

# Central-Italy earthquake: emergency management

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*Emergency Management Office*



**PROTEZIONE CIVILE**  
Presidenza del Consiglio dei Ministri  
Dipartimento della Protezione Civile

## Emergency management

An adverse event creates a new (emerging and uncomfortable) reference environment that needs to be ruled and made readable and accessible by procedures and means that are often different to ordinary ones; Decisions and measures must therefore be defined in order to limit or mitigate its effects, to prevent any further loss of human life or property, and to restore acceptable and acceptable short-lived and decent living conditions until reconstruction.

Operational and administrative co-ordination of the various actors who are in charge of specific tasks and achieving predefined objectives must be achieved.

Emergency management tools are: the adoption of shared procedures and the establishment of coordination centers at various territorial levels.



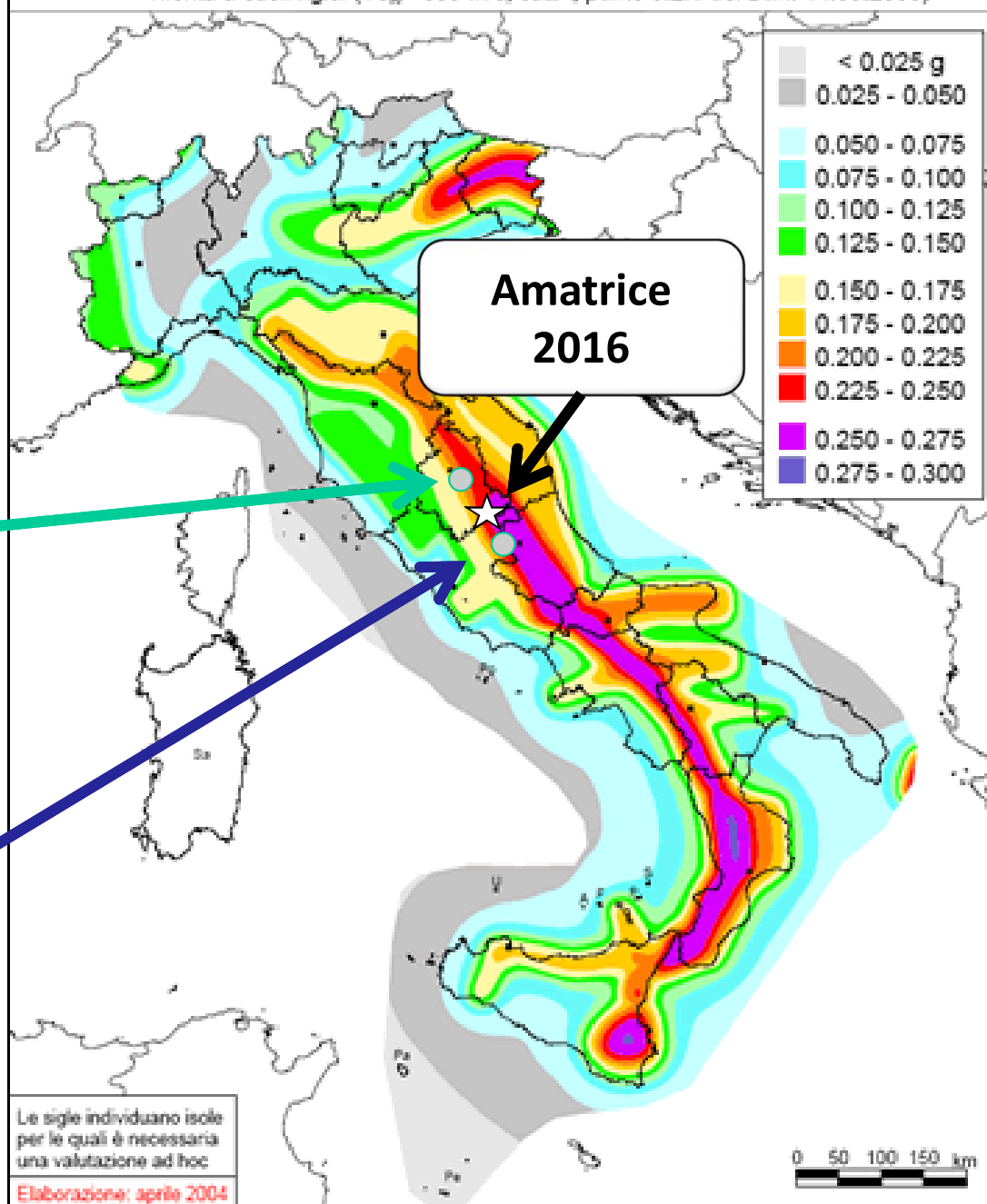
## Mappa di pericolosità sismica del territorio nazionale

(riferimento: Ordinanza PCM del 28 aprile 2006 n.3519, All. 1b)

espressa in termini di accelerazione massima del suolo

con probabilità di eccedenza del 10% in 50 anni

riferita a suoli rigidi ( $V_{s,0} > 800$  m/s; cat.A, punto 3.2.1 del D.M. 14.09.2005)

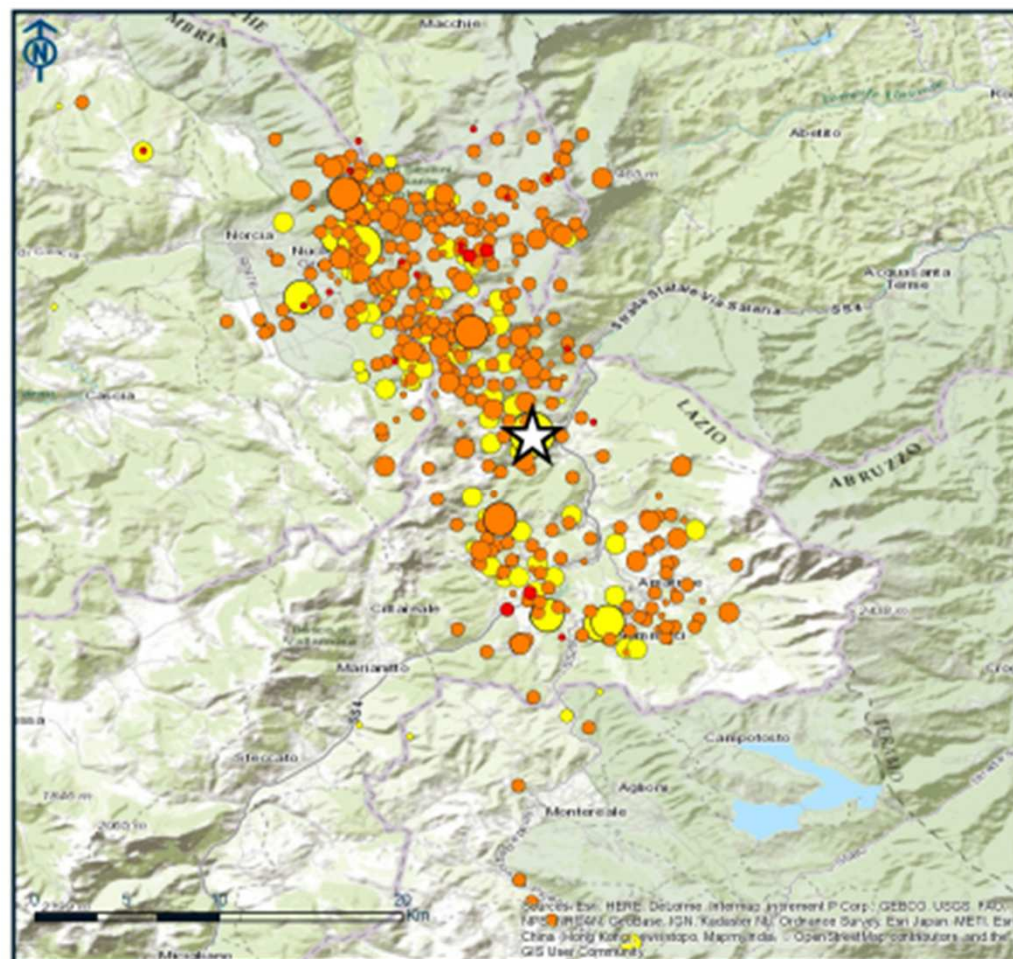


# 24<sup>th</sup> August 2016

1



**Seismic event**  
3.36 am – MI 6.0  
299 people died



**INGV terremoti**

SEQUENZA SISMICA TRA LE  
PROVINCE DI RIETI,  
ASCOLI P. E PERUGIA  
(agg. 25 agosto ore 08:00)

**Magnitudo (M)**

- fino a 2
- da 2.0 a 2.9
- da 3.0 a 3.9
- da 4.0 a 4.9
- da 5.0

**Tempo**

- Ultima ora
- Ultime 24 ore
- Ultime 72 ore
- Giorni precedenti

fonte dati: <http://iside.rm.ingv.it>

SEGUICI SU:  
<http://ingvterremoti.wordpress.com>

**Four affected regions:** Lazio, Marche, Umbria, Abruzzo

**Epicentral municipalities:** Accumoli, Amatrice (Rieti) Arquata del Tronto  
Montegallo (Ascoli Piceno) Norcia (Perugia)



**24 August h. 4.00 AM**

## **Operational Committee meeting**

National coordination for the first emergency response

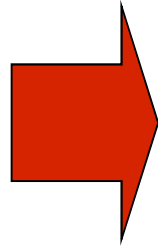
The Operational Committee met permanently until 28 August 2016



# The national service of civil protection

(law n. 225 del 1992)

**WHO'S  
PART  
OF**



Central State Admins  
Regions, Autonomous Provinces  
Provinces, Municipalities and mountain communities  
Fire Brigade  
Army, Navy, Air Force, Carabinieri, Police  
Scientific Community  
Italian Red Cross  
National health service  
Volunteers' organizations  
Alpine rescue corp

**and...**

**Citizens, public bodies, orders and professional colleges  
and every other public and private institution present on the  
territory are involved in civil protection activities**

***Tasks assigned to the different stakeholders ;  
Head of ITA CPD ensures their coordination***

- a) the actions needed in the first emergency phase aimed at eliminating risk situations, to ensure essential relief activities, assistance and shelter for people affected by the abovementioned disasters;**
- b) the activities to be undertaken, also in terms of the utmost urgency, related to the safety of the areas affected by natural disasters;**
- c) of emergency measures designed to prevent danger or major damage to persons or things.**

In order to ensure the effective coordination of all management activities, the establishment of the Management and Control Department was stated



## Direction of Command and Control (DiComaC)

**Foreseen in the OCDPC 388/2016**

**Established in Rieti on August 28, 2016 at 12:00 a.m.**

*Coordination Unit*  
*Logistics & Assistance to the population*  
*Technical*  
*Volunteer organization*  
*Press & communication*  
*Health and social assistance*  
*Essential services*  
*Road*  
*Emergency telecommunication*  
*Information technology*  
*Human resources*  
*Admin & Legal*  
*Damage assessment*  
*Flight activities coordination*  
*Schools*  
*Cultural heritage*







## Search & rescue Medevac



## Sheltering people

**43 camps** and  
other sheltering  
solutins set up by  
Regional and  
National  
Volunteers  
organizations  
*Now dismantled*



## NATIONAL LEVEL

Operational  
Committee

Sala Situazione  
Italia

DI.COMA.C.  
On site

ITA CPD

## REGIONAL

Regional Ops Room

## PROVINCIAL/DISTRICT

C.C.S.

*Relief Coord Centre*

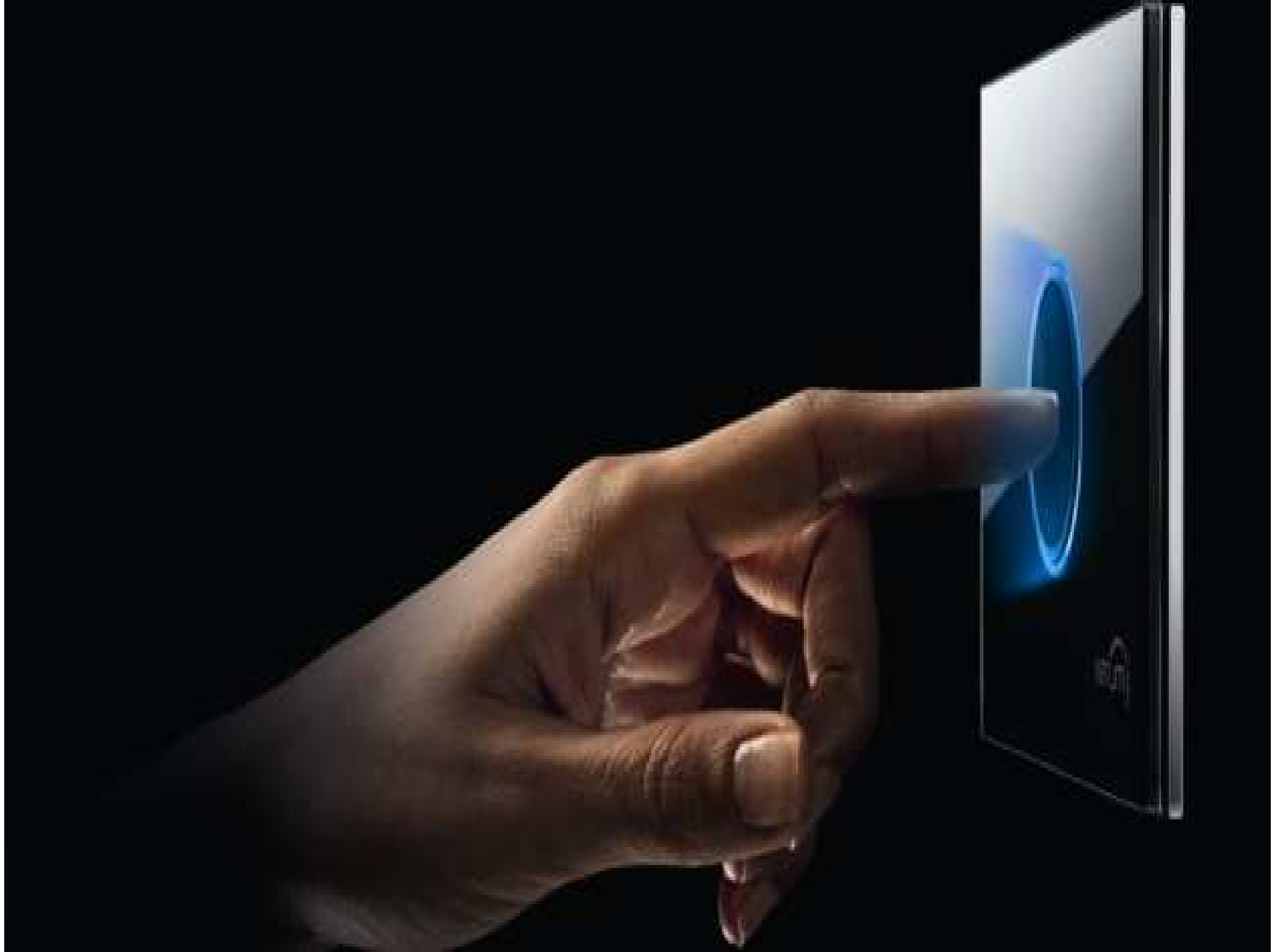
C.O.M.

*Inter - municipal Ops  
Centre*

## MUNICIPAL

C.O.C

*Municipal Ops Centre*





The diagram illustrates the organizational structure of the National Civil Protection System (Sistema Nazionale di Protezione Civile). At the top is the **DiComaC** (National Command and Control Centre). It branches into three main regional paths:

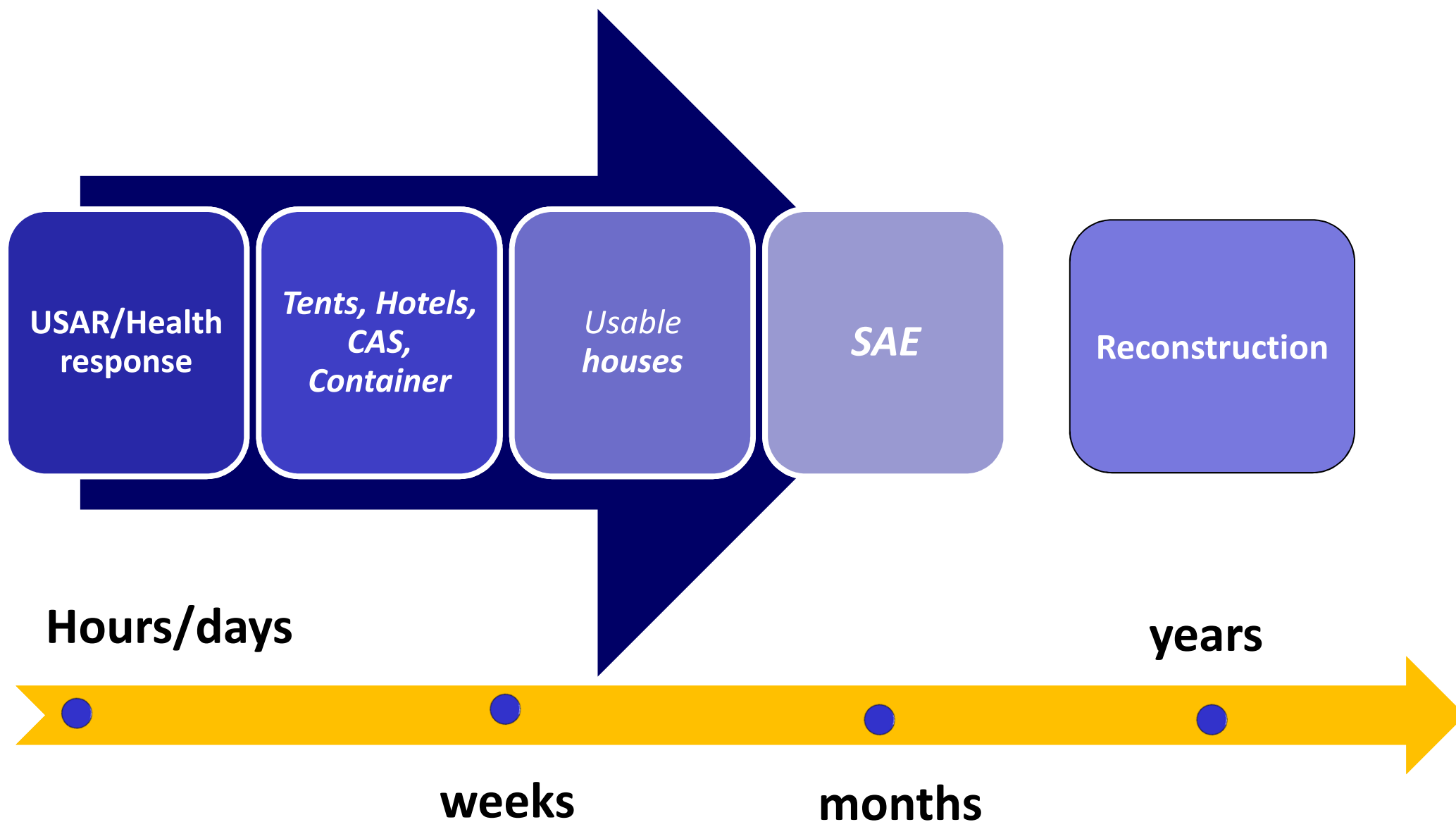
- Marche:** DiComaC connects to the **CCR in Arquata**, which then connects to the **COC AP province**. The **CCR in Arquata** also connects to the **CCR Sub coordination centre in Camerino**, which in turn connects to the **COC/Municipalities MC and FM provinces**.
- Lazio:** DiComaC connects to two **COI** (Coordination and Intervention Centres) boxes: **COI Borbona, Cittareale, Leonessa, Posta** and **COI Amatrice e Accumoli**. Both COI boxes connect to their respective **COC/Municipalities** boxes.
- Umbria:** DiComaC connects to the **Regional Ops Centre Foligno**, which then branches into **Others COC/ Municipalities** and **COM NORCIA** (Norcia - Preci - Cascia - Monteleone di Spoleto).

Additionally, there is a path for **Abruzzo** (indicated by a dashed line) which connects to the **COR** (Coordination and Intervention Centre) box, which then connects to the **COM/Municipalities** box.

The diagram uses color coding: blue boxes for DiComaC, Marche, Lazio, and Umbria; red boxes for CCR, COI, and Regional Ops Centre; and white boxes for COC, COM, and COC/Municipalities. Solid lines represent direct connections, while dashed lines represent indirect or secondary connections.



# GENERAL STRATEGY



## **Emergency temporary solutions - SAE**

*Regions and municipalities could benefit from the Framework Agreement, signed by the Civil Protection Department for the provision of SAE- Emergency temporary solutions, and could activate specific contracts for the construction of such facilities.*

*So far, over 3,300 SAEs have been ordered in the four regions*



# 26<sup>th</sup> and 30<sup>th</sup> October 2016

2



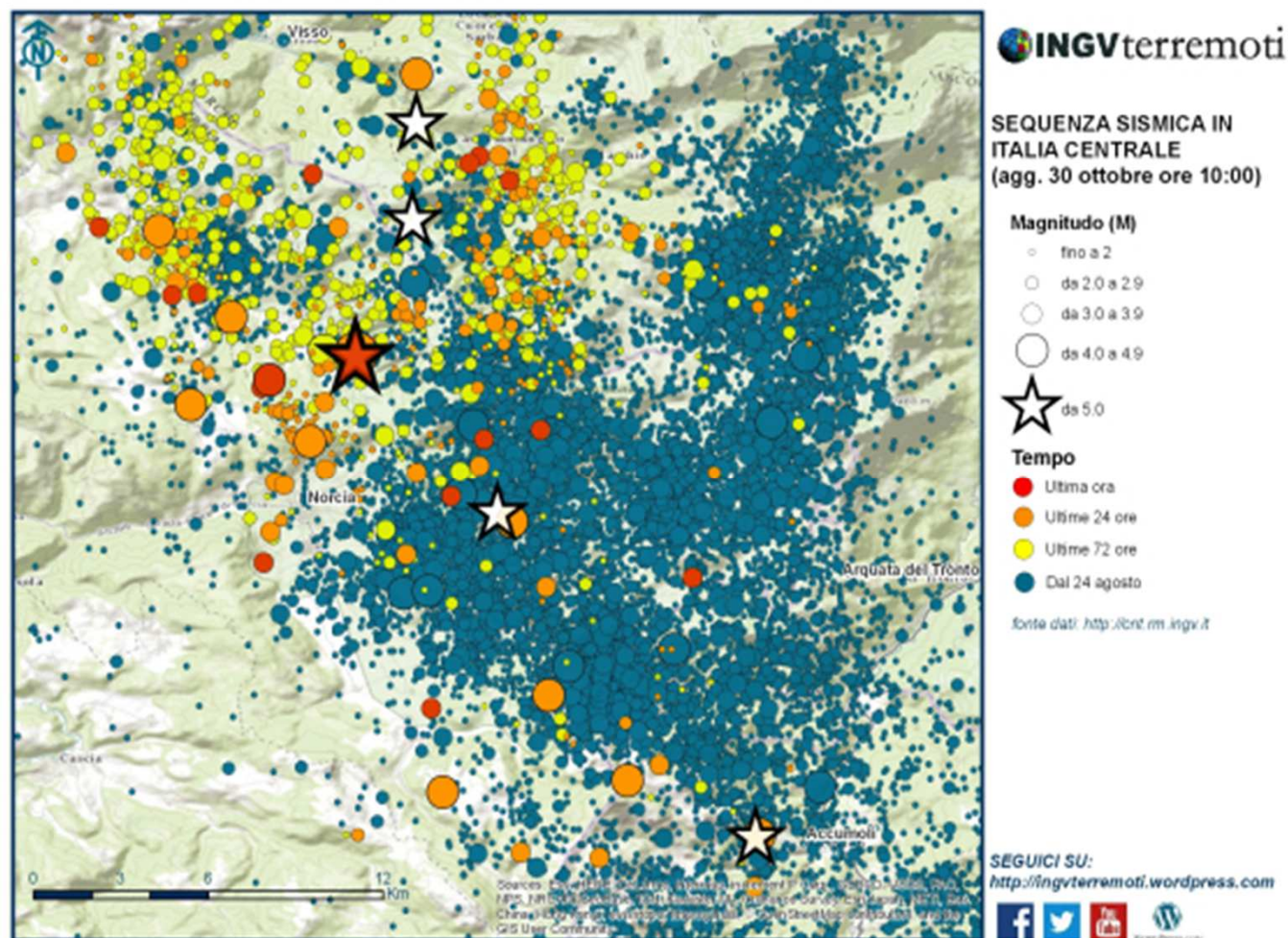
## Seismic events

26 october 19.10 – Mw 5.4

26 october 20.18 – Mw 5.9

30 october 7.40 – Mw 6.5

**Four light injured people in Marche, 7 in Lazio and 17 in Umbria.**



**Four affected regions :** Lazio, Marche, Umbria, Abruzzo

**Epicentral municipalities :** Norcia (Perugia), Castelsantangelo sul Nera, Visso e Ussita (Macerata)

# What's new?

24 aug		30 oct
299	Victims	None
More than 4k	Assisted population	More than 31k
62 municipalities	Affected areas	131 municipalities (62+69)
28k surveys already done in 2 months	Usability of building	Had to start again!!!

# What's new?

24 aug

30 oct

43 camps and other  
solutions

How assist the people?

Containers

Aedes

How to verify so many  
buildings

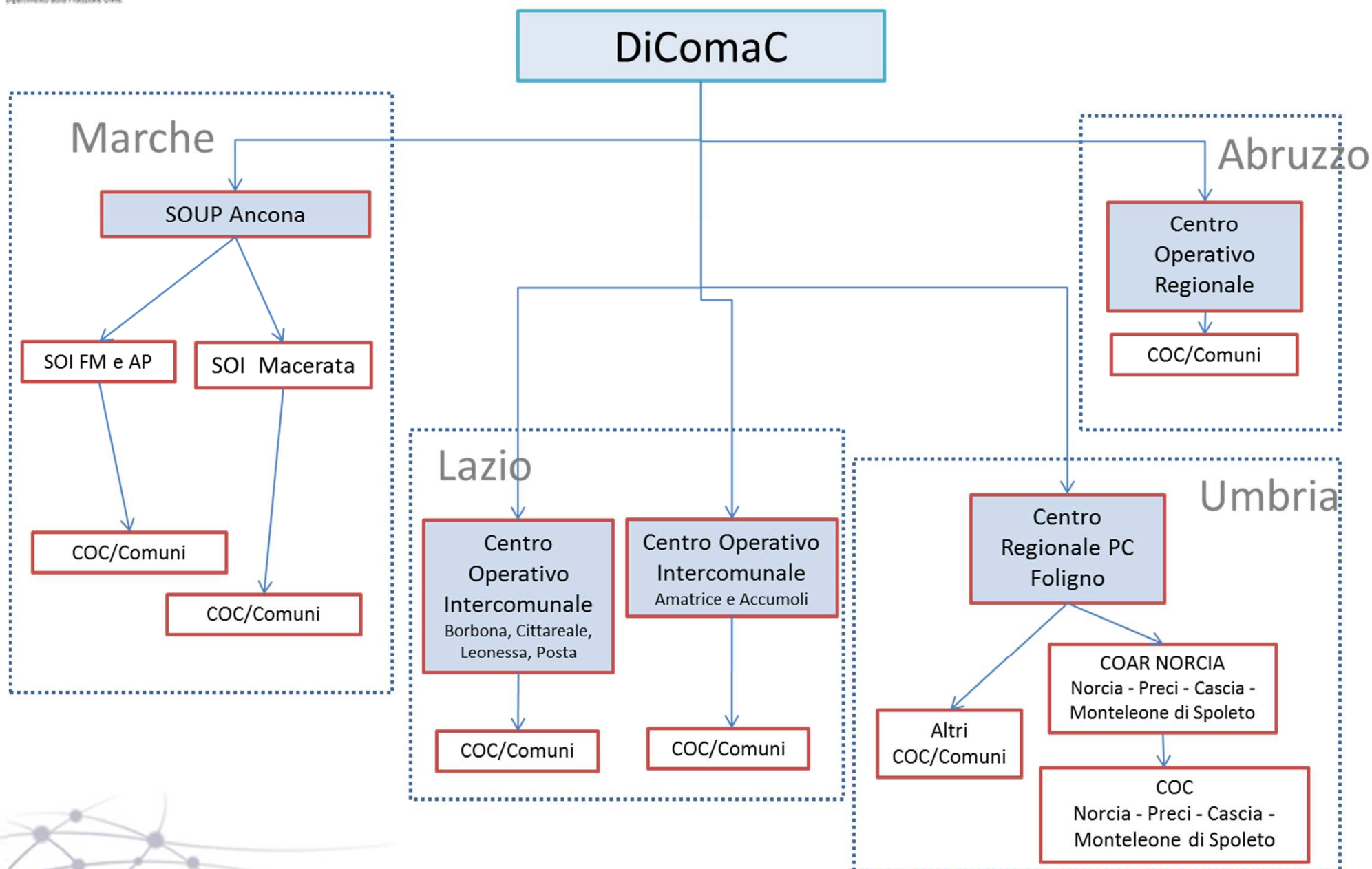
Fast / Aedes

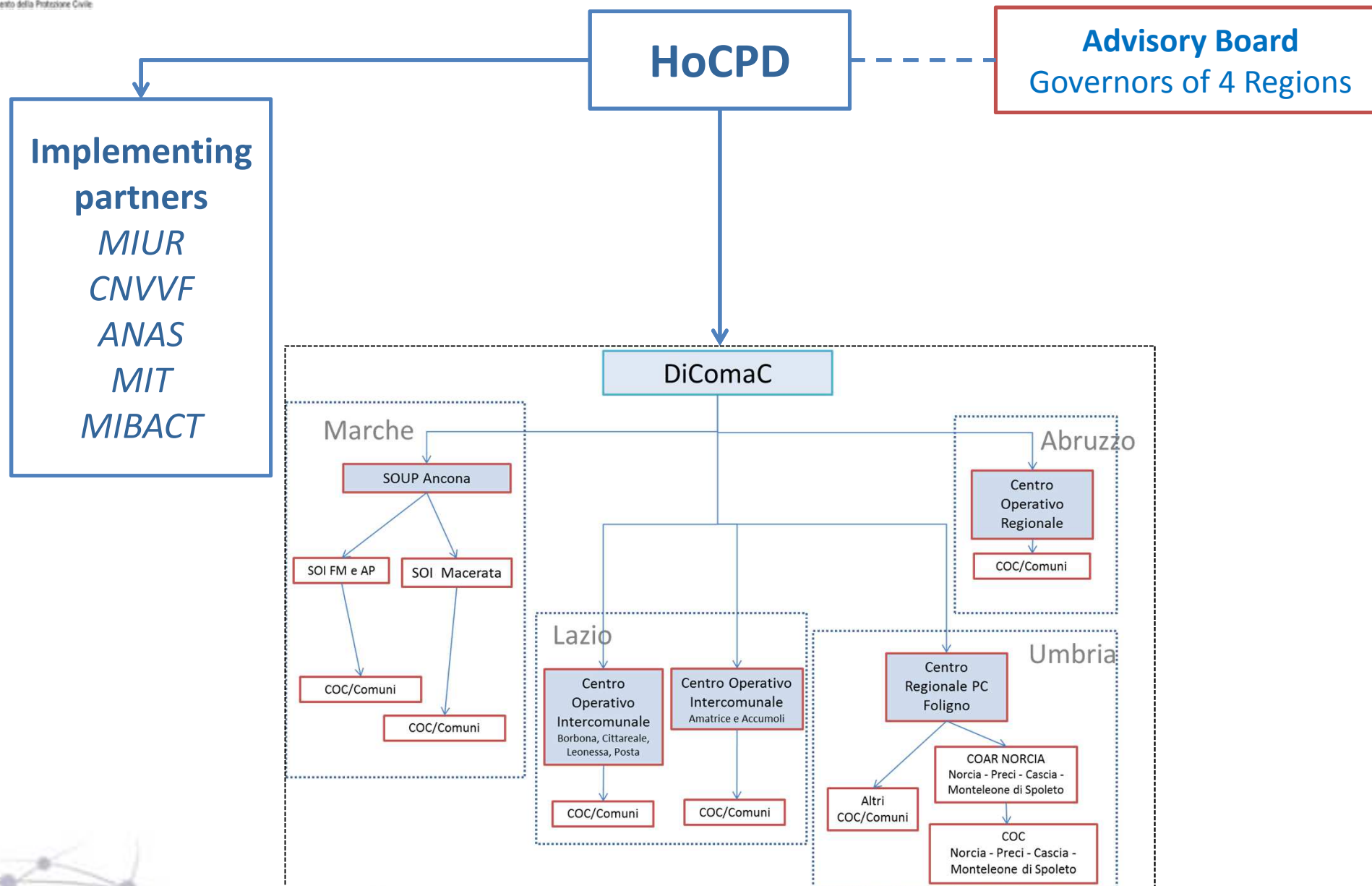
## Sheltering people

***After late October  
shocks***

**1296 people have  
been hosted in  
temporary  
shelters**







# INQUADRAMENTO GEOGRAFICO

Comuni danneggiati

**Di.Coma.C.**

Unità di coordinamento Edizione Informativa Territoriale e Cartografica  
Dipartimento Provinciale della Difesa Civile

## Inquadramento geografico



## Legenda

- ★ Segno
- ▬ Limiti comunali
- ▬ Limiti provinciali
- ▬ Limiti regionali
- Comuni danneggiati
- Stato di emergenza
- ▬ da 1 a 100000
- ▬ da 100000 a 1000000

Modello ESRI World Topographic Map

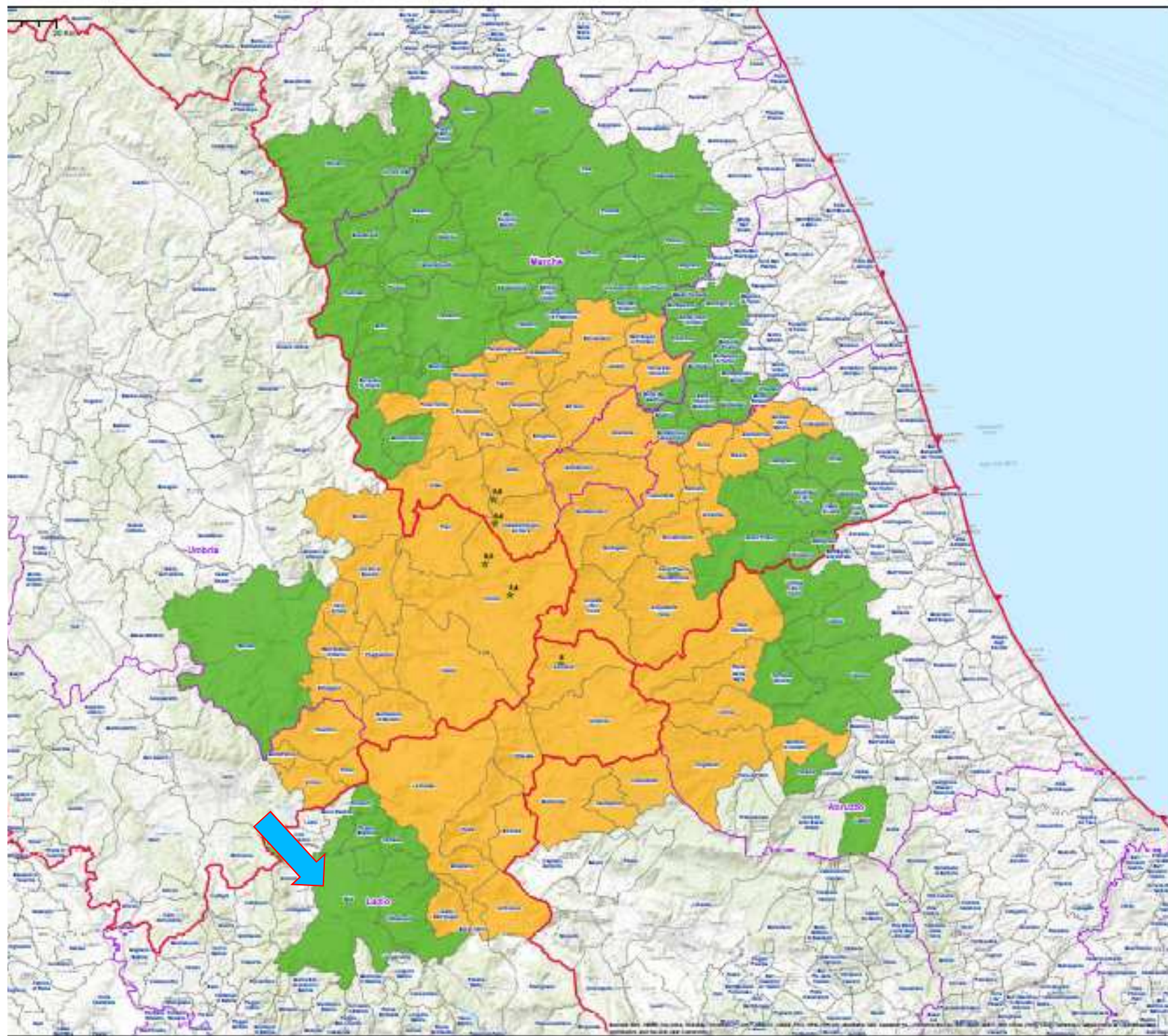
## Note

FOURTE 2011  
2011 2011

**DISCLAIMER:**  
I contenuti presenti all'interno di questa mappa sono a supporto dell'attività della Di.Coma.C. e di tutti i soggetti coinvolti nella gestione dell'emergenza. Non sono da considerarsi dati o informazioni di questa mappa sono utilizzati solo per fini operativi. Gli errori del non devono essere divulgati a terzi.

## Informazioni cartografiche

WGS 1984 UTM Zone 32N



# 18<sup>th</sup> January 2017

3



## Seismic events 18 of January

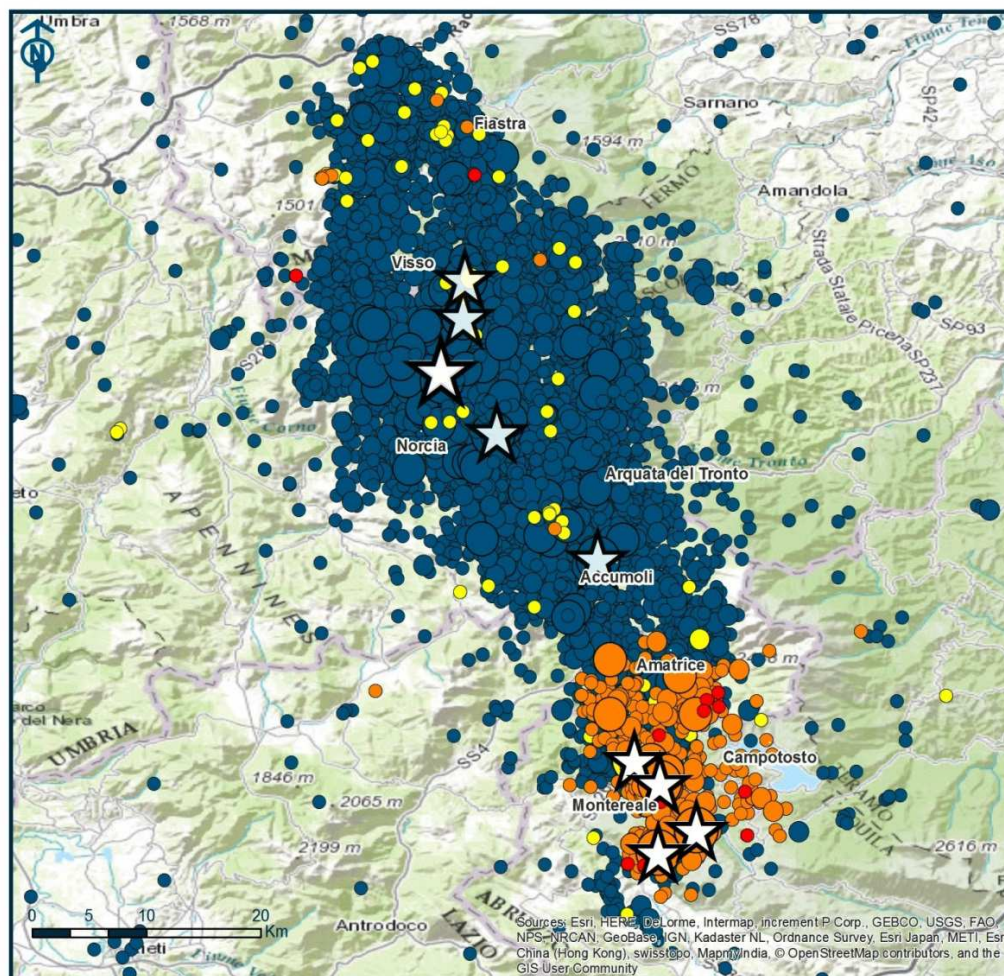
10.25 – Mw 5.1

11.14 – Mw 5.5

11.25 – Mw 5.4

14.33 – Mw 5.0

*34 people died as a consequence of the heavy snowfalls*



 **INGV terremoti**

**SEQUENZA SISMICA IN  
ITALIA CENTRALE  
(agg. 19 gennaio ore 11:00)**

**Magnitudo (M)**

○ da 2.0 a 2.9

○ da 3.0 a 3.9

○ da 4.0 a 4.9

★ da 5.0

**Tempo**

● Ultima ora

● Ultime 24 ore

● Ultime 72 ore

● Dal 24 agosto 2016

fonte dati: <http://cnt.rm.ingv.it>

**SEGUICI SU:**  
<http://ingvterremoti.wordpress.com>



**Four affected regions :** Lazio, Marche, Umbria, Abruzzo

**Epicentral municipalities:** Montereale, Pizzoli, Capitignano, Campotosto, Cagnano Amiterno



# Central Italy Earthquakes



## Overview



**Deaths 299**



**Injured 390**



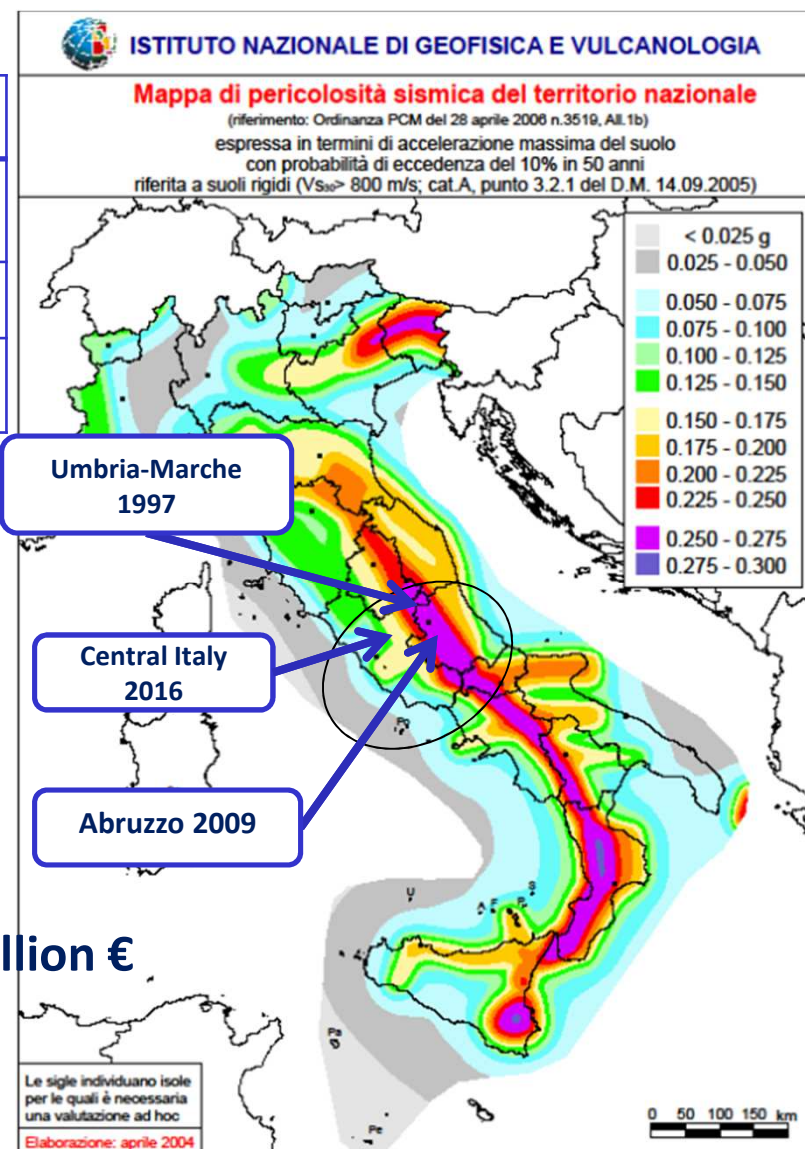
**Affected people in the area 500.000**

Regional **cross border** earthquakes

**4 Regions affected:** (Lazio, Abruzzo, Marche, Umbria)

Since August nearly **65.000** shocks

Estimated **damage and emergency measures costs 23.5 billion €**



# Challenges

**FOUR** affected regions = a vast territory;

Need for coordinating 4 different systems

High number of **resources** mobilized to cover a wide affected area

Critical infrastructures (roads and electricity network)

**Access** and **logistics** in the area

Removal and disposal of **debris**

Local administrations **continuity**

**Vulnerability** of the territory (building codes, agricultural areas, hydrogeological risk....)

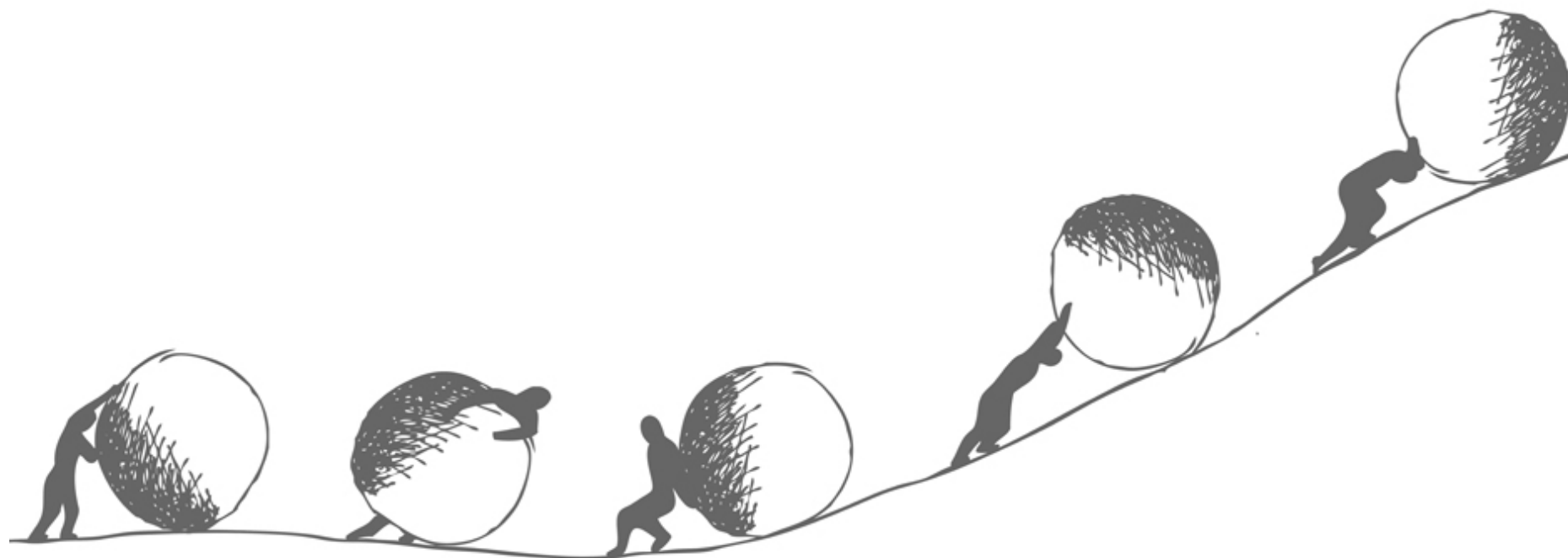
**Cultural** heritage

**Media** attention

Public and Private building/houses **assessment** (close to 200,000 requests)

**Three** main seismic events but a **long** sequence of seismic (and other) events

**Repeated and recurring situations!!!**



# Some numbers

## Events

- 9 quakes Magnitudo  $\geq 5.0$  in 5 months
- More than **63.000 seismic events**

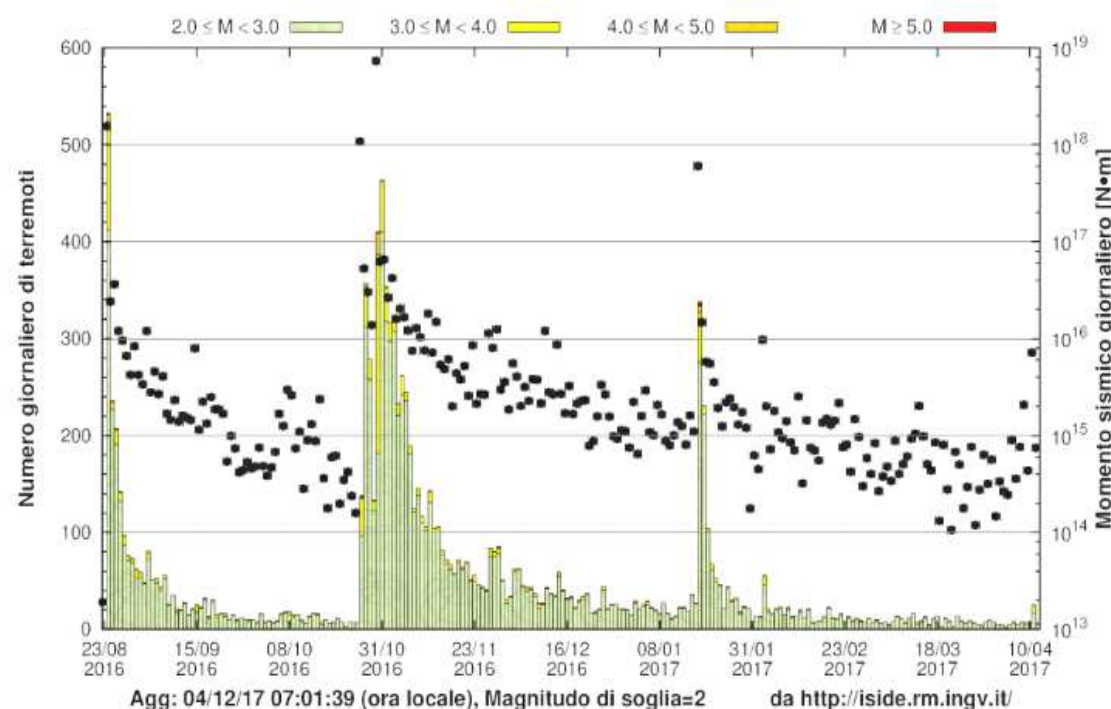
## Damages

- **€ 23.5 b**

## Donations

- More than **31 millions of euros**  
(sms or bank account)

Istogramma dei terremoti degli eventi sismici nella regione avente coordinate lat\_min=42.2000011, lon\_min=12.416667, lat\_max=43.1999989 e lon\_max=14.08333 dal 2016-08-23 alle 00:00:00 UTC e rilascio giornaliero di momento sismico.  
(Image URL\_001: <http://bit.ly/2p68Cqj>)



So far:

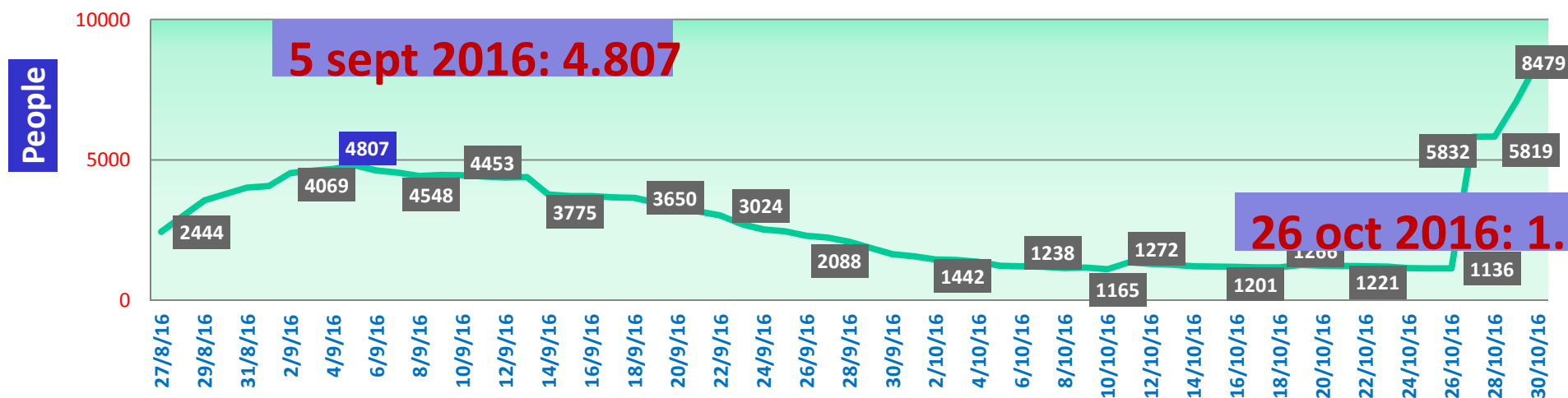
More than **200.000** requests for buildings assessments

More than **6.000** experts involved in the buildings assessments

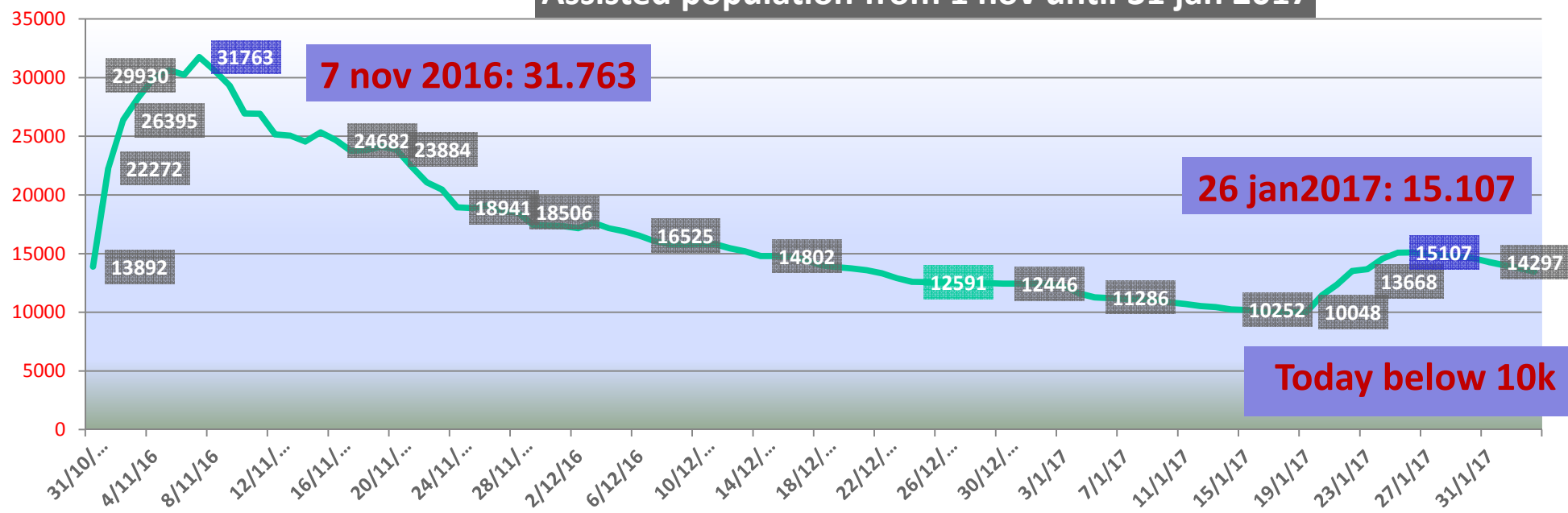
More than **160.000** surveys have been done

# Other numbers

## Assisted population from 24 august to 31 oct 2016



## Assisted population from 1 nov until 31 jan 2017



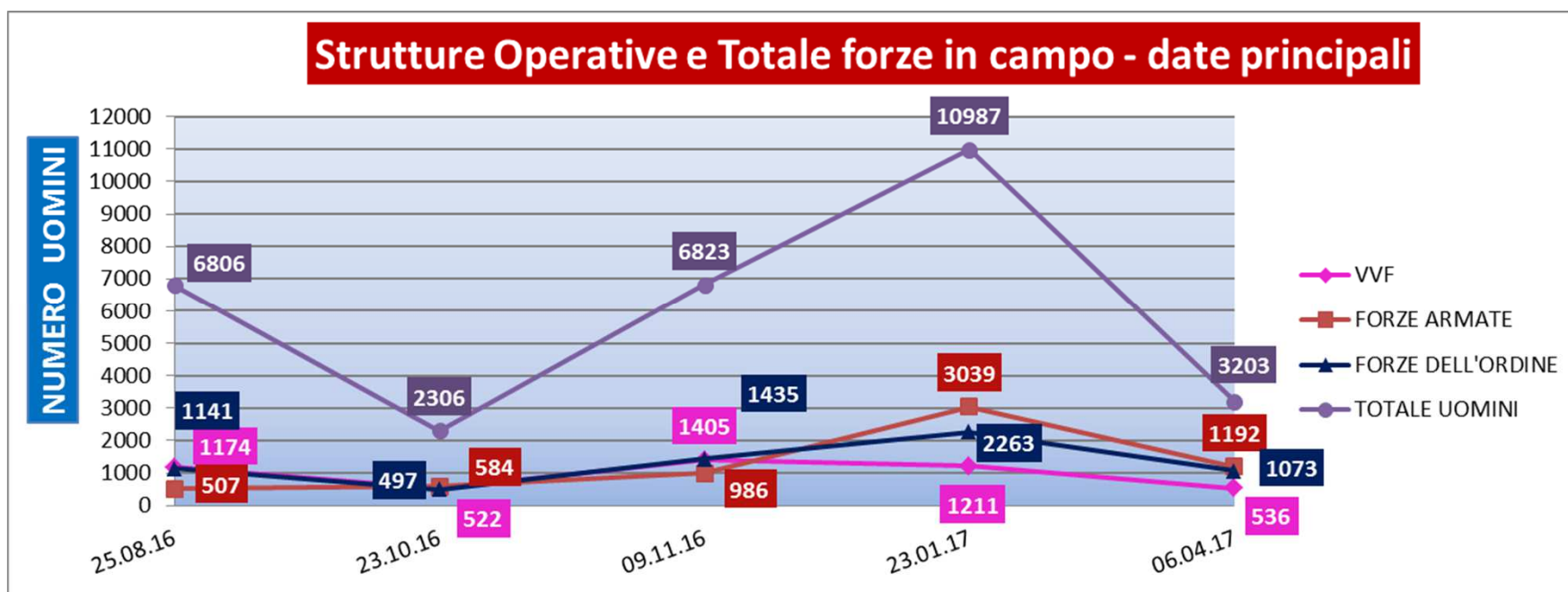
## and others .....

### Forces in the field

On August 25<sup>th</sup>, 6806 representatives of the National Civil Protection Service were in the field. The number of staff employed, reduced to approximately 2300 people on October 23, after the earthquakes of October 26 and 30, reached about 7000 units (November 9).

The maximum effort was recorded after the seismic and meteorological events of January. On January 23<sup>rd</sup>, approximately 11000 units were engaged (about 3000 before the seismic and meteorological events ).

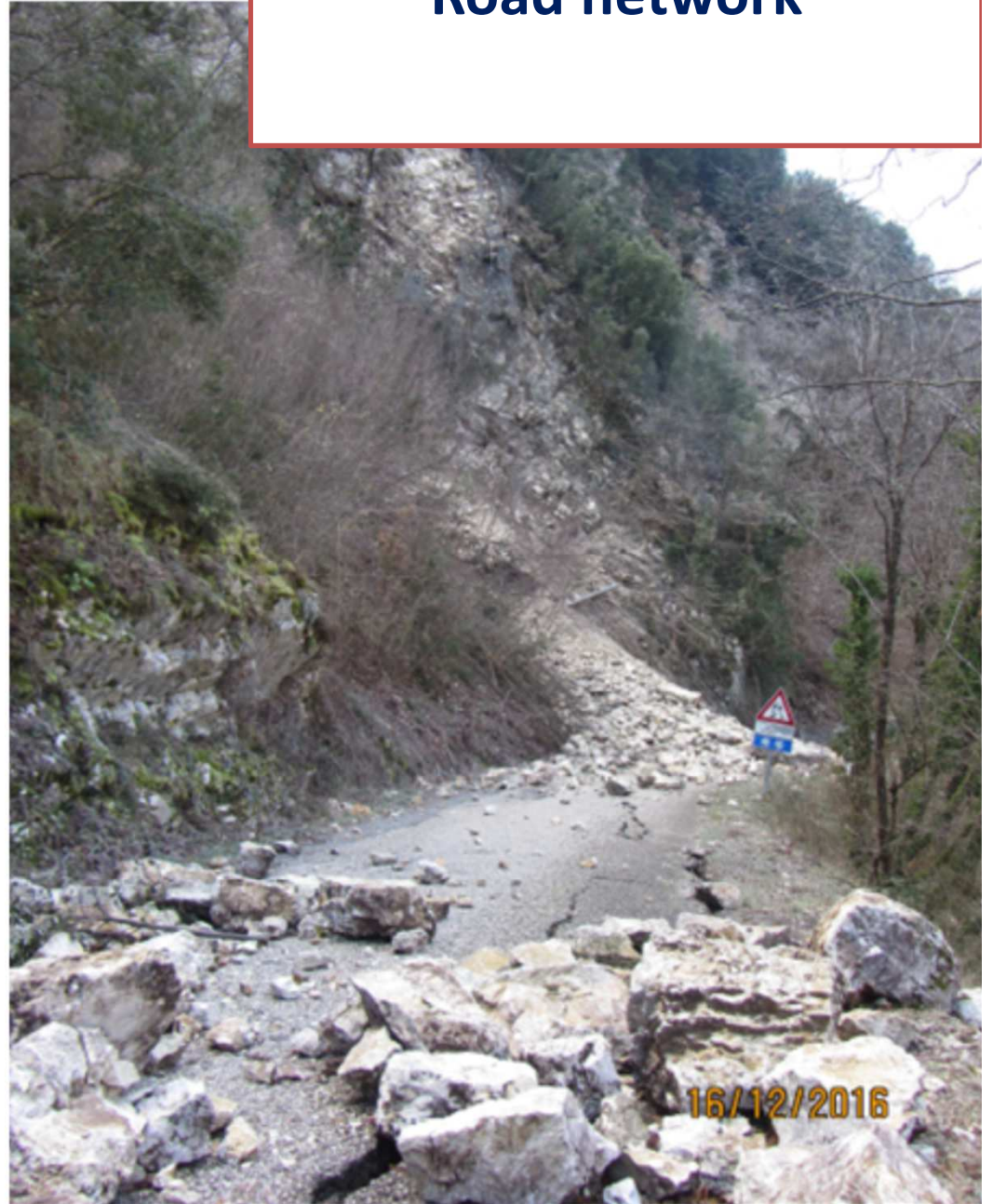
The volunteer organizations employed reached 23500 units for about 139,000 day / man.



**9 schools** in different municipalities in the four regions using donations



## Road network







The situation of roads network after the late shocks was quite critical. The extension of the network (**15.300 km**) and damages required a systemic approach in the evaluation of damages and identification of proper recovery measures.



## ***Implementing partner for road safety***

**3.000 km  
assessed**

**622 sites  
visited**

**574  
critical  
points  
identified**

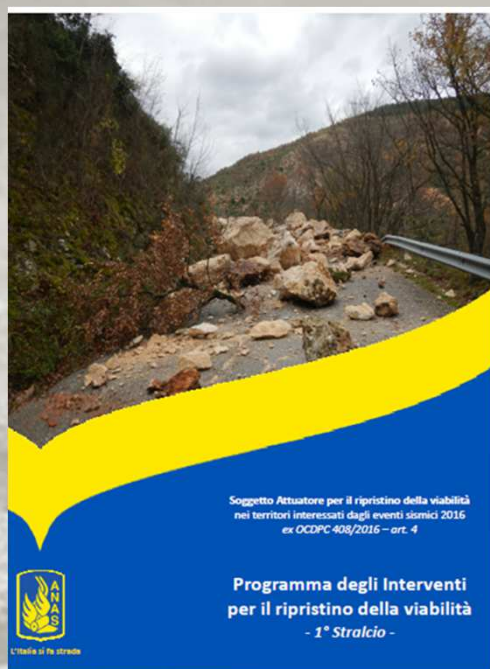
**517  
actions  
proposed**



## **PROGRAM FOR ROADS RECOVERY**

**408  
projects**

**389  
mln €**

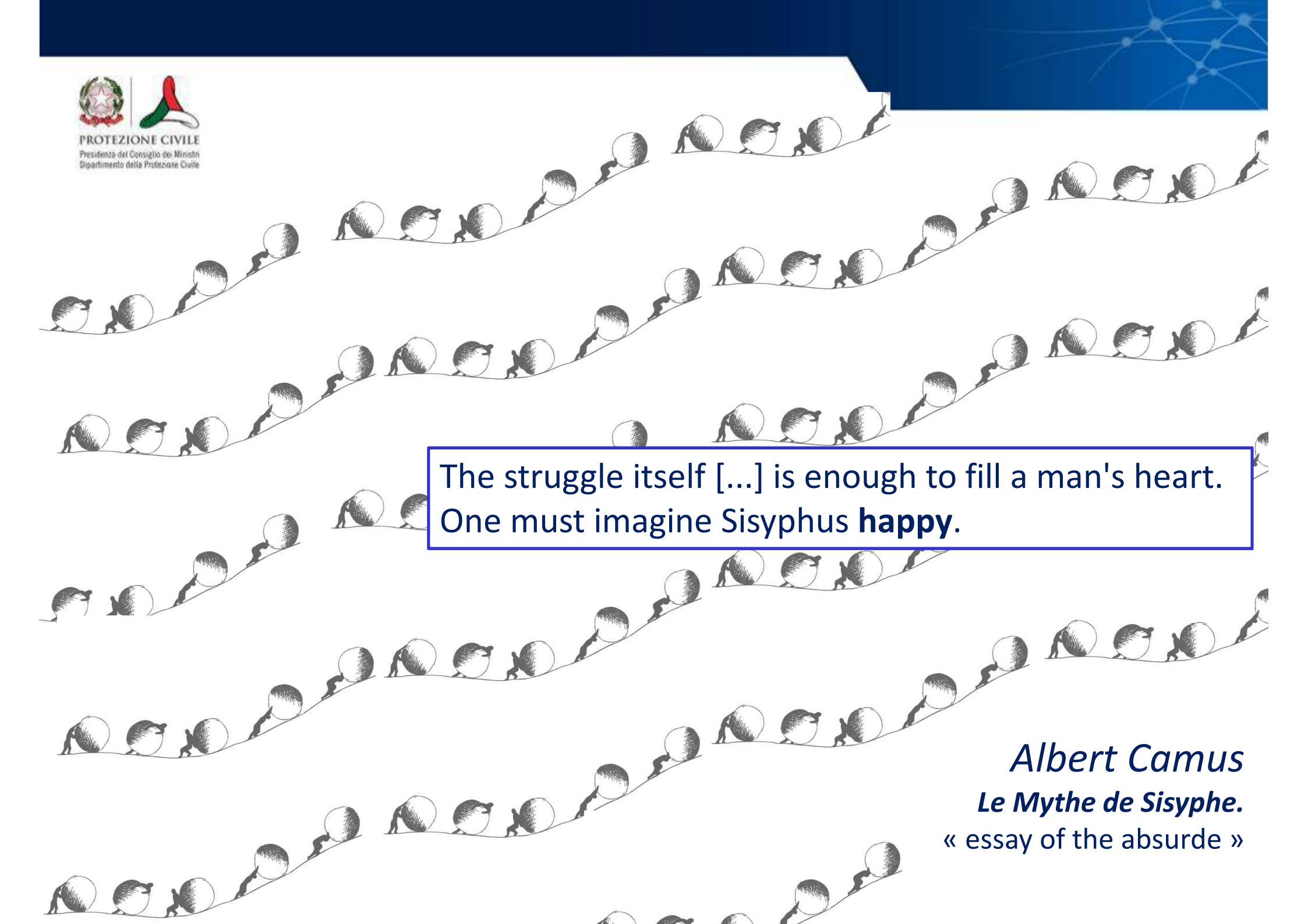


## Final remarks

- The **role of CPD**
- The **reference framework**
- The **system's resilience** and the **extraordinary contribution of the operational structures and components of the system**
- Clear **leadership** during the emergency phase and connections with local governments
- The system allows coordination **for ordinary means** by using **extraordinary means** and allows all the different actors to work closely and at their best.

### **Lessons learned**

- Strengthen the local response to the emergency
- Work for prevention and invest in adaptation measures
- Promote a further awareness raising campaign on disaster risk awareness
- Strengthen emergency and contingency planning



The struggle itself [...] is enough to fill a man's heart.  
One must imagine Sisyphus **happy**.

*Albert Camus*  
*Le Mythe de Sisyphe.*  
« essay of the absurde »

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