AGU Fall Meeting 2009

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CHARACTERISTICS OF THE CRUSTAL MAGMA BODY IN THE 2005-2006 ERUPTION AREA AT 9°50'N ON THE EAST PACIFIC RISE FROM 3D MULTI-CHANNEL SEISMIC DATA

H. D. Carton[1]; S. M. Carbotte[1]; J. C. Mutter[1]; J. Canales[2]; M. R. Nedimovic[3, 1]; M. Marjanovic[1]; O. Aghaei[3]; M. Xu[2]; S. Han[1]; L. Stowe[1]
1. Marine Geology and Geophysics, Lamont-Doherty Earth Observatory, Palisades, NY, USA.
2. Woods Hole Oceanographic Institution, Woods Hole, MA, USA.
3. Dalhousie University, Dalhousie, NS, Canada.

In the summer of 2008 a large 3D multi-channel seismic dataset (expedition MGL0812) was collected over the 9°50'N Integrated Study Site at the East Pacific Rise, providing insight into the architecture of the magmatic system and its relationship with hydrothermal activity and volcanic/dyking events associated with the 2005-06 eruption. The main area of 3D coverage is located between 9°42'N and 9°57'N, spanning ~28km along-axis, and was acquired along 94 (1 partial) prime lines shot across-axis and each ~24km-long. Pre-processing of the data acquired in this area is now well under way, with significant efforts targeted at amplitude spike removal. Current work focuses on setting up the 3D processing sequence up to the stack stage for a small group of inlines (axis-perpendicular grid lines spaced 37.5m apart) located over the "bull's eye" site at 9°50'N, a sequence that will subsequently be applied to the whole dataset. At the meeting we will present stacked and migrated sections - inlines, crosslines, time slices - obtained through 3D processing. We will discuss results focusing on the characteristics of the axial magma body, whose detailed structure and along-axis segmentation will be resolved by the 3D data.