

Exploratory coring of shallow marine and lake deposits in the Galapagos Islands to identify high-resolution Holocene sediment sequences

Co - Principal Investigators: Athanasios Koutavas and Stephen Pekar

Affiliation: Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY 10964-8000

E-mail: athan@ldeo.columbia.edu pekar@ldeo.columbia.edu,

Abstract. Recent records from eastern tropical Pacific and adjacent sites from Ecuador and Peru reveal variations in Holocene climate, which are linked to changes in the behavior of the El Nino-Southern Oscillation (ENSO) system. The question of the Holocene evolution of this system, its relation to the background climate state and its potential for global climate impacts is of the highest interest for understanding global Holocene climate dynamics and making future projections for ENSO behaviour. We seek to take advantage of existing research plans to identify, sample, and study high-resolution Holocene deposits from the Galapagos Islands to address these questions. We request funds to participate in a collaborative project between scientists from MIT, the Charles Darwin Research Station (CDRS), and Galapagos National Park (GNP) in the Galapagos, using the GNP vessel. The first phase of this project, to be pursued in June 2002, involves geophysical survey of shallow deposits in the Archipelago and collection of box and gravity cores for assessing the potential of a future coring expedition. As an addition to the marine survey, we seek to investigate the possibility of coring lakes and lagoons in some of the islands. Because of the sensitive and restrictive nature of conducting research (especially sample collection) in the Galapagos National Park, collaboration with scientists who have previous work with the CDRS and GNP is essential. An invitation from the principal investigator of this project, Denise Backstrom, a postdoctoral scientist at MIT working in close collaboration with CDRS and GNP staff, was extended to us to join the research party in the Galapagos this June and participate in its operations. We expect to acquire marine and lake sediment samples for preliminary geochemical and sedimentologic study leading to direct participation in a full-scale coring project to be designed and pursued in the near future with funding from NSF.