

해저면 수중음향관측기를 이용한 남극 로스해 음향 관측

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Acoustic monitoring in the Ross Sea, Antarctica, using Ocean Bottom Hydrophones

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Although a number of active source seismic experiments have been conducted over the last few decades to investigate the crustal structure in the Ross Sea, Antarctica, long-term observation to monitor underwater tectonic activities and changes in the cryospheric environment still remains challenging due to existence of sea ice in the study region. Korea Polar Research Institute has accomplished successful deployment of ocean bottom seismometers (OBS) in the Ross Sea collaborating with Alfred Wegener Institute during the period of 2011-2012 and 2014 by Korean icebreaker RV Araon. The OBS system manufactured by K.U.M. contains a hydrophone sensor that allow us to monitor underwater acoustics generated by tectonic and ice-related events. We present spectrograms of the continuous hydroacoustic data and various types of signals, e.g. seismic T-waves, icequakes, and tremors. Strong harmonic tremors are recorded in EWO03 station located on north of the Drygalski Ice Tongue during austral winter of 2011. KOPRI installed GPS on the Drygalski Ice Tongue, but recording were stopped in that austral winter season to save power. The gap of the GPS locations during the black period indicates that the ice tongue flows out consistently to the East direction, but it jumped to south direction differently from its previous movements to north. This ice tongue movement presumably generate the tremors.