

Curriculum vitae et studiorum

Manuel Curzi

PhD student (Structural Geology)

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RESEARCH

Research topics

I am a structural geologist with focus on the integration of structural, geochronological and geochemical analyses to decipher the spatial and temporal evolution of exhumed deformation zones. I use a multidisciplinary approach based on detailed geological-structural mapping, multiscale structural analyses, fluid inclusions analyses, geochemical and geochronological analyses to understand fluid-rock interaction, and time-space evolution of complex areas. Current fieldwork and projects are in the Apennines (Italy), where I performed detailed geological and structural field mapping of exhumed brittle fault zones and brittle-ductile shear zones.

Techniques

I have experience in:

- Field geological mapping in complex areas characterized by polyphase tectonic deformation
- Detailed field structural mapping
- Geological cross section construction and validation
- Multiscale structural analyses, faults-fractures characterization, and paleostress reconstruction
- Fault zone characterization from outcrop to nanoscale using optical and electron microscopy
- Reconstruction of paleofluid circulation within fault zones and sedimentary basins integrating multiple geochemical data (carbon and oxygen stable isotopes, oxygen clumped isotopes, whole rock geochemistry, and trace elements)
- Reconstruction of P-T evolution of exhumed faults by coupling geochemical analyses with fluid inclusions analyses (microthermometry and raman spectroscopy)
- Reconstruction of the timing of activity of faults through U-Pb dating on syn-tectonic calcite mineralizations and K-Ar dating on syn-kinematic clay minerals in fault gouge.
- Rock sample preparation for geochemical analyses (stable isotopes) and mineralogical analyses (X-Ray diffraction)
- 2D seismic interpretation

EDUCATION

November 2017 – present: PhD in Earth Sciences at Sapienza University of Rome

Thesis title: Evolution of segments of the central-northern Apennine wedge through structural, geochemical, and geochronological constraints in fault zones.

Supervisor: Prof. Eugenio Carminati

Co-supervisors: Dott. Andrea Billi and Prof. Federico Rossetti

2017: Master degree in geology (110/110 cum laude) at Sapienza University of Rome

Thesis title: Middle Triassic subsidence in the Dolomites (Italy): control of tectonics and magmatism.

Supervisor: Prof. Eugenio Carminati

Co-supervisor: Prof. Piero Gianolla

2015: Bachelor degree (110/110 cum laude) at Sapienza University of Rome

Thesis title: Geological field mapping of Mt. Macchialunga (Central Apennines).

Supervisor: Prof. Massimo Santantonio

Co-supervisor: Dott. Simone Fabbi

SHORT COURSES, SCHOOLS, AND WORKSHOPS

28/06/2016 - 03/07/2016: field trip “Crisis and recovery of carbonate systems: the role climate, tectonics and magmatism”.

Organised by Società Geologica Italiana (SGI). Field trip leaders: Prof. Piero Gianolla, Prof. Nereo Preto, Prof. Eugenio Carminati, Prof.ssa Daniela Fontana, Prof. Fabrizio Berra, Prof. Marco Brandano, Dott. Massimo Bernardi, Dott. Riccardo Tomassoni. Dolomiti (Italia).

29/03/2017 - 29/03/2017: ECCSEL Training Course on research infrastructures for CO2 storage: specific focus on monitoring and natural laboratories.

Organised by ECCSEL (European Carbon Dioxide Capture and Storage Laboratory Infrastructure) at the Earth Sciences Dept., Sapienza University of Rome.

5/02/2018 - 9/02/2018: short course “Geology of Southern Tethys.”

By Prof. Dominique Frizon de Lamotte (Cergy-Pontoise University, France. Department Géosciences et Environnement – GEC Laboratory) at the Earth Sciences Dept., Sapienza University of Rome.

2/03/2018: seminary “Injection of CO2 and tracer-infused water into a shallow aquifer and leakage detection monitoring at the K-COSEM site, South Korea”.

By Prof. Kang-Kun Lee, of Seoul National University and President of the Geological Society of Korea. Organised into the ENOS project (Enabling Onshore Storage in Europe) at the Earth Sciences Dept., Sapienza University of Rome.

10/10/2017: seminary “The Mechanics of Slow Earthquakes and the Spectrum of Fault Slip Behavior”.

By Prof. Chris Marone, The Pennsylvania State University-USA at the Earth Sciences Dept., Sapienza University of Rome.

10/03/2018: seminary “Structural trap & seal evaluation: from conventional to hydrodynamic plays”.

By Christopher Wibberley (TOTAL, CSTJF Pau, France) at the Earth Sciences Dept., Sapienza University of Rome.

05/03/2018, 12/03/2018, 19/03/2018: course of geospatial analysis and representations through Surfer 15 software.

By Prof. Michele Di Filippo at the Earth Sciences Dept., Sapienza University of Rome.

03/04/2018 – 06/04/2018: Microtectonics Course – Mainz, 2018.

By Prof. Chees Passchier at the Department of Earth Sciences of Mainz University, Germany.

22-23/05/2018: short course “The economic geology of South Africa”.

By Prof. Marian Tredoux (Faculty of Natural and Agricultural Sciences, University of the Free State, Republic of South Africa). 4-lecture series at the Earth Sciences Dept., Sapienza University of Rome.

22/05/2018: seminary "OH-defects in quartz and its high pressure polymorphs: an overview from crustal to upper mantle conditions".

By Corinne Frigo (Institute of Mineralogy and Petrography, Faculty of Geo- and Atmospheric Sciences, University of Innsbruck, Austria). At the Earth Sciences Dept., Sapienza University of Rome.

23/05/2018: seminary "Il Sincrotrone Europeo e la ricerca nelle Scienze della Terra, tra passato, presente e future".

By Dott. Valerio Cerantola. European Synchrotron Radiation Facility (ESRF). Grenoble, Francia. At the Earth Sciences Dept., Sapienza University of Rome

20/06/2018 – 21/06/2018: school "Scuola di Microscopia per Geoscienze"

Zeiss Academy. At C/o CERTEMA, Laboratorio Tecnologico di Grosseto.

January-February/2019: short course: Gis

By Prof.ssa Marta Della Seta at the Earth Sciences Dept., Sapienza University of Rome.

23/01/2019: seminary "The Ethiopian Rift"

By Prof. G. Corti, Prof. V. Acocella, and Prof. S. Ciccacci at the Earth Sciences Dept., Sapienza University of Rome.

6/2/ 2019: seminary "Suggestion for how to write a scientific paper"

By Prof. C. Collettini at the Earth Sciences Dept., Sapienza University of Rome.

18/02/2019 – 27/02/2019: Field trip in Dancalia (Etiopia) - Study of volcano-tectonic active processes in the Afar region (Ethiopia).

Field trip leaders: Prof. E. Carminati, Prof. G. Andreozzi, Prof. D. Palladino, and Prof. F. Trippetta

18/07/2019: seminary "The mechanics of slow earthquakes, precursor to the stress drop, and the origin of fluid driven fault slip"

By Dt. M. Scuderi at the Earth Sciences Dept., Sapienza University of Rome.

28/07/2019: seminary "Gli esami 'di maturità termica' non finiscono mai"

By Prof. L. Aldega at the Earth Sciences Dept., Sapienza University of Rome.

OTHER EXPERIENCES

November 2019 – present: Tutoring for Geologia II at Sapienza University of Rome.

November 2019 – present: Tutoring in Earth Sciences for high schools (earthquakes, plate tectonics, and rocks lab).

March-June 2019: Visiting student at the Geological Survey of Norway (NGU, Trondheim) and at the University of Sciences and Technology (NTNU, Trondheim).

Funded by "Bando per il finanziamento di progetti di ricerca congiunti per la mobilità all'estero di studenti di dottorato" (Dr. Manuel Curzi and Stefania Franchini, Sapienza University of Rome)

During this period, I performed K-Ar dating on syn-kinematic clay minerals in fault gouge and microthermometry on fluid inclusions in calcite and quartz syn-tectonic veins

2018-2019: Tutoring in Earth Sciences for high schools (earthquakes, plate tectonics, and rocks lab).

2014-2015: Tutoring for Physical Geography and Geomorphology courses at Earth Sciences Dept., Sapienza University of Rome.

GRANTS AND AWARDS

October 2019: Progetto per Avvio alla Ricerca (1000 €).

Project title: "Timing and rates of the tectonic processes that have steered the nucleation and growth of a portion of the Central Apennine belt by U-Pb and K-Ar dating and geochemical constraints".

December 2018: Finanziamento di progetti di ricerca congiunti per la mobilità all'estero di studenti di dottorato (3000 €).

Project title: "Geochronological and geochemical constraints of veins associated with past earthquakes along fault zones in the central-northern Apennines".

SOFTWARES

Matlab, Visual basic, GMT

Adobe Illustrator, Photoshop, and Corel Draw

Move Midland Valley

Surfer

Petrel E&P.

IBM SPSS.

Office

Gis.