

INTERNATIONAL COLLABORATIVE RESEARCH: HYDROACOUSTIC MONITORING OF TECTONIC AND VOLCANIC ACTIVITY WITHIN THE BRANSFIELD STRAIT AND WESTERN SCOTIA SEA, ANTARCTICA

M Park¹, R. P. Dziak², D. R. Bohnenstiehl³, H Matsumoto²

¹*Korea Polar Research Institute, Ansan, Kyunggido, Korea, South*, ²*NOAA/Oregon State University, Hatfield Marine Science Center, Newport, OR, United States*, ³*Lamont-Doherty Earth Observatory (LDEO), Columbia University, Palisades, NY, United States*

Global seismic networks provide good azimuthal coverage throughout the world including the Arctic Basin, but in the southern hemisphere, global seismic catalogs show very low levels of seismicity, in part reflecting the poor station coverage within this part of the world and dearth of array stations within the southern hemisphere. However, sources of shallow submarine volcanism, many of which are unexplored, exist throughout, within the transtensional sections of the South Scotia Ridge and along the South Sandwich Back-Arc, Antarctica. Previous observations have highlighted the potential for hydroacoustic observation in the Polar Seas. During the last decade, the value of hydroacoustic monitoring of ocean floor seismicity has been demonstrated through work using the U.S. Navy's SOund SURveillance System (SOSUS) and array of moored Autonomous Underwater Hydrophones (AUHs). As a result, the analysis of hydroacoustic data has revolutionized our understanding of mid-ocean ridge eruptive processes, has illuminated the complex structure of subduction zones and transform faults and has shown great promise as a tool in addressing a variety of tectonic problems.

In observance of the International Polar Year (2007-2008), KOPRI, collaborating with NOAA/OSU and LDEO, has deployed AUHs to record seismicity from along the Antarctic Peninsula and western Scotia Sea. This project also provides a new ocean sensor; a cold-water capable, deep-ocean hydrophone has been developed and tested that can be used in the polar oceans. We present preliminary results of hydroacoustic records showing *T*- and *P*-wave arrival from regional earthquakes and impulsive arrival from airgun survey that are collected during AUH test in the Bransfield Strait in 2004.