



**Ph.D. position at the Department of Science (Section Geology) of the University of Roma 3**  
**-Deadline on June 26<sup>th</sup>-**

**Deciphering the Mantle Contribution on Surface uplift in the Atlas-Meseta system (Morocco).**

The idea that mantle flow dynamics may contribute to the topographic development of orogens has changed our vision on mountain building processes and inspired an increasing number of modelling studies. Isolating and documenting such a contribution however, has been proved to be difficult, especially in continental settings where the paleontological record is not as determinant as in marine systems. This research proposal aims to decipher the influence of mantle flow on the topographic growth of the Atlas-Meseta system of Morocco. There, the occurrence of several hundred of meters of mantle driven uplift, offers the possibility to investigate magnitude, timing and rates of surface uplift, by means of a multidisciplinary approach involving recent advancements on stratigraphy, geomorphology, geochronology, and low-temperature thermochronology. The outcome of this field- and laboratory-based approach will be finally integrated for developing an analogue geodynamic model and gain more insights into the mechanisms of mantle flow. Specifically, the candidate student will quantify longitudinal and latitudinal spatio-temporal patterns of surface uplift and regional tilting induced by mantle flow along two transects across the Atlas-Meseta system. In addition, the expected results will provide geological information that will be used for calibrating a final geodynamic analogue model, which will be of general interest for unravelling the evolution of mountain belts that are not supported by orogenic roots.

**Supervisors**

Paolo Ballato and Claudio Faccenna (University of Roma Tre)

**Collaborators**

Taylor Schildgen (GFZ Potsdam), Wolfgang Schwanghart (University of Potsdam), Giuditta Fellin (ETH Zurich), Francesca Funiciello and Federico Rossetti (University of Roma Tre)

**Requirements**

The successful candidate must have high motivation, a MSc degree in Geology, Earth Sciences or equivalent, solid basic knowledge in field geology, geomorphology, stratigraphy and tectonics. Basic knowledge in ArcGIS and MATLAB are also required. Applicants must be also proficient in spoken and written English and have teamwork skills.

**Information and application**

Please feel free to contact Paolo Ballato ([paolo.ballato@uniroma3.it](mailto:paolo.ballato@uniroma3.it)) and/or Claudio Faccenna ([claudio.faccenna@uniroma3.it](mailto:claudio.faccenna@uniroma3.it)). Please find in the link below a detailed list of requested material and a description of the application procedure (mostly in Italian; for English please contact Paolo Ballato):

<https://apps.uniroma3.it/bando2018/ProceduraConcoursualeFront.aspx?s=482>

**Conditions of employment**

The project will start on November 1<sup>st</sup> as part of the University of Roma Tre Ph.D. programme (34<sup>th</sup> cycle) and will last 3 years. The scholarship has an annual amount of 13.638,47 Euro (social security fee included) and is increased (+50%) for periods of study or research abroad.