Extrém Időjárási Katalógus - A szélsőséges időjárási események és a helyben alkalmazható intézkedések, kapacitások és erőforrások újszerű kombinációja

Extreme Weather Catalogue - A novel combination of extreme weather events and locally applicable measures, capacities and resources

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Bevezetés

Az Extrém Időjárási Katalógus összeállítása az Interreg Central Europe LOCALIENCE projekt keretében megvalósuló fejlesztés. Az EWC a tipikus szélsőséges időjárási események és a kapcsolódó intézkedések és erőforrások katalógusa a szélsőséges időjárási események és a helyben alkalmazható intézkedések, kapacitások és erőforrások kombinációja, amely lehetővé teszi a kritériumspecifikus és korrelációs elemzést, és amelyet a projektpartnerek rögzítenek és karbantartanak. Az EWC-t, annak érdekében, hogy megfeleljen a kiírásnak, online weblapos formában készítettük el. Az EWC-ben tárolt adatok körét kettő nagyobb csoportra bonthatjuk. Az egyik az alapadatok, a másik a meteorológiai események és a katasztrófavédelmi beavatkozások adatai.

Introduction

The Extreme Weather Catalogue is a development of the Interreg Central Europe LOCALIENCE project. The EWC is a catalogue of typical extreme weather events and related measures and resources, a combination of extreme weather events and locally applicable measures, capacities and resources, which allows for a criteria-specific and correlation analysis, and which is recorded and maintained by the project partners. In order to comply with the requirements of the tender, the EWC has been prepared in an online web-based format. The range of data stored in the EWC can be categorised into two major groups. One is the basic data and the other is the data on meteorological events and disaster management interventions.

Kulcsszavak: Katasztrófavédelem, extrém időjárás, beavatkozás, nemzetközi együttműködés, fejlesztés, képzés, kutatás, projektek

Keywords: Disaster management, extreme weather, intervention, international cooperation, development, training, research, projects

1. Introduction

The Interreg Central Europe programme (hereafter: the Programme) is a European Union programme that promotes cooperation between public institutions, private companies and civil society organisations throughout Central Europe. Our project under the Programme, LOCALIENCE = LOCAL + RESILIENCE, aims to improve the response capacity and resilience to extreme weather events in the region, improve cooperation between disaster management, water management, fire and rescue actors, and strengthen links with non-professional civil society and civil society actors at local level.

1. picture: Summarized data of the project

One of the most important tasks within the project is the compilation of an Extreme Weather Catalogue (hereafter: EWC). The EWC is a database that is a catalogue of typical extreme weather events and associated measures and resources, a combination of extreme weather events and locally applicable measures, capacities and resources, which allows for criterion-specific and correlation analysis, and which is recorded and maintained by the project partners. In order to comply with the terms of reference, the EWC has been prepared in the form of an online website (website address: https://localience.eu/), which also includes an introduction to the five participating countries and the participating organisations.

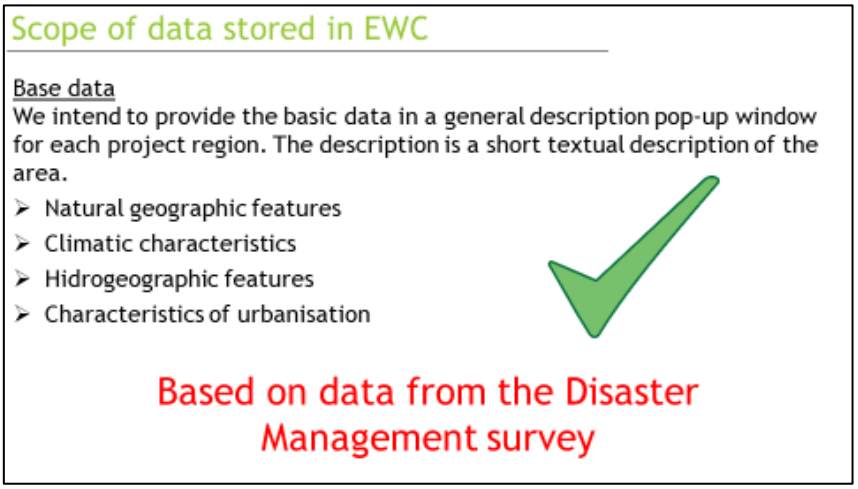
2. picture: Website of the project

2. Principles, scope of data

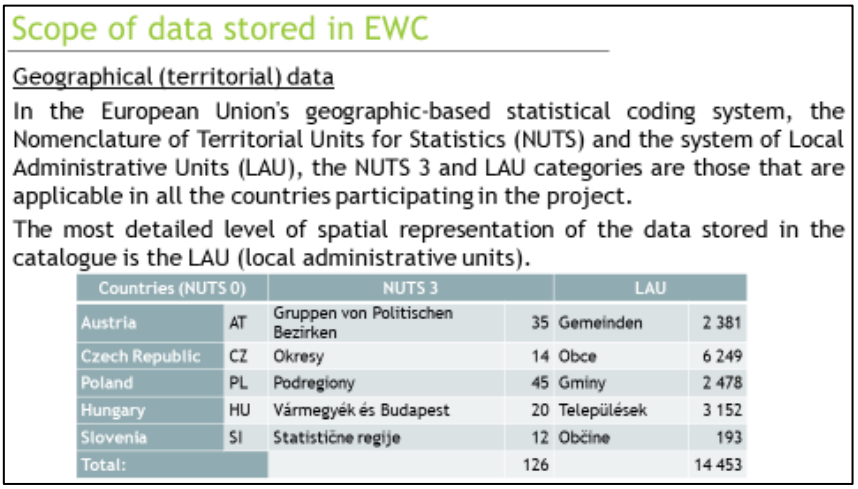
During the design process, we decided to create a stand-alone website, independent of the official websites of the disaster management agencies and organisations of the countries participating in

the project, offering more options in terms of appearance, access management and data storage without the constraints of other official websites. The data stored on the website in a database running in the background will be displayed in a map interface, allowing their spatial analysis, complemented by basic geographic information system (GIS) functions (search, length and area measurement, attribute query, editing, visibility on/off, coordinate transformation, time series management, etc.). The EWC is an interactive system in terms of its basic purpose and therefore its structure and use, where the number of tasks is difficult to define, new tasks can be added at virtually any time and the system must support them. Another important aspect is that EWC should be browser neutral, taking into account international use. The primary language of the website is English, but with the availability of dynamic translation services, full translation into the partner country's language (Hungarian, Polish, Czech, German, Slovenian) should be ensured.

Data stored int he EWC can be categorised into two major groups. First major group consists the baseline data, such as geographical, climatic, hydrological characteristics, urbanisational data.

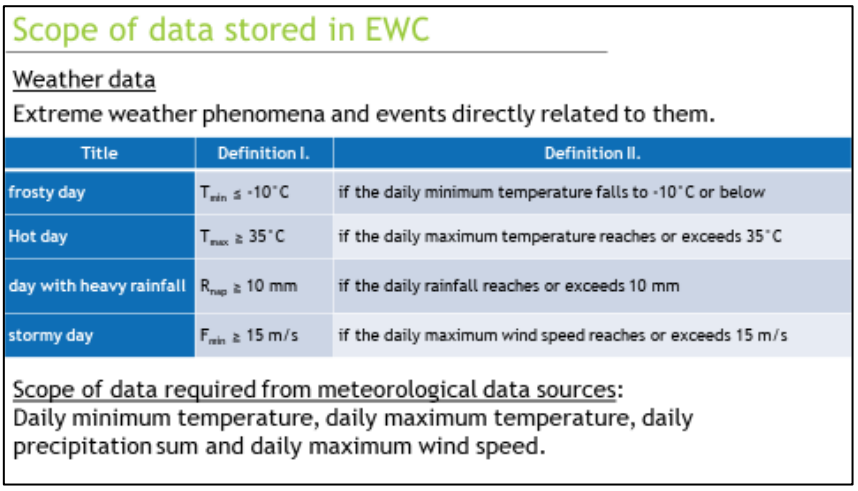


3. picture: Baseline data



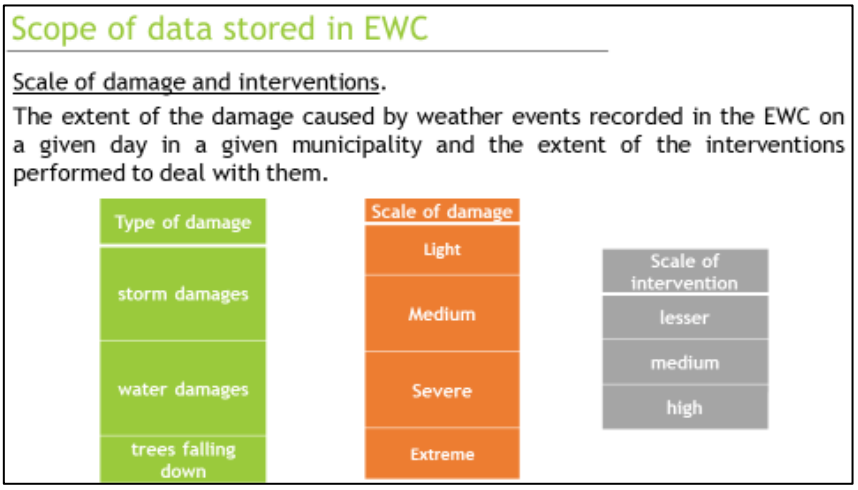
4. picture: Geographical data

The second major group is made up from the meteorological data and the disaster management interventions. Meteorological data, such as extreme temperatures, extreme heat and cold, intense rainfall and floods, extreme precipitation or lack of precipitation, windstorms, storms and winds, water level rises, thunderstorms and hail, droughts, water shortages.

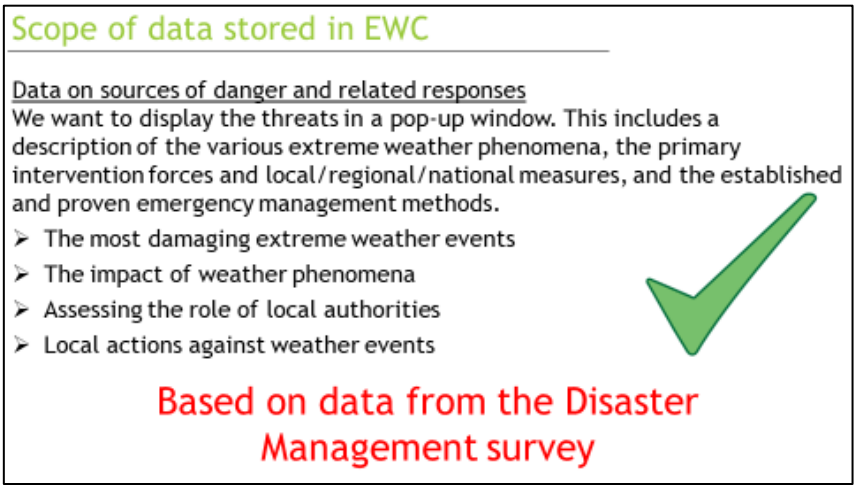


5. picture: Meteorological data

Disaster management intervention data: events, where any level of disaster management intervention took place, including professional, civil, voluntary and public administration bodies.



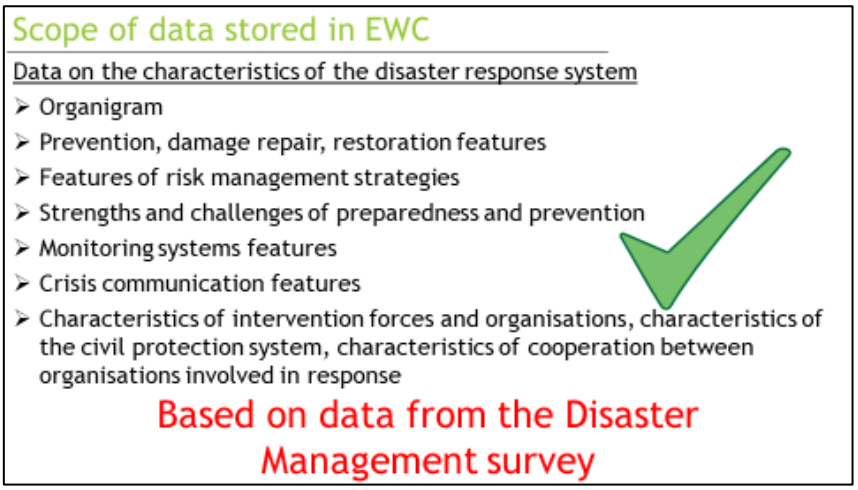
6. picture: Categorisation of interventions



7. picture: Intervention data

Only data related to extreme weather will be included in the EWC, but as an additional development option, we have also made it possible to prepare the upload of other identified risks and damage events.

The name of the disaster that has occurred, the extent of the disaster, a description of the disaster, 1-5 photos or short videos of the event should be included. In addition, it should be possible to include external links (additional videos, analyses, articles, etc.).



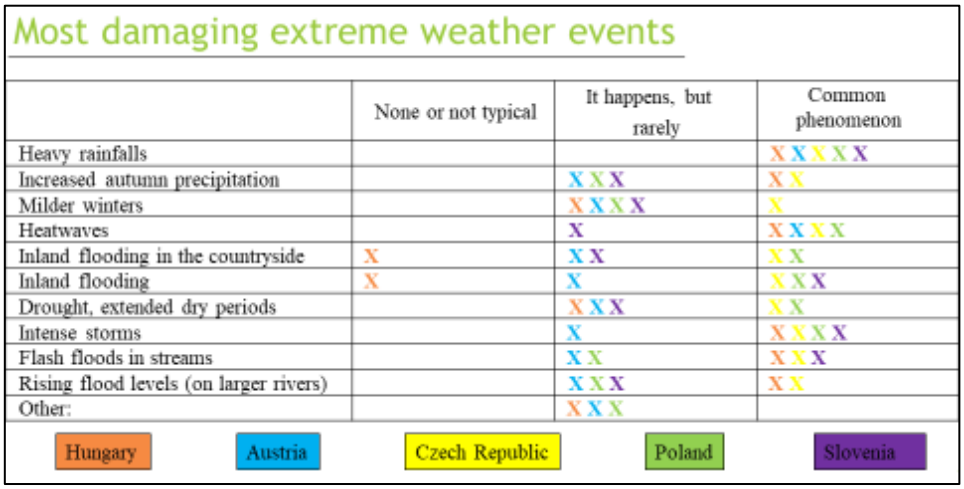
8. picture: Data of disaster management systems

When developing the catalogue, it is a requirement that interconnectivity, automatic data exchange and interoperability with the systems operated by the National Directorate General for Disaster Management of the Ministry of the Interior are ensured. The catalogue records extreme weather events from 1 January 2012. When using the analysis and query functions, the user can switch on and off the visibility of the layers to be displayed and set the parameters to be retrieved from the database. The web page shall also support basic geographic information operations.

The database should show whether extreme weather events caused damage in a given municipality on a given day, and if so, categorisation of the damage is available. Interventions to repair or mitigate the damage that occurred can also be recorded here. The categories have been defined so that they are clearly identifiable for all the organisations involved in the project.

3. Display, data protection

The catalogue deals exclusively with extreme weather phenomena and events directly related to them. Using the Hungarian grouping categories, the typical disaster risk associated with extreme weather events must be assessed for each municipality in each country involved.



9. picture: Extreme weather phenomena int he region

The map displayed on the website should provide, as a basic information, for each municipality, not only the vulnerability but also the most important characteristics of the municipality (e.g. population, short geographical description, etc.).

The finest spatial level of representation of the data stored in the catalogue is the LAU (local administrative units) (formerly NUTS 5), i.e. the settlement level for Hungary. Data with a finer spatial resolution than this (at the level of a municipality subdivision, possibly street or house number) is presented as a long-term development objective. The 3 NUTS and LAU categories in the European Union's geographic-based statistical coding system, the Nomenclature of Territorial Units for Statistics (NUTS) and the Local Administrative Units (LAU) system are those that are meaningful in all the countries participating in the project. The source of the map data used in the EWC is the Eurostat website.

10. picture: Administrative units used in the EWC

The EWC destkop was built using the open source, free-to-use QGIS software version 3.28 "Firenze" to perform operations and analyses with the data stored in it. For data storage and exchange, the use of ESRI shape (*.shp) files is recommended. The data stored in the data tables are formatted using UTF-8 (8-bit Unicode Transformation Format) character tables to ensure the correct representation of the unique accented characters of each country participating in the project.

The basic projection system used for the maps is WGS-84, but the system can also convert data in other coordinate systems and display them according to their geographical location.

11. picture: EWC website

12. picture: Geogrphical descriptions on the EWC website

The EWC is essentially an open system, with data content consisting data of public interest. At the same time, the system has a restricted access subsystem where the data stored and the services associated with it are protected. Data are protected against intentional or accidental alteration and archiving of acquired data is ensured.

The EWC is published to a wide (multi-national) professional community, so ensuring continued availability via the Internet is important. Furthermore, it is also essential to ensure access to data for internal operations. Ensuring the highest possible level of availability at all times is expected throughout the maintenance period of the project.

4. Conclusion

In this study we reviewed the progress of the implementation of the Extreme Weather Catalogue, organised by the Vas County Disaster Management Directorate within the framework of the Interreg Central Europe "LOCALIENCE" project. In chapters 1 and 2 of the study, the principles of the EWC preparation according to the relevant project task were described, followed by an analysis of the data content.

The data sets that were loaded into the concept were defined to create an easy-to-use, searchable database for Central Europe. We then presented the relevance of the basic data and the disaster management intervention data, and the data layers of the website.

In chapter 4 of the paper, we described the visual presentation, complemented by the privacy policy.

In our opinion, when the EWC is fully completed, expected by mid-2025, it will be a Central European database that will provide both a serious professional help to organisations and individuals involved in disaster management and an interdisciplinary, searchable, systematic and easy-to-use interface for future researchers.

5. References

CE0100182 LOCALIENCE Application Form Export

SUBSIDY CONTRACT Between the Interreg CENTRAL EUROPE Managing Authority and the Project Lead Partner

PARTNERSHIP AGREEMENT Model of agreement between the Project Lead Partner and the Partners for the implementation of the Interreg CENTRAL EUROPE project CE0100182 –

LOCALIENCE Developing resilience against extreme weather threats caused by climate change at local level is Central Europe

TF/ICE/01/CE0100182/03 Co-financing grant agreement Interreg CENTRAL EUROPE 2021-2027 Transnational Cooperation Programme

M/ICE/01/CE0100182/03 Advance grant agreement Interreg CENTRAL EUROPE 2021-2027 Transnational Cooperation Programme