



Meteoalarm:
An integrated regional warning system



ZAMG
Zentralanstalt für
Meteorologie und
Geodynamik

UN - ISDR Sendai Framework of Actions, 2015

Early warning criteria: **users**

To develop and strengthen:

people-centred multi-hazard forecasting and early warning systems,

tailor them to the **needs of users**, including social and cultural requirements

and broaden **release channels** for disaster early warning information

Sendai Framework of Actions, 2015

Paradigm shift in national or local agencies (NMHS) in:

1. Advancing from providers of forecasts and warnings to producers of:

impact-based forecasts and risk-informed warnings

2. Assuming *active roles* in all aspects of disaster risk management cycle

3. Providing better *risk-based* decision support services.

Sendai Framework of Actions

Definition of warnings

What is a warning?

Tangible and understandable description of an expected damage scenario

&

a clear advice what to do

Sendai Framework of Actions

Definition of warnings

Meteorology - **Civil Protection:**

Well prepared conversation:

Evaluating the infos on upcoming damage scenarios

Sendai Framework of Actions

How to communicate within the chain of information?

Meteorology – **Public:**

Less prepared conversation:

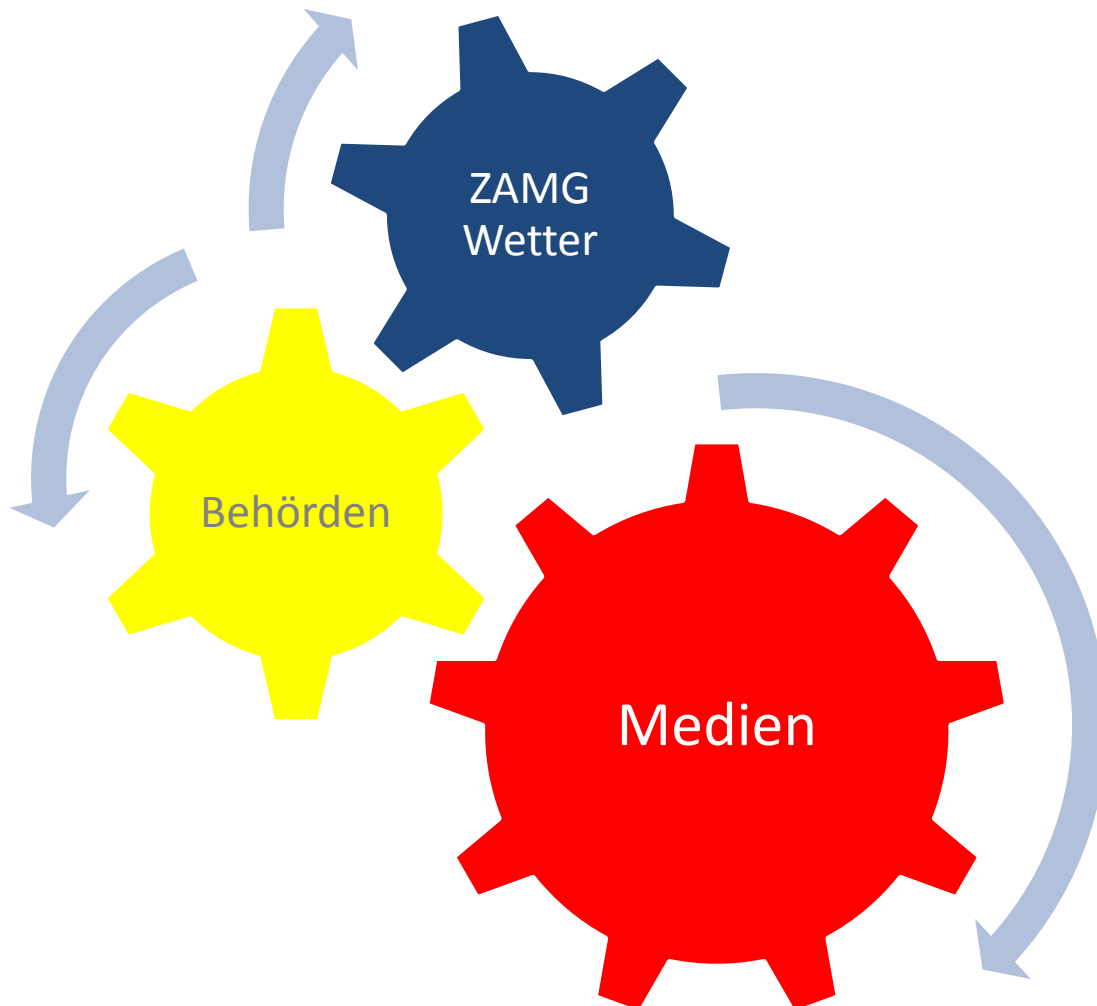
What will be happening?

What to do?

Why?

Which were similar events?

Informationfluss - Kooperationen



Nutzer:

- Lokal verantwortliche
- Bürgermeister
- Formen
- Private (Apps etc.)

Warnings – From science to the user

Flow of information –real world

User types:

Responsible
authorities
Individuals
Companies

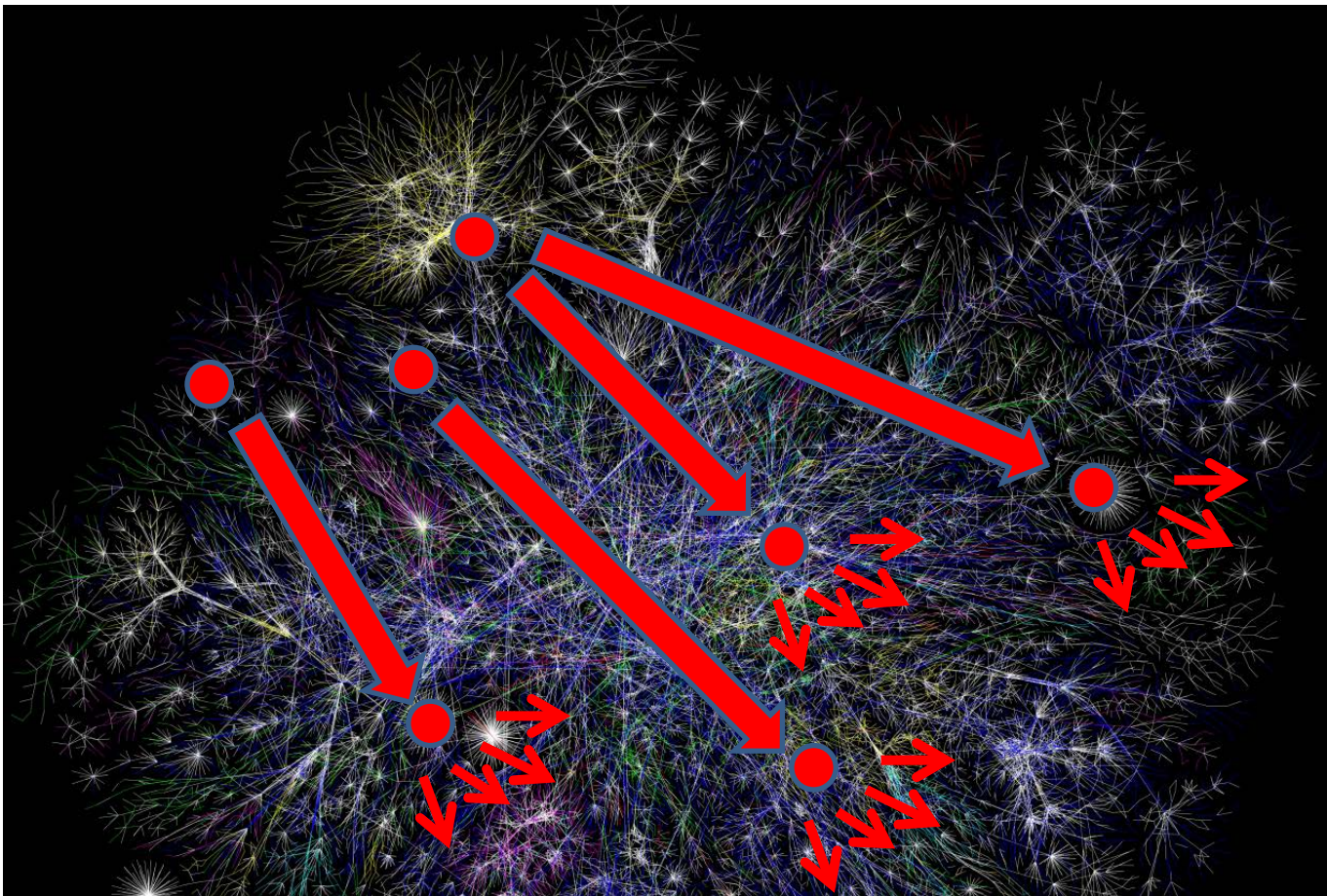
.....

Warnings – From science to the user

Flow of information –CAP format

User types:

Responsible
authorities
Individuals
Companies
.....



Sendai Framework of Actions

90mm in 30 min: How to communicate within the chains of information?



© Fabian Lackner, meteopics

Kids on the street? Event management? Canal system?

Warning situations – necessary Informationen

floods



source: BH Landeck

Precipitation, snowline, ground moisture . . .

Meteoalarm

Eumetnet mandate

1. Make warnings visible in an easy understandable way
2. Harmonize warnings systems across Europe
3. Integrate additional partners countries
4. Reach out to „European“ users (ERCC . . .)

Meteoalarm

meteoalarm
alerting europe for extreme weather

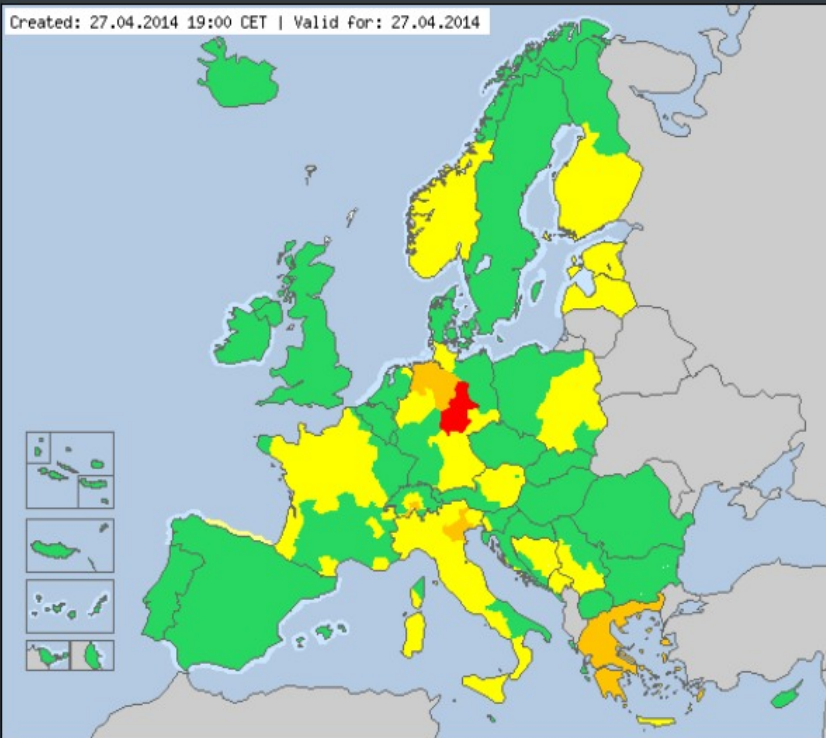
EUMETNET
The Network of European Meteorological Services

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english

> Europe:

Created: 27.04.2014 19:00 CET | Valid for: 27.04.2014



Weather warnings: Europe

Awareness Reports - You can find detailed information about the warnings in the awareness reports issued for each country. Select the relevant country.

AT			
BA			
BE			
BG			
CH			
CY			
CZ			
DE			
DK			
EE			
ES			
FI			
FR			
GR			
HR			
HU			
IE			
IS			
IT			
LU			
LV			
ME			
MK			
MT			
NL			
NO			
PL			
PT			
RO			
RS			
SE			
SI			
SK			
UK			



awareness types:

Display:

Caption:



Meteoalarm - ERCC

alerts for 5 days



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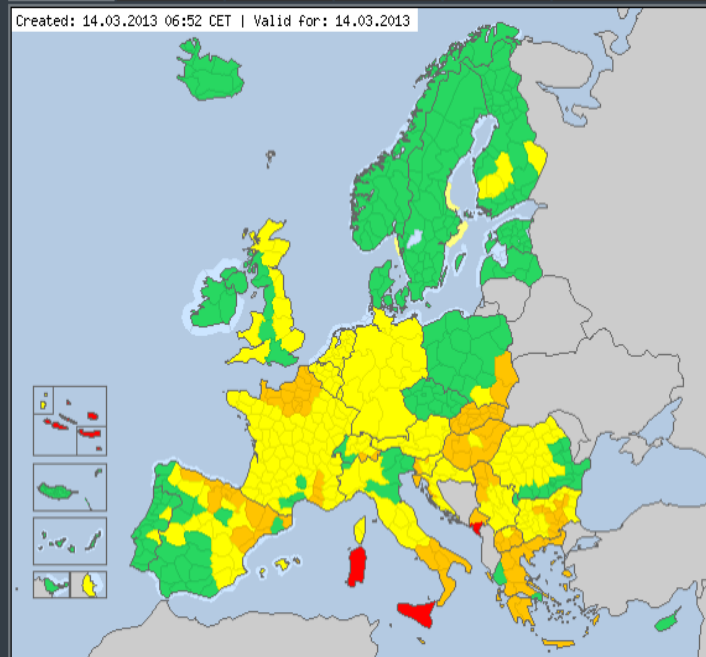
mstaudinger english

» Europe:

Thursday
 Friday
 Saturday
 Sunday
 Monday
 all Warnings

Weather warnings: Europe

Awareness Reports - You can find detailed information about the warnings in the awareness reports issued for each country. Select the relevant country.



AT				
BE				
BG				
CH				
CY				
CZ				
DE				
DK				
EE				
ES				
FI				
FR				
GR				
HR				
HU				
IE				
IS				
IT				
LT				
LU				
LV				
ME				
MK				
MT				
NL				
NO				
PL				
PT				
RO				
RS				
SE				
SI				
SK				
UK				

Caption:



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National level

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alerting europe for extreme weather

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mstaudinger  english 

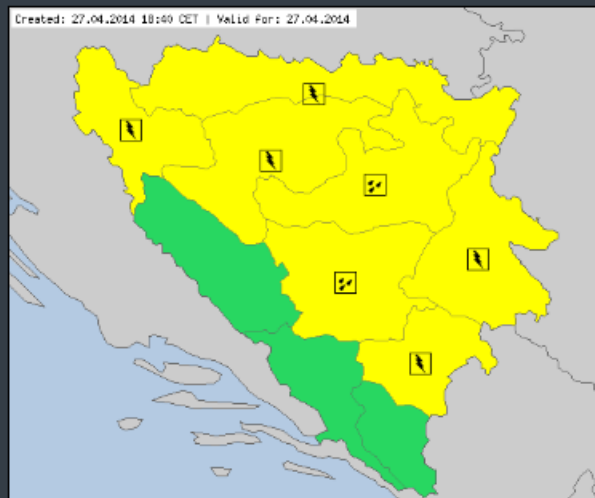
» Europe » Bosnia-Herzegovina:

Weather warnings: Bosnia-Herzegovina

Awareness Reports - You can find detailed information about the warnings in the awareness reports issued for each area. Select the relevant area.

Banja Luka	
Bihac	
Foca	
Livno	
Mostar	
Prijedor	
Sarajevo	
Trebinje	
Tuzla	
Visegrad	 

Created: 27.04.2014 18:40 CET | Valid For: 27.04.2014



awareness types:

Display:

more information:

FHMZ

Federalni hidrometeorološki
zavod Bosne i Hercegovine

RHMZ RS

Republički hidrometeorološki
zavod Republike Srpske



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Subnational level

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english ▾

» Europe » Serbia » Cpem:

Weather warnings: Cpem



valid from 05.09.2015 00:00 CET **Until** 05.09.2015 23:59 CET
Thunderstorms

Awareness Level: **Orange**

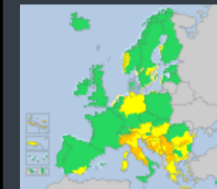
en: Local thunderstorms with hail

IMPACT: The risk of thunder stroke, endangered lives of people and animals, operation problems for all electrical devices, the risk of fire initiation and flash flooding, telecommunication problems, possible major damage to the property and in agriculture, especially in combination with strong wind and intensive rainfall.

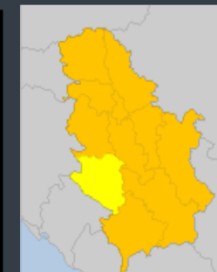
sr: Lokalna pojava grmljavine sa gradom

UTICAJ: Rizik od udara groma, opasnost poživot ljudi i životinja, problemi u radu svih uređaja koja koriste električnu energiju, rizik od izazivanja požara, problemi u telekomunikacijama, moguće veće štete na pokretnoj i nepokretnoj imovini i u poljoprivredi, naročito u kombinaciji sa jakim vetrom i intezivnim pljuskovima.

[Back to Europe:](#)



[Back to Serbia:](#)



valid from 05.09.2015 00:00 CET **Until** 05.09.2015 23:59 CET
Rain

Awareness Level: **Yellow**

en: Rain - at least 20 mm (l/m²) within a 12-hour period

IMPACT: Causing flooding, problems in all agricultural production activities, traffic problems, possible risk of landslides and mudslides. Indirect impact on the safety of people and animals.

sr: Kiša sa količinom padavina većom od 20 l/m² za 12 h

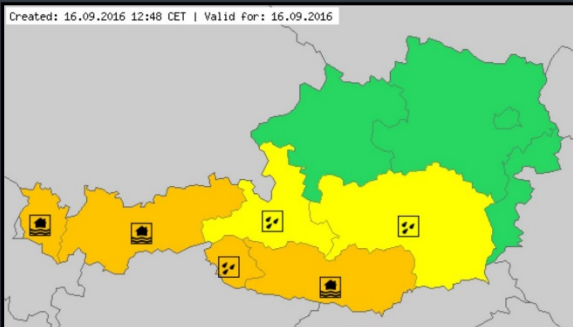
UTICAJ: Izazivanje poplava, i prouzrokovanje šteta u vezi sa poplavama, problemi u svim aktivnostima poljoprivredne proizvodnje, problemi u saobraćaju, moguća pojava odrona i klizišta. Indirektni uticaj na bezbednost ljudi i životinja.

Display: [today](#) [tomorrow](#)

Change Language: | [BG](#) | [BS](#) | [CZ](#) | [DA](#) | [DE](#) | [EE](#) | [EN](#) | [ES](#) | [ES](#) | [FI](#) | [FR](#) | [GR](#) | [HR](#) | [HU](#) | [IS](#) | [IT](#) | [LT](#) | [LV](#) | [ME](#) | [MK](#) | [MT](#) | [NL](#) | [NO](#) | [PL](#) | [PT](#) | [RO](#) | [RS](#) | [SI](#) | [SK](#) | [SV](#) | [VA](#)




Meteoalarm – Flood warnings

Rain & flood situation

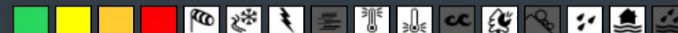


Weather warnings: Austria

Awareness Reports - You can find detailed information about the warnings in the awareness reports issued for each area. Select the relevant area.

Kärnten	 	Osttirol	 
Salzburg	 	Steiermark	 
Tirol	  	Vorarlberg	  

Caption:



awareness types: all awareness types

Display: today tomorrow

more information:



Meteoalarm – Flood warnings

Rain & flood situation

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alerting europe for extreme weather

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mstaudinger 

» [Europe](#) » [Austria](#) » [Tirol](#):

Weather warnings: Tirol



valid from 16.09.2016 10:00 CET **Until** 17.09.2016 16:00 CET

Flood

Awareness Level: **Orange**

deutsch:

Kleinräumig besteht vor allem bei Gewittern Starkregenpotenzial mit lokal auch höhere Niederschlagsmengen. Damit sind stellenweise Muren oder kleinräumige Überflutungen möglich! Bei Aktivitäten im Freien und in der Nähe von Gewässern achten Sie auf die neuesten Wetterinformationen.

english:

Increased water levels in major rivers, but only local risk of flooding in small catchments. In areas with heavy rain, local flooding and flash floods are possible. Be aware and pay attention to the latest weather updates, especially if you carry out activities exposed to weather or close to a stream.

[Back to Europe:](#)



[Back to Austria:](#)



[more information:](#)



valid from 16.09.2016 17:00 CET **Until** 17.09.2016 17:00 CET

Rain

Awareness Level: **Orange**

deutsch:

Regenmengen von 35 bis 80 mm sind zu erwarten.

english:

Total rain amounts between 35 and 80 mm are expected.



Display:

Meteoalarm: 33 Partners

How to harmonize?

Colour	One word	What to do?	Damage / Impact	Used how often? (Area approx. 300 000 km ²)	Meteo Treshholds e.g. Rain (area + impact related)
Green	Weather report	usual phenomena	- - -	usual phenomena	Examples
yellow	Be aware!	caution with exposed activities	exposed objects (avoidable)	> 30 per year	> 54 mm/12h
orange	Be prepared!	keep informed in detail, follow advice of authorities	general damages (not avoidable)	2 to 30 per year	> 80 mm/12h
red	Take action!	follow order of authorities under all circumstances! be prepared for extraordinary measures!	extreme damage and / or casualties extreme damage (mostly) on large areas, threatening life and properties (not avoidable, even in otherwise safe places)	less then 1/ year + large (5000km ²) scale phenomena	> 140 mm/12h

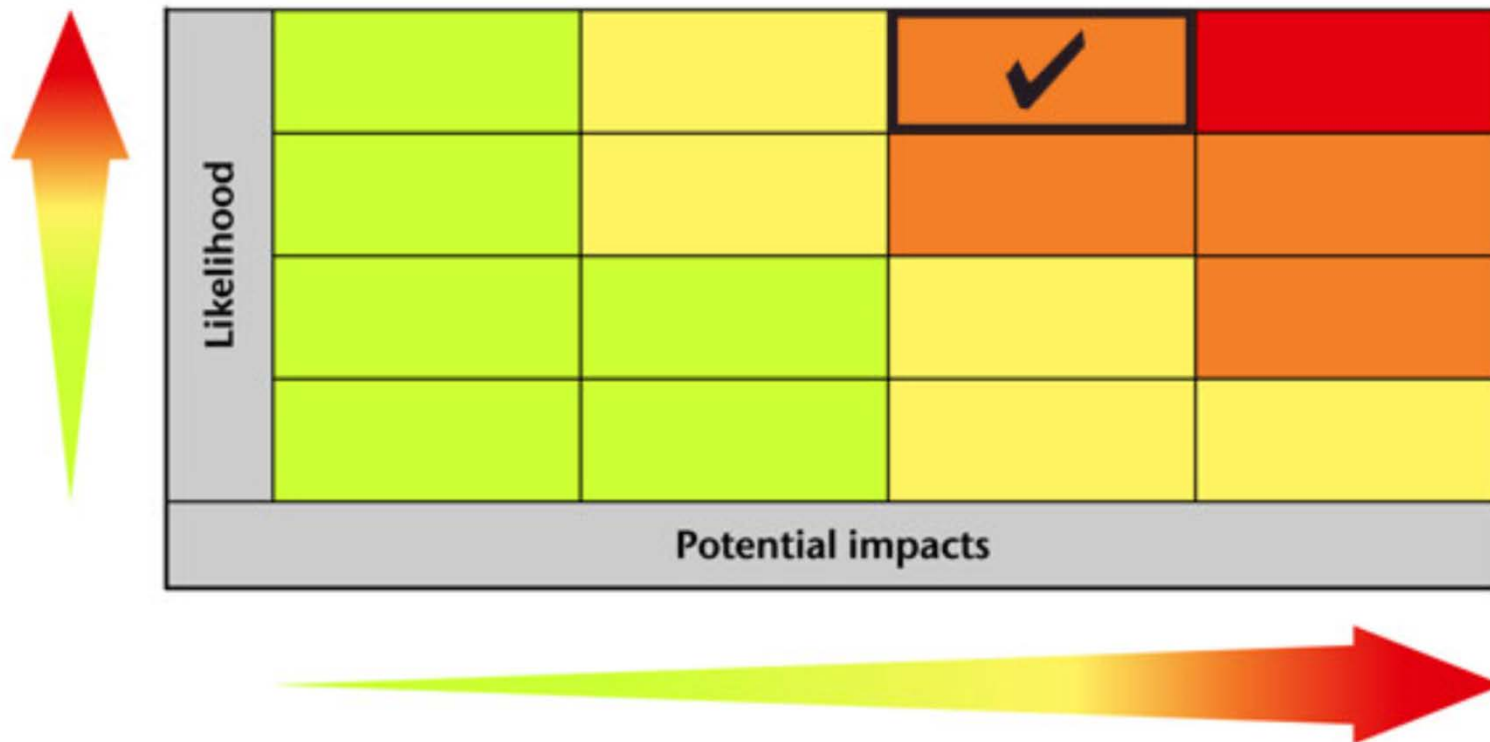
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Thresholds for Hydrology

green:	< HQ 2
yellow:	> HQ 2
orange/amber:	> HQ 10
red:	> HQ 50

Meteoalarm

36h ahead: how much certainty do we have?



Meteoalarm – Flood warnings

Rain & flood situation

http://www.meteoalarm.eu/warnings/index.php?lang=en_UK 09298 unread - staudingermic... Friedlgasse 57, 1190 Wien, Aust Thiergarten 3000 Message Meteoalarm - severe weather w... Meteoalarm - severe weather...

meteoalarm alerting europe for extreme weather **EUMETNET** The Network of European Meteorological Services

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Warnings-List Page 1 2 3 4 5 6 7 8 9 10 11 ... 323814

Home	ID	country	area	type	level	time zone (CET)	enter date	created by
Users				All	All			
Setup	77111449	Austria	Kärnten			2016-09-16 13:52-2016-09-17 00:00	2016-09-16 12:53	Michael Staudinger
Documents	77111448	Austria	Tirol			2016-09-16 15:00-2016-09-17 15:00	2016-09-16 12:52	Michael Staudinger
Change Log	77111447	Austria	Vorarlberg			2016-09-16 15:00-2016-09-17 15:00	2016-09-16 12:50	Michael Staudinger
Content-Manager	77111446	Germany	Kreis und Stadt Würzburg			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Warnings new task	77111445	Germany	Kreis und Stadt Bayreuth			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Forum	77111444	Germany	Kreis Neustadt a.d. Waldnaab			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Bug-Report	77111443	Germany	Kreis Schwandorf			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Maparchive	77111442	Germany	Kreis und Stadt Hof			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Countries	77111441	Germany	Kreis Nürnberger Land			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
5 Days	77111440	Germany	Kreis Haßberge			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Statistic Website Statistics Country Statistics	77111439	Germany	Kreis und Stadt Fürth			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
Help	77111438	Germany	Kreis Weißenburg-Gunzenhausen			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111437	Germany	Kreis Tirschenreuth			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111436	Germany	Kreis Lichtenfels			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111435	Germany	Kreis und Stadt Bamberg			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111434	Germany	Kreis Kulmbach			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111433	Germany	Kreis Forchheim			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111432	Germany	Stadt Schwabach			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111431	Germany	Neustadt/Aisch - Bad Windsheim			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111430	Germany	Kreis und Stadt Schweinfurt			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111429	Germany	Kreis Neumarkt i.d. OPL			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111428	Germany	Kreis Amberg-Weizsach			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111427	Germany	Stadt Erlangen			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111426	Germany	Kreis Roth			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111425	Germany	Kreis Kitzingen			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster
	77111424	Germany	Kreis Wunsiedel			2016-09-16 12:48-2016-09-18 01:00	2016-09-16 12:48	Germany Forecaster

add warning

Web und Windows durchsuchen 13:53 16.09.2016

Meteoalarm – Flood warnings

Rain & flood situation: Input by Hydro Services



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Home	country	AT - Austria	▼	Kärnten	▼								
Users	time zone	16/09/2016	13	▼	H 54	▼	M Now	17/09/2016	15	▼	H 00	▼	M
Setup	type	12 - flooding	▼										
Documents	level	4 - red	▼										
Change Log	comment	<p>Increased water levels in major rivers, but only local risk of flooding in small catchments. In areas with heavy rain, local flooding and flash floods are possible.</p> <p>Be aware and pay attention to the latest weather updates, especially if you carry out activities exposed to weather or close to a stream.</p>											
Content-Manager	<input type="button" value="saving warning"/> <input type="button" value="cancel"/>												
Warnings new task													

Meteoalarm – Flood warnings

Rain & flood situation: Input by Hydro Services



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Home	country	AT - Austria	▼	Carnten	▼							
	time zone	16/09/2016	13	H	54	M	Now	17/09/2016	15	H	00	M
	type	12 - flooding	▼									
	level	4 - red	▼									
	comment	<p>Increased water levels in major rivers, but only local risk of flooding in small catchments. In areas with heavy rain, local flooding and flash floods are possible.</p> <p>Be aware and pay attention to the latest weather updates, especially if you carry out activities exposed to weather or close to a stream.</p>										
	<input type="button" value="saving warning"/> <input type="button" value="cancel"/>											
Users												
Setup												
Documents												
Change Log												
Content-Manager												
Warnings new task												

Meteoalarm – Flood warnings

Rain & flood situation: Input by Hydro Services



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- Home
- Users 
- Setup 
- Documents 
- Change Log 
- Content-Manager 
- Warnings 
new task

country	AT - Austria	Kärnten
time zone	16/09/2016 13 H 54	17/09/2016 15 H 00
type	12 - flooding	
level	4 - red	
comment	<p>Increased water levels in major rivers, but only local risk of flooding in small catchments. In areas with heavy rain, local flooding and flash floods are possible.</p> <p>Be aware and pay attention to the latest weather updates, especially if you carry out activities exposed to weather or close to a stream.</p>	
<input type="button" value="saving warning"/> <input type="button" value="cancel"/>		

Meteoalarm – Flood warnings

Rain & flood situation: Input by Hydro Services



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Home	country	AT - Austria	▼	Kärnten	▼								
	time zone	16/09/2016	13	▼	H 54	▼	M Now	17/09/2016	15	▼	H 00	▼	M
	type	12 - flooding	▼										
	level	4 - red	▼										
	comment	<p>Increased water levels in major rivers, but only local risk of flooding in small catchments. In areas with heavy rain, local flooding and flash floods are possible.</p> <p>Be aware and pay attention to the latest weather updates, especially if you carry out activities exposed to weather or close to a stream.</p>											
	<input type="button" value="saving warning"/> <input type="button" value="cancel"/>												
Users													
Setup													
Documents													
Change Log													
Content-Manager													
Warnings new task													

Meteoalarm

Thresholds for Hydrology

green:	< HQ 2
yellow:	> HQ 2
orange/amber:	> HQ 10
red:	> HQ 50

Intranet – homogenisation of forecaster work

Meteoalarm

Alerting Europe for extreme Weather

13.03.2008

logged in: Michael Staudinger | [Help\(Wiki\)](#) | [who is online](#) | [logout](#)

Message of today: 2008

Position: [Emma Intranet](#) | [Forum](#) | [Forecasts](#) | [debriefing EMMA](#)

Topic: debriefing EMMA

posted on 01.03.2008 09:43:35 by [Karim Hamid](#)

Hi

It seems that the storm EMMA (what's the name!) had very similar character...

Behind the frontal systems of this low, a squall line (SQL) moved over West Europe. The SQL was nestled within the dark stripe, the region of high PV-values (exact... the SQL, with at 3km, winds up to 85 kts. In combination with ground winds...

Here in Belgium there were gusts up to 120 km/h with widespread wind damage...

It seems that the wind damage can be followed from the Netherlands up to... this countries should be collected, but unfortunately this isn't the case).

Have a nice day
Karim Hamid

Weblink: users.fulladsl.be/spb4195/storm18012007.pdf

Attached Images:

Attached Documents:

- [lewp.jpg](#)
- [lewp2.jpg](#)
- [lewp3.jpg](#)
- [lewp4.jpg](#)
- [lewp5.jpg](#)

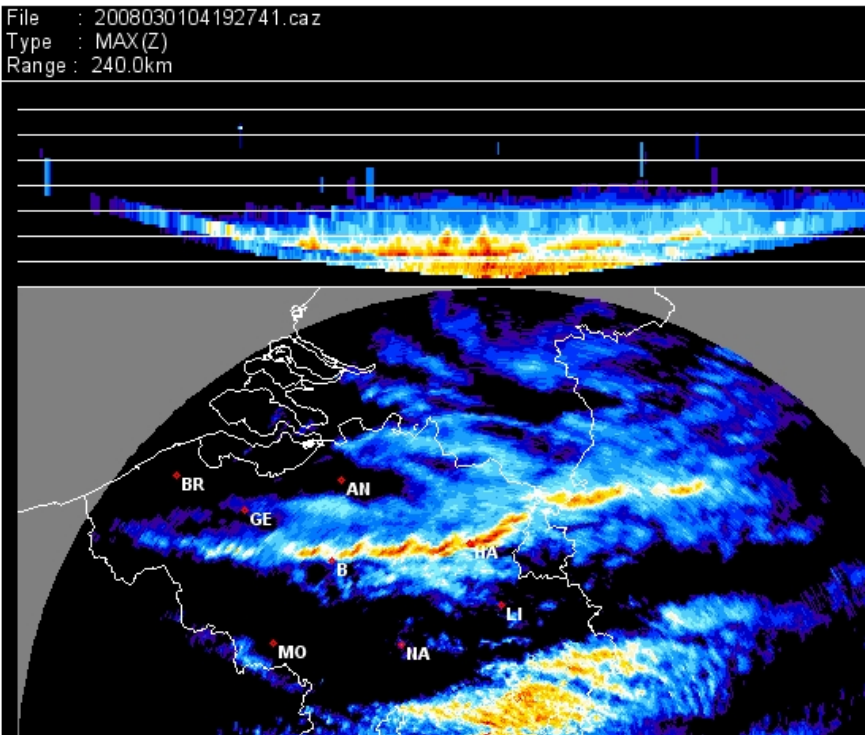
Replies


Author	Header
Jan Sulan	Re:debriefing EMMA Posted: 01.03.2008 14:15:45
	First reports from Czech Republic
	Thanks to thunderstorms max wind gusts were in... damages are serious - many places without electric... Also some local floodings.

http://www.meteoalarm.eu/intranet/upload/documents/lewp.jpg - Windows...

http://www.meteoalarm.eu/intra...

File : 2008030104192741.caz
Type : MAX(Z)
Range : 240.0km





Collaborative Decision Making (CDM)



In case of “red” warnings

CDM will lead to more balanced decisions on warnings

involve experts:

Within the institute from outside the shift:

On hydro – meteo relation

Media experts

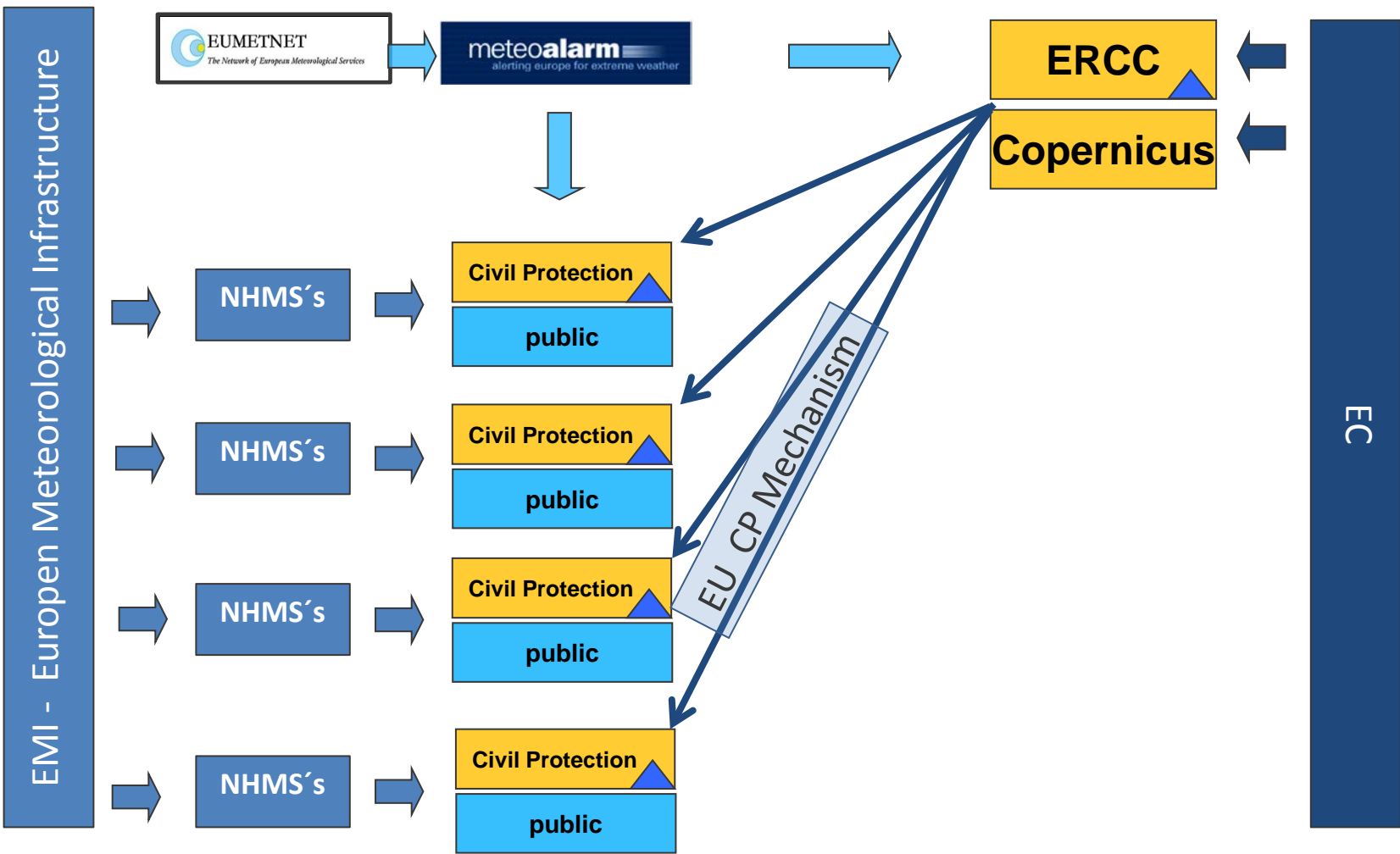
Model experts

Training – training – training !!!

Levels used in 2015

Country	Percent %				Days				total
	GREEN	YELLOW	ORANGE	RED	GREEN	YELLOW	ORANGE	RED	
Austria	56.4%	23.1%	17.8%	2.8%	203	83	64	10	360
Belgium	87.1%	11%	1.9%	0.0%	317	40	7	0	364
Bosnia-Herzegovina	47.2%	39.2%	10.6%	3.1%	170	141	38	11	360
Bulgaria	72.5%	22.8%	3.8%	0.8%	264	83	14	3	364
Croatia	34.1%	42.6%	16.2%	7.1%	124	155	59	26	364
Cyprus	95.3%	4.1%	0.6%	0.0%	346	15	2	0	363
Czech Republic	76.6%	15.9%	6.9%	0.5%	279	58	25	2	364
Denmark	97.2%	1.7%	1.1%	0.0%	352	6	4	0	362
Estonia	19.4%	74.4%	6%	0.3%	68	261	21	1	351
Finland	10.4%	68%	21.6%	0.0%	24	157	50	0	231
Former Yugoslav Republic of Macedonia	55.1%	39.7%	5.2%	0.0%	189	136	18	0	343
France	12.1%	59.9%	28%	0.0%	44	218	102	0	364
Germany	20.2%	56.1%	16.6%	7.1%	68	189	56	24	337
Greece	61.5%	19.8%	17.9%	0.8%	224	72	65	3	364
Hungary	45.3%	36.8%	11.3%	6.6%	165	134	41	24	364
Iceland	57.1%	42.9%	0.0%	0.0%	205	154	0	0	359
Ireland	75.6%	18%	5.8%	0.6%	273	65	21	2	361
Italy	14.8%	41.8%	40.7%	2.7%	54	152	148	10	364
Latvia	34.1%	58.8%	6.6%	0.5%	124	214	24	2	364
Luxembourg	87.9%	9.6%	2.2%	0.3%	320	35	8	1	364
Malta	75.5%	23.4%	1.1%	0.0%	275	85	4	0	364
Montenegro	4.7%	60.1%	30.9%	4.4%	17	218	112	16	363
Netherlands	42%	52.2%	5.2%	0.5%	153	190	19	2	364
Norway	33.6%	44.9%	18.5%	3%	122	163	67	11	363
Poland	57.3%	19.1%	14.1%	9.4%	207	69	51	34	361
Portugal	40.4%	47%	11.8%	0.8%	147	171	43	3	364
Romania	84.1%	9.6%	6%	0.3%	306	35	22	1	364
Serbia	24.7%	51.4%	19%	4.9%	90	187	69	18	364
Slovakia	61.7%	20.6%	13.1%	4.7%	222	74	47	17	360
Slovenia	44.4%	43.8%	10.5%	1.4%	161	159	38	5	363
Spain	31%	44.9%	22.4%	1.7%	112	162	81	6	361
Sweden	8.5%	79.9%	10.7%	0.8%	31	291	39	3	364
Switzerland	77.2%	11.8%	6.9%	4.1%	281	43	25	15	364
United Kingdom	74.8%	23.3%	1.7%	0.3%	270	84	6	1	361

European coordination





Txs for the attention!