2008 Fall Meeting
Search Results

Cite abstracts as **Author(s) (2008), Title, *Eos Trans. AGU, 89*(53), Fall Meet. Suppl., Abstract xxxxx-xx**

Your query was:
carbotte

HR: 0800h
AN: **B21A-0321**
TI: Searching for Changes in AMC Characteristics on the EPR Using Comparisons of Reflection Images Obtained in 1985 and 2008
AU: *** Mutter, J C**
EM: *jcm@ldeo.columbia.edu*
AF: *Lamont-Doherty earth Observatory, PO Box 1000, Palisades, NY 10964, United States*
AU: **Carton, H**
EM: *hcarton@ldeo.columbia.edu*
AF: *Lamont-Doherty earth Observatory, PO Box 1000, Palisades, NY 10964, United States*
AU: **Carbotte, S M**
EM: *carbotte@ldeo.columbia.edu*
AF: *Lamont-Doherty earth Observatory, PO Box 1000, Palisades, NY 10964, United States*
AU: **Canales, J P**
EM: *jpcanales@whoi.edu*
AF: *Woods Hole Oceanographic Institution, 360 Woods Hole Road, Woods Hole, MA 02543, United States*
AU: **Nedimovic, M R**
EM: *mladen@dal.ca*
AF: *Dalhousie University, Edzell castle Circle, Halifax, NS B3H4J1, Canada*
AU: **Newman, K R**
EM: *knewman@ldeo.columbia.edu*
AF: *Lamont-Doherty earth Observatory, PO Box 1000, Palisades, NY 10964, United States*
AU: **Marjanovic, M**
EM: *milena@ldeo.columbia.edu*
AF: *Lamont-Doherty earth Observatory, PO Box 1000, Palisades, NY 10964, United States*
AU: **Xu, M**
EM: *minxu@mit.edu*
AF: *Woods Hole Oceanographic Institution, 360 Woods Hole Road, Woods Hole, MA 02543, United States*
AU: **Aghaei, O**
EM: *mladen@dal.ca*
AF: *Dalhousie University, Edzell castle Circle, Halifax, NS B3H4J1, Canada*
AU: **Stowe, L C**
EM: *lcs2123@columbia.edu*
AF: *Columbia University, 2960 Broadway, New York, NY 10027, United States*
AB: The recent 3D multi-streamer seismic reflection imaging experiment carried out on the East Pacific Rise at 9°50'N (R/V Langseth MGL0812) encompassed the region in which single and two-ship 2D multi- channel seismic data were acquired in 1985 (R/V Conrad). These two phases of seismic data acquisition therefore span the time of known volcanic eruptions (1991 and 2005-06) on this ridge segment. This invites a comparison of the seismic response of key features of the subsurface such as the axial magma chamber (AMC) to investigate if discernable changes have taken place that could be ascribed to the eruptions. Detailed comparison of the two datasets is hampered by differences in ship and streamer navigation accuracy and in acquisition parameters between the two experiments including airgun source array volumes and tuning, shot interval, streamer tow depth, streamer length and hydrophone group spacing. Though careful analysis will be required to minimize the effects of these differences, preliminary observations can be reported from the data in their initial stages of processing. Three cross-axis lines from the Conrad survey are compared with Langseth data: one at 9°50'N within the area of high temperature vents, a second south of 9°40'N near vent B and a third around 9°30' N near vent K, well south of the area of known eruptions. In the crossings near the sites of vents B and K we are unable to identify any significant changes in the AMC event. In contrast, at 9°50'N, significant differences can be recognized in subsurface features. The AMC appears to be shallower and less complexly structured in the 1985 data suggesting perhaps that the magma lens has been deflated somewhat by subsequent eruptions. Direct along-axis comparisons are less straightforward as the earlier lines do not directly match new along-axis profiles. Nevertheless, there are suggestions that reflection strength of the AMC has changed in a number of places between the two surveys in the most magmatically active stretch of the ridge, and these amplitude changes too are likely to be associated with the eruptions. One of the goals of the MGL0812 experiment was to establish a base for a repeat 3D (i.e., 4D) survey that would allow mapping temporal changes in the subsurface that can be compared to changes in features of the seafloor such as hydrothermal venting and volcanism. Our preliminary comparison of the 3D data with data collected in 1985 suggests that future changes in the subsurface will be detectable.
DE: 7220 Oceanic crust
DE: 7245 Mid-ocean ridges
DE: 8178 Tectonics and magmatism
DE: 8416 Mid-oceanic ridge processes (1032, 3614)
SC: Biogeosciences [B]
MN: 2008 Fall Meeting

New Search