

Time-space variations of infrasound sources involving environmental dynamics around the Lützow-Holm Bay, East Antarctica

*Masaki Kanao¹

1. National Institute of Polar Research

Characteristic features of infrasound waves observed in the Antarctic reflect a physical interaction among the surface environment in the continental margin and surrounding Southern Ocean. Time-space variability of source location of the infrasound excitation during eight months in January –August, 2015 was investigated by using a combination of two arrays deployed along a coast of the Lützow-Holm Bay (LHB), East Antarctica. The infrasound arrays clearly detected temporal variations in frequency content and propagation direction during the period of eight months. A significant number of infrasound sources were determined and many of them were located approximately northward orientation from the arrays. Many of the events had predominant frequency content of few Hz, which were higher than the microbaroms from the ocean. On the basis of a comparison with the MODIS satellite data, these infrasound sources were considered to be the ice-quakes associated with calving of glaciers, discharge of sea-ice, collisions with icebergs around the LHB. Continuous measurements of infrasound in the Antarctic are the proxy for monitoring regional surface environment as well as temporal climate change in high southern latitude.

Keywords: infrasound, cryosphere dynamics, East Antarctica