

Letters of Intent: EPR
Target Date: February 15, 2003

Seismic Monitoring at the EPR Bull's Eye – Part of a RIDGE2000 Integrated Studies site

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Description of planned research for a proposal to be submitted to the RIDGE 2000 Program (EPR Integrated Study Site) for the February 15, 2003 NSF target date:

We will be proposing to deploy an array of OBSs to monitor seismicity within the EPR 8-10 N IS Site, specifically at the bull's eye area centered around 9°50'N. This is a resubmission of our proposal from August 15th, with response to reviewer concerns. Earthquakes track many key perturbations to the ridge system, ranging from small cracking events that change fluid flow pathways to eruptions that resurface the ridge crest. Even small events may have profound impacts on the fluid chemistry and biological communities. Consequently, a detailed record of seismic activity is fundamental to understanding the linkages of the system as outlined in R2K documents.

We propose an array that will answer a number of fundamental seismic questions regarding the influence of tides on earthquake production and the location and nature of active faulting. In addition, the seismicity will provide critical information to understand multidisciplinary measurements, such as identifying hydrothermal pathways, cracking fronts, and magmatic or hydrothermal changes in these systems.

In collaboration with other investigators we seek to understand the impact of seismicity on the ridge system and the fundamental processes that facilitate these impacts. We would like to collaborate closely with the full range of multidisciplinary proposals in the area and are particularly interested in long-term studies of changes in the biology and vent chemistry and thermal properties.