

Title: Seafloor Soundings in Polar and Remote Regions -- A new instrument for unattended bathymetric observations

Authors: [Anderson, R.](#); [Chayes, D.](#); [Mayer, L.](#); [Rognstad, M.](#); [Schmidt, V.](#)

Affiliation: AA(Science Applications International Corporation, 26279 Twelve Trees Lane, Suite A, Poulsbo, WA 98370 United States ; andersonrm@saic.com), AB(Lamont-Doherty Earth Observatory Columbia University, P.O. Box 1000, Palisades, NY 10964-1000 United States ; dale@ldeo.columbia.edu), AC(Center for Coastal & Ocean Mapping, Univ. of New Hampshire, 24 Colvos Road, Durham, NH 03824 United States ;), AD(Hawaii Mapping Research Group University of Hawaii, 1680 East-West Road, Honolulu, HI 96822 United States ; markr@soest.hawaii.edu), AE(Lamont-Doherty Earth Observatory Columbia University, P.O. Box 1000, Palisades, NY 10964-1000 United States ; vschmidt@ldeo.columbia.edu)

Journal: American Geophysical Union, Spring Meeting 2005, abstract #C43A-10

Publication Date: 05/2005

Origin: AGU

AGU Keywords: 9800 GENERAL OR MISCELLANEOUS

Bibliographic Code: 2005AGUSM.C43A..10A

Abstract

The Seafloor Sounding in Polar and Remote Regions (SSPARR) project, under sponsorship of the National Science Foundation, is developing the capability to acquire unattended bathymetric observations in remote regions, by means of an inexpensive (expendable) depth sounder supported by a GPS navigation receiver and satellite telemetry capability. The SSPARR depth sounder will be a single beam, 12 kHz depth sounder employing a transducer with a hemispherical beam pattern. The program is developing a battery-powered buoy which houses the sounder, navigation receiver, data acquisition system, radiotelemetry system, and battery power sufficient for about three years of operation. Alternatively the depth sounder, by itself, can be incorporated into other multi-instrument moorings or buoys. During 1994, prototypes of the instruments comprising the SSPARR buoy were fabricated and tested independently, confirming the predicted performance of the depth sounder. Second generation sounder electronics have been designed and fabricated, and are planned for further testing in early 2005. Prototype buoys are planned for completion and deployment in the Arctic Ocean in the latter half of 2005. Results of testing to date will be presented. Following evaluation of the laboratory-built prototype buoys, in 2006 we plan commercial acquisition of buoys, to confirm that our specifications are adequate for production. During the International Polar Year, 2007-2008, we expect SSPARR to be mature enough for transition to an operational capability, comprising a large number of buoys deployed in the Arctic, the Southern Ocean, and the south Pacific and Indian Oceans; and a shore site where data will be checked for quality,

archived, and posted to a publicly available web site. SSPARR is expected to provide significant new observational data for incorporation into such international mapping efforts as the International Bathymetric Chart of the Arctic Ocean (IBCAO) and the International Bathymetric Chart of the Southern Ocean (IBCSO). SSPARR is a collaboration between Robert Anderson of Science Applications International Corporation; Mark Rognstad of the Hawaii Mapping Research Group, University of Hawaii; Dale Chayes and Val Schmidt of Lamont-Doherty Earth Observatory of Columbia University; and Larry Mayer of the Center for Coastal and Ocean Mapping, University of New Hampshire.