

The search for Antarctic meteorites in the Nansen Ice Field by the joint team of JAPAN and BELARE

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So far, the meteorite search on the Nansen Ice Field spreading at the south of the Sor Rondane Mountains has been carried out only by the 29th Japanese Antarctic Research Expedition (JARE-29) and Belgian Antarctic Research (BELARE) 2010-2011. We carried out the meteorite search here by the joint team of JARE-54 summer members and BELARE2012-2013, consisting of ten members, that is, four (including one field assistant, FA) from JARE and six (including one FA) from BELARE. As a result, we collected about 420 Asuka meteorites with about 76 kg in total weight.

The total period was ~66 days, from the beginning of December 2012 to the middle of February 2013. The staying period in the Nansen Ice Field was 39 days, from the end of December 2012 to the beginning of February 2013. We used Dronning Maud Land Air Network (DROMLAN). Entering in Novo from Cape Town by Ilyushin D5 flight (5 Dec., 2012), in PE station from Novo by Basler Turbo (9 Dec., 2012). Leaving PE station to Novo by Basler Turbo (8 Feb., 2013) and Novo to Cape Town by Ilyushin D10 flight (8 Feb., 2013).

We accessed to the Nansen Ice Field from the Princess Elisabeth (PE) Station using ten snowmobiles (Ski-doo). The searched area was focused on the south-west part of the Nansen Ice Field for the first half period from the beginning until the middle of January, where we stayed at Base Camp 1 (BC1) located on 72 52 19.6 S and 24 20 28.0 E, 2909 m in elevation, and then the north-east part of the Nansen Ice Field for the latter half period since the middle of January, where we stayed at BC2 located on 72 42 04.3 S and 24 46 40.3 E, 2841 m in elevation. The camp system consists of two module containers for JARE and three containers for BELARE (among two BELARE containers are connected in line). The transportation of Japanese modules, BELARE containers, and a fuel sledge was carried out by the support from the PE station.

We formed the V-shaped system by ten snowmobiles for the method of the meteorite search, where a FA was at the top with the average moving speed of normally less than ~10 km/h. Mobile-typed small GPSs were used for the navigation of the planned route, for the recording of trajectories of the searched area, and for the positioning of found meteorites. This will be useful for the clarification of the meteorite distribution on the field. Although just after the moving camp from BC1 to BC2, we experienced the bad weather of the half period including the long-period bad weather of the continuing 12 days, the collected number of meteorites and the total weights were both larger than expected. Most meteorites appear to be ordinary chondrites, but carbonaceous chondrites and the largest meteorite of 18 kg at the present meteorite search are included among them. Possible achondrites such as eucrites and diogenites are also recognized. The detailed studies for classification and curation will be carried out in the laboratory at NIPR. In near future we are planning a detailed meteorite search of the south-east part where we could not carry out due to the restricted periods.

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