



Urban Resilience to severe storms. An Italian case-history of local community response to natural disasters.



OPEN RESILIENCE
understanding risks - building a better world



Università di Torino
Doctoral School in Strategic Sciences

Where



Varazze

Tyrrhenian Liguria

14.000

inhabitants

47

km²

Social Framework

Strong family ties wide neighbourhood relationships, civil protection bodies, volunteer groups.

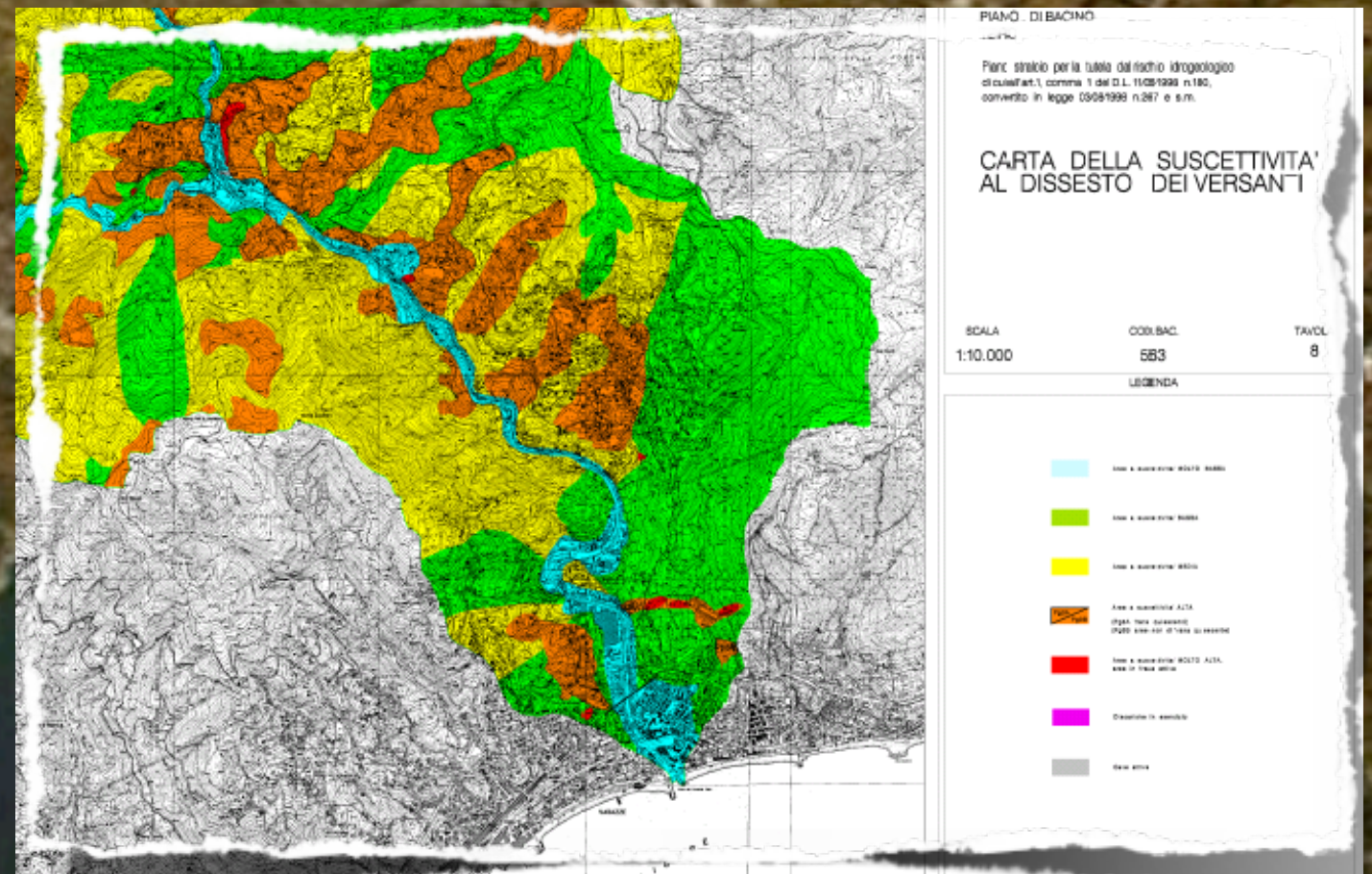
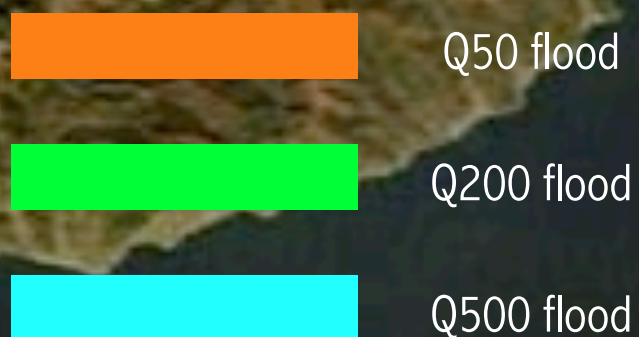
Risks Scenario

complex orography, storms, heavy rainfall (orographic lift), debris floods and flash floods.

Hydrogeological



HAZARD ANALYSIS
Torrente Teiro - Rio Arzocco



Maps

What happened



Varazze	4/10/2010
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storm with a peak rate 35 mm/10min 177.4 mm/h	
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300 mm of rainfall in 6h	
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floods	landslides
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What happened

10/04/2010

8:30 am / 8:40 am

Varazze 4/10/2010

storm with a peak rate
35 mm/10min
177.4 mm/h

300 mm of rainfall in 6h

floods

landslides

Questions



Did the alert and warning systems worked well?

Was Local Civil Protection responsive?

Did the population cope with the event?

To what extent web 2.0 tools and approaches could have been helpful to inform the population and to increase situational awareness of the rescue teams?



04/10/2010

The Story Telling

The Municipality of Varazze is hit by an
extraordinarily heavy rainfall.

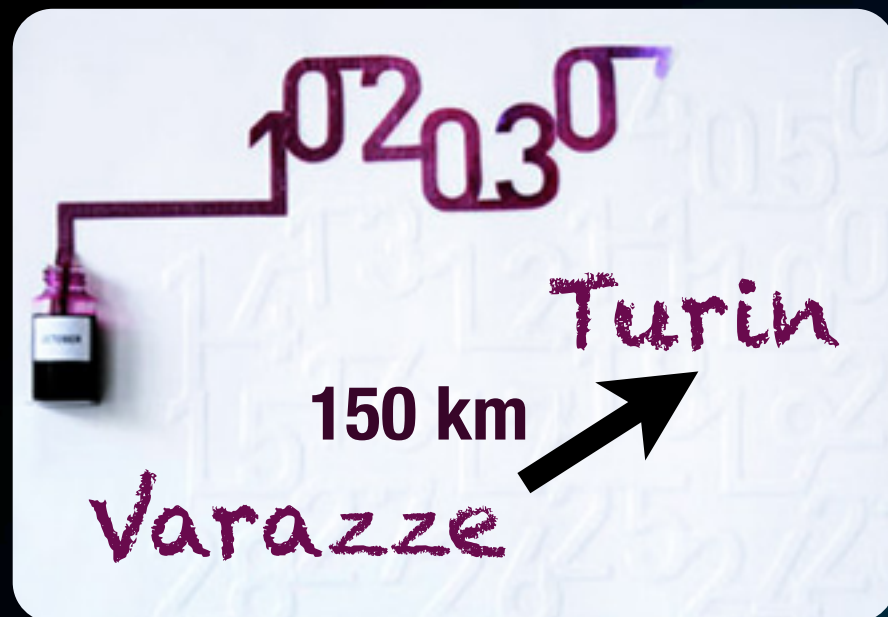
03/10/2010 | the day before

The Story Telling



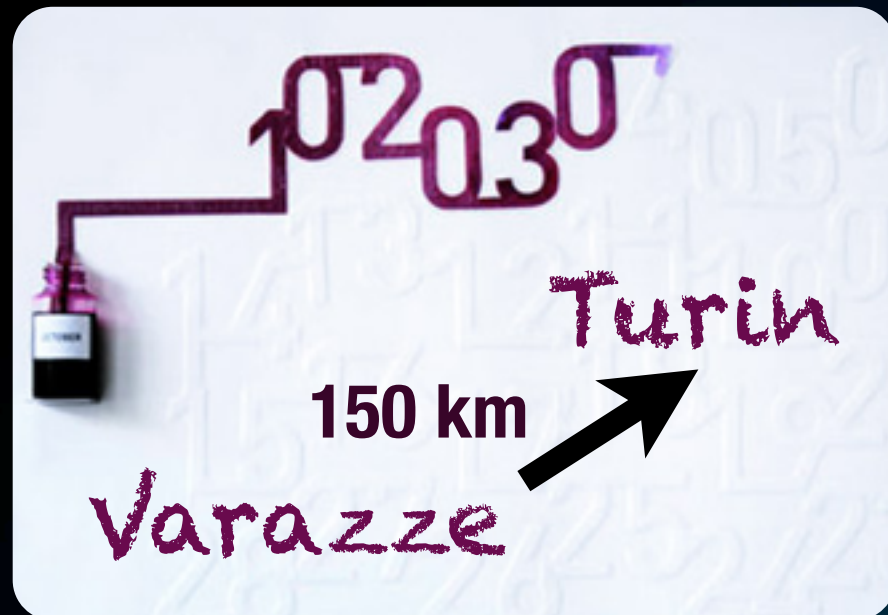
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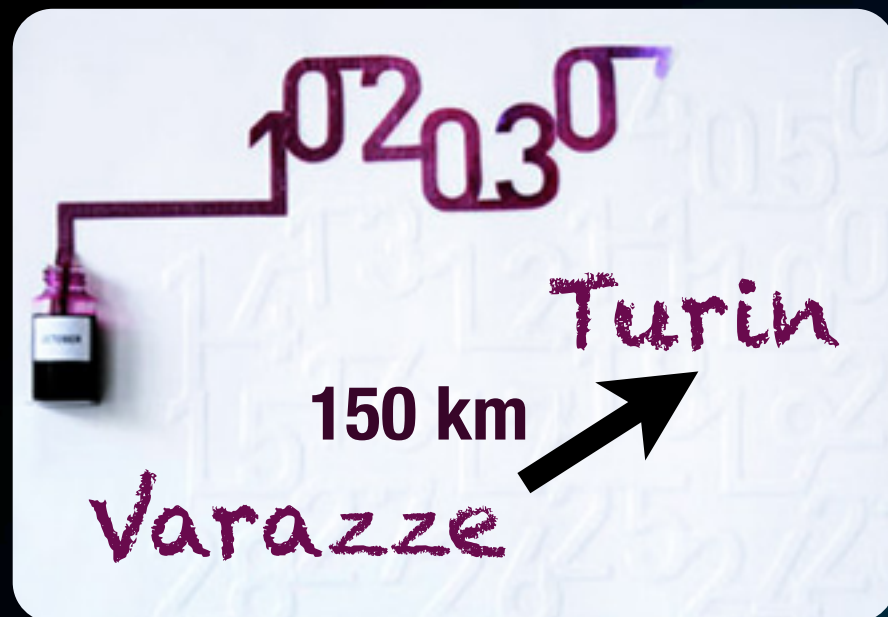
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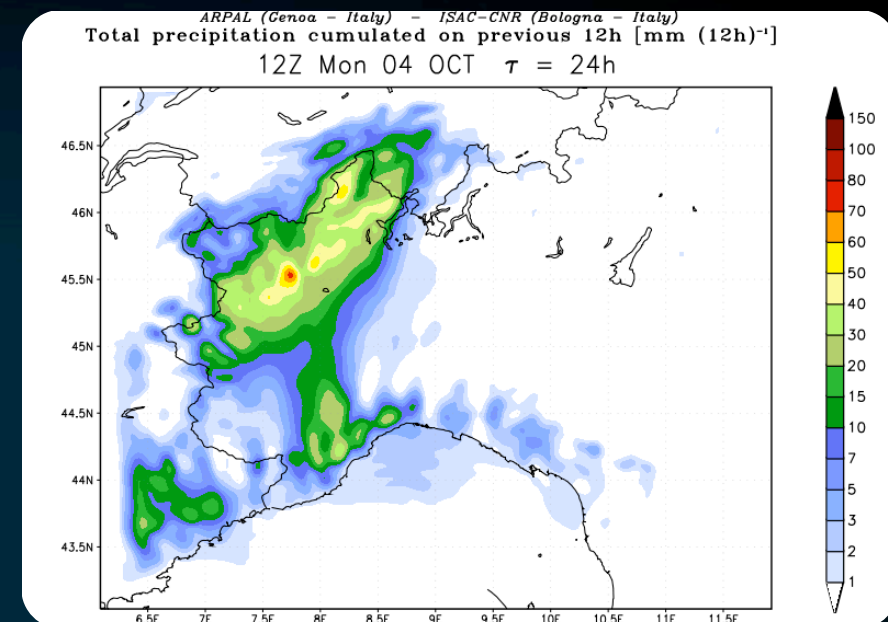
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Let's have a look at the weather forecast.»

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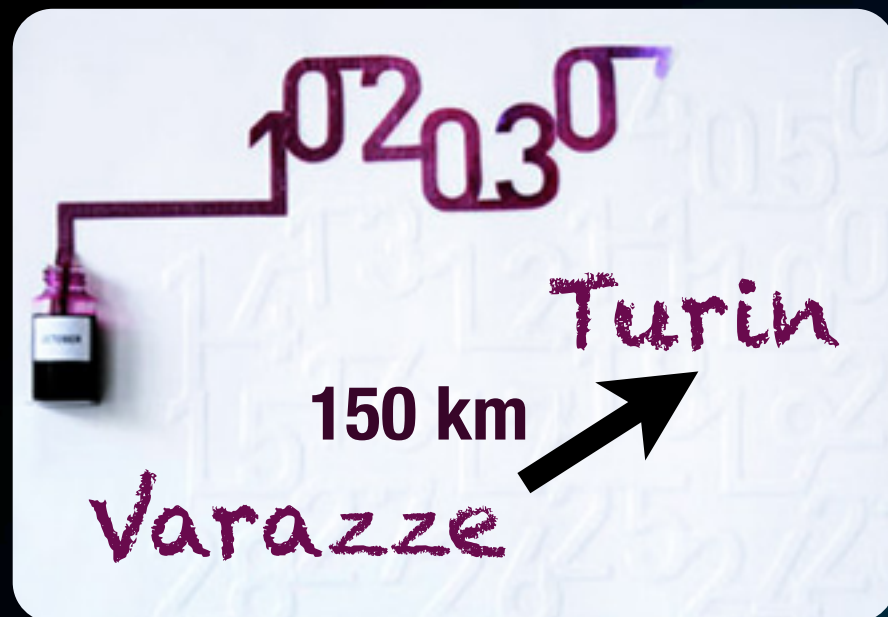


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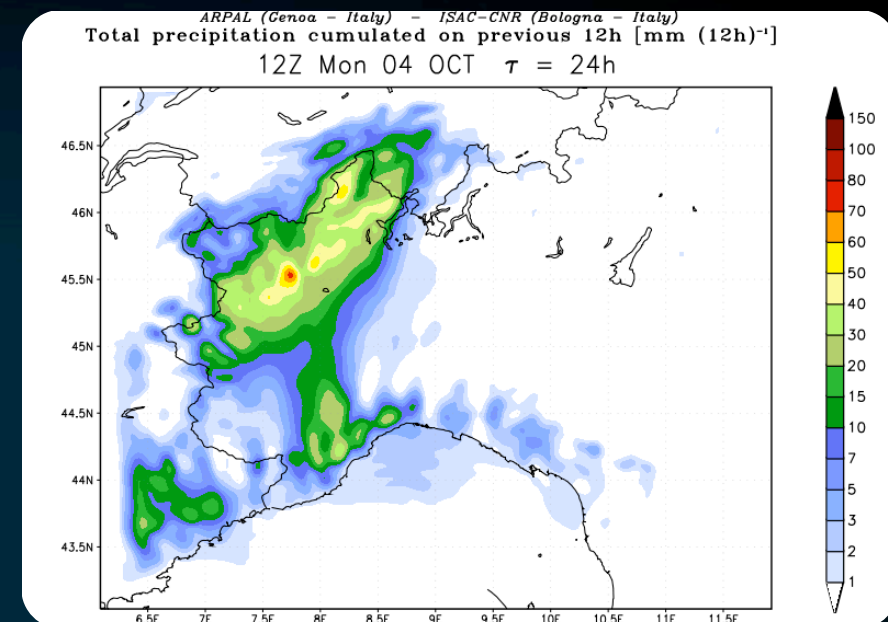


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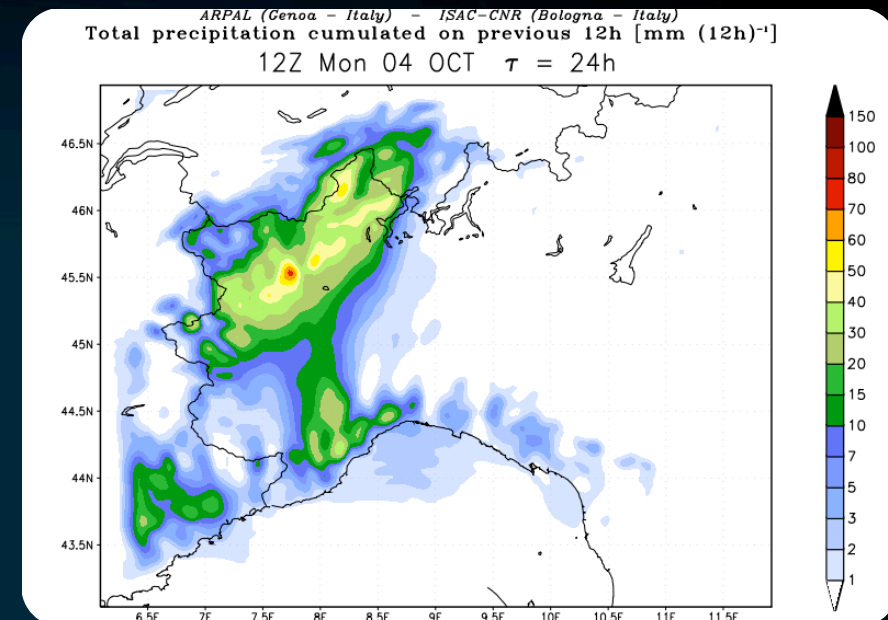
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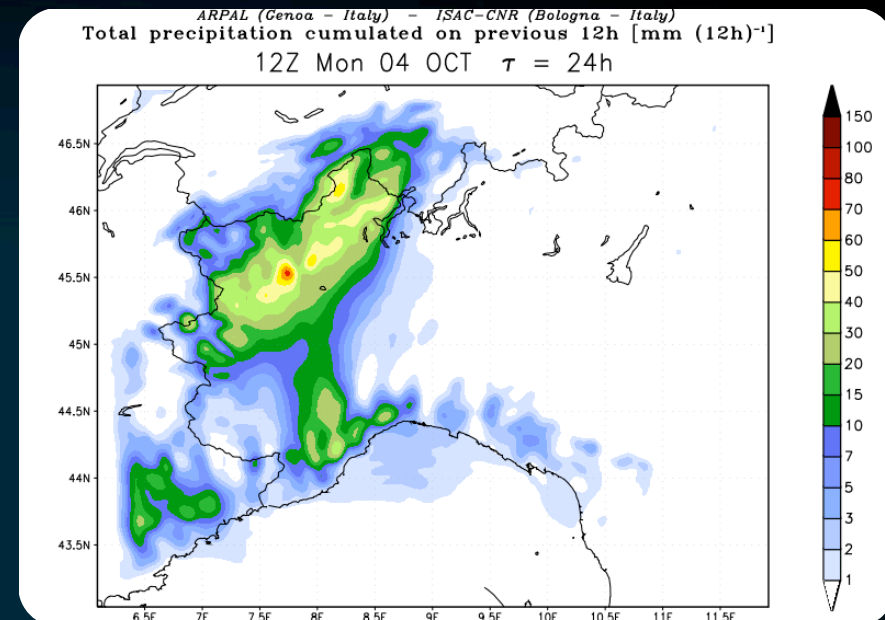


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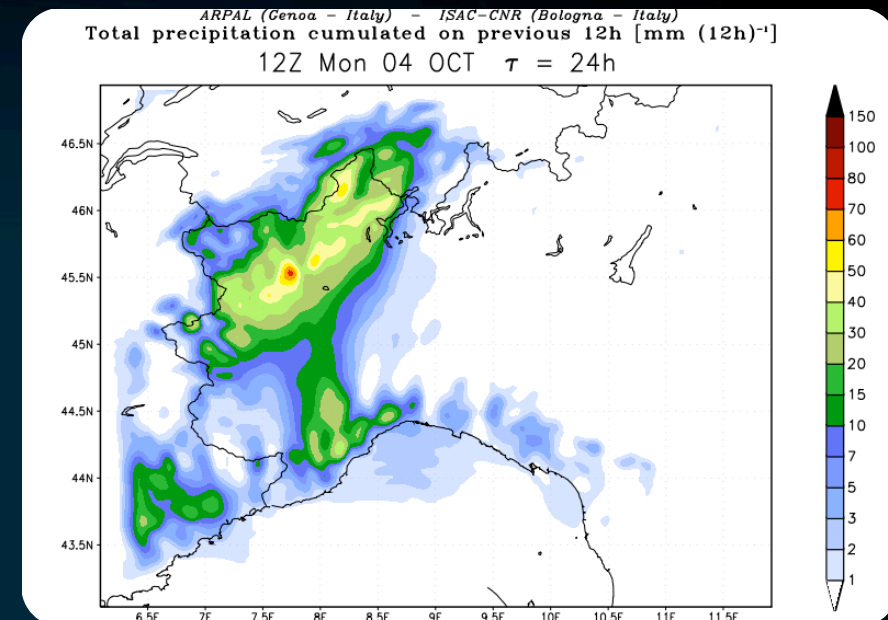
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enerdì 04 ottobre, 05:30

Maltempo, avviso di allerta meteo 1 della Protezione civile

Condividi |

Previsti temporali e piogge intense con venti forti, l'allerta della Regione Liguria resterà in vigore almeno fino a domani alle 12

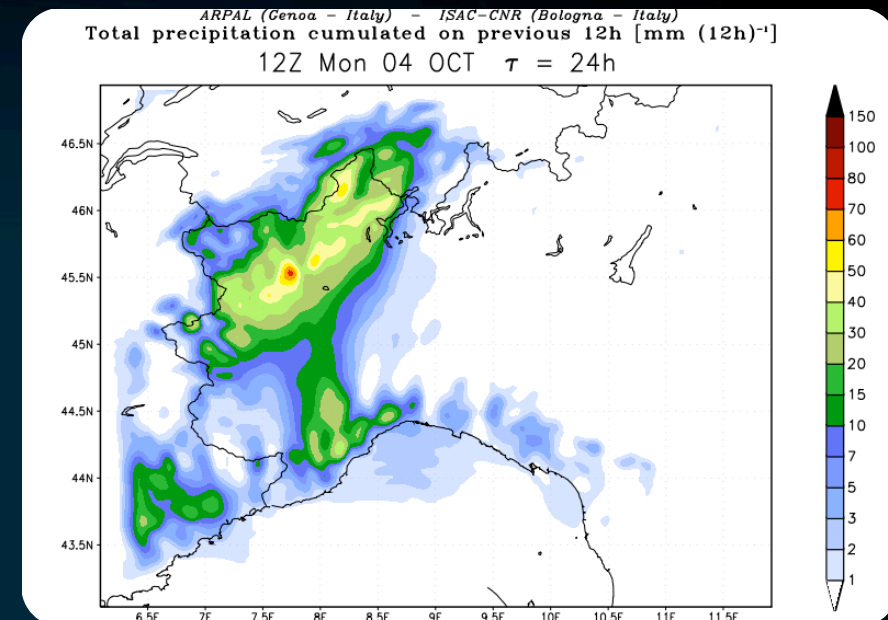
A photograph showing a person in a car during a storm, with rain visible on the windshield and wipers in motion.

03/10/2010 | the day before

The Story Telling



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Media: Local and light rains, the alert
until 04/10/2010 12 pm

10/04/2010 | the event day

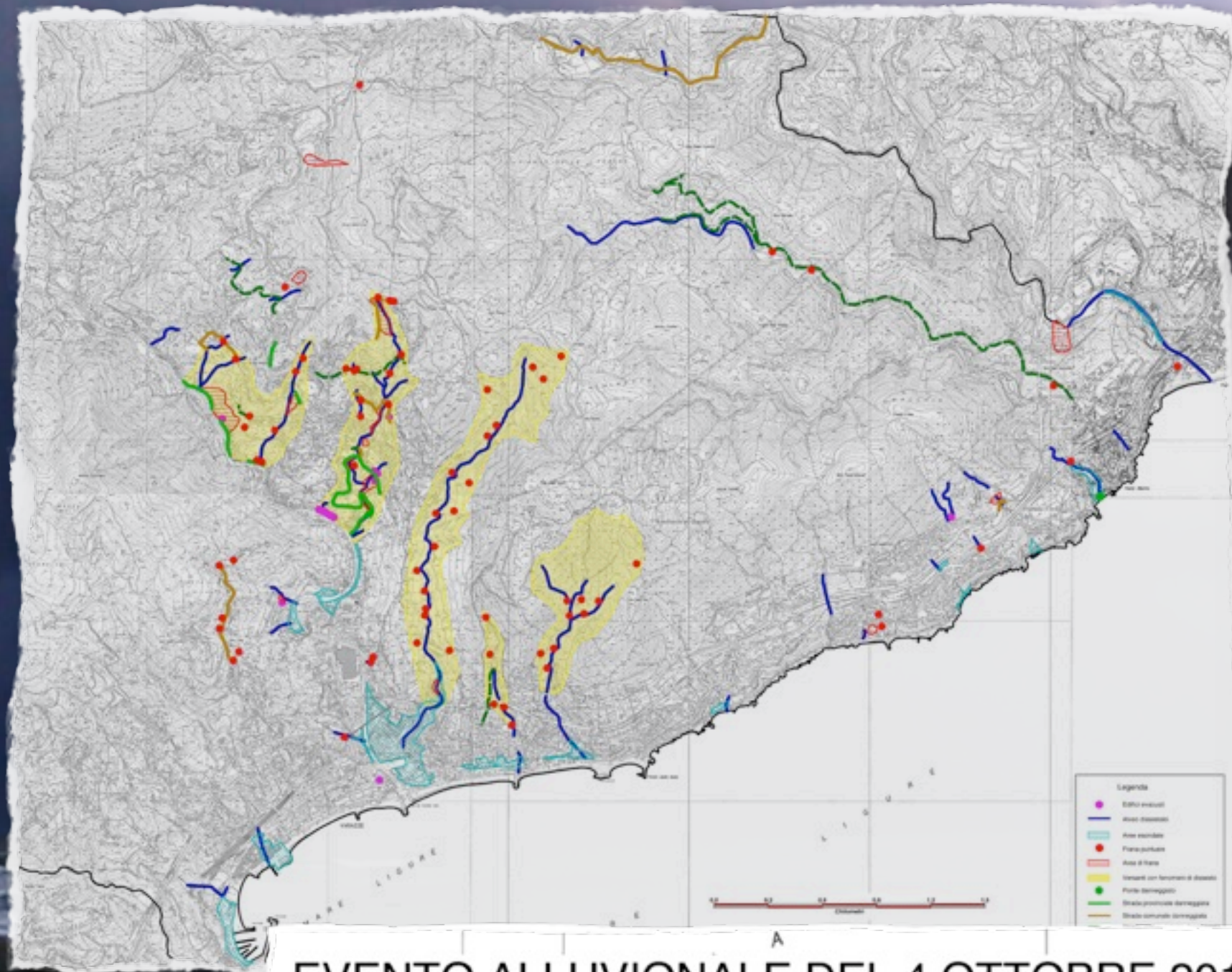
The Story Telling

VARAZZE, ITALY

FLOODS 4/10/2010

THE EVENT SHORT STORY

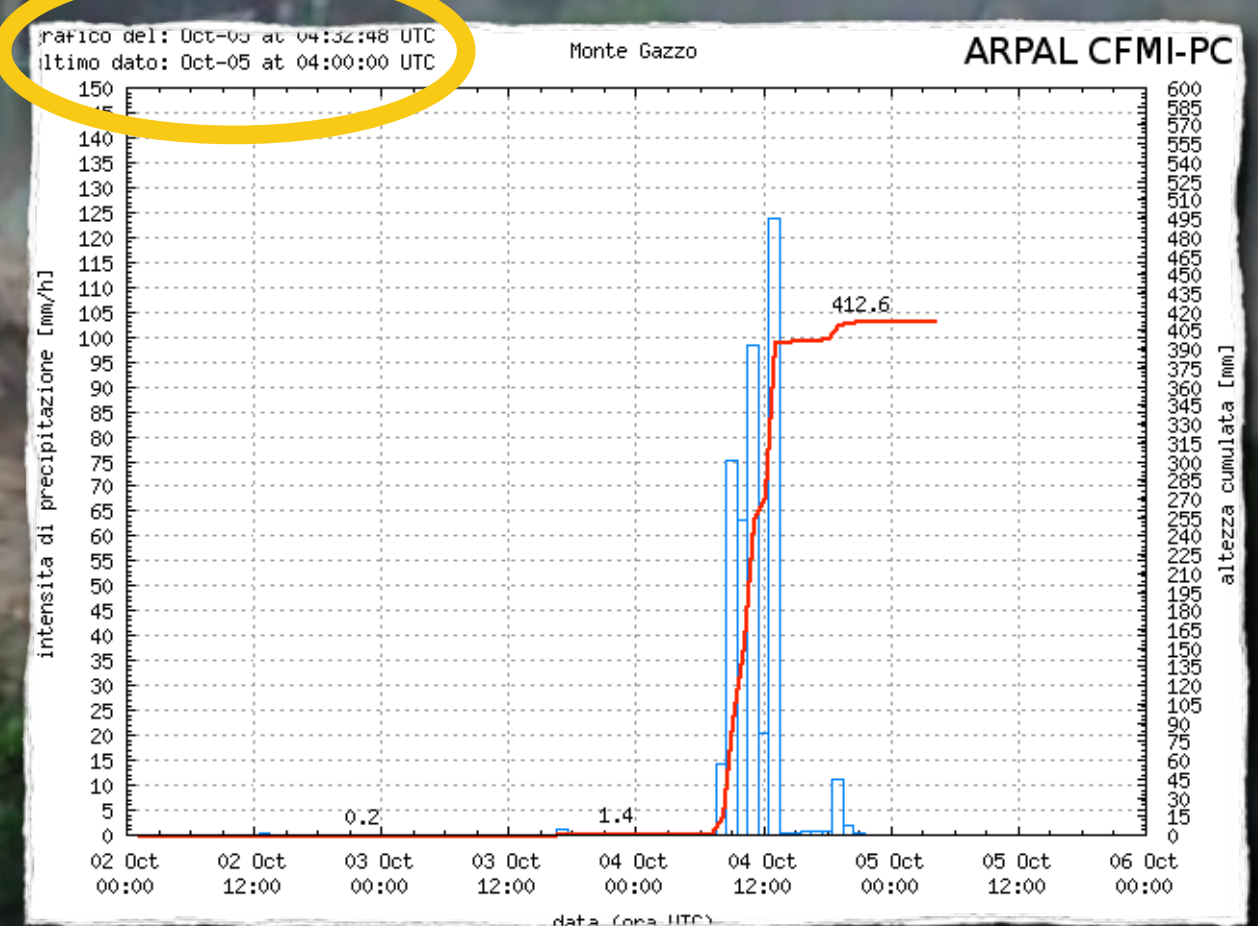
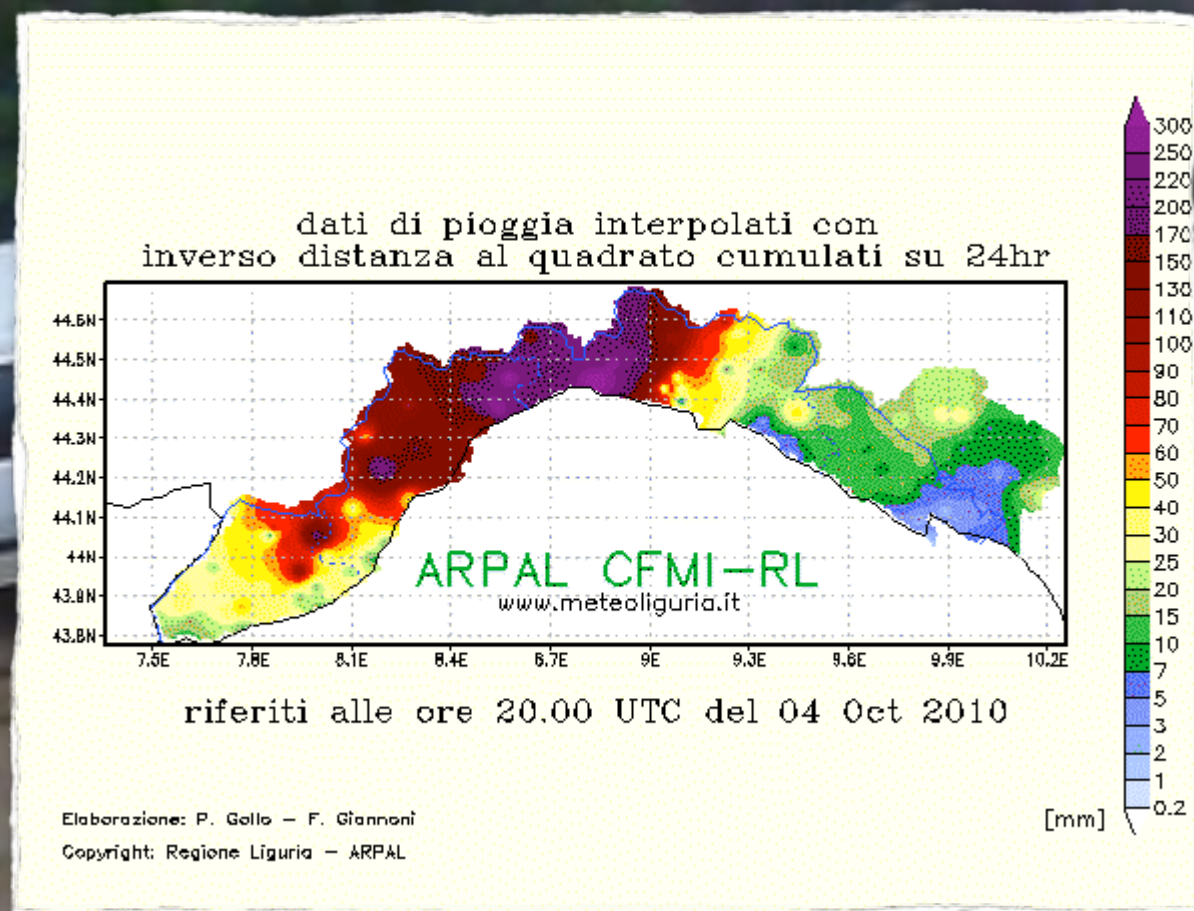
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EVENTO ALLUVIONALE DEL 4 OTTOBRE 2010 NEL COMUNE DI VARAZZE
Aggiornato alle ore 12.00 del 19 ottobre

05/10/2010 | Official Data

The Story Telling



Q&A

Did the alert and warning systems worked well?



Was Local Civil Protection responsive?



Did the population cope with the event?



Q&A

To what extent web 2.0 tools and approaches could have been helpful to inform the population and to increase situational awareness of the rescue teams?

In Japan after the earthquake and tsunami, crowd-sourced maps have helped give local relief workers a clearer picture of the situation on the ground as they set priorities for food, shelter and sanitation services.

Online Mapping Shows Potential to Transform Relief Efforts
By STEVE LOHR, NYTimes

Web 2.0 | the perspective



SHARED TRACKING
School busses and children



SEND ALERTS AND COMMUNICATIONS



DEVICES



CITIZENS AS SENSORS
geolocated alerts and reports from the population; citizens, public administrators, emergency managers can better monitor and share information on the overall situation



Web 2.0 | live



Web 2.0 | the weak point

8:15 / 8:30

No landlines nor mobile phone for electricity break.

9:15

Landline and mobile communications are fixed

Web 2.0 | the weak point

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ONLY 1H HOUR OF INTERRUPTION



Conclusions

The 2.0 Actors



2.0 Information Tips



geolocalization



crowdsourcing



tag & taxonomy



data format



Actions

Remote
monitoring

Collecting
information
from the field

Communicating
with the
population

Decision
making

Talk

Send two ways
SMS to wide
groups of
people

Geolocate
information

Training

Share
information,
files, images

Planning

Collaboration
in Documents
editing

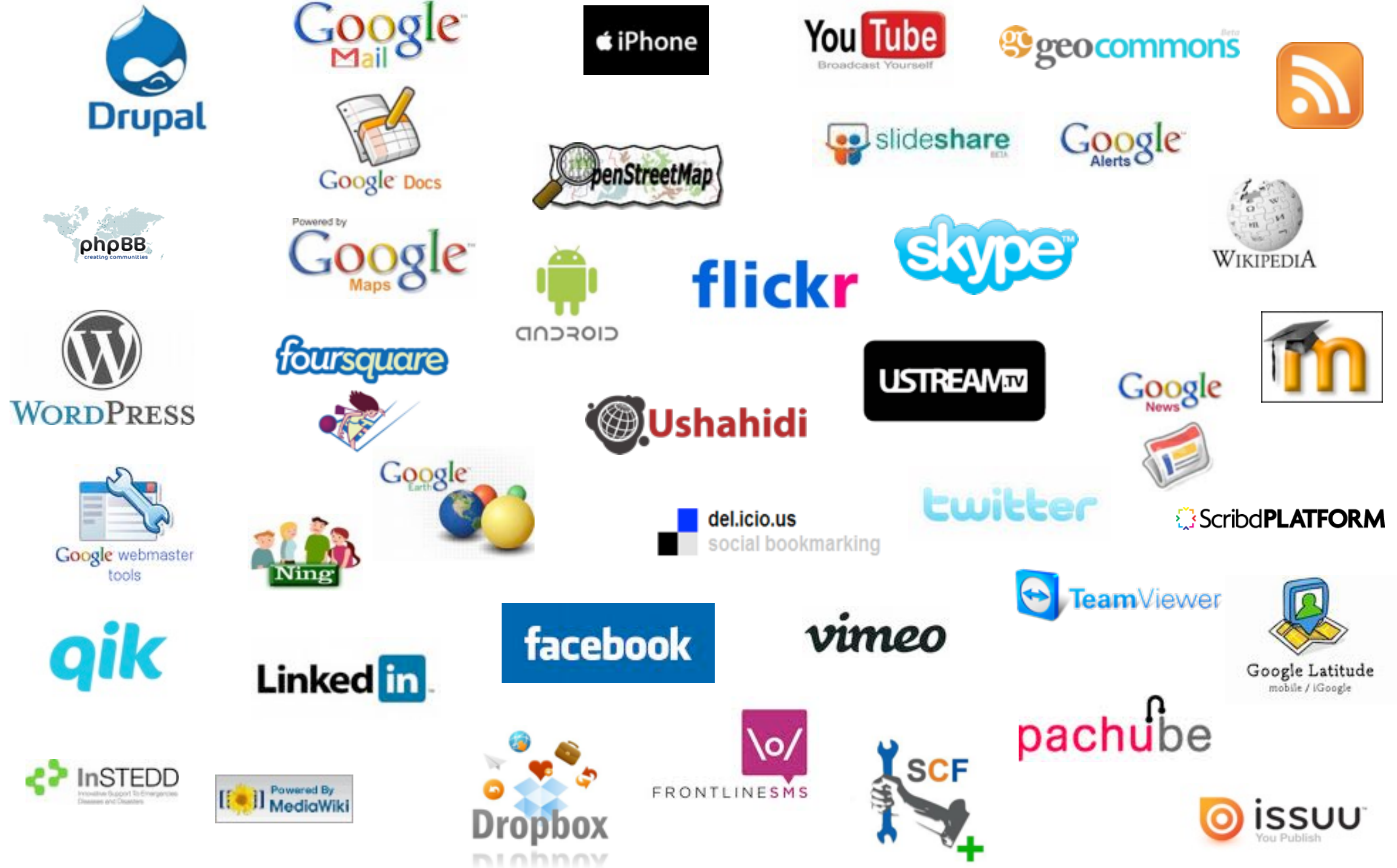
Informing

Tracking
operators,
volunteers
teams

Update in real
time

Broadcasting
video - audio

The 2.0 Tools





Civil Protection Intermunicipality Plan
Geolocated data, shared and published [embed]



Downloadable maps
Meteo Alerts
Information, News and Feeds
Knowledge sharing to allow other to implement the same tools



Crowdsourcing Map to send and receive alerts



iGoogle for the municipalities civil protection centres and
Volunteers
geo tracking [google latitude]
google talk
google documents for collaborative work

SWOT: Web 2.0 and Risks

	Strength	Weakness
Opportunities	Emotional Participation Proactive Collaboration	Scientific Knowledge Distributed Knowledge
Threads	Elites Knowledge Sharing Knowledge	

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Threads	<p>Lack of common approaches Web Standards</p> <p>Elites Knowledge Sharing Knowledge</p> <p>Reliable Sources Participation and Collaboration</p>	<p>Low Web literacy Past Dependencies</p> <p>Low Collaboration Slow pace of change</p> <p>Low Budget Lack of Continuance</p>

Are We Ready?



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