Temporal–spatial variations in infrasound sources related to cryosphere dynamics in Lützow–Holm Bay Region, Antarctica

*金尾 政紀[1]、村山 貴彦[2]、山本 真行[3]、石原 吉明[4]
*Masaki Kanao[1], Takahiko Murayama[2], Masa-yuki Yamamoto[3], Yoshiaki Ishihara[4]

1. 国立極地研究所、2. 日本気象協会、3. 高知工科大学、4. 宇宙航空研究開発機構
1. National Institute of Polar Research, 2. Japan Weather Association, 3. Kochi University of Technology, 4. Japan Aerospace Exploration Agency

Characteristic features of infrasound waves observed in the Antarctic reflect the physical interaction between the surface environment along the continental margin and the surrounding Southern Ocean. The temporal–spatial variability of the source locations for infrasound excitation during 2015 was investigated using recordings made by two infrasound arrays deployed along a section of the coast of Lützow–Holm Bay (LHB), Antarctica. The infrasound arrays clearly detected temporal variations in frequency content and propagation direction during this period. A number of infrasound sources were identified, many located north of the arrays. Many of the events had a predominant frequency content of a few Hz, higher than microbaroms from the ocean. A comparison of the results with MODIS satellite images revealed that these infrasound sources were ice-quakes associated with the calving of glaciers, the breaking off of sea ice, and collisions between this sea ice and icebergs around the LHB. Continuous measurements of infrasound in the Antarctic may serve as a proxy for monitoring the regional surface environment in terms of climate change at high southern latitudes.

©2018. Japan Geoscience Union. All Right Reserved.