PETROLOGICAL COMPARISON OF MONGOLIAN JALANASH UREILTE AND TWELVE ANTARCTIC UREILITES. K. YANAI and M. NODA Environmental and Planetary Geosciences, Faculty of Engineering, Iwate University, 4-3-5 Ueda, Morioka 020-8551, Japan. E-mail: yanaik@iwate-u.ac.jp

Only one ureilite “Jalanash” from Mongolia is compared with twelve Antarctic ureilites for their textures, mineral compositions and bulk chemical compositions.

Jalanash Ureilite : Jalanash(Nuzhgen in Mongolian name) meteorite is the sixth fall and collected in Mongolian People’s Republic in recent year. Jalanash meteorite fell in Olgiy(49° N, 90° E) of the Western Mongol at 14:00, August 15. 1990 and it was collected by nomadism people at just after fall. It was believed more meteors to fall at that time, and about 1kg of the fall in weight was only collected. Jalanash meteortie is showing coarse grain, massive and fragile, nevertheless it shows very fresh because it had been collected just after fall(Fig.1a). Jalanash meteorite consists mainly of coarse grained olivine and pigeonite with interstellar carbon, so Jalanash meteorite is classified to typical ureilite. There is lot of fine Fe-Ni metals in grain boudaries(Fig.1b).

Mineral compositions are very homogeneous: olivine average Fo80.6 and, range Fo91.8-78.6. Pigeonite average En75.1Fs17.2Wo7.7 and range En75.8-74.3Fs17.9-16.6Wo8.3-7.1(Fig.1c). Major chemical compositions are followings: SiO_2 39%, TiO_2 0.08%, Al_2O_3 0.9%, FeO 16.2%, MnO 0.5%, MgO 38.3%, CaO 0.82%, Na_2O 0.09%, Cr_2O_3 0.7%, FeS 0.8%, Fe 2.1%, Ni 0.1% and Co $<$ 30ppm. Jalanash ureilite is quite differ from 12 Antarctic ureilites in it’s texture except Asuka(A)-881931 and bulk compositions, but it similar to those mineral compositions.

Some bulk compositions ; SiO2, MgO and total Fe, of those ureilites as followings: Jalanash(39.38% SiO2, 38.27% MgO and 15.14% total Fe), Antarctic ureilite Yamato(Y) -74123(33.21%, 37.29%, and 16.33%), Y-74130(42.12%, 32.34% and 13.55%), Y-74659(42.91%, 38.78% and 8.20%), Allan Hills(ALH)-78019(34.37%, 35.8% and 17.25%), Y-791538(43.46%, 38.24% and 7.43%), and A-881931(37.70%, 35.26% and 15.65%) respectively. There are also showing several photomicrographs of thin sections and mineral compositions of Antarctic ureilites(Fig.2~5)(Yanai and Kojima, 1987,1995).

References: [1] K. Yanai and H. Kojima(1987) :Photographic Catalog of the Antarctic Meteorites. Natl Inst. Polar Res., 298p. [2] K. Yanai and H. Kojima(1995) :Catalog of the Antarctic Meteorites. Natl Inst. Polar Res., 230p.

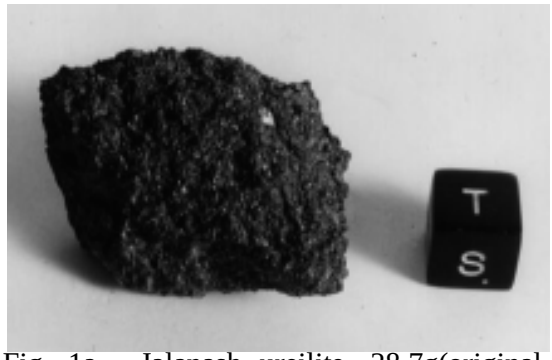

Fig. 1a. Jalanash ureilite, 28.7g(original weight ~700g). Scal:1cm cub.

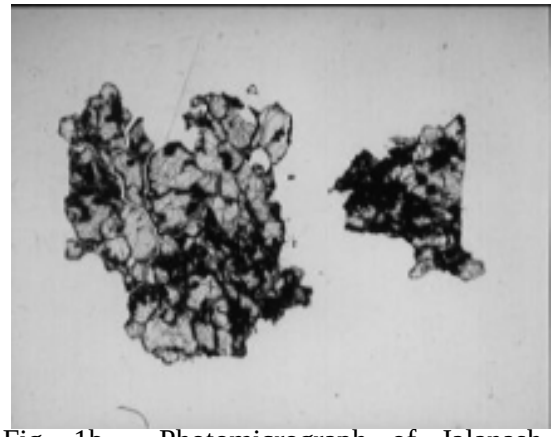

Fig. 1b. Photomicrograph of Jalanash ureilite, field view 10mm.

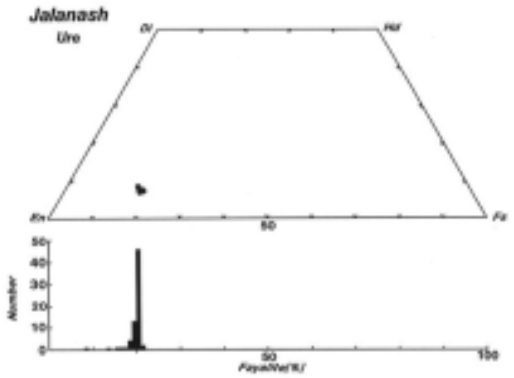

Fig. 1c. Mineral compositions of olivine and pyroxene in Jalanash ureilite.

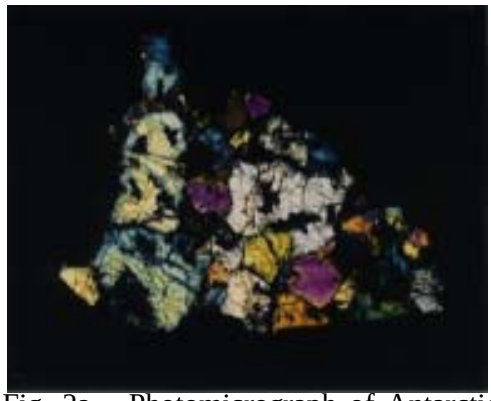

Fig. 2a. Photomicrograph of Antarctic meteorite Yamato(Y)-74123 ureilite, field view 7.5 mm.

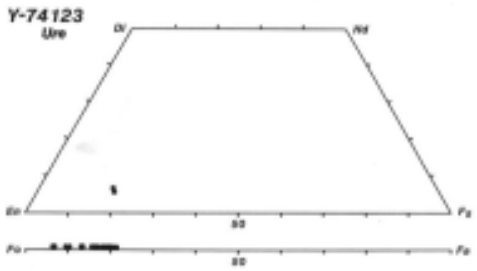

Fig. 2b. Mineral compositions in Y-74123 ureilite.

Fig. 3a. Photomicrograph of Antarctic meteorite Y-74130 ureilite, field view 8.5 mm.

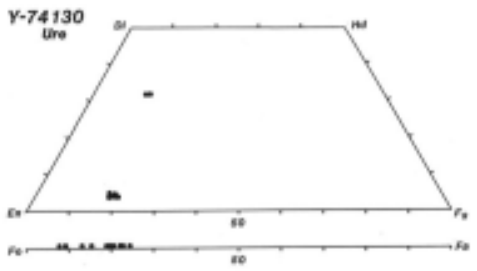

Fig. 3b. Mineral compositions in Y-74130 ureilite.

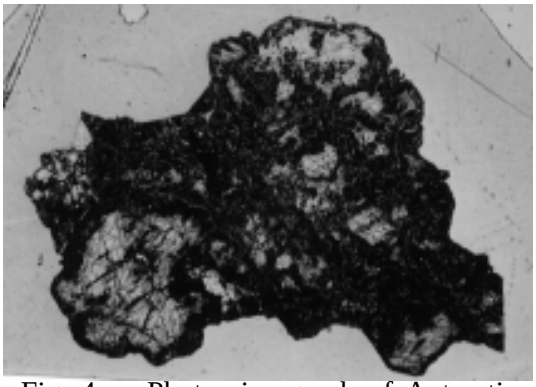

Fig. 4a. Photomicrograph of Antarctic meteorite Asuka(A)-87031 ureilite, field view 9.5 mm.

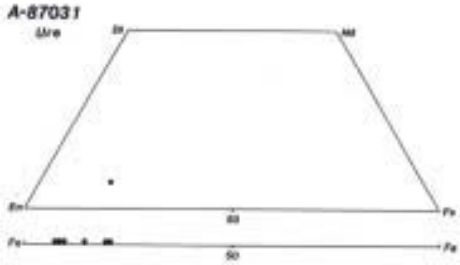

Fig. 4b. Mineral compositions in A-87031 ureilite.

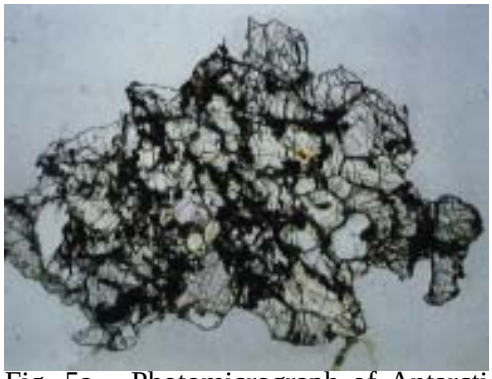

Fig. 5a. Photomicrograph of Antarctic meteorite A-881931 ureilite, field view 7.5 mm.

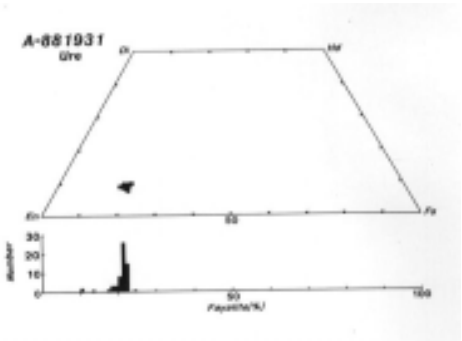

Fig. 5b. Mineral compositions in A-881931 ureilite.