

Discovery of Meteorites near Yamato Mountains, East Antarctica

Masaru YOSHIDA*, Hisao ANDO**, Kunio OMOTO***,
Renji NARUSE**** and Yutaka AGETA*****

やまと山脈東南方における隕石の発見

吉田 勝*・安藤久男**・小元久仁夫***
成瀬廉二****・上田 豊*****

要 旨

1969年12月、第10次日本南極地域観測隊の内陸調査旅行のさい、筆者らはやまと山脈南東、南緯71°50′、東経36°15′付近の裸氷斜面上で隕石を9箇発見、採集した。これは、隕石採集を主目的として、計画的になされたものではないので、隕石の分布ひんどはかなり高そうであ

る。この付近の地域や、類似の氷床の構造のところでは、今後も発見できそうである。

採集された隕石はエコンドライト1箇、コンドライト8箇で、岩質からみて、少なくとも6種類（コンドライト5種、エコンドライト1種）の隕石である。

1. Introduction

The inland traverse party of the 10th Japanese Antarctic Research Expedition (JARE 10) found 9 meteorites at the southeast end of the Yamato Mountains in latitude 71°50′ S and longitude 36°15′ E (Fig. 1).

Only 4 meteorites were ever reported in Antarctica (Hex, 1966). It is remarkable that as many as 9 meteorites were found in such a short period within a limited area. The present discovery suggests that many more meteorites will be found in Antarctica.

* 大阪市立大学理学部地学教室. Department of Geoscience, Faculty of science, Osaka City University, Sumiyoshi-ku, Osaka

** 北海道開発局. Hokkaido Development Bureau, Sapporo, Hokkaido

*** 東北大学理学部地理学教室. Department of Geography, Faculty of Science, Tohoku University, Sendai, Miyagi

**** 北海道大学低温科学研究所. Institute of Low Temperature Science, Hokkaido University, Sapporo, Hokkaido

***** 名古屋大学水質科学研究施設. Water Research Laboratory, Faculty of Science, Nagoya University, Chigusa-ku, Nagoya.

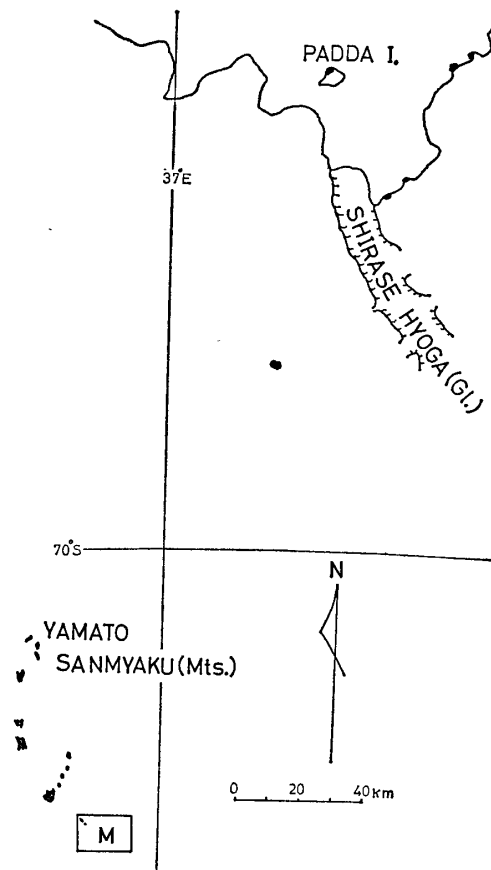


Fig. 1. The situation of the region where the meteorites were found (the framed area with M).

The occurrence and the outline of the discovery of the meteorites are briefly given in the present paper. Detailed petrographic and chemical studies may be undertaken in near future.

The authors wish to express their sincere thanks to Professor M. GORAI* who has suggested the importance of meteorite studies in Antarctica and kindly identified the meteorites collected and allowed us to use photographs and describe the characteristics of the meteorites.

2. Meteorites Collected

All the meteorites collected are shown in Table 1. Their photographs are given in Fig. 2. Of these, eight samples belong to chondrite, and one to achondrite (sample No. 2). Among the chondrites, at least five rock species were distinguished

* A member of the Special Committee on Antarctic Research, Science Council of Japan. The meteorites are in the custody of him.

Table. 1. List of the meteorites collected.

Number	Diameter* (cm)	Weight* (g)	Date of discovery	Remarks
1	10	715	Dec. 21, 1969	Chondrite
2	7	138	Dec. 21, 1969	Achondrite
3	5	150	In 3 days between Dec. 21 - Dec. 26 1969	Chondrite
4	5	62		Chondrite
5	4.5	38		Chondrite
6	4.5	41		6-9 are chondrites of similar petrographic characters
7	5	25		
8	3	10		
9	2.5	10		

* Measured by M. GORAI.

under the microscope.

To the authors' regrets, the locations of most of the meteorites are unknown, because the locality numbers of the meteorites were lost owing to our carelessness.

3. Occurrence

9 meteorites were found several hundred meters to a few kilometers apart from one another, within a region of 5×10 km (Fig. 3). The region is a downhill slope to the Yamato Mountains. An area of fresh snow changes to a firn area and finally becomes an area of ice on the east side of the region.

The meteorites were found on our way of triangulation. The discovery was very easy because a black-colored rock was lying on the white bare ice (Fig. 4).

4. Concentration of the Meteorites

It is a matter of particular interest to explain the high frequency of distribution of meteorites of different petrographic features.

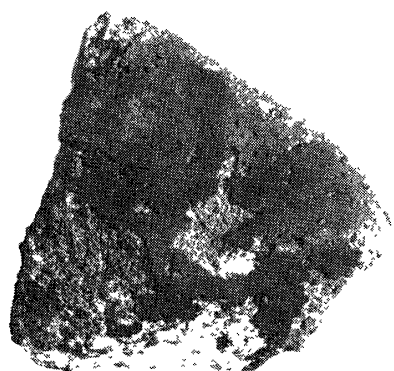
At the eastern margin of the southeastern nunataks of the Yamato Mountains, remarkable shear moraine fields are developed. Toward the east of the nunataks including the present region, apart from the marginal area of the nunataks, some shear moraine fields are also developed sporadically (Fig. 3). The existence of these moraine fields suggests that the movement and structure of ice sheet of the area



1



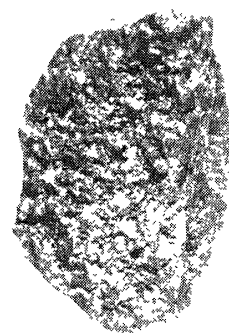
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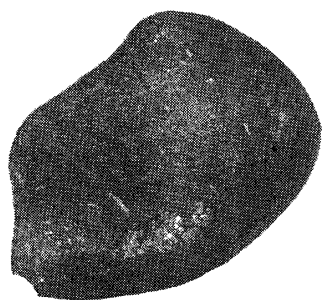
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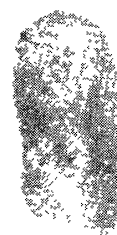
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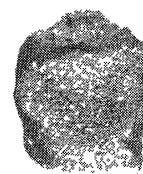
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Fig. 2. Photographs of the meteorites (taken by M. GORAI) 1-9 Numbers of the meteorites.

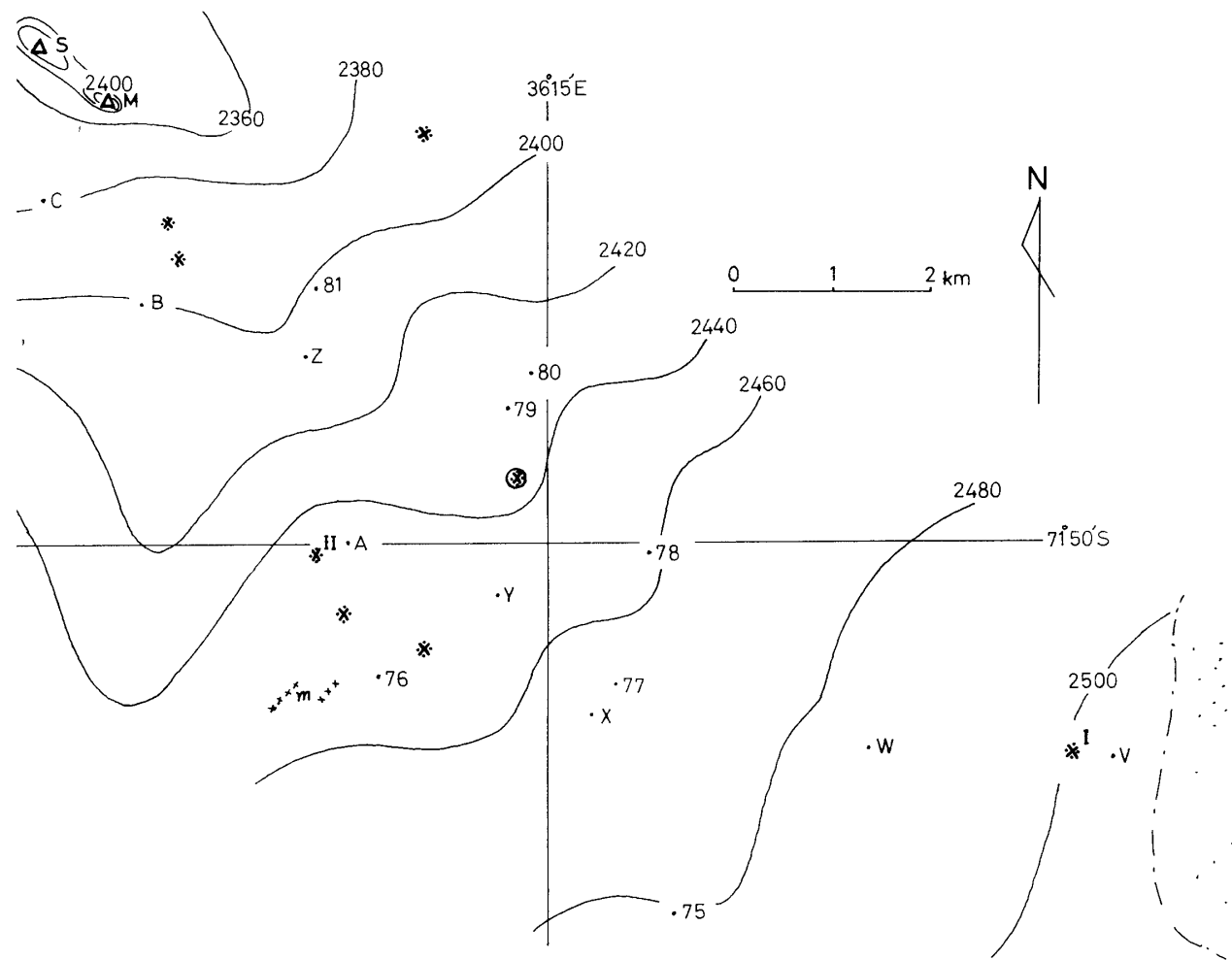
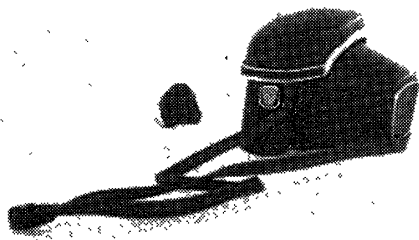


Fig. 3. The location where the meteorites were found

※: The location of the meteorites found. ⊗: Two meteorites were found within 1 m distance. I: No. 1 meteorite. II: No. 2 meteorite. X, Y, Z, A, B, C, W, V: A triangulation station of the strain grid band (cf. ANDO, 1971). Dotted area: Firn area. ΔS, ΔM: Nunataks equivalent to the triangulation base stations I and II of the JARE 10 (ANDO, 1971). The names are provisional. 'm' of the west of triangulation station 76 is small moraine bands

Latitude and longitude are determined from the astronomic point of the Yamato Mountains. The precision of the locality of the meteorites is within 500 meters. The height of the region is approximate.

Fig. 4. Occurrence of No. 2 meteorite. A part of the Yamato Mountains is seen in the background.



may account for the concentration of the meteorites.

High frequency of the distribution of the meteorites may be thus explained in connection with the movement and structure of the ice sheet.

It is probable, therefore, that more meteorites may be found in the area of bare ice to the east to southeast of the Yamato Mountains. Even in the present region, more meteorites may remain undiscovered. From this viewpoint, there may be some other areas where the ice structure is the same as the present region, having a possibility of concentration of meteorites.

References

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