

Volume 16

March 2008

# *METEORITE NEWSLETTER*

JAPANESE COLLECTION OF ANTARCTIC METEORITES

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# INTRODUCTION

## **Classification and Description of Antarctic Meteorites**

This newsletter contains classifications for 201 Yamato98 meteorites larger than 5 grams and 550 Yamato-86 meteorites. They include 2 CI1, 20 CM2, 1CO3, 1R, 3 enstatite chondrites, 8 eucrites, and 1 ureilite.

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 **March 18, 2008**, will be reviewed by the Committee on Antarctic Meteorite Research (CAMR), which will meet on March 24, 2008. Requests that are received after the March 18 deadline may be delayed for review until the CAMR meeting in September, **2008**.

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
Y980003	L6	307.13	24.4	23.6-25.3	20.1	19.2-20.9	A/B	A	
Y980005	L	23.78	24.4	21.3-27.2	17.3	7.1-21.8	A/B	A	regolith breccia
Y980006	L3	7.40	25.3	23.3-29.0	20.0	4.2-34.0	B	A	regolith breccia
Y980010	CV3	10.22					A	A	
Y980011	CV3	9.22					A	A	CAI rich
Y980015	H4	46.82	18.1	17.5-18.7	16.0	14.8-18.1	A/B	B	
Y980016	H3	6.70	20.5	18.6-27.1	18.0	16.2-23.5	A/B	B	
Y980020	L6	42.80	24.6	23.6-25.3	20.3	19.1-21.2	A/B	A	
Y980021	L6	38.42	24.8	23.3-25.7	20.7	19.5-22.1	A	A/B	
Y980022	H6	14.94	20.0	19.2-21.1	17.5	16.6-18.5	A	A	
Y980025	L6	69.24	24.7	23.9-25.6	20.8	19.7-21.8	A/B	A	
Y980026	L6	1054					A/B	A	
Y980027	LL4	26.12	28.6	27.4-29.5	23.4	22.4-24.4	A	A	
Y980028	L6	42.09	24.6	23.7-25.3	20.9	19.4-22.2	A	A	
Y980029	H4	30.22	18.5	17.1-19.4	16.2	15.2-18.0	A	B	
Y980036	CM2	5.45					A/B	A	
Y980041	H4	6.44	19.4	17.8-22.1	17.8	16.7-23.2	A	A/B	shock vein
Y980042	H4	12.21	18.6	17.8-19.9	16.7	16.1-17.5	A	A	
Y980044	L5	16.09	25.9	24.8-29.2	22.0	21.4-24.0	A	B	
Y980048	L4	164.09	24.0	22.5-24.6	20.2	18.9-21.2	A	A	
Y980049	H3	288.06	16.5	15.5-17.3	14.2	9.6-18.0	A		
Y980050	CM2	20.84	6.6	0.1-31.9	1.9	0.4-7.7	A/B	A	
Y980051	CM2	38.48	9.76	0.1-55.6	3.2	0.5-42.0	A/B	A	
Y980052	H3	426.95	15.5	7.7-17.6	12.6	1.8-17.5	B	A/B	
Y980053	H3	260.31	16.6	11.8-18.1	14.5	9.9-18.5	A/B	A/B	
Y980054	H3	58.07	16.5	15.4-17.4	12.0	10.0-14.1	B	A/B	
Y980055	H3	67.33	15.1	2.5-17.5	12.9	1.7-15.7	A/B	A/B	
Y980056	H3	16.95	17.5	9.0-23.7	14.5	7.5-17.2	A/B	A/B	
Y980057	H3	15.27	17.4	9.9-27.3	15.6	5.3-36.0	A/B	A/B	
Y980059	L4	17.42	25.6	24.6-26.5	21.7	20.4-25.2	A		breccia with L6 clasts
Y980061	H4	9.09	18.4	17.2-21.2	16.4	15.4-17.0	A	B	
Y980062	L6	15.43	25.6	24.9-28.3	21.4	19.0-23.3	A	A/B	
Y980063	H4	9.91	19.4	18.4-22.7	17.2	15.7-20.5	A	B	
Y980064	L6	15.55	25.1	24.2-26.7	21.4	20.5-22.7	B	A	shock vein
Y980066	Euc	55.87					A	A	see separate entry
Y980068	Euc	34.40					A/B	A	see separate entry
Y980070	CM2	6.02					A	A	
Y980071	CM2	1.36					A		
Y980072	H3	11.55	16.8	4.8-19.3	16.0	14.2-22.2	B/C	B	
Y980073	H3	72.34	16.5	14.4-21.5	13.3	9.6-17.8	A/B	B	
Y980074	H3	17.63	17.8	6.8-28.2	14.6	2.4-24.9	A/B	A/B	
Y980075	H3	12.57	17.8	9.7-24.0	15.3	3.9-26.8	A/B	B	
Y980078	H3	21.35	17.4	16.0-18.6	14.9	7.3-20.0	B	A	
Y980079	LL6	1840	32.5	30.9-33.4	26.3	25.6-26.7	A	A	
Y980085	CM2	13.61					B/C	A	see separate entry
Y980086	CM2	8.42					B	A	
Y980087	CM2	3.69					B		
Y980088	CM2	6.51					C		
Y980090	CM2	0.97					A		
Y980091	CM2	5.38					A/B		see separate entry
Y980092	CM2	1.22					A		

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y980093	CM2	29.65	3.8	0.5-10.3	0.8	0.7-0.8	B/C		see separate entry
Y980094	CM2	10.11	4.3	0.4 - 52.8	2.7	0.6 - 12.6	A/B		see separate entry
Y980095	CM2	4.13					B		
Y980096	CM2	19.05					A/B		
Y980097	CM2	2.52					A		
Y980098	CM2	0.89					A		
Y980102	L5	24.52	24.1	23.0-24.8	20.3	18.6-21.4	A/B	A/B	
Y980104	L6	120.99	23.7	23.1-24.8	20.3	18.9-23.7	A	A/B	
Y980106	H4	5.72	20.0	18.5-22.8	17.3	15.8-20.6	A	A/B	
Y980107	L6	65.23	24.3	23.1-26.9	20.5	18.8-22.0	A/B	A	
Y980108	H4	41.85	18.1	16.9-20.3	15.7	14.4-16.6	B	B/C	very weakly shocked
Y980110	Ure	63.05					B	A	
Y980112	L6	12.38	25.5	24.4-27.8	21.4	20.3-22.1	A	A	
Y980113	Euc	37.34			53.7	38.7-60.0	A/B	A	
Y980114	L6	32.34	24.3	23.2-25.5	20.2	19.0-22.7	B/C	A/B	
Y980115	CI1	771.69					A/B	A	see separate entry
Y980116	H5	5.03	18.6	17.8-19.9	16.8	14.8-17.7	A/B	B	
Y980119	EL6	13.23					B/C		
Y980120	L6	306.15	24.3	23.1-26.8	20.3	19.5-22.3	A	A/B	
Y980123	H4	66.79	17.1	16.3-17.6	14.6	13.7-15.2	A	B	
Y980127	H3	188.99					A	B	with H6 clasts
Y980129	H3	173.89	17.5	16.4-18.3	13.3	2.3-22.2	A	B	
Y980130	L6	19.57	25.1	24.0-27.6	20.9	19.5-21.6	A/B	A/B	
Y980131	L6	17.30	25.7	23.4-27.1	22.0	20.0-27.8	B	A	
Y980132	L6	383.46	24.6	23.6-26.3	20.9	19.9-21.8	A	A	
Y980133	H4	9.47	18.3	17.3-21.3	15.8	13.4-17.9	A/B	A	
Y980134	CI1	12.21					A/B	A	
Y980135	H3	182.80	16.9	0.8-25.0	13.7	2.6-26.6	B/C	A	
Y980136	L6	18.82	25.3	24.1-27.6	21.0	19.6-22.1	A	A	
Y980139	LL3	207.18	27.7	26.2-29.2	21.5	14.3-25.6	A/B	A	
Y980140	LL4	387.21	27.1	26.1-28.1	22.8	20.4-24.8	A/B	A	
Y980142	H4	44.76	18.4	17.3-19.4	15.5	13.6-17.0	A	B	
Y980143	H3	48.79	19.2	18.2-20.4	16.4	8.1-30.1	A	B	
Y980144	L6	39.18	24.2	23.7-25.0	20.0	18.4-20.7	B	A/B	
Y980145	CV3	74.85	1.4	0.3-14.3	1.8	0.1-5.9	A/B	A	
Y980146	CV3	78.13	2.0	0.2-6.3	1.2	0.5-2.9	B/C	A	
Y980147	CV3	7.65					A/B	A	
Y980148	CV3	2.95					A		
Y980149	CV3	1.25					A/B		
Y980150	CV3	0.56					A/B		
Y980153	H6	17.45	20.2	19.3-23.3	17.7	16.7-18.7	A	A	
Y980155	LL6	60.09	29.4	28.2-30.4	23.6	22.9-24.7	A/B	A	monomict breccia
Y980156	L6	105.35	24.8	23.2-26.5	20.6	19.5-21.5	B/C	A/B	
Y980157	LL6	844.88					B	A	see separate entry
Y980159	R6	8.25	39.0	33.0-45.4			A	A	
Y980160	H5	110.32	18.6	17.4-19.9	16.5	15.6-18.2	A	A/B	
Y980161	H6	6.49	20.0	18.7-20.7	17.7	16.4-19.1	A	A/B	
Y980162	H6	7.43	20.3	19.5-23.6	17.7	16.7-18.6	A/B	A/B	
Y980163	LL4	145.87	27.1	26.3-27.9	22.7	21.3-25.8	A	A/B	
Y980164	LL4	115.28	26.0	25.1-27.1	21.8	21.0-23.2	A	A/B	
Y980165	CO3	16.99					A	B	

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y980166	LL4	10.14	31.2	30.1-32.0	25.2	24.6-25.9	A	A	
Y980169	LL3	651.58	27.4	26.0-30.5	22.7	20.6-27.8	A	A	
Y980170	L6	6.89	25.7	24.6-26.7	21.6	19.8-23.3	A	A	
Y980171	L6	717.77	24.8	23.5-26.2	20.9	19.4-24.1	A	A	
Y980172	L6	480.63	24.6	23.4-25.6	20.7	19.4-22.0	B/C	A/B	
Y980173	H6	9.44	20.7	19.8-21.9	17.8	16.9-18.5	A	A	
Y980174	H4	16.27	19.0	17.4-22.6	16.6	15.2-18.4	A	A	
Y980175	CV3	4.82					A/B	A	
Y980178	H3	7.29	19.3	17.2-21.9	17.4	14.3-21.2	A	A/B	
Y980179	L3	43.97	24.4	23.8-25.4	19.0	3.1-21.2	A	A	
Y980180	L3	23.62	22.7	2.8-24.5	15.5	3.9-27.2	B	A	
Y980181	L3	9.13	25.2	23.4-26.3	21.5	7.0-38.7	A	A	
Y980182	H4	21.93	18.2	17.2-19.7	15.6	14.5-16.7	A/B	A/B	
Y980183	CM2	9.51					A/B	A	
Y980186	L6	8.67	24.5	23.2-26.2	20.6	19.3-21.3	A	A	
Y980191	L6	17.13	25.9	24.9-30.0	21.7	20.5-24.5	A/B	A	
Y980192	H4	10.96	18.1	15.9-20.1	16.9	15.2-18.7	A/B	A	
Y980193	L6	9.95	25.6	23.8-28.0	23.1	21.0-28.3	A	A/B	
Y980194	H6	322.68	19.1	18.0-19.6	16.7	15.9-17.6	A	A/B	
Y980196	L6	13.05	25.7	23.6-29.3	21.5	20.9-22.4	A	A	
Y980201	L6	5.32	25.8	24.4-27.3	21.8	20.8-24.3	A	A/B	
Y980202	L6	7.14	25.8	23.6-28.2	21.6	20.5-22.4	A	A/B	
Y980204	L6	7.12	26.0	24.5-27.1	21.5	21.0-22.0	A/B	A	
Y980208	L6	98.88	24.5	23.4-26.0	20.6	19.2-21.5	A		
Y980209	LL3	16.43	27.3	26.5-28.0	22.6	19.3-29.3	A	A	
Y980211	EH6	36.92	0.4	0.0-1.1			B/C	B	
Y980214	L5	106.61	25.3	24.5-27.1	20.8	19.3-22.1	A	B	
Y980215	H5	10.53	19.5	18.5-22.2	16.9	15.9-18.2	A/B	A/B	unshocked
Y980219	H5	34.60	18.8	17.9-19.6	16.8	15.4-19.3	A/B	A	
Y980220	L6	27.42	25.2	24.7-25.9	20.8	18.8-21.8	A	A/B	
Y980223	EH6	116.21					A	A/B	
Y980227	L6	20.52	25.0	24.3-25.4	21.1	20.1-21.9	A	A/B	
Y980230	H5	5.05	19.7	17.7-22.8	17.1	15.7-19.0	A/B	A/B	
Y980231	H5	6.76	19.8	18.7-22.6	17.5	15.9-21.9	A	A	
Y980232	L6	6.88	25.8	23.9-27.4	22.3	21.0-26.4	A	A	
Y980235	H4	7.83	18.8	17.4-20.7	16.8	15.3-19.2	B	A/B	
Y980237	L6	7.23	25.7	23.9-28.3	22.1	20.8-25.2	A	A	
Y980239	CM2	8.21					A		see separate entry
Y980242	L6	6.72	25.8	24.5-27.3	21.9	20.8-22.9	A	A/B	
Y980245	L6	7.06	25.7	24.2-27.1	21.8	20.8-23.1	A	A	
Y980246	L6	129.64	24.4	23.2-26.0	21.1	20.2-21.9	A	A/B	
Y980247	L6	16.04	25.6	24.1-28.0	22.0	20.1-24.5	A	A/B	
Y980250	L6	31.24	25.0	23.7-27.6	21.4	19.6-23.1	A/B	A/B	
Y980252	H6	25.89	19.0	17.9-20.0	16.9	15.7-18.3	A	A	
Y980253	L6	13.06	26.1	24.0-31.2	22.7	20.8-25.0	B	A/B	
Y980254	L6	7.98	25.6	24.6-27.0	22.2	20.6-26.2	A	A	
Y980255	Euc	100.69			46	20.8-58.5	B/C	A	see separate entry
Y980258	L6	5.53	26.0	24.4-28.6	21.6	20.8-22.6	A	A	
Y980259	L6	15.79	24.5	23.4-26.3	21.2	19.0-23.3	A	A	
Y980263	L6	7.06	25.9	24.3-27.5	21.9	20.8-24.6	A	A	
Y980269	L6	22.30	24.5	23.4-26.3	21.2	19.0-23.3	B	A	

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y980270	H6	137.91	18.5	17.5-19.4	16.3	15.3-17.2	A	A/B	unshocked
Y980272	L6	8.02	25.8	22.8-30.4	22.4	21.2-26.6	A	A/B	
Y980275	H5	114.25	18.2	17.5-19.0	15.7	14.4-17.4	A	A/B	
Y980276	L6	31.04	24.7	23.9-25.5	20.4	19.7-21.1	A	A	monomict breccia
Y980278	L6	15.18	25.8	24.9-27.3	21.9	20.4-24.4	A	A	
Y980279	L6	13.94	25.9	24.3-29.1	22.1	21.1-25.6	A	A/B	thick vein
Y980281	L6	8.43	25.7	24.1-27.6	21.4	20.3-22.1	A	A	
Y980282	H4	17.72	19.4	18.4-20.5	17.1	16.2-19.1	A/B	A	
Y980283	L6	370.60	24.1	23.0-25.0	20.1	19.3-20.9	A/B	A	pl rich
Y980284	L6	80.84	24.5	23.4-25.4	20.1	19.2-21.3	A	A/B	
Y980287	L6	5.76	25.7	23.7-28.3	21.5	20.4-22.6	A	A	
Y980293	L6	9.09	25.6	24.6-26.2	21.4	20.3-22.5	A	A/B	
Y980296	L6	11.16	25.6	24.8-26.3	21.2	19.4-22.2	A	A/B	monomict breccia
Y980297	L6	61.50	24.8	22.5-26.2	20.7	19.6-22.1	A/B	A/B	
Y980298	H4	21.98	18.4	17.6-20.7	16.2	14.8-17.6	A	A/B	
Y980299	L6	14.66	25.7	24.8-29.6	21.9	20.5-24.4	A	A/B	
Y980301	L6	5.80	25.4	23.3-28.6	22.2	20.8-25.2	A	A/B	thick shock vein
Y980302	L6	6.14	25.7	24.2-27.7	22	20.5-24.7	A/B	A/B	shock vein network
Y980305	L6	149.08	24.2	23.4-25.0	20.2	19.2-21.3	A	A	
Y980307	L6	60.94	24	23.4-25.4	19.7	19.0-21.2	A	A/B	
Y980308	L6	137.13	24.2	23.1-25.3	20.2	19.4-21.2	A	A	
Y980310	Euc	17.19			48.3	17.0-48.9	A/B	A	see separate entry
Y980316	H6	30.28	18.1	17.4-18.9	15.8	14.3-16.4	A	C	unshocked
Y980319	H3	77.74	17.3	16.4-18.2	15.2	13.1-19.7	A	B	
Y980320	LL3	19.03					A/B	A/B	
Y980321	LL6	65.14	28.5	23.9-32.0	22.3	19.7-24.6	A	A	
Y980324	L	14.48	24.0	11.3-35.1	19.8	15.6-27.3	A/B	A	regolith breccia
Y980325	LL3	19.95	30.8	29.0-33.6	24.4	22.5-27.2	A/B	A	with LL6 clasts
Y980326	Euc	4.46					A		see separate entry
Y980327	L4	9.92	25.5	24.5-28.2	20.9	19.3-21.8	A	A	
Y980328	L4	12.31	25.2	24.1-28.0	21.3	20.4-24.0	A	A	
Y980330	L3	65.97	24.2	19.5-26.5	14.1	3.1-24.7	A	A/B	
Y980331	L3	39.25	23.1	0.6-26.0	14.9	4.1-25.2	A/B	A/B	
Y980338	LL6	11.75	29.3	27.5-31.8	23.8	22.1-24.6	A/B	B	
Y980340	L6	54.19	24.5	23.4-25.3	20.4	19.6-21.6	A	A/B	
Y980341	L6	27.36	24.5	22.9-26.6	20.3	18.9-21.7	A	A/B	
Y980342	L6	10.27	26.0	24.7-27.8	21.9	20.9-22.7	A	A	
Y980348	LL6	21.00	29.4	28.4-30.5	23.7	22.8-24.4	A	A	
Y980350	H6	46.43	17.4	16.3-18.3	15.4	14.3-16.2	A	B/C	monomict breccia
Y980352	L6	69.25	23.5	22.7-24.5	19.7	18.0-20.7	B	B	
Y980353	L6	151.27	23.7	22.8-24.5	19.1	17.2-20.1	B	A	
Y980354	L4	5.71	25.1	24.2-25.7	21.5	20.6-24.4	A/B	A/B	
Y980355	L6	9.13	25.7	23.9-27.1	22.5	21.5-25.3	A	A/B	
Y980356	Euc	40.30			41.4	18.1-48.2	A/B	A	see separate entry
Y980357	Euc	13.85			48.0	46.3-49.7	A	A	see separate entry
Y980358	H6	15.02	19.3	18.5-19.9	17.1	16.1-19.5	A	A/B	unshocked
Y980359	LL6	84.34	27.6	26.3-29.0	23.3	21.3-25.1	A	A	
Y980360	H4	75.69	17.8	16.7-18.6	15.8	14.2-17.5	A	A/B	

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86073	H4	15.60							
Y-86074	H4	22.99							
Y-86075	H4	15.11							
Y-86076	H4	22.89							
Y-86077	H4	11.47							
Y-86078	H4	9.63							
Y-86079	H4	14.05							
Y-86080	H4	10.37							
Y-86081	H4	10.65							
Y-86082	H4	7.34							
Y-86083	H4	8.88							
Y-86084	H4	7.43							
Y-86085	H4	10.54							
Y-86086	H4	9.18							
Y-86087	H4	12.21							
Y-86088	H4	11.65							
Y-86089	H4	6.48							
Y-86090	H4	10.03							
Y-86091	H4	12.34							
Y-86092	H4	8.70							
Y-86093	H4	6.65							
Y-86094	H4	5.35							
Y-86095	H4	8.34							
Y-86096	H4	6.29							
Y-86097	H4	8.19							
Y-86098	H4	6.52							
Y-86099	H4	11.14							
Y-86100	H4	7.78							
Y-86101	H4	8.36							
Y-86102	H4	5.35							
Y-86103	H4	9.84							
Y-86104	H4	7.54							
Y-86105	H4	7.18							
Y-86106	H4	6.53							
Y-86107	H4	6.57							
Y-86108	H4	6.63							
Y-86109	H4	5.35							
Y-86110	H4	3.73							
Y-86111	H4	6.83							
Y-86112	H4	4.42							
Y-86113	H4	3.54							
Y-86114	H4	2.28							
Y-86115	H4	1.99							
Y-86116	H4	3.78							
Y-86117	H4	3.68							
Y-86118	H4	2.35							
Y-86119	H4	3.58							
Y-86120	H4	2.10							
Y-86121	H4	2.43							
Y-86122	H4	3.54							
Y-86123	H4	2.18							



Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86124	H4	6.22							
Y-86125	H4	4.48							
Y-86126	H4	4.88							
Y-86127	H4	2.96							
Y-86128	H4	2.79							
Y-86129	H4	2.59							
Y-86130	H4	2.17							
Y-86131	H4	3.36							
Y-86132	H4	2.86							
Y-86133	H4	2.43							
Y-86134	H4	2.07							
Y-86135	H4	2.33							
Y-86136	H4	1.55							
Y-86137	H4	3.05							
Y-86138	H4	2.57							
Y-86139	H4	2.47							
Y-86140	H4	0.85							
Y-86141	H4	2.70							
Y-86142	H4	1.82							
Y-86143	H4	2.52							
Y-86144	H4	2.62							
Y-86145	H4	1.55							
Y-86146	H4	1.18							
Y-86147	H4	2.76							
Y-86148	H4	2.20							
Y-86149	H4	1.51							
Y-86150	H4	3.33							
Y-86151	H4	1.45							
Y-86152	H4	1.86							
Y-86153	H4	1.28							
Y-86154	H4	0.98							
Y-86155	H4	2.05							
Y-86156	H4	1.49							
Y-86157	H4	1.83							
Y-86158	H4	1.55							
Y-86159	H4	1.50							
Y-86160	H4	1.22							
Y-86161	H4	0.91							
Y-86162	H4	1.02							
Y-86163	H4	1.09							
Y-86164	H4	1.63							
Y-86165	H4	1.15							
Y-86166	H4	1.29							
Y-86167	H4	1.18							
Y-86168	H4	0.81							
Y-86169	H4	0.59							
Y-86170	H4	1.12							
Y-86171	H4	0.86							
Y-86172	H4	1.16							
Y-86173	H4	0.58							
Y-86174	H4	0.85							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86175	H4	0.63							
Y-86176	H4	1.07							
Y-86177	H4	0.74							
Y-86178	H4	0.61							
Y-86179	H4	0.87							
Y-86180	H4	0.41							
Y-86181	H4	0.25							
Y-86182	H4	0.30							
Y-86183	H4	0.21							
Y-86184	H4	0.20							
Y-86185	H4	3.08							
Y-86194	H4	9.52							
Y-86195	H4	7.94							
Y-86196	H4	12.88							
Y-86197	H4	5.75							
Y-86198	H4	11.60							
Y-86199	H4	10.07							
Y-86200	H4	8.95							
Y-86201	H4	9.08							
Y-86202	H4	9.74							
Y-86203	H4	3.85							
Y-86204	H4	4.25							
Y-86205	H4	6.55							
Y-86206	H4	7.22							
Y-86207	H4	6.00							
Y-86208	H4	3.93							
Y-86209	H4	2.82							
Y-86210	H4	6.53							
Y-86211	H4	3.18							
Y-86212	H4	2.32							
Y-86213	H4	2.95							
Y-86214	H4	3.62							
Y-86215	H4	6.62							
Y-86216	H4	6.32							
Y-86217	H4	4.13							
Y-86218	H4	5.59							
Y-86219	H4	4.39							
Y-86220	H4	5.55							
Y-86221	H4	6.02							
Y-86222	H4	3.18							
Y-86223	H4	2.23							
Y-86224	H4	2.96							
Y-86225	H4	2.04							
Y-86226	H4	1.68							
Y-86227	H4	2.07							
Y-86228	H4	2.11							
Y-86229	H4	1.86							
Y-86230	H4	1.77							
Y-86231	H4	2.24							
Y-86232	H4	2.24							
Y-86233	H4	1.90							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86234	H4	2.29							
Y-86235	H4	2.17							
Y-86236	H4	1.64							
Y-86237	H4	2.00							
Y-86238	H4	2.38							
Y-86239	H4	2.83							
Y-86240	H4	1.89							
Y-86241	H4	1.60							
Y-86242	H4	1.38							
Y-86243	H4	1.40							
Y-86244	H4	1.15							
Y-86245	H4	0.95							
Y-86246	H4	1.32							
Y-86247	H4	1.09							
Y-86248	H4	0.89							
Y-86249	H4	1.12							
Y-86250	H4	0.70							
Y-86251	H4	1.14							
Y-86252	H4	1.51							
Y-86253	H4	1.30							
Y-86254	H4	1.11							
Y-86255	H4	1.60							
Y-86256	H4	0.97							
Y-86257	H4	1.18							
Y-86258	H4	1.05							
Y-86259	H4	0.73							
Y-86260	H4	0.51							
Y-86261	H4	0.88							
Y-86262	H4	0.65							
Y-86263	H4	0.86							
Y-86264	H4	0.68							
Y-86265	H4	0.87							
Y-86266	H4	0.44							
Y-86267	H4	0.82							
Y-86268	H4	0.51							
Y-86269	H4	0.28							
Y-86270	H4	1.17							
Y-86271	H4	177.15							
Y-86272	H4	110.69							
Y-86273	H4	63.95							
Y-86274	H4	68.48							
Y-86275	H4	46.48							
Y-86276	H4	41.34							
Y-86277	H4	33.35							
Y-86278	H4	40.23							
Y-86279	H4	35.91							
Y-86280	H4	26.46							
Y-86281	H4	35.62							
Y-86282	H4	17.43							
Y-86283	H4	23.53							
Y-86284	H4	17.90							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86285	H4	23.15							
Y-86286	H4	22.05							
Y-86287	H4	23.52							
Y-86288	H4	16.40							
Y-86289	H4	12.45							
Y-86290	H4	14.75							
Y-86291	H4	10.86							
Y-86292	H4	19.98							
Y-86293	H4	14.63							
Y-86294	H4	13.87							
Y-86295	H4	10.95							
Y-86296	H4	10.83							
Y-86297	H4	9.55							
Y-86298	H4	12.39							
Y-86299	H4	14.66							
Y-86300	H4	13.08							
Y-86301	H4	13.67							
Y-86302	H4	14.74							
Y-86303	H4	7.73							
Y-86304	H4	7.09							
Y-86305	H4	7.65							
Y-86306	H4	8.33							
Y-86307	H4	8.36							
Y-86308	H4	9.24							
Y-86309	H4	9.64							
Y-86310	H4	8.99							
Y-86311	H4	7.39							
Y-86312	H4	8.15							
Y-86313	H4	7.42							
Y-86314	H4	9.63							
Y-86315	H4	7.69							
Y-86316	H4	8.14							
Y-86317	H4	7.68							
Y-86318	H4	9.90							
Y-86319	H4	5.72							
Y-86320	H4	6.72							
Y-86321	H4	10.19							
Y-86322	H4	7.58							
Y-86323	H4	9.80							
Y-86324	H4	8.32							
Y-86325	H4	6.72							
Y-86326	H4	6.41							
Y-86327	H4	5.72							
Y-86328	H4	4.42							
Y-86329	H4	4.64							
Y-86330	H4	7.77							
Y-86331	H4	10.18							
Y-86332	H4	4.74							
Y-86333	H4	8.02							
Y-86334	H4	6.00							
Y-86335	H4	4.51							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86336	H4	6.09							
Y-86337	H4	7.48							
Y-86338	H4	4.31							
Y-86339	H4	6.28							
Y-86340	H4	6.11							
Y-86341	H4	5.99							
Y-86342	H4	6.78							
Y-86343	H4	4.36							
Y-86344	H4	4.91							
Y-86345	H4	6.31							
Y-86346	H4	3.84							
Y-86347	H4	5.26							
Y-86348	H4	7.25							
Y-86349	H4	7.07							
Y-86350	H4	4.32							
Y-86351	H4	7.14							
Y-86352	H4	4.85							
Y-86353	H4	6.52							
Y-86354	H4	5.68							
Y-86355	H4	4.76							
Y-86356	H4	6.43							
Y-86357	H4	4.38							
Y-86358	H4	5.95							
Y-86359	H4	7.94							
Y-86360	H4	5.16							
Y-86361	H4	6.77							
Y-86362	H4	4.04							
Y-86363	H4	5.71							
Y-86364	H4	5.17							
Y-86365	H4	3.65							
Y-86366	H4	6.16							
Y-86367	H4	5.86							
Y-86368	H4	3.67							
Y-86369	H4	4.75							
Y-86370	H4	3.32							
Y-86371	H4	5.75							
Y-86372	H4	5.89							
Y-86373	H4	5.67							
Y-86374	H4	5.66							
Y-86375	H4	4.32							
Y-86376	H4	4.20							
Y-86377	H4	4.21							
Y-86378	H4	4.93							
Y-86379	H4	4.73							
Y-86380	H4	4.95							
Y-86381	H4	4.61							
Y-86382	H4	4.15							
Y-86383	H4	4.59							
Y-86384	H4	4.43							
Y-86385	H4	4.93							
Y-86386	H4	3.24							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86387	H4	4.14							
Y-86388	H4	3.70							
Y-86389	H4	5.18							
Y-86390	H4	3.99							
Y-86391	H4	4.27							
Y-86392	H4	3.95							
Y-86393	H4	3.36							
Y-86394	H4	3.31							
Y-86395	H4	3.20							
Y-86396	H4	3.12							
Y-86397	H4	3.09							
Y-86398	H4	3.51							
Y-86399	H4	4.27							
Y-86400	H4	4.13							
Y-86401	H4	2.59							
Y-86402	H4	3.40							
Y-86403	H4	1.13							
Y-86404	H4	3.42							
Y-86405	H4	1.97							
Y-86406	H4	2.96							
Y-86407	H4	3.02							
Y-86408	H4	3.20							
Y-86409	H4	2.27							
Y-86410	H4	2.43							
Y-86411	H4	2.84							
Y-86412	H4	3.61							
Y-86413	H4	3.31							
Y-86414	H4	2.46							
Y-86415	H4	2.89							
Y-86416	H4	3.62							
Y-86417	H4	2.32							
Y-86418	H4	3.66							
Y-86419	H4	2.55							
Y-86420	H4	3.83							
Y-86421	H4	3.82							
Y-86422	H4	3.47							
Y-86423	H4	2.70							
Y-86424	H4	4.21							
Y-86425	H4	3.41							
Y-86426	H4	2.22							
Y-86427	H4	2.71							
Y-86428	H4	2.57							
Y-86429	H4	2.45							
Y-86430	H4	2.03							
Y-86431	H4	1.53							
Y-86432	H4	1.88							
Y-86433	H4	2.01							
Y-86434	H4	1.69							
Y-86435	H4	1.71							
Y-86436	H4	2.32							
Y-86437	H4	1.19							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86438	H4	2.05							
Y-86439	H4	1.34							
Y-86440	H4	1.68							
Y-86441	H4	2.80							
Y-86442	H4	1.99							
Y-86443	H4	1.92							
Y-86444	H4	1.61							
Y-86445	H4	1.51							
Y-86446	H4	1.95							
Y-86447	H4	1.08							
Y-86448	H4	1.53							
Y-86449	H4	0.93							
Y-86450	H4	0.50							
Y-86451	H4	2.52							
Y-86452	H4	2.49							
Y-86453	H4	2.63							
Y-86454	H4	1.66							
Y-86455	H4	1.58							
Y-86456	H4	0.76							
Y-86457	H4	1.49							
Y-86458	H4	1.57							
Y-86459	H4	1.13							
Y-86460	H4	1.74							
Y-86461	H4	1.01							
Y-86462	H4	2.94							
Y-86463	H4	1.97							
Y-86464	H4	2.35							
Y-86465	H4	1.51							
Y-86466	H4	1.69							
Y-86467	H4	1.61							
Y-86468	H4	1.43							
Y-86469	H4	0.87							
Y-86470	H4	0.82							
Y-86471	H4	2.49							
Y-86472	H4	1.83							
Y-86473	H4	2.06							
Y-86474	H4	3.02							
Y-86475	H4	1.49							
Y-86476	H4	2.05							
Y-86477	H4	1.54							
Y-86478	H4	1.06							
Y-86479	H4	0.95							
Y-86480	H4	0.89							
Y-86481	H4	3.11							
Y-86482	H4	2.52							
Y-86483	H4	1.94							
Y-86484	H4	2.37							
Y-86485	H4	1.45							
Y-86486	H4	2.01							
Y-86487	H4	1.59							
Y-86488	H4	1.50							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86489	H4	1.41							
Y-86490	H4	1.08							
Y-86491	H4	2.55							
Y-86492	H4	3.43							
Y-86493	H4	2.18							
Y-86494	H4	2.02							
Y-86495	H4	2.57							
Y-86496	H4	1.74							
Y-86497	H4	2.17							
Y-86498	H4	1.53							
Y-86499	H4	1.52							
Y-86500	H4	1.25							
Y-86501	H4	3.52							
Y-86502	H4	2.45							
Y-86503	H4	2.29							
Y-86504	H4	2.41							
Y-86505	H4	1.27							
Y-86506	H4	2.06							
Y-86507	H4	0.71							
Y-86508	H4	0.64							
Y-86509	H4	0.51							
Y-86510	H4	0.65							
Y-86511	H4	2.32							
Y-86512	H4	1.18							
Y-86513	H4	1.92							
Y-86514	H4	2.45							
Y-86515	H4	1.38							
Y-86516	H4	0.33							
Y-86517	H4	1.48							
Y-86518	H4	1.72							
Y-86519	H4	1.96							
Y-86520	H4	2.00							
Y-86521	H4	2.65							
Y-86522	H4	2.99							
Y-86523	H4	1.24							
Y-86524	H4	0.96							
Y-86525	H4	2.01							
Y-86526	H4	1.74							
Y-86527	H4	2.48							
Y-86528	H4	2.34							
Y-86529	H4	0.94							
Y-86530	H4	1.11							
Y-86531	H4	2.45							
Y-86532	H4	1.82							
Y-86533	H4	1.73							
Y-86534	H4	2.15							
Y-86535	H4	1.17							
Y-86536	H4	1.99							
Y-86537	H4	2.03							
Y-86538	H4	1.42							
Y-86539	H4	1.36							



Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86540	H4	2.12							
Y-86541	H4	2.64							
Y-86542	H4	2.10							
Y-86543	H4	1.11							
Y-86544	H4	1.57							
Y-86545	H4	1.96							
Y-86546	H4	0.42							
Y-86547	H4	2.12							
Y-86548	H4	1.74							
Y-86549	H4	1.45							
Y-86550	H4	1.27							
Y-86551	H4	1.16							
Y-86552	H4	0.85							
Y-86553	H4	2.34							
Y-86554	H4	1.35							
Y-86555	H4	0.64							
Y-86556	H4	1.10							
Y-86557	H4	0.66							
Y-86558	H4	1.23							
Y-86559	H4	1.00							
Y-86560	H4	1.32							
Y-86561	H4	2.06							
Y-86562	H4	1.68							
Y-86563	H4	1.21							
Y-86564	H4	0.64							
Y-86565	H4	1.25							
Y-86566	H4	0.80							
Y-86567	H4	2.03							
Y-86568	H4	1.12							
Y-86569	H4	0.98							
Y-86570	H4	0.76							
Y-86571	H4	1.00							
Y-86572	H4	2.62							
Y-86573	H4	1.79							
Y-86574	H4	1.66							
Y-86575	H4	2.03							
Y-86576	H4	2.06							
Y-86577	H4	1.25							
Y-86578	H4	1.21							
Y-86579	H4	1.00							
Y-86580	H4	1.09							
Y-86581	H4	1.17							
Y-86582	H4	1.78							
Y-86583	H4	1.93							
Y-86584	H4	1.50							
Y-86585	H4	1.59							
Y-86586	H4	1.91							
Y-86587	H4	1.33							
Y-86588	H4	0.93							
Y-86589	H4	1.33							
Y-86590	H4	0.66							

Meteorite	C.	Wt.(g)	%Fa	Range	%Fs	Range	F.	W.	Comments
Y-86591	H4	1.87							
Y-86592	H4	2.67							
Y-86593	H4	2.76							
Y-86594	H4	2.29							
Y-86595	H4	3.41							
Y-86596	H4	1.84							
Y-86597	H4	3.12							
Y-86598	H4	2.09							
Y-86599	H4	1.48							
Y-86600	H4	1.49							
Y-86601	H4	1.44							
Y-86602	H4	2.04							
Y-86603	H4	1.45							
Y-86604	H4	1.64							
Y-86605	H4	1.61							
Y-86606	H4	0.70							
Y-86607	H4	1.33							
Y-86608	H4	1.22							
Y-86609	H4	1.27							
Y-86610	H4	1.01							
Y-86611	H4	0.97							
Y-86612	H4	0.80							
Y-86613	H4	1.24							
Y-86614	H4	0.99							
Y-86615	H4	1.03							
Y-86616	H4	0.77							
Y-86617	H4	0.77							
Y-86618	H4	1.17							
Y-86619	H4	0.82							
Y-86620	H4	1.01							
Y-86621	H4	0.85							
Y-86622	H4	0.84							
Y-86623	H4	0.90							
Y-86624	H4	0.87							
Y-86625	H4	0.85							
Y-86626	H4	0.68							
Y-86627	H4	0.93							
Y-86628	H4	0.75							
Y-86629	H4	0.65							
Y-86630	H4	27.56							

## 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:

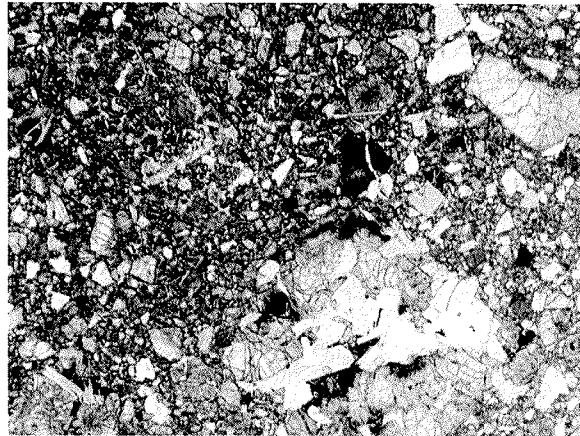
A: Limonite haloes on metal particles and limonite veins are minor.

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.

**Y-980066**

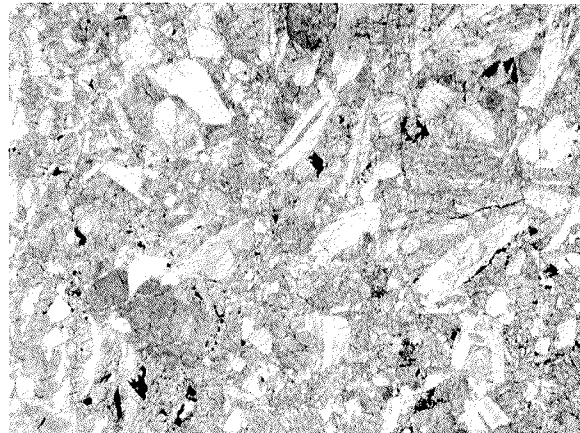
The section (,51-2) is a breccia composed of basaltic clasts (up to ~3 mm), fine-grained melt clasts, and mineral fragments of pyroxene and plagioclase in a clastic matrix. Basaltic clasts show a fine- to medium-grained subophitic texture with interstitial dark mesostasis. Pyroxene compositions vary from  $Wo_{29}En_{66}$  to  $Wo_{34}En_{22}$ . The FeO/MnO ratios of pyroxenes are ~28. Plagioclase compositions are  $An_{83-93}Or_{0.1-0.8}$ . This meteorite is a polymict eucrite.



Width = 5.11 mm

**Y-980068**

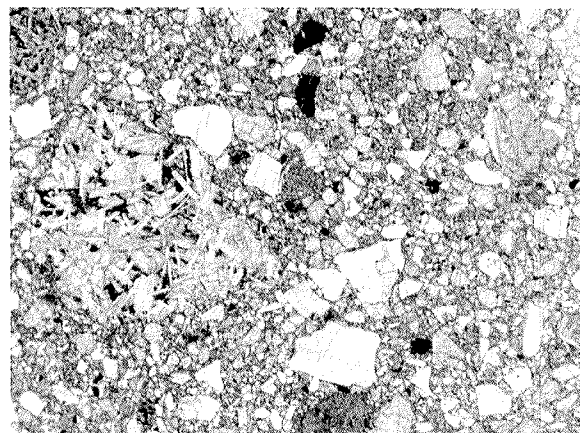
The section (,51-2) shows an ophitic to subophitic texture composed of anhedral pyroxene (up to ~0.5 mm), plagioclase lath (up to ~2 mm), and minor minerals. The section is brecciated in part. Pyroxene compositions vary from  $En_{39-40}Wo_2$  to  $En_{31-32}Wo_{44-45}$ . The FeO/MnO ratios of pyroxenes are ~32. Plagioclase compositions are  $An_{74-85}Or_{1-7}$ . This meteorite is a brecciated eucrite.



Width = 5.11 mm

**Y-980255**

The section (,61-1) is a breccia composed of fine-grained basaltic clasts, granular clasts, dark-glassy clasts (up to 3 mm), fragments of pyroxene and plagioclase set in a clastic matrix. Basaltic clasts have dark mesostasis interstitially between pyroxene and plagioclase. Pyroxene compositions range from  $Wo_6En_{58}$  to  $Wo_{7-20}En_{34-35}$ . The FeO/MnO ratios are ~30. Plagioclase compositions are  $An_{84-93}Or_{0.2-0.9}$ . This meteorite is a polymict eucrite.



Width = 5.11 mm

Y980085	CM2	Glasses in chondrules were altered into phyllosilicates.
Y980091	CM2	Glasses in chondrules were altered into phyllosilicates.
Y980093	CM2	Glasses in chondrules were altered into phyllosilicates.
Y980094	CM2	Glasses in chondrules were altered into phyllosilicates.
Y980115	CI1	This chondrite has no high temperature components. It has altered pseudomorph of chondrules and inclusions.
Y980157	LL6	monomict breccia with large toloirite (5mm)
Y980239	CM2	heavily altered. little olivine grains remaining. carbonate rich.
Y980310	Euc	gabbroic eucrite, pair with Y980318, Y980433.
Y980326	Euc	gabbroic eucrite, pair with Y980318, Y980433
Y980356	Euc	gabbroic eucrite, pair with Y980318, Y980433.
Y980357	Euc	gabbroic eucrite, pair with Y980318, Y980433.

## **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:

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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