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# The Geographical Atlas of Natural Disasters in Slovenia

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**Abstract:**
The online Geographical Atlas of Natural Disasters in Slovenia (https://ganns.zrc-sazu.si; Figure 1) shows basic information on natural hazards and natural disasters in Slovenia. The core part of the atlas presents events of historical natural disasters (mostly after 1850) with data on the damage and casualties caused by natural disasters. These data are accompanied by hazard maps for several natural phenomena, such as avalanches, floods, landslides, earthquakes, and forest fires. The aim of the atlas is to inform the public about the types and frequency of natural disasters that have occurred in Slovenia. The atlas is an important learning tool about the natural disasters in a particular geographical region, both for permanent residents and visitors such as tourists and hikers. It is also useful for spatial management and raises general awareness on natural processes, phenomena and natural disasters.

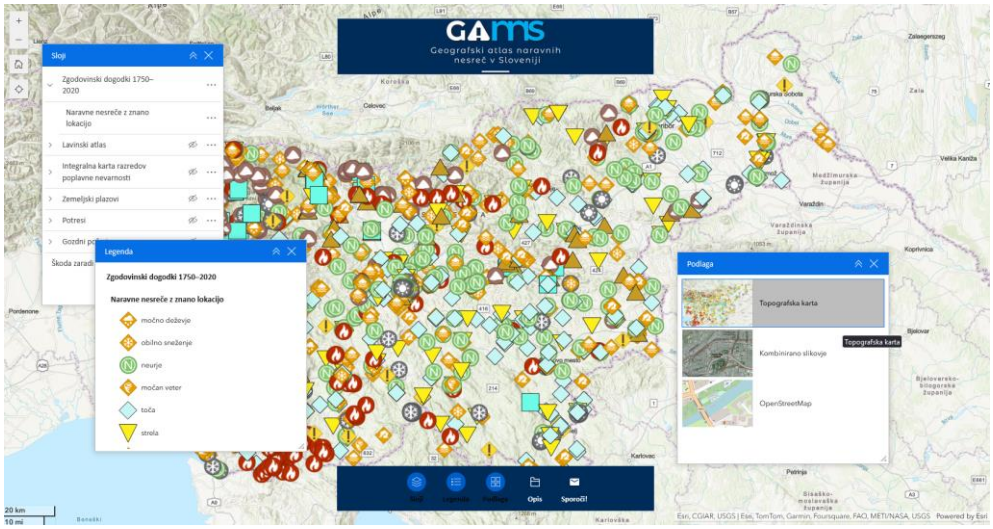


Figure 1: The user interface of Geographical Atlas of Natural Disasters in Slovenia web application. Application is prepared with Esri ArcGIS Online. Esri ArcGIS Online is the intellectual property of Esri. Copyright © Esri. All rights reserved.

The first foundations of the atlas were laid in the 1980s at the Anton Melik Geographical Institute of the Slovenian Academy of Sciences and Arts. During several research projects that were carried out in the last few decades and more intensively in the last few years, we have updated this material, digitised it and prepared it for publication in an online atlas that enables efficient browsing. The atlas has been available as a web application since November 2023. The data on natural disaster events were digitised and organized. Each event has its ID number, coordinates, date, location, category, number of casualties, source of information, and short description. The data on events were mostly obtained from the Digital Library of Slovenia (https://www.dlib.si), especially the articles from magazines *Delo*, *Dnevnik* and *Večer*, as well as older issues of *Slovenski narod* (1868–1943) and *Slovenec* (1873–1939). The database contains approximately 2,350 historical natural disasters or events in Slovenia, and the associated extreme weather and

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environmental conditions. The data include events since the fourteenth century, more frequently since 1750, and with more details for the last 150 years. The database is still being updated.

The events are divided into the following categories: storm, cold weather, flood, heavy rain, warm weather, heavy snowfall, hail, forest fire, earthquake, drought, avalanche, high wind, heat wave, lightning, landslide, blast, sea flood, desert sand, frost, hail, tornado, locust attack, blizzard, windstorm, debris flow and storm blast. We have not collected data on earthquakes, which are processed by the Slovenian Environment Agency.
Beside the collection of the events, there is also a set of layers of natural hazards included in the web application in order to raise awareness of the potential future events. The set includes: Locations of avalanches, Model of avalanche trigger areas, Avalanche thickness model, and Snowpack data (provided by the Slovenian Environment Agency), Flood hazard map (provided by the Water Directorate of the Republic of Slovenia), Landslide hazard, Earthquake locations and Seismic hazard (both provided by the Slovenian Environment Agency, Forest fires events and hazard map (both provided by the Slovenian Forest Service).

Since the atlas is still being updated with new sets of data, discussion on options for its improvement, especially representation of large natural disaster events, is needed.

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**Reference**

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