

Characteristics of seismic waveform recorded by seismic array at East Ongul Island, Antarctica

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In polar region, various vibration phenomena are existed in association with physical interaction between solid earth, atmosphere, ocean and cryosphere systems. These phenomena can be observed as seismic and infrasonic waves, and it is important to investigate their features and generation process in order to reveal relationship between their occurrence and environmental variations. An array observation helps us to get information of incident waves on the stations. In order to detect source locations of seismic event around Showa station, East Ongul Island, East Antarctica, we carried out a seismic array observation from January 2 to February 2, 2015. We installed 7 temporary seismic stations in a rocky area located at 1 km away from Showa station, consisting of 1-Hz three-component seismometers with a site spacing of about 100 m. During this period, two characteristic waveforms were recorded. One occurred from January 11 at 22:40 (UTC) to January 12 at 11:20 (UTC), corresponding to ice-breaking by a ship. The peak frequency was about 10 Hz. The other occurred on January 14 at 3:45 (UTC) and its duration was about 13 minutes. Peak frequencies of the tremor were about 2, 4 and 6 Hz, and these peaks varied over time. It seems that the tremor arrived from south-southeast direction with a small slowness by semblance analysis. We will reveal characteristics of these seismic events in more detail and estimate location of their sources by using data recorded at other seismic and infrasound stations around East Ongul Island.

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