

ドームふじ基地での広帯域地震計観測によるグローバル網への貢献

金尾政紀¹、坪井誠司²、Douglas A. Wiens³

¹ 国立極地研究所

² 海洋研究開発機構

³ ワシントン大学

Broadband Seismic Observation at Dome-F and Contribution to Global Network

Masaki Kanao¹, Seiji Tsuboi² and Douglas A. Wiens³

¹ *National Institute of Polar Research*

² *Japan Agency for Marine-Earth Science and Technology*

³ *Washington University in St. Louis, USA*

"Deployment of broadband seismic stations on the Antarctica continent" have been an ambitious project to improve the spatial resolution of seismic data across the Antarctic Plate and surrounding regions. Several international collaborative programs were conducted in Antarctica during the International Polar Year (IPY 2007-2008). The 'Antarctica's Gamburtsev Province (AGAP; IPY #147)', the 'Gamburtsev Mountain SEISMic experiment (GAMSEIS)', a part of AGAP, and the 'Polar Earth Observing Network (POLENET; IPY #185)' were major contributions in establishing a geophysical network in Antarctica. The AGAP/GAMSEIS project was an internationally coordinated deployment of more than 30 broadband seismographs over the crest of the Gamburtsev Mountains (Dome-A), Dome-C and Dome-F area. The investigations provide detailed information on crustal thickness and mantle structure; provide key constraints on the origin of the Gamburtsev Mountains; and more broadly on the structure and evolution of the East Antarctic craton and subglacial environment. In addition to the PASSCAL observation system by USA, original coordinated systems were developed by Japan (at Dome-F (GM07) and GM06 stations), as well as by other groups in China and France. Regarding Japanese instrument system, the same sensor and datalogger as used by US/PASSCAL were utilized, but the electric power supply system and enclosures were developed independently. Data were recorded in MiniSEED format, a commonly accepted international standard, to ease analysis. Logistical and staff support were provided by the US researchers and staff at AGAP-S camp in the installation of the Japanese stations GM06 and GM07. From GAMSEIS and POLENET data obtained, local and regional seismic signals associated with ice movements, oceanic loading, and local meteorological variations were recorded together with a significant number of teleseismic events. In this chapter, in addition to the Earth's interiors, we will demonstrate some of the remarkable seismic signals detected during IPY that illustrate the capabilities of broadband seismometers to study the sub-glacial environment, particularly at the margins of Antarctica. In future, monitoring stations inland ice plateau of Antarctic, such as Dome-F, firmly attribute a crucial role in the Federation of Digital Seismographic Network (FDSN) in southern high latitude.