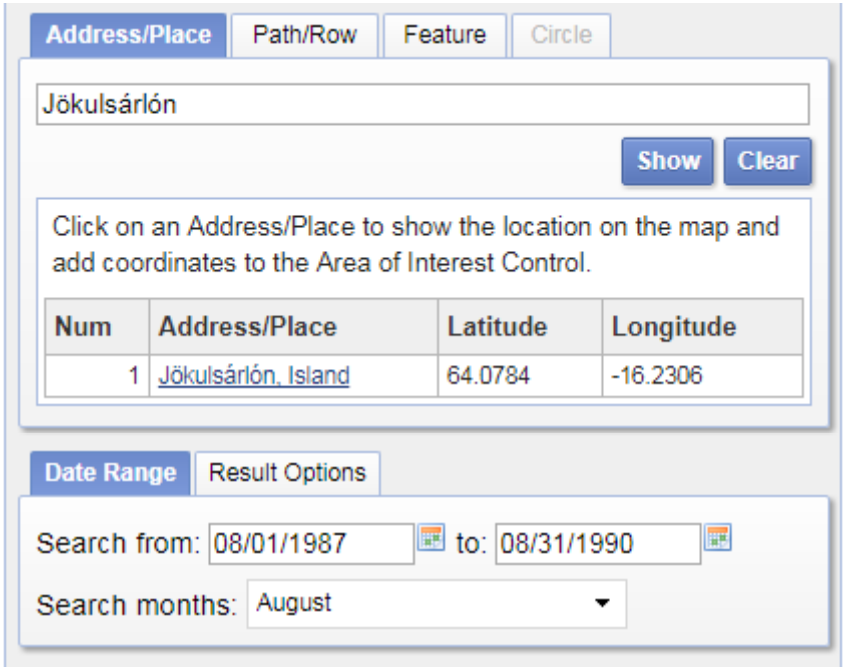

**Ľavý klik – Možnosti sťahovania**

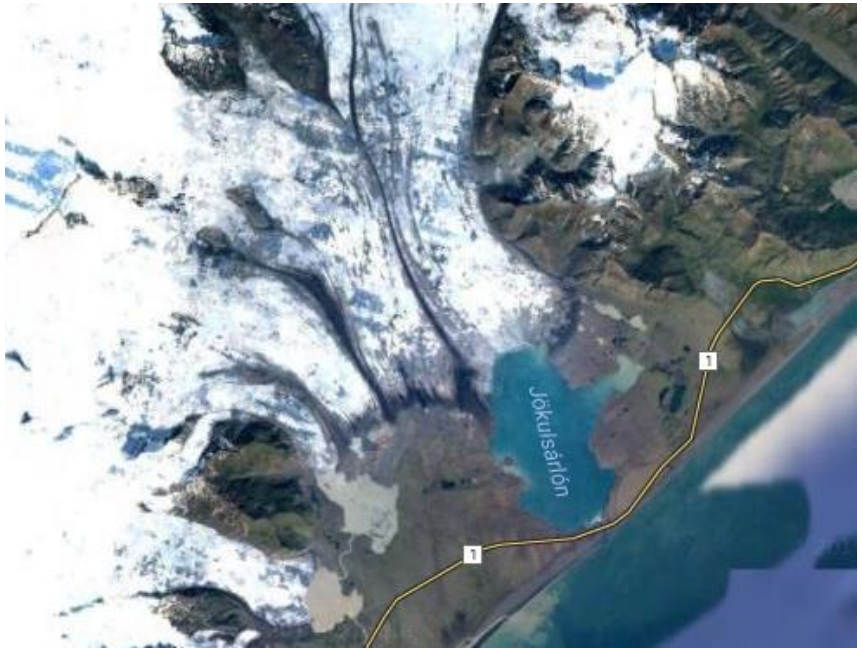
# Úloha – klimatické zmeny a ústup ľadovca

1. Vyhľadanie alebo zoom na “Jökulsárlón“ (ľadovcová lagúna, Island)
2. Stiahnutie 2 bezoblačných scén:
• 1 Súčasný dataset (napr. z roku 2021, kedy snímal Landsat 8)
• 1 Historický dataset (napr. z roku 1987, kedy snímal Landsat 4-5)

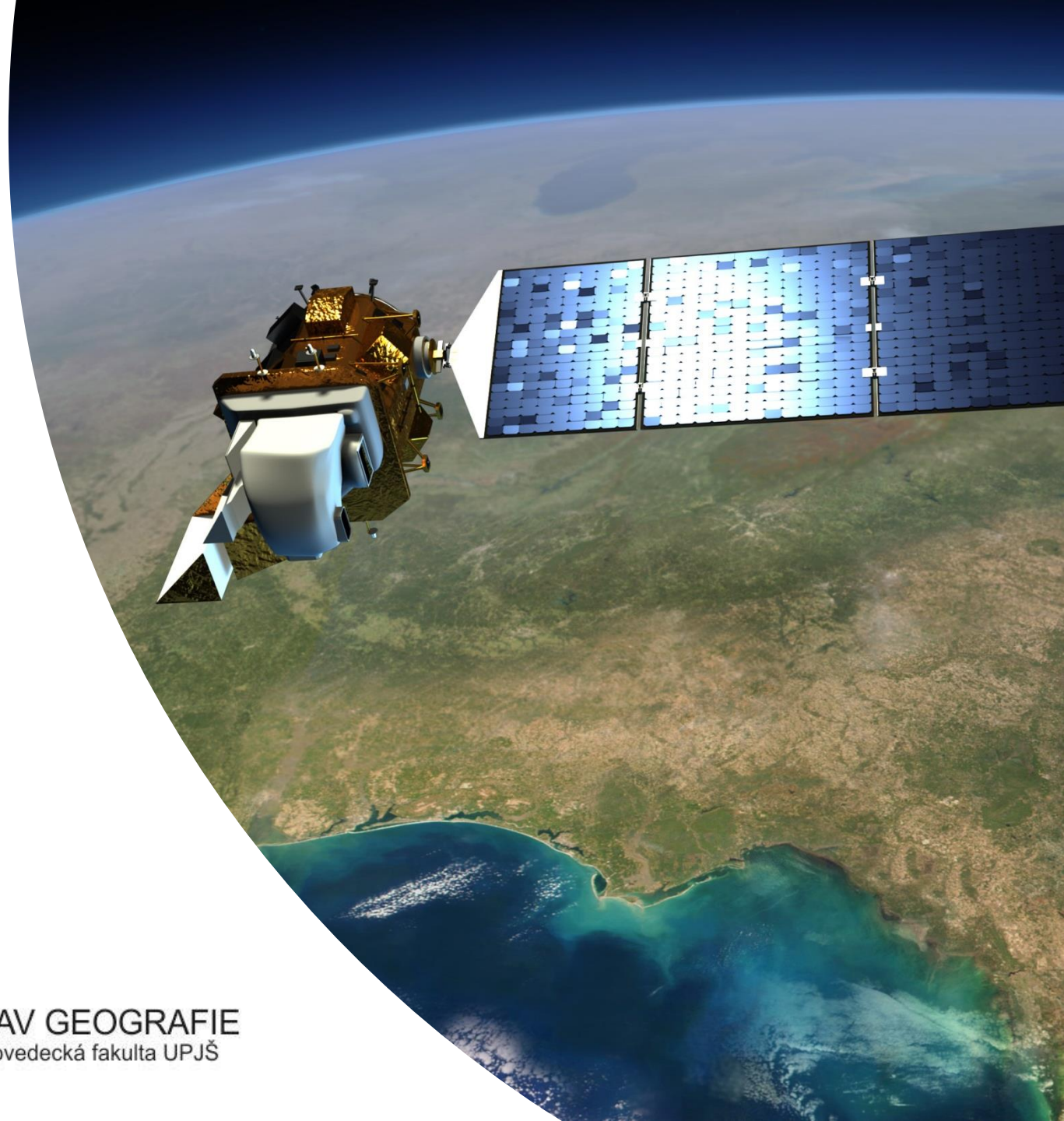
*Pozn.:*
• *Využitie „Prídavných kritérií” pre výber scén s malou oblačnosťou*
• *V „Data Sets“výber družice/satelitu Landsat misie (L8, L4-5) nájdete pod „Landsat – Landsat Collection 1 Level-1“*

3. Rozzipovanie stiahnutého súboru (cez 7zip, TotalCommander...), resp. skopírovanie potrebných .tif súborov do nového priečinka



# Ďakujem za pozornosť ☺



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