

# Training on risk management: the case study of Vulcano Island, Italy



**CERG-C WORKSHOP:**

*Risk Management: which Strategies in a World of increasing complexity?*

Geneva, 4 November 2011

# Risk Management Module

- Comprehensive
- from classroom in Geneva to
  - fieldwork in Italy
- Interdisciplinary, multi-hazard and society:
  - **Hazard** + **Vulnerability** assessments
  - **Risk** assessment
  - **Crisis Scenario & Risk Management**
  - **Outreach**

## Collaboration with:

**National:** CPA and INGV

**Regional:** City political persons

**Local:** School & general public





# Vulcano Island

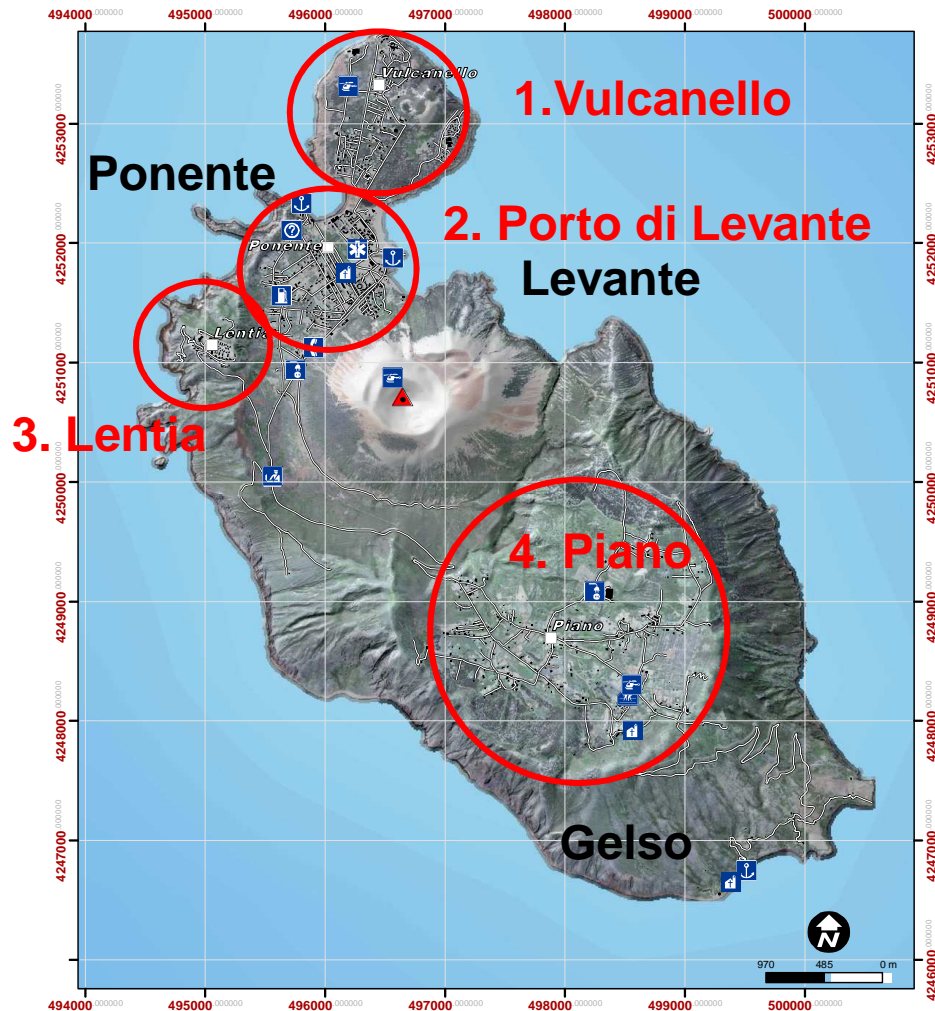


## La Fossa Vulcano

- Quiescent....
  - active gas emissions,
  - weak and sporadic seismicity
  - landslides and lahars
- Last eruption → 1888-1890  
(accumulation up to 5-m thick tephra fall out)

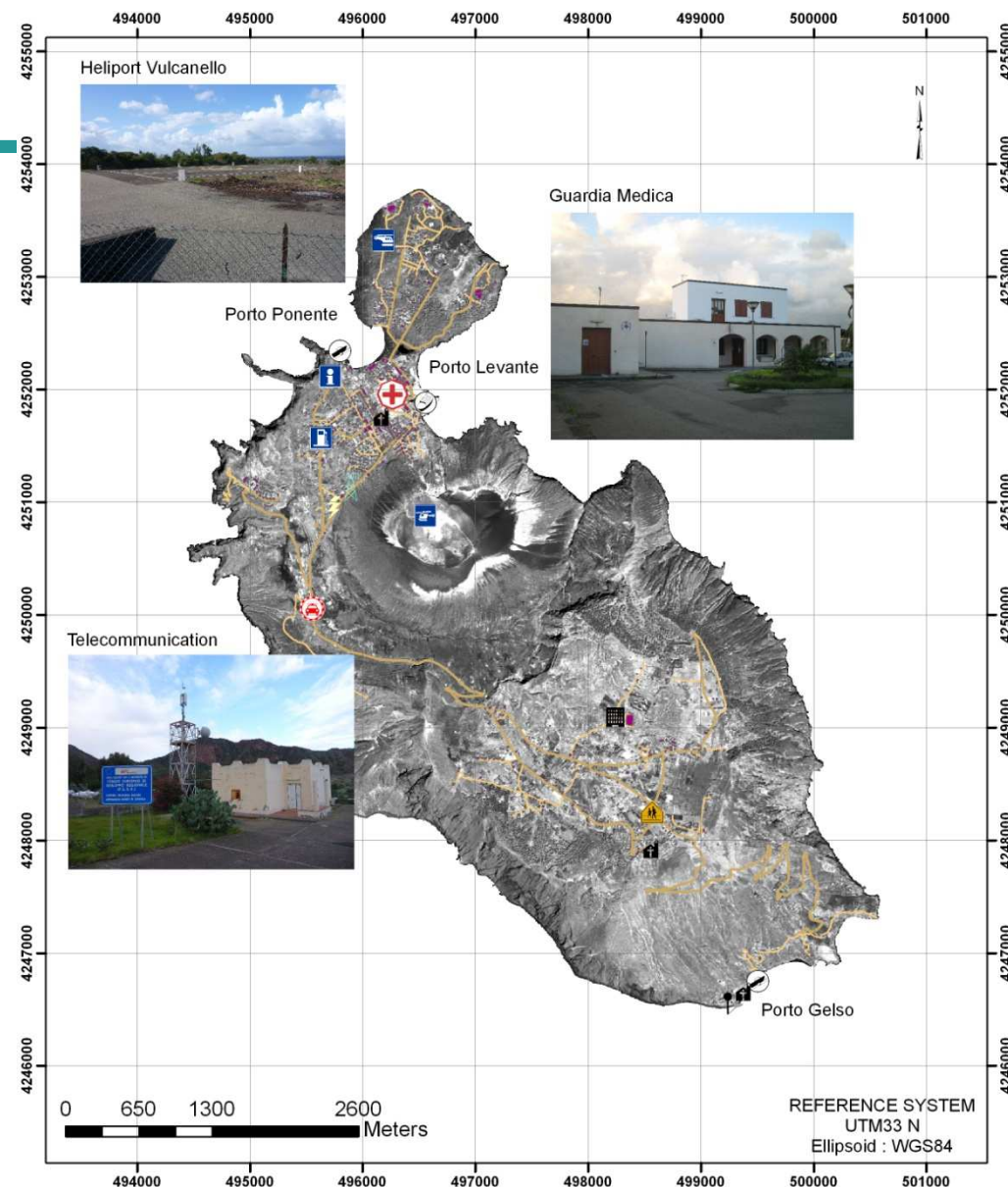






- 21 km<sup>2</sup>
- 1080 to 600 residents
- 5-10'000 tourists in summer
- Three ports
- Four residential areas
- small local economy:
  - Summer: tourism
  - Winter: construction (stops July-Aug)
- Infrastructure- small
  - high dependance on outside for food, water, medical

# Physical and Systemic Vulnerability



## Legend

- |                             |                       |                |                   |
|-----------------------------|-----------------------|----------------|-------------------|
| Carabinieri                 | Guardia Medica        | IP Gas Station | School (Piano)    |
| Church (Gelso)              | Heliport (La Fossa)   | Lighthouse     | Solar power plant |
| Church (Piano)              | Heliport (Vulcanello) | Porto Gelso    | Telecommunication |
| Church (Porto)              | INGV                  | Porto Levante  | Main Road         |
| ENEL Electrical Power Plant |                       | Porto Ponente  | Secondary Road    |

## ...of residential & commercial buildings





# Social and economic vulnerability

- baseline data of residents in 2010 (sample size = **91 adults**).
- quasi-census of key **commercial areas in the Porto area**.

Residency ( N = 91)

Vulcano full time residents	55 (60%)
Vulcano part-time residents	36 (40%)

Place of residence ( N = 91)

Porto	49 (54%)
Vulcanello	12 (13%)
Sotto Lentia	5 ( 6%)
Vulcano Blu	4 ( 4%)
Piano	21 (23%)



# Social and economic vulnerability

Costs, regret, ...		States of the nature			
		No event	Low	Med.	Strong
Options	Do nothing	0	25	75	<u>100</u>
	Mild interv.	10	0	25	<u>50</u>
	Strong int.	20	0	0	25



# Risk management

Recommendations for:

- mitigation,
- preparedness,
- response,
- recovery



# Risk management: (table-top exercise)



**CERG-C 2010**

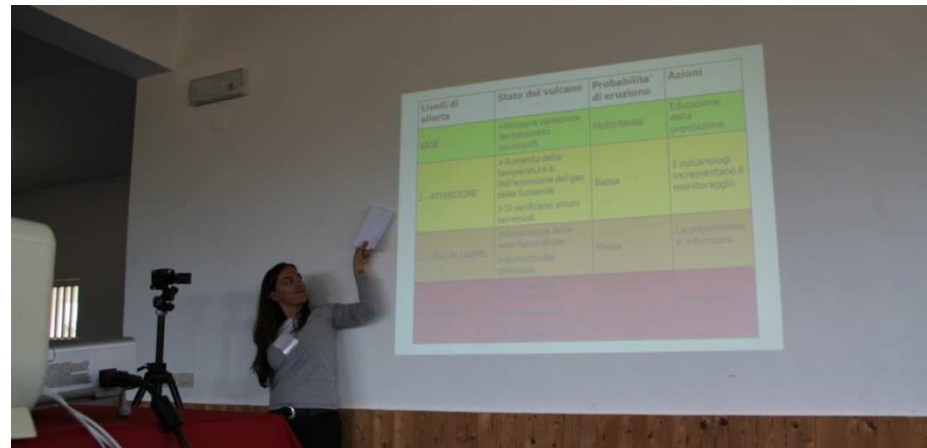
**CERG-C 2011**



# Intervention on local community: Exercise with local primary school

Role play to allow students to learn:

- what happens during emergency,
- how emergency is managed,
- the main actors,
- about the volcano and preparedness



# Conclusions

## The field trip:

- Provides rigorous immersion in integration of hazard, vulnerability and risk factors/concepts
- Requires individual and team work
- Reinforces importance of managing risk through connections with:
  - Science & emergency management
  - Businesses, political figures and general public
  - .....using tools/knowledge from multiple disciplines
- Small island setting simplifies some concepts, but reinforces importance of self-preparedness and connections to outside resources