Observing Planet Earth and the Space from Antarctica

Recent developments in the Japanese Antarctic Research Expedition

NiPR

Observation Support Technology

Transportation to the Antarctic Continent

Antarctic research vessel *Shirase*, Dronning Maud Land Air Network (DROMLAN)

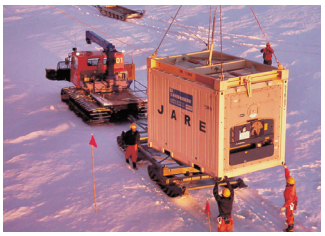
System of transportation to the Antarctic Continent using the new Shirase

Ships inevitably have to be used when transporting large quantities of fuel and other materials needed by research expeditions to Syowa Station. The new *Shirase* has ushered in massive improvements, including increased capacity of research expedition fuel tanks, and the use of 12ft containers and various other containers adapted for new transport helicopters. This has increased the efficiency of goods loading in Japan and unloading in the Antarctic Continent.

Antarctic research vessel Shirase

12ft containers

New transport helicopter

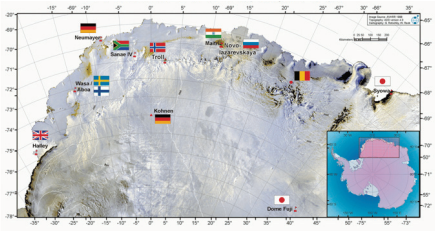


Transporting over the sea ice

Swift transportation and movement of expedition members and materials by DROMLAN

Using aircraft enables us to travel to and from the Antarctic Continent extremely quickly.

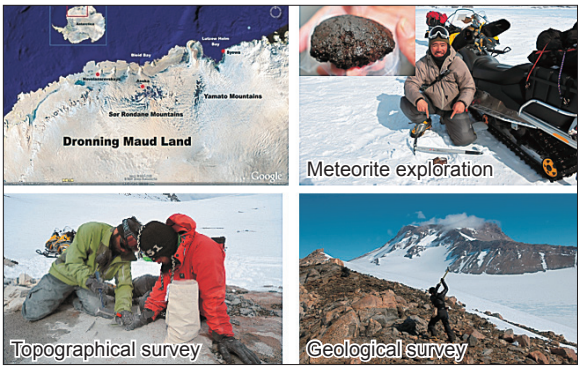
Normally, activities on site can be started within a week after leaving Japan, and the same goes for the return home after completing surveys. This can vastly reduce the time needed for dispatch operations.



DROMLAN activity area

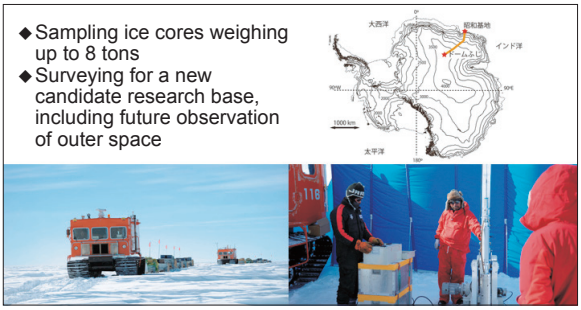
A shift from overwintering to summer observation

Previously, field observation in the interior (for example, ice drilling at Dome Fuji Station and geoscience surveys in the Sør Rondane Mountains) could only be attempted by overwintering, but this can now be done in the summer months utilizing DROMLAN.



Geoscience surveys in the Sør-Rondane Mountains

- Sampling ice cores weighing up to 8 tons
- Surveying for a new candidate research base, including future observation of outer space



Ice drilling project at Dome Fuji Station

International cooperation

DROMLAN is an organization launched with joint funding from 11 countries mainly active in Dronning Maud Land in the eastern Antarctic Continent. It has been engaged in activities for more than 10 years so far. Its usefulness is recognized by each country, and the frequency of its use is expected to increase in future. This system, which also functions effectively in emergencies, is one fruit of international cooperation in the Antarctic Continent.

Dronning Maud Land Air Network (DROMLAN)

[South Africa, Finland, Germany, Japan, Russia, Sweden, Norway, UK, Netherlands, Belgium, India]

Social contribution

By combining the use of research vessels and aircraft, Japan has steadily broadened the range of activities in the Antarctic Continent. The introduction of aircraft, in particular, has contributed to promoting joint research with researchers from other countries. In future, there are expectations of greater mobility in observation activity and an expansion of human exchanges.

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