Martina Monaco, M.Sc., Ph.D. Candidate

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EXPERIENCE & SKILLS

GEOPHYSICS PhD CANDIDATE & TEACHING ASSISTANT — Jan 2021 - current

University of Florida — Gainesville, FL

- Developing, testing, and interpreting original computational models of the deep Earth on the supercomputer HiPerGator to tie the appearance of seismic discontinuities to mantle plumes activity
- Writing codes in Python for data visualization, data QC, multivariate data analysis, and regression machine learning model building
- Coding and debugging in C++ and Github, with the purpose of contributing to the ASPECT code for mantle convection
- Presenting the work done at major international conferences and events
- Teaching assistant to GLY1102: grading on Canvas, successfully holding office hours, providing personalized feedback and help to 300 students

GEOLOGY GRADUATE RESEARCH INTERN — Jun 2020 - Nov 2020

University of Florida — Gainesville, FL

- Used available seismic data to develop numerical models of the Andean subduction zone to assess the impact of slab properties on subduction patterns
- Wrote scientific code in Python for data visualization, data QC, and data analysis
- Gained proficiency in writing technical reports and theses and presenting results to academics and experienced professionals

PETROLEUM GEOLOGY INTERN — Apr 2017 - Jul 2017

GEPlan Consulting s.r.l. — Ferrara, Italy

- Performed in-depth analysis of a hydrocarbon discovery onshore Italy in order to evaluate the viability of its development
- Reconstructed the 3-D architecture of a Jurassic carbonate platform in Petrel using seismic and well data
- Created a data-driven geological model using Petrel and completed reservoir volumetrics and mapping using Neura Map to quantify the economic potential of the discovery

EDUCATION & OUTREACH

GEOPHYSICS, PhD — Jan 2021 - current *4.0/4.0 GPA*

University of Florida, Department of Geology — Gainesville, FL

Project: computational numerical modeling of the Hawaiian mantle plume, its ascent dynamics, and its relationship with mantle seismic discontinuities — Advisor: Prof. Juliane Dannberg.

Main topics: Geophysics, Geodynamics, Numerical (Computational) Modeling (C++), Data Analysis (Python).

Outreach: invited to give free Earth Science lectures to high school students through the *"A scientist in every Florida school"* program.

Certificates: University of Oslo, *"Earth and planetary mineralogy and dynamics (GEO-DEEP 9200)"*, 5 ECTS (Visiting PhD student).

EXPLORATION GEOLOGY, MSc — Oct 2017 - Dec 2020
110/110 *Summa Cum Laude (highest honors)*
Sapienza University — Rome, Italy
Thesis: "Subduction dynamics and role of mantle flow in Central South America: a 2D numerical modeling through ASPECT" — Advisor: Prof. Carlo Doglioni.
Main topics: Geophysics, Seismic Interpretation, Geodynamics, Oil & Gas Exploration, Stratigraphy.
Outreach: successfully conducted 1:1 tutoring on Earth Science topics to fellow college students, as well as scientific and writing tutoring to high school students.

GEOLOGICAL SCIENCES, BSc — Sept 2013 - Oct 2017
University of Bologna — Bologna, Italy
Thesis: "The Bagnolo Mesozoic carbonate platform: characteristics and extension as inferred from well data" — Advisors: Prof. Alberto Riva (UniFe) and Prof. Rossella Capozzi (UniBo).
Main topics: Geology, Geophysics, Structural Geology, Stratigraphy.

SELECTED PUBLICATIONS

- Monaco M., Dannberg J., Gassmoeller R., Pugh S., 2022: *Linking geodynamic models of basalt segregation in mantle plumes to the X-Discontinuity observed beneath hotspots, JGR Solid Earth, https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2022JB025036*
- Monaco M., Dannberg J., Gassmoeller R., Pugh S., 2022: *Recycled basaltic material in mantle plumes explains the appearance of the X-discontinuity in the upper mantle beneath the Hawaiian hotspot: 2D geodynamic numerical models*, American Geophysical Union Fall Meeting 2022, Chicago, IL, USA
- Monaco M., Dannberg J., Gassmoeller R., Pugh S., 2022: *Recycled basaltic material in mantle plumes explains the appearance of the X-discontinuity in the upper mantle: 2D geodynamic numerical models*, Ada Lovelace Workshop, Hévíz, Hungary, 2022
- Monaco M., Dannberg J., Gassmoeller R., 2021: *The Segregation of Recycled Basaltic Material Within Mantle Plumes Explains the Detection of the X-Discontinuity Beneath Hotspots: 2D Geodynamic Simulations*, American Geophysical Union Fall Meeting 2021, New Orleans, LA, USA

LANGUAGES

- Italian (native)
- English (full proficiency)
- Spanish (full proficiency)
- French (basic-lower intermediate)
- Norwegian (basic)