

Letters of Intent: EPR
Target Date: August 15, 2002

Digital Deep Sea Photographic Surveys of the East Pacific Rise: Data Compilation and Analysis In Support of Ridge2000 ISS Science

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Assessing the current status of hydrothermal activity along the EPR crest between 9°-10°N, and investigating key volcanic and structural relationships displayed in recently collected DSL-120A sonar data from the EPR will provide important context to a wide range of Ridge2000 ISS science programs over the coming years. Utilization of the WHOI Towed Digital Camera/CTD/Multi-rock corer system (TowCam) as an ancillary program during upcoming Alvin cruises at the EPR ISS area over the next three years will provide a cost- and science-effective means to collect these important data. Understanding the current distribution of hydrothermal sites over the 9°-10°N axial region is one primary goal of this proposed work. Understanding the volcanic and structural relationships along and across the EPR axis, and verifying the interpretations using targeted TowCam surveys is the second key objective. Both science objectives will permit near real-time assessment and provide EPR ISS investigators with photographic data that will help optimize and plan for ISS experiments.

This proposal represents a hybrid effort involving:

- 1) modest data acquisition using the WHOI TowCam (10 tows per cruise- 2 cruises per year), on an ancillary basis, during upcoming Alvin/Atlantis (or other) cruises to the EPR ISS area over the next three years; and
- 2) an ability for me to work on continued analysis and comparison of high resolution sonar data and digital photographic imagery from several contrasting EPR areas: 9°-10°N, 3°N and 1°45'N

I am involved in several ongoing data analysis projects and paper writing efforts related to analysis of the DSL-120 sonar data and Argo and Alvin imagery. These include the Schouten/Tivey/Fornari EPR 9°27'-9°55'N Central Axial Magnetic High Project (OCE-9819261), and Fornari/Perfit/Tolstoy AHA – Autonomous Hydrophone Array Assessment at EPR 3°N, 1°45'N and 97.5W Galapagos Rift Project (OCE-9811504). Analysis of these data is in progress and papers will be submitted this Fall and Winter as part of the originally funded projects. However, the sonar and imagery data sets collected for these two projects far exceeds the original funding provided for acquisition and analysis.

Preliminary analysis and processed data for both these efforts are available on-line at:
Central Axial Magnetic High Project (OCE-9819261).

see URL at EPR ISS temporary web site: <http://imina.soest.hawaii.edu/HMRG/EPR/index.htm> under AT7-4 Cruise Report.

Autonomous Hydrophone Array Assessment at EPR 3°N, 1°45'N and 97.5W
Galapagos Rift Project (OCE-9811504)

see URL at WHOI web site:

<http://science.whoi.edu/ahanemo2>

This proposal reflects a commitment to continue to understand the evolution of the hydrothermal systems (low and high temperature) along the EPR, as a time series, since the 1989 Argo I survey [Haymon et al., 1991]. The requested funding will permit me to continue to do this as well as work on the sonar and digital imagery data from the EPR and fully analyze them and make them available to the community, and publish research papers on them. My continuing responsibilities as Chief Scientists for Deep Submergence at WHOI are intended to be completed by Fall, 2002, so that I can devote full-time to ongoing research projects. The requested funding will greatly facilitate this.

