

昭和基地および周辺地域におけるインフラサウンド観測 ～第2ステージに向けた興味深い科学観測目標～

山本真行¹、石原吉明²、金尾政紀³、村山貴彦⁴、柿並義宏¹、岡田和見⁵

¹ 国立極地研究所

² 高知工科大学

³ JAXA

⁴ 日本気象協会

⁵ 北海道大学

Infrasound observation in Syowa station and surrounding sites -interesting scientific targets for its 2nd stage-

Masa-yuki Yamamoto¹, Yoshiaki Ishihara², Masaki Kanao³, Takahiko Murayama⁴, Yoshihiro Kakinami¹, Kazumi Okada⁵

¹ *Kochi University of Technology*

² *Japan Aerospace Exploration Agency*

³ *National Institute of Polar Research*

⁴ *Japan Weather Association*

⁵ *Hokkaido University*

Infrasound observation has recently become one of the promising remote-sensing methods for atmospheric events on the Earth, especially for the explosive geophysical or artificial events as well as for the large-scale surface replacements as huge earthquakes, tsunamis, and usual pressure oscillations by ocean (microbaroms). In the JARE 49 operation (2007), as a scheme of the International Polar Year (IPY2007-2008), a pilot observation of infrasonic signals began at Syowa station (SYO; 39.6E, 69.0S), but only with a Chaparral Physics microphone-type infrasound sensor at that time. In the polar region, such monitoring sites are expected to detect infrasonic signals due to the interaction between the icy surface and the atmosphere, especially by a combination of infrasonic and seismic observations. Long-period seismic waves have been continuously monitored at and near SYO in this decade, especially in the IPY, moreover, continuous observation of infrasound has been operated at SYO during 2008-2012, being followed by our next stage achievements of infrasound observation near SYO. In the 2nd stage began from JARE 54 (in 2012), we installed 8 infrasound sensors at and near the SYO within the distance of 500 km apart from the SYO, expanded along the Lutzow-Holm Bay. Having with sensor arrays by the 8 sensors, direction finding of the infrasonic signals will be able to be done by phase analyses of the observed wave forms, resulting in the good remote-sensing configuration in order to figure out the source information of each infrasonic signal in comparison with the seismic and the other simultaneous observations continuously operated at SYO by the other scientific teams in JARE. For example, the auroral activities might generate low frequency infrasound in upper atmosphere, then it can be propagated to the ground. If we obtain the infrasound data sets of the all 8 sensors during the summer operation of JARE 55 (Dec. 2013 – Feb. 2014), fruitful information about the interesting unknown oscillations previously found in the archived wave form structures before 2012 as well as these spectrum analyses will be revealed with their source phenomena. As was reported before as icequakes, icy environmental situation near SYO can activate some interesting oscillations in seismograms, hence it can generate the infrasonic signals between the ground-to-atmosphere coupling processes. Great interests were arisen in the regional and vertical interactions between the many “spheres” that usually studied rather separately, however, the infrasound observation will show its advantage to connect with these spheres more in detail in near future, we expected. In this talk, we will show the current status of the infrasound observation in and near SYO, introducing with some interesting scientific targets to be studied with our observing data sets.