**Testing volcanic - climatic linkages across the caldera cycle: a case study from Campi Felgrei**

A four year Ph.D opportunity (starting fall 2020) in the field of igneous geochemistry exists for a highly motivated individual at the Department of Geology, Trinity College Dublin, Ireland.

*Supervisor Dr Emma Tomlinson (Trinity College Dublin)*

*Collaborators: Dr Andrew Parnell (University of Maynooth) and Dr Sabine Wulf (University of Portsmouth)*

**Project description**

Many volcanic systems exhibit remarkable cyclic behaviour, starting with eruptions of less evolved magma and transitioning to infrequent eruptions of more evolved magma before culminating in cataclysmic eruption. Cyclic variations with periods of 104-105 years are within the range of orbitally forced climatic variations (Milankovitch cycles), indeed, layers of volcanic ash in sediment cores document an increase in volcanic eruption frequency following deglaciation. This project will investigate the tempo of past volcanic eruptions at Campi Flegrei (Italy) and explore the interplay between magmatic and climatic processes. The ultimate goal is to test the hypothesis that the timing and tempo of volcanism at Campi Flegrei is controlled by climatic variations.

To achieve this, the candidate will study the age and composition of volcanic tephra layers preserved in a sedimentary core from Lago Grande di Monticchio, an annually layered lake spanning 3-133 ka located downwind of Campi Flegrei. Laboratory work will comprise petrology and geochemical analysis via SEM-EDX and LA-ICP-MS analysis in the state-of-the-art iCRAG laboratories at Trinity College Dublin. In addition the candidate will undertake multivariate statistical analysis of the climate-frequency-composition relations of tephra layers within the core.

**Requirements and Training**

The ideal candidate should have obtained or be about to obtain a first or upper second class honors degree in geology or a related discipline. Applicants with a lower second-class degree will be considered if they also have a master’s degree. In addition, familiarity with R and time-series or Bayesian analysis would be beneficial.

**Eligibility**

The project is funded by the Provosts Scholarship Awards and is open to EU and non-EU students and includes fees and a tax-free stipend of €16,000 per annum.

**How to apply**

Prospective candidates should send an academic c.v. and the names and contact details of at least two academic referees to [tomlinse@tcd.ie](mailto:tomlinse@tcd.ie). Evaluation of applications will begin on 4th February 2020 and continue until the position is filled.