



1st EEH Welcome Day

33° doctoral cycle, 1 February 2018
Scuola Superiore Ud'A
C/o Aula Giuntella, palazzina di Lettere

10.00 -11.00 INTRODUCTION

Greetings

Ud'A Rector, prof. Sergio Caputi
Head of School of Advanced Studies, prof. Angelo Cichelli,
Past Head of DiSPUTer, prof. Rino Stuppia
Present Head of DiSPUTer, prof. Luca Tommasi

Mission, purposes and organization of EEH

EEH Coordinator, prof.ssa Giusy Lavecchia

11.00 -13.30 THE THREE SOULS OF EEH

Structural geology and earthquakes

(Francesco Brozzetti, Paolo Boncio, Bruno Pace, Rita De Nardis)

The Planet Structure: from nucleus to atmosphere, and the environmental emergencies

(Piero Di Carlo, Francesco Stoppa, Giacomo Gerosa, Paolo Bonasoni, Paolo Cristofanelli)

The role of psychological variables in risk perception and risk management

(Nicola Mammarella, Alberto Di Domenico, Chiara Berti, Michela Cortini, Cristina Verrocchio)



13.30-14.30 *brunch all together*



14:30-15.00 HAZARD AS A SOCIAL CONCERN IN COMPLEX RISK SCENARIOS

Prof. Francesco Stoppa, Ud'A

15.00-16.00 EEH AND ITS INTERACTION WITH THE INDUSTRY

(Piero di Carlo, Ivana Antonucci, Oliva Menozzi, Michela Cortini, Alfredo Grilli)

16.00-17.00 SHORT SELF-PRESENTATION OF EEH STUDENTS OF THE 33RD CYCLE

(Simone Bello, Andrea Carducci, Luca Cironi, Simone d'Incecco, Alessandra Di Serafino, Eugenio Di Valerio, Lorenza Falcone, Teresa Galanti, Alessia Marini)

17.00-17.30 CONCLUSIONS, DISCUSSION AND FUTURE PROJECTS

atmosfera biosfera idrosfera litosfera

Protect the planet



*Thanks to
Frabrizia Arduini*



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What is EEH?

Earthquake and Environmental Hazards (EEH) is a PhD course dedicated to high-quality studies and original research on natural and anthropogenic hazards and their consequences.

It is aimed to build a multi-task research community concerned, on one side, with monitoring, modelling and assessment of hazards and, on the other, with the investigation of the impact on individuals and society, finalized to the design and implementation of risk mitigation and adaptation strategies.



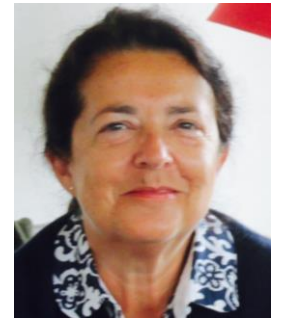
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How the idea of EEH was born?

1° EEH seed

2011

In 2011, Francesco Stoppa and Chiara Berti start to discuss about how to approach the problem of the social mitigation of seismic risk, in order to reduce damage and grief consequent to earthquakes.



Vol.5, No.8A1, 78-91 (2013)
doi:10.4236/ns.2013.58A1010

Natural Science

Reducing seismic risk by understanding its cultural roots: Inference from an Italian case history

Francesco Stoppa*, Chiara Berti

Department of Psychology, Humanities and Territory, University "G. d'Annunzio", Chieti, Italy;



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How the idea of EEH was born?

2° EEH seed

2014

FESTIVAL della **COMPLESSITÀ**
Vª Edizione 2014

4-6 Luglio, 2014, DiSPUTer

FESTIVAL DIFFUSO a Km **Zero**

The Festival proposed a systemic approach to complex and reticular situations and problems ranging from biology to politics, from medicine to economics, from physics to school, from human relationships to management. *«L'approccio sistemico è un modo nuovo di guardare alla scienza e alla realtà, basato su una visione complessiva ed integrata della realtà. Richiede un cambiamento di mentalità» (F.Forino, 2014).*

3° EEH seed - 2015

Centro Universitario
interdisciplinare
per l'analisi Sismotettonica
tridimensionale
con applicazioni territoriali -



CRUST: Centro interUniversitario
per l'analisi Sismotettonica tridimensionale
con applicazioni territoriali -



CRUST: Centro interUniversitario
per l'analisi Sismotettonica tridimensionale
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CRUST is aimed to promote research and teaching in the field of Seismotectonics for both basic research and seismic risk reduction purposes.

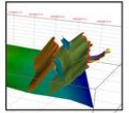
- Foundation** April 2016
- Memberships** 9 Core Italian Universities
- Headquarters** Ud'A University, Chieti, Italy
- CRUST Head** prof. Giusy Lavecchia
- Website** <https://www.crust.unich.it/>

Nine Italian Universities (**Catania, Messina, Salerno, Roma Tre, Perugia, Chieti, Bologna, Ferrara and Pavia**) with research groups in structural geology, active tectonics, seismology and geophysics are involved at CRUST.

The overall **CRUST Community**, at the moment consists of **65** people with position from full professors to fellow researchers with expertise in different fields of structural geology, seismology and geophysics. They are allocated in **9** multidisciplinary Research Units.

CRUST founders are Giusy Lavecchia, Massimiliano Barchi, Riccardo Caputo, Carmelo Monaco, Silvio Seno, Roberto Scarpa, Francesco Mulargia & Giancarlo Neri.

Seismotectonics according to CRUST



- in long-term geologic perspective
- strictly interdisciplinary
- multi-scale, in approach and results
 - 3D and 4D scale
 - open-source database

One of the **CRUST** aim is to build a regional «second generation» open database of detailed fault trace and fault surfaces plus a realistic crust-scale block model for the Italian territory to be used for seismic hazard evaluation.

This is with a double target:
improving basic knowledges in geology and physics of earthquakes
and contributing to earthquake prevision and seismic risk reduction



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How the idea of EEH was born?

4° EEH seed



Winter-Spring 2017

The fervor of ideas and the renewal climate during the electoral campaign for the new Ud'A Rector election.

5° EEH seed

My five year lasting position in the “CGR” that made me even more aware of how, despite the dramatic experience of the L’Aquila earthquake, still the Civil Protection Departments, the politicians, the technicians, the researchers and the populations went one speaking different languages among them incomprehensible.

NEED of growing up a NEW GENERATION of RESEARCHERS in EEH



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Where the idea of EEH was born?

At DiSPUTer



- At DiSPUTer, most of the necessary and teaching competences in fields from geology to psychology, from physics of the atmosphere to biology etc were available!
- At DiSPUTer any new good proposal is soon approved and shared, making things more easy to built!
- At DiSPUTer, researchers from Research Centers and other Italian and foreign universities are largely welcome!

**An Interdisciplinary and international Board of Professor was built
and the EEH project developed.**



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Special thanks

to Piero di Carlo, vice-coordinator of EEH

***to the Director of «School of Advanced Studies », prof. Angelo Cichelli,
and to its staff; a special thank to Claudia and Anna***

to the Ud'A Rector, prof. Sergio Caputi

***to past and present Head of DiSPUTer, Profs. Rino Stuppia and
Luca Tommasi***

To all the friends and colleagues from the Industry



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NOW, we have EEH!

The skills of the EEH teaching board span from Earth Sciences and Physics (ERC PE10) to Archeology and Psychology (ERC SH4), making possible a multi-task approach to two high-impact categories of hazard: earthquakes and environmental pollution

Final EEH aim is to communicate understanding of earthquake phenomena to end-users and society at large as useful knowledge for reducing earthquake and environmental risks and improving community resilience

Protect the planet





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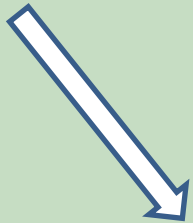
NOW, we have EEH!

How is it organized?

**SEISMOTECTONICS
AND SEISMOGENESIS
FOR SEISMIC HAZARD
ASSESSMENT**

**ENVIRONMENTAL
POLLUTION MONITORING
AND ANALYSIS FOR
HAZARD ASSESSMENT**

**PSYCHO-SOCIOLOGICAL
ANALYSIS OF HAZARD
PERCEPTION AND RISK
COMMUNICATION**



Reducing seismic and environmental risk:

**Through the interaction among the three EEH souls,
new research lines may be developed useful to motivate societal
actions in risk reduction and resilience development**



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Seismotectonics and Seismic Hazard Unit of EEH, 33°cycle

Board of Professors

Giusy Lavecchia

Francesco Brozzetti

Paolo Boncio

Bruno Pace

Rita de Nardis

Oliva Menozzi

Ramon Arrowsmith

Mauro Cardinali

full professor of Structural Geology, Ud'A , PhD Francesco

associate professor of Structural Geology, Ud'A

associate professor of Structural Geology, Ud'A

researcher in Solid Earth Geophysics, Ud'A

researcher in Seismology, DPC

researcher in Archaeology Ud'A

full prof. of Geomorphology, Arizona State University USA

researcher in Geomorphology, CNR Perugia



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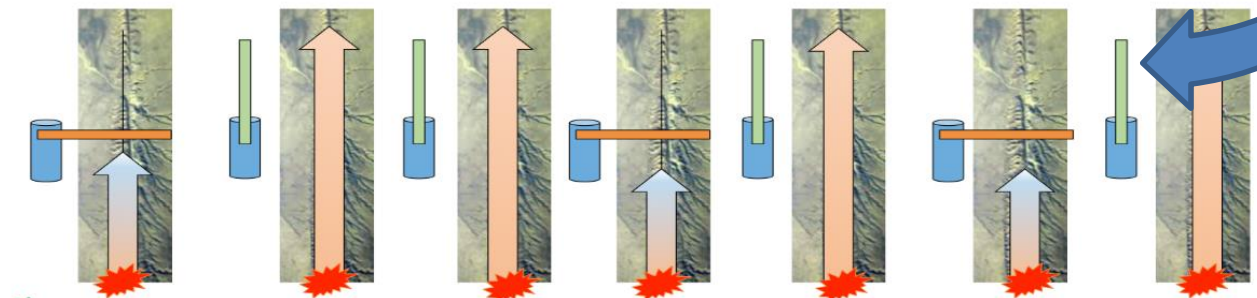
Mission of the Seismotectonics Unit

The relationships between tectonic structures and instrumental to pre-historic earthquakes will be analysed from a multi-disciplinary point of view for a better understanding and modelling of the complex processes controlling active faulting and earthquake mechanics.

The research will be afforded in a long-term geologic perspective, considering the earthquakes as instantaneous deformation of longer term deformation histories. Territorial applications in the form of seismic hazard analysis will be afforded.

New concepts such as that of “Earthquake Gates” will be explored

Basic disciplines are:
Structural Geology,
Geomorphology,
Geophysics,
Seismology
Archaeology



time

likelihood of the gate being open or closed to through rupture.



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Environmental Pollution and Hazard Unit of EEH, 33° cycle

Board of Professors

Francesco Stoppa



full professor of Geochemistry and Petrology, Ud'A

Piero di Carlo



researcher in Physics of Earth and Atmosphere, Ud'A

Giacomo Gerosa



associate Prof. in Physics of Earth and Atmosphere, UNICATT

Roderic Jones



full professor in Physics of PAtmosph., Univ. Cambridge, UK

William Brune



full Professor in Physics of PAtmosph., PennState Univ., USA

Paolo Bonasoni



researcher in Physics of the Earth and the Atmosphere, CNR

Paolo Cristofanelli

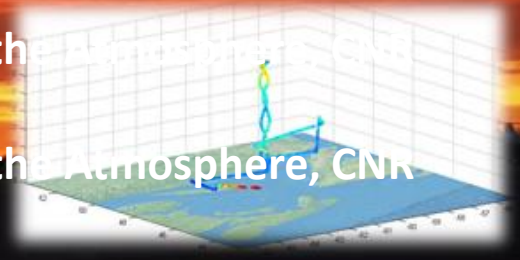


researcher in Physics of the Earth and the Atmosphere, CNR

Elena Paoletti



researcher in Physics of the Earth and the Atmosphere, CNR





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Mission of the Environmental Unit

Research and teaching activities include the planet structure, from nucleus to atmosphere and the environmental emergencies.

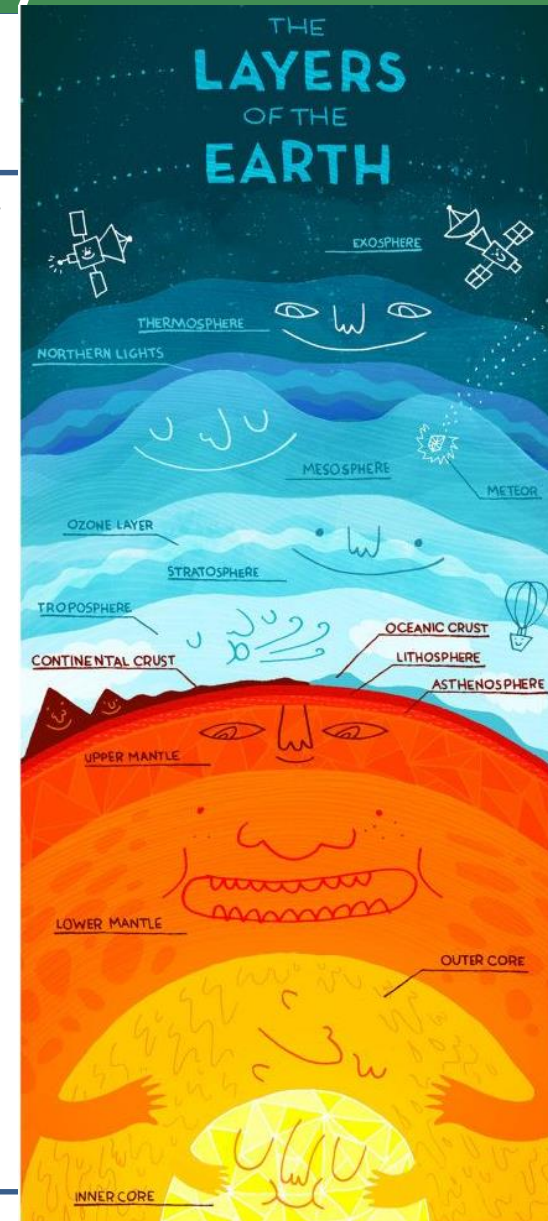
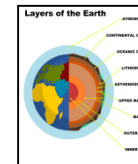
Multi-disciplinary analytical investigations will be carried out to assess the impacts of the atmospheric, soil and water composition changes on climate, ecosystems and well-being. Crustal gas emission associated with earthquake activity will be also analyzed. The exchanges processes among air, soil and ocean are other key topics for a global picture of the environmental hazard.

Basic disciplines are

Physics of the Earth and Atmosphere,

Geochemistry/Petrology

Plant Ecosystems.





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Psychological unit of EEH, 33° cycle



Prof. ssa Chiara Berti

Psicologia Sociale

Prof.ssa Michela Cortini

Psi. del Lavoro e delle Organizzazioni

Dr. Alberto Di Domenico

Psicologia Generale

Prof. Nicola Mammarella

Psicologia Generale

Prof.ssa Maria Cristina Verrocchio

Psicologia Clinica



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Mission of the Psychological Unit

Exploring the psychological variables of risk, examining how individuals think, feel and act, as well as considering the institutional and societal assessments, theories and reactions about risk and environmental hazards.

- risk assessment
- hazard perception
- decision-making
- risk and crisis management
- risk and emotion
- risk communication
- safety cultures
- the social representation of risk
- mechanisms for changing risk responses at both individual, social, work, organizational levels.





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EEH Students – PhD XXXIII cycle



Simone Bello
Structural Geologist



Andrea Carducci
Statistical Seismologist



Luca Cironi
Environmental Scientist



Simone D'Incecco
Geochemist



Alessandra Di Serafino
Environmental biologist



Eugenio Di Valerio
Geoarchaeologist



Lorenza Falcone
Pharmaceutical Chemist



Teresa Galanti
Clinical Psychologist



Alessia Marini
Psychologist



Five EEH projects are joined with industries.

Four of them got MIUR fellowships (PON)

to carry out joint research projects with industries and international universities.

- 1) Error management and management of risks and safety in the workplace
Michela Cortini & Tecnomatic SpA
- 2) The epigenetic effects of atmospheric pollutants (ozone, particulate matter, nanoparticles) on male germ-like cells derived from human Amniotic Fluid Stem Cells (hAFS)
Ivana Antonucci & Diatech pharmacogenetics srl
- 3) Cultural Heritage at Risk: geo-archaeological strategies and methodologies for documenting, reconstructing, monitoring and preventing
Oliva Menozzi & Pegaso srl
- 4) Trace gas emissions and active faulting: interactions and connections
Piero Di Carlo & West Systems srl
- 5) Analytical investigations on the environmental impacts of waste and biomass
Alfredo Grilli & So.Ge.Ri.T



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EEH students will develop and implement their scientific background, but, at the same time, they will acquire basic tools and knowledge on hazard problems approached from different point of views.

EEH training and educational activities

<i>Academic year</i>	<i>Hours</i>	<i>Credits (CFU)</i>	<i>Topics</i>
1 st year	100	10 CFU given by EEH	Building the common “lexicum”
2 nd year	100	10 CFU given by EEH	Advanced courses on specific thematics
1 st to 3 rd year	100	10 CFU - free student choice	Seminars, Summer Schools, Courses, Meetings etc

The EEH teaching and research strategy is crucial to educate and train a new generation of researchers and technicians able to combine their specific expertise into a common procedure for successful risk management. Such a framing process is urgent in order to increase resilience to earthquakes and environmental hazards and to reduce the impact from natural disasters.



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*THANKS to all those
who believed in EEH
and helped us to set it up.*

*THANKS to all those will work
and cooperate to further develop the project.*

Protect the planet





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EEH students duties

The PhD students must follow at al least 80% of the first-year lectures and at least 70 % of the second-year ones. The lectures will be given at Ud'A.

The students may follow the lectures of the third year anywhere, upon agreement of their tutors.

During the three years, the PhD students must attend at least two national or international conference meetings as co-authors of oral presentations or posters; at least in one case, they will have to be first author.

At the completion of the third year, at least one paper published or submitted to on an ISI magazine is required, unless of exceptional specific exemption provided by one of the members of the Board of Professors.

A minimum of 60 days abroad, even non-consecutive, is strictly foreseen for every PhD student at EEH.



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EEH students rights

Each EEH student will be fully accepted and integrated in a research group and carefully followed by the assigned tutor in carrying out its research project.

The tutor might also be not a member of the EEH teaching board, provided he has high qualified reputation and experience.

A contribution to funds for the research will be provided by the Scuola Superiore starting from the second year of the PhD program, for an amount of 1200 euros per year per student.

For the first year of activity, DiSPUTer provides students with a quota of around 500 euros each for participation in congresses.