Geophysical Research Abstracts
Vol. 18, EGU2016-2291-1, 2016
EGU General Assembly 2016

Preliminary analysis of downhole logging data from ICDP Lake Junin drilling Project, Peru

Simona Pierdominici (1), Jochem Kück (1), Donald T. Rodbell (2), Mark B. Abbott (3), and the ICDP Lake Junin Working Team

(1) Helmholtz-Zentrum Potsdam, Deutsches GeoForschungsZentrum GFZ, Telegrafenberg, 14473 Potsdam, Germany, (2) Union College, Schenectady, NY 12308, USA, (3) Dep. of Geology and Planetary Science, University of Pittsburg, PA 15260-3332, USA

The International Continental Drilling Programm (ICDP) has supported a scientific drilling campaign in Peru during the summer season 2015. The Lake Junin Drilling Project mainly aims at obtaining high-resolution paleoclimate records from lacustrine sediments to reconstruct the history of the continental records covering the glacial-interglacial cycles. Lake Junín is located at 4000 m a.s.l. in the tropical Andes of Peru, and is characterized by a thick (> 125 m) sediment package deposited at a high rate (0.2 to 1.0 mm yr-1). Lake Junín is one of the few lakes in the tropical Andes that predates the maximum extent of glaciation and is in a geomorphic position to record the waxing and waning of glaciers in nearby cordillera, hence making the lake a key site for the investigation of the Quaternary climate evolution in the inner-tropics of the Southern Hemisphere.
Continous coring was performed at three sites in overall 11 boreholes on the lake with at least two overlapping boreholes per site to avoid core gaps. The depth of the boreholes varied between approx. 30 m and 110 m depending on the drill site. The core bit had a bit size of 122.6 mm and yielded a core diameter of 85 mm.
Upon completion of coring operations downhole geophysical logging was performed in five of the 11 boreholes (1A, 1C, 1D, 2A and 3B) by the Operational Support Group of ICDP. The main objective was to record in-situ the physical properties of the lacustrine sediments of Lake Junin. Downhole logs provide a powerful tool to fill in information at intervals with core gaps and as depth reference for depth matching of the discontinous cores. Furthermore it will be used for the lithological reconstruction and interpretation. The OSG downhole logging comprised total and spectrum gamma ray, magnetic susceptibility, borehole geometry, temperature, and sonic P-wave velocity. Unstable and collapsing borehole walls made it neccessary to carry out logging in several sections instead of in one run. The logs of each borehole were depth synchronized using the total GR which measured in each run together with the other parameters.