Volume 15
June 2007

METEORITE NEWSLETTER

JAPANESE COLLECTION OF ANTARCTIC METEORITES

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INTRODUCTION

Classification and Description of Antarctic Meteorites

This newsletter contains classifications for 189 Asuka-88 meteorites larger than 10 grams. They include 1 CK, 4 enstatite chondrites, 4 eucrites, 2 diogenites, 1 ureilite, and 1 olivine-rich achondrite related to HED meteorites.

Followings are the members for the classifications of this volume:

Macroscopic descriptions of meteorites;
Kojima H. and Kiso H.
Microscopic descriptions and classifications of chondrites;
Kojima H.
Microscopic descriptions and classifications of achondrites and stony irons;
Yamaguchi A.

Sample Request Deadline

Sample requests that are received by the curator before **July 17, 2007**, will be reviewed by the Committee on Antarctic Meteorite Research (CAMR), which will meet in late July. Requests that are received after the July 17 deadline may be delayed for review until the CAMR meeting in December, **2007**.

All sample requests should be made in writing to:

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NIPR Sample Allocation Policies and the Request Form are also available in the following web site.

http://yamato.nipr.ac.jp/AMRC/EN/index1.html

Meteorite	C.	Wt(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
A-881070	Euc	57.96					A/B		see separate entry
A-881413	Euc	16.46					A/B	A	see separate entry
A-881548	Ach	110.16					A/B	A	see separate entry
A-881820	Euc	761.68					A/B	A	see separate entry
A-881821	Euc	456.69					A/B	A	see separate entry
A-881839	Dio	39.61				27.1-30.4	A		see separate entry
A-881901	L6	103.46	24.5		20.3		A	B	
A-881902	Aca	907.87	8.8		9.2		A	A	see separate entry
A-881903	L6	274.2	24.5		21.0		A	A	
A-881904	L6	84.79	24.6		20.5		A	A	
A-881905	L6	23.773	24.6		20.8		A	A/B	
A-881906	LL4	202.53	28.8		23.6		A	A	with LL6 clasts
A-881907	H4	67.65	18.5		16.1		A	B	
A-881908	H5	144.37	17.9		15.6		A	B	
A-881909	LL4	601.44	27.4		22.4		A	A	
A-881911	LL3	332.82	28.7		22.9	16.1-24.8	A	A	with LL6 clasts
A-881913	LL3	1624.97	29.0	28.0-29.6	23.5	21.0-25.3	A	A	see separate entry
A-881914	H4	62.5	18.4		15.9		A/B	B	
A-881915	L3	111.18		0.4-24.0		1.5-23.8	A	A	
A-881916	H4	69.16	18.3		16.5		A/B	B/C	
A-881918	LL3	306.84	28.9		23.9		A	A	with LL6 clasts
A-881919	L3	832.92	23.7	17.9-25.2		5.7-29.3	A	A/B	
A-881920	L5	31.365	25.7		21.1		A	A/B	
A-881921	H4	55.381	18.4		16.3		A	B/C	with H6 clasts
A-881922	H6	42.114	19.3		16.8		A	A/B	brecciated
A-881923	LL3	100.05	28.6		23.0	16.5-25.1	A		with LL6 clasts
A-881924	L6	170.4	24.9		20.7		A	A	
A-881926	H4	84.03	18.6		16.0		A/B	B	with H6 clasts
A-881927	H6	11.842	19.2		16.8		A	B	
A-881928	H5	59.798	18.2		15.8		A	C	unshocked
A-881929	H5	190.85	18.1		16.0		A	C	unshocked
A-881930	EL6	19.216			0.3	0.0-1.3	A/B	C	
A-881932	L6	58.242	24.7		20.7		A	A	
A-881934	H5	92.26	18.1		16.2		A	B	
A-881935	L6	69.96	24.3		20.6		A	A	
A-881936	H5	486.93	18.0		15.8		A	B	
A-881937	L6	104.65	24.8		20.7		A	A/B	
A-881938	H4	71.8	18.3		16.1		A	B	
A-881939	H5	32.397	17.2		15.4		A/B	A/B	
A-881940	H4	264.58	17.7		15.7		A/B	C	unbrecciated
A-881941	H3	92.31	17.8	9.0-20.4	16.2	13.1-21.9	A	A/B	with H5 clasts
A-881943	H3	66.13	18.1		15.9	13.9-19.4	A	A/B	
A-881944	Dio	79.66					A		see separate entry
A-881945	H5	64.29	18.1		15.8		A	A/B	
A-881949	H5	528.12	18.3		16.1		A	B/C	
A-881950	L5	141.25	24.0		20.1		A	A	
A-881951	CK4	23.88	31.3		25.8		A	A/B	
A-881953	H4	11.624	18.4		16.0		A	A/B	
A-881954	L6	28.544	24.3		20.5		A		pl rich, melt veins

Meteorite	C.	Wt(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
A-881956	H4	26.538	17.6		15.5		A	B/C	unbrecciated
A-881957	H4	49.025	17.2		14.9		A	B	
A-881958	H5	154.06	17.8		15.9		A/B	A/B	
A-881959	H6	30.241	18.9		16.6		A	A	
A-881960	L3	89.3	22.8			18.1-23.0	A/B	A/B	
A-881961	H4	24.945	16.2		14.5	12.5-16.7	A	B	
A-881962	H6	58.771	19.2		16.4		A/B	B	
A-881963	L5	26.326	24.0		20.1		A/B	A/B	
A-881965	H4	10.099	18.6		16.1		A	A	
A-881966	H4	62.25	16.3		14.6		A	A/B	
A-881967	L3	263.57	23.3	19.1-25.1	16.5	4.4-30.4	A	A/B	
A-881968	H5	26.035	18.5		16.1		A/B		brecciated
A-881970	H4	307					A	A/B	
A-881971	L6	33.914	24.5		20.8		A	A	thick fusion crust
A-881972	L3	393.47	8.9	0.2-21.1	10.4	1.0-31.3	A	B/C	
A-881973	H4	18.864	18.4		16.0	8.9-19.4	A	B	
A-881974	L6	957.42	23.9		19.9		A	A	pl rich
A-881975	L5	38.724	24.5		20.5		A	A/B	
A-881976	H4	3327					A	A/B	
A-881978	L6	1650.55	24.3		20.5		A	A	
A-881979	L6	731.29	24.5		20.6		A	A	
A-881980	H4	400.9	18.6		16.2		A	A/B	
A-881981	LL3	810.36	17.5	0.5-30.7	11.9	0.9-32.6	A/B	A/B	
A-881982	H4	120.3	18.4		16.0		A	A/B	
A-881984	L6	35.725	24.0		20.0		A	A	
A-881985	H5	16.541	17.3		15.3		A	A	
A-881986	L6	10147					A	A	
A-881987	H5	89.02	18.4		16.3		A/B	B	
A-881989	Ure	38.616					A		see separate entry
A-881990	H4	123.43	17.9		15.5		A	A/B	reclassified
A-881991	L6	1071.19	24.6		20.6		A	A	
A-881993	L6	144.89	24.3		20.4		A	A	
A-881994	LL6	14.872	29.9		24.9		A	A	
A-881995	L6	92.7	24.7		20.4		A	A	
A-881996	L6	36.463	24.4		20.6		A	A	
A-881997	LL3	152.48	27.6		21.7		A	A	
A-881998	H4	33.472	18.1		15.7		A	A	
A-881999	H4	201.75	17.8		15.5		A	A	
A-882001	L6	305.31	24.4		20.4		A	A	
A-882002	H4	851.63					A	B	
A-882003	L6	639.33	24.0		20.1		A	A	
A-882005	H3	1131.49	18.3		15.9		A	B	
A-882006	H4	43.358	17.4		15.7		A	A/B	
A-882007	L4	305.97	23.5		19.5		A	A/B	
A-882008	L6	833.23	23.9		19.8		A	A	
A-882009	H5	89.96	18.2		15.9		A	B	
A-882010	L4	83.06	23.7		19.8		A/B	A/B	
A-882011	H4	10.113	17.6		15.7		A	A/B	
A-882012	L6	18.92	24.5		20.7		A	A	

Meteorite	C.	Wt(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
A-882013	LL4	24.626	29.2		23.5		A	A	
A-882016	H4	47.242	18.6		15.9		A	A	
A-882017	H5	567.67	19.1		16.3		A	A	
A-882018	L	60.66	23.9	22.1-25.1	20.5	17.6-22.0	A/B	A	see separate entry
A-882019	L	230.6	23.9		20.0		A/B		see separate entry
A-882020	L6	41.84	24.8		20.8		A	A/B	
A-882021	L6	3547	26.0		22.2		A	A	
A-882022	L6	256.61	24.5		20.7		A	A	
A-882024	H5	107.44	18.9		16.2		A	B	
A-882026	L6	1446.84	24.7		21.2		B	A	
A-882028	H5	10.169	18.4		15.9		A/B	B	
A-882029	L6	273.4	24.3		20.4		A	A	
A-882030	H5	335.19	18.4		16.2		A	A	
A-882033	L6	51.631			21.7		A	A	
A-882034	L6	72.834	24.7		21.1		A	A	reclassified
A-882035	L6	280.55	26.1		21.8		A	A	
A-882036	L6	123.35	25.8		21.8		A	A	see separate entry
A-882037	L6	142.28	25.5		21.5		A	A	
A-882038	L3	303.89	25.1	21.0-28.6	19.8	8.9-30.6	A	A	
A-882039	EH6	383.92					A/B	A	
A-882040	L6	212.85	25.6		21.6		A	A	
A-882041	L6	149.88	24.7		20.6		A	A	
A-882042	H4	2504	19.5		17.0		A/B	A	
A-882043	H5	27.702	19.4		17.0		A	A	
A-882045	H4	58.135	17.9		15.9		A/B	A	
A-882046	H5	90.7	18.7		16.2		A	A	
A-882047	H5	15.816	18.7		16.4		A/B	A/B	
A-882048	L6	492.3	24.6	23.9-25.6	20.8	19.7-22.3	A/B	A	reclassified
A-882049	H6	250.83	18.5		15.9		A	B	
A-882051	L6	83.16	24.7		20.7		A	A	
A-882052	L6	136.94	24.5		20.6		A	A	
A-882053	H3	63.59					A/B	A/B	
A-882054	H4	869.7					A	B	
A-882055	L4	213.51	22.9		19.4		A	A/B	
A-882056	L6	40.186					A	A	
A-882057	H4	274.92					A	A	
A-882058	H4	2902	19.4		17.2		A	A	metal vein (1x4mm)
A-882059	EH3	33.519					A	A/B	
A-882060	H4	554.12					A/B	B	
A-882062	H4	1728.59	18.5		16.0		A	A/B	
A-882063	H4	1171.38	19.2		16.8		A	B	
A-882065	H6	100.85	20.1		17.4		A	A/B	
A-882066	LL6	104.538	28.0	26.8-28.7	23.2	21.3-26.5	A		see separate entry
A-882067	EL3	15.621					A	B	
A-882068	L4	303.14	24.8		21.0		A	B	
A-882069	H4	264.61	18.4		16.2		A	A	unbrecciated
A-882070	L4	65.48	24.9		21.3		A	A	
A-882071	H5	16.829	19.1		17.2		A/B	A/B	
A-882073	H3	296.44	18.3		16.3		A	A/B	

Meteorite	C.	Wt(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
A-882074	LL4	251.96	28.9		23.7		A	A	
A-882076	H6	269.73	19.7		17.0		A	A	
A-882078	H5	14.025	19.2		17.1		A	A/B	
A-882079	H5	28.972	20.0		17.6		A	A	
A-882081	H4	89.06	18.2		16.5		A	A	
A-882082	H5	48.969	20.1		17.2		A	B	
A-882083	H6	569.07	19.9		17.7		A	A/B	
A-882084	LL4	151.56	28.2	27.6-28.7	22.8	22.0-23.9	A/B	A	reclassified
A-882085	L6	101.24	25.4		21.6		A/B	A	
A-882086	H3	107.78	18.9	16.3-26.7	17.3	15.2-22.1	A/B	B	
A-882087	L6	213.2	24.9		21.1		A	C	
A-882088	L	11.37	24.6		20.5		A	B	see separate entry
A-882089	H4	19.424	19.2		17.5		A/B	B	
A-882090	L6	12.558	25.4		21.2		A	A	
A-882091	H5	189.63	19.5		16.7		A	B	
A-882092	LL4	73.81	30.1		24.8		A	A	
A-882093	H4	1606.34					A	A	
A-882095	H4	133.64	18.8		16.9		B	B	
A-882096	L5	56.745	25.3		21.3		A/B	A/B	
A-882097	L4	280.77	24.4		21.1		A/B	A/B	
A-882098	LL4	180.9	27.9	26.7-28.6	22.5	21.8-23.2	A/B	A	reclassified
A-882099	LL4	22.19	28.6		23.1		A	A	
A-882101	L6	35.622	25.4		21.7		A	A	
A-882102	L3	992.45	24.4	6.3-35.7	18.9	1.7-38.5	A	A/B	
A-882103	LL6	126.01	30.7		25.2		A/B	A	breccia
A-882104	L6	14.31	24.3		19.8		A/B	A/B	
A-882105	H4	61.9	19.3		17.3		A	B	
A-882106	L6	290.34	25.2		21.6		A	A	
A-882107	L6	23.579	25.2		21.3		A	A	
A-882108	L4	532.11	24.8		21.0		A	B	
A-882109	L	171.03	23.6	23.0-25.1	20.1	18.4-21.4	B		see separate entry
A-882110	H4	66.21	18.1		16.2		A	B/C	
A-882111	LL5	59.267	30.4		24.6		A	A	see separate entry
A-882114	L6	855.61	25.6		21.6		A	A	unbrecciated
A-882115	H4	86.06	19.3		16.8		A/B	B	
A-882116	H4	163.8	19.2		17.1		A	B/C	
A-882118	LL3	48.606	29.3			9.0-25.6	A	A	
A-882119	L4	219.62	24.3		20.8		A	A	see separate entry
A-882120	H4	155.59					A	A/B	
A-882121	H6	3686					A	A/B	
A-882122	H4	214.93					A	A	
A-882123	H3	21.828					A/B	A/B	

Notes

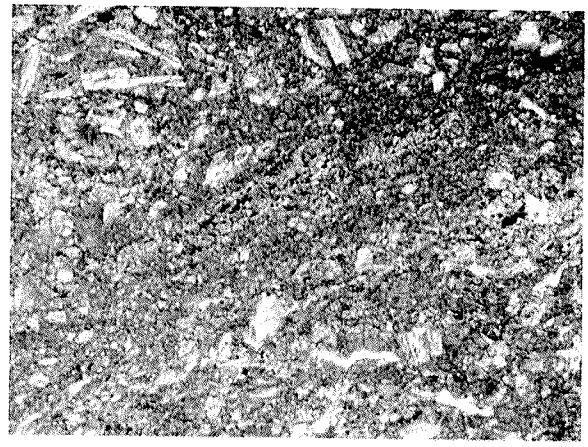
C: classification F: fracturing W: weathering

Fracturing index:
A: No or a few narrow cracks are visible.
B: Several cracks extend across exterior surface.
C: Severe cracks.

Weathering index:
A: Limonite haloes on metal particles and limonite veins are minor.
B: 7.5 to 35% of metal particles are weathered to limonite. Several limonite veins are visible.
C: Most metal particles are weathered to limonite.

A-881070

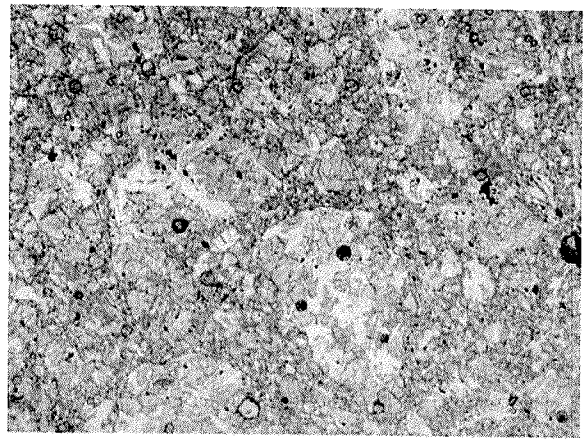
The section consists of basaltic clasts (up to ~2 mm) set in a clastic matrix. Pyroxene composition is Fs58.6-61.6Wo1.7-2.2 and a FeO/MnO ratio of ~33. Plagioclase is An77.4-86.2. The meteorite is a brecciated eucrite.



Width = 5.11 mm

A-881413

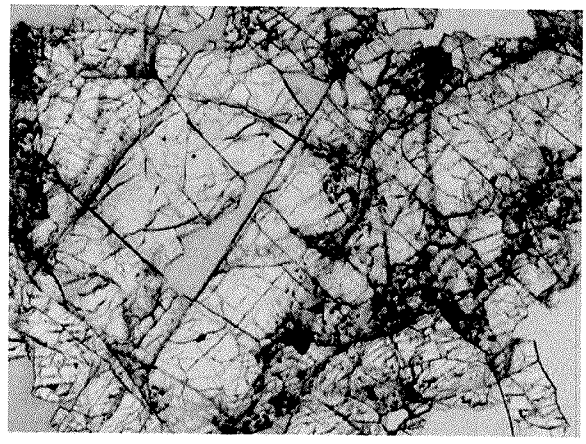
The section shows a breccia composed of basaltic clasts set in a clastic matrix. Pigeonite is in some cases partly inverted into orthopyroxene. Pyroxene compositions vary from Fs65.2Wo1.4 to Fs29.8Wo42.7 and has a FeO/MnO ratio of ~28. Plagioclase is An81.7-90.9. The meteorite is a brecciated eucrite.



Width = 5.11 mm

A-881548

The section shows a brecciated, coarse-grained (~3-6 mm) aggregate of olivine and orthopyroxene. Pyroxene has composition of Fs21.1-22.9Wo2.6-2.9 with an FeO/MnO ratio of ~30. Olivine is Fa22.9-24.7. The meteorite is an anomalous achondrite, possibly related to HED meteorites.



Width = 5.11 mm

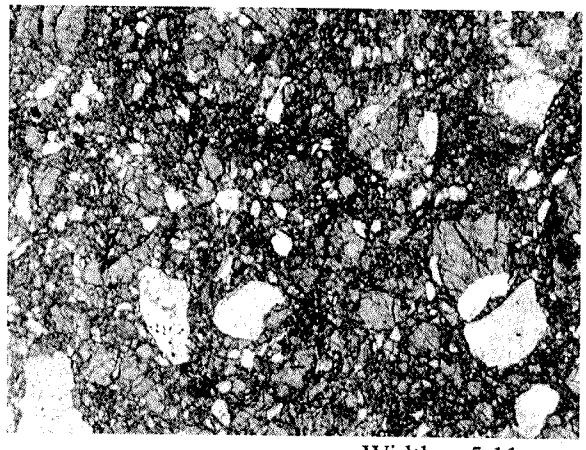
A-881820

The section shows a breccia mainly composed of coarse-grained (~1 mm) clasts and mineral fragments. One large (~2.5 mm) coarse-grained clast shows a cataclastic texture, and has a high abundance of pyroxene. Pyroxene compositions vary from Fs22.2Wo2.3 to Fs30.5Wo.8.8. Plagioclase composition is An91.7-93.9. The meteorite is a polymict eucrite.

Width = 5.11 mm

A-881821

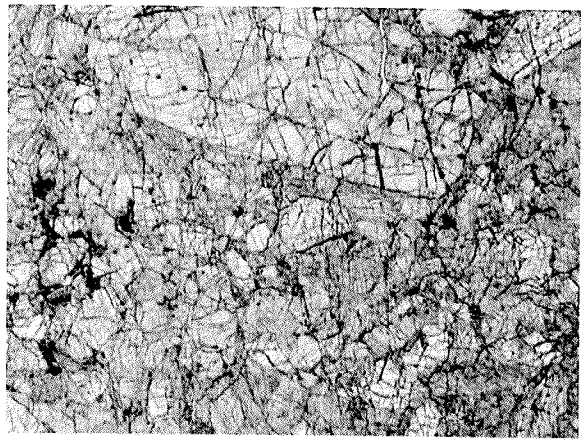
The section shows a breccia mainly composed of coarse-grained (~1-2 mm) pyroxene-plagioclase clast and mineral fragments. Pyroxene compositions vary from Fs32.4Wo3.9 to Fs62.3Wo3.7 and has a FeO/MnO ratio of ~29. Plagioclase is An89.0-95.1. The meteorite is a polymict eucrite.



Width = 5.11 mm

A-881839

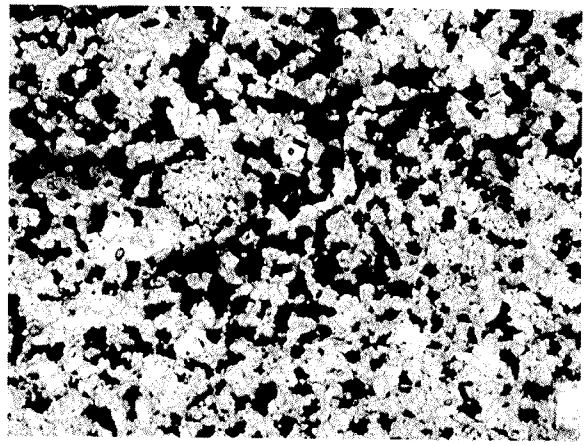
The section shows a breccia composed of mm-sized orthopyroxene and minor plagioclase. Orthopyroxene in some cases contains blebby augite. Orthopyroxene has a composition of Fs25.6-27.7Wo3.2-9.4 and a FeO/MnO ratio of ~27. Plagioclase is An88.4-91.5. The meteorite is a brecciated diogenite.



Width = 5.11 mm

A-881902

The section shows a fine-grained (30-200 um) equigranular texture composed of olivine and pyroxene (low-Ca pyroxene and diopside) and FeNi-FeS. There are several relict chondrules. Olivine composition is Fa7.8-9.7. Pyroxene composition is Fs9.5Wo1.4 (average) and a FeO/MnO ratio of ~13. This meteorite is an acapulcoite.

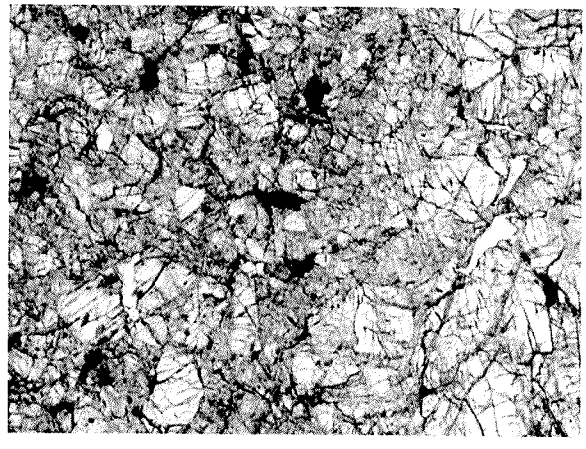


Width = 5.11 mm

A-881944

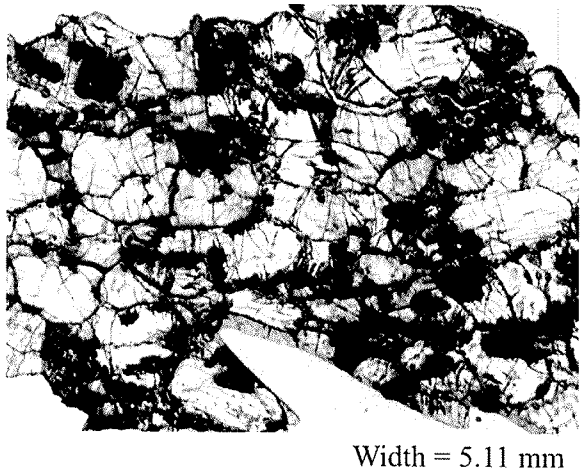
The section shows a breccia mainly composed of orthopyroxene fragments. There is a large (~6 mm) clast contains plagioclase grains (~0.5 mm). Minor minerals include Fe-FeS and chromite. Pyroxene composition is Fs27.2-30.3Wo2.9-3.6 and FeO/MnO ratio of ~29. This meteorite is a brecciated diogenite.

Width = 5.11 mm



A-881989

The meteorite shows an aggregate mainly composed of elongated olivine grains (in longest dimension ~2 mm). Dark material occurs interstitially. Olivine composition is Fa13.2-22.2 with a cluster around Fa20-21. Pyroxene composition is Fs17.6-19.4Wo6.0-6.1. This meteorite is a ureilite.



Width = 5.11 mm

A-881913
LL3
with LL6 clasts, reclassified

A-882018
L
clast, similar to A-882014, reclassified

A-882019
L
clast, similar to A-882018

A-882036
L6
large metal grain (1x3mm), partly regolith breccia

A-882066
LL6
breccia with small LL4 clasts, reclassified

A-882088
L
clast, pair with A-882014 and A-882018

A-882109
L
clast, paired with A-882014, reclassified

A-882111
LL5
breccia with LL6 clasts

A-882119
L4
breccia with L6 clasts

REQUIREMENTS AND PROCEDURES FOR RESEARCH USING THE JAPANESE NIPR ANTARCTIC METEORITE COLLECTION

Requests for research samples are welcome from all qualified scientists. In general, requests are reviewed and considered by the Committee on Antarctic Meteorite Research (CAMR) of the National Institute of Polar Research (NIPR), which meets one to two times each year. Consortium-type sample requests may also be submitted. After a request is approved, samples are sent to the researcher from the Curator of Antarctic Meteorites, NIPR.

NIPR SAMPLE ALLOCATION POLICIES

I. Basic guidelines for allocation of meteorites at NIPR

1. All samples are provided on a loan basis, and remain the property of NIPR.
2. The pristine mass of the meteorite other than small rare meteorites after allocation must be at least 2/3 of the original mass. Pristine mass is defined as that portion of a specimen which has never been allocated, after initial polished thin section (PTS) preparation.
3. The pristine mass of small rare meteorites (less than 50 grams) after allocation must be at least 80% of the original mass. Rare meteorites are defined as meteorites other than type 4-6 ordinary chondrites, including rare type portions of large meteorites.
4. Allocations of any rare meteorite should generally be limited to samples less than 1 gram.
5. The term of the PTS loan will be for no more than 12 months. PTS should be returned promptly upon completion of the proposed research period.
6. PTS of any small meteorite (less than 5 grams) will not be, in general, loaned out but will be available for on-site use by scientists visiting NIPR.
7. Allocations will not be allowed until the meteorite has been announced and typed (classified) in a published issue of Meteorite News or an NIPR catalog.
8. Allocation from any meteorite that is under consortium study will generally not be permitted.
9. Investigators are strongly encouraged to limit requests to not more than 10 samples per request/review cycle. Higher numbers of samples may be approved, but in general, only 10 samples will be eligible for expeditious allocation processing. Investigators who request more than 10 samples should designate a subset for high-priority processing. A request for a chip for analysis plus a corresponding thin section for petrologic study of the same meteorite or clast will generally be counted as a single request, in relation to the 10 -sample limit.
10. Investigators are encouraged to use NIPR sample request forms. However, all sample requests that fully comply with the following guidelines will receive careful consideration.

    Requests should consist of three parts:

    a. Background information: title of the research project; for the requesting scientist, his or her name, affiliation and position (e.g., University of Paris, Professor), and office address, including phone and preferably FAX and email; and for any coinvestigators, their name, affiliation, and position.

    b. A text section, explaining the general nature and purpose of the proposed research, and including details on the justification for each individual sample request.

    c. A summary table, with columns for each of the following information categories:

    (1) Specimen name (e.g., Yamato-86032, or Y-86032).

    (2) Preferred weight (the weight of sample you believe is justified for the proposed research).

(3) Minimum weight (estimated weight below which the proposed research would not be worth pursuing; in general, approved allocations will be at or very near the *preferred* weight).
(4) An instruction regarding preferred sampling site (e.g., fusion crust, inner part, outer part, central, etc.).
(5) Sample form (e.g., single chip, cube, plate, fragments, many grains, powder, PTS, etc.).

II. Guidelines for expedited allocation by the Curator of the NIPR

The following guidelines set forth the conditions under which the Curator of Antarctic Meteorites at NIPR can allocate samples without review and approval by the CAMR. If the Curator has any doubt about the allocation of any sample, the request should be referred to CAMR.

1. Allocation of polished thin sections except for destructive analysis
   The original mass of the meteorite must be larger than 5 grams for type 4-6 ordinary chondrites or over 10 grams for all other meteorites.
2. Allocation of samples in a form other than PTS
   a. The total available pristine mass of the meteorite at NIPR must be larger than 20 grams for type 4-6 ordinary chondrites or over 50 grams for all other meteorites.
   b. Allocations of up to 5 grams or 1 weight % of the original mass of type 4-6 ordinary chondrites or up to 1 gram or 1 weight % of all other meteorites (whichever is less) can be made by the Curator.

SAMPLE DISTRIBUTION

1. Sublease (transfer) of sample is not permitted, except to persons listed as coinvestigators on the written request for samples. If sublease to a person not originally listed as coinvestigator becomes necessary, a new written request must be submitted to the Curator of Antarctic Meteorites.
2. Promptly upon completion of the proposed research, unused or remaining meteorite samples must be returned to the Curator of Antarctic Meteorites, NIPR.

REPORTING RESULTS

1. Research results should be reported promptly, preferably by presentation at the annual NIPR Symposium on Antarctic Meteorites, and/or full-length publication in the Polar Science. http://ees.elsevier.com/polar/
   The Symposium is held once each year, customarily in early June.
2. For the reference of the Curator of Antarctic Meteorites, investigators are requested to send three copies of each full-length paper published on allocated samples, and one copy of each abstract about them, to the Curator. Reference copies of articles and abstracts published through NIPR are not necessary.

Mail requests to: Dr. Hideyasu Kojima
Curator, Antarctic Meteorite Research Center
National Institute of Polar Research (NIPR)
9-10, Kaga 1-chome, Itabashi-ku, Tokyo 173-8515, Japan
Phone: (81) 3-3962-2938, FAX: (81) 3-3962-5711
E-mail: curator@nipr.ac.jp

Send requests to: Antarctic Meteorite Research Center, National Institute of Polar Research, 9-10, Kaga 1-chome, Itabashi-ku, Tokyo 173-8515, Japan, Phone (81) 03-3962-2938, FAX (81) 03-3962-5711, E-mail curator@nipr.ac.jp

No. [ ]

NIPR Research Program for Antarctic Meteorites

Research project:
Date: Period of the project (months):
Principal investigator
Name: Signature _____
Affiliation & position:
Office address:
Phone: ext. FAX:
E-mail:
Coinvestigator(s)
Name(s):
Affiliation(s) & position(s):

Description of research plan and justification for sample request:

(continue)

	specimen name	preferred weight	minimum weight	sampling instructions	sample form
	(e.g., Y-86032)	(e,g,, 0.25g)	(e.g., 0.1g)	(e.g., interior)	(e.g., chip(s))
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

received

Send requests to: Antarctic Meteorite Research Center, National Institute of Polar Research, 9-10, Kaga 1-chome, Itabashi-ku, Tokyo 173-8515, Japan, Phone (81) 03-3962-2938, FAX (81) 03-3962-5711, E-mail curator@nipr.ac.jp

No.

received