

**Project:** *Uplift and erosion histories of ancient buried landscapes:*

*Constraining the evolution of the Icelandic Plume*

**Supervisors:** Dr. Gareth Roberts, Dr. Chris Jackson, & Dr. Richard Lamb

**Dear Drs. Roberts, Jackson, & Lamb,**

I would like to express my interest in your PhD project *Uplift and erosion histories of ancient buried landscapes: Constraining the evolution of the Icelandic Plume*. I am a recent graduate from University College London (UCL), with an MSci degree in International Earth Sciences.

For the past 4 years I have developed a strong passion for geology, geophysics, and planetary processes, and my outstanding results are a direct consequence of my enthusiasm and continuous hard work. I obtained a final mark of 82%, the highest achieved by any of my peers, and received 2 departmental awards during my studies (*Hollingworth Prize* and *Morris Prize*), in addition to being on UCL's Dean's List. Aside from being highly competitive in an academic setting, I have also strived to perform research outside of UCL, with several academic internships in various related fields such as exoplanetary research in the University of Copenhagen (2013), oceanographic studies at the University of the Azores (2012), and paleontological research in the Portuguese Center for Geo and Pre-History. These experiences allowed me to transfer my theoretical knowledge into practical abilities in the field, in addition to teaching me how to work successfully in a team.

On my year abroad at the University of Texas at Austin (UT), where I received *University Honours*, my main objective was to develop my coding skills as well as my mathematical and physical foundations. I learnt how to use MATLAB and ArcGIS, and have evolved to using Unix in my geodynamics courses. In my last year, I worked on my final year project titled *Landslides in Valles Marineris Mars: combining global database statistics and a digital terrain model to assess the role of ice during emplacement*, supervised by Dr. Peter Grindrod. In this project I identified and mapped every landslide system in the *Valles Marineris* rift, using images from the Context Camera (CTX), in order to constrain the evolution and erosional history of the giant canyon. I presented evidence for the past presence of ice within the canyon, and from geomorphological observations I showed that a large equatorial glacier might have been present within the last 1 Gyr of Martian history. After spending a year mapping hundreds of landslides and building 3D models of their topography, I have become proficient in ArcGIS, and would enthusiastically tackle any digital mapping challenges and landscape reconstructions.

I have always sought to increase my exposure within the earth sciences field, and have worked in conferences such as the EPSC (European Planetary Science Conference), presented posters in international meetings such as the LPSC (Lunar and Planetary Science Conference in Houston), and taught young children at the UCL Festival of Geology. I am currently in the process of publishing my final project as two separate papers in the peer-review journal *Icarus*. As a result, I am strongly equipped with the required skills for being a successful graduate student who is both active and significant within their field.

I am a confident leader and a reliable student and team member, and as a result of my international background and several experiences around the globe I can easily make friends as well as deliver a professional presentation. In the Doctoral Training Partnership (DTP), leadership and commitment are highly valued; having obtained the UCL Lacrosse Society's *Most Reliable Player Award*, captaining my high school volleyball team, and avidly participating in societies such as the UCL Greenough Society for geology, I am highly familiar with these core values and would contribute greatly to the DTP's activities. With my strong interpersonal skills, I can effortlessly interact with peers in a wide variety of fields, which is a vital means of problem solving within the DTP scheme. Although I have constantly sought to apply my theoretical knowledge to hands-on situations, the DTP scheme provides a unique opportunity to employ my skills in a real-world setting through training, development, and exploration.

Your project combines concepts that I am acutely familiar with, such as geodynamics, landscape uplift, and (3D) mapping, with skills that I have been eager to learn, such as Python, Fortran, and other more advanced coding. This, combined with my interest and experience concerning glacial processes, volcanic islands, and the Nordic countries, illustrates why I am both deeply fascinated and compellingly suited for this project.

I look forward to hearing back from you, and do let me know if you have any further questions regarding my background or motivation.

Best regards,

**Gaia Stucky de Quay**

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