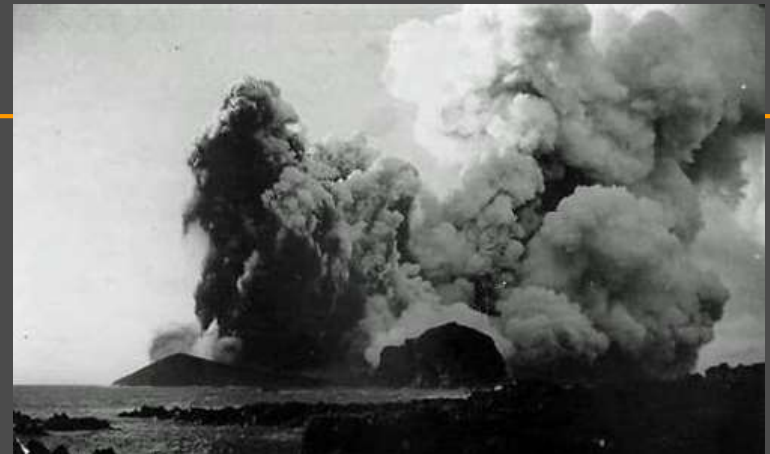


Lugares de medo e bem-querer. Risco sísmico e vulcânico percebido por Açoreanos

**Places of fear and attachment. How Azoreans perceive seismic and volcanic risk.**

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# Overview

- Background:
  - The Azores
  - Research on risk perception and risk communication in the University of the Azores
    - Theoretical background: *Risk Governance*
- The *Topoi Metus Study*
  - goals
  - methods
  - data and findings

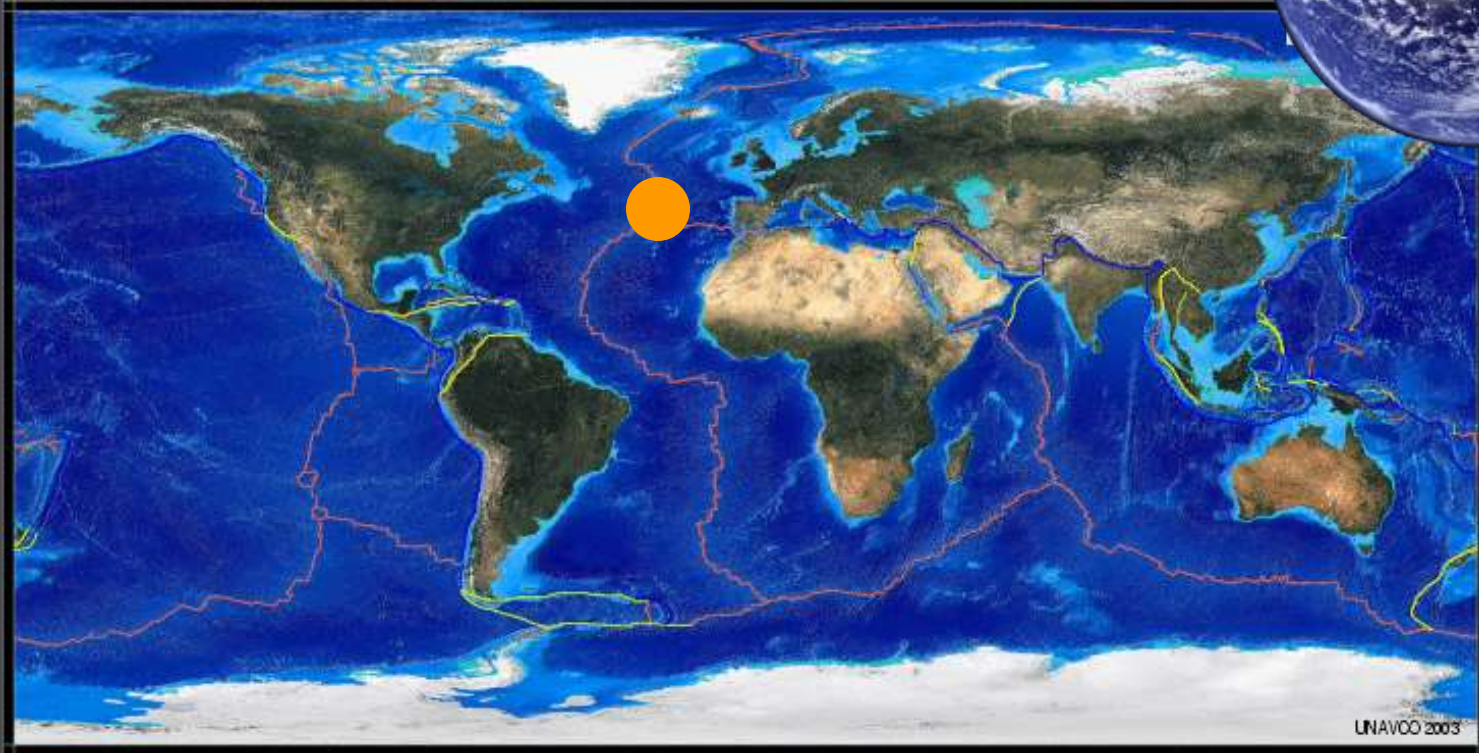


# THE AZORES



ISLAND	POPULATION (2002)		Área (Km2)
		% of total	
São Miguel	130.154	54.50	759
Terceira	54.998	23.00	403
Faial	14.934	6.25	173
Pico	14.579	6.11	446
São Jorge	9.522	3.99	246
Santa Maria	5.490	2.30	97
Graciosa	4.708	1.97	62
Flores	3.949	1.65	143
Corvo	435	0.18	17

# GEODINAMISM OF AZORES



The Azores are located over a triple junction of three large tectonic plates: the North American Plate, the Eurasian Plate and the African Plate.



# GEODINAMISM OF AZORES





The Azores are a volcanic archipelago:  
some volcanoes are still active;  
hot-springs; hot water cascades;  
very dark rocks and beach sand;



# Earthquakes & Volcanic Eruptions



-  Volcanic Eruptions
-  Earthquakes

Events with the most serious impacts throughout history.

# Earthquakes & Volcanic Eruptions



## 1957-1958 - Capelinhos Eruption, Faial island

- More than 200 low intensity earthquakes preceded the submarine eruption 1 Km away from the Faial island; the eruption was active for over a year.
- Another island was formed and later connected to Faial.
- An emigration flow to the United States, who had created specific legislation to help the victims, started to take place.

Recent events in the memory of Azoreans

# Earthquakes & Volcanic Eruptions



1980- Earthquake - Terceira, S. Jorge, Graciosa

- Intensity 7.0 Richter; epicenter in the sea, 35 km from Terceira island.
- Mass destruction of buildings in several villages in the three islands (>15.500 houses).
- 71 deaths and over 400 wounded.
- 15 000 homeless.

Recent events in the memory of Azoreans



# Earthquakes & Volcanic Eruptions



1998- Earthquake - Faial, Pico e São Jorge

- Intensity 5,6 Richter; epicenter in the sea, north of Faial island.
- Mass destruction in many villages in Faial, some damages in the islands of Pico and São Jorge (>15.500 houses).
- Big landslides on the coastal areas.
- 8 deaths and over 400 wounded.
- 1700 homeless.

# Earthquakes & Volcanic Eruptions



1999/2000 – Submarine Volcanic Eruption in Serreta, Terceira island

- The eruption took place intermittently; gas and magma were expelled; the seismic activity associated with the event was weak and not perceived by the population.
- There were no deaths nor damages;

Recent events in the memory of Azoreans

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## What is the *scenario* of knowledge on seismic and volcanic risks in the islands?

- Lack of information regarding the social dimension of situations – how people perceive and deal with situations
  - ↓
  - ↓
  - ↓
  - ↓
  - ↓
- Management of risks has not taken into consideration the analysis of the **social and cultural factors** which frame people's perceived risks, their **perceptions**, and their **behaviour** in those risk situations

# Research on risk perception and risk communication in the University of the

## Azores

since 2006 ...

a multidisciplinary team began to develop:

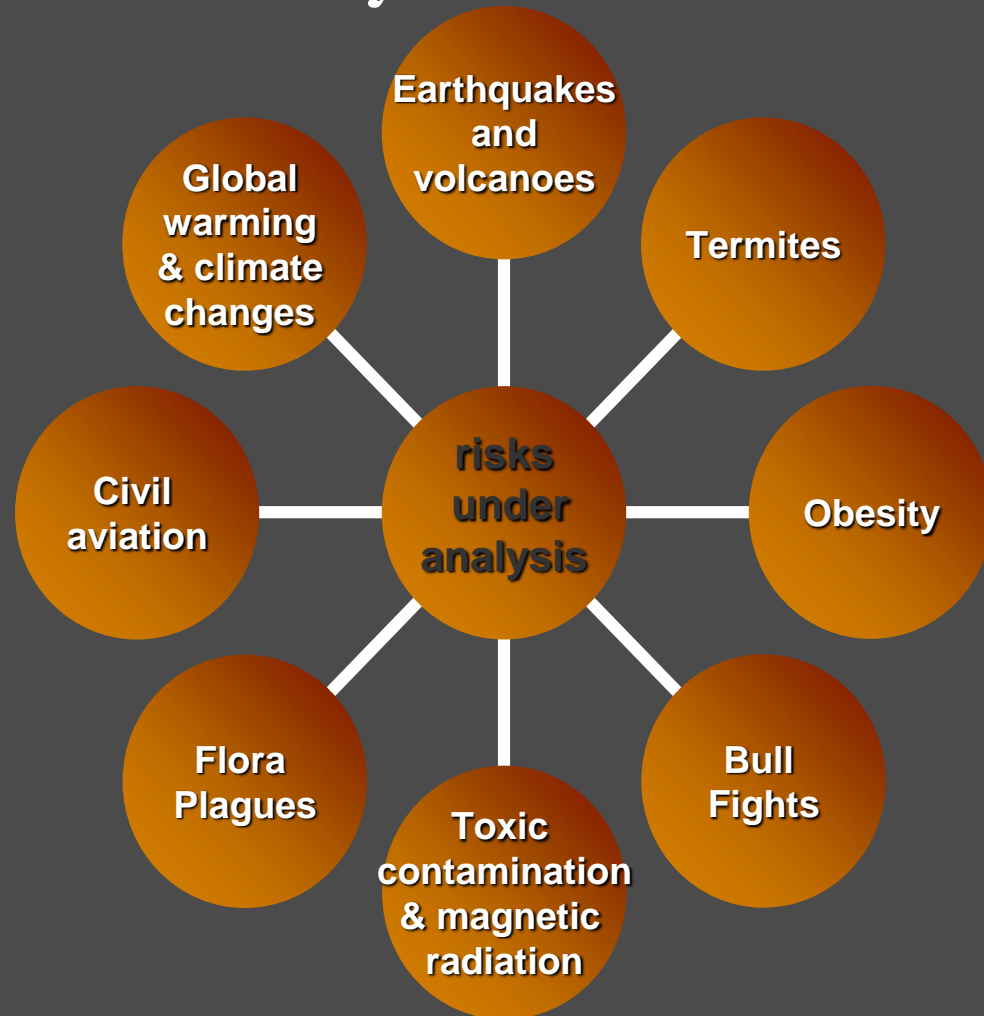
### ■ Research:

Funded Projects:

- Termipar (DRCT)
- Africa Annes (FCT)
- Topoi Metus (DRCT)

7 Masters' Thesis

### ■ Masters' degree Program in Environmental Education



# The team aims to

- Contribute to bring researchers, decision-makers, the media, and citizens closer in the management of risk situations
  - ... creating knowledge on the social dimension of risk situations;
  - ... creating communication devices to support decision and action regarding the mitigation of risk sources and/or consequences (videos, web, video games, cartoons, flyers, etc)



The study

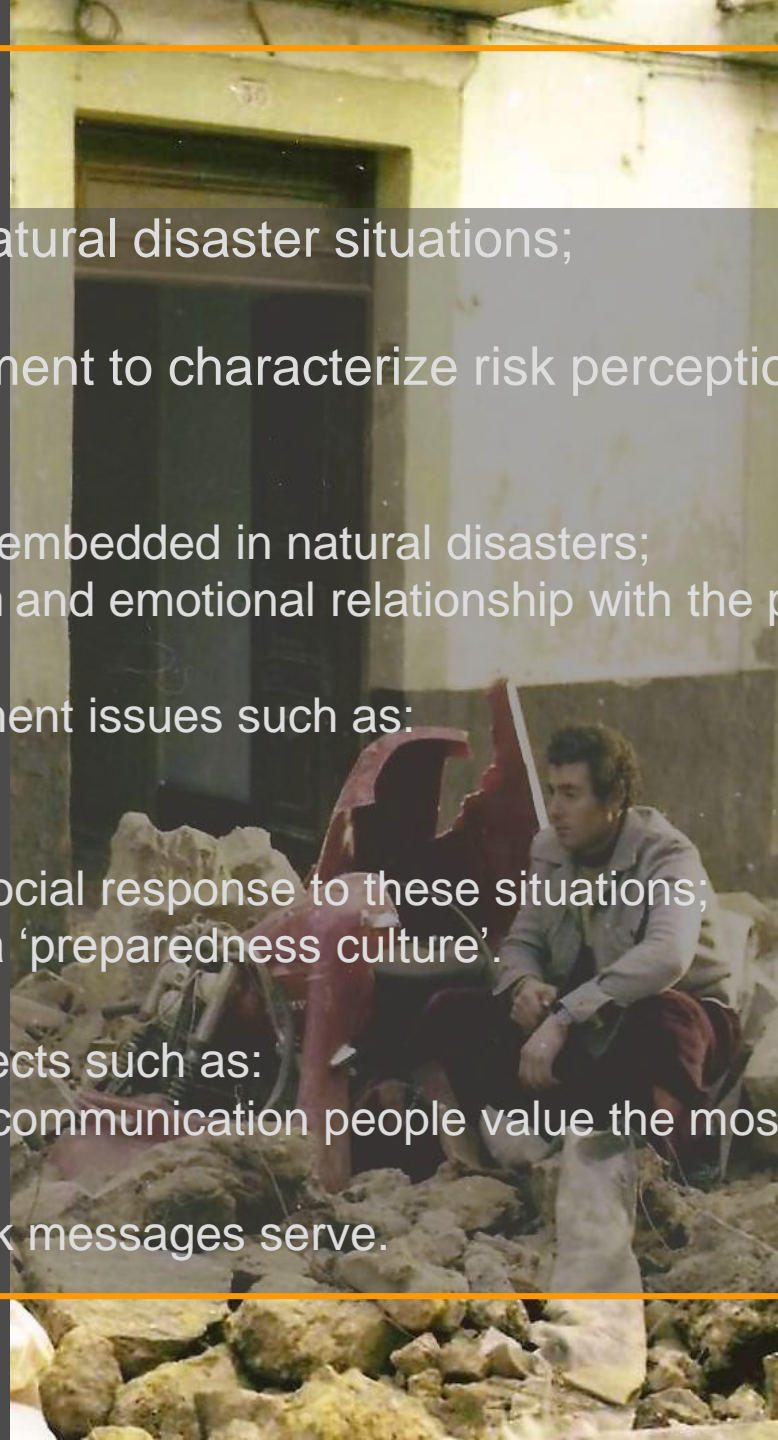
*TOPOI METUS*



Social cosmographies of danger.  
Risk perception of natural disasters

# Goals

- ◆ To explore personal narratives of natural disaster situations;
- ◆ To construct and validate an instrument to characterize risk perception,
  1. sensitive to
    - the Azorean context;
    - the mysticism historically embedded in natural disasters;
    - the people's identification and emotional relationship with the place.
  2. to characterize risk management issues such as:
    - Lack of information;
    - Risk behaviours;
    - Public evaluation of the social response to these situations;
    - People's commitment to a 'preparedness culture'.
  3. to clarify communication aspects such as:
    - Strategies and means of communication people value the most;
    - Public trust;
    - What functions should risk messages serve.



# Method

## ■ Participants – 30

- 5 islands: S. Miguel, S. Maria, Terceira, Faial, Flores;
- 3 age groups: 16-25 (N=10); 26-55(N=10); +56(N=10);
- gender groups: ♀ (N=15); ♂ (N=15);

## ■ Data production:

- **An Interview Guide Approach** – ave. duration 60 minutes
- Individual
- Category system - 6 dimensions / 14 sub-dimensions

# THE INTERVIEW

## Dimensions

- Risk characterization  
ex: *What causes earthquakes/volcanoes in the Azores?*
- Risk profile evaluation  
ex: *Have all the islands been equally affected by those natural events?*
- Systems' vulnerability evaluation  
ex: *Who has been more affected by earthquakes/volcanoes? Has anyone benefited with those events?*
- Risk management (before, during, and after the crisis)  
ex: *What should people do to prepare themselves for earthquakes/volcanoes?*
- Trust – in information processes; in risk management processes  
ex: *How much do you trust the entities involved in crisis management? How much do you trust in the crisis information that is given to citizens?*
- Place attachment – connectedness with the place  
ex: *How connect are you with this place? How much do you enjoy living here? Would you live in another place? Knowing the dangers of living in the Azores, why do persist in living here?*

# Preliminary data analysis: Risk characterization

Concerns:

volcanoes

earthquakes

God's warnings  
on the need for  
human

Causes:

end of the  
world

conversion and  
redemption

BEFORE  
20th cent.

messianic  
preannouncements

signals

AFTER  
20th cent.

God's  
punishment for  
humans' sins

Scientific  
explanations: physical  
causes

Mystic interpretations

Scientific interpretations



# Preliminary data analysis: Risk characterization

- Earthquake descriptions: **diverse**
  - sensorial;
  - emotional;
  - physical;
  - cognitive
- Volcanoes descriptions : **simplistic**
  - spectacular events;
- Emotions associated: **fear**
- Evidence (warnings):
  - weather (quiet, muffled, warm, 'deaf');
  - animal behaviour;

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Events of reference associated to their own life

## Preliminary data analysis: Risk profile evaluation

- Uncontrollability
- Differences in exposure to seismic/volcanic risk across the islands are not reported
- Earthquakes are the most serious natural hazard in the Azores
- Other significant hazards: tornados, climate change, global warming, floods, land sliding, termite plague;

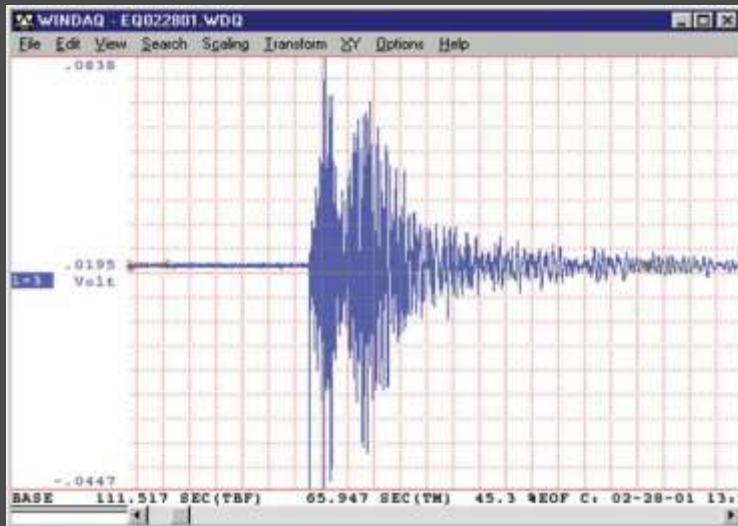
# Preliminary data analysis: *Systems' vulnerability*

- Who was more negatively affected?
  - the most socially disadvantaged: aged and psychologically vulnerable persons;
  - the owners of vulnerable houses;
- Major losses:
  - Lives (SMG)
  - Material - houses and property (SMA, SMG, TER)
  - Patrimony
  - Psychological/emotional
- Who benefited with earthquakes?
  - SMA: Nobody
  - SMG: Nobody; Construction companies; people who got improvements in their property;
  - TER: Everybody (the most disadvantaged to the most well-off, official and non-official intermediaries)

# Preliminary data analysis: Risk management

- What impressed/'touched' interviewees the most?
  - TER: Solidarity among people  
Interpersonal conflicts resolution
- What is done by authorities/entities (Government, Civil Protection, experts, and schools)?
  - Before** a crisis, to prepare citizens: Nothing;
  - During** and **after** a crisis: Ok; The Government does its share; things work because people help each other (TER);
- What is done by the person him/herself?
  - A sense of not needing more information to be better prepared, to become more resilient to crisis and crisis impacts
  - There is not a 'culture of precaution'

# Preliminary data analysis: Public Trust



People do trust others...

... official and non official entities, regarding:

- Risk/crisis communication
- Risk/crisis management



# Preliminary data analysis: **Place attachment**



Strong attachment to the living place

- **Social - Emotional Reasons:**
  - birth place;
  - life history;
  - interpersonal relationships;
  - beauty;
- **Material/Quality of Life Reasons:**
  - owning a house;
  - having facilities near the house;
  - knowing the place;

**THANK YOU!**



**Pico**

A volcano that stands 2,351 meters (7,713 ft)  
high on the island of the same name

**The highest place of Portugal**

**Volcanic Status:** Active

(photo by Eduardo Tereso)