

Participation of Indonesia in Japanese Antarctic Research Expedition-58 2016-2017, Progress and Current Influences after the Expedition

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Japan cordially invites Asian colleagues of earth scientists, in particularly from Asian Forum for Polar Sciences (AFoPS) observer countries or non-AFoPS countries, to join in the Japanese Antarctic Research Expedition-58 (JARE58). Indonesia is one of the selected countries in the Asia besides Mongolia and Thailand, to have great opportunity to join this expedition. The geology expedition in JARE58 has objectives to conduct geological surveys in high-grade metamorphic terranes in East Antarctica, in particularly Lützow-Holm and Napier Complexes.

Asian collaboration team as a part of geology team in JARE58 has been successfully conducted field survey in Lützow-Holm and Napier Complexes. The first stage of fieldwork has been done in the Prince Olav area including Akebono Rock (27 Dec 2016–3 Jan 2017), Akarui Point (4–7 Jan 2017), and Tenmondai (8–11 Jan 2017). Tentative result from fieldwork confirmed that the metamorphic-facies in Prince Olav area increase in temperature (amphibolite- to granulite-facies) from east to west (Shiraisi et al., 1997). Significant rock samples collected from Akebono Rock including garnet amphibolite, two pyroxene granulite, and variation of S-type granites. Rock samples from Akarui Point including corundum bearing metaproxenite, sapphirine-orthopyroxene gneiss, and garnet-sillimanite-biotite gneiss. Significant rock samples from Tenmondai are including garnet-sillimanite-biotite gneiss and kyanite bearing garnet-biotite gneiss.

Second stage of fieldwork has been done in the Lützow-Holm Bay area including Skallevikhalsen (14–18 Jan 2017), Rundvagshetta (19–22 Jan 2017), and Langhovde (23–25 Jan 2017). Tentative result from geological fieldwork confirmed that metamorphic rocks in Lützow-Holm Bay area experienced high- to ultrahigh-temperature of metamorphism (Shiraisi et al., 1997). Significant rock samples collected from Skallevikhalsen including corundum bearing marble and phlogophtic rock, garnet-sillimanite gneiss (khondalite), and charnokitic rock. Rock samples from Rundvagshetta including garnet-sillimanite-spinel-orthopyroxene gneiss, orthopyroxene granulite, and garnet-cordierite-biotite gneiss. Rock samples in Langhovde are including charnokite and garnet-sillimanite gneiss.

On 4 February 2017, we have opportunity to visiting Syowa Station in East Ongul Island and stay until 7 February 2017. In this opportunity, we have experience to acquaint with the research facilities, to feel the living situation, and to know the history of Syowa Station. On 6 February 2017, fieldwork to West Ongul Island has been successfully done for 1-day trip by AS helicopter operation from Syowa Station. One of the significant rock samples from this area is corundum-wollastonite bearing calc-silicate rock, which gave signature of high-temperature metamorphism. While the Shirase approaching Amundsen Bay, the last fieldwork in eastern part of Riiser-Larsen area was conducted on 24 February 2017. The significant metamorphic rock samples collected in this area are sapphirine-orthopyroxene-phlogophite gneiss, pseudotachylite bearing ossumilite gneiss, and magnetite-quartz gneiss.

In total, 141 rock samples were collected during the fieldwork in East Antarctica with total weight of 216 kg were sent to Indonesia to be analyzed. For the geology data, we will report current progress of field and petrographical observation of the high-grade metamorphic rocks and related igneous rocks from the expedition. Indonesian public and government enthusiasms of this program will also be reported and presented.

References

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