

Meteoalarm update

Historical Background

The concept of Meteoalarm was first discussed following the post-Christmas storms, “Lothar” (26 December) and “Martin” (27 and 28 December) in 1999. These devastating windstorms caused major losses.

The economic cost of “Lothar” and “Martin” was estimated at €5 billion and €2.7 billion respectively. The number of people that died as a result of these storms was around 140, of which almost 90 casualties occurred in France. There were also numerous injuries.



Within the meteorological community these storms provoked great interest and generated discussion on the use of conceptual models, such as Rapid Cyclogenesis, the apparent failure of numerical models to forecast these storms and inconsistencies in the way that warnings were issued across the affected areas of northern Europe.

During the October 2000 workshop on the post-Christmas storms (at Météo-France in Toulouse) meteorologists from all over Europe met to bring these discussions together and put forward proposals based on ‘lessons learnt’. Météo-France announced their Vigilance system, designed to give all necessary meteorological warning information to French citizens in cases of severe weather. Also during this meeting the need was expressed by all European forecasters to establish a better international exchange of forecasts and warnings within Europe. The necessity to exchange ideas on the expected evolution of potential severe weather systems and more multi-national collaboration were the main reasons for this need.

Working Group on Cooperation between European Forecasters

After the above workshop took place, the Working Group on Cooperation between European Forecasters (WGCEF) developed the initiative to establish this exchange platform. By late 2001 the



EUMETNET sponsored EMMA (European Multiservice Meteorological Awareness system) programme was underway and being managed by Météo-France. The French Vigilance system stood as an example for EMMA. The programme resulted in prototyping a European awareness website, developed together by 21 National Meteorological Services (NMS's) within EUMETNET.

After the EMMA programme, EUMETNET approved the EMMA Phase II programme that aimed to get the prototype into operation. This three year programme, scheduled to end in late 2008, has been managed by the Austrian Meteorological Service (ZAMG) and KNMI together with a growing number of participating NMS's, over 25 at the time of writing. Within a year of the Phase II programme, EMMA had been renamed Meteoalarm and the website became a fully operational system.

The Meteoalarm website

On World Meteorological Day, 23rd March 2007, Meteoalarm was launched officially in St. Lorenzo de El Escorial in Spain. In preparation for this event lots of attention was given by Press Officers at European NMS's to promote awareness of this new website towards the media. This approach turned out to be very successful! The launch was attended by many people and well represented by the

The screenshot shows the Meteoalarm website interface. At the top, the logo 'meteoalarm' is displayed with the tagline 'alerting europe for extreme weather'. To the right is the EUMETNET logo, 'The Network of European Meteorological Services'. Below the header is a navigation bar with links: 'Start | News | About Meteoalarm | Help | Terms and Conditions | Links | Greyscale Maps'. A language selector is set to 'english'. The main content area is titled 'Weather warnings: Europe:'. It features a map of Europe with color-coded regions indicating warning levels. A legend below the map defines the colors: Wit (White), Groen (Green), Geel (Yellow), Oranje (Orange), and Rood (Red). It also includes icons for various weather phenomena: Wind, Regen (Rain), Sneeuw/Dizel/Bevriazing (Snow/Ice/Sleet), Onweer (Thunderstorm), Mist (Fog), Extreme hitte (Extreme heat), Extreme koude (Extreme cold), Kustbedreiging (Coastal threat), Bos- en heidebranden (Forest and heath fires), and Lawines (Landslides). To the right of the map is a table titled 'Awareness Reports' with the following data:

Country	Warning Level	Warning Type
AT	White	None
BE	White	None
CH	White	None
CY	White	None
DE	Yellow	Wind, Snow/Ice/Sleet
DK	White	None
ES	Yellow	Wind
FI	Yellow	Snow/Ice/Sleet
FR	White	None
GR	White	None
HU	Yellow	Snow/Ice/Sleet, Wind
IE	Yellow	Wind
IS	Yellow	Wind
IT	White	None
LU	White	None
NL	White	None
NO	Yellow	Wind, Snow/Ice/Sleet, Fog
PT	White	None
SE	White	None
SK	White	None
UK	Yellow	Wind

At the bottom of the page, there is a footer with the text 'Powered by: www.backbone.co.uk' and 'developed by: www.hq-software.at'. The browser address bar shows the URL: 'http://www.meteoalarm.eu/country/ES.asp?Country=ES&lang=NL&ShowDate='.

media. During the press conference many questions from the media were answered and there were numerous interviews given to international radio and television. In addition, the general public seemed to be very well informed on this occasion. On the launch day itself, there were 12 million hits on the website. The extremely high hit rate stressed, even at this early stage, the high potential of Meteoalarm for the external users (e.g. European citizens).

The meteoalarm intranet forecasters forum

The website is meant primarily to serve external users, by giving them all the necessary information about meteorological awareness within Europe in an easily accessible and understandable format (colour coding countries and regions and using simple symbols and graphics).

The second goal within the Meteoalarm concept is to serve the need of the professional meteorologist, as expressed during the workshop in Toulouse. To complement the fact that operational forecasters will benefit fully from all awareness and warning information on the website, the intranet part of the site (accessible to all forecasters across Europe) is offering some useful features to give additional information during the onset phase of an extreme weather event.



The forecasters forum on the intranet is designed to promote on-line discussions and contains additional facilities to add relevant attachments for guidance purposes. In this way forecasters have the ability to exchange important information on upstream weather events and can assimilate second opinions and judgements by other experts within their own warning and colour assignment strategies.

Such strategies will allow the content of warnings across Europe and also the colour assignments, to raise awareness for the general public, to become more coherent and consistent within the Meteoalarm domain.

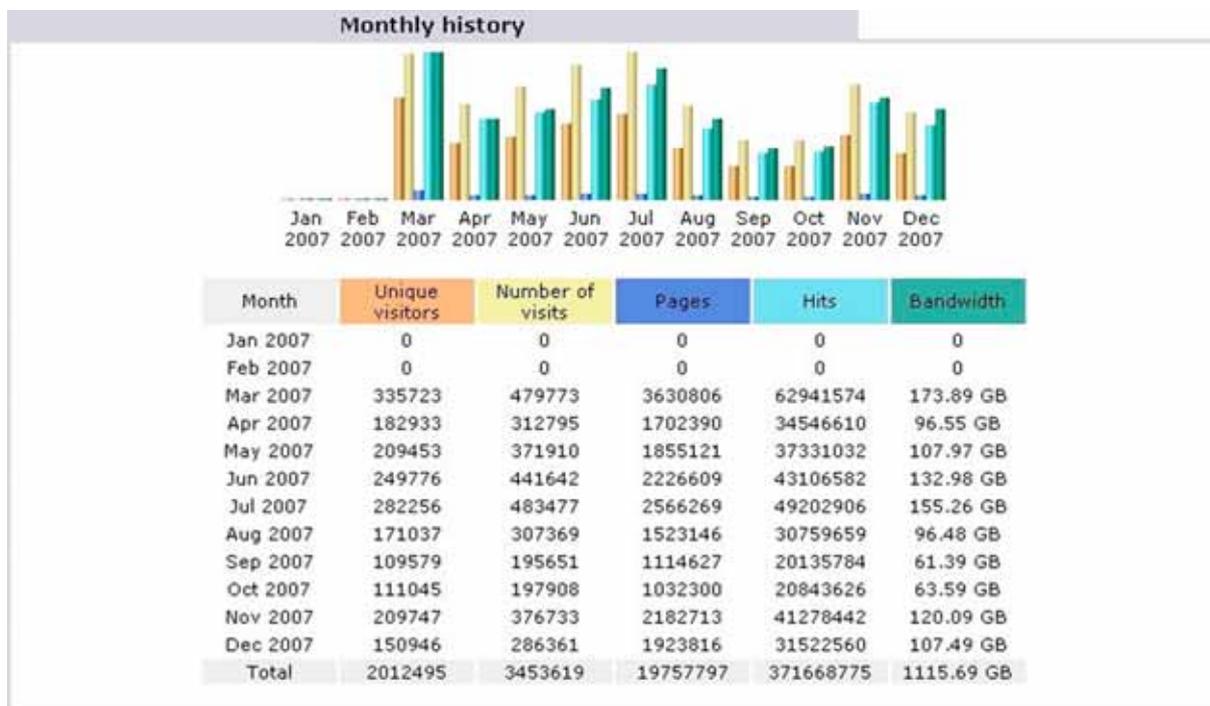
Meteoalarm hit scores – April to December 2007

In general we see 1 to 3 million hits during “regular” weather days but this rises towards 6 million hits per day during periods with high impact weather. According to web statistics the number of visitors has tended to be at its highest during the summer holiday season and slows down a little during autumn. September and October have been the quietest months, but attention increased again in November and December.

The total number of hits in 2007 (since 23rd March) has been around 372 million. Most of the hits originate from the Netherlands, but Germany, Greece, Belgium, France, Austria, Sweden, Hungary and Finland are also high in the user rankings.

As soon as extreme weather is expected to hit a certain part of Europe, hit rates tend to rise in that area. We do see that additional media attention, raised for the website by NMS press officers, does lead to an immediate increase in hit scores. For this reason all the press officers at NMS’s receive an

attention e-mail from the Meteoalarm programme team as soon as at least three countries have assigned an orange and/or red awareness level, within a geographically coherent area, In this way additional attention for Meteoalarm on NMS websites and media releases is encouraged.



Challenges within the programme

Harmonising

Since the start of the EMMA phase II programme many successful efforts have been made to harmonise colour assignment schemes throughout Europe. Awareness colours within Meteoalarm are assigned according to impact and damage. In this way meteorological thresholds triggering a certain awareness colour may differ from one country and/or region to another, whilst a certain awareness colour will still have the same meaning all over the Meteoalarm domain.

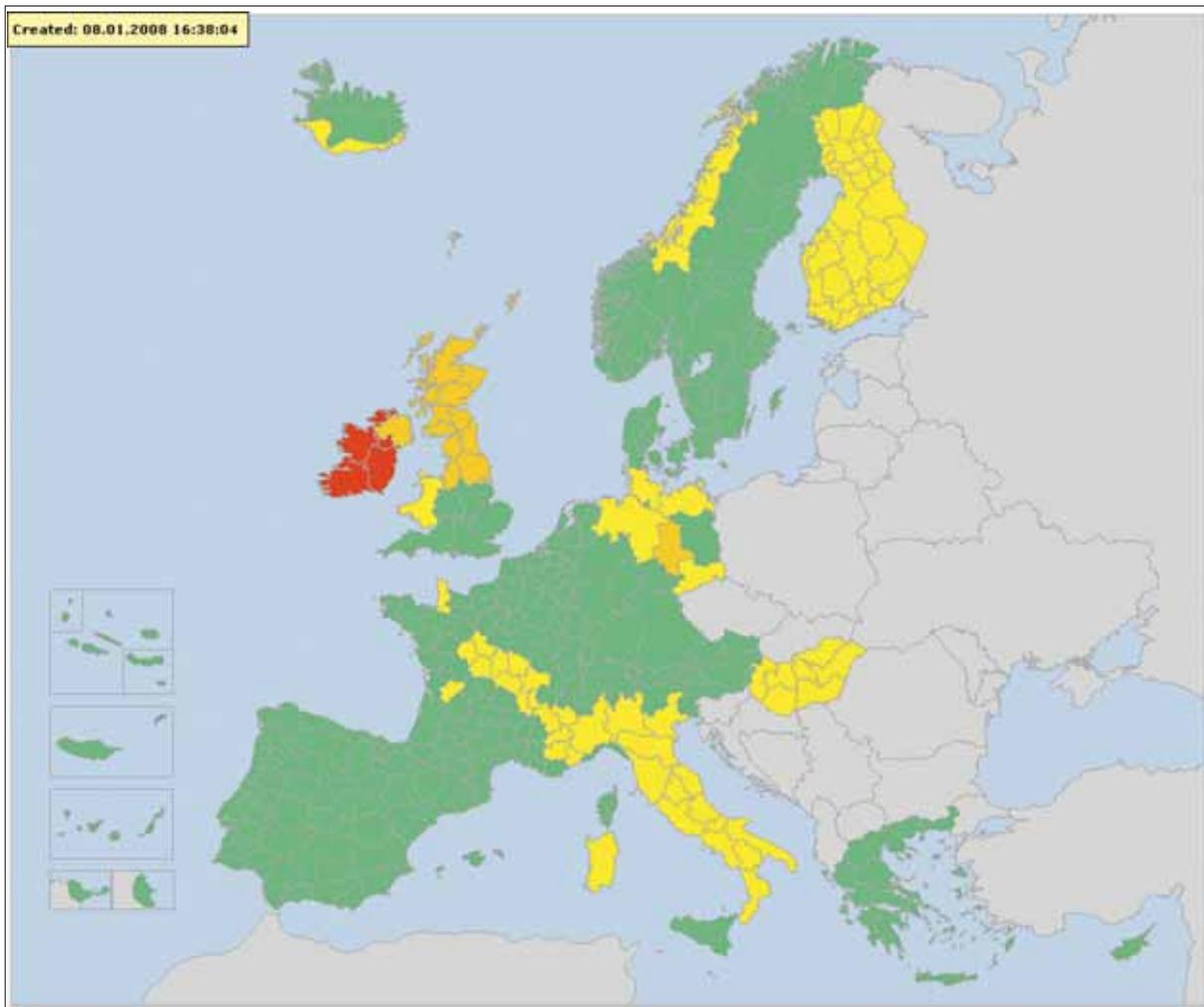
At this moment in time we are tending to adapt colour assignment strategies more towards return periods for events. In this way, only those very high impact events that occur very seldom (i.e. once in two years) will be coloured as “red”. The theory behind this is that society will adapt to very intense meteorological events if these events occur more often. People will anticipate their behaviour and infrastructure will be upgraded towards these more frequent intense events. Thus if climate change would induce more intense meteorological events in the UK, parameter thresholds for a certain colour assignment will rise.

Non-homogeneity in the use of parameters

Meteoalarm deals with obligatory and additional weather parameters. Some intense events, such as the forest fires in south-eastern Europe during summer 2007, raised a great deal of public interest and media attention but were not covered by some of the affected countries at the time (forest fire is not a mandatory parameter). In such cases there is a risk that Meteoalarm visitors might be misled or at least confused by seeing Greece on “green” while the country is burning. The programme team is busy trying to solve this problem and one solution could be to perhaps separate the so called additional parameters from the obligatory ones.

Coastal warnings

Possibilities for a new “coastal warning” parameter will be investigated. This parameter will integrate several meteorological events such as high wind speed, sea ice, large waves and/or swell extending over coastal waters (defined as 12 nautical miles offshore). This new parameter should not be confused with the already existing “coastal events” parameter that is mainly used for storm surge (high tides) linked directly to coastal areas. The Finnish Meteorological Service (FMI) is leading the project to introduce the coastal warning within Meteoalarm.



Encouraging the use of the intranet forum for operational forecasters

Since Meteoalarm was also meant to serve the European forecasters we will encourage intranet forum discussion between meteorologists during the onset phase of an intense event. At this moment the number of forum discussions between NMS's is growing, but should still be improved to create an appropriate medium for routine discussion during pan-European severe weather events.

New developments

- New countries entering soon: Croatia, Slovakia, Slovenia, Latvia.
- More cooperation will be developed with civil protection agencies, both National and European (e.g. Monitoring and Information Centre “MIC”, operated by the European Commission).

- A combined “rain and/or flood” parameter will be introduced, that will replace the present “rain” parameter. In many countries meteorological and hydrological experts work together to produce flood forecasts. This combined parameter will give the possibility to include hydrological flood warnings within Metealarm. In general more cooperation between meteorological and hydrological services across Europe will be strongly encouraged to create these flood warnings across the European domain. Also the EC MIC is strongly supportive of such activities.
- Website resilience has been improved 40 times (towards 40 million hits per day).
- A regional European map, which will show all the coloured regions within one European map without frontiers, is expected to be introduced before the end of 2008.

Frank **Kroonenberg**,
(KNMI)