



## **Amphibian Seismological Studies in the Ross Sea, Antarctica**

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The Antarctic Ross Sea is one of the key regions for polar research activities. Research stations from several countries located at the coast are the base for inland expeditions. Even in the austral summer, the Ross Sea is partly covered with drifting ice fields; this requires an icebreaker for all marine explorations. Therefore, large geophysical surveys in the Ross Sea are difficult. But the area is of special interest for seismologists: The Terror Rift in the western Ross Sea is a prominent neotectonic structure of the West Antarctic Rift System (WARS). It is located near the coast in the Victoria Land Basin and extends parallel to the Transantarctic Mountains. The rifting processes and the accompanying active onshore volcanism lead to increased seismicity in the region. The annual waxing and waning of the sea-ice and the dynamics of the large Ross Ice Shelf and nearby glaciers generate additional seismic signals. Investigation on seismological activities associated with the WARS and the cryogenic signals simultaneously would give us an unprecedented opportunity to have a better understanding of the Evolution of the WARS (EWARS) and the rapid change in the cryospheric environment nearby.

The Korea Polar Research Institute (KOPRI) and the Alfred-Wegener-Institut (AWI) have conducted a pilot study off the Korean Jang Bogo research station in the Terra Nova Bay by developing a collaborative research program (EWARS) since 2011 to explore seismicity and seismic noise in this region. Four broadband ocean-bottom seismometers (OBS) from the German DEPAS pool were deployed in January 2012 with the Korean research icebreaker RV Araon. Three instruments could successfully be recovered after 13 months, the fourth OBS was not accessible due to local sea-ice coverage. We have successfully completed a second recovery operation in January 2014. All stations recorded data of good quality, one station stopped after 8 months due to a recorder error. The OBS recovered in 2014 recorded more than 17 months of data until the batteries were discharged. In this contribution, we present data and first results including temporal variation of seismic ambient noise, receiver functions, local seismicity, and noise correlation functions through examining the OBS data incorporating with the onshore seismic observation data.