

# Drought, Heatwaves, and Fire Weather and its Cartographic Visualization

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## Abstract:

As climate change progresses, it is projected that the frequency, duration, and severity of DHF (Drought, Heatwaves, and Fire Weather) events will escalate, posing significant threats to human wellbeing and the environment. Recognizing the urgent need for tools that can effectively monitor, predict, and disseminate information about DHF events, the Clim4Cast project seeks to introduce an approach to support the management of these phenomena. This initiative is distinguished by its focus on creating a unique DHF database that not only tracks the occurrence, duration, spatial extent or damages of these events but also enhances the visualization of such data through cartographic methods. By doing so, it aims to provide a more intuitive and accessible platform for understanding the spatial and temporal patterns of DHF events across the region.

The DHF database was created as a part of the Clim4Cast project, which is based on the collaborative approach. It capitalizes on the shared expertise of project partners in extreme weather events, communication strategies, and established networks of stakeholders. This collaborative environment fosters the exchange of knowledge and resources, ensuring that the tools developed are both effective and widely applicable. As a next step the analysis of existing approaches of DHF events cartographic visualizations was performed and collected examples were evaluated. Based on the evaluation, the alternative approaches to visualization were proposed, focusing particularly on the user-centric map design. The design will be implemented in the DHF database.

The outputs of the Clim4Cast project, particularly the DHF database and its cartographic visualization tools, are intended to serve as an early warning system. This system will not only inform stakeholders about impending DHF events but also have the potential to facilitate the integration of these tools into national legislative frameworks, thereby enhancing the overall resilience of the Central European region to the adverse effects of climate change.

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