

EMMA / METEOALARM European Weather warnings

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Extended abstract

Weather warnings have to fulfil one main criterion: to reach the people affected by different types of extreme weather and to cause an adequate reaction within short time. Given the fact that people travel within and outside Europe more than ever before in history and that the warning systems of the different European Weather services had a highly varying warning systems from country to country the need for harmonisation became very obvious. The project EMMA, initiated and organised by EUMETNET answered to this challenge with the product METEOALARM, which provides coordinated Online warning from 27 different public weather services.

The METEOALARM platform under www.meteoalarm.eu shows the integrated information on warnings and alert levels of the actual situation for today and tomorrow in a European map. Warned elements are: Wind, Rain, Snow/Ice, Thunderstorms, Fog, Extreme high or low temperatures, Coastal events, Forest fires, Avalanches, but not all countries warn all elements.

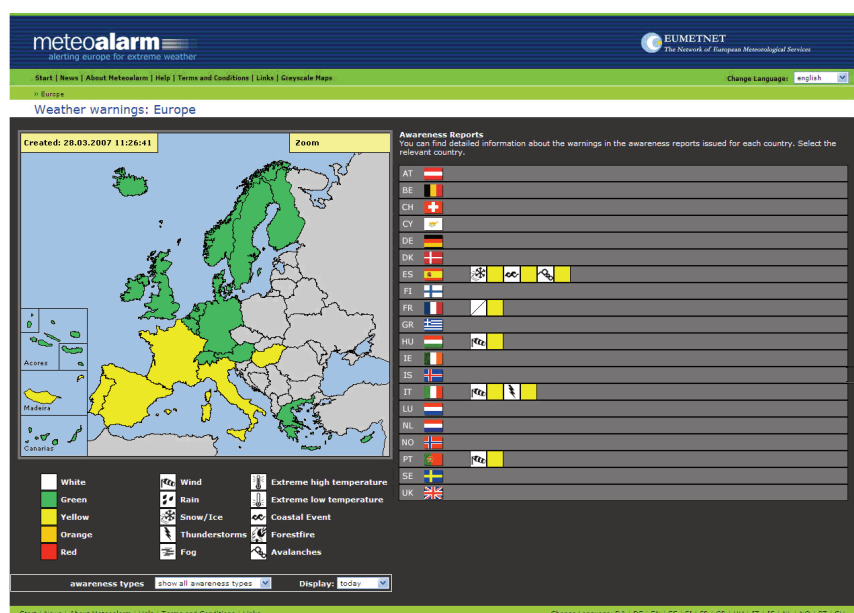


Fig. 1. European map of the alert colours

The success of a previous project, the “vigilance map” in the French media has shown the need for standardised and consistent information during extreme events. Standardisation means that key elements of the message should not change from one event-type to another or from one country to the next. The general public, the concerned authorities and the media have to be informed in a clear and structured way. The complexity of the underlying system and the cooperation between the numerous institutions has to be summarized in a simple surface.

The information in the METEOALARM system is primarily graphically structured and should be readable without further explanations within seconds by the majority of the people. Further information is accessible for most countries via texts in English and local languages providing thereby a more detailed information. The response by the public showed the concept is successful, daily hit rates range between 1 and 12 million.

Public preparedness for catastrophes needs the help of the media who can shape the understanding of the different levels of a danger scale. All different scales need time and media coverage to become accepted, but once they are used in a given socio-cultural context, the lifespan reaches decades like e.g. the Richter scale for earth quakes.

With scales of this type very extreme events can be quantified easily and direct relationship to what is felt as an impact or damage can be established.

Especially in the case of very extreme events occurrence rates are low and past events might be decades away. In these cases much can be learned from other events in the nearby past in other areas of Europe or the world. Media coverage and experiences learned from e.g. Lothar help disaster prevention in the case of Kyrill not only in the countries where the storm occurred, but in all countries where similar events are possible. General Extreme Value (GEV) statistics are a useful tool to trigger and foster a harmonisation process between different services.

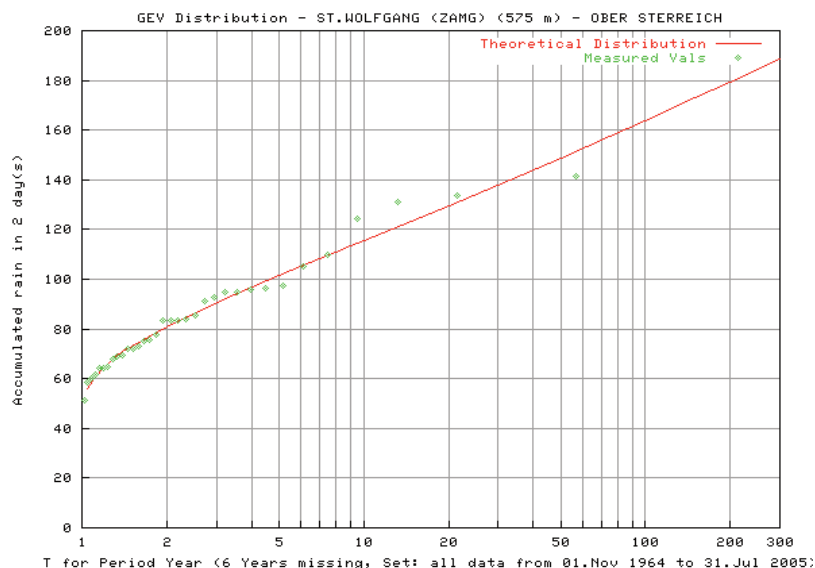


Fig. 2. GEV values for a precipitation event

Warning systems have to be adapted to different disaster types, as the necessary reactions by the public can be different, ranging from evacuations in cases of flood to “stay at home” orders in cases of severe wind speeds. But in both cases it is essential to raise and channel the attention towards the media where the warning with more details can be heard or learned. Simply understandable 3, 4 or 5 warning-level colour systems have their main purpose in being transmittable on very different technical communication platforms.

	Damage / Impact	What to do?	Used how often? Approx. 300 000 km ²	Meteo Treshholds - area related, e.g. for rain:
Green	---	usual phenomena		
yellow	exposed objects (avoidable)	caution with exposed activities	> 30 per year	> 30 mm/12h
orange	general damages (not avoidable)	keep informed in detail, follow advice of authorities	1 to 30 per year	> 54 mm/12h
red	extreme damage and /or casualties <i>(mostly) on large areas, threatning life and properties</i> not avoidable, even in otherwise safe places	follow order of authorities under all circumstances be prepared for extraordinary measures	less then 1 year <i>for large (5000km²) scale phenomena</i>	> 80 mm/12h

Fig. 3 4-level matrix for impact, advice, return periods and meteorological thresholds. The meteorological thresholds differ from region to region due to the climatology of extreme events

The second criteria which has to be met is the different language background of the users of these warnings. As Europeans travel more and more and expose themselves during their travel more to the weather dangers than at home due to higher outdoor activities care has to be taken that also non-residents can be reached in their own language. The information on the www.meteoalarm.eu website is available therefore at the moment in 24 different languages with new languages being added as new partners are integrated.