

WORLD METEOROLOGICAL  
ORGANIZATION  
COMMON ALERTING PROTOCOL (CAP)  
IMPLEMENTATION WORKSHOP  
ROME, ITALY, 23-24 SEPTEMBER 2015



*early warning system for italian civil protection*

**Angela Corina, Department of Civil Protection**



# Why an early warning system?



**Vesuvio eruption, 1906**



**Florence Flood , 1966**



**Reggio Calabria and Messina earthquake IX MCS, 1908**

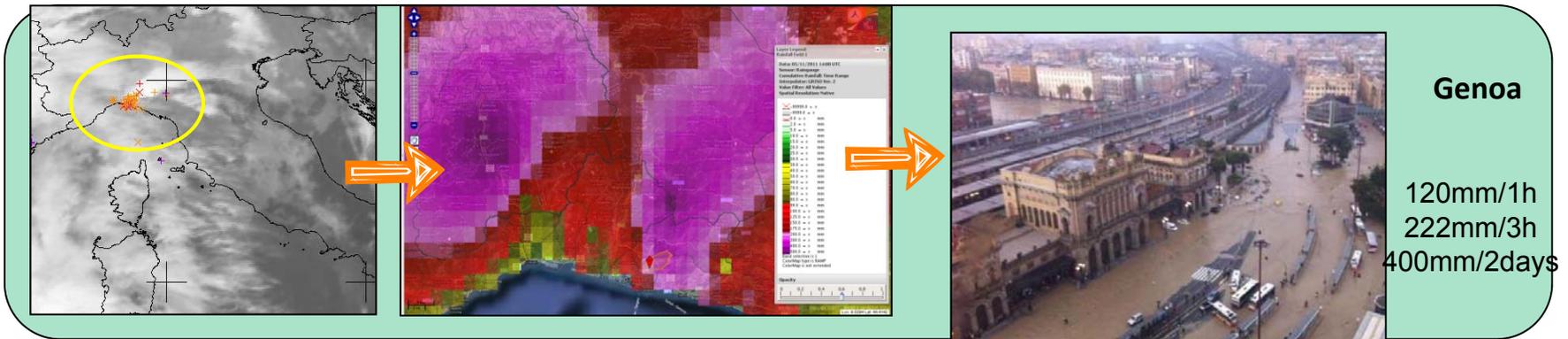


**Vajont landslide, 1963**

# Mediterranean storms



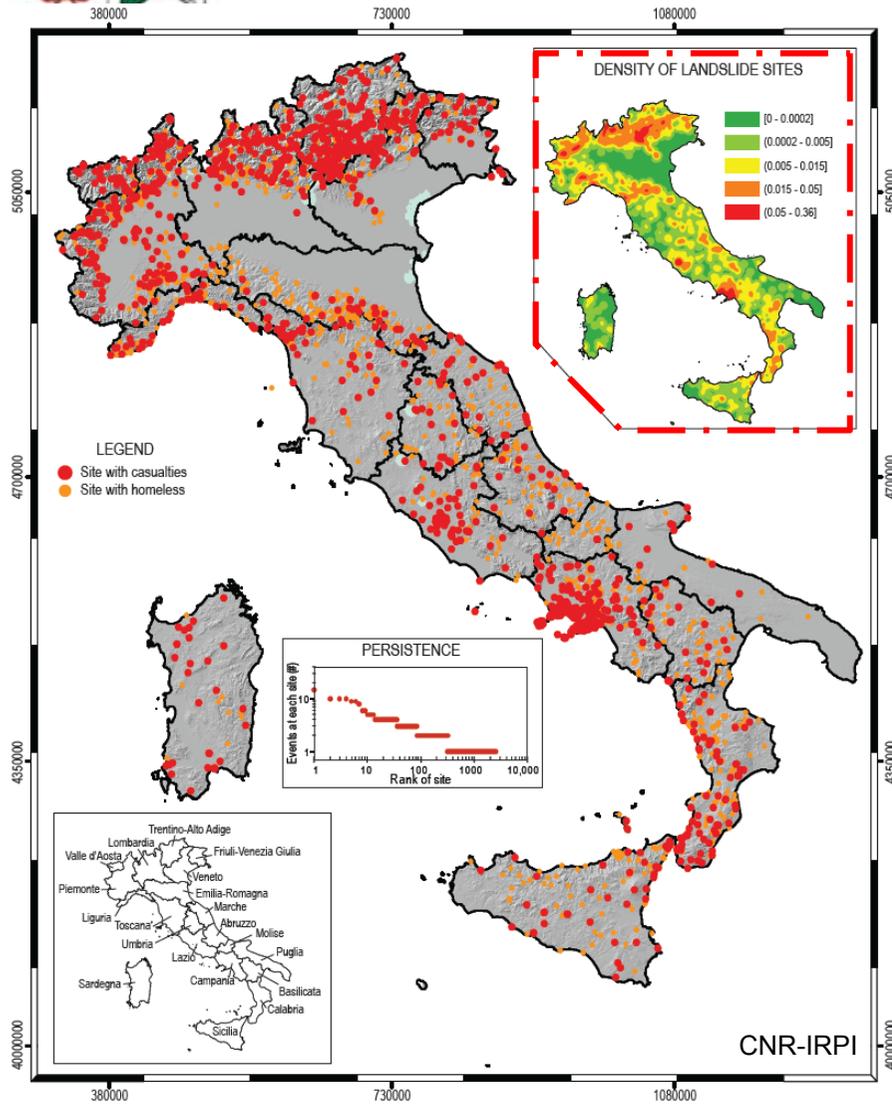
25/10/2011



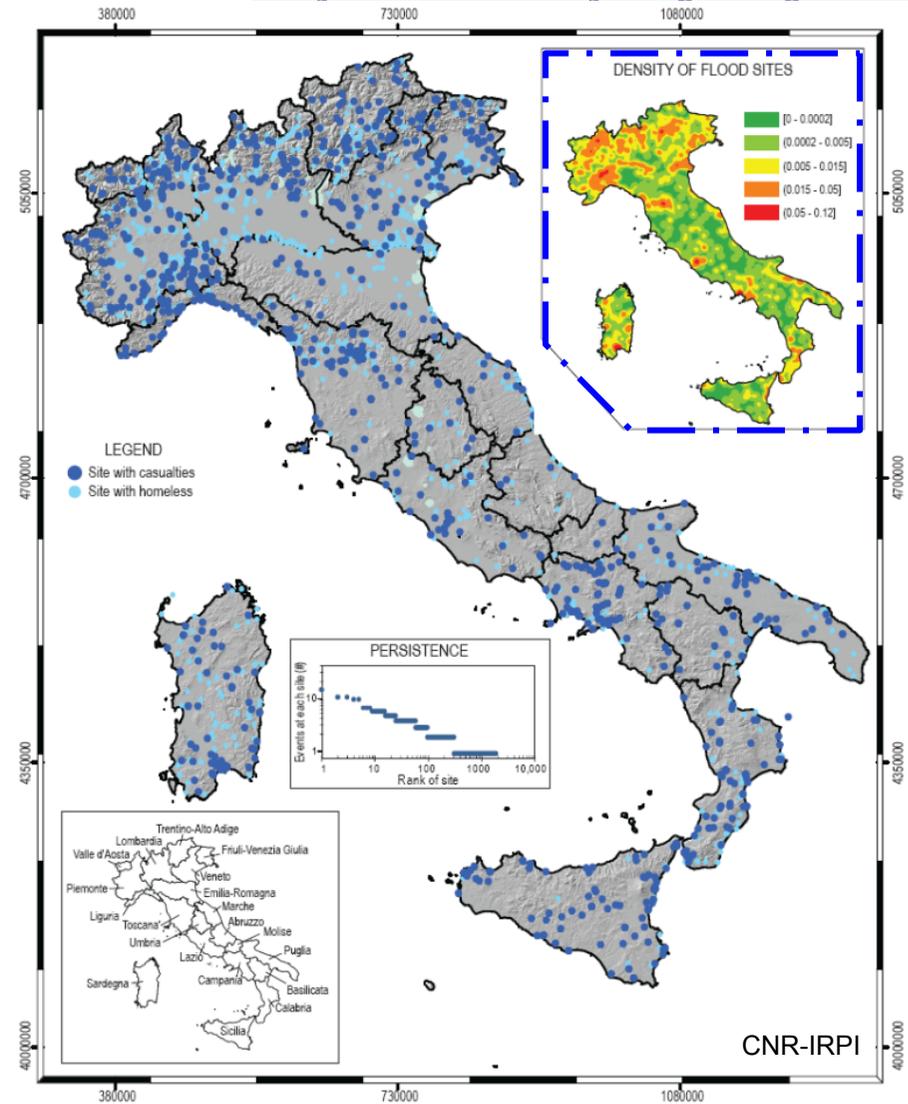
05/11/2011



# Hydraulic and hydrogeological risk



Location of 2533 sites affected by landslide events with direct consequences to the population. Period 650-2008



Location of 1836 sites affected by floods events with direct consequences to the population. Period 590-2008

# Damage and costs



**Economical losses 1946-2010 52BL Eu**

**infrastructure measures  
300 ML Eu /year needed for 100 years**





# The context

Early warning mechanisms can correspond to very different institutional arrangements, operational procedures, technical and scientific activities and communication mechanisms depending on each country's **specificities**

level of decentralization  
*legislation* **authorities**  
**types of risks**  
population's degree of vulnerability  
resources

# Authorities and level of decentralization

The Department of Civil Protection is today the coordination body of the Italian National System of Civil Protection.

This System was established by a specific law (n. 225) in 1992 and involves many different Organisations:

- **Public (Government, Ministries, Regions, Provinces, Municipalities, Operational Bodies etc.)**
- **Scientific/Academic (Universities, Research Institutes, etc.)**
- **Civil Society (Volunteers, private companies)**



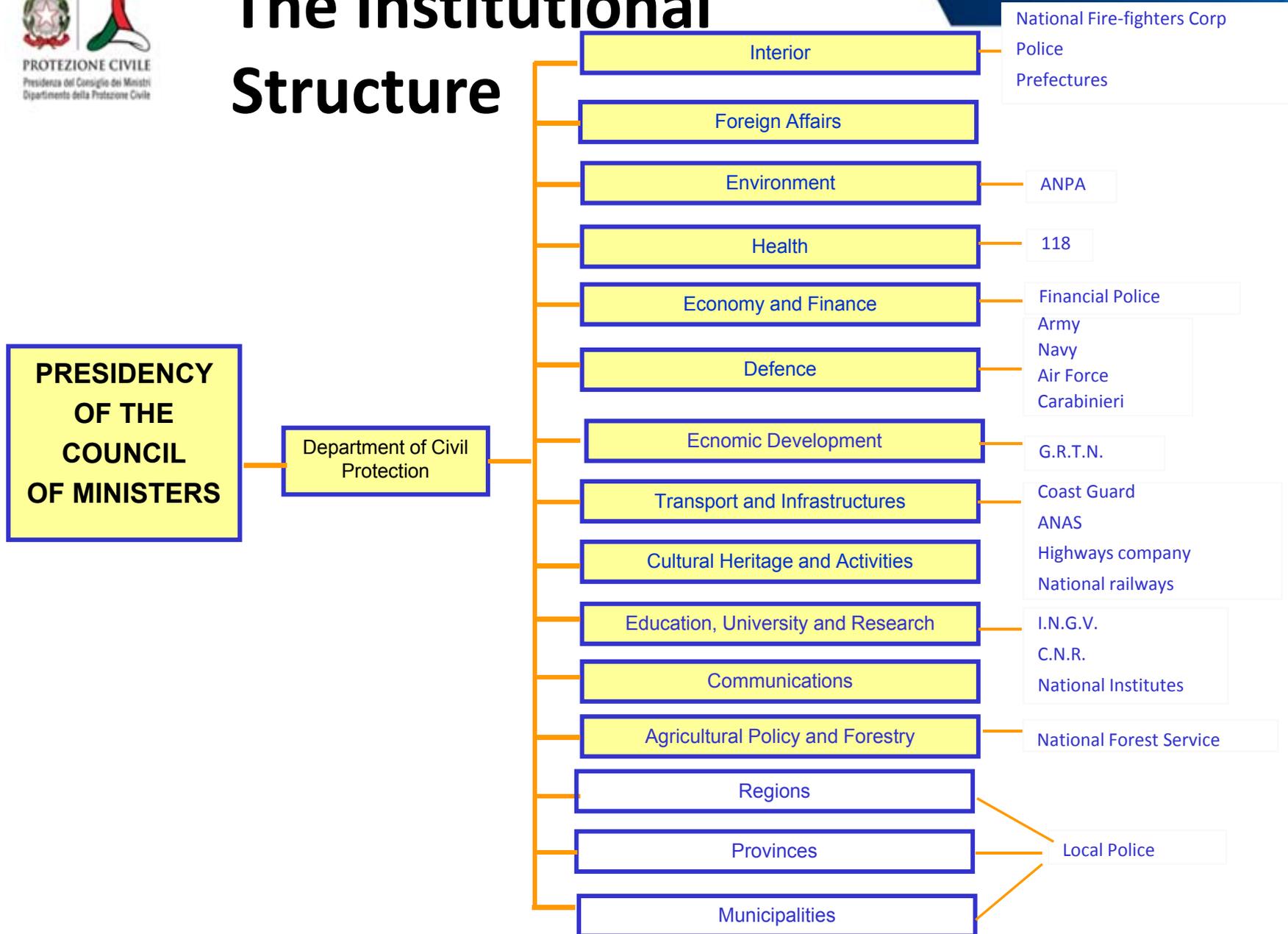


# Who intervenes in case of emergency?

- Italian Civil Protection distinguishes events (either natural or man made) based on impact they have:
  - **A** – local level
  - **B** – provincial and regional level;
  - **C** – national and international level.
- **A** and **B** events can be managed through **ordinary interventions** implemented by bodies and administrations.
- **C** events must be managed making recourse to **extraordinary means and powers**.



# The Institutional Structure





# The Operational Committee





# The operative room

- Monitoring and coordination centre
- 24/7/365
- Modular structure



## Permanent presence

- Department of Civil Protection
- Fire Brigade
- Army
- Police
- Carabinieri
- Red Cross
- Finance Police
- National Forest Corps

# The Technical component

Centre for Forecasting and  
Surveillance of Effects

24/7/365



## Permanent presence

- Meteo staff
- Hydro staff ( engineers, geologists,...)
- operators



# distributed network of Centres for Forecasting and Surveillance of Effects(CFSEs)



*The Italian early warning system*

21 Planned Regional CFSEs

Regional CFSEs fully operating  
Regional CFSEs partly operating

1 National CFSE

24/7/365



# The Tasks established in the law 225/92





# The national early warning system legal framework

Italian Prime Minister Directive (27 Feb. 2004):

“Operational Guidelines for the organizational and functional handling of the national and regional warning system on the hydro-geological and hydraulic risk for the purposes of the Civil Protection”.

It defines:

EWS is provided by DCP and Regions by the “Centri Funzionali” National Network, along with the “Expert centers” involved in hazard assessment and surveillance activities....

Regional Civil Protection Authorities decide and issue warnings

**clearly defined THE ROLES AND  
RESPONSABILITIES OF ALL EWS STAKEHOLDERS**

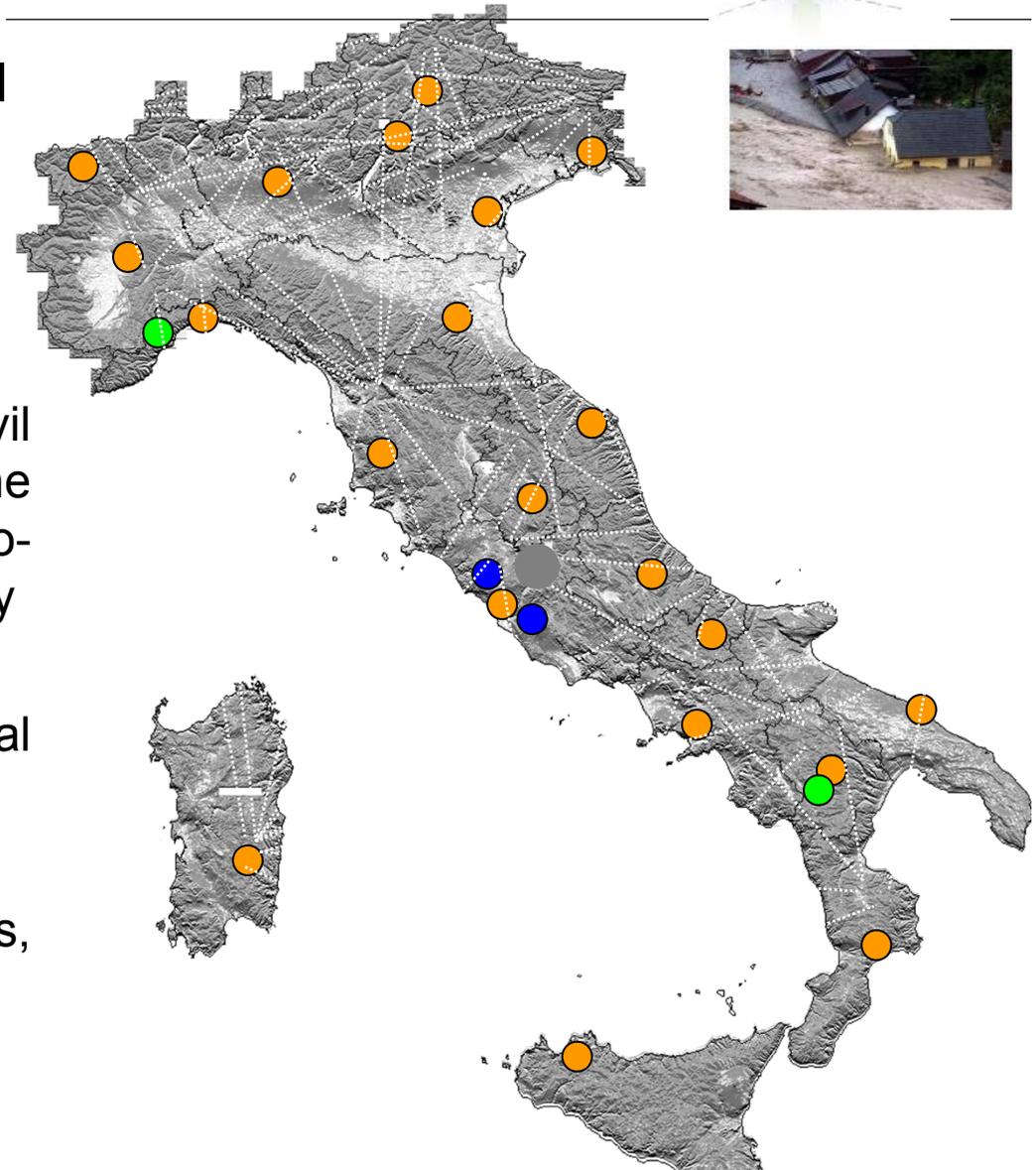
## The italian early warning system



(DPCM 27/02/2004) identified the activation of the **CFSE**

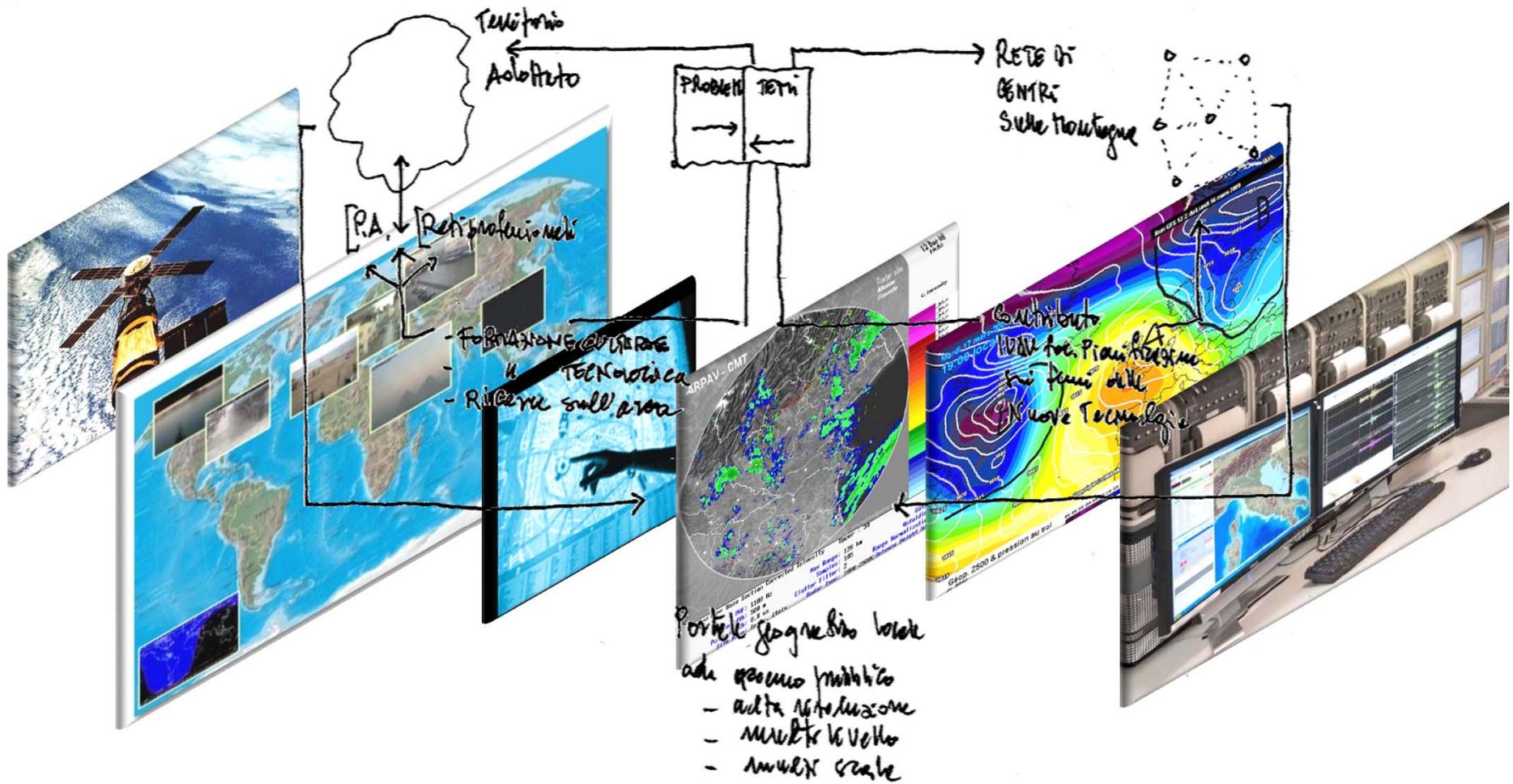
the hydrogeological, meteorological and hydraulic risks

- Each **Regional Centre** of Civil Protection has the **responsability** of meteorological alerts in its territory
- Coordination by the National Department of Civil Protection
- **Expert centres** (Universities, Agencies, research dept.
- ex.CimaFoundation...)





# Instruments

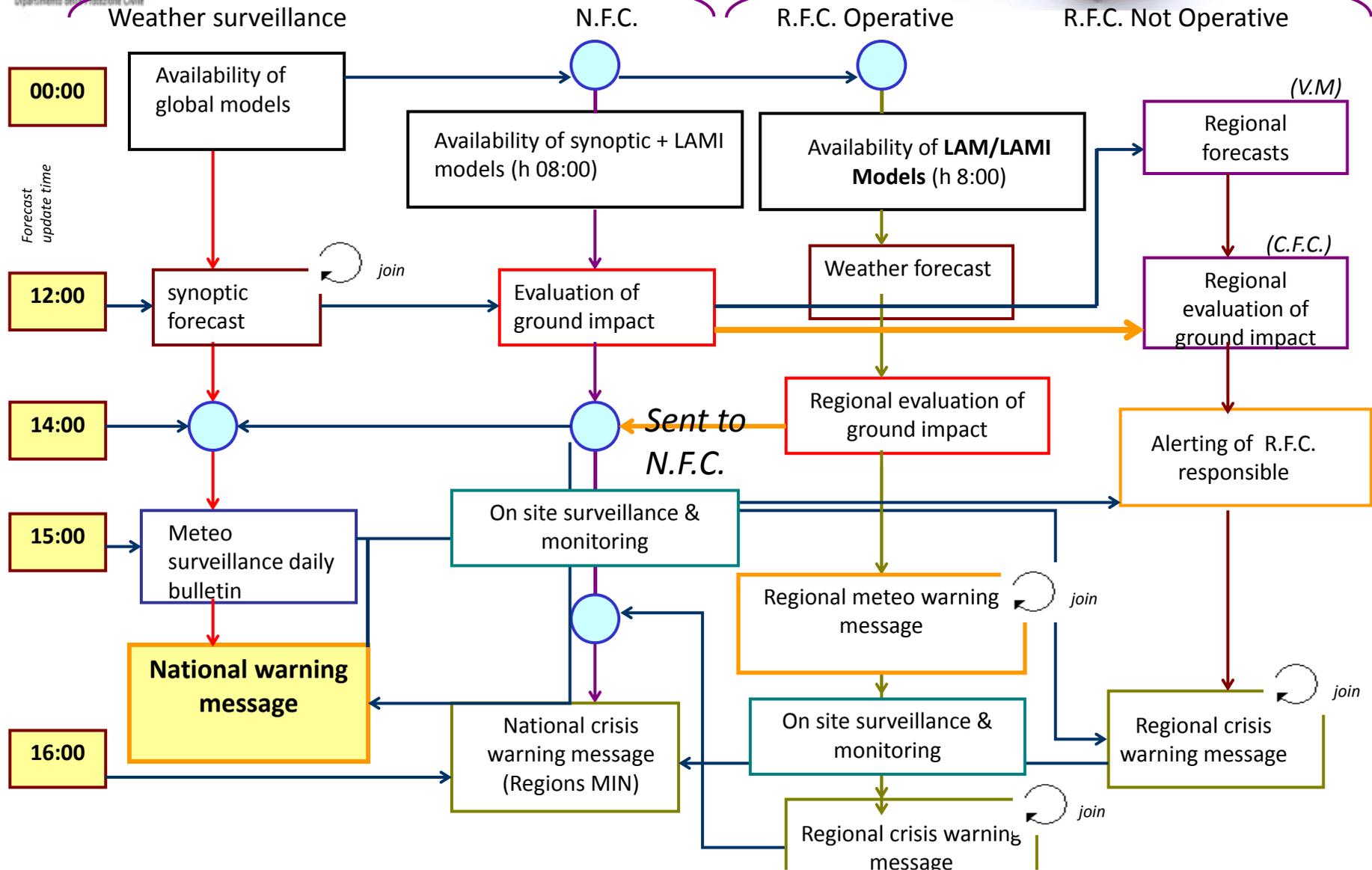


# Standard Operational procedure

Centro Funzionale Centrale



Regions



# Delivery of impact-based forecasts and warnings



Fenomeni meteorologici significativi previsti per il giorno  
20/09/2015



Centro Funzionale Centrale - Settore Meteo

LEGENDA	
[Area di vigilanza meteo]	Area di vigilanza meteo
[Quantitativi giornalieri di precipitazione previsti]	Quantitativi giornalieri di precipitazione previsti
[Assenti o non rilevanti]	Assenti o non rilevanti
[Deboli]	Deboli
[Moderati]	Moderati
[Elevati]	Elevati



Centro Funzionale Centrale - Settore Idro

N.° 15101 PROT. DPC/RIA/ 45992 DEL 20 SETTEMBRE 2015

DOMENICA 20 SETTEMBRE 2015

**OGGETTO: AVVISO DI CONDIZIONI METEOROLOGICHE AVVERSE**

**ESTENSIONE E SEGUITO: AVVISO n.° 15100 DPC/RIA/ 45975 DEL 19 SETTEMBRE 2015**

RIFER./ **DIRETTIVA PRESIDENTE DEL CONSIGLIO DEI MINISTRI 27-2-2004. "INDIRIZZI OPERATIVI PER LA GESTIONE ORGANIZZATIVA E FUNZIONALE DEL SISTEMA DI ALLERTAMENTO NAZIONALE E REGIONALE PER IL RISCHIO IDROGEOLOGICO E IDRAULICO AI FINI DI PROTEZIONE CIVILE".**

1. UN NUCLEO DEPRESSIONARIO PRESENTE SULLE NOSTRE REGIONI CENTRALI TENDERÀ A PORTARSI SULLA GRECIA. AL SEGUITO DELLA PERTURBAZIONE LE NOSTRE REGIONI CENTRO-MERIDIONALI SARANNO INTERESSATE DA VENTI FORTI SETTENTRIONALI, IN PARTICOLARE SUI SETTORI ADRIATICI CENTRALI E SULLE ZONE IONICHE.
2. PER QUANTO ESPOSTO NEL BOLLETTINO DI VIGILANZA METEOROLOGICA NAZIONALE DI OGGI, DOMENICA 20 SETTEMBRE 2015; SULLA BASE DELLA CONCERTAZIONE SINOTTICA DI OGGI, NELL'AMBITO DEL GRUPPO TECNICO CON IL SERVIZIO METEOROLOGICO DELL'AERONAUTICA MILITARE E I SETTORI METEO DEI CENTRI FUNZIONALI DELLE REGIONI PIEMONTE ED EMILIA-ROMAGNA; TENUTO CONTO DELL'AVVISO METEO EMESSO DAL CNMCA; SULLA BASE DEI MODELLI E DELLE INFORMAZIONI DISPONIBILI, ALLE ORE 15.00 DI OGGI, DOMENICA 20 SETTEMBRE 2015, SI EMETTE IL SEGUENTE:

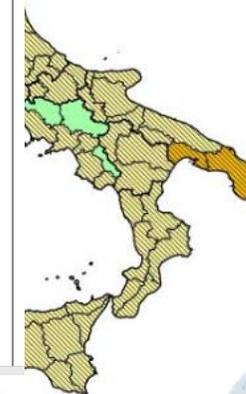
## **AVVISO DI CONDIZIONI METEOROLOGICHE AVVERSE**

**"DAL POMERIGGIO DI OGGI, DOMENICA 20 SETTEMBRE 2015, E PER LE SUCCESSIVE 24-36 ORE, SI PREVEDONO: VENTI FORTI DAI QUADRANTI SETTENTRIONALI CON RAFFICHE DI BURRASCIA SU ABRUZZO, MOLISE, PUGLIA, BASILICATA, CALABRIA E SICILIA. MAREGGIATE LUNGO LE COSTE ESPOSTE."**

3. PER LE REGIONI INTERESSATE SI CONFERMANO LE RACCOMANDAZIONI CONTENUTE NELLA DIRETTIVA A RIFERIMENTO



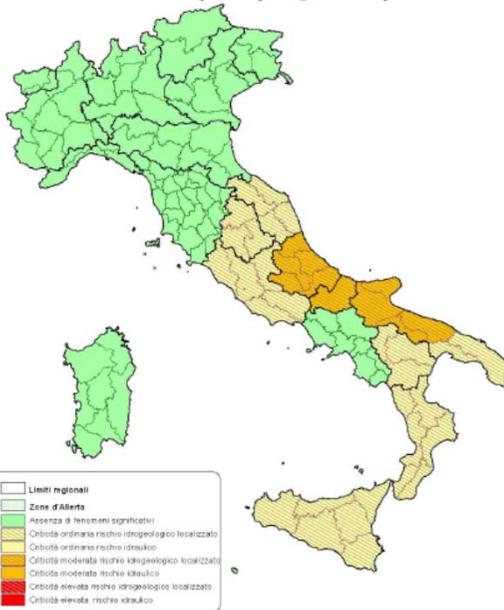
[www.protezionecivile.gov.it](http://www.protezionecivile.gov.it)



# Coordination and communication from national/regional level to local level

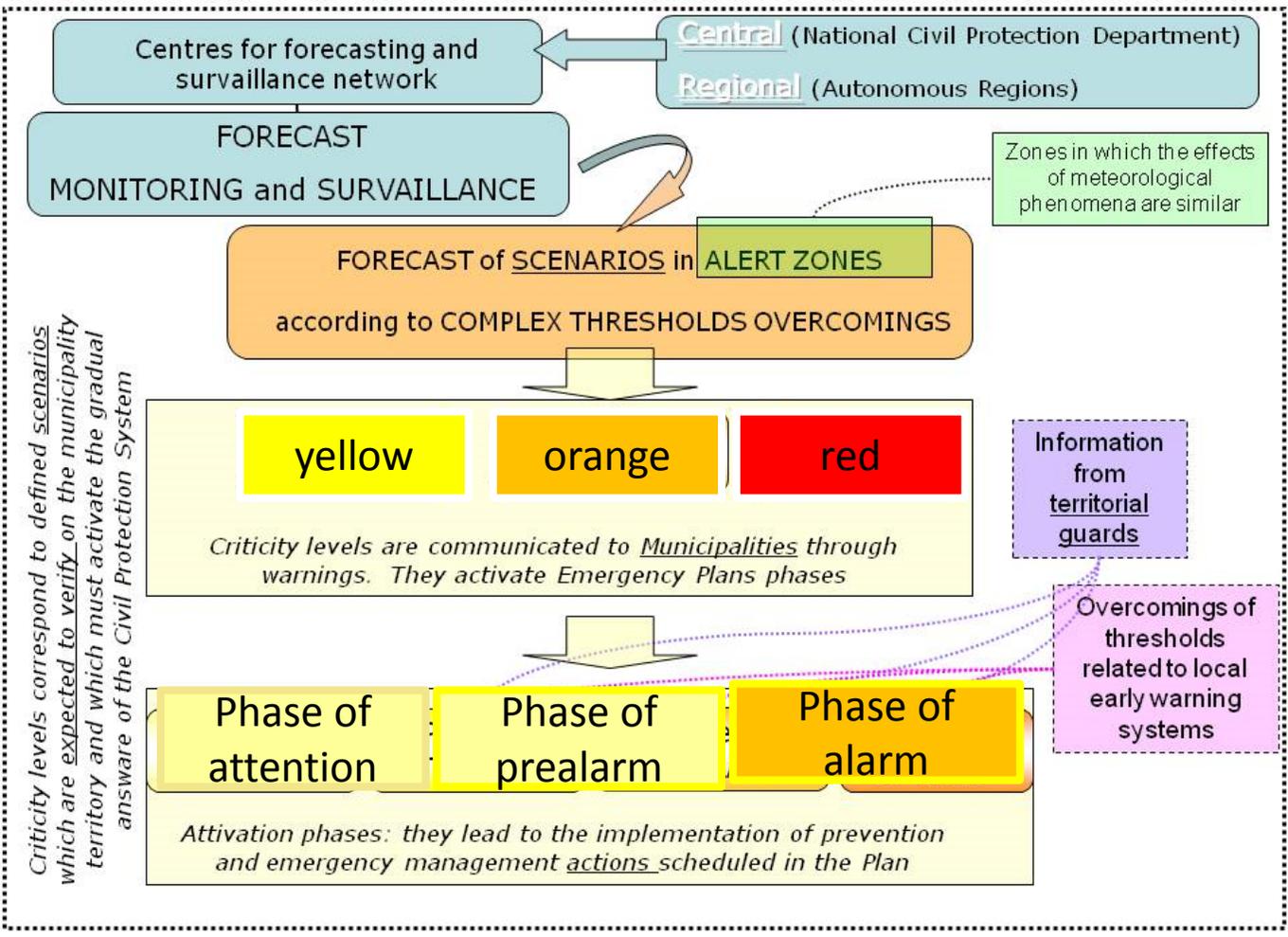
Dipartimento della Protezione Civile  
Centro Funzionale Centrale  
**Bollettino di criticità nazionale  
per Rischio Idrogeologico e Idraulico**

Effetti al suolo previsti per il giorno 04 Aprile 2008



REAL TIME risk assessment

## NATIONAL EARLY WARNING SYSTEM- HYDRAULIC AND HYDROGEOLOGICAL RISK

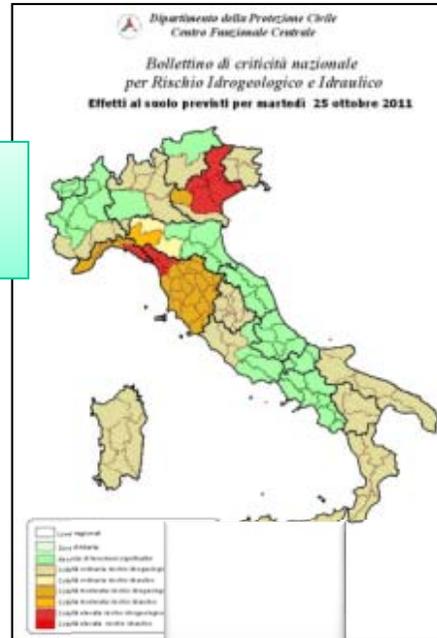


Warning → activation of operative response in real time at different territorial levels

# Vertical communication and coordination from national/regional level to local level

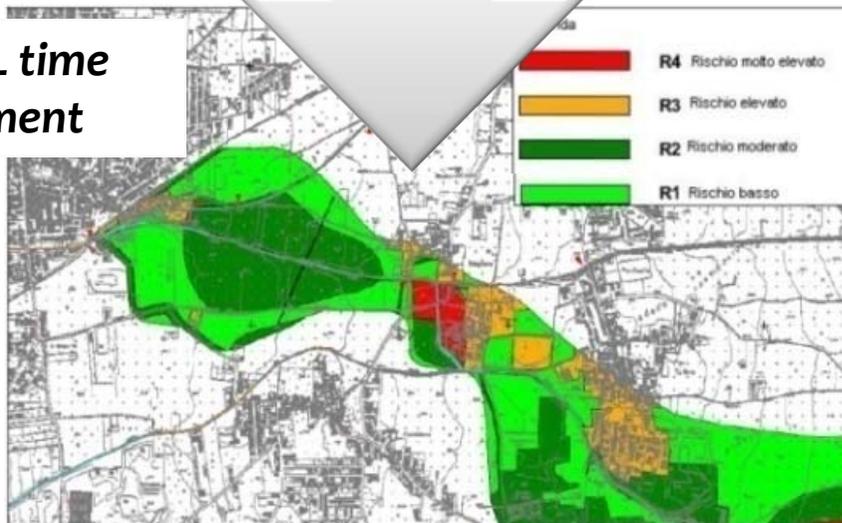


**REAL time  
assessment**



Warning messages  
predefined general risk scenario

**NO-REAL time  
assessment**



**CIVIL PROTECTION  
PLANS**

Communication to the  
public  
Specific risk scenario and  
actions to mitigate risk

## A «stratified» warning message

3 (4) levels of criticality/severity (green,yellow,orange, red)

3 different predefined scenarios for the meteo/geo category (thunderstorms, hydraulic, hydrogeo)

Date and hour warning begins/expires  
possibility of updates

Geographical Area: predefined alert zones (133) for hydrogeo risk, meteo zones (45) for meteo hazard

Statal/  
Regional  
functional  
center

Attivation phase

Regional  
civil  
protection  
authority

Specific risk scenario description

Response action

Scope:public

municipality

Public Weather Services established this register of information about alerting authorities as identified by Members. For questions, [please contact us](#). Select a country to get started.

## WMO Register of Alerting Authorities [ home ]

OID: 2.49.0.0.380.1 WMO Member: Italy ISO 3166: IT ITA 380

Issuing Organization: Italian Civil Protection in cooperation with italian region civil protection structures

Hazard Categories: Geo Met Safety Security Rescue Fire Health Env Transport Infra CBRNE Other

Authorization Basis: Ordinary Law n.225, 24th february 1992, art. 6

CAP Feed URL: [ blank ]

Forecasts URL: <http://www.protezionecivile.gov.it/jcms/en/rischi.wp>

Alerting Area (NWSE): 48 6 36 19

### Map view of the typical area for this alerting authority.



#### Hazard Categories

**Geo:** Geophysical (earthquakes, volcanoes, tsunamis, etc., includes landslide)

**Met:** Meteorological (weather, storms, etc. includes flood)

**Safety:** General emergency and public safety

**Security:** Law enforcement, military, homeland and local/private security

**Rescue:** Rescue and recovery

**Fire:** Fire suppression and rescue

**Health:** Medical and public health

**Env:** Pollution and other environmental

**Transport:** Public and private transportation

**Infra:** Utility, telecommunication, other non-transport infrastructure

**CBRNE:** Chemical, Biological, Radiological, Nuclear or High-Yield Explosive threat or attack

**Other:** Other events



# dewetra

DEWETRA - Mozilla Firefox

Credits:  



Username:

Password:

Login

Dewetra 1.3 - 06/03/2012

# Dewetra web alert : real time sharing of warning evaluation and automatic message generation: possible client CAP

Firefox ha impedito a questo sito di aprire una finestra pop-up.

User: cf\_centrale

MAPS TEXT

EMETTE IL PRESENTE BOLLETTINO DI CRITICITA' NAZIONALE.  
 PER LA GIORNATA DI OGGI, MARTEDÌ 22 SETTEMBRE 2015:

ORDINARIA CRITICITA' PER RISCHIO IDROGEOLOGICO LOCALIZZATO SU:  
 PIEMONTE: Toce;

PER LA GIORNATA DI DOMANI, MERCOLEDÌ 23 SETTEMBRE 2015:

ORDINARIA CRITICITA' PER RISCHIO IDRAULICO DIFFUSO SU:  
 LOMBARDIA: Pianura Occidentale;

ORDINARIA CRITICITA' PER RISCHIO IDROGEOLOGICO LOCALIZZATO SU:  
 ABRUZZO: Bacino dell'Aterno, Bacino del Pescara, Bacini Tordinone Vomano, Marsica, Bacino Alto del Sangro, Bacino Basso del Sangro;  
 EMILIA ROMAGNA: Bacini montani di Parma, Taro e Trebbia, Pianura di Parma e Piacenza;

NOTE:

MARTEDÌ 22 SETTEMBRE 2015 ORE 16 : 00

IL VICE CAPO DIPARTIMENTO  
 ANGELO BORRELLI

Bulletin Type:

- New Bulletin
- Bulletin Update
- Errata Corrigere

Preview

Save And Publish

Export

SMS Text :

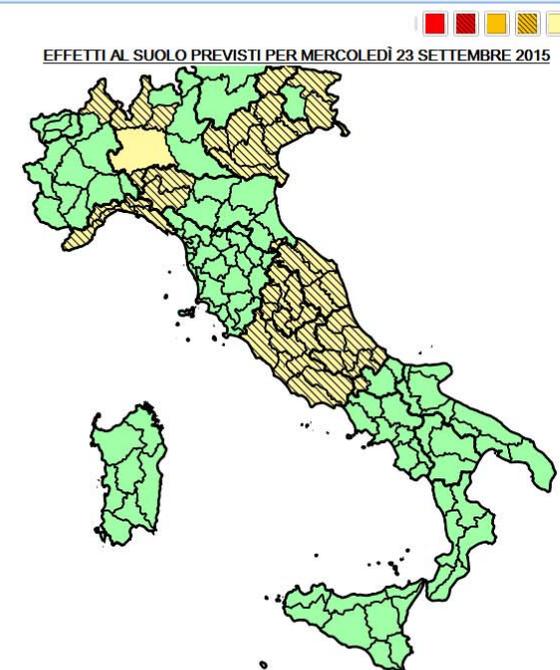
cod\_GIALLO PER OGGI SU:  
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cod\_GIALLO PER OGGI SU:  
 Pie;

cod\_GIALLO PER DOMANI SU:  
 Abr, Emi, Fri, Laz, Lig, Lom, Mar,

Publish To TWITTER

EFFETTI AL SUOLO PREVISTI PER MERCOLEDÌ 23 SETTEMBRE 2015



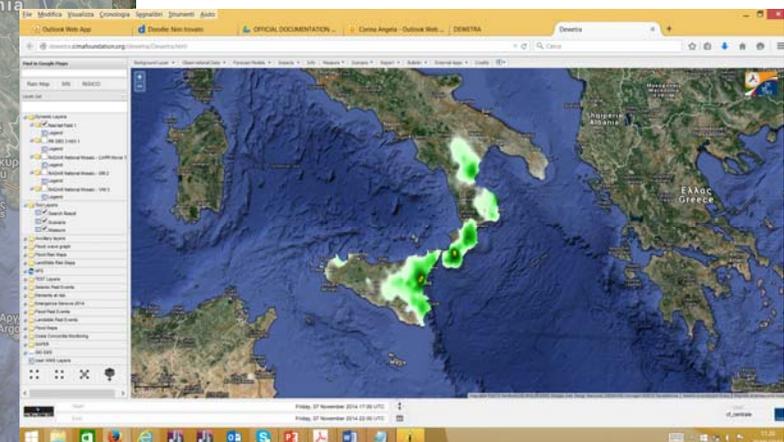
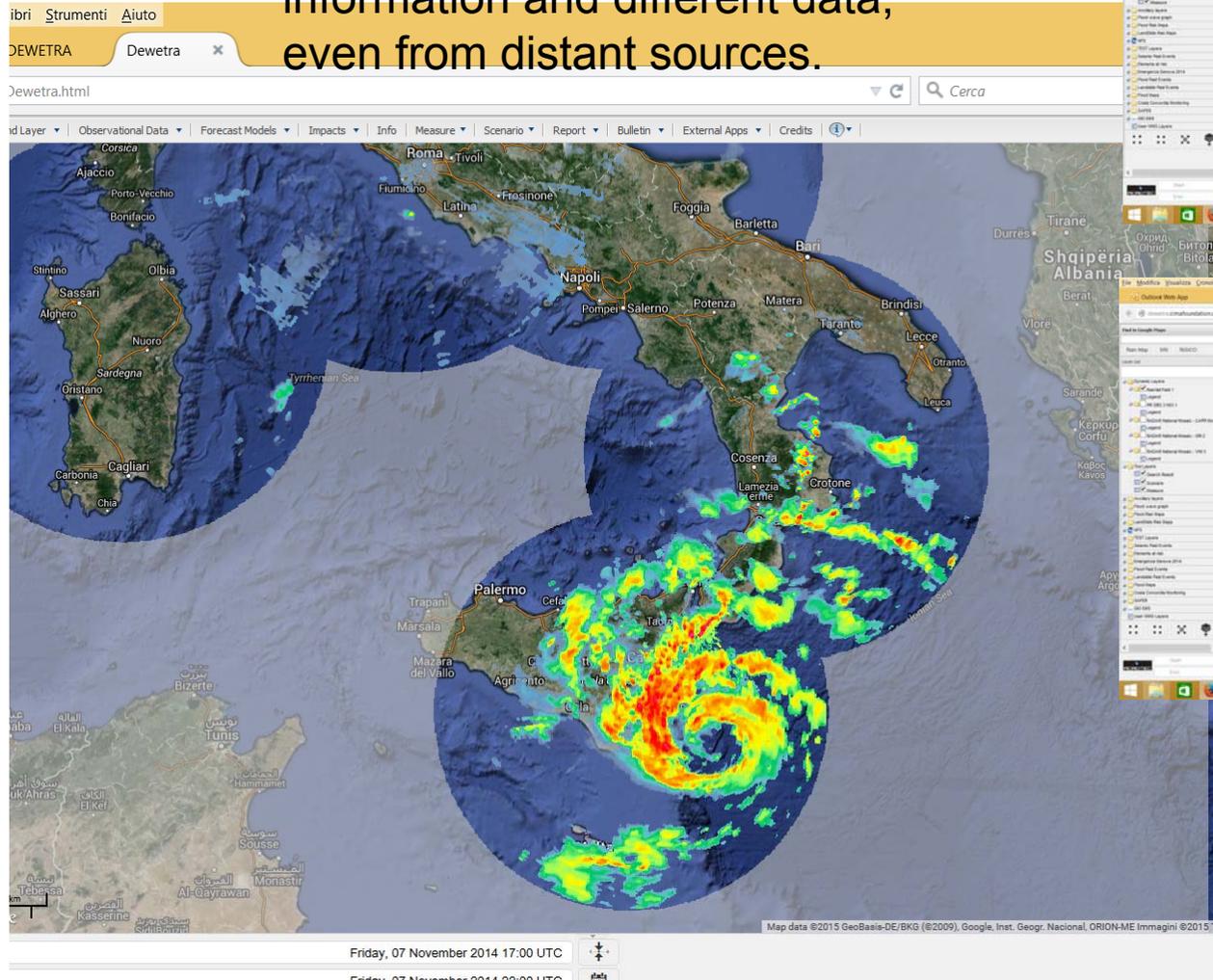
756 2.86785\_43.92

cf\_centrale: published first at 21/09/2015 15:35 [...download bulletin](#)  
 CFD\_CAM: published first at 22/09/2015 10:43 [...download bulletin](#)  
 CFD\_LAZ: published first at 22/09/2015 11:09 [...download bulletin](#)  
 CFD\_LOM: published first at 22/09/2015 11:10 [...download bulletin](#)  
 CFD\_ABR: published first at 22/09/2015 11:21 [...download bulletin](#)



# Dewetra : real time risk assessment platform

System of synthesis and processing of information and different data, even from distant sources.



Web based  
Compliant with international standards

# Spatial, logical and temporal integration



PROTEZION  
Presidenza del Consiglio  
Dipartimento della Protezione Civile

Corina Angela - Outlook x DEWETRA Dewetra World Meteorological Org Cg-17

dewetra.cimafoundation.org/dewetra/Dewetra.html

Find in Google Maps

Rain Map SRI RISICO

Layer List

Layer List

Dynamic Layers

Tool Layers  
Search Result  
Scenario  
Measure

Ancillary layers  
Flood wave graph  
Flood Risk Maps  
LandSlide Risk Maps

NFS  
TEST Layers

Seismic Past Events  
Elements at risk

Emergenza Genova 2014

Sopralluogo Bisagno 20141012 segni piena  
Simulazione idraulica Bisagno  
Aree Inondate - Sopralluogo 20-10-2014

Flood Past Events  
Landslide Past Events  
Flood Maps

Forest Fire Burnt Areas  
Costa Concordia Monitoring

SAFER  
GIO EMS

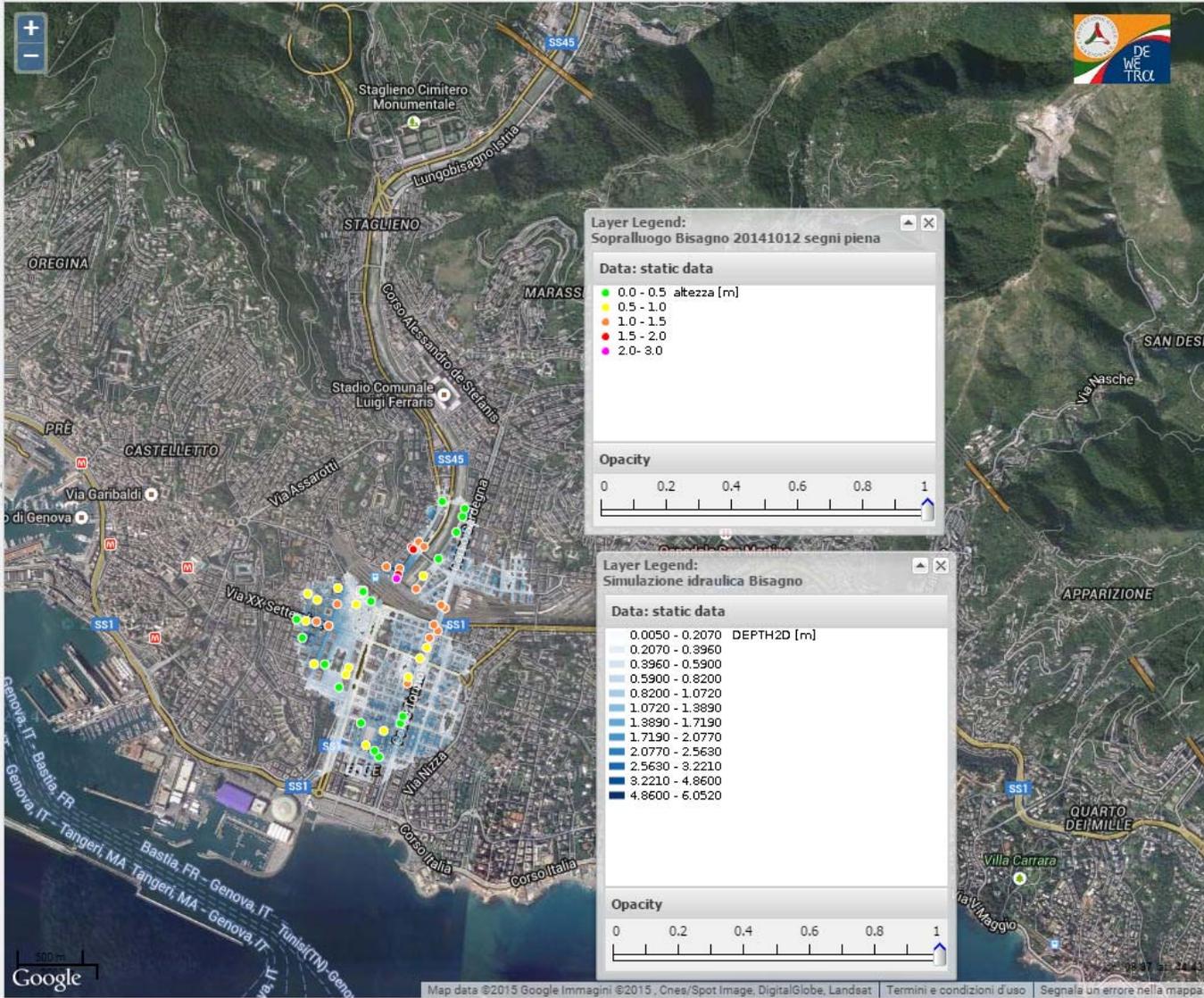
User WMS Layers

Navigation icons: pan, zoom, full screen, layers

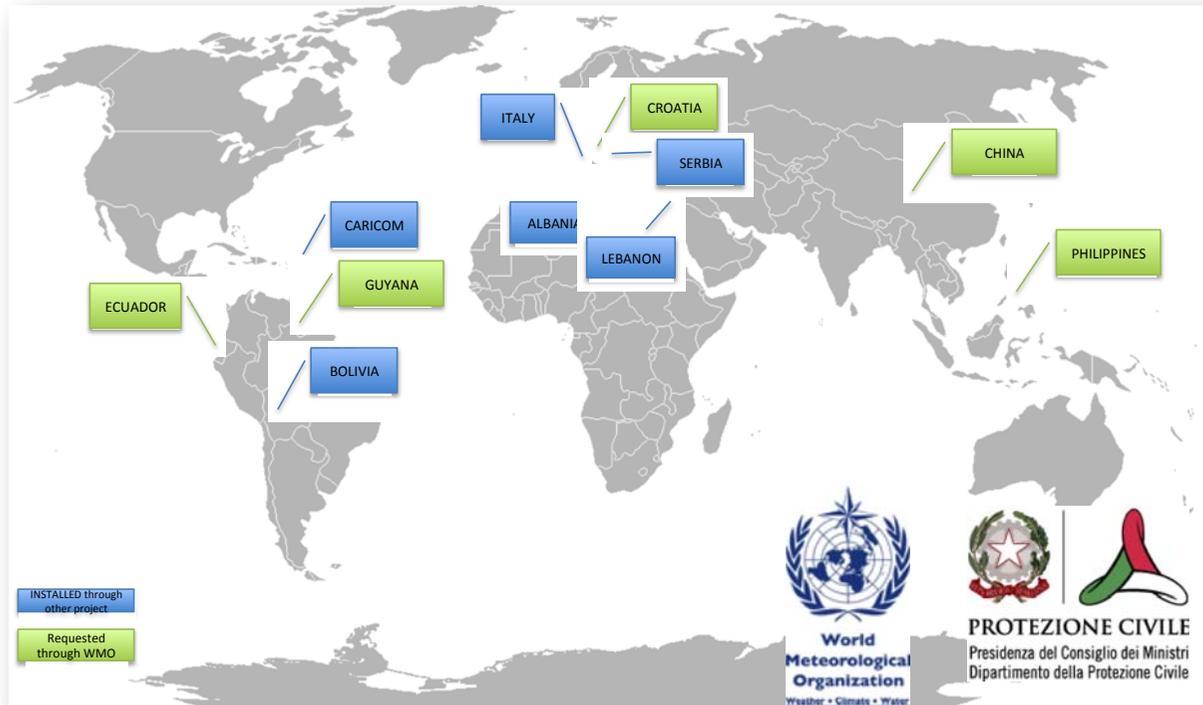
SAFER



Background Layer Observational Data Forecast Models Impacts Info Measure Scenario Report Bulletin Credits



# Dewetra installations



# Early warning system **key words**



**Instruments**

**IN-MHEWS**



**people**



**procedure**



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