

Izdavanje prognoza i meteoroloških upozorenja i njihova uloga u svakodnevnom životu

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DHMZ

Odjel za vremenske analize i prognoze

Outline

- Forecasts, users and customers
- Severe weather warnings
- **meteoalarm**
- Cooperation with civil protection authorities



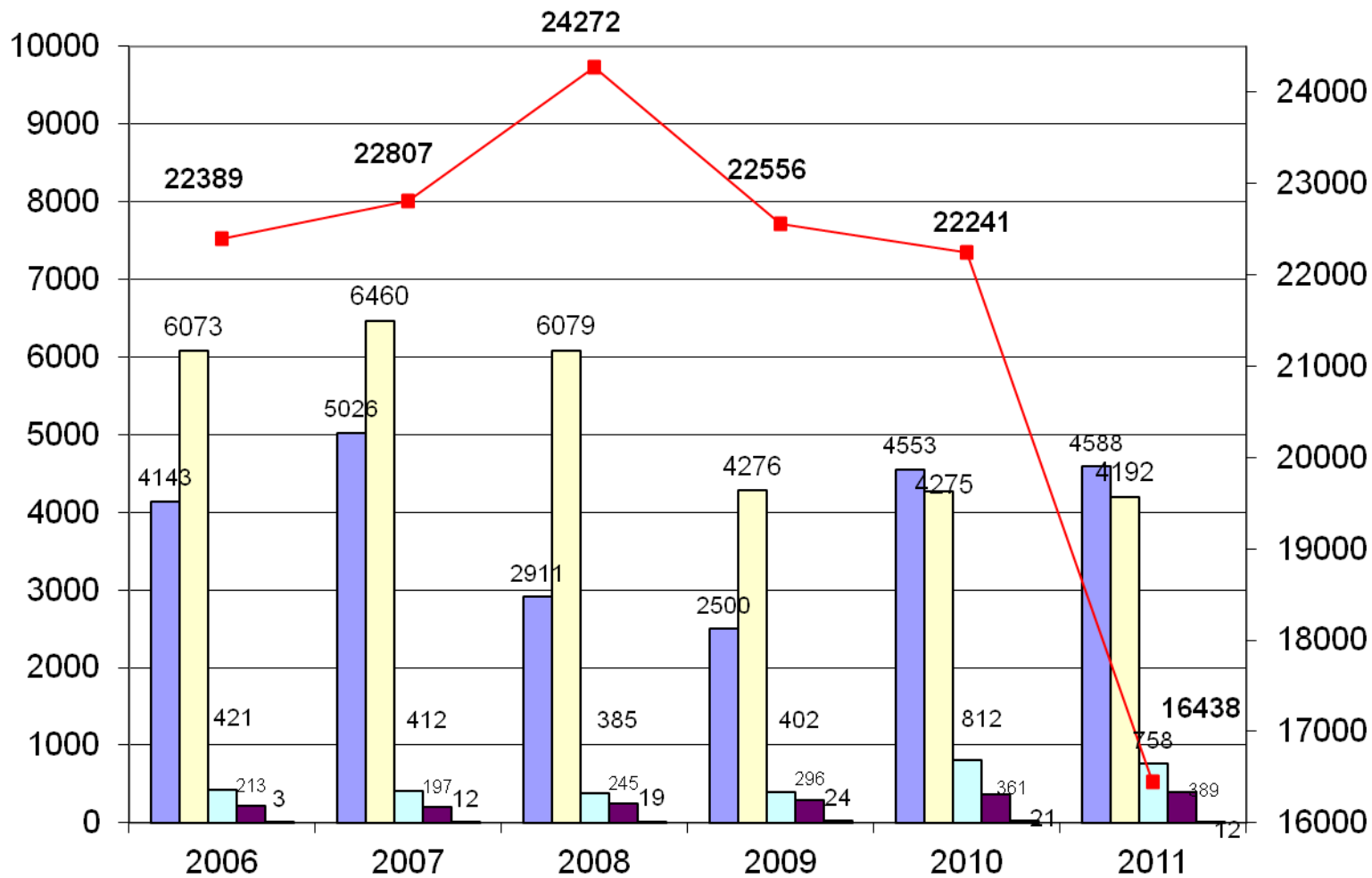
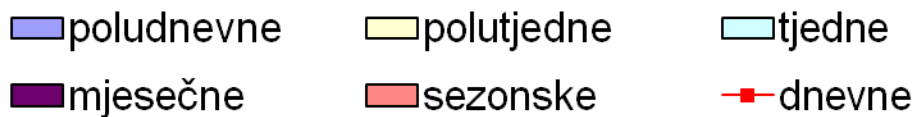
Weather forecast

Daily products and users:

- **Nowcasting (half-day forecasts)**
TV, radio, internet, road maintenance, civil protection...
- **Short - range weather forecasts**
Radio, tv, newspapers, internet, road maintenance, fire department, airport, railways, telephone services, governmental institutions, civil protection...
- **Medium - range weather forecasting**
Road maintenance, military services, water management, mine disposal, general public..
- **Monthly forecasts (twice per month, on Friday)**
Agriculture, water and power management, gas companies..
- **Seasonal forecasts (once per month, between 15th and 20th)**
Water management
- **Severe weather warnings**



broj prognoza po vrstama



Severe weather warnings

- Warnings in Croatia have a long history, warnings for sea traffic are issued by the Marine Forecast Department since 1947. via radio (WMO standards) and today also via internet in several languages (Croatian, English, Italian, German).
- Example of WARNING issued on 17th September 2010.

"IN THE NORTH ADRIATIC A RISK OF LIGHT ISOLATED THUNDERSTORMS AND OF GUSTS OF SW WIND 30-40 KNOTS."

"Auf der Nordadria ist Gewitter möglich, wie auch Südwestböen, 30-40 kn."

"SULL'ADRIATICO SETTENTRIONALE IL RISCHIO DI TEMPORALI SPARSI E DI COPI DI VENTO DA SW 30-40 NODI."

Forecasts are also issued to:

NATIONAL HEADQUARTER FOR SEARCH AND RESCUE AT SEA



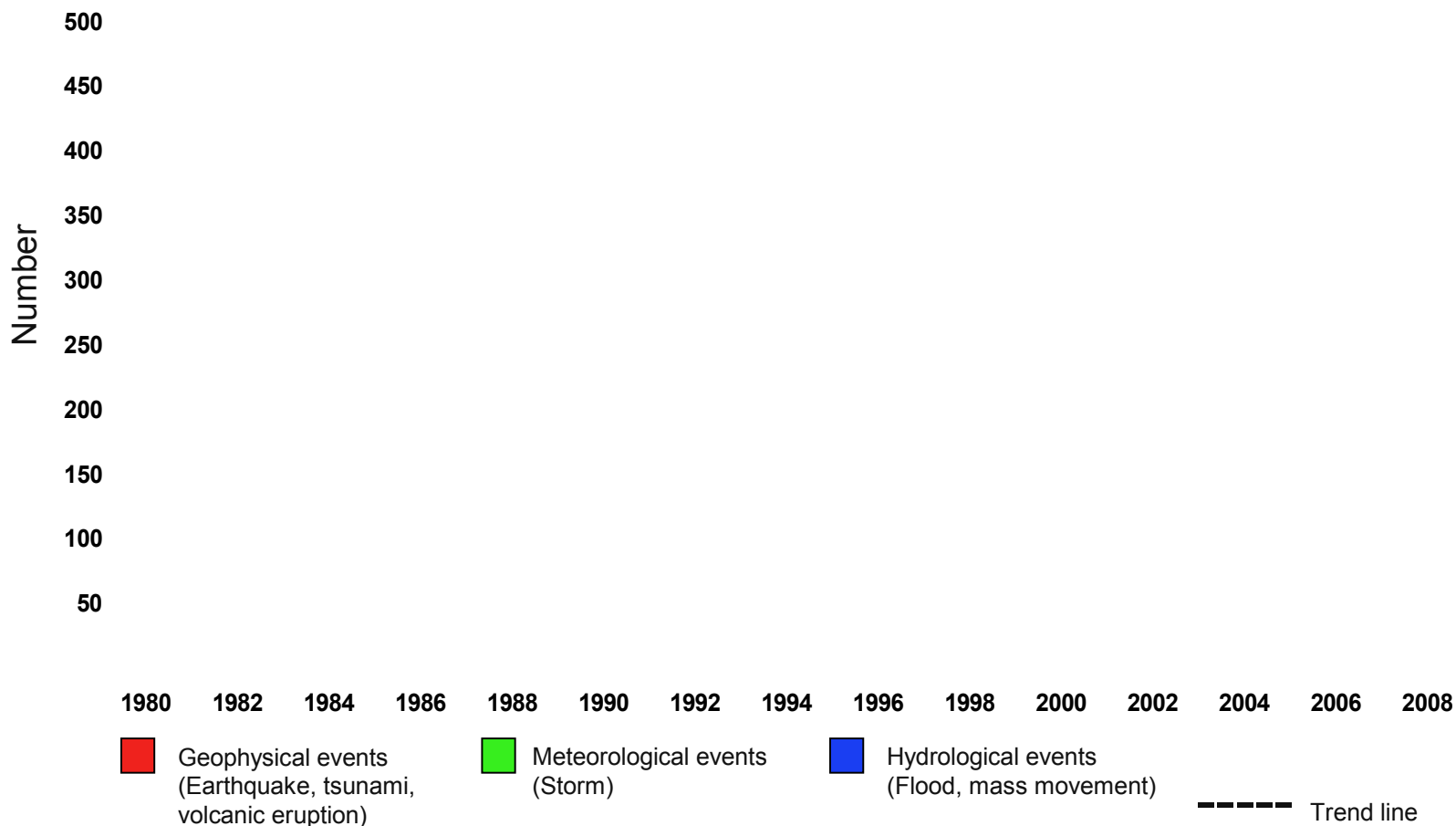
Hazard list

- Tornado (rotational high winds)
- Strong winds
- Storm surge
- River flooding
- Coastal flooding
- Flash floods
- Thunderstorm or lightning
- Heavy snow
- Hailstorm
- Freezing rain
- Dense fog
- Heat wave
- Cold wave
- Drought
- Marine hazards (storm, sea ice, icebergs, etc.)
- Landslide or mudslide
- Airborne hazardous substances (i.e., nuclear, biological, chemical, etc.)
- Waterborne hazards (i.e., nuclear, biological, chemical, oil spills, etc.)
- Hydrometeorological hazards to aviation (i.e., turbulence, icing)
- Forest or wild land fire
- Smoke, Dust or Haze
- Earthquakes

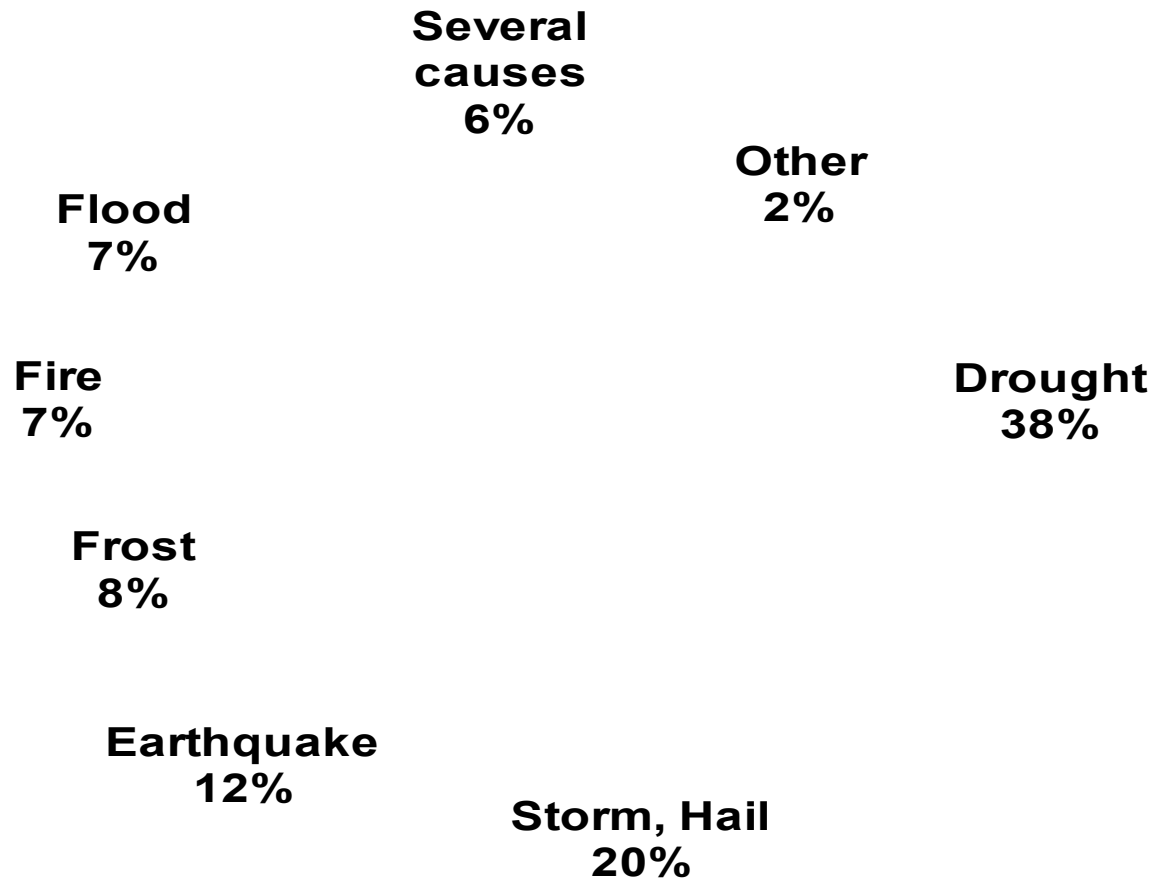


Natural disasters 1980 – 2008 (global)

Geophysical, meteorological and hydrological events



Economic losses (%) caused by natural hazards in Croatia, 1980 - 2002



- On daily basis warnings are included in radio, TV & some newspapers
- Radio – about 7 live reports daily given by DHMZ forecaster on duty in which he/she gives information about weather as well as possibility of bad weather and warnings
- TV – announcement of bad weather and warnings are given in reports, mainly at the end of shows





Državni hidrometeorološki zavod

Aktualni podaci **Prognoze** Klimatologija Kvaliteta zraka Biometeorologija Hidrologija Agrometeorologija

6.10.2011. 23:30 h

Upozorenja na opasne vremenske pojave
Sutra je poglavito na sjevernom Jadranu i u gorskoj Hrvatskoj mjestimice moguća obilnija kiša (više od 30mm, a ...
6.10.2011. u 19h

Hrvatska danas:
Prevladavat će sunčano. U najzapadnijim područjima navečer i u noći porast naoblake rijetko uz mogućnost za kišu. Vjetar u početku slab, ...
» opširnije

Zagreb danas:
Većinom sunčano. Vjetar u početku slab, u drugome dijelu dana umjeren jugozapadni. Najviša dnevna temperatura između 25 ...
» opširnije

Pomorci-situacija:
Dolina s hladnom frontom premješta se sa sjeverozapada prema Jadranu.
» opširnije

Biometeorološka prognoza danas:
Biometeorološke će se prilike pogoršavati tijekom dana. Kod meteoropata će se javiti glavobolja, razdražljivost i ...
» opširnije

Agrometeorologija: stanje 21.09.2011-28.09.2011
U proteklih sedam dana minimalne vrijednosti temperature zraka u kontinentalnoj Hrvatskoj spustile su se do 5.8°C koliko je izmjereno u Gospiću (Zavižan 4.7°C). Uzduž Jadrana te ...
» opširnije

Novo na stranicama
Godišnje izvješće o praćenju kakvoće zraka na postajama državne mreže za trajno praćenje kakvoće zraka za 2010. godinu
Preliminarna ocjena kakvoće zraka u Slavskom Brodu u 2011.

Priopćenja
Regionalna konferencija Svjetske meteorološke organizacije: Društveno - ekonomske koristi nacionalnih hidrometeoroloških službi

radarske slike satelitske slike

Zagreb-Maksimir
06.10.2011 u 23 h

temperatura	14 °C
rel. vlažnost	78 %
tlak zraka	1012.9 hPa
smjer vjetra	jugoistočni SE
brzina vjetra	01 m/s
naoblaka	vedro
pojave	-
osjet ugode	ugodno

Radiosondažne postaje

- Zagreb-Maksimir
- Zadar-Zemunik

Web kamere

- Zagreb Grič
- Selit

meteoalarm
alerting europe for extreme weather

ALADIN/HR

karte prognoza
3 dana

ECMWF

karte prognoza
7 dana

Praćenje suše
razdioba oborine
Projekt DMCSEE

- O nama
- Usluge i produkti
- XML za korisnike
- Zahtjevi korisnika
- Priopćenja
- Uvjeti
- Dokumenti
- Natječaji
- Publikacije
- Zanimljivosti
- METLAB

warnings

forecasts

meteoalarm

www.meteoalarm.eu

Meteoalarm - Alerting Europe for extreme Weather - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://meteoalarm.eu/

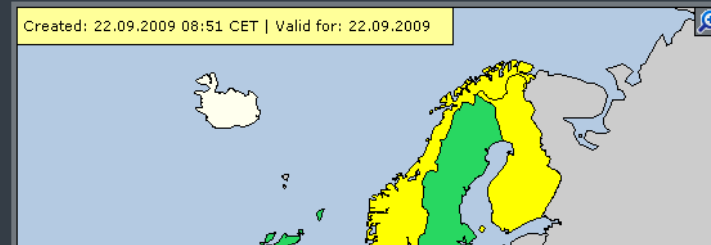
Sinoptika sučelje

» Europe:

Weather warnings: Europe:

awareness types: show all awareness types Display: today tomorrow

Created: 22.09.2009 08:51 CET | Valid for: 22.09.2009



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

AT		
BE		
CH		
CY		
CZ		
DE		
DK		

Croatia since
 17th July 2009.

Meteoalarm - Alerting Europe for extreme Weather - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.meteoalarm.eu/countryHR.asp?Country=HR&lang=EN&ShowDate=tomorrow

AVG Yahoo! Search

alerting europe for extreme weather

Start | News | About Meteoalarm | Help | Terms and Conditions | Links | Greyscale Maps

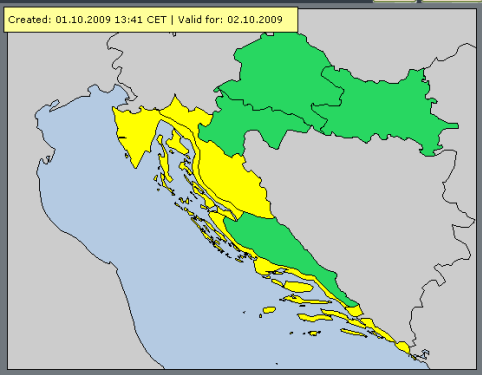
Change Language: english

» Europe:

Weather warnings: Croatia

Display: today tomorrow


Created: 01.10.2009 13:41 CET | Valid for: 02.10.2009



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

Dubrovnik region	
Gospic region	
Karlovac region	
Knin region	
Osijek region	
Rijeka region	
Split region	
Zagreb region	

more information:



White Wind Extreme high temperature

start prezentacija za Pulu DHMZ - DUZS Croatia... Vodafone Mobile Con... Meteoalarm - Alerting...

HR 14:44

meteoalarm

www.meteoalarm.eu

Croatian list of parameters that are warned about on www.meteoalarm.eu

- Wind
- Rain
- Snow/Ice
- Thunderstorms
- Extreme low temperature
- Extreme high temperature
- Fog



meteoalarm

www.meteoalarm.eu

White:

Missing, insufficient, outdated or suspicious data.

Green:

No particular awareness of the weather is required.

Yellow:

The weather is potentially dangerous. The weather phenomena that have been forecast are not unusual, but be attentive if you intend to practice activities exposed to meteorological risks. Keep informed about the expected meteorological conditions and do not take any avoidable risk.

Orange:

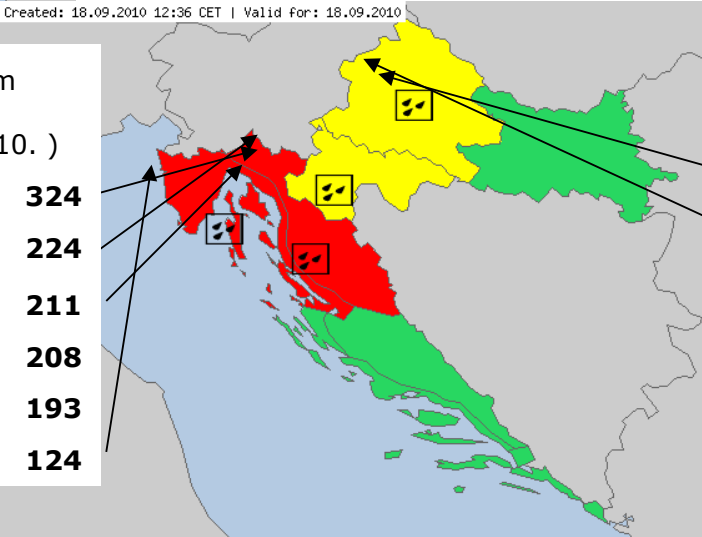
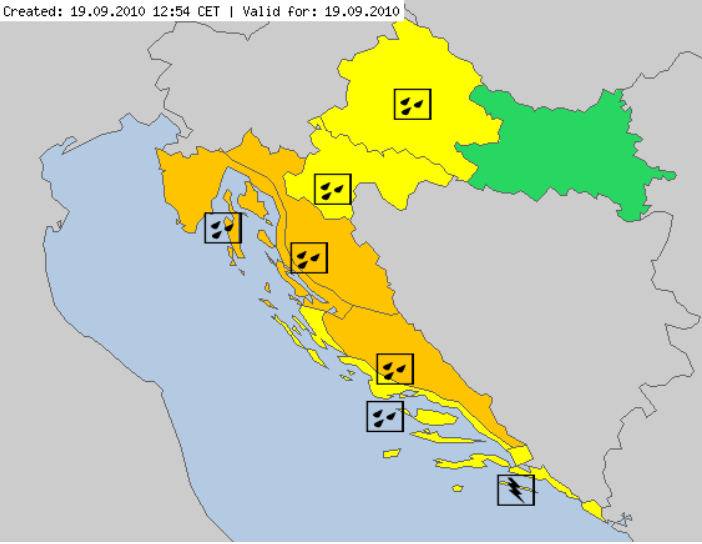
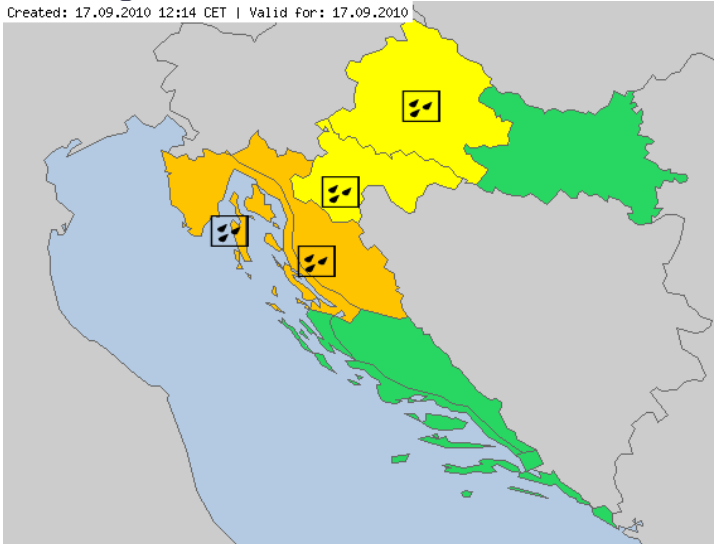
The weather is dangerous. Unusual meteorological phenomena have been forecast. Damage and casualties are likely to happen. Be very vigilant and keep regularly informed about the detailed expected meteorological conditions. Be aware of the risks that might be unavoidable. Follow any advice given by your authorities.

Red:

The weather is very dangerous. Exceptionally intense meteorological phenomena have been forecast. Major damage and accidents are likely, in many cases with threat to life and limb, over a wide area. Keep frequently informed about detailed expected meteorological conditions and risks. Follow orders and any advice given by your authorities under all circumstances, be prepared for extraordinary measures.

Some examples of successful warnings.

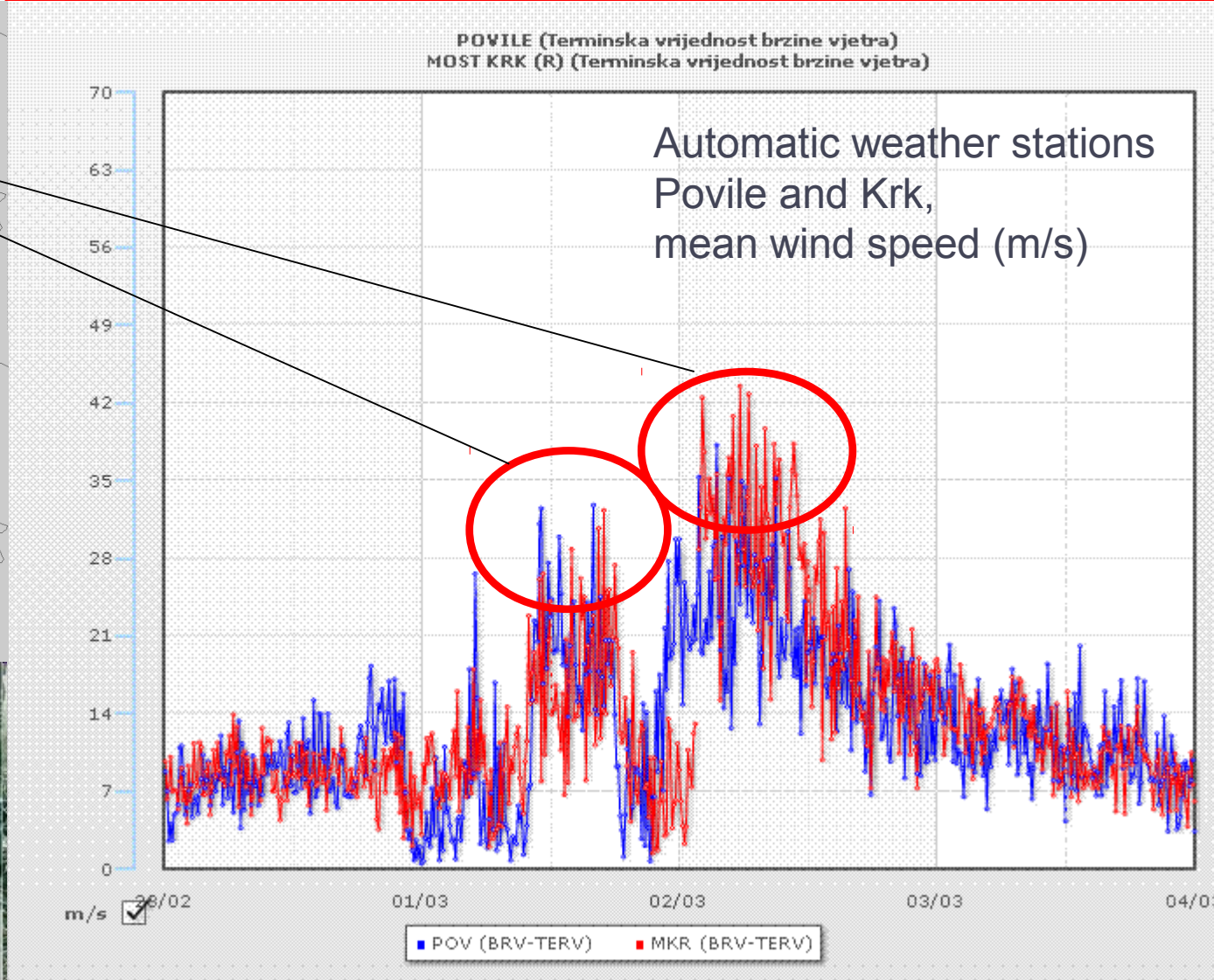
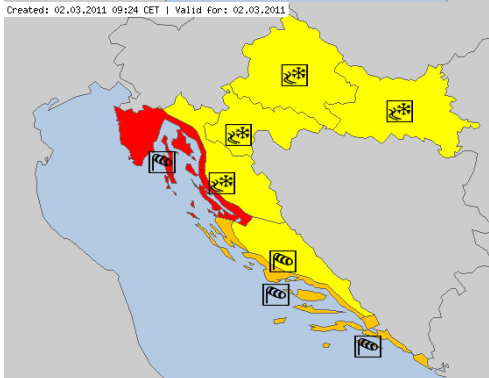
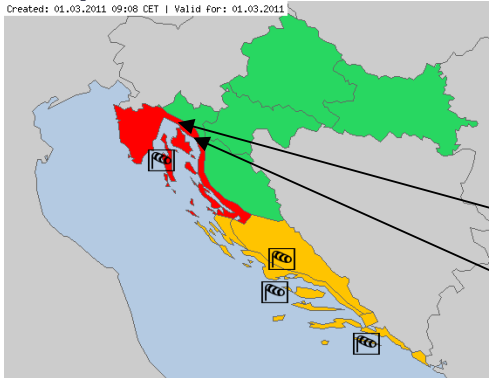
Flood event in Slovenia and Croatia 17-19 Sep 2010



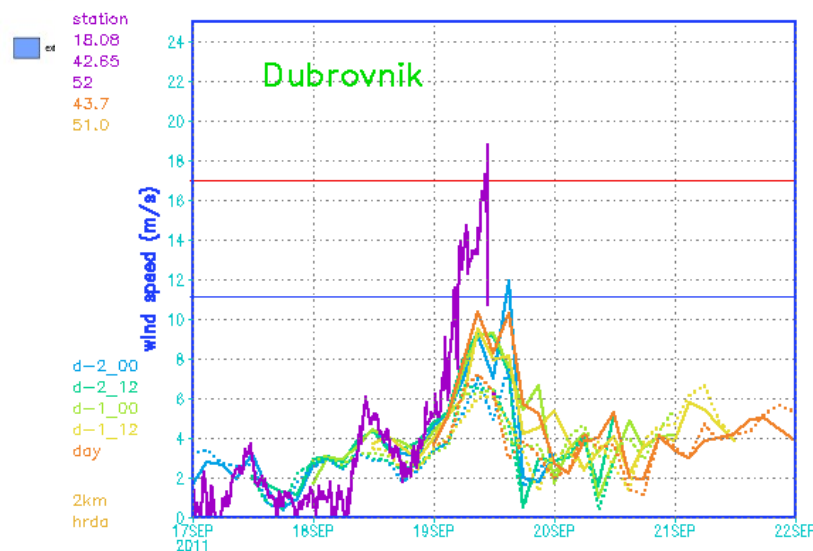
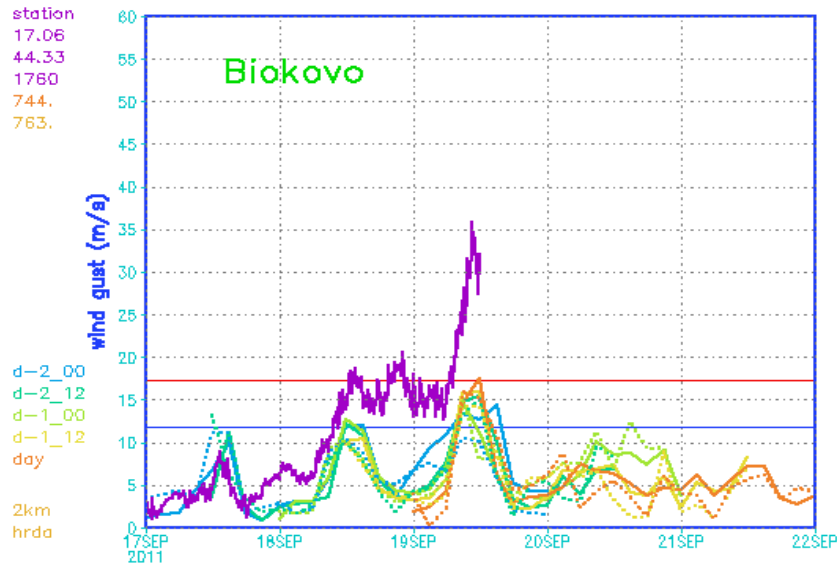
location	rain/mm (17-19 Sep 2010.)
Risnjak	324
Parg	224
Kukuljanovo	211
Delnice	208
Rijeka	193
Poreč	124

location	rain/mm (17-19 Sep 2010.)
Sljeme	141
Krapina	122
Zagreb Grič	89
Zagreb Maksimir	87
Sisak	80
Karlovac	69

Some examples of successful warnings. 1 - 2 Sep 2011



Some examples of successful warnings. 18-19 Sep 2011



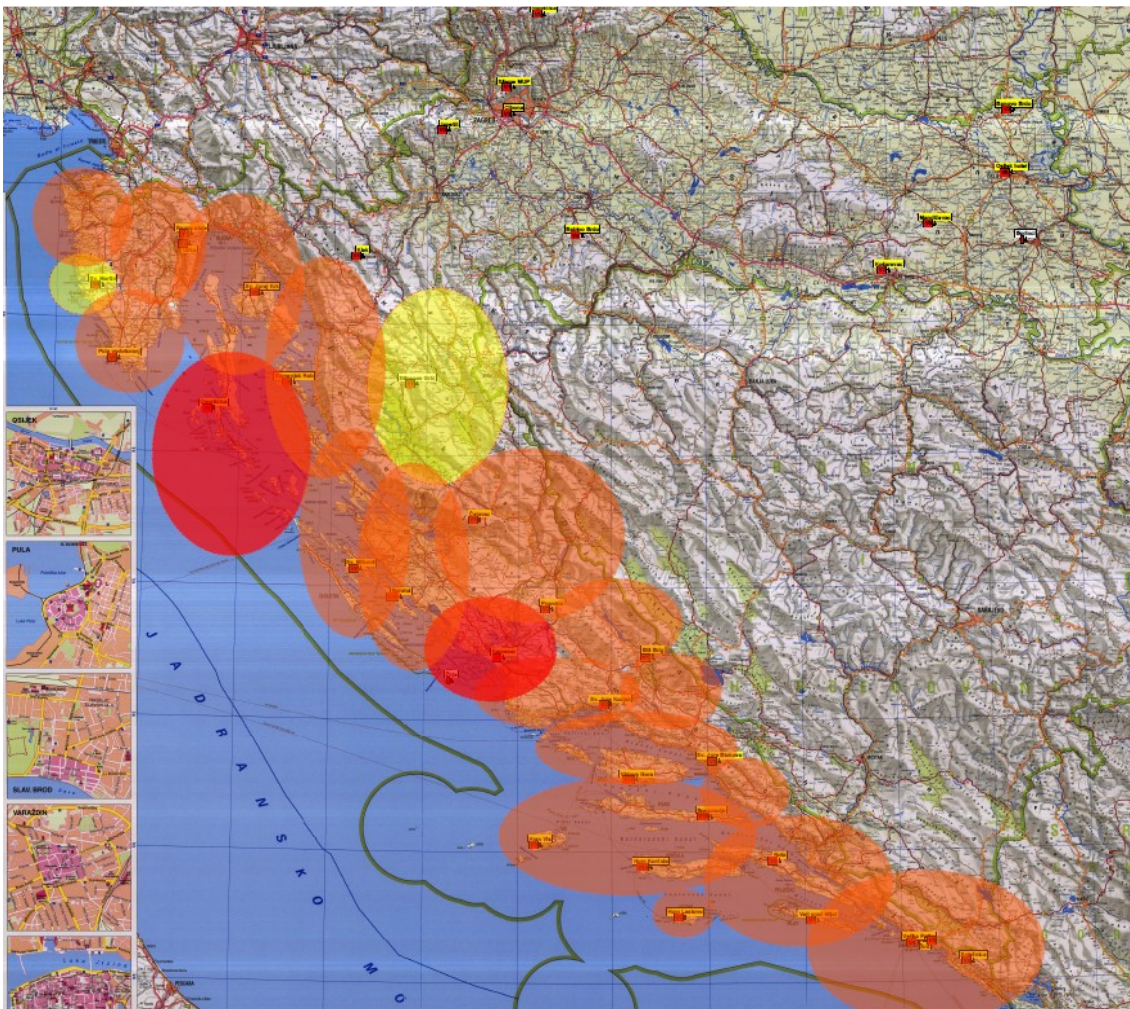
Risk of forest fires – fire weather index

The screenshot shows the website 'Zaštita od požara' (Fire Protection) in a Mozilla Firefox browser. The page features a navigation menu with options like 'Home', 'Prognoza indeksa', 'Ispravak indeksa', 'Prognoza razreda', 'Dopuna podataka', 'Ispravak podataka', and 'Analize'. A central image depicts a forest fire with a house in the foreground. Below the image is a secondary navigation menu with 'Izvešća', 'Podaci', 'Pogreške', 'SINOP jučer', 'SINOP danas', 'Upute', and 'Dokumentacija'. The main content area is titled 'PROGNOZA RAZREDA OPASNOSTI OD ŠUMSKIH POŽARA PO PODRUČJIMA' (Forecast of fire risk levels by region) and includes a warning triangle icon. A table provides the forecast for 21.09.2009 (DANAS) and 22.09.2009 (SUTRA).

21.09.2009 (DANAS)					22.09.2009 (SUTRA)				
Vrlo mala	Mala	Umjerena	Velika	Vrlo velika	Vrlo mala	Mala	Umjerena	Velika	Vrlo velika
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●

Alert chart for forest fire danger

25.07.2009.



KARTA OPASNOSTI OD
 NASTANKA POŽARA NA
 OTVORENOM PROSTORU
 ZA 25.07.2009. KORIŠTENI
 PODACI IZ DHMZ-a

LEGENDA:

- VRLO VELIKA OPASNOST
- VELIKA OPASNOST
- UMJERENA OPASNOST
- MALA OPASNOST
- VRLO MALA OPASNOST



IZRADIO VOS



Operative department of National Protection and Rescue Directorate (112 Centre) recognized the METEOALARM information as beneficial for their activities and as valuable supplement to regular cooperation:

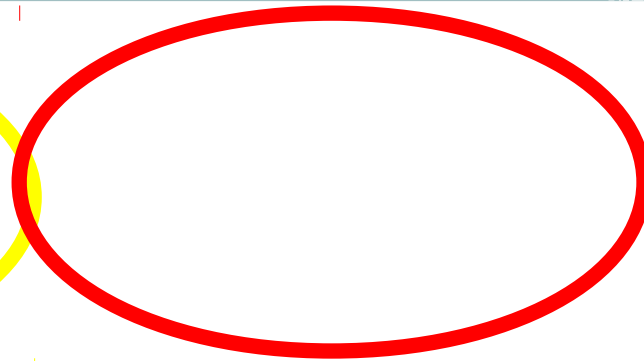
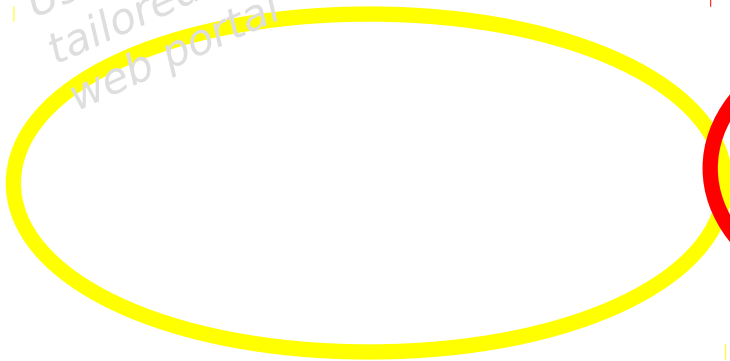
NATIONAL PROTECTION & RESCUE DIRECTORATE



Local authorities, Civil protection, Fire brigades



User tailored web portal



All operative activities are governed by SOP (flow diagram)



112 Centar



Advanced IT solution



Standard Operator's Procedure



Digital charts



Integrated Communication Network



PMR



Port Authorities, CZ, HGSS, MORH, MRCC

Ambulance

Police

Fire Brigades



DHMZ, DZNS, Ministries,



Summary and conclusions

- Large number of forecast products
- Very different user groups
- Warning procedure from meteorological point of view already advanced
- Communication to target population should be done by National Protection and Rescue Directorate
- Response to warnings and taking appropriate actions is still a problem

