

# Past Environmental Change on Rapa Nui: Elemental Abundances and Leaf Waxes from Two New Lake Sediment Cores

Tyler Clemens<sup>1</sup>, William D'Andrea<sup>2</sup>

*<sup>1</sup>University of Idaho, <sup>2</sup>Lamont-Doherty Earth Observatory of Columbia University*

There is reason to believe that large changes have occurred in the hydrology of Easter Island over time. Previous studies on lake sediments from the island suggest there were major changes in the water depths of the island's crater lakes. Lakes and wetlands trap organic material from plants and minerals from bedrock erosion, while lake sediment cores contain a record of changing environmental conditions. In this study we evaluate the potential to use new analyses on three of the island's major crater lakes: Rano Aroi, Rano Raraku, and Rano Kau. These analyses involve the use of XRF-scanning (X-ray fluorescence) and lipid biomarkers to examine the changing hydrologic conditions on Easter Island. Flash chromatography and gas chromatography-mass spectrometry will be used to take a first look at isolated plant-based alkane lipids in the cores. Records of how precipitation patterns have changed in the past can help us understand how climate has naturally varied and can put current and future climate changes into perspective. The goals of this study focus on determining how moisture on the island has varied through the paleoclimate, developing a geologic time record using new analyses and comparisons to previous work, and establishing a precise time as to when island's inhabitants first settled there.