

# **EO4MULTIHAZARDS**

The Earth Observation for Multi-Hazard  
events database and portal

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29.04.25

# Project objectives

The **EO4MULTIHAZARDS** project is a **European Space Agency** funded project aiming to explore the EO technology potential to advance the scientific understanding of high impact multi-hazard events.

**Requirement:** events information

**Start Sept. 2023**

**End Sept. 2025**



# EO4MULTIHAZARDS Events Database portal - objectives

- Collect and harmonize Natural Hazard events information
- Link events to available EO datasets
- Support single events clusterization into multihazard events

**EO4MULTIHAZARDS Events Database beta version** Home Datasets GeoSt

**Eo4multihazard Event Maps**  
Overview map: It is visible in the home page or when clicking the "Reset" button, and it shows the number of events occurred in different European regions. The events are derived from Eo4multihazards database categorized by their types in that specific region.  
Events map: It is visible after using one of the filtering tools and it shows individual events at their locations with a link to their detail pages.  
Available Data Sources  
• The European Forest Fire

**Filtering Tools: Use it to query event records**

**Start Date** 01/01/2020 **End Date** 28/04/2025 **search** **reset**

**Select the Event Type**  
Drought  
Flash flood  
Heatwave  
Landslide

**Select the Event Country**  
Austria  
Belgium  
Bulgaria  
Cyprus

**Recorded Events**

|   | Event Type | Country | Location           | Id   | Date           |
|---|------------|---------|--------------------|------|----------------|
| ● | Wildfire   | RO      | Cri?an             | 6785 | April 16, 2025 |
| ● | Wildfire   | RO      | Tudor Vladimirescu | 6834 | April 16, 2025 |
| ● | Wildfire   | RO      | Cri?an             | 5916 | April 16, 2025 |
| ● | Wildfire   | FR      | Gosné              | 5662 | April 16, 2025 |
| ● | Wildfire   | RO      | Cri?an             | 6784 | April 16, 2025 |
| ● | Wildfire   | RO      | C.A. Rosetti       | 6274 | April 16, 2025 |

# **EO4MULTIHAZARD**

## **portal Graphical User Interface**



## Eo4multihazard Event Maps

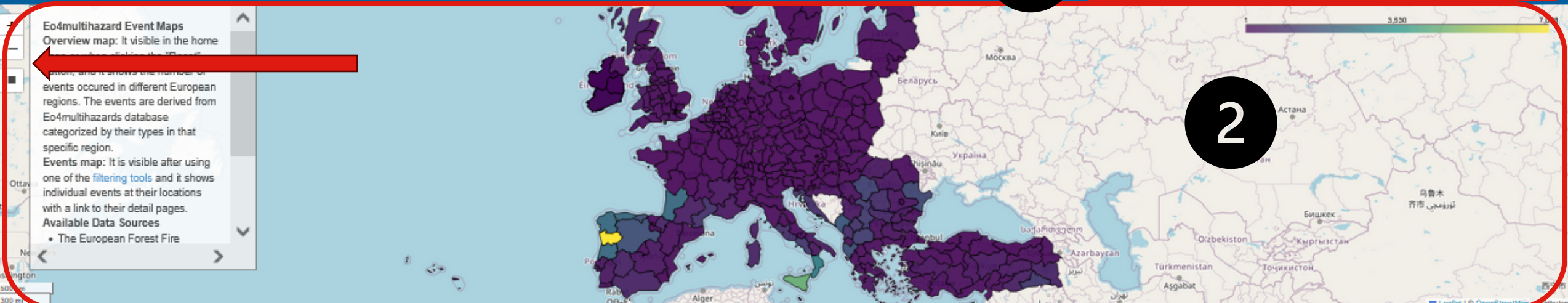
Overview map: It is visible in the home

page, and it shows the number of events occurred in different European regions. The events are derived from Eo4multihazards database categorized by their types in that specific region.

Events map: It is visible after using one of the [filtering tools](#) and it shows individual events at their locations with a link to their detail pages.

## Available Data Sources

- The European Forest Fire



## Filtering Tools: Use it to query event records ⓘ

## Start Date

01/01/2020

## End Date

28/04/2025

search

reset ⓘ

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## Select the Event Type ⓘ

Drought  
Flash flood  
Heatwave  
Landslide

## Select the Event Country ⓘ

Austria  
Belgium  
Bulgaria  
Cyprus

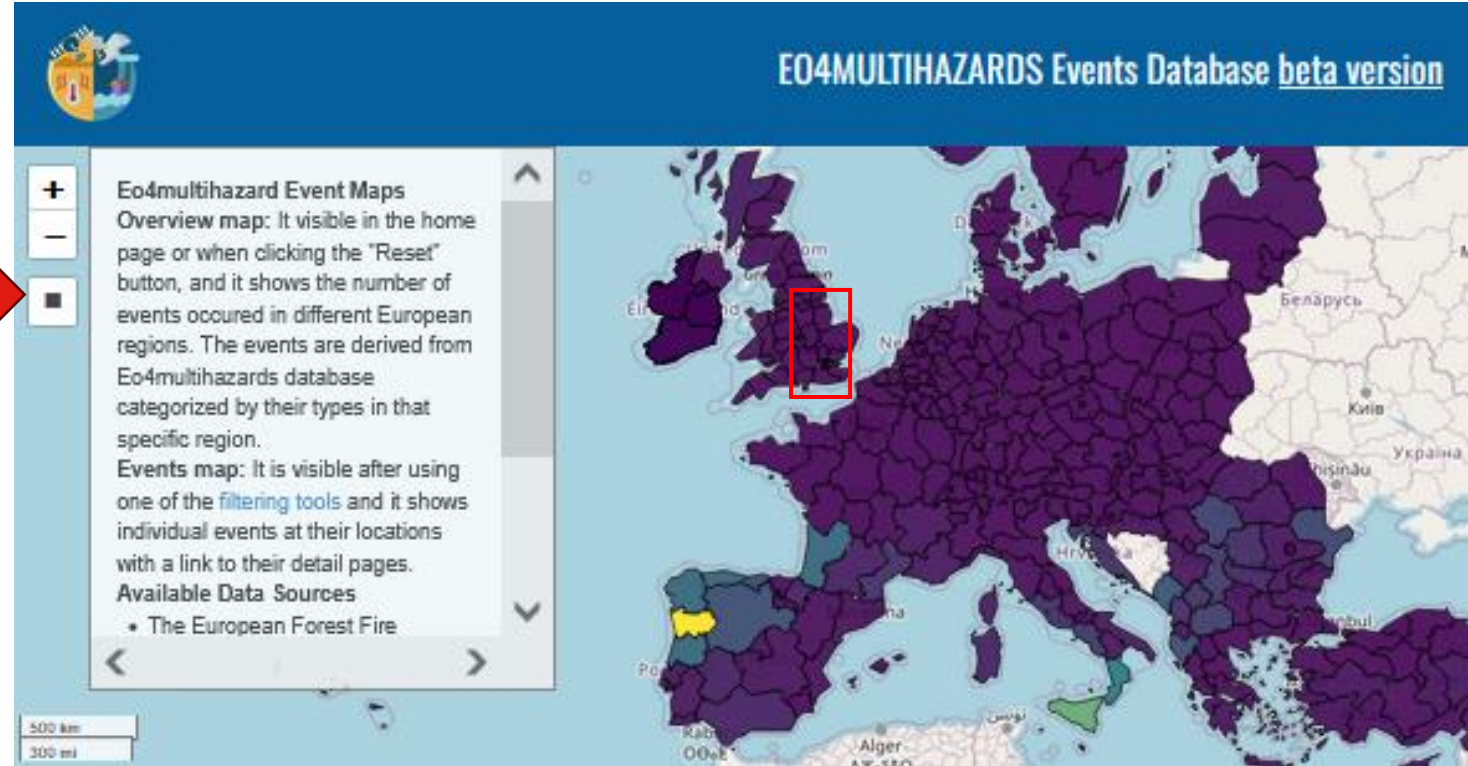
## Recorded Events

|   | Event Type | Country | Location           | Id   | Date           | Start          | End            | Provider |
|---|------------|---------|--------------------|------|----------------|----------------|----------------|----------|
| ● | Wildfire   | RO      | Cri?an             | 6785 | April 16, 2025 | April 16, 2025 | April 16, 2025 | EFFIS    |
| ● | Wildfire   | RO      | Tudor Vladimirescu | 6834 | April 16, 2025 | April 16, 2025 | April 16, 2025 | EFFIS    |
| ● | Wildfire   | RO      | Cri?an             | 5916 | April 16, 2025 | April 16, 2025 | April 16, 2025 | EFFIS    |
| ● | Wildfire   | FR      | Gosné              | 5662 | April 16, 2025 | April 16, 2025 | April 16, 2025 | EFFIS    |

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# Filtering tools

1. Select the area of interest using the selection tool on the map





## Filtering tools

1. Select the area of interest using the selection tool on the map
2. Refine the results using the other available filters
3. Click on the event of your interest

**Eo4multihazard Event Maps**

**Overview map:** It is visible in the home page or when clicking the "Reset" button, and it shows the number of events occurred in different European regions. The events are derived from Eo4multihazards database categorized by their types in that specific region.

**Events map:** It is visible after using one of the [filtering tools](#) and it shows individual events at their locations with a link to their detail pages.

**Available Data Sources**

- The European Forest Fire Information System (EFFIS)
- The International Disaster Database

**Filtering Tools: Use it to query event records ⓘ**

**Start Date**  
01/01/2020

**End Date**  
22/04/2025

**Select the Event Type ⓘ**

- Flash flood
- Tropical cyclone (cyclonic wind, rain [storm] surge)
- Wildfire
- Drought

**Select the Event Country ⓘ**

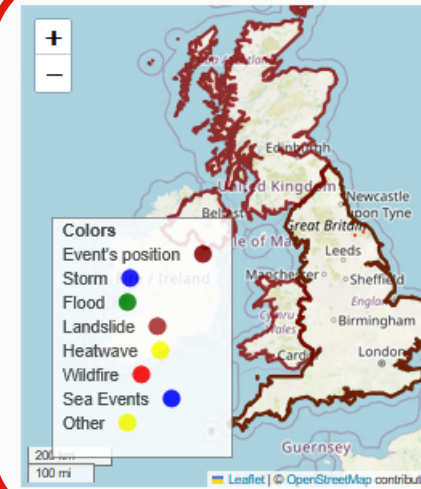
- Austria
- Belgium
- Bulgaria
- Cyprus

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**Event Information**

Hazard Name: Heatwave  
Id: 96610  
Insert Date: Dec. 4, 2020  
Start Date: Jan. 1, 2020  
End Date: Jan. 1, 2020  
Country: United Kingdom of Great Britain and Northern Ireland  
Location: 0  
Description:  
Hazard Cluster: Temperature-related  
Hazard Type: METEOROLOGICAL and HYDROLOGICAL  
Data Provider: EMDAT  
Reference Number: Reference Id

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**Filtering Tools**

Start Date: 01/10/2019 End Date: 01/01/2020 Radius (KM): 20 [Show Data](#) [download](#)

**Related Events**

| Id    | Event Type             | Start Date    | Provider |
|-------|------------------------|---------------|----------|
| 96587 | Surface water flooding | Nov. 7, 2019  | EMDAT    |
| 31498 | Wildfire               | Oct. 31, 2019 | EFFIS    |
| 34490 | Wildfire               | Oct. 31, 2019 | EFFIS    |

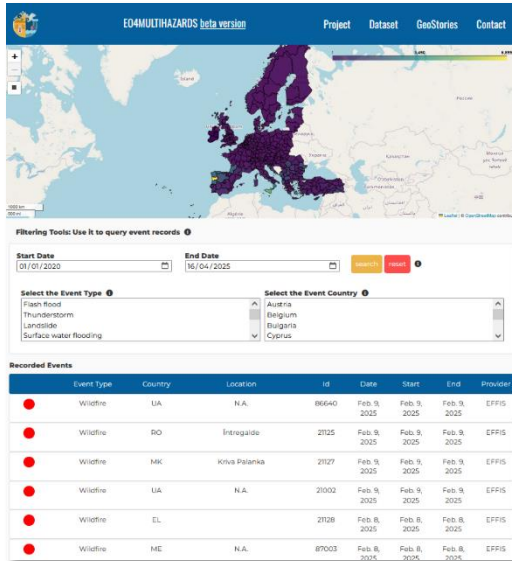
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**Related Datasets**

| Id | Title                                         | Link to dataset                                                                                                                                                             |
|----|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 | Land Surface Temperature                      | <a href="https://earthexplorer.usgs.gov">https://earthexplorer.usgs.gov</a>                                                                                                 |
| 11 | Land Surface Temperature                      | <a href="https://dataspace.copernicus.eu/browser/">https://dataspace.copernicus.eu/browser/</a>                                                                             |
| 9  | Land Surface Temperature                      | <a href="https://data.ceda.ac.uk/badc/ukmo-midas/data">https://data.ceda.ac.uk/badc/ukmo-midas/data</a>                                                                     |
| 30 | NDVI (Normalised Difference Vegetation Index) | <a href="https://earthexplorer.usgs.gov">https://earthexplorer.usgs.gov</a> or using Level 2 surface reflectance within Google Earth Engine                                 |
| 27 | Fire Burnt Area                               | <a href="https://land.copernicus.eu/en/products/vegetation/burnt-area-v3-1-monthly-300m">https://land.copernicus.eu/en/products/vegetation/burnt-area-v3-1-monthly-300m</a> |
|    |                                               | <a href="https://land.copernicus.vgt.vito.be/PDF/portal/">https://land.copernicus.vgt.vito.be/PDF/portal/</a>                                                               |

# EO4MULTIHAZARD platform components

# Portal components



**Graphical User Interface based on Django, bootstrap and PostgreSQL for simple data visualization**



**Relational DataBase Management System based on PostgreSQL**

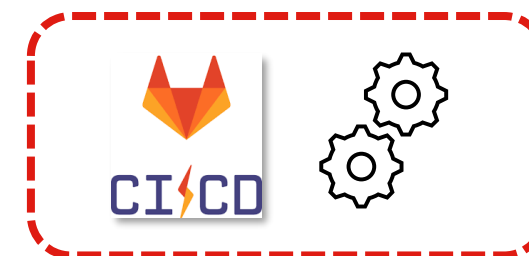
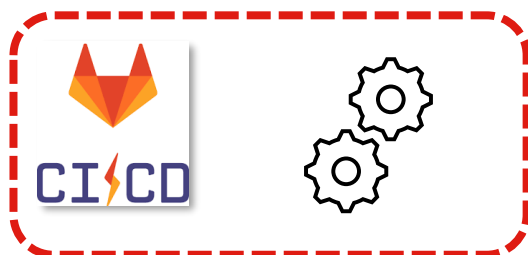
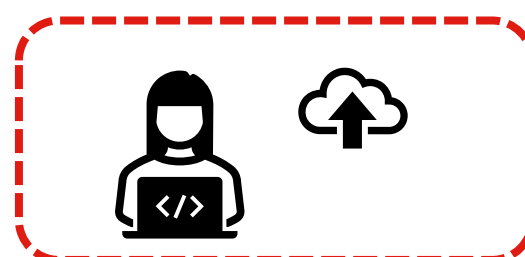
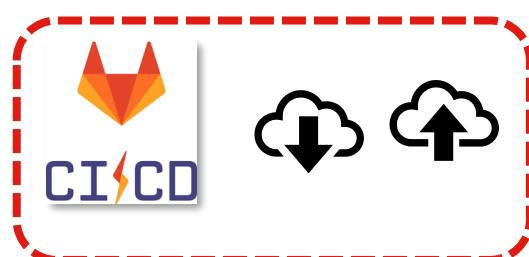
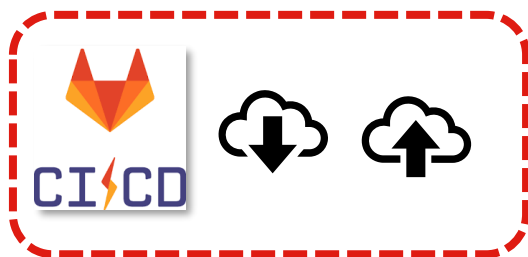
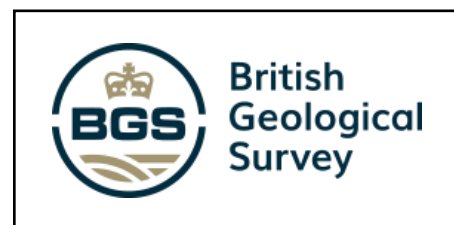


**Pipeline for DB update based on GitLab Continuous Integration and Continuous Delivery (CI/CD)**

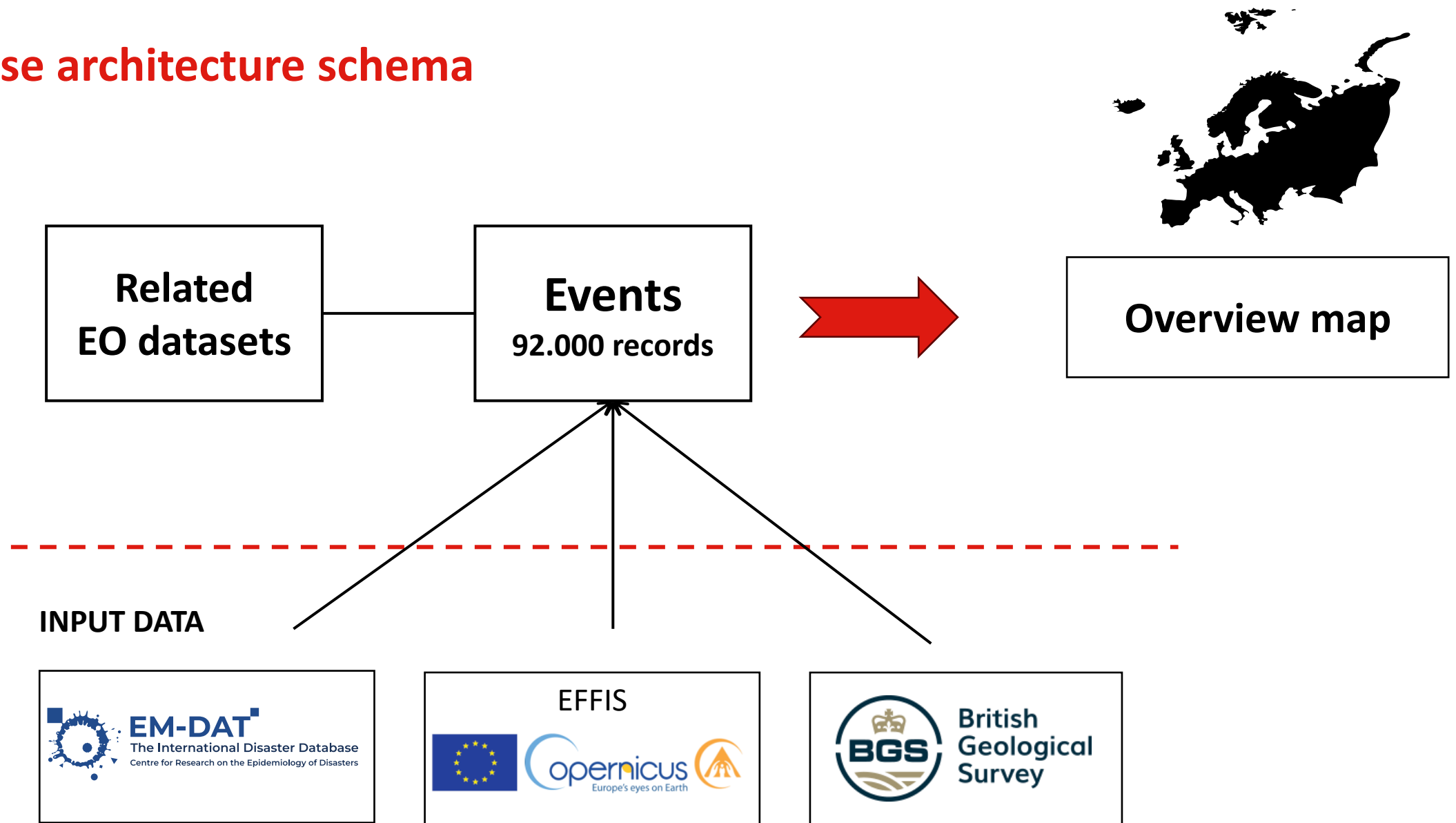
# EO4MULTIHAZARD Database

# Database pipelines

## INPUT DATA



# Database architecture schema



## Future of the portal

- Connect new event data sources
- Enhancement multi-hazard event clustering tool with specific algorithm



# Contact us

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