PROJECT TITLE: Climate change in the subtropical eastern Atlantic Ocean over the last two millennia

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Project Description

The Canary Islands, a subtropical volcanic archipelago in the eastern Atlantic Ocean, contain abundant accumulations of mollusc shells resulting from shell fishing by aborigines who arrived from NW Africa ~2,500 years ago. These archaeological shells can be used as paleothermometers during aboriginal occupation and inform about climate change during prehistoric timescales. Since no high-resolution paleotemperature data exist in the Canaries, these shells provide an opportunity to create such records, which, in turn, are useful to explore the potential relationship between climate change and organismal, ecosystem or societal shifts at centennial-millennial timescales. This research will generate high-resolution (seasonal) paleotemperatures over the last ~2,500 years by measuring the oxygen isotope composition (18O/16O) of archaeological Patella and Phorcus shells from the Canaries. The main objective of this research is to reconstruct mean-annual and seasonal paleotemperature profiles over the last two millennia. The student working on this project will primarily conduct laboratory and computer work, and will learn technical and intellectual aspects of biogenic carbonates, oxygen isotope paleothermometry and paleoclimate reconstruction during important climate intervals such as the Little Ice Age and the Medieval Climate Anomaly.