Mineralogical Magazine, April 2013, Vol. 77(3), pp. 367–383

Manganoblödite, $Na_2Mn(SO_4)_2{\cdot}4H_2O$, and cobaltoblödite, $Na_2Co(SO_4)_2{\cdot}4H_2O$: two new members of the blödite group from the Blue Lizard mine, San Juan County, Utah, USA

A. V. Kasatkin[1]*, F. Nestola[2], J. Plášil[3], J. Marty[4], D. I. Belakovskiy[5], A. A. Agakhanov[5], S. J. Mills[6], D. Pedron[7], A. Lanza[7], M. Favaro[8], S. Bianchin[8], I. S. Lykova[9], V. Goliáš[10] and W. D. Birch[6]

[1] V/O "Almazjuvelirexport", Ostozhenka str., 22, block 1, 119034 Moscow, Russia
[2] Dipartimento di Geoscienze, Università di Padova, Via Gradenigo 6, I-35131 Padova, Italy
[3] Institute of Physics ASCR, v.v.i., Na Slovance 2, 18221 Prague, Czech Republic
[4] 5199 East Silver Oak Road, Salt Lake City, UT 84108, USA
[5] Fersman Mineralogical Museum of the Russian Academy of Sciences, Leninsky Prospekt 18-2, 119071 Moscow, Russia
[6] Geosciences, Museum Victoria, GPO Box 666, Melbourne 3001, Victoria, Australia
[7] Dipartimento di Scienze Chimiche, Università di Padova, Via Marzolo 1, I-35131 Padova, Italy
[8] CNR-ICIS-Padova, Corso Stati Uniti 4, I-35127 Padova, Italy
[9] Faculty of Geology, Moscow State University, Vorobievy Gory, 119991 Moscow, Russia
[10] Institute of Geochemistry, Mineralogy and Mineral Resources, Faculty of Science, Charles University in Prague, Albertov 6, 128 43 Prague, Czech Republic

[*Received 31 January 2013; Accepted 25 March 2013; Associate Editor: F. Cámara*]

ABSTRACT

Two new minerals – manganoblödite (IMA2012–029), ideally $Na_2Mn(SO_4)_2{\cdot}4H_2O$, and cobaltoblödite (IMA2012–059), ideally $Na_2Co(SO_4)_2{\cdot}4H_2O$, the Mn-dominant and Co-dominant analogues of blödite, respectively, were found at the Blue Lizard mine, San Juan County, Utah, USA. They are closely associated with blödite (Mn-Co-Ni-bearing), chalcanthite, gypsum, sideronatrite, johannite, quartz and feldspar. Both new minerals occur as aggregates of anhedral grains up to 60 μm (manganoblödite) and 200 μm (cobaltoblödite) forming thin crusts covering areas up to 2 × 2 cm on the surface of other sulfates. Both new species often occur as intimate intergrowths with each other and also with Mn-Co-Ni-bearing blödite. Manganoblödite and cobaltoblödite are transparent, colourless in single grains and reddish-pink in aggregates and crusts, with a white streak and vitreous lustre. Their Mohs' hardness is ~2½. They are brittle, have uneven fracture and no obvious parting or cleavage. The measured and calculated densities are D_{meas} = 2.25(2) g cm^{-3} and D_{calc} = 2.338 g cm^{-3} for manganoblödite and D_{meas} = 2.29(2) g cm^{-3} and D_{calc} = 2.347 g cm^{-3} for cobaltoblödite. Optically both species are biaxial negative. The mean refractive indices are α = 1.493(2), β = 1.498(2) and γ = 1.501(2) for manganoblödite and α = 1.498(2), β = 1.503(2) and γ = 1.505(2) for cobaltoblödite. The chemical composition of manganoblödite (wt.%, electron-microprobe data) is: Na_2O 16.94, MgO 3.29, MnO 8.80, CoO 2.96, NiO 1.34, SO_3 45.39, H_2O (calc.) 20.14, total 98.86. The empirical formula, calculated on the basis of 12 O a.p.f.u., is: $Na_{1.96}(Mn_{0.44}Mg_{0.29}Co_{0.14}Ni_{0.06})_{\Sigma 0.93}S_{2.03}O_8{\cdot}4H_2O$. The chemical composition of cobaltoblödite (wt.%, electron-microprobe data) is: Na_2O 17.00, MgO 3.42, MnO 3.38, CoO 7.52, NiO 2.53, SO_3 45.41, H_2O (calc.) 20.20, total 99.46. The empirical formula,

* E-mail: anatoly.kasatkin@gmail.com
DOI: 10.1180/minmag.2013.077.3.10

calculated on the basis of 12 O a.p.f.u., is: $Na_{1.96}(Co_{0.36}Mg_{0.30}Mn_{0.17}Ni_{0.12})_{\Sigma 0.95}S_{2.02}O_8{\cdot}4H_2O$. Both minerals are monoclinic, space group $P2_1/a$, with a = 11.137(2), b = 8.279(1), c = 5.5381(9) Å, β = 100.42(1)º, V = 502.20(14) Å^3 and Z = 2 (manganoblödite); and a = 11.147(1), b = 8.268(1), c = 5.5396(7) Å, β = 100.517(11)º, V = 501.97(10) Å^3 and Z = 2 (cobaltoblödite). The strongest diffractions from X-ray powder pattern [listed as (d,Å(I)(hkl)] are for manganoblödite: 4.556(70)(210, 011); 4.266(45)($\bar{2}01$); 3.791(26)($\bar{2}11$); 3.338(21)(310); 3.291(100)(220, 021), 3.256(67)(211, $\bar{1}21$), 2.968(22)($\bar{2}21$), 2.647(24)($\bar{4}01$); for cobaltoblödite: 4.551(80)(210, 011); 4.269(50)($\bar{2}01$); 3.795(18)($\bar{2}11$); 3.339(43)(310); 3.29(100)(220, 021), 3.258(58)(211, $\bar{1}21$), 2.644(21)($\bar{4}01$), 2.296(22)($\bar{1}22$). The crystal structures of both minerals were refined by single-crystal X-ray diffraction to R_1 = 0.0459 (manganoblödite) and R_1 = 0.0339 (cobaltoblödite).

Keywords: manganoblödite, cobaltoblödite, new minerals, blödite group, chemistry, infrared spectroscopy, crystal structure, solid solution, Blue Lizard mine, Utah.

Introduction

The blödite group (established here following the procedures of Mills *et al*., 2009) unifies hydrated sulfates with the generalized structural formula: $Na_2M^{2+}(SO_4)_2{\cdot}4H_2O$, where the M^{2+} site is occupied by different bivalent metal cations. To date, three members of this group have been reported: blödite *sensu stricto* (John, 1821; Schaller, 1932; Lauro, 1940; Hawthorne, 1985), nickelblödite (Nickel and Bridge, 1977) and changoite (Schlüter *et al*., 1999) having as species-defining cation at the M^{2+} site Mg, Ni and Zn, respectively.

In this work we report the description and characterization of two new members of the group found underground at the Blue Lizard mine, White Canyon District, San Juan County, Utah, USA – manganoblödite, ideally $Na_2Mn(SO_4)_2{\cdot}4H_2O$, and cobaltoblödite, ideally $Na_2Co(SO_4)_2{\cdot}4H_2O$, having Mn and Co as dominating cation at the M^{2+} site. Their names reflect their chemical composition and relationship to blödite, with which they form a solid-solution.

Both new minerals and their names have been approved by the IMA Commission on New Minerals, Nomenclature and Classification: manganoblödite (IMA2012–029) and cobaltoblödite (IMA2012–059). There are no specimens that qualify as holotypes; however, one cotype specimen of manganoblödite and one cotype specimen of cobaltoblödite are deposited in the collections of the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow under registration numbers 4257/1 and 4271/1 respectively. Another cotype specimen of both manganoblödite and cobaltoblödite is stored in the collections of Museum Victoria, Melbourne, Australia under catalogue number M52196.

Occurrence and general appearance

Specimens containing both manganoblödite and cobaltoblödite were collected in March 2011 by one of the authors (JM) underground at the Blue Lizard mine, White Canyon District, San Juan County, Utah, USA (37º33′26″N, 110º17′44″W). The Blue Lizard mine is located to the west of the town of Blanding in San Juan County on the north side of Red Canyon close to the Markey mine in the White Canyon mining district. Underground workings in the Blue Lizard mine were developed since the mid 1950s by US Atomic Energy Commission and yielded uranium ore with approximate grade of rock 0.20–0.50 wt.% U_3O_8 (Thaden *et al*., 1964). The mineralized channels were found in the Shinarump Member of the Chinle formation. The Shinarump Member consists of very broad thin sheets of interconnected sandstone and conglomerate bodies that formed in braided stream environments (Blakey and Gubitosa, 1984). The sandstone is fine to coarse grained and consists mostly of quartz mixed with small amounts of sodic and potassic feldspar and of altered volcanic debris. The gravel-sized fragments in the conglomerate comprise either quartz, quartzite, chert, or volcanic rock (Stewart *et al*., 1972). Carbonized wood is abundant. Ore minerals have been deposited as replacements of wood and other organic material and as disseminations in enclosing sandstone. The deposit has not been explored sufficiently to determine its shape and size, but it appears to be an ellipsoidal body several hundred feet long and at least 50 feet wide at its widest point (Thaden *et al*., 1964). The main ore minerals are uraninite (var. pitchblende) in association with pyrite, chalcopyrite, bornite and covellite (Jensen, 1958; Thaden *et al*., 1964). The

primary sulfide minerals, especially bornite, were found in larger masses than in most other deposits in the area. Other minerals associated with host rock, apart from quartz and feldspar, include calcite, clay minerals and iron oxides (Thaden *et al.*, 1964). After working ceased in 1978, supergene oxidation of primary ores in the wet underground environment of the mine yielded different secondary minerals, mainly sulfates as efflorescence crusts on the surfaces of mine walls.

Manganoblödite and cobaltoblödite should be considered as very rare and occurs as intimate intergrowths with Mn-Co-Ni-bearing blödite in direct association with chalcanthite, gypsum, johannite, sideronatrite, quartz and feldspar. Other minerals found in the proximity include: atacamite, baryte, bornite, brochantite, chalcopyrite, copiapite, covellite, cyanotrichite, ferrinatrite, halotrichite, metavoltine, natrozippeite, pseudojohannite, pyrite, römerite, rhomboclase, tamarugite, uraninite and several new uranyl sulfates currently under investigation.

Manganoblödite occurs as anhedral isometric grains up to 60 μm in size whereas cobaltoblödite shows a grain size up to 200 μm. Grains of the new minerals are combined in aggregates and crusts covering areas of up to 2 × 2 cm on the surface of other sulfates (Fig. 1). In aggregates and crusts both minerals are intimately intergrown with each other and Mn-Co-Ni-bearing blödite (Fig. 2). The three minerals cannot be distinguished one from another by visual methods; only electron microprobe analysis can differentiate between them.

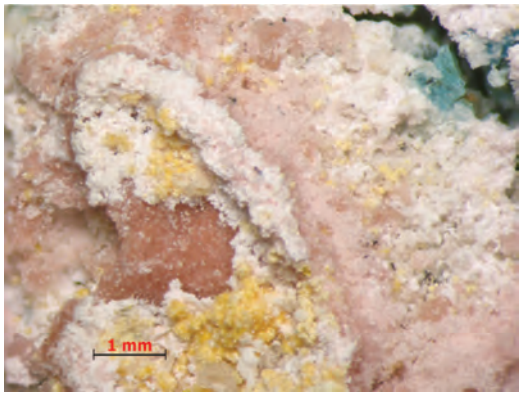

FIG. 1. Sulfate assemblage at Blue Lizard Mine: reddish-pink zone (just above the scale bar) consisting of fine-grained manganoblödite intimately intergrown with cobaltoblödite and Mn-Co-Ni-bearing blödite. Also in association are a pale pink to almost white crust of Mn-Co-Ni-poor blödite, yellow sideronatrite and blue chalcanthite.

After the initial discovery, a second occurrence of manganoblödite was recognised at the abandoned Womobi mine, near Thologolong, in northern Victoria, Australia (35º58′S, 147º24′E), amongst an assemblage of post-mine manganese sulfates forming encrustations on the wall of an adit. Here, the manganoblödite forms blocky pale-pink crystals up to 60 μm on edge, associated with szmikite that has replaced jôkokuite (Fig. 3).

Physical properties and optical data

Manganoblödite and cobaltoblödite are transparent and colourless in single grains and are reddish-pink in aggregates and crusts, with a white streak and a vitreous lustre. They are not fluorescent in ultraviolet radiation or when exposed to cathode rays. Both species are brittle. Their Mohs' hardness is ~2½. Parting and cleavage were not observed; fracture is uneven. The density of manganoblödite (cotype specimen #4257/1) measured by flotation in heavy liquids ($CHBr_3$ + C_6H_{14}) is 2.25(2) g cm^{-3} and its calculated density (by X-ray diffraction) is 2.338 g cm^{-3}. The respective values for cobaltoblödite (cotype specimen #4271/1) are D_{meas} = 2.29(2) g cm^{-3} and D_{calc} = 2.347 g cm^{-3}. Optically, both species are biaxial negative. The mean refractive indices in air at 589 nm are α = 1.493(2), β = 1.498(2) and γ = 1.501(2) for manganoblödite and α = 1.498(2), β = 1.503(2) and γ = 1.505(2) for cobaltoblödite. For manganoblödite, $2V_{meas}$ is 80(10)º and $2V_{calc}$ = 75º, while for cobaltoblödite $2V_{meas}$ = 70(10)º and $2V_{calc}$ = 64º. The dispersion for both minerals is $r > v$, weak. The optical orientation could not be observed because of the anhedral nature of the grains and their isometric shape. Both minerals are non-pleochroic and colourless in transmitted light.

Experimental methods

Chemical analysis

Chemical data for both manganoblödite and cobaltoblödite were obtained using a CamScan 4D scanning electron microscope equipped with an Oxford Link ISIS energy-dispersive X-ray spectrometer. An operating voltage of 20 kV was used with a beam current of 3 nA and a 5 μm beam diameter. The following standards were used: chkalovite (Na), olivine San Carlos USNM 111312/444 (Mg), synthetic $MnTiO_3$ (Mn), Co

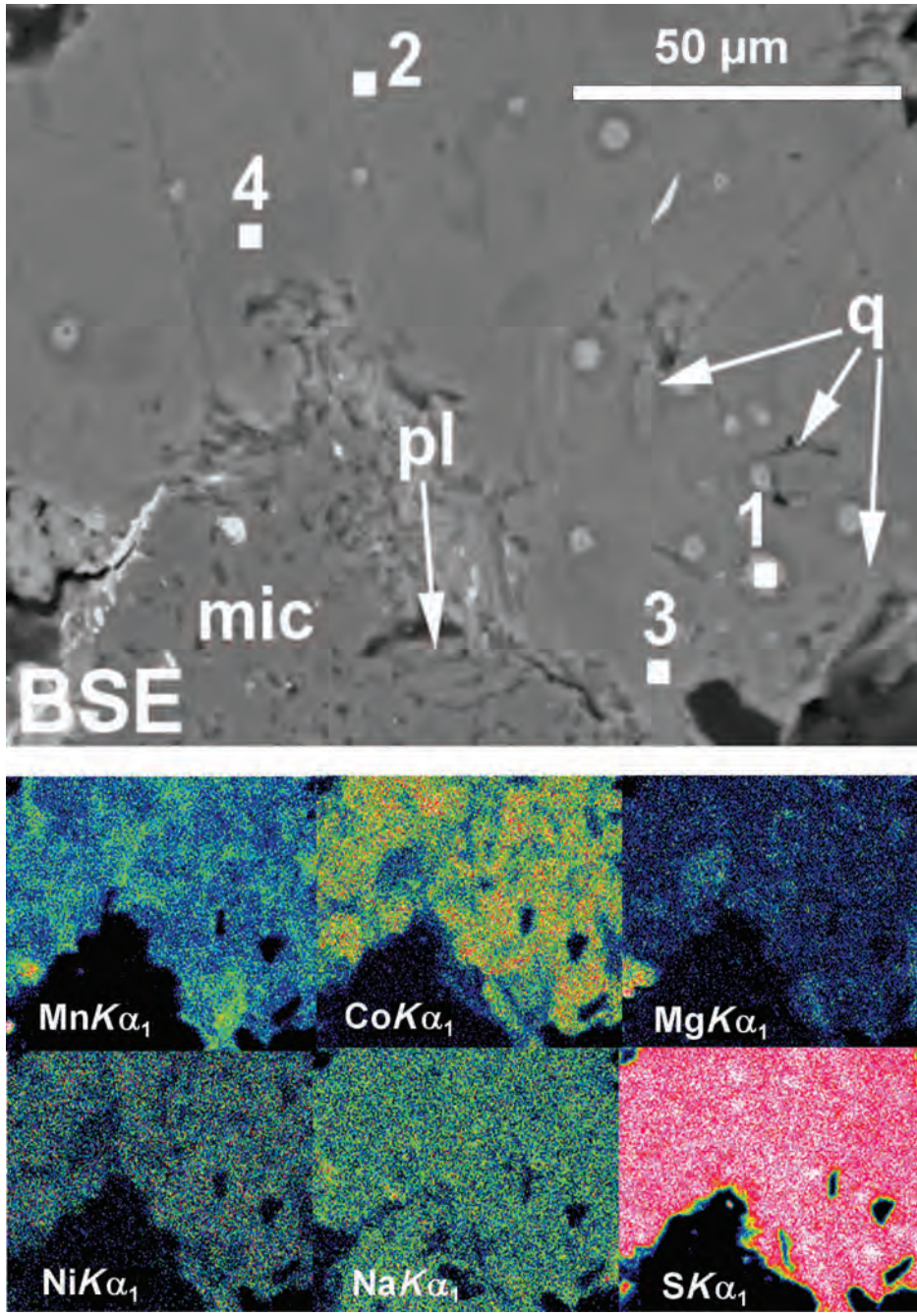

FIG. 2. Backscattered electron image (top) and elemental X-ray maps (bottom) showing an intimate intergrowth of cobaltoblödite (points 1 and 2), manganoblödite (point 3), and Mn-Co-rich blödite (point 4) in polished section made from a fragment of cotype manganoblödite and cobaltoblödite specimen #M52196. Point 1 provided ($Co_{0.36}Mn_{0.28}Mg_{0.26}Ni_{0.10}$) composition at the M^{2+} site; point 2 yielded ($Co_{0.39}Mg_{0.27}Mn_{0.25}Ni_{0.09}$); point 3 ($Mn_{0.49}Mg_{0.27}Co_{0.16}Ni_{0.08}$); and point 4 ($Mg_{0.47}Mn_{0.22}Co_{0.21}Ni_{0.10}$). Associated minerals are quartz (q), microcline (mic) and plagioclase (pl).

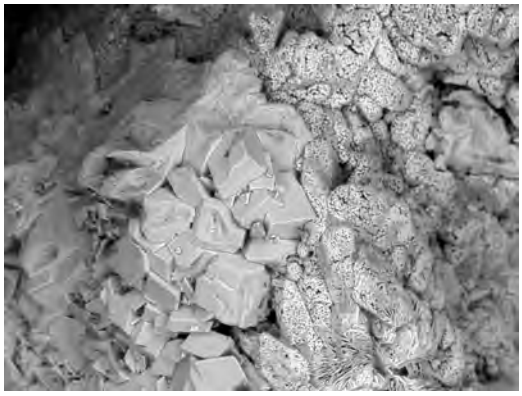

FIG. 3. Backscattered electron image of blocky manganoblodite crystals with szmikite after jôkokuite from the Womobi mine, Victoria, Australia. Field of view is 500 μm across.

metal (Co), synthetic NiO (Ni) and synthetic ZnS (S). No other elements with atomic numbers higher than 8 were observed.

We chose EDS mode with low beam current (3 nA) instead of WDS because of the instability of manganoblödite and cobaltoblödite under the electron beam caused by the high content of Na and H_2O. Our numerous attempts to use WDS mode were unsuccessful because of significant decomposition of both minerals after several seconds under the electron beam with a current of 15 nA. H_2O was not determined directly because of scarcity of pure material. H_2O content was calculated by stoichiometry and confirmed by the crystal structure refinement. IR spectroscopy shows the absence of CO_2 in both minerals.

Powder and single-crystal X-ray diffraction

X-ray powder-diffraction data for manganoblödite and cobaltoblödite were collected using a PANanalytical X'Pert Pro diffractometer with the X'Celerator solid-state detector. The analytical conditions were 40 kV and 30 mA, 4–65º 2θ, step size 0.028º, with a counting time of 1 s per step. A secondary graphite monochromator was used to obtain filtered Cu$K\alpha_{1,2}$ radiation. For the profile-fitting *Xfit* program (Coelho and Cheary, 1997) was employed. Unit-cell refinement was performed with the software *UnitCell* (Holland and Redfern, 1997).

Single-crystal X-ray studies were performed on the same grains of manganoblödite and cobaltoblödite studied by microprobe and were carried out using a STOE STADI IV single-crystal diffractometer equipped with an Oxford Diffraction CCD detector, with Mo$K\alpha$ radiation (50 kV and 40 mA).

Infrared spectroscopy

FTIR analyses were performed on the same grains of manganoblödite and cobaltoblödite studied by microprobe and single-crystal X-ray diffraction (XRD). The respective grains were deposited on a microscope slide (MirrIR Kevley Technology). A Continuum Nicolet microscope connected to a Thermo Fisher IS-10 system and equipped with a Mercury Cadmium Telluride (MCT) detector was used for spectra collection. IR spectra were recorded in reflectance mode in the 650–3800 cm^{-1} range, with a resolution of 4 cm^{-1}.

Origin of the investigated samples

In order to compare manganoblödite and cobaltoblödite with other members of the blödite group, we investigated by electron microprobe and FTIR spectroscopy the specimens of blödite (Mn-Co-Ni-bearing and Co-Mn-Ni-bearing) from Blue Lizard mine, changoite from La Compañia mine, Sierra Gorda District, Antofagasta, Chile and Namib Lead mine, Karibib District, Erongo Region, Namibia, all coming from the personal collection of the senior author and a fragment of cotype sample of nickelblödite from Carr Boyd Rocks mine, Kalgoorlie, Western Australia, Australia (reg. #M64.1991) received by one of the authors (SJM) from Western Australian Museum, Perth. The chemistry and IR spectra of the above minerals were measured using the same experimental procedures and equipment as for manganoblödite and cobaltoblödite.

Results and discussion

Chemical composition and chemical properties

The empirical formula for manganoblödite (Table 1, column 1), calculated on the basis of 12 O a.p.f.u., is: $Na_{1.96}(Mn_{0.44}Mg_{0.29}Co_{0.14}Ni_{0.06})_{\Sigma 0.93}S_{2.03}O_8{\cdot}4H_2O$. The ideal end-member formula is $Na_2Mn(SO_4)_2{\cdot}4H_2O$, which requires Na_2O 16.99, MnO 19.45, SO_3 43.83 and H_2O 19.73, total 100.00 wt.%.

The empirical formula for cobaltoblödite (Table 1, column 2), calculated on the basis of

TABLE 1. Chemical compositions (wt.%) of the blödite group minerals.

Oxides	1	2	3	4	5	6	7
Na_2O	16.94 (16.04–17.40) [0.50]	17.00 (16.69–17.33) [0.23]	17.42	17.49	17.10	16.60	16.20
MgO	3.29 (2.11–4.54) [1.01]	3.42 (3.30–3.88) [0.22]	6.33	4.44	3.70	–	–
MnO	8.80 (7.93–10.18) [0.92]	3.38 (3.09–4.39) [0.50]	5.48	3.47	–	–	–
CoO	2.96 (1.87–3.94) [0.81]	7.68 (7.19–8.12) [0.34]	2.85	6.64	0.74	–	–
NiO	1.34 (0.81–1.83) [0.45]	2.53 (2.13–2.82) [0.26]	1.36	1.91	12.63	–	–
ZnO	–	–	–	–	–	21.75	21.45
SO_3	45.39 (43.16–47.82) [1.85]	45.41 (44.85–51.21) [2.75]	45.52	44.68	46.27	42.87	43.03
H_2O_{calc}	20.14	20.21	20.50	20.10	20.55	19.30	19.25
Total	98.86	99.63	99.46	98.73	100.99	100.52	99.93
Formula calculated on the basis of 12 oxygen atoms							
Na	1.96	1.96	1.98	2.02	1.94	2.00	1.96
Mg	0.29	0.30	0.55	0.40	0.32	–	–
Mn	0.44	0.17	0.27	0.18	–	–	–
Co	0.14	0.36	0.13	0.32	0.03	–	–
Ni	0.06	0.12	0.06	0.09	0.59	–	–
Zn	–	–	–	–	–	1.00	0.99
ΣM^{2+}	0.93	0.96	1.01	0.99	0.94	1.00	0.99
S	2.03	2.02	2.00	2.00	2.03	2.00	2.01
H_2O	4	4	4	4	4	4	4

1 Manganoblödite (cotype specimen #4257/1; mean data for 5 analyses with ranges in round brackets; SD in square brackets).
2 Cobaltoblödite (cotype specimen #4271/1; mean data for five analyses with ranges in round brackets; SD in square brackets).
3 Blödite (Mn–Co–Ni-bearing variety; Blue Lizard mine, Utah, USA; representative analysis).
4 Blödite (Co–Mn–Ni-bearing variety; Blue Lizard mine, Utah, USA; representative analysis).
5 Nickelblödite (Carr Boyd Rocks mine, Kalgoorlie, Western Australia, Australia; representative analysis).
6 Changoite (La Compañia Mine, Sierra Gorda District, Antofagasta, Chile; representative analysis).
7 Changoite (Namib Lead mine, Karibib District, Erongo Region, Namibia; representative analysis).

TABLE 2. X-ray powder diffraction data for manganoblödite and cobaltoblödite*.

Manganoblödite				Cobaltoblödite						
I_{obs}	I_{calc}	d_{obs}	d_{calc}	I_{obs}	I_{calc}	d_{obs}	d_{calc}	h	k	l
3	6.29	6.589	6.595	9	10.28	6.560	6.589	1	1	0
5	8.99	5.461	5.471	7	9.82	5.469	5.461	2	0	0
	3.19		5.446	1	4.68	5.434	5.449	0	0	1
70	66.61	**4.556**	4.562	**80**	62.42	**4.551**	4.556	2	1	0
	43.20		4.547		41.76		4.548	0	1	1
9	10.87	4.441	4.447	5	13.35	4.439	4.449	$\bar{1}$	1	1
45	46.35	**4.266**	4.271	**50**	46.47	**4.269**	4.271	$\bar{2}$	0	1
5	3.26	4.130	4.133	8	2.23	4.133	4.130	0	2	0
10	17.57	3.987	3.989	**15**	18.81	**3.989**	3.987	1	1	1
				5	2.69	3.865	3.863	1	2	0
26	21.99	**3.791**	3.794	18	21.54	3.795	3.794	$\bar{2}$	1	1
21	23.46	**3.338**	3.337	**43**	23.66	**3.339**	3.332	3	1	0
100	13.05	**3.291**	3.298	**100**	14.07	**3.290**	3.294	2	2	0
	100.00		3.292		100.00		3.292	0	2	1
67	51.85	**3.256**	3.260	**58**	49.08	**3.258**	3.258	2	1	1
	31.33		3.254		30.12		3.253	$\bar{1}$	2	1
9	7.74	3.082	3.085	4	7.92	3.085	3.084	$\bar{3}$	1	1
22	18.76	**2.9680**	2.9699					$\bar{2}$	2	1
20	18.52	2.7363	2.7356					4	0	0
17	17.75	2.6899	2.6921	13	18.32	2.6946	2.6899	2	2	1
				6	8.23	2.6699	2.6700	1	3	0
24	31.15	**2.6465**	2.6468	**21**	30.05	**2.6437**	2.6445	$\bar{4}$	0	1
16	15.44	2.5845	2.5861	13	14.93	2.5863	2.5875	0	1	2
2	1.26	2.5144	2.5132					$\bar{2}$	1	2
2	2.09	2.4586	2.4585					0	3	1
4	4.01	2.4243	2.4241	4	4.71	2.4234	2.4244	1	1	2
2	1.10	2.3576	2.3573					1	3	1
5	3.62	2.3174	2.3194					3	2	1
	3.13		2.3152					$\bar{2}$	3	1
				3	2.46	2.3128	2.3086	$\bar{3}$	1	2
10	8.90	2.2960	2.2973	**22**	8.64	**2.2955**	2.2982	$\bar{1}$	2	2
				8	3.99	2.2734	2.2780	4	2	0
11	7.84	2.2769	2.2769					2	0	2
	5.98		2.2737					0	2	2
8	9.31	2.1763	2.1762	5	8.98	2.1769	2.1745	2	3	1
10	8.69	2.1346	2.1354	6	9.31	2.1335	2.1357	$\bar{4}$	0	2
				5	1.46	2.1179	2.1204	$\bar{3}$	3	1
10	9.56	2.1168	2.1156	3	9.59	2.1126	2.1121	5	1	0
3	2.89	2.0670	2.0664	6	3.11	2.0657	2.0651	0	4	0
14	15.36	2.0306	2.0305	7	14.71	2.0290	2.0920	1	4	0
3	4.03	1.9968	1.9943	4	4.49	1.9946	1.9954	2	2	2
7	12.55	1.9651	1.9647	7	11.94	1.9644	1.9628	3	3	1
13	10.65	1.9363	1.9367	13	10.11	1.9364	1.9367	0	3	2
8	7.60	1.9241	1.9234	4	7.18	1.9231	1.9215	$\bar{5}$	2	1
3	3.55	1.8966	1.8971	2	3.70	1.9084	1.9073	$\bar{4}$	2	2
9	7.27	1.8653	1.8658	4	7.14	1.8659	1.8654	1	3	2
				4	4.09	1.8599	1.8592	$\bar{2}$	4	1
					3.30		1.8608	5	1	1
				3	0.28	1.8207	1.8206	6	0	0
				8	2.46	1.8116	1.8111	$\bar{3}$	3	2
				4	3.43	1.8008	1.8032	$\bar{1}$	1	3
				1	1.31	1.7956	1.7963	3	4	0
8	7.97	1.7828	1.7828	5	7.54	1.7848	1.7842	$\bar{2}$	1	3
2	0.31	1.7546	1.7551					$\bar{3}$	4	1
				2	1.69	1.7539	1.7544	2	3	2
6	8.96	1.6767	1.6759	2	9.32	1.6758	1.6741	$\bar{6}$	2	1
9	8.08	1.6632	1.6627	3	7.92	1.6608	1.6619	$\bar{6}$	0	2
				2	1.10	1.6451	1.6472	4	4	0
2	2.56	1.6040	1.6045	2	2.37	1.6041	1.6045	2	1	3
4	8.09	1.5541	1.5539	3	7.99	1.5533	1.5530	1	5	1
				3	6.99	1.5211	1.5207	2	2	3
				5	2.82	1.4926	1.4929	4	3	2

* The eight strongest lines for each mineral are indicated in bold face.

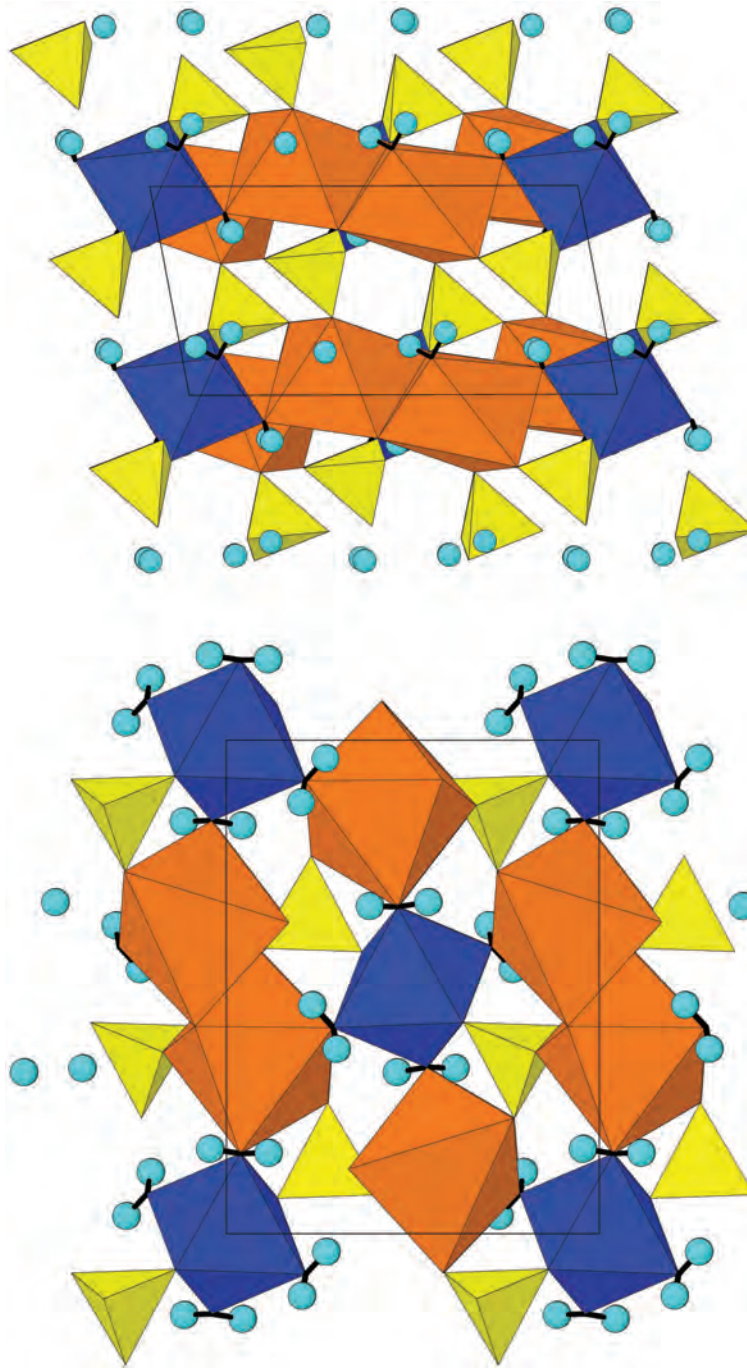

FIG. 4. Crystal structure of cobaltoblödite viewed along the *b* (top) and **c** (bottom) directions. The unit cell is shown. In yellow, the S-centred tetrahedra; in blue, the Co-centred octahedra; in orange, the Na-centred octahedra; in light blue the hydrogen atoms. For the view along the *b* axis, the positive *a* direction is on the right whereas the positive *c* direction is up; for the view along the *c* axis, the positive *b* direction is on the right, whereas the positive *a* direction is up.

12 O a.p.f.u., is: $Na_{1.96}(Co_{0.36}Mg_{0.30}Mn_{0.17}Ni_{0.12})_{\Sigma 0.95}S_{2.02}O_8 \cdot 4H_2O$. The ideal endmember formula is $Na_2Co(SO_4)_2 \cdot 4H_2O$, which requires Na_2O 16.80, CoO 20.33, SO_3 43.36 and H_2O 19.51, total 100.00 wt.%.

In Table 1, columns 3–7, we have shown the measured chemistry (wt.% and empirical formulae) for other members of the blödite group investigated in this work.

The values of Gladstone-Dale compatibility index $[1 - (K_p/K_c)]$ (Mandarino, 1981) for cotype specimen of manganoblödite #4257/1 are: 0.015 (which is rated as superior), using the calculated density; and −0.024 (which is rated as excellent), using the measured density. The same values for cotype specimen of cobaltoblödite #4271/1 are: 0.004 (which is rated as superior), using the calculated density, and −0.021 (which is rated as excellent), using the measured density. Both minerals dissolve slowly in water at room temperature.

X-ray powder diffraction

X-ray powder-diffraction data for manganoblödite and cobaltoblödite are reported in Table 2. The unit-cell refinement by X-ray powder diffraction for manganoblödite and cobaltoblödite was performed using the software *Unitcell* (Holland and Redfern, 1997). The refined unit-cell parameters obtained from the powder data are in very good agreement with those from single-crystal diffraction data (see below) and are as follows: a = 11.131(3) Å, b = 8.266(2) Å, c = 5.540(1) Å, β = 100.56(2)º and V = 501.0(1) Å^3 for manganoblödite and a = 11.140(3) Å, b = 8.261(2) Å, c = 5.544(1) Å, β = 100.62(2)º and V = 500.3(2) Å^3 for cobaltoblödite.

Crystal structure

The crystal structures of cobaltoblödite and manganoblödite (Fig. 4; in figure we show only the structure of cobaltoblödite for simplicity as visually it is not distinguishable from manganoblödite) were solved using direct methods and refined anisotropically with the use of the *SHELX* software package (Sheldrick, 2008) to R_1 = 0.0459 for 1115 reflections with $F > 4\sigma(F)$ for manganoblödite and to R_1 = 0.0339 for 1214 reflections with $F > 4\sigma(F)$ for cobaltoblödite. The refinements were performed using neutral scat-

TABLE 3. Crystal data, data collection and structure-refinement details for manganoblödite and cobaltoblödite.

	Manganoblödite	Cobaltoblödite
Temperature	296(2) K	
Wavelength	0.71073 Å	
Crystal system	Monoclinic	
Space group	$P2_1/a$	
Unit-cell dimensions	a = 11.137(2) Å	a = 11.147(1) Å
	b = 8.279(1) Å	b = 8.268(1) Å
	c = 5.5381(9) Å	c = 5.5396(7) Å
	β = 100.423(13)º	β = 100.517(11)º
Volume	502.20(14) Å^3	501.97(10) Å^3
Z	2	
Density (calculated)	2.336 g cm^{-3}	2.347 g cm^{-3}
Crystal size	60 μm × 50 μm × 30 μm	120 μm × 50 μm × 40 μm
Theta range for data collection	3.08 to 43.00º	3.09 to 43.08º
Index ranges	$-18 \leqslant h \leqslant 16$, $0 \leqslant k \leqslant 15$, $0 \leqslant l \leqslant 9$	$-21 \leqslant h \leqslant 9$, $-12 \leqslant k \leqslant 12$, $-8 \leqslant l \leqslant 10$
Reflections collected	2708	2631
Refinement software	*SHELXL-97* (Sheldrick, 2008)	
Refinement method	Full-matrix least-squares on F^2	
Data/restraints/parameters	2708/0/91	2631/0/91
Goodness-of-fit on F^2	0.996	1.001
Final $R_{4\sigma}$	R_1 = 0.0459 (1115 data)	R_1 = 0.0339 (1214 data)
Final R	R_1 = 0.1210 (2708 data)	R_1 = 0.1081 (2631 data)
Largest diff. peak and hole	0.72 and –0.64 e.Å^{-3}	0.64 and –0.43 e.Å^{-3}

tering factors for Mg, Co, Mn, Ni, S and O and the occupancies were fixed to those obtained by the chemistry given in Table 1. After the structure solution and comparison with the published blödite-group minerals we decided to use the same atomic coordinate setting used by Hawthorne (1985) and to use the starting model of this work to refine the hydrogen coordinates. Crystal data, structure-refinement details and data-collection information are given in Table 3, atomic coordinate, anisotropic displacement parameters, bond lengths and angles are reported in Tables 4, 5 and 6. The crystallographic information files (CIFs) and the structure factors were deposited with the Principal Editor of *Mineralogical Magazine* and are available at http://www.minersoc.org/pages/e_journals/dep_mat_mm.html

Manganoblödite and cobaltoblödite are monoclinic, space group $P2_1/a$. Unit-cell parameters refined by single-crystal XRD are a = 11.137(2) Å, b = 8.279(1) Å, c = 5.5381(9) Å, β = 100.42(1)º

TABLE 4. Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters (Å^2) for manganoblödite and cobaltoblödite

	x	y	z	U_{iso}/U_{eq}	Cation occupancies
Manganoblödite					
Mn	0	0	0	0.01783 (19)	0.44
Mg	–	–	–	–	0.29
Ni	–	–	–	–	0.06
Co	–	–	–	–	0.14
S	0.13613 (6)	0.29031 (9)	0.37014 (13)	0.01383 (14)	
Na	0.36212 (11)	0.07065 (16)	0.1298 (2)	0.0222 (3)	
O1	0.26526 (19)	0.2728 (3)	0.3466 (4)	0.0223 (5)	
O2	0.07933 (19)	0.4193 (3)	0.2078 (4)	0.0233 (5)	
O3	0.0713 (2)	0.1369 (3)	0.3118 (4)	0.0227 (5)	
O4	0.1319 (2)	0.3304 (3)	0.6293 (4)	0.0223 (5)	
O5	0.16225 (19)	0.0390 (3)	0.8708 (4)	0.0196 (5)	
O6	0.0814 (2)	0.7876 (3)	0.1799 (4)	0.0208 (5)	
H5A	0.179 (5)	0.145 (7)	0.758 (9)	0.080*	
H5B	0.180 (4)	–0.050 (6)	0.747 (9)	0.080*	
H6A	0.024 (5)	0.713 (6)	0.222 (9)	0.080*	
H6B	0.099 (6)	0.783 (7)	0.310 (10)	0.080*	
Cobaltoblödite					
Co	0	0	0	0.01592 (12)	0.36
Mg	–	–	–	–	0.30
Mn	–	–	–	–	0.17
Ni	–	–	–	–	0.12
S	0.13624 (4)	0.28981 (6)	0.37043 (8)	0.01457 (11)	
Na	0.36203 (8)	0.07052 (11)	0.12983 (16)	0.0235 (2)	
O1	0.26554 (14)	0.27159 (19)	0.3473 (3)	0.0237 (3)	
O2	0.07923 (14)	0.4172 (2)	0.2079 (3)	0.0255 (3)	
O3	0.07173 (15)	0.13550 (19)	0.3131 (3)	0.0245 (3)	
O4	0.13185 (15)	0.32970 (19)	0.6293 (3)	0.0245 (4)	
O5	0.16260 (15)	0.0382 (2)	0.8720 (3)	0.0206 (3)	
O6	0.08181 (16)	0.7872 (2)	0.1784 (3)	0.0219 (3)	
H5A	0.164 (4)	0.114 (5)	0.794 (8)	0.080*	
H5B	0.174 (4)	–0.042 (5)	0.785 (7)	0.080*	
H6A	0.039 (5)	0.731 (5)	0.232 (8)	0.080*	
H6B	0.125 (5)	0.796 (5)	0.304 (8)	0.080*	

* We were unable to refine the thermal parameters of hydrogen atoms; we fixed them at reasonable values twice or three times those of oxygens.

TABLE 5. Anisotropic displacement parameters (Å^2) for manganoblödite and cobaltoblödite.

	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
Manganoblödite						
Mn	0.0169 (4)	0.0177 (4)	0.0193 (4)	–0.0012 (3)	0.0046 (3)	–0.0010 (3)
S	0.0128 (3)	0.0154 (3)	0.0130 (3)	–0.0009 (3)	0.0018 (2)	0.0004 (3)
Na	0.0193 (6)	0.0222 (7)	0.0245 (6)	0.0003 (5)	0.0022 (5)	–0.0009 (6)
O1	0.0144 (10)	0.0238 (12)	0.0291 (12)	0.0022 (9)	0.0048 (9)	0.0028 (10)
O2	0.0187 (10)	0.0253 (12)	0.0256 (12)	0.0030 (9)	0.0033 (9)	0.0109 (10)
O3	0.0297 (12)	0.0222 (11)	0.0166 (10)	–0.0111 (10)	0.0054 (9)	–0.0053 (9)
O4	0.0309 (13)	0.0225 (12)	0.0143 (10)	–0.0014 (10)	0.0062 (9)	–0.0051 (9)
O5	0.0189 (10)	0.0213 (11)	0.0199 (11)	0.0011 (8)	0.0075 (9)	0.0006 (9)
O6	0.0209 (11)	0.0193 (11)	0.0202 (11)	–0.0014 (9)	–0.0017 (9)	0.0010 (10)
Cobaltoblödite						
Co	0.0152 (2)	0.0151 (2)	0.0175 (2)	–0.00108 (19)	0.00302 (18)	–0.00065 (19)
S	0.0145 (2)	0.0148 (2)	0.01413 (19)	–0.00074 (18)	0.00179 (16)	0.00056 (18)
Na	0.0203 (4)	0.0232 (5)	0.0264 (4)	0.0010 (4)	0.0027 (3)	–0.0007 (4)
O1	0.0152 (7)	0.0250 (8)	0.0313 (8)	0.0024 (6)	0.0056 (6)	0.0028 (7)
O2	0.0198 (8)	0.0269 (9)	0.0293 (8)	0.0036 (7)	0.0032 (6)	0.0115 (7)
O3	0.0303 (9)	0.0221 (8)	0.0210 (7)	–0.0106 (7)	0.0046 (6)	–0.0039 (6)
O4	0.0341 (10)	0.0232 (8)	0.0171 (7)	–0.0024 (7)	0.0074 (7)	–0.0043 (6)
O5	0.0216 (8)	0.0203 (8)	0.0209 (7)	0.0003 (6)	0.0065 (6)	0.0014 (6)
O6	0.0222 (8)	0.0190 (8)	0.0222 (7)	–0.0017 (6)	–0.0017 (6)	0.0008 (6)

and V = 502.20(14) Å^3 for manganoblödite and a = 11.147(1) Å, b = 8.268(1) Å, c = 5.5396(7) Å, β = 100.517(11)º, V = 501.97(10) Å^3 for cobaltoblödite.

Manganoblödite and cobaltoblödite are isostructural with other members of the blödite group – blödite *sensu stricto* (John, 1821; Schaller, 1932; Lauro, 1940; Hawthorne, 1985), nickelblödite (Nickel and Bridge, 1977) and changoite (Schlüter *et al.*, 1999) as well as with numerous synthetic blödite-type sulfates with the general formula $Na_2M^{2+}(SO_4)_2{\cdot}4H_2O$, in which M^{2+} = Mg, Co, Ni, Zn and Fe (Stoilova and Wildner, 2004; Hudak *et al.*, 2008).

Their crystal structure is characteristic for the sheets of M^{2+} and Na octahedra, which are parallel to the a–b plane and interconnected by SO_4 tetrahedra (Fig. 4, top). In detail, the divalent metal occurs octahedrally coordinated by four oxygen atoms (two O6 and two O5), which are bonded to eight hydrogen atoms (two H5A, two H5B, two H6A and two H6B) (Fig. 4, bottom). The two non-hydrogen bonded oxygen atoms (i.e. O3 atoms) link the octahedron to the S tetrahedron *via* sharing vertices. At the same time, the Na^+ octahedron has two oxygens bonded to four hydrogens (one O5 and one O6, connecting the Na octahedra with the M^{2+} metal octahedra) and the remaining four oxygens (two O2, one O1 and one O4), as for the M^{2+} metal octahedron, are connected to the S tetrahedron. In general, the M^{2+}– and the Na–octahedra can be described as $M^{2+}O_2(H_2O)_4$ and $NaO_4(H_2O)_2$, respectively. None of the O atoms within SO_4 group is protonated.

Concerning manganoblödite and cobaltoblödite the Na–octahedron is of course much larger than the M^{2+} metal one, with an average Na–O bond length of 2.449–2.450 Å against that of M^{2+}–O, which is 2.108 Å for both phases (Table 6). The Na–octahedron is significantly irregular with differences in the six independent bond lengths up to 10%, whereas the M^{2+} metal octahedron is much more regular with three pairs of independent bond lengths, which show differences up to only 2.5%. Finally, the SO_4 tetrahedron shows four independent bond-lengths with a strong degree of regularity (differences not larger than 1.2%).

Between manganoblödite and cobaltoblödite we cannot find sensible differences in the octahedral and tetrahedral bond distances due to the almost negligible difference in the aggregate cation radius at the M^{2+} metal crystallographic site, which is 0.719 Å for manganoblödite and 0.714 Å for cobaltoblödite (based on the cation

TABLE 6. Bond lengths (Å) and angles for manganoblödite and cobaltoblödite.

Manganoblödite		Cobaltoblödite	
Mn–O5	2.086(2) × 2	Co–O5	2.087(2) × 2
Mn–O3	2.097(2) × 2	Co–O3	2.097(2) × 2
Mn–O6	2.140(2) × 2	Co–O6	2.139(2) × 2
<Mn–O>	2.108	<Co–O>	2.108
S–O2	1.464(2)	S–O2	1.454(2)
S–O3	1.468(2)	S–O3	1.471(2)
S–O1	1.474(2)	S–O1	1.478(2)
S–O4	1.482(2)	S–O4	1.481(2)
<S–O>	1.472	<S–O>	1.471
Na–O2	2.381(2)	Na–O2	2.383(2)
Na–O4	2.389(2)	Na–O4	2.391(2)
Na–O1	2.424(3)	Na–O1	2.418(2)
Na–O5	2.434(2)	Na–O5	2.428(2)
Na–O2	2.435(2)	Na–O2	2.446(2)
Na–O6	2.638(3)	Na–O6	2.628(2)
<Na–O>	2.450	<Na–O>	2.449
O5–H5A	1.11(5)	O5–H5A	0.76(4)
O5–H5B	1.05(5)	O5–H5B	0.84(4)
H5A–H5B	1.62(6)	H5A–H5B	1.29(5)
H5A–O5–H5B (º)	97(3)	H5A–O5–H5B(º)	107(4)
H5A–O4	1.73(5)	H5A–O4	2.01(4)
H5B–O1	1.70(5)	H5B–O1	1.88(5)
O6–H6A	0.95(6)	O6–H6A	0.77(5)
O6–H6B	0.71(6)	O6–H6B	0.77(5)
H6A–H6B	1.06(7)	H6A–H6B	1.11(5)
H6A–O6–H6B (º)	78(5)	H6A–O6–H6B (º)	92(4)
H6A–O4	2.08(6)	H6A–O4	2. 24(5)
H6B–O1	2.21(6)	H6B–O1	2.10(5)

radii from Shannon, 1976). Of course no differences are evident for Na and S polyhedra between the two new minerals.

Concerning natural samples, our structural results can be compared reliably only with blödite (Hawthorne, 1985) as no structural data are available for natural nickelblödite and available structural data for changoite are more than 50 years old (Rumanova, 1958). However, some comparisons can be performed with Mg, Co, Ni and Zn synthetic analogues published by Stoilova and Wildner (2004). With respect to natural blödite, manganoblödite and cobaltoblödite have a larger unit-cell volume, probably due to the higher Mn content of these two new blödite group minerals. In detail, the Na and the M^{2+} metal sites for natural blödite show Na−O and M^{2+}−O average bond lengths of 2.451 and 2.076 Å, respectively, whereas, as expected, manganoblödite and cobaltoblödite (Table 6) have larger values only for the M^{2+} metal site (i.e. 2.108 Å). Relative to the synthetic samples, Mg, Co, Ni and Zn analogues show unit-cell volume of 499.9, 499.7, 492.9 and 498.8 Å^3, respectively, with the <M^{2+}−O> distances of 2.077, 2.100, 2.065 and 2.100 Å and the <Na−O> distances of 2.453, 2.441, 2.434 and 2.439 Å. Concerning the <Na−O> distances, all the blödite-group minerals compared, natural and synthetic, show no significant differences, as expected by an almost identical chemistry at the Na crystallographic site. The <M^{2+}−O> distances show smaller values only for the Mg and Ni analogues due to the small cation radius of the metals at the M^{2+} crystallographic sites (Mg = 0.72 and Ni = 0.69 Å; Shannon, 1976).

The SO_4 tetrahedra have almost identical values for the S−O average bond lengths (e.g.

between 1.471 and 1.476 Å) when comparing all the phases, synthetic or natural.

The overall structural arrangement of hydrogen bonds for manganoblödite and cobaltoblödite deserves a deeper description. Hawthorne (1985) provided an extremely satisfying structural description of the hydrogen-bonding network for blödite. Our Table 6 shows the main distances and angles for the H_2O groups of manganoblödite and cobaltoblödite. Comparing our results with those of blödite we can see that in general blödite shows values much closer to that of cobaltoblödite with respect to manganoblödite; this is quite anomalous given the strong similarities between the structure of manganoblödite and cobaltoblödite. In particular, significant differences are evident for the H5A−O5−H5B and H6B−O6−H6B angles. H5A−O5−H5B is about 110 and 107º for blödite and cobaltoblödite, respectively, whereas it reaches only ~97º for manganoblödite. Even larger is the difference in the H6A−O6−H6B angle, which is ~103 and 92º for blödite and cobaltoblödite, and for manganoblödite is <78º. It is not clear to us if the greater Mn content can cause locally a significant change in the hydrogen bond arrangement but the results would indicate an evident effect due to the different chemistry, rather than to the aggregate cation radius at the M^{2+} metal site.

Infrared spectroscopy

For purpose of comparison, we have collected the IR spectra for manganoblödite, cobaltoblödite, blödite and changoite. Attempts to collect the IR spectrum of nickelblödite were unsuccessful because the nickelblödite grains turned out to be too small in size (up to 10 μm) and were sparsely embedded in and intimately intergrown with other nickel sulfates.

The best spectrum (i.e. showing details not evident in the other spectra) was obtained for cobaltoblödite and is shown in Fig. 5. The spectrum is characterized by the presence of absorption bands at 668, 969, 1096, 1187, 1373, 1463, 1618, 1685, 3245, 3404, 3490 and 3556 cm^{-1}. The band at 668 cm^{-1} is assigned to the antisymmetric bending of $(SO_4)^{2-}$. The strongest bands between 960 and 1200 cm^{-1} are related to the symmetric and antisymmetric stretching of $(SO_4)^{2-}$. The bands at 1618 and 1685 cm^{-1} correspond to the H_2O bending, whereas the bands in the 3200−3600 cm^{-1} range should be assigned to the symmetric and antisymmetric stretching of H_2O. Concerning the two bands at 1373 and 1463 cm^{-1}, by analogy with other sulfate minerals, they can presumably be generated by the combination of lower-frequency normal vibrations of the sulfate ion (Hass and Sutherland, 1956).

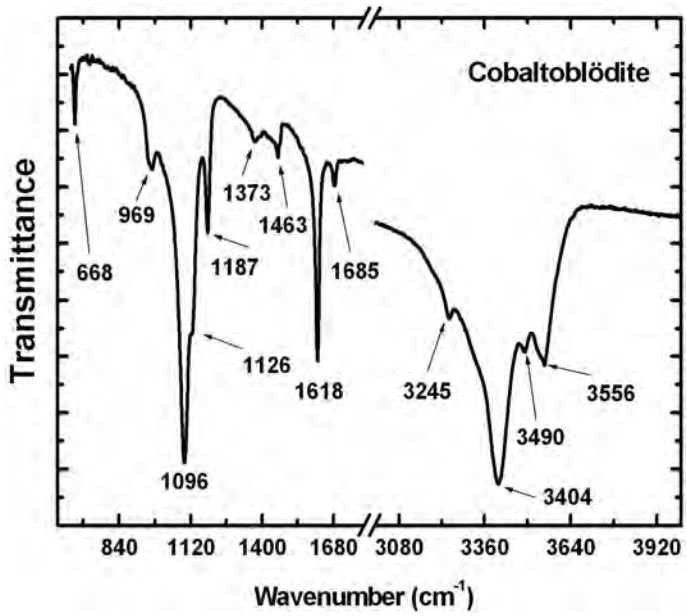

FIG. 5. IR spectrum of cobaltoblödite between 650 and 4000 cm^{-1}.

In Fig. 6 the spectra of the four blödite-group minerals in the range between 650 and 1750 cm^{-1} are shown. Although several details are not evident for manganoblödite, blödite and changoite the spectral signature is very clear for all phases with main bands between 950 and 1190 cm^{-1} and the band relative to the H_2O bending at around 1660 cm^{-1}.

Comparing the present results with those of Lane (2007) we find several similarities with the blödite spectrum published in that work. The present data are not as detailed; Lane provided thermal emissivity mid-IR spectra. In particular, Lane shows peaks at 1190, 1158, 1121, 992, 820, 719 and 653 (this was the limit of the measured spectrum for our work). For our best spectrum of cobaltoblödite, the peaks much closer to those of blödite by Lane are those at 1187, 969 and 668 cm^{-1}. Moreover, Lane does not report any data for the hydrogen bond system. To the authors' knowledge, no other data on the complete spectrum of the blödite group minerals are available in the literature.

Conclusions

Table 7 reports a general comparison among the available data in the literature relative to all members of the blödite group including the new species manganoblödite and cobaltoblödite studied in this work. All members of the blödite group including the two new species are clearly very close in X-ray data, and in terms of optical and the majority of physical properties. Infrared spectroscopy showed no significant differences among the different compositions investigated. Such small differences can be explained if we consider that at the M^{2+} metal site (the only site

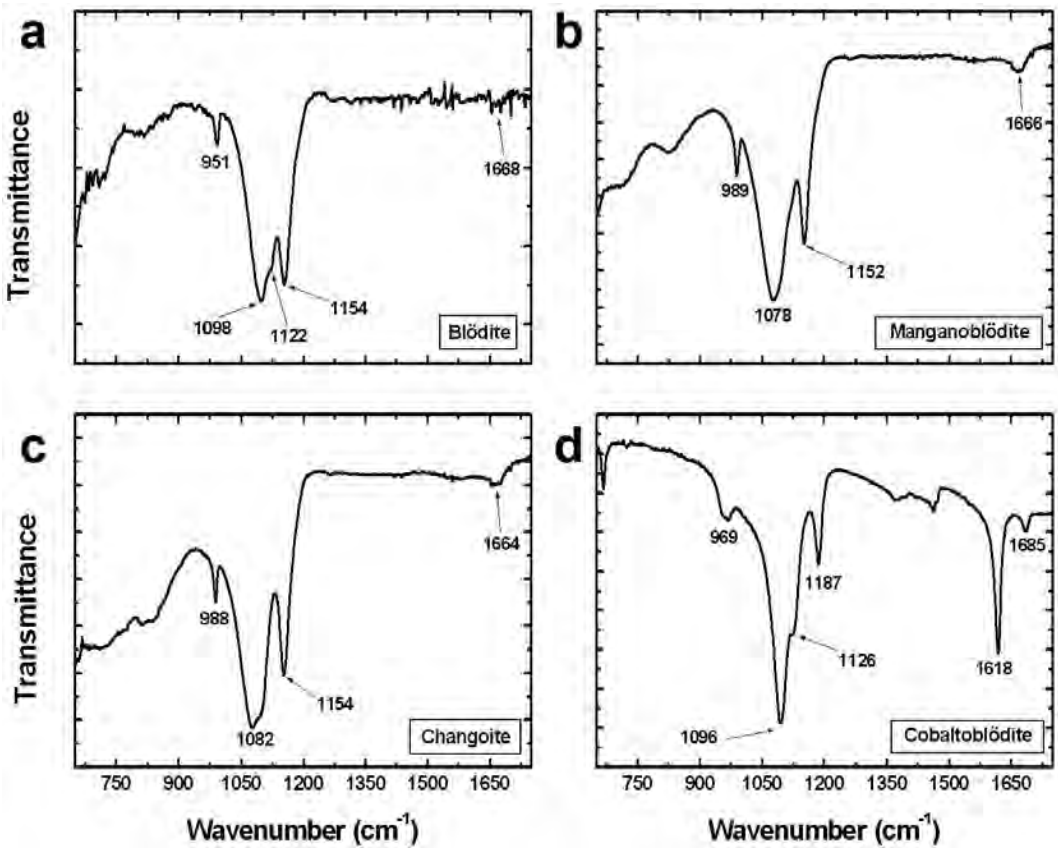

FIG. 6. IR spectra of the blödite group minerals investigated in this work. (*a*) Blödite (Mn-Co-Ni-bearing variety, Blue Lizard mine, Utah, USA); (*b*) Manganoblödite (cotype specimen #4257/1); (*c*) Changoite (La Compañia mine, Sierra Gorda District, Antofagasta, Chile); (*d*) Cobaltoblödite (cotype specimen #4271/1)

TABLE 7. Comparative data for the blödite group minerals.

Mineral	Blödite	Nickelblödite	Changoite	Manganoblödite	Cobaltoblödite
Endmember formula	$Na_2Mg(SO_4)_2{\cdot}4H_2O$	$Na_2Ni(SO_4)_2{\cdot}4H_2O$	$Na_2Zn(SO_4)_2{\cdot}4H_2O$	$Na_2Mn(SO_4)_2{\cdot}4H_2O$	$Na_2Co(SO_4)_2{\cdot}4H_2O$
Composition of the divalent metal site	$Mg_{1.00}$	$Ni_{0.75}Mg_{0.14}Fe_{0.06}$	$Zn_{1.00}$	$Mn_{0.44}Mg_{0.29}Co_{0.14}Ni_{0.06}$	$Co_{0.36}Mg_{0.30}Mn_{0.17}Ni_{0.12}$
Crystal system	Monoclinic	Monoclinic	Monoclinic	Monoclinic	Monoclinic
Space group	$P2_1/a$	$P2_1/a$	$P2_1/a$	$P2_1/a$	$P2_1/a$
a (Å)	11.126(2)	11.05(2)	11.077(2)	11.137(2)	11.147(1)
b (Å)	8.242(1)	8.23(2)	8.249(2)	8.279(1)	8.268(1)
c (Å)	5.539(1)	5.54(1)	5.532(1)	5.5381(9)	5.5396(7)
β (°)	100.84	100.58(8)	100.18	100.42(1)	100.517(11)
V (Å^3)	498.8(1)	495.25	497.5	502.20(14)	501.97(10)
Z	2	2	2	2	2
Strong lines of the X-ray powder diffraction pattern: d (Å) – I (%)	4.56 – 95 4.28 – 30 3.29 – 95 3.25 – 100 2.97 – 40 2.73 – 40 2.02 – 30	4.47 – 90 4.19 – 70 3.92 – 50 3.72 – 60 3.22 – 100 3.19 – 80 2.59 – 60	4.55 – 58 4.24 – 32 3.32 – 25 3.29 – 100 3.26 – 35 3.24 – 25 2.63 – 27	4.56 – 70 4.27 – 45 3.34 – 21 3.29 – 100 3.26 – 67 2.97 – 22 2.65 – 24	4.55 – 80 4.27 – 50 3.80 – 18 3.34 – 43 3.29 – 100 3.26 – 58 2.64 – 21
Colour	Colourless, may be dark grey, bluish green, or reddish from inclusions	Pale yellowish green to pale green	Colourless	Colourless, reddish-pink in aggregates	Colourless, reddish-pink in aggregates
Lustre	Vitreous	Vitreous	Vitreous	Vitreous	Vitreous
Optical class	Biaxial (–)	Biaxial (–)	Biaxial (–)	Biaxial (–)	Biaxial (–)
α	1.483	1.504-1.513	1.507	1.501(2)	1.498(2)
β	1.486	1.507-1.518	1.512	1.498(2)	1.503(2)
γ	1.487	1.509-1.520	1.516	1.493(2)	1.505(2)
2V (°)	71 (meas.)	60-70 (meas.)	Large (meas.) 83 (calc.)	80 (meas.) 75 (calc.)	70 (meas.) 64 (calc.)
Density (g cm^{-3})	2.218–2.24 (meas.) 2.23 (calc.)	2.43 (meas.) 2.432–2.455 (calc.)	2.50 (meas.) 2.507 (calc.)	2.25 (meas.) 2.338 (calc.)	2.29 (meas.) 2.347 (calc.)
References	John (1821); Schaller (1932); Hawthorne (1985); Anthony *et al.* (2003)	Nickel and Bridge (1977)	Schlüter *et al.* (1999)	This work	This work

showing some chemical difference) the average cation radius is often very similar.

The main difference between the members of the group lies in their chemical composition, making the dominance of one of the divalent metal cations (Mg, Ni, Zn, Mn and Co) in the M^{2+} site a species-defining factor. From a geochemical point of view, our results show that manganoblödite, cobaltoblödite and blödite at the Blue Lizard mine form a continuous solid-solution system with the significant substitution of divalent cations (Mn, Co and Mg) at the M^{2+} site (Fig. 7). Nickel is present in limited amounts (up to 0.12 a.p.f.u.). The investigation of five new samples from the Blue Lizard mine provided by one of the authors (JM) shows a wide variety of chemical compositions inside the system. The most Mn-rich manganoblödite gives ($Mn_{0.58}Mg_{0.31}$ $Co_{0.08}Ni_{0.03}$) composition at M^{2+} site while the most Co-rich cobaltoblödite gives ($Co_{0.59}Mg_{0.29}$ $Mn_{0.11}Ni_{0.01}$) and the most Mg-rich and Mn-Co-Ni-poor blödite gives ($Mg_{0.74}Mn_{0.18}Co_{0.07}Ni_{0.01}$).

Nickelblödite (Table 1, column 5) shows similar tendencies with a large amount of Mg and minor Co substituting for Ni at the M^{2+} site. For the studied samples of changoite (Table 1, columns 6–7) Zn occupies fully the M^{2+} site with no sign of substitution by other divalent metal cations.

The absence of Zn in the substitution process in blödite-group minerals from Blue Lizard mine and nickelblödite from Carr Boyd Rocks mine can be explained by the absence of primary Zn minerals (mainly sphalerite) within the ores of both mines and the very high mobility of the Zn^{2+} cation which leads to its dispersal out of the supergene zone in a relatively short period of time. Instead, in arid localities in Chile and Namibia, the geochemical conditions favour the precipitation of Zn^{2+} in sulfate form in the oxidized zone of Cu-Zn sulfide deposits. The high concentrations of Zn in the deposits and the absence of a primary source of Mg, Mn, Ni and Co lead to a full occupancy of the M^{2+} site in changoite by Zn^{2+} alone.

Acknowledgements

Part of this research was supported by Progetto di Ateneo Università di Padova to FN. The grant Premium Academiae of the Academy of Sciences of the Czech Republic to JP is acknowledged. The long-term grant of the Ministry of Education of the Czech Republic (MSM0021620855) to VG is acknowledged. Peter Downes from Western Australian Museum is thanked for providing the nickelblödite sample for study. The authors thank Principal Editor Peter Williams, Structure Editor, Peter Leverett and two anonymous referees for useful suggestions and comments.

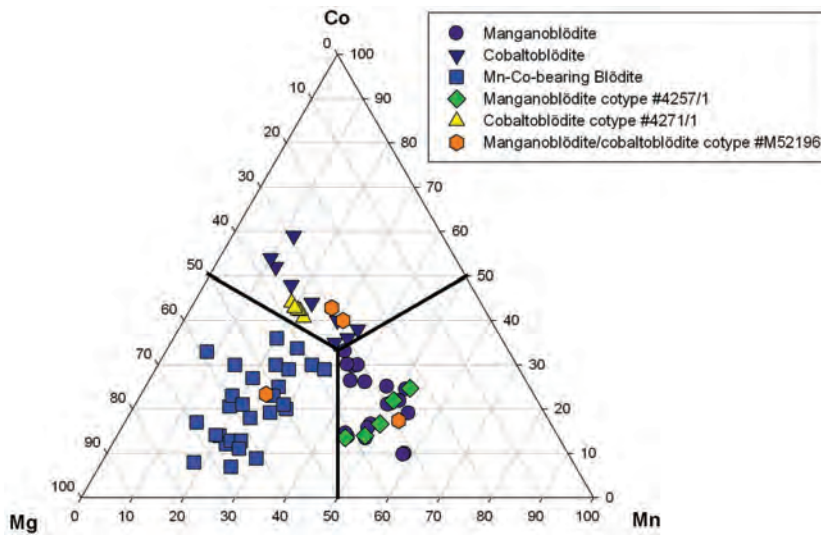

FIG. 7. Ratios of species-defining M^{2+} cations (Mg, Mn, Co) in the solid-solution system blödite–manganoblödite–cobaltoblödite from the Blue Lizard mine, Utah, USA.

References

Anthony, J.W., Bideaux, R.A., Bladh, K.W. and Nichols, M.C. (2003) *Handbook of Mineralogy. Vol. V. Borates, Carbonates, Sulfates.* Mineral Data Publishing, Tucson, Arizona, USA.

Blakey, R.C. and Gubitosa, R. (1984) Controls of sandstone body geometry and architecture in the Chinle Formation (Upper Triassic), Colorado Plateau. *Sedimentary Geology*, **38**, 1–4, 51–86.

Coelho, A.A. and Cheary, R.W. (1997) X-ray Line Profile Fitting Program, XFIT. School of Physical Sciences, University of Technology, Sydney, New South Wales, Australia. ftp://ftp.minerals.csiro.au/pub/xtallography/koalariet (program).

Hass M. and Sutherland G.B.B.M. (1956) The Infra-Red Spectrum and Crystal Structure of Gypsum. *Proceedings of Royal Society of London A*, **236**, 427–445.

Hawthorne, F.C. (1985) Refinement of the crystal structure of blödite: structural similarities in the $[^{VI}M(^{IV}T\Phi_4)_2\Phi_n]$ finite-cluster minerals. *The Canadian Mineralogist*, **23**, 669–674.

Holland, T.J.B and Redfern, S.A.T. (1997) Unit cell refinement from powder diffraction data: The use of regression diagnostics. *Mineralogical Magazine*, **61**, 65–77.

Hudak, M., Diaz, J.G. and Kozisek J. (2008) Disodium tetraaquabis(sulfato)iron(II). *Acta Crystallographica*, **E64**, i10.

Jensen M.L. (1958) Sulfur isotopes and the origin of sandstone-type uranium deposits. *Economic Geology*, **53**, 598–616.

John, J.F. (1821) Chemische Zerlegung eines neuen fossilen Salzes, des Blödits, in *Chemische Untersuchungen mineralischer, vegetabilischer und animalischer Substanzen*, Maurerschen Buchhandlung, Berlin, 240-247.

Lane, M.D. (2007) Mid-infrared emission spectroscopy of sulphate and sulphate-bearing minerals. *American Mineralogist*, **92**, 1–18.

Lauro, C. (1940) Ricerche roentgenografiche sulla bloedite. *Periodico di Mineralogia – Roma*, **11**, 89–94.

Mandarino, J.A. (1981) The Gladstone-Dale relationship: Part IV. The compatibility concept and its application. *The Canadian Mineralogist*, **19**, 441–450.

Mills, S.J., Hatert, F., Nickel, E.H. and Ferraris, G. (2009) The standardisation of mineral group hierarchies: application to recent nomenclature proposals. *European Journal of Mineralogy*, **21**, 1073–1080.

Nickel, E.H. and Bridge P.J. (1977) Nickelblödite, $Na_2Ni(SO_4)_2{\cdot}4H_2O$, a new mineral from Western Australia. *Mineralogical Magazine*, **41**, 37–41.

Rumanova, I.M. (1958) Crystal structure of blödite. *Doklady Akademii Nauk SSSR*, **118**, 84–87 (in Russian).

Schaller, W.T. (1932) The refractive indices of blödite. *American Mineralogist*, **17**, 530–533.

Schlüter, J., Klaska, K.H. and Gebhard, G. (1999) Changoite, $Na_2Zn(SO_4)_2{\cdot}4H_2O$, the Zn analogue of blödite, a new mineral from Sierra Gorda, Antofagasta, Chile. *Neues Jahrbuech für Mineralogie, Monatshefte*, **3**, 97–103.

Shannon, R.D. (1976) Revised effective ionic radii and systematic studies of interatomic distances in halides and chaleogenides. *Acta Crystallographica*, **A32**, 751–767.

Sheldrick, G.M. (2008) A short history of SHELX. *Acta Crystallographica*, **A64**, 112–122.

Stewart, J.H., Poole, F.G., and Wilson, R.F. (1972) Stratigraphy and origin of the Chinle Formation and related Upper Triassic strata in the Colorado Plateau region: *U.S. Geological Survey Professional Paper, 690*, 336 p.

Stoilova, D. and Wildner, M. (2004) Blödite-type compounds $Na_2Me(SO_4)_2{\cdot}4H_2O$ (Me = Mg, Co, Ni, Zn): crystal structures and hydrogen bonding systems. *Journal of Molecular Structure*, **706**, 57–63.

Thaden, R.E., Trites Jr., A.F. and Finnell, T.L. (1964) Geology and Ore deposits of the White Canyon Area San Juan and Garfield Counties, Utah. *Geological Survey Bulletin*, **1125**.

```
#
# h,k,l, Fc-squared, Fo-squared, sigma(Fo-squared) and
status flag
#
data_mn_blodite
_shelx_title ' Manganobloedite'
_shelx_refln_list_code          4
_shelx_F_calc_maximum      112.30
_exptl_crystal_F_000       355.96
_reflns_d_resolution_high  0.5210

loop_
 _symmetry_equiv_pos_as_xyz
 'x, y, z'
 '-x+1/2, y+1/2, -z'
 '-x, -y, -z'
 'x-1/2, -y-1/2, z'

_cell_length_a    11.1370
_cell_length_b     8.2790
_cell_length_c     5.5381
_cell_angle_alpha  90.000
_cell_angle_beta  100.423
_cell_angle_gamma  90.000

_shelx_F_squared_multiplier     1.000

loop_
 _refln_index_h
 _refln_index_k
 _refln_index_l
 _refln_F_squared_calc
 _refln_F_squared_meas
 _refln_F_squared_sigma
 _refln_observed_status
   4   0   0     6745.07     7232.60     44.63 o
   6   0   0      196.23      153.08     12.51 o
   8   0   0     2616.71     2602.45     41.33 o
  10   0   0      401.63      453.55     31.06 o
  12   0   0       88.73       71.25     21.18 o
  14   0   0     1319.62     1365.69     52.13 o
  16   0   0      146.12      145.49     49.12 o
   1   1   0      188.17      122.64      5.29 o
   2   1   0     4050.82     3905.53     26.63 o
   3   1   0     2771.89     2494.09     25.40 o
```

4	1	0	10.32	3.46	4.64	o
5	1	0	3297.19	3111.21	36.66	o
6	1	0	1392.53	1437.70	28.78	o
7	1	0	12.06	19.38	13.82	o
8	1	0	595.70	558.60	21.31	o
9	1	0	20.17	18.51	13.87	o
10	1	0	79.49	140.00	26.79	o
11	1	0	883.16	942.11	37.38	o
12	1	0	111.00	88.07	32.25	o
13	1	0	117.71	115.87	25.77	o
14	1	0	216.23	213.93	45.75	o
15	1	0	28.02	26.91	29.25	o
16	1	0	172.98	154.41	51.99	o
0	2	0	502.33	569.76	13.78	o
1	2	0	247.81	248.40	10.54	o
2	2	0	1578.84	1396.24	21.15	o
3	2	0	143.87	139.37	12.14	o
4	2	0	923.06	730.76	19.12	o
5	2	0	16.21	13.79	7.38	o
6	2	0	2326.19	2293.25	37.15	o
7	2	0	330.85	342.38	18.42	o
8	2	0	20.57	37.67	17.20	o
10	2	0	481.73	486.14	29.26	o
11	2	0	14.98	16.21	19.61	o
12	2	0	435.00	499.31	41.42	o
13	2	0	12.06	7.44	23.44	o
14	2	0	0.83	15.61	26.31	o
15	2	0	4.50	10.21	26.65	o
16	2	0	0.69	8.06	24.55	o
1	3	0	1453.25	1279.10	24.12	o
2	3	0	20.36	6.02	7.34	o
3	3	0	332.55	466.71	16.02	o
4	3	0	1420.00	1380.56	26.46	o
5	3	0	665.61	670.50	22.13	o
6	3	0	2435.74	2398.86	38.37	o
7	3	0	4407.36	4179.73	52.08	o
8	3	0	1281.03	1286.10	34.69	o
9	3	0	275.79	254.22	23.22	o
10	3	0	1072.47	1103.68	36.38	o
11	3	0	23.23	19.65	23.34	o
12	3	0	71.33	75.45	30.21	o
13	3	0	20.74	31.52	26.43	o
14	3	0	381.01	410.27	51.87	o
15	3	0	192.72	205.35	49.78	o
16	3	0	112.03	78.51	37.75	o

0	4	0	2065.87	1853.18	32.37	o
1	4	0	5585.53	5970.50	55.46	o
2	4	0	1.32	28.89	10.99	o
3	4	0	660.12	665.94	21.17	o
4	4	0	610.27	612.12	20.80	o
5	4	0	3627.63	3952.66	49.45	o
6	4	0	794.83	858.10	26.44	o
7	4	0	202.07	236.00	21.30	o
8	4	0	1001.99	1028.56	33.30	o
9	4	0	1739.08	1725.24	42.10	o
10	4	0	12.53	13.05	15.65	o
11	4	0	10.52	18.39	17.11	o
12	4	0	70.31	65.11	29.44	o
13	4	0	341.21	338.21	41.71	o
14	4	0	71.63	93.39	40.29	o
15	4	0	25.35	31.08	32.74	o
16	4	0	19.93	17.61	41.01	o
1	5	0	667.14	668.72	25.04	o
2	5	0	340.49	309.17	17.84	o
3	5	0	1189.38	1157.06	30.44	o
4	5	0	86.26	89.08	16.99	o
5	5	0	473.24	445.45	22.74	o
6	5	0	4.66	7.54	11.90	o
7	5	0	184.62	173.86	21.74	o
8	5	0	47.98	44.90	20.02	o
9	5	0	74.61	78.15	26.35	o
10	5	0	72.90	55.77	21.87	o
11	5	0	679.45	714.70	37.88	o
12	5	0	33.26	53.76	27.83	o
13	5	0	238.67	235.63	46.99	o
14	5	0	4.31	34.41	30.95	o
15	5	0	32.49	32.18	38.99	o
1	6	0	641.31	669.17	25.04	o
2	6	0	577.19	552.62	26.93	o
3	6	0	522.38	532.05	27.62	o
4	6	0	489.25	437.11	26.22	o
5	6	0	39.12	24.88	16.58	o
6	6	0	448.71	446.23	24.63	o
7	6	0	328.95	298.10	25.58	o
8	6	0	54.63	58.08	26.47	o
9	6	0	55.26	52.12	25.29	o
10	6	0	173.01	173.36	31.90	o
11	6	0	4.37	10.05	21.39	o
12	6	0	15.20	19.75	27.21	o
13	6	0	137.11	124.40	39.64	o

14	6	0	5.20	101.94	50.70	o
15	6	0	24.12	15.03	31.45	o
1	7	0	2004.80	2061.22	44.87	o
2	7	0	208.44	202.40	23.38	o
3	7	0	83.57	86.33	21.27	o
4	7	0	194.36	189.96	24.58	o
5	7	0	18.26	17.91	16.16	o
6	7	0	81.08	57.66	19.16	o
7	7	0	1371.07	1438.68	47.77	o
8	7	0	74.86	69.81	31.76	o
9	7	0	43.90	25.56	24.92	o
10	7	0	51.97	53.14	29.43	o
11	7	0	86.74	66.49	33.19	o
12	7	0	24.65	29.52	26.60	o
13	7	0	66.70	73.88	42.02	o
0	8	0	138.27	208.59	29.38	o
1	8	0	636.34	640.13	35.30	o
2	8	0	229.36	243.57	31.49	o
3	8	0	195.76	159.18	26.85	o
4	8	0	1427.46	1496.66	46.09	o
5	8	0	2.31	11.54	19.54	o
6	8	0	0.36	11.36	20.86	o
7	8	0	20.81	25.81	25.61	o
8	8	0	9.38	12.49	20.10	o
9	8	0	18.71	14.61	25.17	o
10	8	0	221.65	211.94	49.26	o
11	8	0	112.32	91.07	32.46	o
12	8	0	149.82	149.14	49.12	o
13	8	0	25.71	18.92	33.41	o
1	9	0	166.49	162.18	31.65	o
2	9	0	0.23	15.72	20.47	o
3	9	0	221.70	202.56	34.60	o
4	9	0	1.74	7.60	18.13	o
5	9	0	44.69	37.38	24.99	o
6	9	0	34.55	32.63	27.67	o
7	9	0	11.61	19.73	24.54	o
8	9	0	0.07	29.03	29.50	o
9	9	0	149.11	130.81	37.54	o
10	9	0	69.50	76.37	38.38	o
11	9	0	112.95	113.83	51.25	o
12	9	0	1.06	18.19	32.00	o
13	9	0	61.17	37.03	31.16	o
14	9	0	8.17	27.59	40.60	o
0	10	0	295.58	340.13	44.29	o
1	10	0	92.04	63.55	29.39	o

2	10	0	102.79	100.93	36.29	o
3	10	0	1.00	19.96	24.06	o
4	10	0	1.57	14.89	25.25	o
5	10	0	49.73	37.32	29.62	o
6	10	0	50.77	42.41	31.90	o
7	10	0	24.66	46.33	29.23	o
8	10	0	190.59	229.18	53.14	o
9	10	0	157.77	153.75	50.98	o
10	10	0	20.29	14.36	39.12	o
11	10	0	1.77	35.19	29.51	o
12	10	0	0.18	22.87	38.41	o
13	10	0	31.11	28.89	45.81	o
14	10	0	82.97	122.02	51.30	o
1	11	0	0.33	9.14	25.01	o
2	11	0	155.98	175.22	48.84	o
3	11	0	72.78	105.48	47.99	o
4	11	0	101.91	106.85	42.08	o
5	11	0	76.59	67.10	32.43	o
6	11	0	198.36	178.42	50.94	o
7	11	0	179.28	168.98	53.43	o
8	11	0	104.71	87.92	37.72	o
9	11	0	50.48	18.43	31.12	o
10	11	0	91.58	72.23	41.65	o
11	11	0	4.23	54.17	46.35	o
12	11	0	41.85	43.52	44.30	o
13	11	0	3.31	12.14	41.82	o
14	11	0	17.46	41.16	52.04	o
0	12	0	31.98	24.99	31.39	o
1	12	0	0.38	9.18	28.24	o
2	12	0	56.47	39.48	32.42	o
3	12	0	19.60	16.34	31.82	o
4	12	0	195.31	246.03	50.02	o
5	12	0	5.84	8.69	33.33	o
6	12	0	6.64	5.55	29.60	o
7	12	0	4.86	5.91	29.91	o
8	12	0	2.62	0.26	25.93	o
9	12	0	0.58	26.02	38.29	o
10	12	0	63.46	83.99	53.20	o
11	12	0	0.26	7.62	34.72	o
12	12	0	12.12	41.03	56.77	o
13	12	0	8.67	21.89	41.30	o
1	13	0	3.24	32.87	37.31	o
2	13	0	22.52	27.54	30.63	o
3	13	0	71.40	58.76	45.24	o
4	13	0	4.20	26.67	42.19	o

5	13	0	42.13	47.48	50.66	o
6	13	0	20.61	45.84	45.72	o
7	13	0	2.18	24.00	35.51	o
8	13	0	18.94	17.98	45.38	o
9	13	0	36.43	22.19	43.96	o
10	13	0	11.22	20.11	43.67	o
11	13	0	1.58	8.06	34.79	o
12	13	0	6.83	29.09	41.18	o
1	14	0	2.24	34.68	48.71	o
2	14	0	30.00	44.54	44.99	o
3	14	0	0.36	12.82	31.72	o
4	14	0	12.74	27.76	36.82	o
5	14	0	9.84	30.29	44.69	o
6	14	0	1.60	17.03	34.27	o
7	14	0	0.55	21.03	41.59	o
8	14	0	45.77	62.43	50.48	o
9	14	0	3.24	45.72	59.97	o
2	15	0	7.59	13.74	33.86	o
3	15	0	74.05	76.35	62.91	o
4	15	0	0.01	30.65	39.35	o
5	15	0	7.53	28.37	51.56	o
6	15	0	8.21	11.67	49.12	o
-16	0	1	230.49	274.14	48.48	o
-14	0	1	1.30	4.34	19.20	o
-12	0	1	471.23	489.42	37.05	o
-8	0	1	492.50	606.44	24.57	o
-6	0	1	1744.79	1661.94	22.65	o
-4	0	1	12611.54	12028.01	39.47	o
0	0	1	268.17	230.13	7.43	o
2	0	1	242.39	257.72	10.52	o
4	0	1	2259.00	2692.39	34.77	o
6	0	1	628.17	595.92	23.65	o
8	0	1	279.77	234.73	20.18	o
10	0	1	1311.25	1287.03	39.94	o
12	0	1	643.19	679.25	48.26	o
14	0	1	45.97	50.51	27.45	o
16	0	1	216.95	136.15	54.22	o
-17	1	1	75.46	43.44	41.42	o
-16	1	1	362.17	357.75	61.73	o
-15	1	1	10.05	35.72	30.98	o
-14	1	1	0.17	10.95	21.88	o
-13	1	1	6.24	29.84	25.35	o
-12	1	1	368.53	370.75	34.81	o
-11	1	1	410.06	399.59	28.88	o
-10	1	1	36.90	21.00	15.80	o

-9	1	1	473.47	460.85	25.20	o
-8	1	1	1169.21	1167.61	32.00	o
-6	1	1	1945.39	2052.33	24.80	o
-5	1	1	1060.51	1035.33	21.74	o
-4	1	1	0.28	16.87	7.13	o
-3	1	1	1112.96	879.56	16.47	o
-2	1	1	1987.82	1889.14	13.72	o
-1	1	1	723.15	579.84	10.07	o
0	1	1	2630.87	2794.37	24.55	o
1	1	1	1468.18	1259.01	19.20	o
2	1	1	6519.78	6578.97	45.35	o
3	1	1	61.81	47.57	11.97	o
4	1	1	116.75	88.62	12.43	o
5	1	1	1430.92	1324.86	28.78	o
6	1	1	1009.22	935.14	27.45	o
7	1	1	1023.47	1022.24	30.30	o
8	1	1	21.27	15.50	12.88	o
9	1	1	25.73	32.63	16.20	o
10	1	1	824.38	792.76	34.88	o
11	1	1	96.98	102.87	24.80	o
12	1	1	6.31	5.14	18.58	o
13	1	1	195.04	209.61	38.98	o
14	1	1	395.93	400.97	47.64	o
15	1	1	33.15	31.80	31.77	o
16	1	1	49.20	37.68	33.00	o
-16	2	1	2.57	17.57	32.66	o
-15	2	1	39.76	29.60	33.04	o
-14	2	1	613.38	643.08	47.58	o
-13	2	1	34.07	28.49	25.78	o
-12	2	1	160.38	146.91	30.74	o
-11	2	1	10.68	20.20	19.87	o
-10	2	1	90.05	69.00	23.04	o
-9	2	1	674.31	695.32	29.43	o
-8	2	1	504.05	468.65	23.18	o
-7	2	1	132.99	155.68	17.21	o
-6	2	1	5345.20	5312.20	48.80	o
-5	2	1	3228.77	3334.65	35.99	o
-4	2	1	7.25	13.18	6.17	o
-3	2	1	534.76	497.70	12.53	o
-2	2	1	2886.12	3330.26	30.87	o
-1	2	1	3950.01	4094.25	32.71	o
0	2	1	12171.30	13219.91	62.06	o
1	2	1	219.19	237.24	13.21	o
2	2	1	3438.72	2931.16	34.98	o
3	2	1	965.20	892.78	22.78	o

4	2	1	194.92	233.98	14.19	o
5	2	1	770.11	773.23	22.29	o
6	2	1	121.53	119.92	19.12	o
7	2	1	427.05	428.28	22.93	o
8	2	1	3936.36	4042.95	59.73	o
9	2	1	741.34	711.92	30.22	o
10	2	1	9.15	10.07	15.65	o
11	2	1	37.48	34.75	26.24	o
12	2	1	51.44	35.23	25.23	o
13	2	1	208.01	175.21	38.70	o
14	2	1	111.40	102.97	41.30	o
15	2	1	22.09	27.17	28.23	o
16	2	1	361.47	401.21	68.51	o
-16	3	1	36.16	19.92	32.82	o
-15	3	1	21.23	15.91	28.77	o
-14	3	1	32.74	25.62	20.55	o
-13	3	1	10.89	16.58	23.75	o
-12	3	1	76.44	73.21	27.13	o
-11	3	1	1036.68	1029.87	39.82	o
-10	3	1	238.39	204.96	27.22	o
-9	3	1	774.41	799.21	32.09	o
-8	3	1	565.05	545.47	24.30	o
-7	3	1	51.73	67.16	14.83	o
-6	3	1	297.65	321.04	17.90	o
-5	3	1	890.06	920.13	21.63	o
-4	3	1	561.62	597.56	17.40	o
-3	3	1	386.26	303.00	12.56	o
-2	3	1	847.24	891.15	21.83	o
-1	3	1	19.53	16.92	11.28	o
0	3	1	513.71	530.62	17.41	o
1	3	1	303.89	344.47	15.98	o
2	3	1	2785.40	3019.25	37.34	o
3	3	1	5010.63	4753.55	46.67	o
4	3	1	292.10	319.83	18.31	o
5	3	1	2696.37	2692.58	40.10	o
6	3	1	740.64	762.57	27.59	o
7	3	1	17.15	13.83	12.02	o
8	3	1	171.05	164.08	23.48	o
9	3	1	128.58	116.68	21.05	o
10	3	1	31.74	57.22	21.01	o
11	3	1	258.72	254.23	32.52	o
12	3	1	49.77	53.20	31.10	o
13	3	1	309.15	357.12	45.19	o
14	3	1	4.12	12.32	24.88	o
15	3	1	5.51	27.71	31.29	o

16	3	1	8.95	25.94	41.03	o
-16	4	1	99.90	67.85	37.09	o
-15	4	1	25.03	16.88	30.46	o
-14	4	1	13.52	25.07	30.12	o
-13	4	1	159.26	168.81	37.11	o
-12	4	1	257.65	294.85	39.35	o
-11	4	1	16.99	13.29	15.84	o
-10	4	1	884.60	943.59	36.28	o
-9	4	1	203.54	195.37	26.93	o
-8	4	1	153.04	146.20	24.39	o
-7	4	1	87.86	71.74	19.21	o
-6	4	1	17.43	40.77	13.91	o
-5	4	1	4.55	11.45	8.63	o
-4	4	1	216.38	200.38	16.30	o
-3	4	1	144.25	161.14	15.19	o
-2	4	1	1836.85	1655.56	29.91	o
-1	4	1	127.51	134.53	15.98	o
0	4	1	418.86	461.43	20.06	o
1	4	1	466.23	519.08	19.69	o
2	4	1	838.97	820.68	23.84	o
3	4	1	129.11	124.66	15.07	o
4	4	1	816.58	824.05	23.55	o
5	4	1	0.39	27.54	14.64	o
6	4	1	1464.95	1508.41	36.38	o
7	4	1	134.88	141.96	22.93	o
8	4	1	53.81	55.09	21.50	o
9	4	1	33.52	27.69	20.33	o
10	4	1	47.75	45.30	22.21	o
11	4	1	32.83	21.89	20.12	o
12	4	1	202.95	210.92	37.09	o
13	4	1	8.01	3.78	23.40	o
14	4	1	107.14	92.91	40.77	o
15	4	1	29.26	30.32	30.83	o
-16	5	1	68.83	67.63	48.59	o
-15	5	1	311.86	323.85	56.65	o
-14	5	1	0.16	15.56	26.27	o
-13	5	1	546.06	618.93	56.19	o
-12	5	1	89.72	74.16	33.22	o
-11	5	1	9.30	8.91	18.88	o
-10	5	1	0.10	18.58	19.83	o
-9	5	1	252.34	222.80	33.17	o
-8	5	1	700.28	696.81	33.13	o
-7	5	1	1631.77	1662.80	40.88	o
-6	5	1	67.83	98.66	21.37	o
-5	5	1	612.80	553.61	20.93	o

-4	5	1	120.50	111.01	15.63	o
-3	5	1	0.36	7.10	9.84	o
-2	5	1	204.52	202.42	16.95	o
0	5	1	351.58	389.62	21.30	o
1	5	1	5734.55	5613.91	60.82	o
2	5	1	190.01	220.35	17.94	o
3	5	1	205.94	256.37	20.98	o
4	5	1	129.49	126.29	21.23	o
5	5	1	695.96	697.80	27.65	o
6	5	1	143.87	143.70	22.00	o
7	5	1	1000.62	1013.12	33.12	o
8	5	1	268.02	285.63	29.76	o
9	5	1	1367.33	1399.35	44.61	o
10	5	1	136.73	135.66	31.92	o
11	5	1	1.58	6.99	22.15	o
12	5	1	41.26	26.75	22.16	o
13	5	1	0.86	20.44	23.49	o
14	5	1	64.36	65.18	39.69	o
15	5	1	246.46	253.17	64.88	o
-15	6	1	167.25	148.16	46.64	o
-14	6	1	0.96	14.98	30.17	o
-13	6	1	13.57	13.64	27.35	o
-12	6	1	58.60	56.81	28.97	o
-11	6	1	121.99	112.61	30.87	o
-10	6	1	379.18	429.84	40.56	o
-9	6	1	160.84	140.21	29.73	o
-8	6	1	157.06	150.50	25.87	o
-7	6	1	110.40	117.09	25.62	o
-6	6	1	168.77	143.48	29.89	o
-5	6	1	1895.26	1864.84	45.31	o
-4	6	1	758.55	733.26	26.91	o
-3	6	1	221.78	218.67	21.68	o
-2	6	1	132.29	120.91	22.09	o
-1	6	1	4291.59	4409.61	59.51	o
0	6	1	2.16	171.61	20.61	o
1	6	1	51.21	29.68	15.02	o
2	6	1	271.52	245.70	24.66	o
3	6	1	1026.26	1023.89	33.89	o
4	6	1	1680.06	1628.20	41.78	o
5	6	1	1.10	22.41	15.57	o
6	6	1	98.15	134.38	27.35	o
7	6	1	272.60	276.44	29.60	o
8	6	1	10.00	12.38	15.20	o
9	6	1	586.81	582.20	41.46	o
10	6	1	32.70	30.73	23.43	o

11	6	1	4.99	20.68	32.31	o
12	6	1	197.01	181.45	42.03	o
13	6	1	252.21	171.74	49.80	o
14	6	1	10.38	16.30	30.61	o
-14	7	1	10.79	9.39	29.35	o
-13	7	1	0.44	6.32	28.11	o
-12	7	1	65.31	73.89	37.96	o
-11	7	1	44.35	84.29	33.41	o
-10	7	1	84.81	71.49	30.22	o
-9	7	1	383.24	378.70	37.96	o
-8	7	1	0.24	1.85	19.50	o
-7	7	1	8.60	15.23	20.72	o
-6	7	1	3.80	24.90	18.09	o
-5	7	1	410.19	403.76	33.56	o
-4	7	1	29.78	21.96	19.65	o
-3	7	1	584.81	576.94	27.33	o
-2	7	1	57.35	42.06	16.79	o
-1	7	1	582.36	537.30	30.54	o
0	7	1	253.21	285.45	30.03	o
1	7	1	40.02	44.97	20.16	o
2	7	1	2.39	13.90	14.53	o
3	7	1	129.92	142.82	26.59	o
4	7	1	0.42	6.13	14.85	o
5	7	1	350.60	343.12	32.58	o
6	7	1	40.48	38.96	19.91	o
7	7	1	132.80	120.49	31.22	o
8	7	1	7.74	10.30	20.44	o
9	7	1	17.15	19.59	21.05	o
10	7	1	21.12	16.42	24.16	o
11	7	1	171.97	161.17	42.07	o
12	7	1	9.77	20.77	20.02	o
13	7	1	137.13	132.28	35.10	o
-15	8	1	159.20	136.18	57.49	o
-14	8	1	22.12	19.45	31.02	o
-13	8	1	36.71	8.30	25.52	o
-12	8	1	3.05	11.30	30.24	o
-11	8	1	24.97	30.44	30.81	o
-10	8	1	50.36	37.34	29.11	o
-9	8	1	153.90	125.03	35.62	o
-8	8	1	292.36	336.72	41.24	o
-7	8	1	2.42	7.54	17.21	o
-6	8	1	121.47	138.14	35.46	o
-5	8	1	658.55	650.19	41.26	o
-4	8	1	75.59	65.01	20.25	o
-3	8	1	85.46	121.64	27.50	o

-2	8	1	296.61	308.57	30.50	o
-1	8	1	958.93	986.11	37.79	o
0	8	1	72.15	75.88	25.87	o
1	8	1	212.89	178.53	26.89	o
2	8	1	82.07	78.56	25.15	o
3	8	1	104.51	84.27	23.81	o
4	8	1	157.98	149.89	32.97	o
5	8	1	154.30	130.60	29.09	o
6	8	1	209.23	190.53	35.16	o
7	8	1	111.34	81.11	29.06	o
8	8	1	67.04	60.01	31.74	o
9	8	1	165.06	124.23	44.97	o
10	8	1	71.45	80.09	37.93	o
11	8	1	59.44	19.13	28.21	o
12	8	1	3.42	5.33	23.06	o
-15	9	1	127.83	165.38	67.19	o
-14	9	1	4.42	25.86	48.65	o
-13	9	1	218.55	243.42	59.46	o
-12	9	1	86.58	72.44	41.38	o
-11	9	1	0.45	20.12	41.49	o
-10	9	1	1.40	23.96	21.35	o
-9	9	1	102.67	65.51	36.78	o
-8	9	1	259.16	264.41	47.31	o
-7	9	1	467.53	437.57	47.04	o
-6	9	1	3.38	28.72	27.75	o
-5	9	1	234.96	312.44	43.39	o
-4	9	1	476.62	521.45	38.01	o
-3	9	1	15.47	17.94	21.56	o
-2	9	1	107.49	141.88	36.23	o
-1	9	1	21.06	21.37	21.68	o
0	9	1	148.10	130.47	32.41	o
1	9	1	891.89	892.94	46.23	o
2	9	1	312.64	315.99	41.55	o
3	9	1	26.33	39.12	25.25	o
4	9	1	39.41	23.80	19.77	o
5	9	1	66.74	49.63	28.56	o
6	9	1	416.17	382.64	41.66	o
7	9	1	120.70	121.21	45.11	o
8	9	1	2.47	10.19	19.33	o
9	9	1	547.61	633.97	53.35	o
10	9	1	117.16	116.03	47.35	o
11	9	1	5.38	13.56	32.46	o
12	9	1	2.44	13.80	28.32	o
-15	10	1	3.39	15.96	40.55	o
-14	10	1	0.71	-3.19	28.52	o

-13	10	1	7.69	20.52	34.76	o
-12	10	1	14.28	23.75	45.41	o
-11	10	1	15.04	15.67	39.82	o
-10	10	1	218.22	233.17	57.83	o
-9	10	1	2.09	9.28	26.87	o
-8	10	1	15.38	18.19	31.40	o
-7	10	1	85.64	80.48	41.41	o
-6	10	1	111.59	118.26	39.40	o
-5	10	1	1.28	13.08	26.24	o
-4	10	1	187.12	205.07	41.85	o
-3	10	1	83.83	113.42	37.35	o
-2	10	1	772.77	996.48	51.09	o
-1	10	1	9.56	12.20	24.18	o
0	10	1	0.48	8.04	20.48	o
1	10	1	1.32	7.06	20.80	o
2	10	1	6.50	10.95	25.23	o
3	10	1	0.60	12.20	24.23	o
4	10	1	423.81	439.43	52.33	o
5	10	1	0.00	12.64	22.11	o
6	10	1	96.72	77.98	43.41	o
7	10	1	72.83	67.52	31.20	o
8	10	1	19.85	19.41	28.69	o
9	10	1	12.12	9.04	35.14	o
10	10	1	37.18	28.74	25.85	o
11	10	1	0.40	20.53	30.78	o
12	10	1	146.97	136.23	44.01	o
13	10	1	4.95	33.38	45.80	o
-15	11	1	1.42	11.78	48.63	o
-14	11	1	0.30	20.16	55.07	o
-13	11	1	3.44	50.66	46.13	o
-12	11	1	52.96	65.41	49.99	o
-11	11	1	27.96	43.60	52.54	o
-10	11	1	0.25	2.02	30.03	o
-9	11	1	300.15	300.61	53.24	o
-8	11	1	60.47	52.95	36.12	o
-7	11	1	2.52	20.96	35.23	o
-6	11	1	4.46	6.36	25.64	o
-5	11	1	0.70	10.18	27.43	o
-4	11	1	10.97	21.71	29.92	o
-3	11	1	28.62	44.17	36.20	o
-2	11	1	0.75	18.23	29.06	o
-1	11	1	104.80	96.24	41.79	o
0	11	1	1.10	18.91	24.34	o
1	11	1	1.23	12.97	26.22	o
2	11	1	50.95	39.10	34.19	o

3	11	1	265.29	266.50	49.09	o
4	11	1	34.61	27.82	30.25	o
5	11	1	251.12	238.93	52.51	o
6	11	1	61.43	57.00	30.86	o
7	11	1	5.40	17.70	28.28	o
8	11	1	55.66	22.34	25.03	o
9	11	1	5.88	16.10	32.56	o
10	11	1	15.59	17.32	42.35	o
11	11	1	8.55	9.73	31.00	o
12	11	1	19.37	26.60	42.94	o
13	11	1	16.54	35.02	54.59	o
-14	12	1	104.97	132.12	68.87	o
-13	12	1	2.17	17.37	54.38	o
-12	12	1	15.34	32.38	37.92	o
-11	12	1	0.04	-6.07	29.63	o
-10	12	1	19.12	21.27	33.81	o
-9	12	1	13.82	23.56	47.79	o
-8	12	1	65.15	95.11	51.19	o
-7	12	1	10.61	35.60	30.67	o
-6	12	1	248.01	293.93	57.71	o
-5	12	1	14.98	21.89	33.24	o
-4	12	1	0.19	21.58	27.88	o
-3	12	1	15.89	21.19	33.93	o
-2	12	1	34.68	31.28	27.22	o
-1	12	1	17.50	32.31	37.83	o
0	12	1	150.69	160.98	53.69	o
1	12	1	2.09	29.68	29.13	o
2	12	1	277.15	299.13	55.74	o
3	12	1	4.92	0.16	37.40	o
4	12	1	0.09	6.50	32.43	o
5	12	1	1.21	1.20	41.65	o
6	12	1	8.59	79.86	51.60	o
7	12	1	29.99	28.31	32.97	o
8	12	1	133.88	105.02	45.68	o
9	12	1	6.69	24.19	39.25	o
10	12	1	38.12	49.10	38.42	o
11	12	1	0.00	2.49	29.19	o
12	12	1	18.78	32.60	61.21	o
13	12	1	0.04	12.86	41.44	o
-12	13	1	60.91	89.27	64.76	o
-11	13	1	30.60	73.14	64.94	o
-10	13	1	11.81	46.82	52.48	o
-9	13	1	55.47	31.44	49.58	o
-8	13	1	69.51	46.14	55.21	o
-7	13	1	20.04	14.74	35.00	o

-6	13	1	1.29	5.76	28.28	o
-5	13	1	1.48	33.15	43.46	o
-4	13	1	52.88	65.45	39.21	o
-3	13	1	113.61	111.34	51.15	o
-2	13	1	31.29	31.51	33.71	o
-1	13	1	14.53	36.25	40.17	o
0	13	1	82.32	46.23	35.90	o
1	13	1	0.37	14.46	32.96	o
2	13	1	85.99	77.64	41.59	o
3	13	1	36.40	24.45	31.65	o
4	13	1	59.67	79.31	50.37	o
5	13	1	97.31	71.78	46.35	o
6	13	1	68.86	77.77	60.32	o
7	13	1	0.11	-3.13	35.33	o
8	13	1	22.09	29.30	54.87	o
9	13	1	1.11	36.78	45.76	o
10	13	1	31.91	57.54	61.20	o
11	13	1	22.58	31.39	49.10	o
-10	14	1	17.23	16.29	39.35	o
-9	14	1	4.56	21.68	55.93	o
-8	14	1	7.24	40.76	46.37	o
-7	14	1	15.29	30.38	54.37	o
-6	14	1	2.89	-1.82	29.88	o
-5	14	1	2.62	18.50	37.75	o
-4	14	1	62.56	43.10	41.73	o
-3	14	1	3.22	12.56	43.41	o
-2	14	1	197.55	179.68	58.37	o
-1	14	1	2.52	21.44	51.05	o
0	14	1	0.40	31.14	48.28	o
1	14	1	0.41	-0.17	38.16	o
2	14	1	10.13	30.77	47.09	o
3	14	1	20.14	7.32	37.23	o
4	14	1	14.56	8.88	43.07	o
5	14	1	5.86	21.22	48.67	o
6	14	1	19.02	85.99	58.29	o
7	14	1	5.00	24.29	44.95	o
8	14	1	0.41	25.12	47.04	o
9	14	1	0.01	20.61	40.54	o
-6	15	1	1.08	22.09	40.43	o
-5	15	1	33.22	18.19	39.41	o
-4	15	1	17.55	32.44	41.59	o
-3	15	1	7.44	22.90	37.89	o
0	15	1	30.88	30.08	43.71	o
1	15	1	6.60	45.68	61.51	o
2	15	1	29.14	20.92	37.77	o

3	15	1	16.71	50.48	51.22	o
4	15	1	6.72	8.62	37.05	o
5	15	1	0.05	17.61	45.56	o
-16	0	2	64.19	51.85	48.91	o
-14	0	2	207.16	243.09	41.14	o
-12	0	2	423.14	444.04	38.61	o
-10	0	2	4.80	11.46	13.18	o
-8	0	2	288.61	333.98	17.60	o
-6	0	2	9854.85	9794.59	67.82	o
-4	0	2	5686.93	4951.00	43.80	o
-2	0	2	2131.04	2265.11	23.75	o
0	0	2	1659.87	2029.08	26.64	o
2	0	2	4415.05	4051.75	42.90	o
4	0	2	51.33	28.76	14.87	o
6	0	2	10.70	9.41	11.74	o
8	0	2	3947.89	4081.29	62.68	o
10	0	2	742.52	779.34	41.94	o
12	0	2	216.36	161.05	42.47	o
14	0	2	122.79	90.58	38.61	o
-17	1	2	108.67	101.86	39.49	o
-16	1	2	0.36	10.39	26.91	o
-15	1	2	71.32	96.00	45.81	o
-14	1	2	169.26	166.71	41.25	o
-13	1	2	1.76	13.01	20.22	o
-12	1	2	1.43	8.71	18.10	o
-11	1	2	482.35	457.77	31.63	o
-10	1	2	94.52	73.84	19.59	o
-9	1	2	1489.06	1520.96	37.81	o
-8	1	2	27.54	32.01	16.45	o
-7	1	2	70.34	37.42	13.99	o
-6	1	2	179.09	215.78	17.50	o
-5	1	2	27.13	29.95	10.56	o
-4	1	2	54.49	62.95	11.22	o
-3	1	2	613.29	479.36	12.03	o
-2	1	2	282.81	302.96	9.92	o
-1	1	2	1064.75	848.22	17.35	o
0	1	2	3170.38	3369.74	33.78	o
1	1	2	965.13	1020.14	22.38	o
2	1	2	21.40	18.91	9.47	o
3	1	2	838.87	770.26	22.37	o
4	1	2	2.87	29.96	12.90	o
5	1	2	1009.35	924.34	27.39	o
6	1	2	137.10	279.95	24.23	o
7	1	2	769.42	755.30	29.14	o
8	1	2	141.66	135.74	26.07	o

9	1	2	9.66	10.05	15.42	o
10	1	2	191.29	188.77	33.04	o
11	1	2	29.02	24.91	23.97	o
12	1	2	2.89	10.47	21.89	o
13	1	2	341.68	374.07	49.49	o
14	1	2	45.51	37.73	25.99	o
15	1	2	36.02	43.83	44.95	o
-17	2	2	2.26	0.54	29.11	o
-16	2	2	305.02	351.01	63.96	o
-15	2	2	0.97	6.90	23.98	o
-14	2	2	25.41	27.58	27.47	o
-13	2	2	104.76	137.42	40.03	o
-12	2	2	109.87	99.61	31.61	o
-11	2	2	0.19	5.72	13.14	o
-10	2	2	418.52	432.36	29.58	o
-9	2	2	75.61	81.30	23.98	o
-8	2	2	678.64	681.89	27.10	o
-7	2	2	105.87	106.72	15.06	o
-6	2	2	28.14	65.76	14.79	o
-5	2	2	236.12	238.44	17.72	o
-4	2	2	1608.49	1585.12	22.69	o
-3	2	2	292.85	323.50	13.59	o
-2	2	2	83.79	81.27	12.64	o
-1	2	2	2419.54	2525.31	32.39	o
0	2	2	1734.87	2314.07	34.28	o
1	2	2	1426.87	1554.66	28.61	o
2	2	2	1611.86	1576.47	29.03	o
3	2	2	512.94	523.57	18.89	o
4	2	2	304.69	343.61	18.99	o
5	2	2	243.31	246.47	18.80	o
6	2	2	571.25	600.65	25.56	o
7	2	2	0.37	23.80	14.73	o
8	2	2	103.88	98.64	23.32	o
9	2	2	1.86	7.40	15.48	o
10	2	2	3.35	9.56	18.81	o
11	2	2	9.37	9.60	17.53	o
12	2	2	117.00	109.71	29.62	o
13	2	2	30.86	133.80	40.09	o
14	2	2	343.75	352.37	56.56	o
15	2	2	10.17	18.67	31.96	o
-16	3	2	65.87	45.86	28.72	o
-15	3	2	13.46	4.73	23.53	o
-14	3	2	451.43	436.01	44.42	o
-13	3	2	239.58	265.43	40.11	o
-12	3	2	195.56	198.82	31.76	o

-11	3	2	374.48	372.98	38.05	o
-10	3	2	671.48	630.51	31.60	o
-9	3	2	8.78	13.05	15.26	o
-8	3	2	345.63	370.04	25.50	o
-7	3	2	38.81	51.01	14.86	o
-6	3	2	1.76	4.38	8.10	o
-5	3	2	637.22	576.70	20.24	o
-4	3	2	97.59	100.90	12.39	o
-3	3	2	1173.92	1115.86	25.24	o
-2	3	2	126.41	152.24	14.81	o
-1	3	2	530.61	598.97	22.41	o
0	3	2	4253.96	4493.25	49.45	o
1	3	2	3307.70	3308.79	43.97	o
2	3	2	874.86	909.94	26.98	o
3	3	2	461.62	414.80	17.68	o
4	3	2	2438.11	2619.84	42.00	o
5	3	2	1.63	15.93	12.86	o
6	3	2	112.27	103.61	21.85	o
7	3	2	16.20	24.49	17.20	o
8	3	2	1451.48	1384.98	40.18	o
9	3	2	378.93	383.19	31.74	o
10	3	2	38.08	22.62	20.36	o
11	3	2	63.92	84.19	30.70	o
12	3	2	46.28	45.24	31.69	o
13	3	2	59.40	66.99	38.59	o
14	3	2	69.49	73.09	40.21	o
15	3	2	89.54	59.65	34.86	o
-16	4	2	1.46	5.79	29.43	o
-15	4	2	141.74	125.27	41.83	o
-14	4	2	248.88	289.72	49.87	o
-13	4	2	14.15	14.53	22.11	o
-12	4	2	176.03	165.99	32.71	o
-11	4	2	397.44	438.61	37.52	o
-10	4	2	40.62	43.54	24.38	o
-9	4	2	131.75	107.53	26.14	o
-8	4	2	101.33	92.80	22.05	o
-7	4	2	1802.85	1849.02	40.51	o
-6	4	2	1343.31	1258.37	30.95	o
-5	4	2	8.76	9.18	9.10	o
-4	4	2	1109.25	1003.76	25.98	o
-3	4	2	1274.79	1217.77	23.71	o
-2	4	2	330.86	336.16	21.25	o
-1	4	2	547.70	574.52	25.01	o
0	4	2	674.70	698.91	25.23	o
1	4	2	736.74	715.30	25.70	o

2	4	2	1877.16	1868.74	38.80	o
3	4	2	1887.75	1942.12	40.22	o
4	4	2	5.83	177.69	19.24	o
5	4	2	179.92	168.27	21.62	o
6	4	2	34.88	34.92	21.93	o
7	4	2	1156.96	1165.04	36.83	o
8	4	2	503.82	506.35	34.88	o
9	4	2	0.63	5.00	15.13	o
10	4	2	281.18	230.26	35.68	o
11	4	2	226.08	224.40	37.88	o
12	4	2	37.70	46.47	31.19	o
13	4	2	5.66	9.93	22.85	o
14	4	2	3.99	11.08	30.12	o
-15	5	2	135.99	145.33	44.86	o
-14	5	2	4.75	14.82	24.72	o
-13	5	2	18.32	18.59	22.99	o
-12	5	2	0.40	8.49	20.55	o
-11	5	2	7.96	9.15	19.90	o
-10	5	2	27.38	15.96	20.27	o
-9	5	2	287.52	272.04	30.81	o
-8	5	2	37.90	191.52	33.61	o
-7	5	2	137.21	155.49	23.51	o
-6	5	2	92.06	72.74	24.71	o
-5	5	2	891.37	835.04	32.13	o
-4	5	2	2.81	9.40	12.65	o
-3	5	2	1053.98	1162.40	32.05	o
-2	5	2	123.42	130.88	20.44	o
-1	5	2	894.85	954.82	31.65	o
0	5	2	210.69	229.82	21.18	o
1	5	2	54.20	94.68	18.60	o
2	5	2	344.63	346.42	23.67	o
3	5	2	10.20	30.17	18.76	o
4	5	2	8.86	6.13	12.19	o
5	5	2	271.82	257.48	28.80	o
6	5	2	5.33	12.15	15.39	o
7	5	2	1023.88	995.15	38.65	o
8	5	2	65.57	54.43	23.90	o
9	5	2	41.93	40.05	24.76	o
10	5	2	13.30	14.60	21.82	o
11	5	2	74.76	78.73	32.34	o
12	5	2	16.03	11.15	25.99	o
13	5	2	91.88	92.63	48.97	o
14	5	2	1.11	14.74	33.20	o
-15	6	2	147.50	127.29	46.22	o
-14	6	2	1.48	8.77	27.51	o

-13	6	2	18.22	10.84	23.77	o
-12	6	2	77.70	89.19	34.68	o
-11	6	2	66.12	61.95	29.01	o
-10	6	2	469.30	448.49	36.62	o
-9	6	2	70.76	49.86	20.82	o
-8	6	2	607.04	600.28	36.69	o
-7	6	2	330.89	318.63	31.52	o
-6	6	2	159.30	154.62	28.15	o
-5	6	2	348.44	308.28	27.00	o
-4	6	2	16.08	20.73	15.10	o
-3	6	2	190.62	184.15	22.42	o
-2	6	2	1110.14	1211.75	36.69	o
-1	6	2	11.68	9.20	11.90	o
0	6	2	615.07	618.13	28.35	o
1	6	2	221.39	231.21	26.28	o
2	6	2	1.60	12.77	15.27	o
3	6	2	33.48	15.38	12.75	o
4	6	2	505.12	504.40	32.05	o
5	6	2	19.59	25.23	20.49	o
6	6	2	652.80	637.20	35.55	o
7	6	2	86.93	128.02	32.54	o
8	6	2	0.69	8.59	20.16	o
9	6	2	2.68	4.87	17.78	o
10	6	2	0.53	11.34	21.05	o
11	6	2	237.79	234.78	49.34	o
12	6	2	137.14	131.63	34.45	o
13	6	2	16.87	12.93	24.95	o
-16	7	2	0.02	12.43	34.48	o
-15	7	2	7.47	-1.64	27.51	o
-14	7	2	1.34	12.96	29.73	o
-13	7	2	495.58	496.18	57.80	o
-12	7	2	6.66	18.21	27.61	o
-11	7	2	129.42	171.49	39.33	o
-10	7	2	29.47	30.55	24.34	o
-9	7	2	134.27	112.25	30.28	o
-8	7	2	44.81	33.93	25.11	o
-7	7	2	685.50	709.70	44.82	o
-6	7	2	59.71	41.67	24.74	o
-5	7	2	1548.80	1607.97	48.67	o
-4	7	2	1.80	4.39	12.28	o
-3	7	2	63.77	48.24	18.97	o
-2	7	2	7.62	10.75	15.39	o
-1	7	2	864.03	883.54	34.97	o
0	7	2	5.76	10.23	14.21	o
1	7	2	1934.16	1946.60	47.69	o

2	7	2	0.28	70.44	21.96	o
3	7	2	1181.68	1192.08	40.95	o
4	7	2	57.77	48.06	26.31	o
5	7	2	22.36	27.66	25.13	o
6	7	2	44.99	52.05	28.65	o
7	7	2	1.04	11.42	19.99	o
8	7	2	3.96	15.51	24.00	o
9	7	2	1027.36	1119.84	58.07	o
10	7	2	0.91	21.82	23.85	o
11	7	2	10.86	14.45	25.77	o
12	7	2	3.13	12.07	22.93	o
-16	8	2	27.82	36.57	60.47	o
-15	8	2	31.00	14.89	36.91	o
-14	8	2	12.22	22.79	30.53	o
-13	8	2	2.93	34.11	43.09	o
-12	8	2	0.19	18.48	32.80	o
-11	8	2	53.47	38.42	27.95	o
-10	8	2	342.75	372.06	52.91	o
-9	8	2	0.27	15.46	22.56	o
-8	8	2	368.71	361.34	44.41	o
-7	8	2	657.87	637.92	43.11	o
-6	8	2	2.00	7.43	19.45	o
-5	8	2	94.53	83.11	30.44	o
-4	8	2	13.01	16.25	20.85	o
-3	8	2	711.35	712.03	38.94	o
-2	8	2	635.13	672.26	38.24	o
-1	8	2	13.04	16.38	17.80	o
0	8	2	198.71	178.01	28.76	o
1	8	2	311.10	310.66	36.90	o
2	8	2	1.38	4.24	16.01	o
3	8	2	92.34	95.46	30.36	o
4	8	2	345.86	354.87	40.25	o
5	8	2	5.12	10.91	20.63	o
6	8	2	414.32	457.82	45.20	o
7	8	2	379.65	389.66	44.67	o
8	8	2	1.35	7.95	23.12	o
9	8	2	37.00	53.12	27.26	o
10	8	2	4.93	13.08	21.89	o
11	8	2	209.07	193.82	59.11	o
12	8	2	117.59	92.91	48.47	o
-16	9	2	4.83	29.34	49.22	o
-15	9	2	43.72	52.49	41.50	o
-14	9	2	1.46	29.13	46.62	o
-13	9	2	6.05	25.74	27.95	o
-12	9	2	46.32	34.26	40.34	o

-11	9	2	2.32	11.67	28.17	o
-10	9	2	0.19	9.69	24.72	o
-9	9	2	262.26	277.28	47.87	o
-8	9	2	49.75	35.27	30.41	o
-7	9	2	46.99	34.69	29.03	o
-6	9	2	9.46	13.10	23.61	o
-5	9	2	12.25	19.32	24.01	o
-4	9	2	1.57	10.66	19.83	o
-3	9	2	255.66	256.60	34.72	o
-2	9	2	0.20	7.97	17.06	o
-1	9	2	581.09	583.00	41.40	o
0	9	2	14.40	17.03	21.18	o
1	9	2	95.79	88.13	29.21	o
2	9	2	0.31	71.12	25.07	o
3	9	2	15.67	24.31	25.91	o
4	9	2	21.88	31.49	27.20	o
5	9	2	347.01	371.85	47.07	o
6	9	2	0.03	16.65	28.23	o
7	9	2	239.02	230.78	45.68	o
8	9	2	29.25	31.53	32.30	o
9	9	2	17.74	17.66	32.95	o
10	9	2	1.94	24.49	23.86	o
11	9	2	29.66	28.85	37.83	o
-16	10	2	0.12	32.74	39.00	o
-15	10	2	101.23	70.34	63.07	o
-14	10	2	79.19	97.84	49.01	o
-13	10	2	6.04	26.76	39.61	o
-12	10	2	53.92	50.27	43.06	o
-11	10	2	120.67	61.52	25.40	o
-10	10	2	47.80	36.05	39.02	o
-9	10	2	1.07	10.41	31.74	o
-8	10	2	3.80	9.02	25.77	o
-7	10	2	293.08	318.74	54.14	o
-6	10	2	357.77	374.98	55.98	o
-5	10	2	33.56	35.59	30.92	o
-4	10	2	214.32	269.34	46.27	o
-3	10	2	67.42	69.19	33.00	o
-2	10	2	6.65	9.44	22.97	o
-1	10	2	58.54	36.69	26.15	o
0	10	2	55.99	43.05	29.03	o
1	10	2	60.99	41.74	29.03	o
2	10	2	167.89	150.83	40.68	o
3	10	2	233.16	215.11	47.16	o
4	10	2	18.06	25.12	27.53	o
5	10	2	62.28	41.98	31.03	o

6	10	2	11.15	19.61	21.13	o
7	10	2	219.18	188.73	57.01	o
8	10	2	89.05	83.15	44.48	o
9	10	2	17.48	29.02	30.96	o
10	10	2	199.15	175.62	47.97	o
11	10	2	67.08	53.59	26.87	o
-15	11	2	8.20	19.01	48.83	o
-14	11	2	77.04	77.53	65.13	o
-13	11	2	84.41	33.57	48.11	o
-12	11	2	27.28	33.26	48.36	o
-11	11	2	18.92	31.10	43.25	o
-10	11	2	107.55	70.59	35.42	o
-9	11	2	0.13	24.53	33.61	o
-8	11	2	82.31	45.45	36.82	o
-7	11	2	54.74	58.25	39.90	o
-6	11	2	47.38	33.13	32.96	o
-5	11	2	14.72	32.79	30.79	o
-4	11	2	263.78	275.27	51.75	o
-3	11	2	38.55	50.02	32.82	o
-2	11	2	0.03	10.21	22.71	o
-1	11	2	42.19	38.09	35.83	o
0	11	2	564.41	528.28	61.37	o
1	11	2	261.06	228.11	50.47	o
2	11	2	13.04	38.51	33.45	o
3	11	2	58.62	55.74	40.31	o
4	11	2	509.10	499.22	60.08	o
5	11	2	8.78	13.00	28.50	o
6	11	2	10.63	34.72	36.13	o
7	11	2	19.10	19.03	34.23	o
8	11	2	165.08	114.23	38.17	o
9	11	2	55.48	49.80	46.59	o
10	11	2	12.31	10.55	38.83	o
11	11	2	29.61	21.87	40.72	o
12	11	2	11.72	31.35	58.49	o
-13	12	2	9.75	41.01	53.39	o
-12	12	2	1.20	16.41	35.12	o
-11	12	2	1.89	23.31	46.62	o
-10	12	2	70.01	41.74	31.08	o
-9	12	2	1.79	26.60	48.65	o
-8	12	2	119.16	102.05	43.44	o
-7	12	2	9.22	10.29	29.42	o
-6	12	2	25.53	28.82	35.01	o
-5	12	2	0.34	23.60	44.45	o
-4	12	2	0.35	12.84	33.15	o
-3	12	2	4.89	17.19	34.04	o

-2	12	2	372.29	356.95	55.28	o
-1	12	2	8.78	19.98	31.00	o
0	12	2	51.92	49.69	39.61	o
1	12	2	3.13	12.64	31.48	o
2	12	2	52.10	30.32	32.14	o
3	12	2	0.02	10.80	32.02	o
4	12	2	60.95	28.47	39.41	o
5	12	2	1.18	10.22	32.64	o
6	12	2	172.05	142.47	41.49	o
7	12	2	0.44	16.84	30.79	o
8	12	2	2.81	9.80	34.48	o
9	12	2	0.61	15.94	36.90	o
10	12	2	0.08	12.53	36.42	o
11	12	2	4.92	18.51	35.35	o
12	12	2	59.79	52.00	63.25	o
-12	13	2	2.24	49.55	52.33	o
-11	13	2	6.67	13.25	33.65	o
-10	13	2	14.18	25.89	52.20	o
-9	13	2	29.80	29.68	35.82	o
-8	13	2	16.08	29.77	44.29	o
-7	13	2	14.99	23.61	48.32	o
-6	13	2	0.07	16.57	28.70	o
-5	13	2	1.72	7.73	35.43	o
-4	13	2	86.66	84.62	35.83	o
-3	13	2	6.82	7.40	33.54	o
-2	13	2	0.23	12.63	30.58	o
-1	13	2	85.92	113.35	58.03	o
0	13	2	189.80	165.99	48.95	o
1	13	2	3.16	13.21	33.86	o
2	13	2	0.01	6.45	29.05	o
3	13	2	38.24	27.34	33.38	o
4	13	2	92.65	79.34	55.58	o
5	13	2	20.29	29.23	51.36	o
6	13	2	0.70	10.91	32.37	o
7	13	2	9.40	19.55	40.05	o
8	13	2	18.72	31.63	53.77	o
9	13	2	1.50	20.16	39.33	o
10	13	2	10.93	-1.90	40.71	o
-9	14	2	1.47	67.22	58.90	o
-8	14	2	0.10	11.63	36.98	o
-7	14	2	1.97	43.39	57.55	o
-6	14	2	196.75	183.74	54.71	o
-5	14	2	0.12	40.44	54.67	o
-4	14	2	44.31	109.30	70.34	o
-2	14	2	29.50	37.76	58.79	o

-1	14	2	10.92	25.68	51.38	o
0	14	2	0.13	-16.90	30.42	o
1	14	2	2.27	24.79	42.90	o
2	14	2	89.34	74.55	64.44	o
3	14	2	9.12	6.27	35.70	o
4	14	2	8.94	30.28	49.82	o
5	14	2	3.93	41.46	50.65	o
6	14	2	2.16	19.65	48.60	o
7	14	2	9.81	25.17	35.37	o
8	14	2	77.17	91.52	64.43	o
-6	15	2	0.10	15.24	49.71	o
-5	15	2	15.01	15.91	41.44	o
-1	15	2	55.88	58.28	63.46	o
0	15	2	26.01	56.38	62.63	o
1	15	2	5.06	12.32	41.99	o
2	15	2	0.00	5.00	35.84	o
3	15	2	2.85	22.24	55.24	o
4	15	2	5.98	59.98	64.29	o
-16	0	3	321.00	349.82	61.43	o
-14	0	3	24.49	19.94	27.84	o
-12	0	3	10.04	21.54	21.21	o
-10	0	3	213.37	207.45	24.95	o
-8	0	3	2029.92	2131.84	45.55	o
-6	0	3	160.18	106.39	15.48	o
-4	0	3	402.91	388.37	13.55	o
-2	0	3	437.26	570.17	17.29	o
0	0	3	1332.66	1254.73	28.02	o
2	0	3	1212.43	1189.55	30.67	o
4	0	3	1029.92	975.73	30.00	o
6	0	3	359.98	375.59	24.01	o
8	0	3	750.26	770.03	38.50	o
10	0	3	102.57	90.01	32.62	o
12	0	3	32.26	19.58	26.44	o
14	0	3	247.11	271.79	58.32	o
-16	1	3	185.31	188.59	50.81	o
-15	1	3	145.69	170.71	49.26	o
-14	1	3	379.45	351.74	42.66	o
-13	1	3	76.27	66.19	28.86	o
-12	1	3	8.41	7.81	16.55	o
-11	1	3	202.19	173.67	28.17	o
-10	1	3	295.35	312.62	32.00	o
-9	1	3	364.40	423.22	30.94	o
-8	1	3	15.95	23.36	14.70	o
-7	1	3	3.16	9.90	11.85	o
-6	1	3	1820.24	1903.99	35.12	o

-5	1	3	69.71	66.82	11.97	o
-4	1	3	574.57	601.88	17.06	o
-3	1	3	1888.04	1870.74	26.13	o
-2	1	3	4035.83	4337.75	41.58	o
-1	1	3	1645.24	2350.96	34.75	o
0	1	3	261.77	233.17	17.00	o
1	1	3	837.65	755.82	23.57	o
2	1	3	1752.53	1769.03	35.22	o
3	1	3	322.70	317.59	19.46	o
5	1	3	108.25	103.61	20.77	o
6	1	3	454.18	412.40	27.39	o
7	1	3	139.70	139.43	21.83	o
8	1	3	638.26	652.12	35.16	o
9	1	3	126.88	135.05	26.93	o
10	1	3	3.08	6.49	18.14	o
11	1	3	46.52	37.43	27.65	o
12	1	3	267.30	263.06	42.00	o
13	1	3	115.97	99.32	36.20	o
14	1	3	7.41	21.39	38.67	o
-16	2	3	26.41	10.43	36.17	o
-15	2	3	30.46	28.11	31.92	o
-14	2	3	0.97	8.53	23.27	o
-13	2	3	131.30	117.66	38.49	o
-12	2	3	802.75	1222.86	44.78	o
-11	2	3	242.20	246.64	33.49	o
-10	2	3	931.61	904.21	35.05	o
-9	2	3	1375.95	1353.67	37.94	o
-8	2	3	718.77	739.86	31.94	o
-7	2	3	396.48	392.63	24.29	o
-6	2	3	562.95	524.06	21.43	o
-5	2	3	1972.11	2111.62	33.30	o
-4	2	3	3664.22	3482.99	38.94	o
-3	2	3	22.06	31.76	11.78	o
-2	2	3	326.44	312.70	16.49	o
-1	2	3	210.80	236.34	18.11	o
0	2	3	1110.81	1304.30	30.67	o
1	2	3	852.03	799.32	26.55	o
2	2	3	5095.78	5178.43	55.05	o
3	2	3	460.37	451.35	21.97	o
4	2	3	1111.89	1081.58	30.78	o
5	2	3	1296.91	1309.10	35.82	o
6	2	3	271.63	356.05	28.16	o
7	2	3	121.66	124.40	26.24	o
8	2	3	1.61	16.20	17.78	o
9	2	3	599.68	605.57	36.33	o

10	2	3	1115.60	1179.74	47.83	o
11	2	3	11.61	10.74	20.49	o
12	2	3	57.60	33.71	26.40	o
13	2	3	60.83	49.46	31.85	o
14	2	3	24.32	20.43	31.11	o
-16	3	3	54.50	34.49	29.01	o
-15	3	3	395.39	427.65	59.34	o
-14	3	3	34.60	23.84	23.48	o
-13	3	3	3.99	8.38	23.64	o
-12	3	3	15.17	63.16	29.39	o
-11	3	3	2.92	9.12	17.10	o
-10	3	3	21.19	16.78	16.86	o
-9	3	3	707.26	735.01	33.41	o
-8	3	3	44.74	35.97	19.71	o
-7	3	3	1047.76	1144.85	32.47	o
-6	3	3	3.87	2.70	9.14	o
-5	3	3	25.32	22.58	13.12	o
-4	3	3	199.66	190.16	14.00	o
-3	3	3	153.49	141.12	16.10	o
-2	3	3	181.63	181.77	18.55	o
-1	3	3	1685.09	1678.46	36.20	o
0	3	3	536.14	545.80	24.05	o
1	3	3	749.57	661.96	25.68	o
2	3	3	301.96	290.02	20.37	o
3	3	3	50.80	102.08	22.89	o
4	3	3	0.09	10.88	14.23	o
5	3	3	3.31	11.05	16.35	o
6	3	3	155.49	162.49	29.15	o
7	3	3	1270.55	1244.24	40.55	o
8	3	3	3.95	10.43	17.13	o
9	3	3	139.54	132.95	31.89	o
10	3	3	56.94	42.23	26.11	o
11	3	3	0.32	6.15	24.18	o
12	3	3	4.69	23.84	27.45	o
13	3	3	112.10	149.25	49.38	o
14	3	3	10.21	18.91	30.18	o
-15	4	3	43.34	29.69	26.98	o
-14	4	3	16.73	15.76	27.39	o
-13	4	3	67.51	57.49	30.63	o
-12	4	3	11.59	13.19	22.73	o
-11	4	3	41.62	44.16	26.61	o
-10	4	3	105.55	126.50	31.82	o
-9	4	3	100.79	104.18	23.89	o
-8	4	3	1170.71	1134.16	36.07	o
-7	4	3	38.96	27.65	15.96	o

-6	4	3	79.10	84.11	22.28	o
-5	4	3	10.18	5.79	9.78	o
-4	4	3	631.44	575.98	24.17	o
-3	4	3	131.68	135.31	19.37	o
-2	4	3	390.80	376.46	22.15	o
-1	4	3	34.56	71.37	17.15	o
0	4	3	503.93	494.29	26.39	o
1	4	3	53.02	49.74	17.91	o
2	4	3	104.00	96.45	19.92	o
3	4	3	27.17	30.88	22.09	o
4	4	3	189.48	180.34	27.32	o
5	4	3	97.58	100.05	25.11	o
6	4	3	698.36	699.67	32.68	o
7	4	3	145.58	119.65	29.18	o
8	4	3	491.38	519.25	41.51	o
9	4	3	131.34	112.10	36.97	o
10	4	3	4.54	20.07	24.35	o
11	4	3	3.10	18.22	25.81	o
12	4	3	26.92	32.02	42.98	o
13	4	3	43.97	19.42	26.39	o
-16	5	3	2.89	11.48	30.79	o
-15	5	3	139.36	104.21	44.26	o
-14	5	3	128.56	107.42	40.62	o
-13	5	3	105.79	118.32	38.78	o
-12	5	3	83.22	88.89	36.16	o
-11	5	3	490.15	497.53	42.64	o
-10	5	3	167.41	139.66	34.56	o
-9	5	3	5.46	8.74	15.94	o
-8	5	3	40.51	24.38	16.50	o
-7	5	3	7.89	14.91	15.68	o
-6	5	3	168.95	159.50	25.53	o
-5	5	3	2970.41	3062.54	56.80	o
-4	5	3	61.10	45.30	18.66	o
-2	5	3	2.95	7.67	11.97	o
-1	5	3	1563.67	1630.02	42.31	o
0	5	3	184.37	167.82	23.63	o
1	5	3	3.05	12.20	14.11	o
2	5	3	4.23	8.06	14.09	o
3	5	3	2616.56	2647.90	54.21	o
4	5	3	179.37	283.42	30.83	o
5	5	3	501.59	450.61	31.02	o
6	5	3	104.11	100.98	27.92	o
7	5	3	55.75	38.16	23.04	o
8	5	3	195.55	189.67	39.15	o
9	5	3	424.94	490.79	50.88	o

10	5	3	0.29	8.99	25.40	o
11	5	3	128.25	111.02	40.91	o
12	5	3	34.91	13.18	27.09	o
13	5	3	51.40	21.06	26.83	o
-16	6	3	73.43	80.82	45.65	o
-15	6	3	9.26	16.43	38.09	o
-14	6	3	191.20	185.32	44.29	o
-13	6	3	130.89	144.90	44.09	o
-12	6	3	15.05	24.54	26.60	o
-11	6	3	43.47	26.32	25.13	o
-10	6	3	40.17	81.28	30.47	o
-9	6	3	504.31	505.57	37.48	o
-8	6	3	100.43	115.00	35.25	o
-7	6	3	655.10	672.80	38.09	o
-6	6	3	143.64	156.00	31.32	o
-5	6	3	315.46	334.85	33.22	o
-4	6	3	8.11	9.53	13.62	o
-3	6	3	812.54	846.46	34.28	o
-2	6	3	760.60	760.41	32.15	o
-1	6	3	308.44	296.84	31.02	o
0	6	3	1042.47	1088.11	39.33	o
1	6	3	1351.27	1372.40	41.95	o
2	6	3	287.10	284.16	26.96	o
3	6	3	125.25	136.59	28.39	o
4	6	3	22.81	15.56	16.25	o
5	6	3	403.38	386.27	39.07	o
6	6	3	129.48	115.73	35.57	o
7	6	3	269.35	268.73	40.10	o
8	6	3	105.83	126.05	39.74	o
9	6	3	329.42	306.61	51.07	o
10	6	3	41.32	34.63	34.27	o
11	6	3	175.59	162.11	49.84	o
12	6	3	27.40	75.74	48.65	o
-17	7	3	9.14	22.45	37.57	o
-16	7	3	0.11	17.23	41.04	o
-15	7	3	145.91	179.61	55.98	o
-14	7	3	23.14	23.90	36.37	o
-13	7	3	5.20	22.40	38.28	o
-12	7	3	5.30	8.91	24.25	o
-11	7	3	64.60	86.45	36.52	o
-10	7	3	26.07	38.78	27.67	o
-9	7	3	222.29	220.28	39.15	o
-8	7	3	6.17	12.57	20.28	o
-7	7	3	118.50	102.15	31.12	o
-5	7	3	51.63	57.94	27.59	o

-4	7	3	0.23	9.45	17.53	o
-3	7	3	64.57	66.23	25.09	o
-2	7	3	6.10	9.00	14.91	o
-1	7	3	878.30	999.31	39.48	o
0	7	3	17.20	15.24	15.34	o
1	7	3	303.22	280.05	31.10	o
2	7	3	54.85	55.98	27.46	o
3	7	3	74.45	58.41	25.85	o
4	7	3	7.00	157.61	33.60	o
5	7	3	103.40	123.08	37.98	o
6	7	3	45.42	36.65	27.35	o
7	7	3	193.84	206.22	39.17	o
8	7	3	4.36	14.57	21.64	o
9	7	3	25.80	23.82	26.11	o
10	7	3	42.35	38.87	33.07	o
11	7	3	4.28	17.33	31.18	o
-17	8	3	37.60	32.79	55.46	o
-16	8	3	6.90	19.95	38.62	o
-15	8	3	75.68	53.74	40.23	o
-14	8	3	54.16	57.41	48.48	o
-13	8	3	46.31	37.54	25.05	o
-12	8	3	163.28	145.21	44.26	o
-11	8	3	148.72	131.67	46.98	o
-10	8	3	25.18	23.39	25.56	o
-9	8	3	108.20	67.23	31.57	o
-8	8	3	9.96	12.49	21.48	o
-7	8	3	384.86	365.84	45.59	o
-6	8	3	5.60	43.01	25.32	o
-5	8	3	2.39	7.15	18.67	o
-4	8	3	134.72	149.47	35.13	o
-3	8	3	57.46	69.44	34.06	o
-2	8	3	260.18	268.09	36.16	o
-1	8	3	12.38	8.63	21.82	o
0	8	3	329.91	372.18	42.11	o
1	8	3	140.81	142.70	32.22	o
2	8	3	61.34	62.02	27.75	o
3	8	3	170.73	176.65	40.97	o
4	8	3	108.09	130.61	38.76	o
5	8	3	129.90	125.43	39.49	o
6	8	3	7.14	10.70	22.99	o
7	8	3	93.23	73.42	37.93	o
8	8	3	3.15	14.27	27.49	o
9	8	3	307.16	259.72	52.71	o
10	8	3	55.77	106.07	44.71	o
-17	9	3	6.03	31.65	46.91	o

-16	9	3	0.70	16.37	42.02	o
-15	9	3	28.42	55.16	48.28	o
-14	9	3	26.49	30.33	48.48	o
-13	9	3	136.30	102.44	41.13	o
-12	9	3	1.78	13.59	35.45	o
-11	9	3	90.71	90.54	42.53	o
-10	9	3	225.80	224.56	57.31	o
-9	9	3	0.61	12.56	27.43	o
-8	9	3	5.63	3.48	24.46	o
-7	9	3	38.37	34.92	29.32	o
-6	9	3	328.72	326.88	47.57	o
-5	9	3	580.95	606.54	50.90	o
-4	9	3	0.22	11.04	25.86	o
-3	9	3	40.38	40.18	26.87	o
-2	9	3	197.29	182.00	39.98	o
-1	9	3	85.68	84.42	33.70	o
0	9	3	153.49	164.75	39.86	o
1	9	3	137.74	140.71	41.44	o
2	9	3	89.85	83.11	35.35	o
3	9	3	438.06	483.58	52.98	o
4	9	3	325.57	344.69	54.01	o
5	9	3	40.91	44.21	35.58	o
6	9	3	27.62	31.72	30.83	o
7	9	3	34.24	32.93	31.19	o
8	9	3	163.37	149.19	45.28	o
9	9	3	168.84	167.84	43.99	o
-16	10	3	32.01	31.63	45.65	o
-15	10	3	4.42	25.12	49.25	o
-14	10	3	12.45	27.50	47.77	o
-13	10	3	1.31	5.58	35.12	o
-12	10	3	24.36	23.48	44.66	o
-11	10	3	0.19	1.53	26.28	o
-10	10	3	20.85	37.23	36.52	o
-9	10	3	33.32	27.08	36.12	o
-8	10	3	433.13	480.27	64.49	o
-7	10	3	4.52	25.31	30.08	o
-6	10	3	93.34	94.92	44.42	o
-5	10	3	7.64	14.46	26.79	o
-4	10	3	24.20	39.31	28.84	o
-3	10	3	4.32	10.15	25.58	o
-2	10	3	174.16	198.53	48.15	o
-1	10	3	7.66	12.06	24.90	o
0	10	3	158.19	160.37	50.44	o
1	10	3	62.86	66.21	39.57	o
2	10	3	75.06	114.87	40.87	o

3	10	3	80.96	52.77	35.78	o
4	10	3	1.83	11.95	25.48	o
5	10	3	13.28	48.18	32.31	o
6	10	3	492.18	522.90	64.40	o
7	10	3	5.92	9.11	30.50	o
8	10	3	75.06	72.20	40.72	o
9	10	3	12.63	27.45	32.92	o
10	10	3	12.27	9.85	41.62	o
-15	11	3	30.14	33.15	53.04	o
-14	11	3	13.15	10.54	40.31	o
-13	11	3	6.94	14.85	41.99	o
-12	11	3	0.27	21.06	46.00	o
-11	11	3	8.47	35.53	52.96	o
-10	11	3	5.91	10.07	38.34	o
-9	11	3	19.95	1.82	36.65	o
-8	11	3	25.38	18.27	28.95	o
-7	11	3	82.59	108.24	50.51	o
-6	11	3	6.27	17.43	32.31	o
-5	11	3	1.56	16.33	31.59	o
-4	11	3	72.12	89.15	43.93	o
-3	11	3	45.35	33.03	28.73	o
-2	11	3	25.00	14.74	25.74	o
-1	11	3	230.56	253.35	58.58	o
0	11	3	65.24	43.84	30.21	o
1	11	3	6.41	28.23	36.07	o
2	11	3	44.20	35.37	34.04	o
3	11	3	2.24	13.84	28.95	o
4	11	3	12.51	20.64	28.15	o
5	11	3	34.88	36.00	30.58	o
6	11	3	23.67	14.48	32.78	o
7	11	3	75.76	92.73	46.80	o
8	11	3	0.94	26.20	43.85	o
9	11	3	0.25	46.60	53.81	o
10	11	3	2.43	27.45	49.22	o
-13	12	3	0.24	13.60	36.70	o
-12	12	3	111.85	137.04	72.40	o
-11	12	3	3.16	27.02	50.43	o
-10	12	3	1.35	13.97	34.26	o
-9	12	3	20.63	49.09	44.30	o
-8	12	3	10.82	22.45	47.79	o
-7	12	3	14.61	29.14	42.77	o
-6	12	3	134.06	84.27	33.93	o
-5	12	3	0.82	14.24	31.90	o
-4	12	3	132.68	121.71	45.39	o
-3	12	3	2.34	12.80	28.02	o

-2	12	3	6.81	25.33	31.72	o
-1	12	3	1.63	16.91	33.33	o
0	12	3	1.81	19.13	34.64	o
1	12	3	13.51	7.38	29.96	o
2	12	3	168.23	183.31	56.81	o
3	12	3	18.40	39.12	50.78	o
4	12	3	89.98	124.53	48.72	o
5	12	3	5.82	5.31	29.66	o
6	12	3	10.73	15.05	27.83	o
7	12	3	0.02	13.88	29.50	o
8	12	3	2.48	42.03	45.26	o
9	12	3	5.91	13.79	43.37	o
10	12	3	106.91	108.44	60.29	o
11	12	3	2.46	23.88	37.26	o
-11	13	3	0.25	16.22	38.38	o
-10	13	3	10.10	29.38	45.18	o
-9	13	3	15.65	41.45	59.23	o
-8	13	3	19.55	22.94	44.91	o
-7	13	3	20.76	31.23	46.05	o
-6	13	3	43.93	55.81	41.79	o
-5	13	3	0.28	7.50	33.95	o
-4	13	3	78.06	44.49	53.39	o
-3	13	3	14.20	33.42	39.44	o
-2	13	3	111.63	133.24	61.95	o
-1	13	3	126.15	96.28	39.02	o
0	13	3	52.46	71.06	64.32	o
1	13	3	18.76	8.40	46.84	o
2	13	3	66.18	45.56	46.51	o
3	13	3	4.44	12.77	36.74	o
4	13	3	9.76	17.04	43.17	o
5	13	3	44.94	38.58	49.29	o
6	13	3	1.91	10.68	29.79	o
7	13	3	21.76	25.13	48.15	o
8	13	3	30.61	23.30	39.02	o
9	13	3	1.51	24.86	53.81	o
-9	14	3	0.06	10.55	37.88	o
-8	14	3	63.19	41.67	56.65	o
-7	14	3	0.63	19.47	39.27	o
-6	14	3	6.17	17.76	46.98	o
-3	14	3	19.03	59.23	62.31	o
-2	14	3	18.72	14.98	49.47	o
-1	14	3	4.48	30.81	44.86	o
0	14	3	42.75	51.34	42.92	o
1	14	3	4.89	15.64	42.88	o
2	14	3	0.23	16.13	35.12	o

3	14	3	0.98	21.88	47.66	o
4	14	3	23.92	55.01	61.78	o
5	14	3	15.35	8.98	44.62	o
6	14	3	72.78	99.27	65.02	o
-3	15	3	1.86	16.47	41.22	o
-2	15	3	32.23	46.92	48.43	o
-1	15	3	6.39	12.68	40.10	o
0	15	3	9.32	20.55	52.69	o
1	15	3	17.11	28.29	46.08	o
-16	0	4	3.86	9.68	27.57	o
-14	0	4	235.13	209.38	42.40	o
-12	0	4	519.67	550.04	37.75	o
-10	0	4	1941.86	2028.56	51.62	o
-8	0	4	157.70	158.65	28.11	o
-6	0	4	192.83	197.99	18.47	o
-4	0	4	4264.48	4194.49	55.57	o
-2	0	4	1495.90	1599.86	31.97	o
0	0	4	2830.52	2991.48	47.08	o
2	0	4	1587.08	1552.97	39.86	o
4	0	4	4244.98	4373.60	64.14	o
6	0	4	11.33	5.22	17.17	o
8	0	4	909.33	865.12	44.85	o
10	0	4	657.06	684.11	53.43	o
12	0	4	309.43	550.40	61.80	o
-16	1	4	128.86	103.58	45.43	o
-15	1	4	396.96	405.34	55.11	o
-14	1	4	67.99	56.97	29.59	o
-13	1	4	26.06	20.77	23.53	o
-12	1	4	18.59	15.84	21.72	o
-11	1	4	112.69	90.42	26.10	o
-10	1	4	113.41	135.28	32.22	o
-9	1	4	202.13	205.44	25.29	o
-8	1	4	268.78	262.92	25.31	o
-7	1	4	1234.75	1301.10	37.85	o
-6	1	4	1748.95	1727.54	39.33	o
-5	1	4	213.30	183.66	21.21	o
-4	1	4	79.33	76.82	13.78	o
-3	1	4	279.57	339.57	25.57	o
-2	1	4	817.71	831.09	26.88	o
-1	1	4	1049.74	1067.23	29.23	o
0	1	4	466.12	490.34	23.92	o
1	1	4	558.01	512.90	24.62	o
2	1	4	552.67	562.11	26.61	o
3	1	4	38.74	43.21	19.58	o
4	1	4	59.24	59.05	21.17	o

5	1	4	1.71	7.99	13.26	o
6	1	4	170.32	148.02	26.16	o
7	1	4	705.23	729.26	35.64	o
8	1	4	245.98	262.94	32.63	o
9	1	4	399.65	368.85	38.75	o
10	1	4	174.02	139.50	41.17	o
11	1	4	2.60	10.67	27.38	o
12	1	4	97.78	71.29	39.45	o
13	1	4	6.53	13.63	32.43	o
-16	2	4	100.10	74.30	36.86	o
-15	2	4	15.65	22.91	29.54	o
-14	2	4	421.34	438.09	45.69	o
-13	2	4	215.47	216.60	40.27	o
-12	2	4	4.52	11.12	21.17	o
-11	2	4	1.03	7.59	17.72	o
-10	2	4	41.91	44.63	24.51	o
-9	2	4	164.49	151.77	28.35	o
-8	2	4	722.08	715.51	31.44	o
-7	2	4	58.17	40.84	16.83	o
-6	2	4	77.56	66.74	20.76	o
-5	2	4	103.35	96.33	21.17	o
-4	2	4	64.18	48.96	16.18	o
-3	2	4	0.05	5.39	9.22	o
-2	2	4	379.81	357.56	22.36	o
-1	2	4	278.90	320.43	24.12	o
0	2	4	1509.39	1565.38	38.51	o
1	2	4	505.80	469.88	27.63	o
2	2	4	106.93	96.22	23.43	o
3	2	4	5.34	9.25	12.90	o
4	2	4	20.16	15.16	13.60	o
5	2	4	179.69	162.32	30.29	o
6	2	4	17.06	18.39	17.60	o
7	2	4	295.65	268.38	35.38	o
8	2	4	784.01	833.15	46.43	o
9	2	4	12.72	19.92	23.88	o
10	2	4	8.02	17.53	26.57	o
11	2	4	40.15	22.05	21.91	o
12	2	4	0.09	4.13	30.69	o
13	2	4	0.38	0.79	26.68	o
-16	3	4	195.69	159.54	44.08	o
-15	3	4	0.64	13.96	28.19	o
-14	3	4	77.57	100.84	42.81	o
-13	3	4	71.25	77.26	34.06	o
-12	3	4	51.02	33.21	23.18	o
-11	3	4	519.32	494.36	34.73	o

-10	3	4	188.40	169.10	28.39	o
-9	3	4	246.36	225.92	30.17	o
-8	3	4	195.45	181.12	25.60	o
-7	3	4	147.87	145.46	25.73	o
-6	3	4	1484.79	1479.47	37.97	o
-5	3	4	528.30	502.49	25.19	o
-4	3	4	9.54	13.22	15.05	o
-3	3	4	1484.38	1476.36	35.00	o
-2	3	4	864.08	1006.36	32.42	o
-1	3	4	0.51	6.04	10.31	o
0	3	4	292.74	277.92	25.70	o
1	3	4	25.82	22.40	15.24	o
2	3	4	804.95	820.92	33.09	o
3	3	4	1545.13	1550.40	44.09	o
4	3	4	0.93	4.51	15.42	o
5	3	4	508.35	471.47	34.26	o
6	3	4	247.56	244.79	33.86	o
7	3	4	27.90	22.12	22.98	o
8	3	4	80.92	71.47	31.96	o
9	3	4	64.92	61.23	30.30	o
10	3	4	129.52	107.53	42.00	o
11	3	4	243.07	273.73	57.70	o
12	3	4	146.04	126.26	56.22	o
-17	4	4	55.85	40.31	51.75	o
-16	4	4	35.60	58.56	54.48	o
-15	4	4	60.85	53.61	44.26	o
-14	4	4	0.17	12.81	25.09	o
-13	4	4	277.51	203.44	36.36	o
-12	4	4	112.35	103.92	32.02	o
-11	4	4	37.79	38.51	21.71	o
-10	4	4	434.34	427.87	37.57	o
-9	4	4	750.48	758.71	42.11	o
-8	4	4	156.53	159.13	28.41	o
-7	4	4	9.04	8.33	15.77	o
-6	4	4	33.54	26.23	18.64	o
-5	4	4	1299.45	1267.90	38.06	o
-4	4	4	173.42	180.73	27.08	o
-3	4	4	490.36	483.61	28.32	o
-2	4	4	267.09	333.45	26.31	o
-1	4	4	1857.18	1845.68	44.53	o
0	4	4	3.30	29.73	17.73	o
1	4	4	1829.41	1873.77	47.28	o
2	4	4	670.42	704.23	34.44	o
3	4	4	700.73	770.94	37.84	o
4	4	4	583.16	621.73	40.03	o

5	4	4	827.08	912.16	41.81	o
6	4	4	161.42	136.35	33.56	o
7	4	4	167.74	113.11	30.12	o
8	4	4	3.45	10.66	21.76	o
9	4	4	465.16	423.82	51.47	o
10	4	4	110.10	109.30	42.02	o
11	4	4	7.44	9.08	29.63	o
12	4	4	12.76	20.18	33.38	o
-17	5	4	6.27	17.11	37.98	o
-16	5	4	6.05	7.10	40.13	o
-15	5	4	165.23	99.73	49.09	o
-14	5	4	0.97	10.34	24.88	o
-13	5	4	21.61	23.48	28.56	o
-12	5	4	2.32	7.09	23.41	o
-11	5	4	9.78	3.82	18.83	o
-10	5	4	48.70	35.76	23.48	o
-9	5	4	379.96	387.95	40.23	o
-8	5	4	166.55	158.84	33.57	o
-7	5	4	1048.86	1111.69	41.33	o
-6	5	4	47.91	38.50	23.03	o
-5	5	4	53.65	36.61	22.49	o
-4	5	4	1.38	8.46	15.53	o
-3	5	4	94.46	105.80	24.35	o
-2	5	4	190.35	152.86	27.25	o
-1	5	4	261.73	255.29	27.10	o
0	5	4	9.69	12.85	16.99	o
1	5	4	1183.76	1161.82	40.34	o
2	5	4	4.52	12.43	15.46	o
3	5	4	132.51	112.62	25.45	o
4	5	4	42.26	50.49	25.97	o
5	5	4	64.09	71.76	29.52	o
6	5	4	0.28	59.38	29.89	o
7	5	4	279.57	291.70	41.99	o
8	5	4	0.14	14.35	23.35	o
9	5	4	10.98	13.80	24.46	o
10	5	4	10.07	23.75	26.69	o
11	5	4	64.25	43.11	38.75	o
-18	6	4	21.20	2.22	36.35	o
-17	6	4	65.82	88.08	52.28	o
-16	6	4	24.90	38.83	42.39	o
-15	6	4	15.25	3.87	29.75	o
-14	6	4	88.94	61.40	39.00	o
-13	6	4	183.20	193.03	46.60	o
-12	6	4	11.66	21.48	27.10	o
-11	6	4	5.76	3.83	22.03	o

-10	6	4	0.30	8.01	22.77	o
-9	6	4	130.21	111.75	31.82	o
-8	6	4	70.90	81.39	28.90	o
-7	6	4	82.54	84.39	32.64	o
-6	6	4	315.79	289.35	32.29	o
-5	6	4	53.59	42.85	18.72	o
-4	6	4	364.15	343.10	32.09	o
-3	6	4	51.34	45.96	23.02	o
-2	6	4	177.52	170.78	27.43	o
-1	6	4	121.03	150.66	34.49	o
0	6	4	260.78	282.64	35.55	o
1	6	4	103.63	104.74	26.16	o
2	6	4	5.51	11.75	17.97	o
3	6	4	18.29	18.28	19.63	o
4	6	4	12.97	32.78	23.96	o
5	6	4	49.94	33.16	24.00	o
6	6	4	41.99	65.55	29.30	o
7	6	4	115.39	88.90	33.87	o
8	6	4	215.11	207.98	51.43	o
9	6	4	175.62	146.60	42.16	o
10	6	4	33.56	31.88	28.58	o
11	6	4	10.41	3.81	34.36	o
-18	7	4	2.07	16.61	42.40	o
-17	7	4	106.51	85.33	61.70	o
-16	7	4	0.00	8.88	31.96	o
-15	7	4	35.01	39.77	28.02	o
-14	7	4	2.61	19.33	41.01	o
-13	7	4	22.48	25.07	35.84	o
-12	7	4	17.69	27.63	36.19	o
-11	7	4	361.43	394.59	50.00	o
-10	7	4	14.16	6.50	22.20	o
-9	7	4	49.85	47.42	33.91	o
-8	7	4	10.45	12.59	21.41	o
-7	7	4	325.75	331.07	42.85	o
-6	7	4	40.95	33.62	25.08	o
-5	7	4	471.37	439.33	35.54	o
-4	7	4	65.80	51.89	27.16	o
-3	7	4	1247.11	1335.74	48.55	o
-2	7	4	225.12	228.77	30.66	o
-1	7	4	34.76	97.02	26.72	o
0	7	4	0.84	11.53	20.69	o
1	7	4	81.10	68.35	31.55	o
2	7	4	92.70	69.23	34.26	o
3	7	4	491.51	501.10	41.18	o
4	7	4	16.77	31.92	27.66	o

5	7	4	145.27	164.22	46.38	o
6	7	4	38.29	29.64	27.78	o
7	7	4	138.44	118.55	46.17	o
8	7	4	44.96	22.25	25.95	o
9	7	4	25.28	27.32	35.78	o
10	7	4	9.69	19.09	41.33	o
-17	8	4	6.52	10.10	43.37	o
-16	8	4	67.57	46.41	44.73	o
-15	8	4	21.24	35.49	43.17	o
-14	8	4	113.60	105.84	48.34	o
-13	8	4	50.23	39.61	42.35	o
-12	8	4	2.05	17.93	28.70	o
-11	8	4	47.58	53.26	39.84	o
-10	8	4	38.35	23.72	31.80	o
-9	8	4	61.68	61.33	33.62	o
-8	8	4	221.28	240.26	46.63	o
-7	8	4	27.30	32.39	28.74	o
-6	8	4	382.48	404.82	47.57	o
-5	8	4	48.64	46.04	28.69	o
-4	8	4	0.80	4.02	19.62	o
-3	8	4	0.48	13.27	21.84	o
-2	8	4	106.81	76.48	31.25	o
-1	8	4	86.89	82.37	31.29	o
0	8	4	566.47	609.67	48.59	o
1	8	4	226.62	234.65	47.49	o
2	8	4	1.78	11.11	24.30	o
3	8	4	7.95	20.47	29.88	o
4	8	4	165.43	135.52	40.30	o
5	8	4	124.07	128.60	45.28	o
6	8	4	187.12	173.90	49.34	o
7	8	4	45.53	38.22	29.02	o
8	8	4	304.53	301.68	65.70	o
9	8	4	107.44	89.48	40.05	o
-16	9	4	2.01	25.37	52.71	o
-15	9	4	36.61	33.07	46.37	o
-14	9	4	38.40	56.19	53.27	o
-13	9	4	28.06	46.04	53.55	o
-12	9	4	20.44	13.80	32.72	o
-11	9	4	30.92	44.38	38.46	o
-10	9	4	60.46	46.71	42.08	o
-9	9	4	5.02	14.19	27.14	o
-8	9	4	11.33	9.29	28.52	o
-7	9	4	225.32	253.66	50.11	o
-6	9	4	0.32	10.52	26.46	o
-5	9	4	15.91	14.66	24.12	o

-4	9	4	0.05	10.59	22.63	o
-3	9	4	2.84	21.83	29.66	o
-2	9	4	0.04	6.35	23.63	o
-1	9	4	44.50	45.24	27.49	o
0	9	4	29.85	18.60	25.48	o
1	9	4	210.96	191.67	45.72	o
2	9	4	12.53	22.37	27.87	o
3	9	4	13.72	12.53	21.10	o
4	9	4	2.12	21.89	27.58	o
5	9	4	40.85	28.04	35.06	o
6	9	4	66.01	46.99	35.41	o
7	9	4	83.15	85.57	48.18	o
8	9	4	2.54	13.67	36.72	o
-15	10	4	12.30	27.46	45.24	o
-14	10	4	2.15	-0.46	34.89	o
-13	10	4	49.53	86.39	50.90	o
-12	10	4	113.57	115.96	43.63	o
-11	10	4	4.64	19.61	36.48	o
-10	10	4	128.54	143.62	51.10	o
-9	10	4	32.04	29.96	42.68	o
-8	10	4	2.91	20.03	36.37	o
-7	10	4	0.19	9.48	27.72	o
-6	10	4	16.22	21.19	29.32	o
-5	10	4	9.47	14.83	29.43	o
-4	10	4	63.04	63.61	37.35	o
-3	10	4	7.93	22.95	30.88	o
-2	10	4	3.22	15.14	28.69	o
-1	10	4	46.76	27.66	27.09	o
0	10	4	0.16	16.14	35.41	o
1	10	4	70.70	36.68	39.13	o
2	10	4	89.40	64.74	42.51	o
3	10	4	19.41	19.36	24.94	o
4	10	4	284.34	299.29	62.89	o
5	10	4	14.80	25.57	39.81	o
6	10	4	43.55	31.27	39.04	o
7	10	4	63.70	58.42	40.01	o
8	10	4	7.09	18.01	38.80	o
-14	11	4	0.10	15.30	48.40	o
-13	11	4	30.01	37.64	48.64	o
-12	11	4	20.36	40.22	48.40	o
-11	11	4	19.84	25.01	36.73	o
-10	11	4	31.08	21.27	40.99	o
-9	11	4	23.83	37.56	40.97	o
-8	11	4	32.86	40.15	33.36	o
-7	11	4	2.65	13.67	36.54	o

-6	11	4	135.91	153.51	50.15	o
-5	11	4	53.97	36.09	35.21	o
-4	11	4	41.53	62.13	48.03	o
-3	11	4	14.12	11.04	31.74	o
-2	11	4	212.64	181.36	57.23	o
-1	11	4	72.21	35.43	30.00	o
0	11	4	19.61	13.17	32.83	o
1	11	4	10.97	14.54	32.82	o
2	11	4	140.24	107.58	38.33	o
3	11	4	13.79	17.20	36.19	o
4	11	4	1.09	27.95	44.53	o
5	11	4	34.21	39.60	40.39	o
6	11	4	36.00	25.68	31.86	o
7	11	4	26.01	39.91	36.97	o
8	11	4	31.72	39.44	45.19	o
9	11	4	7.68	31.98	44.60	o
-12	12	4	14.66	26.80	62.76	o
-11	12	4	0.20	37.09	50.32	o
-10	12	4	0.04	2.60	28.73	o
-9	12	4	0.08	13.09	44.50	o
-8	12	4	41.21	39.44	36.03	o
-7	12	4	8.00	19.55	31.59	o
-6	12	4	62.17	52.90	48.81	o
-1	12	4	3.80	28.95	26.23	o
0	12	4	180.84	146.33	51.50	o
1	12	4	4.29	40.39	40.46	o
2	12	4	25.61	39.00	43.75	o
3	12	4	2.48	35.53	45.79	o
4	12	4	2.10	12.34	28.89	o
5	12	4	2.42	17.88	46.38	o
6	12	4	24.79	24.90	46.92	o
7	12	4	4.89	37.69	50.74	o
8	12	4	30.80	58.19	59.59	o
9	12	4	0.00	35.71	55.69	o
-10	13	4	6.17	9.45	55.82	o
-9	13	4	0.46	-1.04	29.85	o
-8	13	4	1.98	17.53	37.98	o
-7	13	4	59.74	93.91	65.97	o
-5	13	4	25.14	38.74	44.78	o
-4	13	4	15.93	25.29	47.01	o
-3	13	4	9.70	9.40	36.94	o
-2	13	4	37.93	56.98	52.50	o
-1	13	4	16.54	39.78	38.65	o
0	13	4	31.54	32.05	51.62	o
1	13	4	32.98	62.09	46.47	o

2	13	4	1.80	13.88	41.03	o
3	13	4	0.49	11.20	43.43	o
4	13	4	0.05	19.40	45.65	o
5	13	4	6.86	26.47	46.66	o
6	13	4	0.33	11.50	41.63	o
7	13	4	20.94	25.53	40.92	o
-7	14	4	0.23	-2.42	34.71	o
-5	14	4	1.19	14.35	42.39	o
-4	14	4	47.51	62.80	52.28	o
-3	14	4	1.08	70.03	66.33	o
-2	14	4	21.50	35.42	54.07	o
-1	14	4	0.15	19.83	41.98	o
0	14	4	2.51	10.00	35.63	o
1	14	4	0.02	18.39	35.95	o
2	14	4	16.03	11.32	41.95	o
3	14	4	1.78	6.44	42.19	o
4	14	4	57.97	67.30	66.94	o
-16	0	5	1.16	18.48	39.90	o
-14	0	5	448.07	450.79	56.23	o
-12	0	5	11.90	23.03	20.86	o
-10	0	5	118.41	114.39	37.94	o
-8	0	5	471.75	526.28	30.24	o
-6	0	5	161.45	186.64	28.16	o
-4	0	5	83.71	118.30	24.27	o
-2	0	5	323.66	305.89	24.58	o
0	0	5	671.46	700.61	29.69	o
2	0	5	336.88	369.04	27.95	o
4	0	5	60.57	61.20	22.19	o
6	0	5	0.32	4.83	15.16	o
8	0	5	209.97	213.06	45.18	o
10	0	5	50.43	56.96	43.11	o
-16	1	5	90.92	57.22	37.35	o
-15	1	5	25.43	15.73	25.16	o
-14	1	5	1.60	13.37	29.13	o
-13	1	5	41.42	53.94	33.87	o
-12	1	5	214.76	222.00	42.36	o
-11	1	5	18.52	14.66	25.13	o
-10	1	5	12.23	9.96	20.35	o
-9	1	5	257.41	249.99	36.23	o
-8	1	5	715.04	702.06	33.42	o
-7	1	5	520.50	476.00	32.35	o
-6	1	5	244.58	216.18	29.79	o
-5	1	5	301.53	304.64	28.11	o
-4	1	5	387.26	396.49	27.47	o
-3	1	5	67.12	49.09	19.24	o

-2	1	5	19.82	19.70	15.52	o
-1	1	5	5.04	26.36	14.56	o
0	1	5	384.09	373.08	29.15	o
1	1	5	37.77	28.53	18.07	o
2	1	5	467.12	472.21	32.67	o
3	1	5	447.29	475.49	36.29	o
4	1	5	3.95	11.12	18.11	o
5	1	5	222.08	226.35	31.89	o
6	1	5	393.24	393.53	36.54	o
7	1	5	74.84	71.91	35.45	o
8	1	5	28.56	23.20	26.56	o
9	1	5	83.18	68.18	32.13	o
10	1	5	459.56	460.35	64.86	o
11	1	5	20.83	13.97	25.73	o
12	1	5	1.72	15.79	40.50	o
-17	2	5	12.25	18.63	39.52	o
-16	2	5	202.20	190.85	52.85	o
-15	2	5	79.76	78.19	42.63	o
-14	2	5	17.28	36.46	34.88	o
-13	2	5	35.77	23.04	26.72	o
-12	2	5	24.63	21.35	26.35	o
-11	2	5	184.21	159.09	40.34	o
-10	2	5	410.94	398.59	42.80	o
-9	2	5	1.82	8.03	20.48	o
-8	2	5	178.23	388.14	35.96	o
-7	2	5	82.50	97.56	32.68	o
-6	2	5	287.12	278.03	30.59	o
-5	2	5	82.61	85.26	24.45	o
-4	2	5	988.14	1007.37	34.96	o
-3	2	5	122.90	96.50	22.81	o
-2	2	5	1986.53	2100.76	46.14	o
-1	2	5	776.97	780.90	31.61	o
0	2	5	80.31	104.62	24.33	o
1	2	5	175.70	153.23	27.42	o
2	2	5	88.72	92.36	23.59	o
3	2	5	1016.53	1027.14	40.91	o
4	2	5	999.29	1005.91	44.49	o
5	2	5	5.36	11.73	19.54	o
6	2	5	309.15	335.90	47.24	o
7	2	5	220.12	176.16	37.24	o
8	2	5	119.28	92.06	40.25	o
9	2	5	9.38	5.95	23.11	o
10	2	5	100.04	109.66	43.05	o
11	2	5	0.07	1.47	27.18	o
-17	3	5	0.23	17.93	46.02	o

-16	3	5	0.14	15.79	29.17	o
-15	3	5	188.39	149.43	46.84	o
-14	3	5	0.92	7.56	26.57	o
-13	3	5	179.13	148.41	43.41	o
-12	3	5	12.04	7.30	25.56	o
-11	3	5	24.73	30.34	25.64	o
-10	3	5	2.71	8.25	19.37	o
-9	3	5	6.40	10.14	20.92	o
-8	3	5	221.59	207.49	30.81	o
-7	3	5	626.43	650.68	33.09	o
-6	3	5	0.01	9.88	13.99	o
-5	3	5	85.43	77.37	25.16	o
-4	3	5	73.20	67.67	19.10	o
-3	3	5	43.69	36.00	17.02	o
-2	3	5	79.57	53.41	22.04	o
-1	3	5	376.14	364.55	30.69	o
0	3	5	80.53	105.51	28.69	o
1	3	5	710.44	692.59	36.01	o
2	3	5	68.04	88.26	30.70	o
3	3	5	7.85	9.81	18.83	o
4	3	5	40.50	32.71	24.04	o
5	3	5	3.28	6.31	19.65	o
6	3	5	36.50	36.98	28.02	o
7	3	5	130.04	119.72	39.86	o
8	3	5	0.03	20.22	23.94	o
9	3	5	268.94	273.16	50.98	o
10	3	5	105.13	87.83	41.61	o
11	3	5	1.78	15.91	33.75	o
-18	4	5	1.27	21.71	43.75	o
-17	4	5	1.04	16.71	33.86	o
-16	4	5	0.12	10.09	25.87	o
-15	4	5	30.68	17.76	31.16	o
-14	4	5	306.96	293.10	59.10	o
-13	4	5	72.92	39.86	27.14	o
-12	4	5	47.74	41.33	30.14	o
-11	4	5	5.97	16.49	29.18	o
-10	4	5	0.23	3.07	17.15	o
-9	4	5	61.88	47.57	26.79	o
-8	4	5	29.32	28.21	19.01	o
-7	4	5	31.33	18.51	18.07	o
-6	4	5	435.52	451.84	31.49	o
-5	4	5	100.46	96.66	24.37	o
-4	4	5	36.84	29.51	19.18	o
-3	4	5	90.76	79.13	26.40	o
-2	4	5	51.68	58.81	24.94	o

-1	4	5	41.03	44.79	23.20	o
0	4	5	427.46	429.16	37.18	o
1	4	5	1.13	10.15	16.08	o
2	4	5	531.35	536.50	40.15	o
3	4	5	10.04	13.23	20.77	o
4	4	5	11.68	19.69	21.15	o
5	4	5	7.77	13.60	21.21	o
6	4	5	20.07	23.55	29.39	o
7	4	5	14.40	21.66	23.08	o
8	4	5	138.70	132.77	45.97	o
9	4	5	11.53	28.85	28.31	o
10	4	5	60.00	55.20	37.77	o
11	4	5	3.24	33.60	38.94	o
-18	5	5	4.47	19.28	40.68	o
-17	5	5	84.35	81.06	64.85	o
-16	5	5	56.38	35.45	43.82	o
-15	5	5	6.48	16.33	30.37	o
-14	5	5	1.81	5.71	24.55	o
-13	5	5	0.14	13.53	25.89	o
-12	5	5	170.29	159.49	45.24	o
-11	5	5	376.68	370.05	49.54	o
-10	5	5	29.79	29.47	32.00	o
-9	5	5	456.88	462.72	40.84	o
-8	5	5	166.05	122.32	31.56	o
-7	5	5	253.08	225.83	35.29	o
-6	5	5	3.94	17.02	21.47	o
-5	5	5	18.61	14.32	19.53	o
-4	5	5	0.04	3.85	16.47	o
-3	5	5	948.76	995.90	40.18	o
-2	5	5	0.09	284.15	45.19	o
-1	5	5	594.89	563.93	37.22	o
0	5	5	83.45	68.86	27.58	o
1	5	5	57.59	46.02	24.54	o
2	5	5	120.18	77.89	28.53	o
3	5	5	340.23	349.33	38.06	o
4	5	5	96.24	80.60	32.00	o
5	5	5	362.06	385.87	47.85	o
6	5	5	11.74	16.50	25.94	o
7	5	5	51.53	49.54	37.42	o
8	5	5	144.86	115.61	40.81	o
9	5	5	81.97	51.71	41.96	o
10	5	5	21.33	33.36	40.07	o
-18	6	5	3.69	17.10	43.42	o
-17	6	5	2.56	6.23	30.92	o
-16	6	5	31.11	50.17	50.69	o

-15	6	5	114.95	103.77	41.37	o
-14	6	5	7.94	29.73	43.15	o
-13	6	5	3.43	19.45	35.54	o
-12	6	5	12.05	17.07	26.96	o
-11	6	5	78.23	39.74	23.16	o
-10	6	5	15.30	21.54	27.45	o
-9	6	5	35.70	34.82	32.54	o
-8	6	5	332.77	317.75	48.09	o
-7	6	5	186.43	174.11	31.20	o
-6	6	5	205.98	185.23	36.15	o
-5	6	5	542.65	582.32	43.82	o
-4	6	5	40.13	34.43	23.39	o
-3	6	5	97.99	93.94	36.78	o
-2	6	5	12.37	28.86	26.48	o
-1	6	5	738.01	758.75	45.24	o
0	6	5	94.69	109.96	34.16	o
1	6	5	10.91	14.93	24.04	o
2	6	5	24.61	22.52	24.68	o
3	6	5	469.69	469.20	48.52	o
4	6	5	18.24	31.88	31.88	o
5	6	5	14.09	34.18	29.54	o
6	6	5	186.07	163.75	54.41	o
7	6	5	199.46	177.28	52.90	o
8	6	5	138.30	122.67	46.45	o
9	6	5	93.86	80.64	47.38	o
-17	7	5	0.68	12.82	29.72	o
-16	7	5	9.11	12.03	40.51	o
-15	7	5	35.49	28.11	27.87	o
-14	7	5	8.00	5.01	31.14	o
-13	7	5	108.24	137.02	41.71	o
-12	7	5	13.58	21.17	36.97	o
-11	7	5	5.40	7.99	34.93	o
-10	7	5	46.66	30.07	31.37	o
-9	7	5	3.37	8.37	26.54	o
-8	7	5	0.02	7.22	26.32	o
-7	7	5	320.48	330.50	46.02	o
-6	7	5	17.59	13.79	23.18	o
-5	7	5	234.89	243.92	43.76	o
-4	7	5	3.57	6.88	21.41	o
-3	7	5	15.82	6.39	22.33	o
-2	7	5	13.30	12.36	24.05	o
-1	7	5	0.90	13.49	25.45	o
0	7	5	50.52	35.00	25.65	o
1	7	5	242.97	278.07	49.45	o
2	7	5	1.25	10.31	24.39	o

3	7	5	7.54	15.84	24.30	o
4	7	5	2.21	16.04	36.21	o
5	7	5	1.83	4.57	23.31	o
6	7	5	18.95	28.65	30.57	o
7	7	5	90.10	102.50	49.22	o
8	7	5	0.40	15.57	33.53	o
-17	8	5	0.51	14.53	33.07	o
-16	8	5	1.68	15.28	38.94	o
-15	8	5	160.44	102.08	39.51	o
-14	8	5	0.24	-2.79	31.24	o
-13	8	5	24.75	44.69	43.85	o
-12	8	5	18.05	2.86	31.39	o
-11	8	5	51.41	29.39	32.58	o
-10	8	5	69.93	65.63	41.88	o
-9	8	5	16.13	11.89	31.57	o
-8	8	5	38.33	23.35	37.16	o
-7	8	5	28.23	32.67	35.29	o
-6	8	5	175.61	176.07	45.53	o
-5	8	5	167.74	144.22	41.28	o
-4	8	5	88.78	96.82	37.47	o
-3	8	5	1.78	9.60	24.92	o
-2	8	5	0.92	10.43	24.37	o
-1	8	5	229.81	241.37	45.68	o
0	8	5	0.31	10.51	25.13	o
1	8	5	23.10	20.57	24.09	o
2	8	5	54.99	44.30	35.94	o
3	8	5	190.42	155.63	51.91	o
4	8	5	103.86	112.94	45.86	o
5	8	5	24.01	20.08	33.91	o
6	8	5	90.26	80.65	41.22	o
7	8	5	154.70	122.32	51.95	o
-16	9	5	17.53	11.87	36.98	o
-15	9	5	1.29	5.16	35.67	o
-14	9	5	4.50	-0.45	42.31	o
-13	9	5	11.60	22.09	44.58	o
-12	9	5	74.53	58.99	40.52	o
-11	9	5	98.90	103.87	41.01	o
-10	9	5	25.51	4.98	29.67	o
-9	9	5	229.67	256.13	56.65	o
-8	9	5	84.23	58.09	36.40	o
-7	9	5	25.98	17.99	31.22	o
-6	9	5	8.83	45.59	43.17	o
-5	9	5	1.11	17.60	27.91	o
-4	9	5	64.55	67.48	36.73	o
-3	9	5	180.66	191.68	51.80	o

-2	9	5	70.48	82.91	42.18	o
-1	9	5	247.84	197.45	46.84	o
0	9	5	46.83	44.74	36.60	o
1	9	5	20.90	27.14	31.33	o
2	9	5	186.19	111.16	46.74	o
3	9	5	37.32	45.80	52.13	o
4	9	5	82.41	84.46	47.48	o
5	9	5	162.46	151.67	46.09	o
6	9	5	101.28	64.93	32.41	o
-14	10	5	63.69	40.27	63.45	o
-13	10	5	0.02	14.90	36.40	o
-12	10	5	74.37	89.40	50.25	o
-11	10	5	5.48	22.12	40.30	o
-10	10	5	6.97	9.28	28.58	o
-9	10	5	3.00	34.89	43.80	o
-8	10	5	1.91	32.30	26.97	o
-7	10	5	34.99	29.71	34.60	o
-6	10	5	145.70	147.97	52.54	o
-5	10	5	17.52	31.25	38.25	o
-4	10	5	2.83	15.03	34.85	o
-3	10	5	11.72	16.59	38.98	o
-2	10	5	20.58	21.88	37.22	o
-1	10	5	29.43	34.86	38.30	o
0	10	5	260.03	266.20	59.36	o
1	10	5	7.65	24.68	37.84	o
3	10	5	33.27	49.99	42.19	o
4	10	5	7.33	22.62	37.59	o
5	10	5	8.30	20.90	36.01	o
6	10	5	9.82	23.39	39.10	o
7	10	5	11.69	16.59	48.11	o
-13	11	5	28.45	30.87	40.69	o
-12	11	5	22.12	38.39	59.28	o
-11	11	5	7.56	10.68	39.43	o
-10	11	5	2.29	49.38	58.40	o
-9	11	5	14.07	38.94	47.15	o
-8	11	5	55.57	40.39	51.01	o
-7	11	5	54.94	56.22	44.32	o
-6	11	5	0.48	20.90	33.26	o
2	11	5	0.36	18.43	31.27	o
3	11	5	1.45	46.41	51.40	o
4	11	5	5.72	28.40	43.52	o
5	11	5	0.10	7.83	34.08	o
6	11	5	6.51	12.20	35.04	o
7	11	5	19.73	24.06	49.24	o
-11	12	5	4.34	5.06	32.97	o

-10	12	5	92.83	78.51	49.79	o
-9	12	5	0.09	19.54	38.79	o
-8	12	5	0.76	23.76	41.48	o
-7	12	5	12.88	0.42	34.76	o
0	12	5	2.54	53.69	65.19	o
1	12	5	0.32	18.35	29.95	o
2	12	5	17.66	13.76	43.92	o
3	12	5	18.65	14.28	37.31	o
4	12	5	25.88	13.18	39.81	o
5	12	5	1.03	14.81	39.65	o
6	12	5	56.49	57.27	50.44	o
7	12	5	12.87	16.01	44.77	o
-8	13	5	85.74	66.16	64.77	o
-3	13	5	2.72	28.17	51.88	o
-2	13	5	1.67	10.47	44.01	o
-1	13	5	1.91	26.97	47.64	o
0	13	5	41.86	29.40	51.06	o
1	13	5	19.60	33.79	48.67	o
2	13	5	5.49	22.09	40.46	o
3	13	5	11.79	20.39	35.70	o
4	13	5	3.67	49.38	61.62	o
5	13	5	0.12	24.31	45.84	o
-16	0	6	263.24	296.76	72.02	o
-14	0	6	80.87	82.18	41.75	o
-12	0	6	2.14	12.92	26.07	o
-10	0	6	78.57	79.61	30.69	o
-8	0	6	665.90	703.09	51.87	o
-6	0	6	323.83	303.78	36.65	o
-4	0	6	12.22	14.29	19.75	o
-2	0	6	1606.00	1684.16	49.30	o
0	0	6	881.23	882.93	48.16	o
2	0	6	306.50	256.64	38.61	o
4	0	6	94.70	58.79	24.04	o
6	0	6	346.29	370.39	51.91	o
-17	1	6	5.06	13.79	31.61	o
-16	1	6	2.80	22.32	33.79	o
-15	1	6	3.27	20.44	32.87	o
-14	1	6	90.81	73.26	39.76	o
-13	1	6	243.72	227.75	49.28	o
-12	1	6	15.51	27.09	30.26	o
-11	1	6	98.93	75.63	36.12	o
-10	1	6	58.77	75.24	34.89	o
-9	1	6	21.19	33.86	28.76	o
-8	1	6	27.02	44.98	28.49	o
-7	1	6	130.90	134.37	34.64	o

-6	1	6	120.41	98.95	29.77	o
-5	1	6	79.62	108.15	33.32	o
-4	1	6	55.10	46.57	23.92	o
-3	1	6	6.90	11.62	14.78	o
-2	1	6	71.92	61.93	27.74	o
-1	1	6	44.72	45.89	27.69	o
0	1	6	96.18	105.45	27.83	o
1	1	6	322.87	309.07	35.50	o
2	1	6	18.00	21.35	23.15	o
3	1	6	373.76	379.52	39.11	o
4	1	6	73.06	61.00	32.55	o
5	1	6	39.39	41.99	30.75	o
6	1	6	5.37	11.65	25.78	o
7	1	6	2.91	4.72	29.17	o
8	1	6	184.08	171.82	49.34	o
-18	2	6	20.56	18.01	42.59	o
-17	2	6	3.69	19.24	35.87	o
-16	2	6	9.31	20.49	29.93	o
-15	2	6	19.95	22.26	40.05	o
-14	2	6	118.53	99.17	45.06	o
-13	2	6	6.67	16.67	29.29	o
-12	2	6	63.33	195.69	56.97	o
-11	2	6	0.69	23.80	26.94	o
-10	2	6	2.62	34.79	32.02	o
-9	2	6	11.12	16.62	20.89	o
-8	2	6	19.81	24.05	21.63	o
-7	2	6	50.04	31.68	18.51	o
-6	2	6	610.97	646.35	44.78	o
-5	2	6	24.10	25.23	26.10	o
-4	2	6	106.41	172.72	33.82	o
-3	2	6	54.35	54.41	27.43	o
-2	2	6	70.49	65.45	29.67	o
-1	2	6	18.59	16.01	19.54	o
0	2	6	0.35	6.81	18.07	o
1	2	6	39.75	33.19	23.04	o
2	2	6	191.55	217.63	39.04	o
3	2	6	8.48	46.68	27.16	o
4	2	6	91.75	104.05	38.49	o
5	2	6	38.71	39.49	29.63	o
6	2	6	19.64	-13.82	28.88	o
7	2	6	50.62	17.19	30.71	o
8	2	6	44.65	40.18	28.70	o
9	2	6	0.01	20.48	36.36	o
-18	3	6	20.92	23.93	42.74	o
-17	3	6	22.98	21.38	39.60	o

-16	3	6	10.49	27.86	39.15	o
-15	3	6	60.03	84.59	53.41	o
-14	3	6	146.19	116.66	47.11	o
-13	3	6	0.25	13.82	31.27	o
-12	3	6	176.88	126.10	34.93	o
-11	3	6	0.24	18.88	26.59	o
-10	3	6	189.52	154.71	47.65	o
-9	3	6	214.80	222.42	45.85	o
-8	3	6	134.76	126.16	41.40	o
-7	3	6	327.93	306.27	40.89	o
-6	3	6	175.31	166.56	35.14	o
-5	3	6	26.12	59.93	26.34	o
-4	3	6	86.32	95.96	36.53	o
-3	3	6	107.49	98.50	29.22	o
-2	3	6	14.87	10.19	17.17	o
-1	3	6	259.72	271.45	34.35	o
0	3	6	214.43	192.33	35.02	o
1	3	6	2.52	6.90	21.05	o
2	3	6	36.83	25.93	21.27	o
3	3	6	4.47	11.91	20.40	o
4	3	6	254.98	221.88	46.58	o
5	3	6	198.34	197.56	51.85	o
6	3	6	5.09	10.67	27.04	o
7	3	6	119.40	109.67	44.91	o
8	3	6	346.85	347.20	66.08	o
9	3	6	0.06	13.88	37.55	o
-18	4	6	11.88	23.56	37.44	o
-17	4	6	20.47	48.42	58.23	o
-16	4	6	62.95	69.65	36.69	o
-15	4	6	22.11	43.75	46.53	o
-14	4	6	3.33	23.48	34.35	o
-13	4	6	15.36	18.81	30.53	o
-12	4	6	0.49	10.26	27.66	o
-11	4	6	99.84	81.44	37.83	o
-10	4	6	56.32	63.65	33.04	o
-9	4	6	38.53	22.38	27.06	o
-8	4	6	371.64	386.91	46.68	o
-7	4	6	472.02	459.36	44.20	o
-6	4	6	0.30	31.90	32.02	o
-5	4	6	4.34	3.90	18.99	o
-4	4	6	68.94	55.49	26.79	o
-3	4	6	472.75	478.71	42.35	o
-2	4	6	358.37	366.86	36.95	o
-1	4	6	25.44	16.49	22.45	o
0	4	6	143.94	134.26	35.78	o

1	4	6	358.57	362.26	45.11	o
2	4	6	76.33	41.99	31.36	o
3	4	6	145.81	119.19	40.46	o
4	4	6	75.10	70.55	39.29	o
5	4	6	36.14	19.36	29.35	o
6	4	6	175.75	197.54	50.51	o
7	4	6	121.54	111.88	43.10	o
8	4	6	16.05	24.42	42.69	o
-18	5	6	4.05	17.13	47.49	o
-17	5	6	0.99	7.52	36.95	o
-16	5	6	0.12	27.80	49.88	o
-15	5	6	8.19	27.92	44.45	o
-14	5	6	18.78	12.53	29.51	o
-13	5	6	220.52	152.57	37.48	o
-12	5	6	0.00	46.98	46.47	o
-11	5	6	23.38	22.50	26.51	o
-10	5	6	31.41	26.46	30.73	o
-9	5	6	25.84	11.86	24.90	o
-8	5	6	18.34	12.22	27.66	o
-7	5	6	26.52	37.52	25.94	o
-6	5	6	5.26	6.84	26.07	o
-5	5	6	317.80	308.16	43.01	o
-4	5	6	5.86	6.91	23.30	o
-3	5	6	150.48	147.13	38.30	o
-2	5	6	11.65	10.34	20.44	o
-1	5	6	19.20	16.05	21.71	o
0	5	6	160.92	136.77	36.36	o
1	5	6	151.41	182.60	43.58	o
2	5	6	16.51	17.36	25.73	o
3	5	6	52.89	47.76	27.41	o
4	5	6	76.47	59.11	35.19	o
5	5	6	4.37	11.90	26.76	o
6	5	6	5.78	15.22	31.78	o
7	5	6	1.12	4.98	24.67	o
-17	6	6	31.36	41.17	51.34	o
-16	6	6	0.75	-3.28	29.48	o
-15	6	6	51.90	36.58	50.12	o
-14	6	6	49.04	36.16	45.75	o
-13	6	6	0.66	9.76	33.70	o
-12	6	6	80.26	32.38	27.17	o
-11	6	6	37.80	57.90	37.94	o
-10	6	6	26.01	12.56	27.69	o
-9	6	6	24.49	21.10	28.03	o
-8	6	6	8.90	12.23	26.27	o
-7	6	6	170.97	165.40	44.61	o

-6	6	6	239.28	265.10	50.81	o
-5	6	6	91.70	71.58	36.68	o
-4	6	6	16.44	14.69	22.73	o
-3	6	6	109.71	99.36	39.93	o
-2	6	6	12.89	13.76	26.64	o
-1	6	6	0.02	7.77	23.55	o
0	6	6	27.88	28.07	29.83	o
1	6	6	127.06	92.06	37.83	o
2	6	6	428.48	432.26	55.08	o
3	6	6	3.02	3.31	25.87	o
4	6	6	61.24	30.98	29.34	o
5	6	6	14.24	31.76	39.32	o
6	6	6	1.81	3.95	28.07	o
-16	7	6	0.05	10.95	35.31	o
-15	7	6	97.13	65.70	46.06	o
-14	7	6	0.18	27.58	29.47	o
-13	7	6	54.28	22.42	44.01	o
-12	7	6	9.65	16.38	39.43	o
-11	7	6	12.63	11.98	32.58	o
-10	7	6	19.21	9.52	26.73	o
-9	7	6	403.34	434.87	66.25	o
-8	7	6	5.97	1.40	25.50	o
-7	7	6	18.43	22.73	33.56	o
-6	7	6	24.55	23.76	35.57	o
-5	7	6	121.83	94.97	35.94	o
-4	7	6	1.99	25.81	36.00	o
-3	7	6	159.21	135.00	47.28	o
-2	7	6	2.83	31.33	36.62	o
-1	7	6	517.08	534.05	57.74	o
0	7	6	0.32	6.40	25.54	o
1	7	6	42.45	18.58	25.81	o
2	7	6	4.72	15.64	28.43	o
3	7	6	10.45	11.11	32.85	o
4	7	6	18.29	49.63	55.60	o
5	7	6	344.74	367.42	71.17	o
-15	8	6	11.23	24.84	39.51	o
-14	8	6	11.84	11.17	31.89	o
-13	8	6	9.92	2.01	33.67	o
-12	8	6	129.42	109.30	54.63	o
-11	8	6	6.16	8.63	27.47	o
-10	8	6	23.10	34.69	43.37	o
-9	8	6	0.79	2.74	24.39	o
-8	8	6	0.78	4.02	23.98	o
-7	8	6	174.18	173.82	53.59	o
-6	8	6	52.83	57.22	39.32	o

-5	8	6	67.90	38.49	34.38	o
-4	8	6	68.66	54.26	27.80	o
-3	8	6	248.85	265.31	63.37	o
-2	8	6	18.58	20.25	27.24	o
-1	8	6	22.87	19.77	35.14	o
0	8	6	39.49	40.75	39.44	o
1	8	6	223.76	228.00	66.07	o
2	8	6	265.18	272.41	61.60	o
3	8	6	64.91	61.47	49.82	o
-14	9	6	19.28	14.21	45.12	o
-13	9	6	84.55	75.08	65.00	o
-12	9	6	5.78	0.16	31.57	o
-11	9	6	22.83	8.37	32.13	o
-10	9	6	14.61	9.16	29.06	o
-9	9	6	6.52	9.52	26.69	o
-8	9	6	0.18	14.72	40.38	o
-7	9	6	17.38	20.97	29.25	o
-4	9	6	0.71	29.84	48.27	o
-3	9	6	8.51	14.29	42.31	o
-2	9	6	13.51	12.68	31.80	o
-1	9	6	3.67	14.12	34.31	o
0	9	6	31.90	15.05	41.71	o
1	9	6	179.86	194.44	65.89	o
4	9	6	31.99	29.48	36.25	o
5	9	6	15.69	15.35	53.55	o
-13	10	6	0.68	17.56	38.45	o
-12	10	6	0.79	12.11	48.83	o
-11	10	6	39.15	50.61	51.59	o
-10	10	6	69.95	81.09	57.70	o
-9	10	6	0.29	-7.34	35.66	o
-8	10	6	27.94	47.89	44.32	o
-7	10	6	99.51	82.01	39.86	o
3	10	6	41.12	32.07	32.64	o
4	10	6	0.53	13.23	33.20	o
5	10	6	10.85	24.02	45.10	o
-11	11	6	14.77	36.20	51.48	o
-10	11	6	61.77	26.42	42.96	o
-9	11	6	44.20	41.45	50.40	o
-8	11	6	56.17	47.16	47.72	o
2	11	6	1.33	94.17	47.29	o
3	11	6	7.15	42.72	61.95	o
4	11	6	93.61	85.07	65.56	o
5	11	6	28.82	34.03	50.69	o
-9	12	6	4.91	27.59	48.88	o
0	12	6	0.10	24.63	46.39	o

1	12	6	1.40	33.57	53.29	o
2	12	6	82.91	101.96	77.83	o
3	12	6	2.95	13.31	37.69	o
4	12	6	1.55	20.33	49.55	o
-2	13	6	2.51	35.42	50.21	o
-1	13	6	0.81	23.04	65.42	o
0	13	6	21.08	0.97	41.42	o
-16	0	7	0.09	25.72	50.10	o
-14	0	7	4.53	18.48	34.96	o
-12	0	7	167.59	191.21	61.13	o
-10	0	7	0.30	20.35	29.51	o
-8	0	7	68.29	53.00	34.03	o
-6	0	7	208.15	217.85	50.65	o
-4	0	7	584.73	596.05	43.29	o
-2	0	7	256.96	256.02	54.79	o
0	0	7	33.06	22.57	26.51	o
2	0	7	12.53	27.43	27.95	o
-18	1	7	23.10	58.17	51.09	o
-17	1	7	5.42	16.65	42.31	o
-16	1	7	75.33	76.63	59.89	o
-15	1	7	28.90	17.24	49.33	o
-14	1	7	128.35	120.63	56.08	o
-13	1	7	92.40	93.06	53.57	o
-12	1	7	6.50	10.79	35.12	o
-11	1	7	16.71	26.42	28.77	o
-10	1	7	136.01	117.91	42.69	o
-9	1	7	1.04	7.13	24.38	o
-8	1	7	8.90	5.63	22.91	o
-7	1	7	90.73	97.76	37.15	o
-6	1	7	469.51	494.39	49.80	o
-5	1	7	45.55	42.14	28.91	o
-4	1	7	26.50	54.42	30.07	o
-3	1	7	44.01	37.64	30.92	o
-2	1	7	295.69	283.20	45.04	o
-1	1	7	221.93	189.49	50.33	o
0	1	7	33.97	28.43	27.66	o
1	1	7	123.36	104.24	42.20	o
2	1	7	255.77	218.89	44.15	o
3	1	7	4.63	21.41	30.88	o
4	1	7	117.11	102.48	43.89	o
-18	2	7	0.16	7.46	34.20	o
-17	2	7	23.96	18.19	46.76	o
-16	2	7	46.82	62.58	57.29	o
-15	2	7	0.66	12.06	39.31	o
-14	2	7	94.32	83.49	46.08	o

-13	2	7	75.47	79.59	44.90	o
-12	2	7	25.06	13.34	30.73	o
-11	2	7	0.07	28.78	38.54	o
-10	2	7	1.44	0.85	27.05	o
-9	2	7	102.71	72.56	37.88	o
-8	2	7	790.05	863.07	62.02	o
-7	2	7	46.35	38.12	28.48	o
-6	2	7	89.83	79.05	39.51	o
-5	2	7	65.36	58.17	31.63	o
-4	2	7	211.13	155.43	42.35	o
-3	2	7	231.23	204.55	48.88	o
-2	2	7	56.80	66.11	30.78	o
-1	2	7	90.48	80.03	35.68	o
0	2	7	719.41	758.29	57.54	o
1	2	7	293.82	260.88	55.07	o
2	2	7	34.25	26.52	32.23	o
3	2	7	31.90	20.18	25.83	o
4	2	7	0.17	6.74	25.95	o
5	2	7	64.53	161.01	51.36	o
6	2	7	303.87	257.72	54.63	o
-17	3	7	2.41	8.09	39.41	o
-16	3	7	3.87	39.64	47.12	o
-15	3	7	40.63	57.00	49.34	o
-14	3	7	49.50	62.60	43.71	o
-13	3	7	106.18	83.08	37.93	o
-12	3	7	10.50	10.34	25.86	o
-11	3	7	261.19	291.09	61.16	o
-10	3	7	14.99	41.07	37.09	o
-9	3	7	12.78	14.11	25.95	o
-8	3	7	82.68	42.55	25.29	o
-7	3	7	0.54	22.22	27.71	o
-6	3	7	28.60	17.74	24.35	o
-5	3	7	203.59	218.53	42.24	o
-4	3	7	8.93	16.17	24.86	o
-3	3	7	75.07	99.00	45.40	o
-2	3	7	3.12	19.47	28.47	o
-1	3	7	22.54	10.96	19.79	o
0	3	7	80.54	92.56	40.21	o
1	3	7	4.16	23.73	28.25	o
2	3	7	52.84	46.06	37.75	o
3	3	7	382.97	382.46	54.97	o
4	3	7	101.90	64.04	39.94	o
5	3	7	132.43	115.73	44.32	o
6	3	7	50.94	45.14	44.41	o
-17	4	7	19.29	38.95	51.73	o

-16	4	7	2.25	5.10	47.40	o
-15	4	7	16.98	34.98	45.15	o
-14	4	7	10.96	23.40	41.85	o
-13	4	7	45.83	111.27	53.72	o
-12	4	7	166.27	167.63	56.48	o
-11	4	7	54.27	50.57	37.43	o
-10	4	7	39.46	56.02	44.03	o
-9	4	7	61.18	106.27	41.81	o
-8	4	7	0.44	22.19	24.67	o
-7	4	7	47.39	34.81	30.57	o
-6	4	7	115.50	90.21	38.87	o
-5	4	7	29.82	9.06	21.13	o
-4	4	7	66.99	94.93	45.06	o
-3	4	7	5.89	14.74	33.77	o
-2	4	7	2.65	15.67	23.26	o
-1	4	7	35.26	25.68	27.13	o
0	4	7	0.14	-0.03	20.59	o
1	4	7	24.30	11.36	23.65	o
2	4	7	197.35	207.20	64.39	o
3	4	7	4.05	9.00	24.79	o
4	4	7	80.28	65.17	47.56	o
5	4	7	17.39	41.77	36.78	o
6	4	7	5.29	13.05	39.28	o
-16	5	7	6.72	13.34	36.65	o
-15	5	7	171.99	181.98	65.23	o
-14	5	7	54.45	35.67	47.27	o
-13	5	7	0.68	33.82	48.85	o
-12	5	7	0.58	19.44	47.40	o
-11	5	7	46.39	41.63	38.02	o
-10	5	7	1.89	13.72	34.51	o
-9	5	7	113.16	115.66	50.57	o
-8	5	7	3.50	28.02	29.87	o
-7	5	7	424.05	434.13	55.78	o
-6	5	7	0.08	15.35	33.11	o
-5	5	7	25.61	15.72	26.39	o
-4	5	7	110.50	103.13	46.60	o
-3	5	7	0.21	9.92	30.82	o
-2	5	7	0.10	9.23	24.37	o
-1	5	7	451.59	463.52	65.96	o
0	5	7	58.09	59.43	39.61	o
1	5	7	49.17	47.58	36.77	o
2	5	7	52.12	28.44	27.96	o
3	5	7	160.88	134.91	47.28	o
4	5	7	4.96	14.61	31.69	o
5	5	7	35.92	46.79	43.27	o

-16	6	7	1.47	32.17	59.54	o
-15	6	7	0.95	26.91	47.66	o
-14	6	7	7.62	19.62	46.09	o
-13	6	7	32.40	26.87	46.41	o
-12	6	7	59.30	57.67	50.81	o
-11	6	7	25.03	18.81	41.82	o
-10	6	7	48.91	39.23	29.83	o
-9	6	7	114.46	81.83	38.55	o
-8	6	7	0.46	23.73	38.72	o
-7	6	7	192.16	162.16	53.03	o
-6	6	7	1.52	11.95	27.41	o
-5	6	7	174.34	134.98	46.00	o
-4	6	7	109.30	100.98	42.29	o
-3	6	7	206.73	163.94	45.94	o
-2	6	7	54.63	32.51	34.28	o
-1	6	7	124.83	99.03	44.33	o
0	6	7	28.31	28.12	26.67	o
1	6	7	187.31	173.24	58.05	o
2	6	7	38.68	45.64	45.72	o
3	6	7	10.38	21.39	40.22	o
-15	7	7	3.39	21.41	48.96	o
-14	7	7	15.71	20.49	48.05	o
-13	7	7	33.10	54.56	52.75	o
-12	7	7	3.20	27.04	48.69	o
-11	7	7	28.00	38.41	44.48	o
-10	7	7	19.65	24.05	35.97	o
-9	7	7	1.18	11.38	32.29	o
-8	7	7	0.18	4.02	25.04	o
-7	7	7	1.57	23.08	33.69	o
-4	7	7	1.14	8.18	28.60	o
-3	7	7	45.38	36.58	29.85	o
-2	7	7	0.30	14.17	34.56	o
-1	7	7	7.31	17.12	35.62	o
0	7	7	2.38	17.56	35.91	o
-14	8	7	20.07	13.13	51.60	o
-13	8	7	6.67	3.68	40.26	o
-12	8	7	2.09	46.35	52.08	o
-11	8	7	54.76	37.34	51.35	o
-10	8	7	11.24	51.29	53.37	o
-9	8	7	2.27	6.68	30.74	o
-8	8	7	23.06	31.48	31.78	o
-12	9	7	19.60	20.57	53.84	o
-11	9	7	0.61	33.16	55.85	o
-10	9	7	24.89	28.89	43.88	o
-9	9	7	50.62	40.31	48.10	o

-8	9	7	1.91	10.21	31.00	o
-11	10	7	0.57	20.10	40.67	o
-10	10	7	15.54	50.88	57.54	o
-9	10	7	6.75	22.11	51.22	o
3	10	7	16.85	18.66	41.51	o
2	11	7	3.53	13.41	31.89	o
3	11	7	68.26	25.95	46.18	o
-12	0	8	22.11	26.30	37.32	o
-4	0	8	151.85	97.96	51.68	o
-2	0	8	44.54	8.12	30.21	o
0	0	8	432.12	492.93	68.12	o
2	0	8	1.34	9.60	34.80	o
-16	1	8	27.81	83.72	63.36	o
-15	1	8	3.71	27.50	47.49	o
-14	1	8	7.12	41.88	52.29	o
-13	1	8	17.00	45.02	42.18	o
-12	1	8	17.28	26.92	40.06	o
-11	1	8	102.93	115.24	50.94	o
-10	1	8	51.49	34.08	38.24	o
-9	1	8	2.93	16.76	39.98	o
-8	1	8	71.59	66.86	47.04	o
-7	1	8	0.45	11.09	40.42	o
-6	1	8	245.19	255.43	57.59	o
-5	1	8	155.27	126.24	43.26	o
-4	1	8	31.24	28.37	32.48	o
-3	1	8	134.17	135.36	44.70	o
-2	1	8	148.14	129.16	47.50	o
-1	1	8	3.39	15.38	30.65	o
0	1	8	30.59	51.93	33.91	o
1	1	8	2.71	15.30	39.32	o
2	1	8	187.95	156.05	55.69	o
3	1	8	35.72	33.83	50.88	o
-16	2	8	0.42	15.34	35.60	o
-15	2	8	0.24	10.51	34.89	o
-14	2	8	13.89	-1.04	34.35	o
-13	2	8	30.75	22.74	42.88	o
-12	2	8	185.88	165.01	65.93	o
-11	2	8	3.12	68.43	42.19	o
-10	2	8	94.47	135.68	47.48	o
-9	2	8	15.99	17.93	26.91	o
-8	2	8	3.75	28.86	36.09	o
-7	2	8	13.71	16.84	34.97	o
-6	2	8	0.44	31.03	27.55	o
-5	2	8	15.64	19.86	30.49	o
-4	2	8	134.86	81.02	36.21	o

-3	2	8	22.51	9.20	31.82	o
-2	2	8	35.02	19.70	26.34	o
-1	2	8	22.39	27.39	39.74	o
0	2	8	0.06	5.62	34.72	o
1	2	8	7.64	8.50	31.98	o
2	2	8	62.30	29.84	34.65	o
-16	3	8	72.31	55.25	54.10	o
-15	3	8	68.63	71.67	63.38	o
-14	3	8	12.74	16.55	44.67	o
-13	3	8	53.06	51.60	57.41	o
-12	3	8	67.72	45.89	45.86	o
-11	3	8	0.95	4.72	34.48	o
-10	3	8	6.06	27.12	34.61	o
-9	3	8	5.14	14.03	28.08	o
-8	3	8	28.11	34.55	43.95	o
-7	3	8	173.64	189.94	59.87	o
-6	3	8	74.35	83.00	44.94	o
-5	3	8	0.97	29.72	35.30	o
-4	3	8	5.52	11.04	35.29	o
-3	3	8	24.29	10.88	32.39	o
-2	3	8	121.98	123.31	51.93	o
-1	3	8	218.61	221.53	54.60	o
0	3	8	5.70	9.00	32.85	o
1	3	8	321.10	325.15	66.26	o
-15	4	8	10.22	2.97	52.98	o
-14	4	8	77.24	84.62	64.11	o
-13	4	8	100.72	85.13	61.53	o
-12	4	8	19.31	43.52	49.45	o
-11	4	8	15.60	51.07	46.00	o
-10	4	8	0.14	13.54	39.80	o
-9	4	8	157.52	153.02	50.56	o
-8	4	8	5.19	5.35	24.57	o
-7	4	8	6.10	2.17	26.83	o
-6	4	8	66.38	75.84	36.49	o
-5	4	8	205.42	154.31	41.70	o
-4	4	8	2.84	10.52	28.07	o
-3	4	8	37.80	39.21	39.64	o
-2	4	8	23.99	33.26	40.93	o
0	4	8	150.89	149.47	63.20	o
-15	5	8	10.18	13.56	45.36	o
-14	5	8	10.27	23.61	43.84	o
-13	5	8	4.95	36.07	54.37	o
-12	5	8	0.00	1.30	34.32	o
-11	5	8	102.67	105.31	40.96	o
-10	5	8	34.72	26.14	38.50	o

-9	5	8	16.54	11.52	35.90	o
-8	5	8	0.96	11.40	36.45	o
-7	5	8	9.64	17.54	31.40	o
-14	6	8	3.05	11.03	37.28	o
-13	6	8	59.37	106.60	66.66	o
-12	6	8	11.04	30.55	51.88	o
-11	6	8	14.16	10.74	43.37	o
-10	6	8	16.36	43.34	54.54	o
-9	6	8	79.35	53.63	46.70	o
-8	6	8	26.43	16.58	36.70	o
-13	7	8	17.10	30.16	55.16	o
-12	7	8	5.34	18.91	34.36	o
-11	7	8	4.10	14.56	34.71	o
-10	7	8	0.14	6.24	36.65	o
-9	7	8	22.43	43.56	41.44	o
-11	8	8	0.15	20.74	29.88	o
-10	8	8	45.23	23.30	43.66	o
-9	8	8	35.24	16.45	38.34	o
-14	2	9	61.65	101.57	72.57	o
-13	2	9	1.78	18.99	53.04	o
-12	2	9	40.30	22.93	46.71	o
-11	2	9	11.09	15.15	37.91	o
-10	2	9	2.74	21.42	48.38	o
-9	2	9	1.72	20.65	35.38	o
-13	3	9	0.35	15.02	39.88	o
-12	3	9	1.07	39.31	56.82	o
-11	3	9	45.80	49.24	51.62	o
-10	3	9	4.45	9.92	30.58	o
-9	3	9	11.50	39.29	47.70	o
-8	3	9	3.41	20.28	46.39	o
-7	3	9	2.08	17.11	44.49	o
-13	4	9	12.65	11.28	32.71	o
-12	4	9	0.45	6.19	43.01	o
-11	4	9	3.22	17.08	44.52	o
-10	4	9	26.71	42.90	57.58	o
-9	4	9	2.75	11.40	31.52	o
-8	4	9	25.99	22.82	42.35	o
-12	5	9	16.03	19.08	46.63	o
-11	5	9	0.09	35.82	56.59	o
-10	5	9	0.10	24.71	43.00	o
-9	5	9	0.43	9.11	37.57	o
-11	6	9	30.59	40.07	59.64	o
-10	6	9	9.98	10.30	40.66	o

```
data_Mn-bloedite

_audit_update_record
;
2013-03-18 # Formatted by publCIF
;

_audit_creation_method            SHELXL-97
_chemical_name_systematic
?
_chemical_name_common             Mn-bloedite
_chemical_melting_point           ?
_chemical_formula_moiety          ?
_chemical_formula_sum
 'H8 Co0.14 Mg0.29 Mn0.44 Na1.96 Ni0.06 O12 S2.03'
_chemical_formula_weight          353.20

loop_
 _atom_type_symbol
 _atom_type_description
 _atom_type_scat_dispersion_real
 _atom_type_scat_dispersion_imag
 _atom_type_scat_source
 'H'  'H'   0.0000   0.0000
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'O'  'O'   0.0106   0.0060
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'S'  'S'   0.1246   0.1234
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Mn'  'Mn'   0.3368   0.7283
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Na'  'Na'   0.0362   0.0249
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Mg'  'Mg'   0.0486   0.0363
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Co'  'Co'   0.3494   0.9721
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Ni'  'Ni'   0.3393   1.1124
```

```
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'

_symmetry_cell_setting                 monoclinic
_symmetry_space_group_name_Hall      '-P 2yab'
_symmetry_space_group_name_H-M       'P 21/a'
_symmetry_Int_Tables_number                 14

loop_
 _symmetry_equiv_pos_as_xyz
 'x, y, z'
 '-x+1/2, y+1/2, -z'
 '-x, -y, -z'
 'x-1/2, -y-1/2, z'

_cell_length_a                     11.137(2)
_cell_length_b                     8.2790(10)
_cell_length_c                     5.5381(9)
_cell_angle_alpha                  90.00
_cell_angle_beta                   100.423(13)
_cell_angle_gamma                  90.00
_cell_volume                       502.20(14)
_cell_formula_units_Z              2
_cell_measurement_temperature      296(2)
_cell_measurement_reflns_used      2708
_cell_measurement_theta_min        3.08
_cell_measurement_theta_max        43.00

_exptl_crystal_description         ?
_exptl_crystal_colour              ?
_exptl_crystal_size_max            0.06
_exptl_crystal_size_mid            0.05
_exptl_crystal_size_min            0.03
_exptl_crystal_density_meas        ?
_exptl_crystal_density_diffrn      2.336
_exptl_crystal_density_method      'not measured'
_exptl_crystal_F_000               356
_exptl_absorpt_coefficient_mu      1.559
_exptl_absorpt_correction_type     'numerical'
_exptl_absorpt_correction_T_min    ?
_exptl_absorpt_correction_T_max    ?
_exptl_absorpt_process_details     'X-Red, X-Shape'

_exptl_special_details
?
```

```
_diffrn_ambient_temperature       296(2)
_diffrn_radiation_wavelength      0.71073
_diffrn_radiation_type            MoK\a
_diffrn_radiation_source          'fine-focus sealed
tube'
_diffrn_radiation_monochromator   graphite
_diffrn_measurement_device_type   ?
_diffrn_measurement_method        ?
_diffrn_detector_area_resol_mean  ?
_diffrn_standards_number          0
_diffrn_standards_interval_count  0
_diffrn_standards_interval_time   0
_diffrn_standards_decay_%         0
_diffrn_reflns_number             2708
_diffrn_reflns_av_R_equivalents   0.0000
_diffrn_reflns_av_sigmaI/netI     0.1498
_diffrn_reflns_limit_h_min        -18
_diffrn_reflns_limit_h_max        16
_diffrn_reflns_limit_k_min        0
_diffrn_reflns_limit_k_max        15
_diffrn_reflns_limit_l_min        0
_diffrn_reflns_limit_l_max        9
_diffrn_reflns_theta_min          3.08
_diffrn_reflns_theta_max          43.00
_reflns_number_total              2708
_reflns_number_gt                 1115
_reflns_threshold_expression      >2sigma(I)

_computing_data_collection        'Crysalis CCD'
_computing_cell_refinement        'Crysalis RED'
_computing_data_reduction         'Crysalis RED'
_computing_structure_solution     'SHELXS-97'
_computing_structure_refinement   'SHELXL-97'
_computing_molecular_graphics     ?
_computing_publication_material   'publCIF'

_refine_special_details
;
 Refinement of F^2^ against ALL reflections.  The
weighted R-factor wR and
 goodness of fit S are based on F^2^, conventional R-
factors R are based
 on F, with F set to zero for negative F^2^. The
threshold expression of
```

```
 F^2^ > 2sigma(F^2^) is used only for calculating R-
factors(gt) etc. and is
 not relevant to the choice of reflections for
refinement.  R-factors based
 on F^2^ are statistically about twice as large as
those based on F, and R-
 factors based on ALL data will be even larger.
;

_refine_ls_structure_factor_coef  Fsqd
_refine_ls_matrix_type            full
_refine_ls_weighting_scheme       calc
_refine_ls_weighting_details
; calc
 [0.00000+1.00000exp(1.00(sin\q/\l)^2^)]/

[\s^2^(Fo^2^)+0.0000+0.0000*P+(0.0359P)^2^+0.0000sin\q/
\l]
 where P = 0.33333Fo^2^ + 0.66667Fc^2^
;
_atom_sites_solution_primary      direct
_atom_sites_solution_secondary    difmap
_atom_sites_solution_hydrogens    difmap
_refine_ls_hydrogen_treatment     refxyz
_refine_ls_extinction_method      none
_refine_ls_extinction_coef        ?
_refine_ls_number_reflns          2708
_refine_ls_number_parameters      91
_refine_ls_number_restraints      0
_refine_ls_R_factor_all           0.1210
_refine_ls_R_factor_gt            0.0459
_refine_ls_wR_factor_ref          0.1155
_refine_ls_wR_factor_gt           0.1022
_refine_ls_goodness_of_fit_ref    0.996
_refine_ls_restrained_S_all       0.996
_refine_ls_shift/su_max           0.000
_refine_ls_shift/su_mean          0.000

loop_
 _atom_site_label
 _atom_site_type_symbol
 _atom_site_fract_x
 _atom_site_fract_y
 _atom_site_fract_z
 _atom_site_U_iso_or_equiv
```

```
 _atom_site_adp_type
 _atom_site_occupancy
 _atom_site_symmetry_multiplicity
 _atom_site_calc_flag
 _atom_site_refinement_flags
 _atom_site_disorder_assembly
 _atom_site_disorder_group
Mn1 Mn 0.0000 0.0000 0.0000 0.01783(19) Uani 0.45 2 d
SP . .
Mg1 Mg 0.0000 0.0000 0.0000 0.01783(19) Uani 0.29 2 d
SP . .
Ni1 Ni 0.0000 0.0000 0.0000 0.01783(19) Uani 0.06 2 d
SP . .
Co1 Co 0.0000 0.0000 0.0000 0.01783(19) Uani 0.14 2 d
SP . .
S1 S 0.13613(6) 0.29031(9) 0.37014(13) 0.01383(14) Uani
1 1 d . . .
Na1 Na 0.36212(11) 0.07065(16) 0.1298(2) 0.0222(3) Uani
1 1 d . . .
O1 O 0.26526(19) 0.2728(3) 0.3466(4) 0.0223(5) Uani 1 1
d . . .
O2 O 0.07933(19) 0.4193(3) 0.2078(4) 0.0233(5) Uani 1 1
d . . .
O3 O 0.0713(2) 0.1369(3) 0.3118(4) 0.0227(5) Uani 1 1 d
. . .
O4 O 0.1319(2) 0.3304(3) 0.6293(4) 0.0223(5) Uani 1 1 d
. . .
O5 O 0.16225(19) 0.0390(3) 0.8708(4) 0.0196(5) Uani 1 1
d . . .
O6 O 0.0814(2) 0.7876(3) 0.1799(4) 0.0208(5) Uani 1 1 d
. . .
H5A H 0.179(5) 0.145(7) 0.758(9) 0.080 Uiso 1 1 d . . .
H5B H 0.180(4) -0.050(6) 0.747(9) 0.080 Uiso 1 1 d . .
.
H6A H 0.024(5) 0.713(6) 0.222(9) 0.080 Uiso 1 1 d . . .
H6B H 0.099(6) 0.783(7) 0.310(10) 0.080 Uiso 1 1 d . .
.

loop_
 _atom_site_aniso_label
 _atom_site_aniso_U_11
 _atom_site_aniso_U_22
 _atom_site_aniso_U_33
 _atom_site_aniso_U_23
 _atom_site_aniso_U_13
```

```
 _atom_site_aniso_U_12
Mn1 0.0169(4) 0.0177(4) 0.0193(4) -0.0010(3) 0.0046(3)
-0.0012(3)
Mg1 0.0169(4) 0.0177(4) 0.0193(4) -0.0010(3) 0.0046(3)
-0.0012(3)
Ni1 0.0169(4) 0.0177(4) 0.0193(4) -0.0010(3) 0.0046(3)
-0.0012(3)
Co1 0.0169(4) 0.0177(4) 0.0193(4) -0.0010(3) 0.0046(3)
-0.0012(3)
S1 0.0128(3) 0.0154(3) 0.0130(3) 0.0004(3) 0.0018(2) -
0.0009(3)
Na1 0.0193(6) 0.0222(7) 0.0245(6) -0.0009(6) 0.0022(5)
0.0003(5)
O1 0.0144(10) 0.0238(12) 0.0291(12) 0.0028(10)
0.0048(9) 0.0022(9)
O2 0.0187(10) 0.0253(12) 0.0256(12) 0.0109(10)
0.0033(9) 0.0030(9)
O3 0.0297(12) 0.0222(11) 0.0166(10) -0.0053(9)
0.0054(9) -0.0111(10)
O4 0.0309(13) 0.0225(12) 0.0143(10) -0.0051(9)
0.0062(9) -0.0014(10)
O5 0.0189(10) 0.0213(11) 0.0199(11) 0.0006(9) 0.0075(9)
0.0011(8)
O6 0.0209(11) 0.0193(11) 0.0202(11) 0.0010(10) -
0.0017(9) -0.0014(9)

_geom_special_details
;
 All esds (except the esd in the dihedral angle between
two l.s. planes)
 are estimated using the full covariance matrix.  The
cell esds are taken
 into account individually in the estimation of esds in
distances, angles
 and torsion angles; correlations between esds in cell
parameters are only
 used when they are defined by crystal symmetry.  An
approximate (isotropic)
 treatment of cell esds is used for estimating esds
involving l.s. planes.
;

loop_
 _geom_bond_atom_site_label_1
 _geom_bond_atom_site_label_2
```

```
 _geom_bond_distance
 _geom_bond_site_symmetry_2
 _geom_bond_publ_flag
Mn1 O5 2.085(2) 1_554 ?
Mn1 O5 2.085(2) 3_556 ?
Mn1 O3 2.097(2) . ?
Mn1 O3 2.097(2) 3 ?
Mn1 O6 2.140(2) 1_545 ?
Mn1 O6 2.140(2) 3_565 ?
S1 O2 1.464(2) . ?
S1 O3 1.468(2) . ?
S1 O1 1.474(2) . ?
S1 O4 1.482(2) . ?
S1 Na1 3.3075(15) 4_565 ?
Na1 O2 2.381(2) 4_665 ?
Na1 O4 2.389(2) 2_546 ?
Na1 O1 2.424(3) . ?
Na1 O5 2.434(2) 1_554 ?
Na1 O2 2.435(2) 2_545 ?
Na1 O6 2.638(3) 2_545 ?
Na1 S1 3.3075(15) 4_665 ?
Na1 Na1 3.804(2) 3_655 ?
O2 Na1 2.381(2) 4_565 ?
O2 Na1 2.435(2) 2 ?
O4 Na1 2.389(2) 2_556 ?
O5 Co1 2.085(2) 1_556 ?
O5 Mn1 2.085(2) 1_556 ?
O5 Mg1 2.085(2) 1_556 ?
O5 Ni1 2.085(2) 1_556 ?
O5 Na1 2.434(2) 1_556 ?
O5 H5A 1.11(5) . ?
O5 H5B 1.05(5) . ?
O6 Co1 2.140(2) 1_565 ?
O6 Mn1 2.140(2) 1_565 ?
O6 Mg1 2.140(2) 1_565 ?
O6 Ni1 2.140(2) 1_565 ?
O6 Na1 2.638(3) 2 ?
O6 H6A 0.95(6) . ?
O6 H6B 0.71(5) . ?

loop_
 _geom_angle_atom_site_label_1
 _geom_angle_atom_site_label_2
 _geom_angle_atom_site_label_3
 _geom_angle
```

```
 _geom_angle_site_symmetry_1
 _geom_angle_site_symmetry_3
 _geom_angle_publ_flag
O5 Mn1 O5 180.00(13) 1_554 3_556 ?
O5 Mn1 O3 88.64(8) 1_554 . ?
O5 Mn1 O3 91.36(8) 3_556 . ?
O5 Mn1 O3 91.36(8) 1_554 3 ?
O5 Mn1 O3 88.64(8) 3_556 3 ?
O3 Mn1 O3 180.00(7) . 3 ?
O5 Mn1 O6 88.11(9) 1_554 1_545 ?
O5 Mn1 O6 91.89(9) 3_556 1_545 ?
O3 Mn1 O6 89.73(9) . 1_545 ?
O3 Mn1 O6 90.27(9) 3 1_545 ?
O5 Mn1 O6 91.89(9) 1_554 3_565 ?
O5 Mn1 O6 88.11(9) 3_556 3_565 ?
O3 Mn1 O6 90.27(9) . 3_565 ?
O3 Mn1 O6 89.73(9) 3 3_565 ?
O6 Mn1 O6 180.00(14) 1_545 3_565 ?
O2 S1 O3 110.81(13) . . ?
O2 S1 O1 109.72(13) . . ?
O3 S1 O1 110.14(13) . . ?
O2 S1 O4 110.22(13) . . ?
O3 S1 O4 107.83(12) . . ?
O1 S1 O4 108.06(13) . . ?
O2 S1 Na1 40.04(9) . 4_565 ?
O3 S1 Na1 80.28(10) . 4_565 ?
O1 S1 Na1 147.39(10) . 4_565 ?
O4 S1 Na1 97.07(10) . 4_565 ?
O2 Na1 O4 90.17(9) 4_665 2_546 ?
O2 Na1 O1 114.51(9) 4_665 . ?
O4 Na1 O1 105.56(9) 2_546 . ?
O2 Na1 O5 154.35(9) 4_665 1_554 ?
O4 Na1 O5 99.77(9) 2_546 1_554 ?
O1 Na1 O5 85.68(8) . 1_554 ?
O2 Na1 O2 75.68(9) 4_665 2_545 ?
O4 Na1 O2 90.92(9) 2_546 2_545 ?
O1 Na1 O2 160.12(10) . 2_545 ?
O5 Na1 O2 80.54(8) 1_554 2_545 ?
O2 Na1 O6 74.92(8) 4_665 2_545 ?
O4 Na1 O6 160.79(9) 2_546 2_545 ?
O1 Na1 O6 91.83(9) . 2_545 ?
O5 Na1 O6 89.45(8) 1_554 2_545 ?
O2 Na1 O6 73.88(8) 2_545 2_545 ?
O2 Na1 S1 23.31(5) 4_665 4_665 ?
O4 Na1 S1 97.73(7) 2_546 4_665 ?
```

```
O1 Na1 S1 91.22(6) . 4_665 ?
O5 Na1 S1 162.42(8) 1_554 4_665 ?
O2 Na1 S1 97.60(7) 2_545 4_665 ?
O6 Na1 S1 73.34(6) 2_545 4_665 ?
O2 Na1 Na1 38.34(6) 4_665 3_655 ?
O4 Na1 Na1 90.69(7) 2_546 3_655 ?
O1 Na1 Na1 149.52(8) . 3_655 ?
O5 Na1 Na1 117.32(7) 1_554 3_655 ?
O2 Na1 Na1 37.33(6) 2_545 3_655 ?
O6 Na1 Na1 70.09(6) 2_545 3_655 ?
S1 Na1 Na1 60.65(4) 4_665 3_655 ?
S1 O1 Na1 129.81(13) . . ?
S1 O2 Na1 116.66(12) . 4_565 ?
S1 O2 Na1 134.49(13) . 2 ?
Na1 O2 Na1 104.32(9) 4_565 2 ?
S1 O3 Mn1 138.30(13) . . ?
S1 O4 Na1 136.41(14) . 2_556 ?
Co1 O5 Mn1 0.0 1_556 1_556 ?
Co1 O5 Mg1 0.0 1_556 1_556 ?
Mn1 O5 Mg1 0.0 1_556 1_556 ?
Co1 O5 Ni1 0.0 1_556 1_556 ?
Mn1 O5 Ni1 0.0 1_556 1_556 ?
Mg1 O5 Ni1 0.0 1_556 1_556 ?
Co1 O5 Na1 124.83(10) 1_556 1_556 ?
Mn1 O5 Na1 124.83(10) 1_556 1_556 ?
Mg1 O5 Na1 124.83(10) 1_556 1_556 ?
Ni1 O5 Na1 124.83(10) 1_556 1_556 ?
Co1 O5 H5A 124(3) 1_556 . ?
Mn1 O5 H5A 124(3) 1_556 . ?
Mg1 O5 H5A 124(3) 1_556 . ?
Ni1 O5 H5A 124(3) 1_556 . ?
Na1 O5 H5A 91(3) 1_556 . ?
Co1 O5 H5B 113(3) 1_556 . ?
Mn1 O5 H5B 113(3) 1_556 . ?
Mg1 O5 H5B 113(3) 1_556 . ?
Ni1 O5 H5B 113(3) 1_556 . ?
Na1 O5 H5B 102(3) 1_556 . ?
H5A O5 H5B 97(3) . . ?
Co1 O6 Mn1 0.0 1_565 1_565 ?
Co1 O6 Mg1 0.0 1_565 1_565 ?
Mn1 O6 Mg1 0.0 1_565 1_565 ?
Co1 O6 Ni1 0.0 1_565 1_565 ?
Mn1 O6 Ni1 0.0 1_565 1_565 ?
Mg1 O6 Ni1 0.0 1_565 1_565 ?
Co1 O6 Na1 112.80(9) 1_565 2 ?
```

```
Mn1 O6 Na1 112.80(9) 1_565 2 ?
Mg1 O6 Na1 112.80(9) 1_565 2 ?
Ni1 O6 Na1 112.80(9) 1_565 2 ?
Co1 O6 H6A 114(3) 1_565 . ?
Mn1 O6 H6A 114(3) 1_565 . ?
Mg1 O6 H6A 114(3) 1_565 . ?
Ni1 O6 H6A 114(3) 1_565 . ?
Na1 O6 H6A 88(3) 2 . ?
Co1 O6 H6B 122(5) 1_565 . ?
Mn1 O6 H6B 122(5) 1_565 . ?
Mg1 O6 H6B 122(5) 1_565 . ?
Ni1 O6 H6B 122(5) 1_565 . ?
Na1 O6 H6B 124(5) 2 . ?
H6A O6 H6B 78(5) . . ?

loop_
 _geom_hbond_atom_site_label_D
 _geom_hbond_atom_site_label_H
 _geom_hbond_atom_site_label_A
 _geom_hbond_distance_DH
 _geom_hbond_distance_HA
 _geom_hbond_distance_DA
 _geom_hbond_angle_DHA
 _geom_hbond_site_symmetry_A
O5 H5A O4  1.11(5) 1.73(5) 2.749(3) 149(4) .
O5 H5B O1  1.05(5) 1.70(5) 2.704(3) 158(4) 2_546
O6 H6A O4  0.95(6) 2.08(6) 2.936(3) 149(4) 3_566
O6 H6B O1  0.71(5) 2.21(6) 2.861(3) 154(7) 2_556

_diffrn_measured_fraction_theta_max    0.728
_diffrn_reflns_theta_full              32.50
_diffrn_measured_fraction_theta_full   0.991
_refine_diff_density_max    0.715
_refine_diff_density_min   -0.640
_refine_diff_density_rms    0.134
```

```
#
# h,k,l, Fc-squared, Fo-squared, sigma(Fo-squared) and
status flag
#
data_co_blodite
_shelx_title ' Cobaltobloedite in P 21/a'
_shelx_refln_list_code          4
_shelx_F_calc_maximum      113.36
_exptl_crystal_F_000       357.62
_reflns_d_resolution_high  0.5203

loop_
 _symmetry_equiv_pos_as_xyz
 'x, y, z'
 '-x+1/2, y+1/2, -z'
 '-x, -y, -z'
 'x-1/2, -y-1/2, z'

_cell_length_a    11.1470
_cell_length_b     8.2680
_cell_length_c     5.5396
_cell_angle_alpha  90.000
_cell_angle_beta  100.517
_cell_angle_gamma  90.000

_shelx_F_squared_multiplier     1.000

loop_
 _refln_index_h
 _refln_index_k
 _refln_index_l
 _refln_F_squared_calc
 _refln_F_squared_meas
 _refln_F_squared_sigma
 _refln_observed_status
   4   0   0     6639.18     6870.28     40.26 o
   6   0   0      285.14      228.66     10.97 o
   8   0   0     2773.36     2782.50     51.42 o
  10   0   0      301.88      279.08     24.79 o
  12   0   0      129.96      114.26     36.55 o
  14   0   0     1320.17     1518.28     82.11 o
  16   0   0      155.63      203.84     67.76 o
  18   0   0       73.47       86.50     60.62 o
   1   1   0      320.32      274.48      5.57 o
   2   1   0     3984.12     3888.22     30.26 o
```

3	1	0	2924.44	2751.84	27.98	o
4	1	0	3.55	4.17	3.79	o
5	1	0	3460.41	3328.92	65.77	o
6	1	0	1377.50	1409.94	22.60	o
7	1	0	1.02	5.05	3.39	o
8	1	0	569.42	543.02	16.63	o
9	1	0	47.04	27.99	9.13	o
10	1	0	62.94	73.01	13.95	o
11	1	0	954.84	960.70	27.98	o
12	1	0	101.41	88.86	22.89	o
13	1	0	142.55	130.57	27.73	o
14	1	0	191.60	164.69	38.46	o
15	1	0	10.87	34.20	39.21	o
16	1	0	157.02	150.87	37.28	o
17	1	0	115.80	94.34	33.78	o
18	1	0	1.28	56.58	56.22	o
19	1	0	106.66	131.80	73.40	o
0	2	0	360.26	377.14	14.13	o
1	2	0	242.86	258.90	14.04	o
2	2	0	1784.19	1896.89	71.74	o
3	2	0	139.57	134.62	4.85	o
4	2	0	1100.13	971.59	16.21	o
5	2	0	17.70	18.33	5.63	o
6	2	0	2546.40	2540.69	37.09	o
7	2	0	296.23	297.36	10.48	o
8	2	0	6.51	11.08	5.61	o
9	2	0	1.47	6.84	5.75	o
10	2	0	554.02	544.16	18.90	o
11	2	0	13.40	16.63	12.79	o
12	2	0	475.88	499.05	31.28	o
13	2	0	9.32	10.56	13.86	o
14	2	0	0.93	22.68	24.69	o
15	2	0	4.41	26.20	23.21	o
16	2	0	1.73	22.51	26.52	o
17	2	0	25.65	34.98	41.59	o
18	2	0	162.05	220.55	66.39	o
19	2	0	2.17	35.88	47.38	o
1	3	0	1705.04	1611.93	35.41	o
2	3	0	14.10	3.61	3.33	o
3	3	0	252.55	306.35	10.61	o
4	3	0	1401.20	1467.20	42.40	o
5	3	0	799.60	759.56	14.44	o
6	3	0	2436.52	2445.69	29.43	o
7	3	0	4386.44	4446.77	80.48	o
8	3	0	1285.60	1287.22	44.02	o

9	3	0	319.49	297.07	14.35	o
10	3	0	1018.08	1044.38	23.52	o
11	3	0	5.57	9.73	9.08	o
12	3	0	68.53	60.11	14.79	o
13	3	0	37.94	60.69	21.71	o
14	3	0	348.25	350.64	42.24	o
15	3	0	209.72	268.32	44.43	o
16	3	0	100.22	142.04	67.68	o
17	3	0	14.75	33.63	52.37	o
18	3	0	1.89	32.89	56.68	o
19	3	0	10.89	49.39	59.19	o
0	4	0	2351.98	2285.12	30.22	o
1	4	0	5722.61	5931.81	51.30	o
2	4	0	1.39	6.22	3.67	o
3	4	0	693.57	664.94	13.23	o
4	4	0	730.84	762.22	22.34	o
5	4	0	3586.67	3696.00	63.13	o
6	4	0	987.97	988.84	20.38	o
7	4	0	177.50	170.42	12.68	o
8	4	0	1134.79	1127.13	25.72	o
9	4	0	1615.78	1664.75	23.39	o
10	4	0	25.23	26.21	9.73	o
11	4	0	10.20	14.62	12.57	o
12	4	0	90.30	92.11	19.07	o
13	4	0	310.99	318.20	31.63	o
14	4	0	90.52	94.50	30.19	o
15	4	0	24.31	28.53	41.20	o
16	4	0	29.98	39.68	35.95	o
17	4	0	59.71	61.61	46.49	o
18	4	0	8.87	77.03	68.27	o
19	4	0	16.80	29.77	58.20	o
1	5	0	780.50	785.46	14.47	o
2	5	0	326.67	327.09	12.24	o
3	5	0	1355.57	1358.37	19.53	o
4	5	0	103.78	100.91	11.69	o
5	5	0	571.94	551.29	18.08	o
6	5	0	2.32	11.71	8.07	o
7	5	0	122.80	112.06	17.00	o
8	5	0	53.95	40.59	12.62	o
9	5	0	114.28	110.23	22.39	o
10	5	0	58.95	42.46	11.84	o
11	5	0	738.91	773.60	35.71	o
12	5	0	31.42	28.75	17.15	o
13	5	0	257.84	283.14	35.65	o
14	5	0	1.41	19.97	19.98	o

15	5	0	15.01	7.85	24.12	o
16	5	0	0.07	19.48	40.43	o
17	5	0	56.21	35.51	45.94	o
18	5	0	13.08	45.35	64.48	o
19	5	0	36.87	11.81	54.72	o
0	6	0	1.27	6.64	8.16	o
1	6	0	623.19	656.72	16.39	o
2	6	0	672.62	680.02	15.55	o
3	6	0	524.89	496.03	14.54	o
4	6	0	590.64	567.06	18.67	o
5	6	0	24.19	16.12	7.63	o
6	6	0	549.49	534.10	20.24	o
7	6	0	312.90	308.04	20.94	o
8	6	0	75.96	67.88	17.31	o
9	6	0	59.26	60.15	20.59	o
10	6	0	221.14	214.27	22.36	o
11	6	0	2.96	12.30	12.03	o
12	6	0	32.66	41.11	21.55	o
13	6	0	125.81	144.11	31.57	o
14	6	0	10.21	21.61	22.18	o
15	6	0	23.59	30.61	26.73	o
16	6	0	44.76	75.37	62.61	o
17	6	0	104.25	151.99	79.48	o
18	6	0	72.11	74.36	72.66	o
19	6	0	6.87	34.56	60.66	o
1	7	0	2164.13	2265.94	28.44	o
2	7	0	170.61	166.28	11.97	o
3	7	0	60.97	53.33	11.56	o
4	7	0	208.51	202.80	17.30	o
5	7	0	3.87	10.70	9.67	o
6	7	0	71.03	54.05	13.51	o
7	7	0	1518.57	1614.58	29.98	o
8	7	0	68.40	53.05	16.49	o
9	7	0	63.85	52.02	19.51	o
10	7	0	52.09	37.91	16.67	o
11	7	0	59.71	44.57	16.47	o
12	7	0	18.89	5.26	22.99	o
13	7	0	88.82	40.29	25.64	o
14	7	0	0.05	11.98	28.81	o
0	8	0	59.41	63.96	22.12	o
1	8	0	650.31	627.52	21.46	o
2	8	0	297.90	291.84	18.94	o
3	8	0	206.99	192.63	21.97	o
4	8	0	1505.24	1637.21	28.31	o
5	8	0	7.16	11.67	11.24	o

6	8	0	1.40	8.06	12.91	o
7	8	0	18.70	9.37	14.50	o
8	8	0	2.32	6.52	16.38	o
9	8	0	19.39	19.29	21.47	o
10	8	0	251.51	226.63	36.24	o
11	8	0	106.26	105.61	28.75	o
12	8	0	179.82	178.04	45.21	o
13	8	0	25.83	22.13	46.59	o
1	9	0	198.03	197.88	21.66	o
2	9	0	0.16	3.80	11.86	o
3	9	0	287.68	291.99	26.13	o
4	9	0	1.70	6.70	12.12	o
5	9	0	78.20	63.66	24.52	o
6	9	0	31.26	35.38	22.69	o
7	9	0	4.57	3.75	18.61	o
8	9	0	0.09	6.73	23.05	o
9	9	0	172.29	165.02	58.18	o
10	9	0	67.45	85.93	32.98	o
11	9	0	147.95	161.37	42.31	o
12	9	0	1.54	35.83	58.20	o
0	10	0	368.57	370.57	39.56	o
1	10	0	91.25	87.50	19.83	o
2	10	0	147.88	147.24	27.71	o
3	10	0	0.10	9.76	15.48	o
4	10	0	0.34	6.65	18.30	o
5	10	0	53.04	45.78	21.27	o
6	10	0	71.63	76.16	38.35	o
7	10	0	27.47	13.99	28.34	o
8	10	0	210.38	197.08	57.11	o
9	10	0	154.74	130.32	61.31	o
10	10	0	33.11	46.59	30.28	o
1	11	0	3.16	10.67	17.25	o
2	11	0	179.26	149.11	33.03	o
3	11	0	89.03	87.21	50.40	o
4	11	0	94.12	126.16	48.14	o
5	11	0	101.54	113.74	59.92	o
6	11	0	183.88	199.48	58.64	o
7	11	0	228.59	276.10	82.31	o
8	11	0	97.23	106.25	48.66	o
0	12	0	23.94	17.45	42.79	o
1	12	0	0.99	10.26	21.76	o
2	12	0	72.89	36.98	32.47	o
3	12	0	16.97	14.29	42.87	o
4	12	0	250.10	259.11	71.92	o
5	12	0	2.74	6.83	38.94	o

-20	0	1	3.91	18.37	48.15	o
-18	0	1	139.58	110.29	64.06	o
-16	0	1	259.66	277.64	65.41	o
-14	0	1	0.93	24.03	29.32	o
-12	0	1	516.17	553.72	55.54	o
-10	0	1	32.96	32.78	31.68	o
-8	0	1	389.58	416.37	17.50	o
-6	0	1	1927.85	1930.23	29.65	o
-4	0	1	12609.14	12254.35	57.78	o
-2	0	1	6914.72	6879.16	41.32	o
0	0	1	417.62	376.12	11.99	o
4	0	1	1958.77	2205.70	38.86	o
6	0	1	761.90	756.55	54.82	o
8	0	1	357.77	324.68	17.58	o
10	0	1	1411.27	1385.02	62.96	o
12	0	1	682.32	799.65	137.97	o
14	0	1	62.41	69.75	47.84	o
-21	1	1	10.97	32.12	60.41	o
-20	1	1	37.10	107.44	55.35	o
-19	1	1	31.59	63.69	43.93	o
-18	1	1	22.35	22.41	30.87	o
-17	1	1	88.35	62.92	33.62	o
-16	1	1	317.50	324.80	53.32	o
-15	1	1	21.38	24.05	22.12	o
-14	1	1	0.74	5.37	21.65	o
-13	1	1	15.95	21.54	17.47	o
-12	1	1	326.86	316.95	31.12	o
-11	1	1	471.31	458.29	32.71	o
-10	1	1	37.23	15.96	9.57	o
-9	1	1	551.40	560.98	16.07	o
-8	1	1	1098.44	1110.13	13.93	o
-7	1	1	504.22	493.50	8.46	o
-6	1	1	1955.18	2122.87	23.93	o
-5	1	1	1264.31	1157.81	23.42	o
-4	1	1	1.14	18.35	9.00	o
-1	1	1	931.10	883.57	12.77	o
0	1	1	2673.84	2753.33	21.62	o
1	1	1	1665.85	1545.31	21.66	o
2	1	1	6473.27	6488.06	35.37	o
3	1	1	104.97	88.07	7.36	o
4	1	1	114.47	94.67	7.60	o
5	1	1	1614.91	1577.69	28.91	o
6	1	1	976.18	921.58	16.91	o
7	1	1	1162.70	1137.16	26.96	o
8	1	1	18.67	22.72	9.54	o

9	1	1	52.08	54.11	11.83	o
10	1	1	753.00	757.44	30.23	o
11	1	1	140.03	145.48	21.17	o
12	1	1	5.98	10.42	12.00	o
13	1	1	222.87	246.77	31.41	o
14	1	1	361.34	435.00	63.79	o
15	1	1	45.65	68.52	43.24	o
-21	2	1	0.56	25.72	61.80	o
-20	2	1	33.27	100.80	76.78	o
-19	2	1	28.73	51.70	42.52	o
-18	2	1	4.70	52.33	37.99	o
-17	2	1	4.16	12.06	29.72	o
-16	2	1	0.40	3.94	20.13	o
-15	2	1	36.64	28.74	24.19	o
-14	2	1	641.98	711.13	45.47	o
-13	2	1	31.63	17.47	17.55	o
-12	2	1	188.46	168.48	28.22	o
-11	2	1	11.20	8.75	8.68	o
-10	2	1	53.79	43.80	10.61	o
-9	2	1	640.98	636.61	15.23	o
-8	2	1	571.03	561.24	14.23	o
-7	2	1	144.83	149.56	9.47	o
-6	2	1	5770.17	5861.92	34.13	o
-5	2	1	3204.88	3331.33	27.03	o
-4	2	1	1.71	7.08	3.37	o
-3	2	1	535.22	529.94	16.62	o
-2	2	1	2853.13	2845.80	21.40	o
-1	2	1	4007.79	3991.47	115.03	o
0	2	1	12849.89	12858.31	95.75	o
1	2	1	184.12	206.54	9.32	o
2	2	1	3752.08	3399.02	47.11	o
3	2	1	931.44	908.46	22.05	o
4	2	1	145.28	145.07	8.34	o
5	2	1	770.34	789.59	14.22	o
6	2	1	194.54	185.91	11.12	o
7	2	1	415.21	414.86	15.00	o
8	2	1	4112.55	4269.78	66.40	o
9	2	1	705.40	698.60	19.94	o
10	2	1	2.06	3.67	9.19	o
11	2	1	38.56	35.84	12.52	o
12	2	1	23.47	14.15	19.57	o
13	2	1	187.61	157.99	28.62	o
14	2	1	137.24	160.11	44.35	o
15	2	1	20.70	46.50	29.80	o
16	2	1	372.37	401.65	74.48	o

-20	3	1	0.20	9.52	64.27	o
-19	3	1	40.49	11.44	54.99	o
-18	3	1	2.07	29.21	39.43	o
-17	3	1	167.26	201.89	64.08	o
-16	3	1	34.30	21.33	25.75	o
-15	3	1	5.63	6.00	20.58	o
-14	3	1	32.00	22.97	22.61	o
-13	3	1	19.66	16.34	16.52	o
-12	3	1	73.18	48.24	13.73	o
-11	3	1	1055.40	1089.14	22.15	o
-10	3	1	222.87	180.59	15.08	o
-9	3	1	842.30	866.32	18.37	o
-8	3	1	554.04	571.30	18.21	o
-7	3	1	23.23	29.60	8.04	o
-6	3	1	279.05	261.44	11.95	o
-5	3	1	1070.22	1061.54	16.03	o
-4	3	1	562.43	588.89	23.05	o
-3	3	1	531.96	465.70	11.59	o
-2	3	1	831.80	875.79	14.77	o
-1	3	1	34.92	23.27	6.00	o
0	3	1	489.47	516.61	9.47	o
1	3	1	462.10	493.31	9.75	o
2	3	1	2864.25	3131.32	62.09	o
3	3	1	5040.98	5364.22	122.97	o
4	3	1	287.21	303.08	9.61	o
5	3	1	2802.09	2829.43	52.08	o
6	3	1	759.90	749.05	18.44	o
7	3	1	40.33	43.78	9.65	o
8	3	1	164.09	152.81	13.50	o
9	3	1	74.11	64.07	12.76	o
10	3	1	29.89	24.26	11.18	o
11	3	1	316.78	320.73	38.08	o
12	3	1	50.54	48.65	22.19	o
13	3	1	347.92	337.11	44.34	o
14	3	1	3.42	17.26	23.10	o
15	3	1	0.64	18.48	25.64	o
16	3	1	8.09	16.43	49.11	o
-20	4	1	3.22	12.41	53.49	o
-19	4	1	7.15	12.41	48.84	o
-18	4	1	45.04	33.11	59.19	o
-17	4	1	5.89	22.50	44.80	o
-16	4	1	112.40	108.48	37.13	o
-15	4	1	21.30	35.25	25.47	o
-14	4	1	6.35	5.78	22.35	o
-13	4	1	137.56	113.44	21.76	o

-12	4	1	309.35	309.33	24.64	o
-11	4	1	15.69	17.51	9.25	o
-10	4	1	1002.97	1046.71	19.53	o
-9	4	1	190.05	198.47	14.97	o
-8	4	1	205.70	202.66	14.79	o
-7	4	1	78.25	65.59	11.80	o
-6	4	1	7.43	8.89	6.41	o
-5	4	1	9.03	9.14	9.04	o
-4	4	1	288.32	240.81	12.15	o
-3	4	1	160.14	159.35	9.33	o
-2	4	1	1989.77	1928.84	19.58	o
-1	4	1	109.54	109.84	8.48	o
0	4	1	510.85	498.44	9.81	o
1	4	1	418.26	459.97	16.22	o
2	4	1	1031.24	1074.76	20.90	o
3	4	1	141.52	114.39	9.08	o
4	4	1	961.25	1011.81	36.87	o
5	4	1	0.58	6.10	5.45	o
6	4	1	1639.24	1654.15	27.90	o
7	4	1	123.78	105.73	12.55	o
8	4	1	35.41	26.54	9.09	o
9	4	1	31.45	20.31	9.96	o
10	4	1	72.43	56.01	18.25	o
11	4	1	30.73	26.30	17.48	o
12	4	1	242.16	237.78	39.44	o
13	4	1	7.67	22.54	23.67	o
14	4	1	129.64	169.61	43.63	o
15	4	1	23.39	32.24	29.06	o
16	4	1	2.36	16.30	37.73	o
-20	5	1	5.46	46.88	54.84	o
-19	5	1	2.72	24.12	61.96	o
-18	5	1	28.99	43.97	60.77	o
-17	5	1	7.55	10.27	38.22	o
-16	5	1	62.86	46.42	42.31	o
-15	5	1	323.05	307.06	71.76	o
-14	5	1	0.15	13.13	19.96	o
-13	5	1	579.63	640.08	55.98	o
-12	5	1	89.49	81.58	18.81	o
-11	5	1	1.54	8.02	11.01	o
-10	5	1	0.07	11.08	8.88	o
-9	5	1	177.57	156.74	16.50	o
-8	5	1	722.79	667.10	19.26	o
-7	5	1	1709.33	1759.78	30.14	o
-6	5	1	64.99	58.33	17.45	o
-5	5	1	695.93	696.19	24.00	o

-4	5	1	119.38	105.95	13.74	o
-3	5	1	4.74	6.48	4.93	o
-2	5	1	183.23	203.85	10.32	o
-1	5	1	1406.05	1434.14	19.34	o
0	5	1	326.89	318.02	11.22	o
1	5	1	6024.78	6138.82	61.56	o
2	5	1	220.50	221.79	11.94	o
3	5	1	137.09	160.41	11.08	o
4	5	1	130.49	115.14	12.01	o
5	5	1	562.86	562.75	25.79	o
6	5	1	163.40	144.44	16.20	o
7	5	1	1115.73	1152.46	44.80	o
8	5	1	260.99	250.08	17.80	o
9	5	1	1409.43	1450.53	33.27	o
10	5	1	139.72	128.68	25.39	o
11	5	1	1.14	8.90	14.41	o
12	5	1	37.87	26.53	18.55	o
13	5	1	1.10	8.88	19.60	o
14	5	1	58.29	26.02	28.50	o
15	5	1	257.06	214.44	51.34	o
16	5	1	9.14	27.41	37.08	o
-19	6	1	30.24	20.82	50.16	o
-18	6	1	56.48	87.67	74.37	o
-17	6	1	1.80	7.33	32.84	o
-16	6	1	3.36	11.23	42.90	o
-15	6	1	148.47	161.30	54.51	o
-14	6	1	5.92	33.29	28.23	o
-13	6	1	15.51	13.26	21.84	o
-12	6	1	77.97	58.48	24.64	o
-11	6	1	120.02	116.70	22.30	o
-10	6	1	426.07	444.20	25.33	o
-9	6	1	158.82	140.80	19.72	o
-8	6	1	198.67	163.64	21.40	o
-7	6	1	119.03	106.35	21.77	o
-6	6	1	228.77	216.11	25.61	o
-5	6	1	1831.58	1908.51	39.08	o
-4	6	1	823.03	814.56	22.15	o
-3	6	1	209.13	203.85	13.16	o
-2	6	1	158.61	162.60	13.74	o
-1	6	1	4194.15	4296.05	35.80	o
0	6	1	19.76	19.62	7.27	o
1	6	1	39.82	36.43	11.67	o
2	6	1	361.95	337.77	12.09	o
3	6	1	1048.12	1088.97	19.20	o
4	6	1	1832.51	1896.75	44.29	o

5	6	1	3.89	6.96	9.21	o
6	6	1	143.71	142.57	20.63	o
7	6	1	261.78	246.23	25.23	o
8	6	1	31.30	25.44	15.67	o
9	6	1	544.33	588.02	37.63	o
10	6	1	45.50	45.76	21.31	o
11	6	1	3.58	15.44	23.33	o
12	6	1	223.05	219.97	47.71	o
13	6	1	232.03	223.62	45.74	o
14	6	1	21.20	20.76	41.41	o
-14	7	1	8.64	3.31	35.97	o
-13	7	1	0.46	17.19	38.60	o
-12	7	1	62.41	42.45	22.18	o
-11	7	1	72.81	65.47	19.57	o
-10	7	1	79.27	77.13	21.09	o
-9	7	1	430.38	436.62	31.98	o
-8	7	1	0.19	5.08	12.99	o
-7	7	1	21.16	15.90	12.65	o
-6	7	1	0.56	9.53	12.37	o
-5	7	1	483.97	461.63	32.19	o
-4	7	1	32.56	25.95	11.91	o
-3	7	1	688.67	690.76	21.65	o
-2	7	1	47.94	45.64	10.96	o
-1	7	1	621.51	607.19	17.97	o
0	7	1	290.15	289.67	16.43	o
1	7	1	18.06	23.08	10.25	o
2	7	1	1.83	12.39	8.46	o
3	7	1	189.10	193.41	13.47	o
4	7	1	1.14	7.77	8.46	o
5	7	1	454.16	453.79	22.74	o
6	7	1	43.27	35.70	15.44	o
7	7	1	168.85	145.69	23.80	o
8	7	1	8.65	9.63	13.97	o
9	7	1	31.60	30.89	22.24	o
10	7	1	17.71	18.92	26.12	o
11	7	1	201.95	225.31	41.57	o
12	7	1	9.22	18.49	24.33	o
13	7	1	159.93	90.04	54.92	o
-13	8	1	36.07	55.74	36.04	o
-12	8	1	9.10	15.88	29.23	o
-11	8	1	21.91	38.05	29.67	o
-10	8	1	66.66	43.89	19.96	o
-9	8	1	164.60	169.11	30.80	o
-8	8	1	317.43	311.60	32.07	o
-7	8	1	2.72	14.75	19.66	o

-6	8	1	160.69	141.53	28.42	o
-5	8	1	672.04	678.65	38.30	o
-4	8	1	127.28	114.85	27.18	o
-3	8	1	83.95	78.52	19.72	o
-2	8	1	397.16	374.67	20.63	o
-1	8	1	946.15	948.36	21.47	o
0	8	1	108.91	104.55	16.82	o
1	8	1	213.09	185.72	19.65	o
2	8	1	107.32	106.41	15.38	o
3	8	1	110.70	108.91	19.86	o
4	8	1	174.79	171.83	21.99	o
5	8	1	143.59	113.14	18.98	o
6	8	1	261.95	246.01	23.44	o
7	8	1	110.15	105.89	21.16	o
8	8	1	92.24	109.23	27.53	o
9	8	1	158.22	152.85	36.16	o
10	8	1	104.73	116.93	36.56	o
11	8	1	58.46	53.74	33.69	o
12	8	1	13.09	23.85	29.70	o
-12	9	1	79.29	54.16	28.00	o
-11	9	1	0.89	16.17	27.60	o
-10	9	1	1.76	11.50	25.95	o
-9	9	1	69.48	62.33	24.43	o
-8	9	1	232.37	230.14	32.15	o
-7	9	1	532.53	544.09	52.88	o
-6	9	1	2.57	20.96	18.12	o
-5	9	1	299.72	299.07	38.96	o
-4	9	1	471.15	461.19	36.44	o
-3	9	1	21.99	21.88	18.05	o
-2	9	1	113.53	106.67	20.70	o
-1	9	1	38.51	32.45	12.20	o
0	9	1	136.63	138.91	20.40	o
1	9	1	1012.73	1045.28	27.56	o
2	9	1	302.00	311.06	24.05	o
3	9	1	45.61	36.34	17.13	o
4	9	1	34.83	34.50	16.82	o
5	9	1	45.97	38.01	15.63	o
6	9	1	397.06	406.10	31.30	o
7	9	1	173.58	205.03	36.76	o
8	9	1	1.25	11.14	21.61	o
9	9	1	585.95	686.28	73.13	o
10	9	1	101.08	75.32	45.19	o
11	9	1	9.95	2.88	35.28	o
-10	10	1	237.89	250.73	56.04	o
-9	10	1	3.05	20.93	26.13	o

-8	10	1	24.09	19.68	25.79	o
-7	10	1	89.72	65.78	25.62	o
-6	10	1	78.23	84.81	45.65	o
-5	10	1	4.43	11.06	18.81	o
-4	10	1	248.38	237.95	39.79	o
-3	10	1	94.44	80.45	31.80	o
-2	10	1	856.42	902.87	62.54	o
-1	10	1	15.72	14.54	13.06	o
0	10	1	5.23	9.27	11.90	o
1	10	1	0.86	11.03	13.97	o
2	10	1	1.63	15.65	17.78	o
3	10	1	2.36	13.14	13.74	o
4	10	1	470.38	490.43	32.54	o
5	10	1	0.40	12.15	14.40	o
6	10	1	110.13	107.31	50.83	o
7	10	1	72.69	63.17	42.63	o
8	10	1	6.31	10.68	33.03	o
9	10	1	14.66	21.94	39.32	o
-8	11	1	51.26	31.62	34.49	o
-7	11	1	7.32	12.50	22.88	o
-6	11	1	1.72	13.83	29.64	o
-5	11	1	0.55	13.46	40.83	o
-4	11	1	13.05	35.95	42.52	o
-3	11	1	51.20	36.56	35.96	o
-2	11	1	3.17	5.30	20.39	o
-1	11	1	130.49	121.22	38.37	o
0	11	1	2.19	6.05	16.30	o
1	11	1	0.39	12.29	16.99	o
2	11	1	41.48	40.42	31.31	o
3	11	1	314.49	292.72	43.28	o
4	11	1	36.89	18.33	20.66	o
5	11	1	316.83	310.24	77.36	o
6	11	1	53.40	29.24	31.04	o
7	11	1	11.48	38.98	50.67	o
-5	12	1	15.19	13.32	27.10	o
-4	12	1	0.59	13.90	48.13	o
-3	12	1	14.90	10.46	31.04	o
-2	12	1	20.93	24.02	31.69	o
-1	12	1	17.54	34.76	45.64	o
0	12	1	181.14	222.15	67.29	o
1	12	1	1.92	13.76	23.64	o
2	12	1	329.92	368.71	55.76	o
3	12	1	6.80	23.38	33.02	o
4	12	1	2.32	14.00	35.80	o
5	12	1	1.36	44.92	57.16	o

-20	0	2	105.32	67.38	72.89	o
-18	0	2	114.21	113.79	57.91	o
-16	0	2	41.84	48.15	42.20	o
-14	0	2	245.70	265.90	51.71	o
-12	0	2	460.61	473.73	56.89	o
-10	0	2	17.70	10.29	10.06	o
-8	0	2	251.04	250.35	29.62	o
-6	0	2	9986.11	10543.61	89.46	o
-4	0	2	6367.23	6612.35	44.53	o
-2	0	2	2009.84	1914.08	23.87	o
0	0	2	1323.41	1524.57	20.95	o
2	0	2	4867.40	4423.38	55.16	o
4	0	2	85.57	67.27	21.10	o
6	0	2	29.07	31.11	14.40	o
8	0	2	4117.76	4359.62	81.64	o
10	0	2	798.06	893.03	50.70	o
12	0	2	152.90	149.66	47.14	o
14	0	2	81.45	47.92	35.48	o
-21	1	2	2.52	29.91	42.75	o
-20	1	2	8.82	24.43	34.29	o
-19	1	2	0.27	-1.70	22.77	o
-18	1	2	41.54	21.21	29.02	o
-17	1	2	114.55	93.94	37.42	o
-16	1	2	0.05	12.39	22.09	o
-15	1	2	93.56	93.43	31.91	o
-14	1	2	150.18	163.51	35.89	o
-13	1	2	0.69	6.83	16.73	o
-12	1	2	1.43	5.13	15.48	o
-11	1	2	517.61	521.05	23.99	o
-10	1	2	78.78	60.52	14.84	o
-9	1	2	1586.20	1590.58	47.78	o
-8	1	2	30.08	31.95	10.11	o
-7	1	2	96.84	90.60	9.55	o
-6	1	2	187.94	196.27	8.14	o
-5	1	2	69.78	66.08	5.88	o
-4	1	2	72.56	70.22	6.20	o
-3	1	2	741.33	667.76	10.67	o
-2	1	2	261.12	299.45	8.03	o
-1	1	2	1095.52	1004.99	12.92	o
0	1	2	3205.94	3257.22	60.18	o
1	1	2	1205.85	1245.37	24.04	o
2	1	2	26.08	17.52	7.82	o
3	1	2	973.15	1007.19	17.48	o
4	1	2	2.27	6.35	5.59	o
5	1	2	1157.36	1121.55	21.01	o

6	1	2	139.65	140.85	15.05	o
7	1	2	868.33	849.64	25.41	o
8	1	2	131.13	112.16	14.83	o
9	1	2	1.85	8.92	13.57	o
10	1	2	183.54	149.43	23.35	o
11	1	2	51.43	39.28	22.50	o
12	1	2	2.68	7.77	22.20	o
13	1	2	381.11	318.28	42.85	o
14	1	2	44.39	46.94	48.76	o
15	1	2	49.93	24.59	37.80	o
-21	2	2	8.54	23.22	43.80	o
-20	2	2	1.44	46.83	36.50	o
-19	2	2	2.00	17.38	38.56	o
-18	2	2	31.10	24.91	37.38	o
-17	2	2	1.52	8.43	25.83	o
-16	2	2	307.51	305.98	46.51	o
-15	2	2	1.27	17.91	20.61	o
-14	2	2	11.93	21.71	20.72	o
-13	2	2	93.23	84.31	24.94	o
-12	2	2	139.57	111.48	26.27	o
-11	2	2	0.17	8.49	10.78	o
-10	2	2	477.01	514.30	23.39	o
-9	2	2	68.90	63.39	10.05	o
-8	2	2	802.51	822.06	15.57	o
-7	2	2	97.32	97.73	10.95	o
-6	2	2	50.34	43.90	9.21	o
-5	2	2	240.12	225.55	8.13	o
-4	2	2	1750.43	1761.74	15.81	o
-3	2	2	281.73	301.86	9.12	o
-2	2	2	101.21	57.56	7.09	o
-1	2	2	2466.71	2711.44	21.35	o
0	2	2	1875.90	1845.33	17.61	o
1	2	2	1420.44	1570.11	26.15	o
2	2	2	1896.59	1950.46	29.91	o
3	2	2	498.73	506.77	12.87	o
4	2	2	388.29	400.52	11.13	o
5	2	2	249.92	258.28	12.47	o
6	2	2	707.25	711.37	18.36	o
7	2	2	1.75	5.51	8.29	o
8	2	2	140.12	137.71	17.43	o
9	2	2	1.57	11.45	13.52	o
10	2	2	13.07	18.32	14.41	o
11	2	2	10.91	12.81	17.29	o
12	2	2	153.27	116.67	32.74	o
13	2	2	29.00	33.02	31.27	o

14	2	2	373.64	346.57	75.20	o
15	2	2	8.48	33.09	53.34	o
-21	3	2	35.44	25.01	43.36	o
-20	3	2	9.75	17.43	35.87	o
-19	3	2	31.58	84.17	52.19	o
-18	3	2	79.09	97.30	40.22	o
-17	3	2	19.79	36.83	29.73	o
-16	3	2	53.76	37.73	33.10	o
-15	3	2	24.36	19.20	20.71	o
-14	3	2	410.23	404.30	44.59	o
-13	3	2	261.12	273.71	34.71	o
-12	3	2	175.86	164.37	22.02	o
-11	3	2	395.36	385.63	27.57	o
-10	3	2	635.89	616.67	20.90	o
-9	3	2	29.87	27.01	9.73	o
-8	3	2	340.71	349.49	14.28	o
-7	3	2	81.39	95.40	11.82	o
-6	3	2	1.68	6.84	4.09	o
-5	3	2	754.34	722.17	11.75	o
-4	3	2	104.56	89.89	8.01	o
-3	3	2	1326.97	1284.53	17.67	o
-2	3	2	131.26	123.90	7.91	o
-1	3	2	618.55	648.33	14.23	o
0	3	2	4248.52	4376.16	36.44	o
1	3	2	3435.79	3540.11	52.81	o
2	3	2	895.10	938.35	15.01	o
3	3	2	559.19	516.83	13.23	o
4	3	2	2386.82	2483.83	40.50	o
5	3	2	11.90	13.52	7.20	o
6	3	2	108.38	94.93	13.34	o
7	3	2	55.56	55.47	11.82	o
8	3	2	1396.92	1429.04	42.41	o
9	3	2	455.71	437.34	20.33	o
10	3	2	36.22	30.81	19.40	o
11	3	2	96.85	96.91	30.50	o
12	3	2	42.00	49.05	30.84	o
13	3	2	78.71	20.31	28.54	o
14	3	2	62.53	29.79	30.04	o
15	3	2	103.88	136.43	66.83	o
-20	4	2	15.75	8.14	51.77	o
-19	4	2	10.67	11.27	47.69	o
-18	4	2	45.67	39.70	35.72	o
-17	4	2	33.38	56.35	62.48	o
-16	4	2	5.28	-15.00	35.90	o
-15	4	2	129.61	97.69	50.32	o

-14	4	2	283.38	225.11	52.02	o
-13	4	2	12.38	4.43	26.36	o
-12	4	2	210.37	201.17	30.96	o
-11	4	2	382.74	364.38	23.11	o
-10	4	2	68.54	71.19	15.51	o
-9	4	2	118.94	110.26	16.84	o
-8	4	2	72.09	53.69	12.46	o
-7	4	2	1708.71	1804.58	28.87	o
-6	4	2	1426.04	1388.84	19.51	o
-5	4	2	8.31	5.47	5.36	o
-4	4	2	1226.92	1197.75	18.24	o
-3	4	2	1273.06	1254.12	18.24	o
-2	4	2	426.18	418.70	9.16	o
-1	4	2	490.11	493.42	9.86	o
0	4	2	817.83	802.25	12.53	o
1	4	2	724.22	698.49	12.05	o
2	4	2	2088.05	2184.72	28.01	o
3	4	2	1820.56	1899.71	32.26	o
4	4	2	16.22	11.85	6.40	o
5	4	2	163.58	147.86	13.05	o
6	4	2	15.86	22.62	10.58	o
7	4	2	1128.56	1139.17	22.72	o
8	4	2	600.41	610.95	18.55	o
9	4	2	0.21	13.26	9.14	o
10	4	2	323.33	281.72	31.56	o
11	4	2	212.84	180.48	55.83	o
12	4	2	61.44	39.78	35.25	o
13	4	2	5.21	17.92	28.43	o
14	4	2	12.39	17.25	34.48	o
-20	5	2	0.53	21.10	54.71	o
-19	5	2	12.68	18.01	44.80	o
-18	5	2	3.29	7.59	62.45	o
-17	5	2	199.04	176.23	57.84	o
-16	5	2	4.29	9.97	36.98	o
-15	5	2	157.84	168.32	64.95	o
-14	5	2	3.30	13.85	30.93	o
-13	5	2	6.85	20.12	24.78	o
-12	5	2	0.72	9.61	21.79	o
-11	5	2	19.07	24.83	14.37	o
-10	5	2	25.72	19.15	11.86	o
-9	5	2	316.45	307.34	18.82	o
-8	5	2	37.10	39.02	14.74	o
-7	5	2	170.80	166.52	17.32	o
-6	5	2	69.41	63.50	14.22	o
-5	5	2	1003.49	983.77	18.74	o

-4	5	2	2.96	4.67	6.23	o
-3	5	2	1236.79	1221.25	24.23	o
-2	5	2	110.46	107.36	9.70	o
-1	5	2	1006.36	966.95	13.41	o
0	5	2	239.35	232.28	10.04	o
1	5	2	22.30	19.90	7.04	o
2	5	2	337.88	351.89	12.73	o
3	5	2	22.26	25.84	7.94	o
4	5	2	13.18	13.71	8.31	o
5	5	2	339.53	366.80	20.89	o
6	5	2	3.38	13.66	11.29	o
7	5	2	1101.62	1123.77	23.26	o
8	5	2	65.54	53.68	12.75	o
9	5	2	70.90	66.17	16.04	o
10	5	2	10.55	11.22	18.53	o
11	5	2	102.60	93.57	31.48	o
12	5	2	14.84	1.11	29.19	o
13	5	2	118.32	198.95	69.57	o
14	5	2	1.28	22.78	44.67	o
-19	6	2	15.56	18.27	40.21	o
-18	6	2	3.03	53.84	53.24	o
-17	6	2	22.98	29.05	55.76	o
-16	6	2	93.96	130.58	60.09	o
-15	6	2	131.12	144.73	48.84	o
-14	6	2	4.84	-0.58	36.19	o
-13	6	2	14.98	15.62	21.20	o
-12	6	2	96.13	105.42	27.17	o
-11	6	2	63.76	61.78	17.03	o
-10	6	2	515.19	493.58	26.14	o
-9	6	2	60.93	57.99	14.93	o
-8	6	2	667.23	689.74	22.11	o
-7	6	2	299.88	298.73	21.78	o
-6	6	2	123.40	109.52	18.41	o
-5	6	2	321.03	284.40	15.93	o
-4	6	2	40.94	37.08	12.62	o
-3	6	2	175.79	169.01	15.08	o
-2	6	2	1260.65	1270.05	18.62	o
-1	6	2	6.32	10.00	7.60	o
0	6	2	754.88	781.88	14.33	o
1	6	2	221.06	225.44	11.08	o
2	6	2	12.94	18.29	7.62	o
3	6	2	28.39	16.57	8.15	o
4	6	2	572.16	586.97	19.21	o
5	6	2	28.03	30.46	13.47	o
6	6	2	735.68	732.09	25.40	o

7	6	2	81.79	92.18	19.78	o
8	6	2	1.91	8.34	11.31	o
9	6	2	1.94	8.76	12.58	o
10	6	2	4.93	11.01	19.19	o
11	6	2	216.52	218.76	46.52	o
12	6	2	164.70	167.86	52.74	o
13	6	2	13.04	14.46	40.21	o
-19	7	2	57.82	45.67	75.19	o
-18	7	2	0.80	29.41	55.23	o
-17	7	2	18.17	37.65	56.88	o
-16	7	2	0.05	38.28	48.93	o
-15	7	2	2.44	25.61	40.33	o
-14	7	2	0.72	25.62	38.40	o
-13	7	2	501.10	576.09	56.66	o
-12	7	2	4.60	12.55	18.10	o
-11	7	2	158.38	152.49	23.90	o
-10	7	2	26.74	24.22	18.38	o
-9	7	2	86.53	53.67	17.42	o
-8	7	2	49.88	44.47	17.20	o
-7	7	2	731.22	721.42	27.80	o
-6	7	2	56.02	43.69	15.32	o
-5	7	2	1652.35	1715.09	36.84	o
-4	7	2	0.49	8.41	8.72	o
-3	7	2	43.29	42.54	12.06	o
-2	7	2	14.28	17.00	7.97	o
-1	7	2	724.27	715.42	17.01	o
0	7	2	2.21	6.91	7.88	o
1	7	2	2130.26	2249.76	24.04	o
2	7	2	1.32	10.03	7.38	o
3	7	2	1346.89	1391.14	25.53	o
4	7	2	58.99	30.16	12.98	o
5	7	2	9.97	14.79	10.95	o
6	7	2	43.40	42.79	17.03	o
7	7	2	1.73	10.96	15.25	o
8	7	2	4.93	18.03	12.35	o
9	7	2	1046.58	1066.39	39.00	o
10	7	2	2.34	14.47	19.99	o
11	7	2	21.26	21.52	23.72	o
12	7	2	3.76	18.17	25.10	o
-13	8	2	3.12	23.90	29.31	o
-12	8	2	1.66	16.07	26.37	o
-11	8	2	54.67	86.50	37.03	o
-10	8	2	373.96	373.77	41.14	o
-9	8	2	0.34	4.86	16.41	o
-8	8	2	399.18	390.99	33.70	o

-7	8	2	652.47	659.23	34.11	o
-6	8	2	2.29	13.77	15.05	o
-5	8	2	84.01	61.98	18.47	o
-4	8	2	1.56	13.34	12.91	o
-3	8	2	723.52	714.89	23.37	o
-2	8	2	678.05	655.81	20.00	o
-1	8	2	15.68	14.03	8.73	o
0	8	2	217.45	202.15	15.48	o
1	8	2	293.75	272.47	16.82	o
2	8	2	9.65	12.82	9.58	o
3	8	2	103.00	94.31	17.98	o
4	8	2	404.80	421.98	24.62	o
5	8	2	5.71	11.00	10.65	o
6	8	2	467.86	467.85	33.81	o
7	8	2	378.63	379.81	36.83	o
8	8	2	2.20	13.19	16.88	o
9	8	2	38.59	34.53	26.85	o
10	8	2	0.45	10.69	27.46	o
11	8	2	194.52	176.31	51.63	o
-12	9	2	40.41	41.81	37.20	o
-11	9	2	10.99	41.18	29.25	o
-10	9	2	0.00	10.15	24.93	o
-9	9	2	309.45	285.50	40.95	o
-8	9	2	45.20	28.48	20.87	o
-7	9	2	60.31	77.17	24.23	o
-6	9	2	7.43	11.78	16.23	o
-5	9	2	17.24	20.86	17.66	o
-4	9	2	1.46	3.23	13.00	o
-3	9	2	314.36	309.39	28.92	o
-2	9	2	0.80	12.40	11.60	o
-1	9	2	656.56	680.17	24.75	o
0	9	2	19.19	16.93	10.79	o
1	9	2	61.47	58.89	16.95	o
2	9	2	0.01	11.42	14.30	o
3	9	2	30.52	28.95	16.80	o
4	9	2	19.26	27.33	17.06	o
5	9	2	420.22	480.24	30.38	o
6	9	2	0.06	11.39	13.44	o
7	9	2	276.70	285.82	31.67	o
8	9	2	24.43	21.64	19.21	o
9	9	2	8.36	21.22	25.15	o
10	9	2	1.86	16.68	25.97	o
-10	10	2	29.89	25.32	30.18	o
-9	10	2	0.33	7.85	31.35	o
-8	10	2	14.88	26.46	23.61	o

-7	10	2	305.97	327.00	46.30	o
-6	10	2	398.25	433.80	49.32	o
-5	10	2	30.33	28.16	21.13	o
-4	10	2	258.50	234.17	32.75	o
-3	10	2	71.45	62.86	18.83	o
-2	10	2	15.86	17.19	15.71	o
-1	10	2	53.86	46.34	18.82	o
0	10	2	73.73	59.31	21.25	o
1	10	2	55.54	42.67	15.59	o
2	10	2	194.93	205.03	30.89	o
3	10	2	223.79	241.77	31.32	o
4	10	2	34.64	24.65	19.46	o
5	10	2	60.72	50.59	32.71	o
6	10	2	1.99	13.56	23.20	o
7	10	2	221.97	237.80	43.26	o
8	10	2	115.79	76.98	46.95	o
-8	11	2	76.06	53.73	39.25	o
-7	11	2	69.29	67.19	38.52	o
-6	11	2	46.91	41.50	31.81	o
-5	11	2	32.12	21.03	24.21	o
-4	11	2	278.72	296.77	44.13	o
-3	11	2	52.26	79.95	35.90	o
-2	11	2	0.11	12.96	21.58	o
-1	11	2	56.04	33.82	22.87	o
0	11	2	539.07	520.26	52.63	o
1	11	2	317.91	330.12	46.66	o
2	11	2	9.44	15.81	23.75	o
3	11	2	91.95	81.41	29.35	o
4	11	2	473.35	493.20	54.37	o
5	11	2	12.85	23.67	26.70	o
6	11	2	15.19	24.21	32.69	o
7	11	2	10.30	10.97	36.94	o
-5	12	2	0.33	12.99	46.05	o
-4	12	2	2.38	16.44	28.79	o
-3	12	2	2.03	8.97	26.75	o
-2	12	2	433.59	450.99	55.81	o
-1	12	2	5.23	14.79	36.85	o
0	12	2	71.10	79.89	66.24	o
1	12	2	1.13	28.41	49.01	o
2	12	2	35.48	89.39	54.63	o
3	12	2	0.61	14.52	32.15	o
4	12	2	84.93	75.81	42.02	o
-20	0	3	0.85	20.16	61.69	o
-18	0	3	4.36	26.60	50.76	o
-16	0	3	306.51	390.55	65.45	o

-14	0	3	38.44	41.92	31.06	o
-12	0	3	1.70	19.14	21.51	o
-10	0	3	234.92	251.32	26.91	o
-8	0	3	2120.62	2225.51	95.82	o
-6	0	3	203.66	178.40	16.61	o
-4	0	3	569.73	557.89	17.72	o
-2	0	3	311.09	400.51	16.79	o
0	0	3	1403.71	1421.53	31.42	o
2	0	3	1371.47	1324.42	23.74	o
4	0	3	1105.76	1041.41	37.77	o
6	0	3	458.24	476.61	20.59	o
8	0	3	822.43	848.23	31.00	o
10	0	3	61.17	30.57	26.83	o
12	0	3	10.61	21.04	32.73	o
14	0	3	277.42	274.38	66.34	o
-21	1	3	10.56	6.69	36.58	o
-20	1	3	18.57	22.46	40.37	o
-19	1	3	1.89	28.33	37.12	o
-18	1	3	37.56	49.48	36.20	o
-17	1	3	71.93	60.30	34.77	o
-16	1	3	162.41	174.83	45.55	o
-15	1	3	162.99	142.76	41.69	o
-14	1	3	331.97	372.00	44.22	o
-13	1	3	100.88	92.54	26.49	o
-12	1	3	5.16	5.31	13.05	o
-11	1	3	218.93	188.06	19.71	o
-10	1	3	279.06	271.29	18.92	o
-9	1	3	421.09	415.77	18.15	o
-8	1	3	18.08	17.11	8.31	o
-7	1	3	1.70	9.83	6.05	o
-6	1	3	1791.81	1822.93	21.22	o
-5	1	3	102.79	83.74	7.11	o
-4	1	3	571.41	563.74	12.13	o
-3	1	3	2118.35	2168.88	22.00	o
-2	1	3	3941.91	4088.77	43.89	o
-1	1	3	1725.86	1764.88	25.13	o
0	1	3	264.55	235.15	9.72	o
1	1	3	975.65	927.90	13.24	o
2	1	3	1697.86	1727.32	21.17	o
3	1	3	411.88	381.11	11.54	o
4	1	3	9.35	14.81	7.45	o
5	1	3	142.12	127.56	16.80	o
6	1	3	428.32	379.88	18.80	o
7	1	3	198.29	203.68	19.82	o
8	1	3	607.43	621.04	23.78	o

9	1	3	172.97	172.91	22.44	o
10	1	3	5.48	11.63	16.90	o
11	1	3	70.64	68.07	28.06	o
12	1	3	243.86	235.63	39.96	o
13	1	3	144.86	141.88	37.34	o
14	1	3	4.84	14.94	25.41	o
-21	2	3	7.51	24.64	35.65	o
-20	2	3	71.39	63.65	50.14	o
-19	2	3	2.11	22.67	39.41	o
-18	2	3	99.25	86.53	39.54	o
-17	2	3	9.69	68.40	46.45	o
-16	2	3	14.75	15.73	29.32	o
-15	2	3	27.91	30.83	21.71	o
-14	2	3	5.69	9.15	20.42	o
-13	2	3	120.63	126.97	34.86	o
-12	2	3	834.60	908.52	30.98	o
-11	2	3	227.28	228.66	23.18	o
-10	2	3	997.17	998.86	25.03	o
-9	2	3	1280.12	1250.52	24.39	o
-8	2	3	594.67	569.77	17.66	o
-7	2	3	371.09	353.32	15.55	o
-6	2	3	595.65	602.91	15.59	o
-5	2	3	1918.04	1968.69	18.69	o
-4	2	3	3767.31	3789.81	53.50	o
-3	2	3	25.74	18.95	6.64	o
-2	2	3	431.21	431.58	13.30	o
-1	2	3	206.62	209.14	8.88	o
0	2	3	926.37	979.54	13.79	o
1	2	3	788.56	756.66	14.05	o
2	2	3	5462.48	5635.87	35.21	o
3	2	3	467.89	466.23	18.31	o
4	2	3	1230.70	1261.61	24.40	o
5	2	3	1241.21	1231.75	25.33	o
6	2	3	214.86	214.98	19.30	o
7	2	3	126.84	115.29	18.22	o
8	2	3	14.03	11.03	10.30	o
9	2	3	557.25	565.88	25.79	o
10	2	3	1158.58	1247.09	47.47	o
11	2	3	9.99	29.64	28.31	o
12	2	3	79.38	55.86	24.40	o
13	2	3	53.00	40.52	31.31	o
14	2	3	9.69	1.65	39.13	o
-20	3	3	1.42	13.85	49.84	o
-19	3	3	3.34	12.40	48.68	o
-18	3	3	1.72	11.36	40.45	o

-17	3	3	41.97	36.07	26.81	o
-16	3	3	49.43	40.54	23.34	o
-15	3	3	385.33	421.68	48.19	o
-14	3	3	33.06	31.68	22.57	o
-13	3	3	0.46	11.02	16.26	o
-12	3	3	10.57	22.31	13.17	o
-11	3	3	0.52	8.87	10.72	o
-10	3	3	18.77	14.97	8.43	o
-9	3	3	776.35	798.98	19.18	o
-8	3	3	39.33	36.54	10.23	o
-7	3	3	1144.81	1135.07	19.86	o
-6	3	3	4.86	10.77	6.04	o
-5	3	3	43.60	41.75	7.75	o
-4	3	3	195.66	189.44	10.58	o
-3	3	3	194.22	174.82	10.73	o
-2	3	3	184.86	191.95	10.81	o
-1	3	3	1797.96	1750.62	23.74	o
0	3	3	524.22	541.01	11.64	o
1	3	3	855.84	848.46	13.99	o
2	3	3	289.76	304.16	11.43	o
3	3	3	12.13	15.00	7.10	o
4	3	3	0.05	10.40	9.28	o
5	3	3	25.66	31.65	12.38	o
6	3	3	153.01	132.22	18.25	o
7	3	3	1362.79	1400.94	30.37	o
8	3	3	4.96	10.69	12.08	o
9	3	3	168.41	141.18	23.81	o
10	3	3	53.61	38.04	22.21	o
11	3	3	1.88	21.01	22.23	o
12	3	3	4.33	20.60	25.55	o
13	3	3	139.26	133.85	35.69	o
14	3	3	9.22	2.61	39.17	o
-20	4	3	1.90	25.93	53.45	o
-19	4	3	1.98	30.19	61.85	o
-18	4	3	11.68	15.27	43.17	o
-17	4	3	47.51	60.20	60.94	o
-16	4	3	215.61	209.11	59.73	o
-15	4	3	34.97	30.82	41.71	o
-14	4	3	30.87	29.46	45.01	o
-13	4	3	59.42	60.46	22.71	o
-12	4	3	3.82	7.79	20.29	o
-11	4	3	32.79	51.30	22.83	o
-10	4	3	120.26	128.06	24.94	o
-9	4	3	91.46	73.84	14.06	o
-8	4	3	1233.10	1243.40	20.09	o

-7	4	3	29.64	30.53	8.95	o
-6	4	3	111.53	97.91	11.21	o
-5	4	3	5.60	6.80	6.78	o
-4	4	3	727.23	721.42	16.59	o
-3	4	3	120.61	126.21	11.65	o
-2	4	3	475.39	469.96	14.31	o
-1	4	3	35.58	37.90	7.78	o
0	4	3	617.79	630.89	12.64	o
1	4	3	47.24	45.21	9.01	o
2	4	3	60.42	57.27	10.98	o
3	4	3	24.54	22.89	8.63	o
4	4	3	234.29	208.05	14.25	o
5	4	3	99.90	95.12	14.67	o
6	4	3	799.77	793.35	21.57	o
7	4	3	123.40	102.06	19.52	o
8	4	3	579.23	585.77	27.57	o
9	4	3	123.24	113.71	24.48	o
10	4	3	0.49	13.78	20.07	o
11	4	3	2.26	5.75	19.55	o
12	4	3	39.95	39.29	23.81	o
13	4	3	38.82	46.24	54.53	o
-20	5	3	4.35	13.58	47.83	o
-19	5	3	149.29	171.03	83.49	o
-18	5	3	1.03	8.72	43.37	o
-17	5	3	41.32	30.36	57.44	o
-16	5	3	4.28	17.07	50.59	o
-15	5	3	93.44	58.23	32.33	o
-14	5	3	115.86	109.16	35.31	o
-13	5	3	119.55	131.26	37.01	o
-12	5	3	67.01	61.05	25.18	o
-11	5	3	504.38	483.90	44.06	o
-10	5	3	146.71	133.80	24.43	o
-9	5	3	16.02	9.39	8.89	o
-8	5	3	35.73	25.75	11.70	o
-7	5	3	22.28	23.24	11.95	o
-6	5	3	173.71	168.87	17.55	o
-5	5	3	3111.92	3175.56	31.77	o
-4	5	3	62.13	52.63	12.66	o
-3	5	3	883.03	854.04	18.35	o
-2	5	3	0.02	7.00	7.66	o
-1	5	3	1397.32	1416.93	22.32	o
0	5	3	188.68	182.48	12.77	o
1	5	3	13.13	18.50	7.06	o
2	5	3	0.86	7.20	6.61	o
3	5	3	2743.80	2821.11	31.96	o

4	5	3	161.02	150.51	16.00	o
5	5	3	563.91	541.63	24.12	o
6	5	3	108.28	113.28	21.40	o
7	5	3	22.70	22.96	11.40	o
8	5	3	191.26	194.17	23.08	o
9	5	3	484.59	510.06	32.30	o
10	5	3	0.22	10.65	19.93	o
11	5	3	150.10	139.19	35.23	o
12	5	3	33.60	25.39	41.73	o
13	5	3	30.86	29.44	54.96	o
-19	6	3	0.94	24.53	43.91	o
-18	6	3	5.66	23.11	50.90	o
-17	6	3	54.20	40.96	54.28	o
-16	6	3	79.85	103.16	74.97	o
-15	6	3	7.20	10.34	37.41	o
-14	6	3	200.54	187.32	42.14	o
-13	6	3	127.97	143.41	35.97	o
-12	6	3	24.00	38.71	25.93	o
-11	6	3	36.10	18.92	19.40	o
-10	6	3	64.10	57.08	16.27	o
-9	6	3	472.25	454.78	24.01	o
-8	6	3	123.49	126.45	19.09	o
-7	6	3	593.13	575.21	23.97	o
-6	6	3	192.14	186.54	17.88	o
-5	6	3	285.94	278.32	18.31	o
-4	6	3	0.86	6.72	7.40	o
-3	6	3	835.61	868.94	20.40	o
-2	6	3	850.05	831.52	19.97	o
-1	6	3	274.90	247.17	17.68	o
0	6	3	1075.68	1107.24	18.77	o
1	6	3	1350.53	1399.63	24.04	o
2	6	3	363.73	371.71	17.83	o
3	6	3	113.09	105.55	15.46	o
4	6	3	7.49	7.66	9.25	o
5	6	3	399.66	391.33	27.83	o
6	6	3	157.21	150.34	26.64	o
7	6	3	258.58	270.76	24.10	o
8	6	3	138.72	145.60	22.47	o
9	6	3	282.40	274.26	26.95	o
10	6	3	69.19	40.32	26.11	o
11	6	3	164.43	164.46	59.36	o
12	6	3	46.13	54.42	49.89	o
-19	7	3	0.87	32.46	52.28	o
-18	7	3	17.36	34.51	57.13	o
-17	7	3	12.87	-3.73	36.54	o

-16	7	3	0.02	3.92	34.53	o
-15	7	3	158.40	119.27	61.05	o
-14	7	3	17.46	24.24	29.88	o
-13	7	3	11.87	17.64	26.70	o
-12	7	3	7.09	11.24	21.79	o
-11	7	3	80.54	69.09	19.68	o
-10	7	3	20.91	14.71	15.01	o
-9	7	3	262.92	252.74	25.41	o
-8	7	3	4.20	13.75	12.55	o
-7	7	3	145.70	147.21	20.98	o
-6	7	3	0.98	10.55	12.75	o
-5	7	3	32.24	27.69	11.43	o
-4	7	3	0.01	13.25	10.27	o
-3	7	3	99.08	116.81	19.06	o
-2	7	3	2.18	10.08	9.09	o
-1	7	3	1005.94	1039.52	30.03	o
0	7	3	17.42	21.04	10.86	o
1	7	3	376.67	342.19	17.56	o
2	7	3	53.22	52.37	13.04	o
3	7	3	97.83	87.90	16.91	o
4	7	3	6.66	10.22	12.20	o
5	7	3	130.82	135.97	24.24	o
6	7	3	42.15	51.85	22.21	o
7	7	3	235.26	217.82	31.82	o
8	7	3	6.06	21.94	14.85	o
9	7	3	10.43	19.76	17.87	o
10	7	3	36.16	31.83	21.84	o
11	7	3	11.29	9.80	42.61	o
-12	8	3	166.78	159.79	66.44	o
-11	8	3	142.09	121.38	38.38	o
-10	8	3	40.64	20.46	19.68	o
-9	8	3	108.09	76.40	23.27	o
-8	8	3	30.58	24.98	15.82	o
-7	8	3	361.13	365.74	35.41	o
-6	8	3	12.54	27.46	17.92	o
-5	8	3	3.73	6.17	12.11	o
-4	8	3	165.71	157.91	19.73	o
-3	8	3	53.17	30.82	13.87	o
-2	8	3	294.57	285.38	23.47	o
-1	8	3	9.36	8.31	10.28	o
0	8	3	377.67	359.29	26.36	o
1	8	3	137.57	111.28	17.31	o
2	8	3	88.40	80.14	14.88	o
3	8	3	155.10	154.46	21.27	o
4	8	3	155.66	167.30	30.00	o

5	8	3	144.77	141.40	27.32	o
6	8	3	20.87	19.98	17.15	o
7	8	3	86.81	69.10	22.42	o
8	8	3	12.60	14.97	17.09	o
9	8	3	300.56	283.65	50.25	o
10	8	3	69.38	54.69	39.51	o
-11	9	3	113.07	116.15	38.97	o
-10	9	3	199.95	186.00	46.81	o
-9	9	3	0.32	19.01	29.47	o
-8	9	3	5.58	17.41	23.72	o
-7	9	3	42.17	38.12	24.38	o
-6	9	3	306.88	286.16	34.30	o
-5	9	3	632.10	665.07	35.09	o
-4	9	3	0.12	12.07	14.59	o
-3	9	3	74.22	84.67	21.15	o
-2	9	3	196.07	187.44	23.50	o
-1	9	3	56.33	50.22	15.38	o
0	9	3	138.53	152.91	26.80	o
1	9	3	177.25	173.78	29.94	o
2	9	3	83.93	70.06	22.36	o
3	9	3	517.57	541.69	30.69	o
4	9	3	312.24	304.79	29.93	o
5	9	3	55.02	44.28	20.52	o
6	9	3	20.32	16.58	17.61	o
7	9	3	23.05	29.73	25.71	o
8	9	3	148.39	110.38	40.15	o
9	9	3	196.74	170.20	49.35	o
-9	10	3	39.58	43.23	40.77	o
-8	10	3	454.91	487.08	63.98	o
-7	10	3	4.68	15.05	26.81	o
-6	10	3	119.86	140.46	39.58	o
-5	10	3	3.23	14.30	20.81	o
-4	10	3	15.02	13.18	20.09	o
-3	10	3	2.50	10.93	14.84	o
-2	10	3	207.52	209.24	31.03	o
-1	10	3	8.15	24.32	22.12	o
0	10	3	185.31	168.81	29.70	o
1	10	3	69.48	72.67	46.26	o
2	10	3	43.35	18.87	34.65	o
3	10	3	87.32	69.17	30.19	o
4	10	3	9.89	14.67	23.79	o
5	10	3	21.62	24.84	25.46	o
6	10	3	540.83	604.06	47.94	o
7	10	3	8.51	14.59	19.58	o
8	10	3	89.00	82.50	56.53	o

-7	11	3	102.22	98.25	37.90	o
-6	11	3	8.65	22.10	27.80	o
-5	11	3	3.54	13.49	25.24	o
-4	11	3	66.25	60.23	39.14	o
-3	11	3	62.41	43.27	25.69	o
-2	11	3	24.95	20.06	34.96	o
-1	11	3	290.43	406.32	68.41	o
0	11	3	54.39	60.14	50.38	o
1	11	3	14.98	24.82	36.38	o
2	11	3	40.21	55.07	47.53	o
3	11	3	0.70	20.64	42.65	o
4	11	3	12.48	25.50	41.09	o
5	11	3	49.59	33.55	29.07	o
-20	0	4	60.44	41.62	72.08	o
-18	0	4	151.83	131.62	72.49	o
-16	0	4	9.38	18.63	31.63	o
-14	0	4	178.91	170.55	43.24	o
-12	0	4	541.70	531.59	38.90	o
-10	0	4	1909.35	1963.23	45.72	o
-8	0	4	102.08	77.54	24.22	o
-6	0	4	124.52	107.68	15.08	o
-4	0	4	4305.90	4418.75	51.62	o
-2	0	4	1626.36	1696.29	32.39	o
0	0	4	2616.20	2660.54	37.93	o
2	0	4	1708.74	1710.09	31.90	o
4	0	4	4361.58	4456.56	82.44	o
6	0	4	1.44	2.46	11.08	o
8	0	4	682.80	670.38	39.42	o
10	0	4	695.00	638.95	56.52	o
12	0	4	316.99	276.42	71.52	o
-20	1	4	19.73	28.28	38.14	o
-19	1	4	2.45	18.99	40.19	o
-18	1	4	0.29	18.33	29.54	o
-17	1	4	25.69	21.23	33.21	o
-16	1	4	107.41	79.10	38.63	o
-15	1	4	376.62	421.57	51.78	o
-14	1	4	65.98	73.92	29.74	o
-13	1	4	42.27	34.83	15.84	o
-12	1	4	15.82	24.84	15.39	o
-11	1	4	72.40	67.72	15.77	o
-10	1	4	109.76	104.81	19.06	o
-9	1	4	233.88	243.68	19.47	o
-8	1	4	269.09	251.33	15.76	o
-7	1	4	1323.48	1334.12	22.84	o
-6	1	4	1654.85	1662.27	24.77	o

-5	1	4	252.68	237.67	13.80	o
-4	1	4	78.00	77.07	10.58	o
-3	1	4	337.18	332.19	14.62	o
-2	1	4	791.69	828.90	15.09	o
-1	1	4	1154.75	1178.82	16.82	o
0	1	4	419.17	437.73	12.63	o
1	1	4	618.36	586.88	13.44	o
2	1	4	537.85	519.39	16.67	o
3	1	4	10.62	18.82	10.01	o
4	1	4	57.17	58.03	12.74	o
5	1	4	2.48	6.07	9.88	o
6	1	4	158.65	149.23	19.80	o
7	1	4	777.96	808.81	28.51	o
8	1	4	237.64	240.54	22.53	o
9	1	4	450.32	451.29	27.39	o
10	1	4	147.89	93.60	26.51	o
11	1	4	0.46	7.82	23.39	o
12	1	4	88.19	85.44	36.04	o
13	1	4	16.24	23.49	33.34	o
-20	2	4	0.82	26.25	32.94	o
-19	2	4	2.59	9.16	32.33	o
-18	2	4	2.15	28.37	42.20	o
-17	2	4	17.95	19.38	34.12	o
-16	2	4	100.52	73.26	34.88	o
-15	2	4	13.12	16.91	24.53	o
-14	2	4	426.14	465.89	56.58	o
-13	2	4	177.76	173.53	32.59	o
-12	2	4	0.47	9.25	15.58	o
-11	2	4	0.73	7.94	11.81	o
-10	2	4	56.25	53.38	15.88	o
-9	2	4	139.93	141.46	18.47	o
-8	2	4	753.71	778.89	19.36	o
-7	2	4	51.26	42.66	13.00	o
-6	2	4	109.91	102.94	15.31	o
-5	2	4	93.82	86.79	10.42	o
-4	2	4	99.94	83.50	10.37	o
-3	2	4	0.12	6.93	6.46	o
-2	2	4	475.70	443.77	14.58	o
-1	2	4	270.92	257.55	12.49	o
0	2	4	1675.31	1720.99	20.61	o
1	2	4	464.96	451.51	15.26	o
2	2	4	149.56	133.59	15.19	o
3	2	4	4.57	11.11	11.74	o
4	2	4	37.40	25.04	10.55	o
5	2	4	174.42	161.56	18.97	o

6	2	4	34.87	18.12	14.05	o
7	2	4	270.86	226.45	26.18	o
8	2	4	855.83	907.91	34.97	o
9	2	4	11.32	18.96	16.03	o
10	2	4	20.96	20.37	23.35	o
11	2	4	37.17	27.42	26.02	o
12	2	4	2.78	14.12	23.81	o
13	2	4	0.68	13.85	28.41	o
-20	3	4	51.29	48.69	61.55	o
-19	3	4	38.38	10.75	44.99	o
-18	3	4	2.77	11.63	41.55	o
-17	3	4	57.20	66.10	61.29	o
-16	3	4	167.43	141.03	52.05	o
-15	3	4	0.49	13.34	29.38	o
-14	3	4	70.14	38.49	23.10	o
-13	3	4	91.51	66.55	25.10	o
-12	3	4	49.14	41.03	27.43	o
-11	3	4	542.71	566.06	32.79	o
-10	3	4	170.99	177.97	24.52	o
-9	3	4	269.30	230.13	18.33	o
-8	3	4	206.55	187.35	18.07	o
-7	3	4	101.20	94.61	17.25	o
-6	3	4	1423.19	1444.19	25.77	o
-5	3	4	583.53	570.94	14.00	o
-4	3	4	13.76	11.25	5.55	o
-3	3	4	1578.66	1558.54	30.59	o
-2	3	4	835.04	851.23	16.85	o
-1	3	4	4.87	9.85	6.46	o
0	3	4	278.28	270.50	14.29	o
1	3	4	3.56	9.94	8.18	o
2	3	4	786.95	784.52	21.87	o
3	3	4	1667.05	1748.61	30.68	o
4	3	4	0.64	5.60	9.96	o
5	3	4	553.65	549.39	28.74	o
6	3	4	247.75	250.01	23.91	o
7	3	4	12.17	20.03	15.91	o
8	3	4	82.22	77.11	20.45	o
9	3	4	93.40	104.14	26.59	o
10	3	4	119.49	127.17	36.27	o
11	3	4	258.79	228.57	45.16	o
12	3	4	132.54	97.03	37.01	o
13	3	4	19.54	18.32	42.66	o
-20	4	4	26.16	41.16	53.41	o
-19	4	4	9.95	26.53	58.20	o
-18	4	4	26.65	29.13	49.36	o

-17	4	4	49.63	63.92	65.76	o
-16	4	4	45.33	43.80	34.06	o
-15	4	4	57.18	34.62	29.17	o
-14	4	4	1.24	12.97	25.40	o
-13	4	4	250.77	231.35	43.90	o
-12	4	4	126.00	147.85	36.29	o
-11	4	4	34.13	33.84	22.33	o
-10	4	4	460.76	471.25	23.40	o
-9	4	4	696.25	715.44	27.96	o
-8	4	4	182.11	160.59	21.72	o
-7	4	4	10.54	12.34	10.16	o
-6	4	4	56.37	45.49	12.34	o
-5	4	4	1241.96	1261.18	23.93	o
-4	4	4	246.27	258.25	14.22	o
-3	4	4	491.05	467.25	16.52	o
-2	4	4	343.20	326.82	16.96	o
-1	4	4	1743.92	1761.58	52.44	o
0	4	4	0.84	6.24	7.05	o
1	4	4	1739.60	1773.45	30.16	o
2	4	4	768.21	815.92	24.64	o
3	4	4	646.96	631.93	23.62	o
4	4	4	680.60	728.25	23.52	o
5	4	4	788.71	806.87	30.49	o
6	4	4	192.02	183.59	28.09	o
7	4	4	144.47	111.29	25.28	o
8	4	4	0.41	14.93	17.90	o
9	4	4	411.48	413.77	40.30	o
10	4	4	145.90	119.62	35.63	o
11	4	4	6.97	25.63	31.69	o
12	4	4	25.08	29.52	34.66	o
-19	5	4	0.13	21.32	46.69	o
-18	5	4	3.86	6.07	48.72	o
-17	5	4	2.08	26.57	49.88	o
-16	5	4	3.06	22.29	43.05	o
-15	5	4	167.77	127.34	38.22	o
-14	5	4	1.42	18.04	29.75	o
-13	5	4	33.97	35.71	25.65	o
-12	5	4	2.78	12.80	18.21	o
-11	5	4	17.08	11.74	19.19	o
-10	5	4	38.35	32.87	17.97	o
-9	5	4	418.51	442.60	33.25	o
-8	5	4	154.96	137.53	28.25	o
-7	5	4	1105.34	1132.93	26.28	o
-6	5	4	27.79	28.18	11.69	o
-5	5	4	28.56	19.55	9.09	o

-4	5	4	1.72	8.26	7.88	o
-3	5	4	63.54	62.78	12.03	o
-2	5	4	154.54	121.33	14.66	o
-1	5	4	321.99	303.81	18.14	o
0	5	4	5.82	9.69	8.97	o
1	5	4	1256.11	1304.22	25.53	o
2	5	4	3.90	14.76	9.43	o
3	5	4	183.13	167.08	18.35	o
4	5	4	42.10	52.50	17.09	o
5	5	4	98.09	80.68	26.69	o
6	5	4	0.10	9.63	15.38	o
7	5	4	334.83	360.83	34.09	o
8	5	4	0.91	13.68	17.30	o
9	5	4	21.36	18.34	20.26	o
10	5	4	7.30	20.87	26.12	o
11	5	4	38.69	17.85	25.19	o
12	5	4	2.68	29.52	52.42	o
-19	6	4	6.33	16.47	40.64	o
-18	6	4	23.46	29.15	62.60	o
-17	6	4	52.03	59.32	55.92	o
-16	6	4	30.79	11.49	38.95	o
-15	6	4	15.62	12.38	60.26	o
-14	6	4	108.31	95.74	44.86	o
-13	6	4	156.59	156.94	51.61	o
-12	6	4	18.32	22.73	22.62	o
-11	6	4	4.19	16.22	21.73	o
-10	6	4	2.00	12.54	16.82	o
-9	6	4	111.96	103.71	25.53	o
-8	6	4	109.80	112.53	21.09	o
-7	6	4	84.27	58.88	15.17	o
-6	6	4	351.73	342.86	23.53	o
-5	6	4	56.50	38.85	13.01	o
-4	6	4	390.23	364.86	18.39	o
-3	6	4	55.19	55.05	14.36	o
-2	6	4	206.91	192.48	14.54	o
-1	6	4	135.01	112.00	17.06	o
0	6	4	316.51	308.56	23.87	o
1	6	4	96.14	85.86	24.67	o
2	6	4	17.98	14.76	10.30	o
3	6	4	26.85	22.22	10.45	o
4	6	4	29.65	37.99	17.08	o
5	6	4	45.47	30.13	16.57	o
6	6	4	66.86	49.78	22.97	o
7	6	4	104.01	77.87	26.77	o
8	6	4	271.67	269.42	37.21	o

9	6	4	162.84	150.11	42.96	o
10	6	4	48.77	44.72	28.87	o
11	6	4	8.34	29.95	33.37	o
-18	7	4	2.25	13.20	55.15	o
-17	7	4	106.42	121.90	66.46	o
-16	7	4	0.01	42.74	59.76	o
-15	7	4	19.46	14.78	52.30	o
-14	7	4	2.81	12.65	41.43	o
-13	7	4	30.80	41.31	38.10	o
-12	7	4	15.06	13.04	24.08	o
-11	7	4	385.92	392.11	50.47	o
-10	7	4	13.02	16.28	16.00	o
-9	7	4	68.87	72.81	22.71	o
-8	7	4	7.36	10.29	12.49	o
-7	7	4	268.23	244.19	25.31	o
-6	7	4	33.14	30.94	14.42	o
-5	7	4	501.83	488.93	23.38	o
-4	7	4	56.52	49.32	15.27	o
-3	7	4	1374.77	1420.24	25.50	o
-2	7	4	219.34	181.76	16.55	o
-1	7	4	50.67	45.35	13.54	o
0	7	4	1.58	15.19	11.10	o
1	7	4	54.91	33.00	15.17	o
2	7	4	85.94	94.01	26.44	o
3	7	4	557.13	579.87	25.51	o
4	7	4	16.01	14.35	15.30	o
5	7	4	183.76	191.21	31.89	o
6	7	4	29.06	19.70	17.11	o
7	7	4	102.35	86.55	26.42	o
8	7	4	38.95	38.14	31.07	o
9	7	4	46.27	38.63	25.73	o
10	7	4	6.09	17.69	28.74	o
-17	8	4	6.60	14.93	44.15	o
-16	8	4	68.78	72.42	70.33	o
-15	8	4	19.32	26.98	45.56	o
-14	8	4	122.48	114.02	55.79	o
-13	8	4	49.20	39.95	41.36	o
-12	8	4	0.28	18.39	48.71	o
-11	8	4	44.72	31.48	31.23	o
-10	8	4	19.29	39.40	42.36	o
-9	8	4	64.66	23.11	21.12	o
-8	8	4	250.99	242.27	39.54	o
-7	8	4	29.24	25.96	19.68	o
-6	8	4	404.99	412.09	35.99	o
-5	8	4	51.25	58.95	20.32	o

-4	8	4	0.53	9.71	13.21	o
-3	8	4	1.70	11.65	12.49	o
-2	8	4	140.82	130.07	21.60	o
-1	8	4	91.19	73.33	19.61	o
0	8	4	602.96	627.18	31.18	o
1	8	4	248.47	249.17	29.12	o
2	8	4	11.39	9.58	14.47	o
3	8	4	10.93	40.70	43.20	o
4	8	4	104.26	45.98	14.96	o
5	8	4	139.42	146.90	38.90	o
6	8	4	221.97	222.92	39.83	o
7	8	4	41.53	43.03	20.49	o
8	8	4	305.92	290.81	52.36	o
9	8	4	102.31	70.72	35.60	o
-10	9	4	58.26	36.58	48.02	o
-9	9	4	11.42	26.17	27.46	o
-8	9	4	9.23	27.99	33.10	o
-7	9	4	269.78	271.96	46.33	o
-6	9	4	0.54	18.43	20.46	o
-5	9	4	30.77	29.94	22.60	o
-4	9	4	0.02	10.23	15.91	o
-3	9	4	9.46	10.65	14.68	o
-2	9	4	0.02	15.72	15.79	o
-1	9	4	77.77	70.17	23.63	o
0	9	4	28.59	20.12	17.82	o
1	9	4	241.89	234.64	33.48	o
2	9	4	9.26	9.93	31.39	o
3	9	4	18.47	16.27	44.19	o
4	9	4	2.38	-1.02	35.95	o
5	9	4	50.72	39.92	18.68	o
6	9	4	61.51	74.93	39.48	o
7	9	4	117.95	99.94	34.55	o
-8	10	4	7.65	14.73	28.16	o
-7	10	4	0.20	16.08	30.12	o
-6	10	4	23.45	23.40	30.44	o
-5	10	4	8.75	8.33	22.04	o
-4	10	4	86.53	56.61	26.06	o
-3	10	4	9.40	22.43	24.47	o
-2	10	4	11.23	15.75	34.05	o
-1	10	4	40.32	32.76	35.14	o
0	10	4	2.07	14.25	41.53	o
1	10	4	76.68	45.43	40.40	o
2	10	4	110.24	135.53	54.99	o
3	10	4	23.10	26.01	36.88	o
4	10	4	325.08	383.10	78.84	o

5	10	4	17.76	21.19	37.81	o
6	10	4	53.57	51.91	60.96	o
-5	11	4	70.04	83.12	60.97	o
-4	11	4	45.95	34.28	32.61	o
-3	11	4	30.17	49.47	44.91	o
-2	11	4	206.78	252.72	78.27	o
-1	11	4	87.08	129.78	73.21	o
0	11	4	16.61	74.89	64.20	o
1	11	4	17.36	33.72	58.04	o
-20	0	5	19.58	31.39	62.56	o
-18	0	5	2.53	30.50	63.40	o
-16	0	5	0.24	29.20	54.00	o
-14	0	5	420.05	434.55	80.85	o
-12	0	5	20.46	24.05	23.82	o
-10	0	5	143.88	126.14	32.41	o
-8	0	5	494.36	494.75	37.12	o
-6	0	5	203.28	194.47	19.79	o
-4	0	5	53.93	35.55	14.62	o
-2	0	5	357.54	311.23	20.69	o
0	0	5	760.86	787.58	27.08	o
2	0	5	417.08	444.85	27.32	o
4	0	5	102.01	101.73	23.99	o
6	0	5	4.14	6.22	16.41	o
8	0	5	249.17	245.25	40.86	o
10	0	5	68.16	56.42	31.52	o
-20	1	5	25.17	39.67	48.30	o
-19	1	5	36.86	61.59	51.47	o
-18	1	5	10.65	26.97	35.58	o
-17	1	5	5.81	26.94	37.39	o
-16	1	5	77.29	73.44	34.76	o
-15	1	5	31.29	30.25	24.66	o
-14	1	5	1.36	15.22	20.30	o
-13	1	5	55.02	53.58	18.89	o
-12	1	5	200.12	199.36	26.74	o
-11	1	5	33.13	28.64	12.79	o
-10	1	5	7.63	9.06	11.91	o
-9	1	5	268.58	262.99	23.26	o
-8	1	5	666.73	678.53	20.96	o
-7	1	5	546.98	567.71	21.21	o
-6	1	5	222.01	202.54	16.59	o
-5	1	5	346.96	344.70	17.27	o
-4	1	5	346.77	353.11	15.23	o
-3	1	5	96.32	86.13	13.14	o
-2	1	5	24.48	21.65	8.74	o
-1	1	5	19.60	17.86	6.08	o

0	1	5	364.35	382.43	16.48	o
1	1	5	69.22	72.86	12.90	o
2	1	5	459.97	473.91	25.69	o
3	1	5	523.53	516.65	25.67	o
4	1	5	1.95	10.59	13.17	o
5	1	5	272.20	260.96	25.63	o
6	1	5	368.70	397.69	29.49	o
7	1	5	99.57	78.74	17.65	o
8	1	5	25.82	25.72	17.49	o
9	1	5	108.84	101.64	23.15	o
10	1	5	409.39	381.21	58.96	o
11	1	5	32.34	42.14	40.19	o
-20	2	5	3.79	21.15	50.15	o
-19	2	5	2.98	35.95	71.96	o
-18	2	5	54.33	113.01	69.48	o
-17	2	5	9.51	20.79	32.05	o
-16	2	5	204.39	215.32	45.39	o
-15	2	5	70.25	44.09	34.43	o
-14	2	5	10.09	22.29	23.80	o
-13	2	5	31.09	30.79	22.18	o
-12	2	5	38.11	34.80	15.85	o
-11	2	5	157.73	140.49	21.65	o
-10	2	5	432.37	442.16	27.50	o
-9	2	5	3.17	5.31	11.00	o
-8	2	5	200.34	202.66	19.19	o
-7	2	5	73.66	65.31	13.32	o
-6	2	5	212.79	176.08	15.77	o
-5	2	5	83.35	64.52	11.55	o
-4	2	5	1077.89	1083.46	18.90	o
-3	2	5	105.54	76.12	11.45	o
-2	2	5	2073.20	2184.33	32.75	o
-1	2	5	716.57	710.89	16.72	o
0	2	5	55.19	40.16	9.73	o
1	2	5	164.58	138.75	17.50	o
2	2	5	52.87	36.79	13.41	o
3	2	5	922.41	916.37	31.82	o
4	2	5	1070.80	1092.04	31.09	o
5	2	5	6.07	15.83	14.30	o
6	2	5	355.24	354.27	31.30	o
7	2	5	200.98	153.42	26.93	o
8	2	5	73.34	71.99	21.32	o
9	2	5	7.46	9.63	17.39	o
10	2	5	131.52	117.20	33.78	o
11	2	5	0.06	23.67	33.27	o
-19	3	5	8.43	39.85	78.97	o

-18	3	5	0.18	26.59	60.57	o
-17	3	5	0.60	32.41	62.31	o
-16	3	5	0.02	18.17	41.42	o
-15	3	5	181.16	213.15	53.07	o
-14	3	5	0.87	11.52	27.98	o
-13	3	5	192.66	166.35	42.55	o
-12	3	5	13.16	23.49	20.87	o
-11	3	5	10.20	19.03	20.22	o
-10	3	5	2.28	6.46	13.72	o
-9	3	5	14.73	19.36	13.79	o
-8	3	5	212.82	194.29	21.10	o
-7	3	5	650.12	654.87	25.26	o
-6	3	5	0.19	8.67	10.40	o
-5	3	5	117.41	113.35	15.32	o
-4	3	5	65.28	66.10	13.37	o
-3	3	5	70.72	72.89	12.06	o
-2	3	5	63.10	47.34	10.51	o
-1	3	5	441.30	422.01	19.09	o
0	3	5	74.71	80.94	18.77	o
1	3	5	759.17	824.42	31.41	o
2	3	5	76.30	49.51	13.18	o
3	3	5	21.16	22.47	13.33	o
4	3	5	37.83	36.11	15.96	o
5	3	5	0.41	15.63	12.33	o
6	3	5	40.51	31.03	18.75	o
7	3	5	161.55	196.22	29.27	o
8	3	5	0.02	7.35	16.68	o
9	3	5	306.76	302.46	43.01	o
10	3	5	95.58	86.14	37.34	o
11	3	5	0.65	21.06	33.27	o
-19	4	5	13.85	35.75	55.21	o
-18	4	5	4.30	42.80	53.50	o
-17	4	5	0.54	29.97	54.13	o
-16	4	5	0.69	12.29	42.78	o
-15	4	5	23.16	27.36	43.80	o
-14	4	5	302.27	340.70	50.45	o
-13	4	5	57.99	67.70	32.99	o
-12	4	5	55.32	44.07	23.15	o
-11	4	5	6.60	10.19	16.43	o
-10	4	5	2.62	7.32	16.36	o
-9	4	5	54.68	46.15	16.89	o
-8	4	5	53.90	61.07	17.40	o
-7	4	5	32.04	28.36	12.90	o
-6	4	5	501.94	525.21	24.32	o
-5	4	5	96.25	72.40	15.82	o

-4	4	5	54.66	55.61	12.12	o
-3	4	5	76.12	70.65	14.89	o
-2	4	5	68.24	56.01	13.96	o
-1	4	5	39.85	32.95	12.20	o
0	4	5	476.35	485.82	23.82	o
1	4	5	0.64	16.34	13.57	o
2	4	5	581.31	614.19	27.47	o
3	4	5	10.64	13.66	12.81	o
4	4	5	27.25	35.93	17.91	o
5	4	5	7.49	16.70	14.49	o
6	4	5	6.81	14.73	17.75	o
7	4	5	15.43	38.72	22.93	o
8	4	5	179.40	164.38	39.29	o
9	4	5	10.48	14.68	26.35	o
10	4	5	80.03	69.91	36.92	o
-19	5	5	9.51	34.58	63.02	o
-18	5	5	3.70	41.34	75.70	o
-17	5	5	85.88	93.65	73.90	o
-16	5	5	43.62	32.81	53.39	o
-15	5	5	10.38	21.68	47.17	o
-14	5	5	1.53	11.63	39.95	o
-13	5	5	1.90	15.46	26.98	o
-12	5	5	147.33	156.94	42.27	o
-11	5	5	388.48	387.82	46.54	o
-10	5	5	25.92	22.89	19.91	o
-9	5	5	472.58	442.20	32.83	o
-8	5	5	167.53	136.69	24.56	o
-7	5	5	190.04	187.95	31.54	o
-6	5	5	2.99	13.68	13.94	o
-5	5	5	7.35	13.19	11.78	o
-4	5	5	0.46	14.75	10.93	o
-3	5	5	1023.90	1051.34	29.49	o
-2	5	5	0.35	8.23	9.07	o
-1	5	5	631.53	627.39	23.97	o
0	5	5	80.92	78.91	18.96	o
1	5	5	32.10	18.59	18.82	o
2	5	5	109.55	105.89	29.72	o
3	5	5	397.30	363.53	29.73	o
4	5	5	82.14	71.74	19.57	o
5	5	5	417.97	431.58	35.31	o
6	5	5	15.56	23.40	20.69	o
7	5	5	31.82	14.55	26.97	o
8	5	5	129.67	100.64	33.60	o
9	5	5	47.77	21.83	21.49	o
10	5	5	23.75	17.87	27.81	o

-18	6	5	6.23	39.95	70.30	o
-17	6	5	2.18	36.85	57.88	o
-16	6	5	37.21	26.20	63.43	o
-15	6	5	99.69	115.14	66.83	o
-14	6	5	13.92	7.43	41.98	o
-13	6	5	3.59	16.88	36.57	o
-12	6	5	22.08	29.72	29.64	o
-11	6	5	66.43	47.34	24.47	o
-10	6	5	23.99	32.36	25.37	o
-9	6	5	42.22	26.26	20.35	o
-8	6	5	349.81	359.05	31.59	o
-7	6	5	169.63	172.35	30.71	o
-6	6	5	210.92	212.54	26.63	o
-5	6	5	543.21	542.54	28.75	o
-4	6	5	56.43	56.92	13.73	o
-3	6	5	94.63	88.08	17.09	o
-2	6	5	34.63	36.25	13.67	o
-1	6	5	733.08	760.67	25.77	o
0	6	5	124.51	114.21	23.41	o
1	6	5	9.33	18.17	16.90	o
2	6	5	43.85	32.71	22.88	o
3	6	5	429.61	435.26	43.63	o
4	6	5	40.80	37.80	21.00	o
5	6	5	17.35	17.93	19.06	o
6	6	5	215.92	223.69	43.66	o
7	6	5	172.17	206.41	43.26	o
8	6	5	146.27	81.14	38.17	o
9	6	5	95.19	72.10	40.33	o
-17	7	5	0.09	5.40	38.62	o
-16	7	5	5.54	12.15	51.49	o
-15	7	5	45.14	70.52	59.55	o
-14	7	5	6.50	22.29	39.14	o
-13	7	5	122.29	99.10	57.85	o
-12	7	5	10.89	20.08	41.73	o
-11	7	5	7.50	10.18	27.82	o
-10	7	5	41.65	22.24	28.11	o
-9	7	5	0.74	-3.50	19.97	o
-8	7	5	0.36	5.04	21.59	o
-7	7	5	358.53	381.89	34.44	o
-6	7	5	16.08	18.68	14.74	o
-5	7	5	260.09	226.04	27.32	o
-4	7	5	3.93	7.80	13.45	o
-3	7	5	24.12	15.94	12.55	o
-2	7	5	12.54	10.23	12.33	o
-1	7	5	2.74	13.74	16.29	o

0	7	5	51.01	33.85	14.73	o
1	7	5	286.73	275.51	29.90	o
2	7	5	2.20	10.42	18.63	o
3	7	5	16.63	15.51	18.84	o
5	7	5	6.19	28.16	34.45	o
6	7	5	14.96	14.15	24.73	o
7	7	5	122.02	115.72	38.20	o
8	7	5	0.30	19.18	32.02	o
-17	8	5	0.43	12.46	41.36	o
-16	8	5	2.99	34.32	66.83	o
-15	8	5	135.30	181.30	75.11	o
-14	8	5	3.61	39.18	53.83	o
-13	8	5	24.12	32.37	50.37	o
-12	8	5	28.26	29.40	32.78	o
-11	8	5	50.37	68.58	52.64	o
-10	8	5	79.95	85.62	37.96	o
-9	8	5	16.70	23.41	24.42	o
-8	8	5	46.61	34.78	23.52	o
-7	8	5	24.19	23.98	20.87	o
-6	8	5	191.65	165.60	28.32	o
-5	8	5	160.81	168.36	29.20	o
-4	8	5	106.17	88.24	21.48	o
-3	8	5	1.04	13.46	15.48	o
-2	8	5	6.74	8.71	18.27	o
-1	8	5	229.20	224.96	33.30	o
0	8	5	5.61	16.03	18.64	o
1	8	5	19.96	21.07	22.56	o
2	8	5	78.31	76.18	27.55	o
6	8	5	101.90	90.05	43.16	o
7	8	5	145.38	183.56	65.21	o
-8	9	5	77.98	54.67	46.62	o
-7	9	5	10.07	15.02	29.50	o
-6	9	5	8.67	10.88	24.97	o
-5	9	5	0.39	6.45	20.49	o
-4	9	5	63.72	58.74	28.57	o
-3	9	5	210.51	256.77	65.10	o
-2	9	5	68.55	51.79	30.35	o
-1	9	5	255.92	214.95	65.13	o
0	9	5	39.05	31.60	34.59	o
1	9	5	14.26	16.45	41.71	o
2	9	5	176.38	183.46	63.12	o
3	9	5	53.70	63.43	53.86	o
4	9	5	69.31	39.76	52.43	o
-6	10	5	167.72	187.56	72.34	o
-5	10	5	17.28	24.71	29.76	o

-4	10	5	6.78	26.69	58.65	o
-3	10	5	10.98	24.01	45.19	o
-2	10	5	9.34	28.26	44.52	o
-1	10	5	39.80	36.30	52.69	o
0	10	5	292.06	249.25	65.35	o
1	10	5	6.90	14.37	53.38	o
-18	0	6	3.10	7.32	39.01	o
-16	0	6	251.46	204.69	50.39	o
-14	0	6	74.69	74.06	40.97	o
-12	0	6	0.32	12.87	21.35	o
-10	0	6	102.04	95.49	30.49	o
-8	0	6	683.21	710.03	45.55	o
-6	0	6	250.50	226.48	32.78	o
-4	0	6	2.49	9.73	13.00	o
-2	0	6	1643.46	1770.56	44.18	o
0	0	6	900.16	982.56	29.85	o
2	0	6	226.40	198.01	35.52	o
4	0	6	131.00	107.18	29.79	o
6	0	6	376.01	405.31	51.35	o
8	0	6	3.07	5.59	33.21	o
-19	1	6	34.06	58.32	49.94	o
-18	1	6	10.04	40.03	40.11	o
-17	1	6	0.89	28.76	33.37	o
-16	1	6	1.99	8.40	28.78	o
-15	1	6	6.56	22.64	27.66	o
-14	1	6	83.65	82.70	27.92	o
-13	1	6	233.51	250.11	33.41	o
-12	1	6	13.80	22.30	14.58	o
-11	1	6	112.98	108.65	22.81	o
-10	1	6	54.02	54.37	18.71	o
-9	1	6	30.99	25.97	13.98	o
-8	1	6	22.10	14.53	11.82	o
-7	1	6	147.89	153.99	19.83	o
-6	1	6	97.41	97.19	17.75	o
-5	1	6	110.51	115.49	16.93	o
-4	1	6	53.60	41.31	12.18	o
-3	1	6	21.69	22.73	10.74	o
-2	1	6	56.80	57.24	13.56	o
-1	1	6	69.48	53.48	11.49	o
0	1	6	110.23	99.82	15.76	o
1	1	6	358.09	382.05	26.80	o
2	1	6	17.31	10.37	11.89	o
3	1	6	408.45	395.69	29.35	o
4	1	6	74.82	50.13	14.03	o
5	1	6	56.92	55.23	20.20	o

6	1	6	5.17	15.91	15.82	o
7	1	6	0.38	16.09	22.09	o
8	1	6	164.34	159.02	42.71	o
9	1	6	62.54	68.10	37.44	o
-19	2	6	4.33	23.87	74.77	o
-18	2	6	24.55	16.14	52.02	o
-17	2	6	2.61	40.58	61.92	o
-16	2	6	2.73	14.80	44.09	o
-15	2	6	13.49	3.39	33.46	o
-14	2	6	120.95	130.20	41.79	o
-13	2	6	4.78	12.42	20.00	o
-12	2	6	70.71	74.70	21.78	o
-11	2	6	0.82	18.49	15.15	o
-10	2	6	8.76	10.77	14.22	o
-9	2	6	8.70	10.74	15.43	o
-8	2	6	30.68	22.23	12.08	o
-7	2	6	40.19	24.35	11.72	o
-6	2	6	635.85	667.77	25.92	o
-5	2	6	18.37	13.48	10.43	o
-4	2	6	132.42	141.56	18.19	o
-3	2	6	44.85	31.07	10.71	o
-2	2	6	89.45	76.44	13.17	o
-1	2	6	13.89	8.80	7.67	o
0	2	6	2.96	2.11	18.07	o
1	2	6	31.78	25.54	20.02	o
2	2	6	234.62	213.55	30.20	o
3	2	6	6.17	12.02	15.40	o
4	2	6	125.19	112.28	25.64	o
5	2	6	34.80	27.24	19.73	o
6	2	6	31.48	17.58	25.53	o
7	2	6	36.80	36.72	24.83	o
8	2	6	67.69	65.03	31.17	o
9	2	6	0.04	17.26	30.91	o
-19	3	6	14.50	43.10	66.94	o
-18	3	6	15.51	17.51	54.23	o
-17	3	6	29.34	43.01	61.26	o
-16	3	6	7.14	24.21	52.67	o
-15	3	6	65.18	58.53	47.64	o
-14	3	6	125.19	139.06	54.25	o
-13	3	6	0.81	17.62	24.57	o
-12	3	6	146.14	150.04	30.28	o
-11	3	6	2.44	10.54	18.26	o
-10	3	6	166.87	128.98	26.03	o
-9	3	6	225.67	224.12	29.57	o
-8	3	6	116.81	96.11	21.33	o

-7	3	6	331.74	319.81	27.77	o
-6	3	6	152.91	142.40	23.06	o
-5	3	6	39.25	38.37	15.67	o
-4	3	6	82.41	81.85	19.59	o
-3	3	6	141.90	120.76	18.14	o
-2	3	6	14.15	13.20	12.14	o
-1	3	6	298.22	299.77	23.99	o
0	3	6	210.36	206.03	27.98	o
1	3	6	0.43	10.53	20.92	o
2	3	6	33.49	39.60	19.85	o
3	3	6	14.71	20.86	17.53	o
4	3	6	242.12	220.86	32.14	o
5	3	6	246.87	261.64	35.77	o
6	3	6	4.19	22.52	26.45	o
7	3	6	141.70	143.26	40.95	o
8	3	6	314.37	244.10	55.10	o
9	3	6	2.27	20.28	37.83	o
-18	4	6	14.23	46.17	64.57	o
-17	4	6	17.65	26.20	62.82	o
-16	4	6	64.70	83.89	56.52	o
-15	4	6	19.87	23.31	51.27	o
-14	4	6	6.40	18.27	40.72	o
-13	4	6	12.34	36.62	51.31	o
-12	4	6	4.44	13.77	22.55	o
-11	4	6	89.72	66.91	28.11	o
-10	4	6	73.88	80.17	25.22	o
-9	4	6	27.45	28.08	16.66	o
-8	4	6	393.07	429.53	29.93	o
-7	4	6	439.32	477.23	29.55	o
-6	4	6	1.74	8.09	13.01	o
-5	4	6	4.78	20.41	16.49	o
-4	4	6	79.26	69.21	20.07	o
-3	4	6	443.63	430.87	25.69	o
-2	4	6	393.43	411.16	27.14	o
-1	4	6	26.74	19.59	16.12	o
0	4	6	174.64	161.71	25.71	o
1	4	6	311.81	346.39	39.53	o
2	4	6	42.89	35.91	25.46	o
3	4	6	137.93	128.08	32.68	o
4	4	6	109.85	75.39	23.23	o
5	4	6	28.48	20.19	20.99	o
6	4	6	208.45	195.10	38.64	o
7	4	6	116.77	103.18	37.13	o
8	4	6	23.97	22.89	38.35	o
-18	5	6	2.90	28.97	53.59	o

-17	5	6	3.25	14.71	53.38	o
-16	5	6	0.12	35.61	60.61	o
-15	5	6	11.58	22.71	50.31	o
-14	5	6	16.47	16.72	41.98	o
-13	5	6	215.45	192.68	62.92	o
-12	5	6	0.21	8.18	26.88	o
-11	5	6	31.84	14.76	31.76	o
-10	5	6	26.78	34.30	30.82	o
-9	5	6	12.14	15.91	18.55	o
-8	5	6	10.83	11.01	17.36	o
-7	5	6	44.06	40.37	19.73	o
-6	5	6	7.03	8.63	15.21	o
-5	5	6	335.01	355.56	35.38	o
-4	5	6	5.79	11.17	16.53	o
-3	5	6	163.93	165.74	21.35	o
-2	5	6	9.02	14.11	13.51	o
-1	5	6	35.01	23.95	17.51	o
0	5	6	144.10	132.30	28.66	o
1	5	6	189.11	197.91	30.19	o
2	5	6	20.50	13.88	20.27	o
3	5	6	75.28	87.15	42.61	o
4	5	6	70.19	62.69	45.70	o
5	5	6	0.72	10.55	26.19	o
6	5	6	3.55	16.47	28.73	o
7	5	6	0.56	14.54	31.69	o
8	5	6	8.83	23.85	40.69	o
-17	6	6	22.36	49.38	65.05	o
-16	6	6	0.18	24.19	43.61	o
-15	6	6	38.65	41.07	73.60	o
-14	6	6	56.22	39.00	64.72	o
-13	6	6	1.17	30.15	53.87	o
-12	6	6	88.10	57.46	43.60	o
-11	6	6	34.85	56.06	32.32	o
-10	6	6	30.29	25.22	30.82	o
-9	6	6	22.88	25.03	26.31	o
-8	6	6	13.43	26.06	31.40	o
-7	6	6	155.35	110.49	31.93	o
-6	6	6	274.84	315.26	45.56	o
-5	6	6	79.29	71.95	29.74	o
-4	6	6	32.12	35.85	21.25	o
-3	6	6	103.00	95.39	19.71	o
-2	6	6	2.81	18.10	14.35	o
-1	6	6	0.04	13.51	14.86	o
0	6	6	43.31	31.05	20.09	o
1	6	6	109.50	97.72	32.50	o

2	6	6	439.73	423.40	44.04	o
4	6	6	79.14	52.88	30.12	o
5	6	6	13.36	8.97	39.61	o
6	6	6	6.79	4.80	29.66	o
7	6	6	28.28	21.40	56.08	o
-16	7	6	0.01	15.44	44.79	o
-15	7	6	93.59	124.07	80.77	o
-14	7	6	0.35	5.49	54.17	o
-13	7	6	34.95	40.73	70.05	o
-12	7	6	7.53	34.28	44.42	o
-11	7	6	17.09	30.45	39.82	o
-10	7	6	14.22	23.40	40.31	o
-9	7	6	397.13	359.44	43.87	o
-8	7	6	4.91	25.03	27.48	o
-7	7	6	31.02	52.57	34.12	o
-6	7	6	20.38	22.26	29.07	o
-5	7	6	79.45	45.24	25.58	o
-4	7	6	1.68	5.18	16.81	o
-3	7	6	186.93	188.38	33.17	o
-2	7	6	1.53	9.29	24.56	o
-1	7	6	540.97	536.90	53.78	o
0	7	6	0.31	7.31	22.67	o
1	7	6	27.42	25.57	32.37	o
2	7	6	4.74	2.86	25.63	o
3	7	6	3.87	1.14	31.15	o
5	7	6	373.66	405.39	94.77	o
-16	8	6	0.16	27.69	46.73	o
-15	8	6	10.92	50.64	64.01	o
-14	8	6	17.19	31.73	66.51	o
-13	8	6	8.67	15.72	45.52	o
-12	8	6	130.67	148.53	61.46	o
-11	8	6	6.46	27.67	47.56	o
-10	8	6	24.86	15.65	35.68	o
-9	8	6	0.82	1.14	41.56	o
-8	8	6	4.43	11.86	24.43	o
-7	8	6	157.64	145.06	45.64	o
-6	8	6	65.57	90.74	35.19	o
-5	8	6	61.02	40.41	24.76	o
-4	8	6	83.54	49.94	20.42	o
-3	8	6	235.01	224.95	38.96	o
-2	8	6	5.59	9.21	24.05	o
-1	8	6	28.21	27.79	27.94	o
0	8	6	62.59	34.66	27.70	o
1	8	6	212.64	189.38	38.99	o
2	8	6	264.68	303.15	67.94	o

3	8	6	62.34	58.40	44.76	o
4	8	6	61.27	89.81	58.81	o
-5	9	6	196.55	204.50	55.19	o
-4	9	6	0.49	24.83	56.56	o
-3	9	6	10.20	26.28	50.65	o
-2	9	6	14.41	4.65	42.17	o
-1	9	6	1.10	46.43	58.00	o
-18	0	7	74.27	68.21	68.89	o
-16	0	7	0.69	20.81	47.42	o
-14	0	7	8.34	30.64	48.50	o
-12	0	7	170.07	154.42	45.70	o
-10	0	7	4.13	9.10	22.78	o
-8	0	7	40.27	22.14	20.78	o
-6	0	7	215.30	225.92	38.49	o
-4	0	7	571.68	598.76	44.80	o
-2	0	7	268.36	278.73	32.97	o
0	0	7	15.22	23.20	24.80	o
2	0	7	28.46	31.81	40.39	o
4	0	7	73.61	39.30	29.19	o
6	0	7	20.13	30.94	46.31	o
-18	1	7	17.39	38.45	79.03	o
-17	1	7	8.84	23.14	60.98	o
-16	1	7	62.15	38.30	41.31	o
-15	1	7	32.91	48.15	39.24	o
-14	1	7	107.50	114.18	42.61	o
-13	1	7	88.79	103.21	50.19	o
-12	1	7	6.25	22.21	21.45	o
-11	1	7	24.86	37.85	21.03	o
-10	1	7	111.63	139.22	29.01	o
-9	1	7	6.37	6.02	13.84	o
-8	1	7	7.74	12.25	17.60	o
-7	1	7	105.19	118.93	26.56	o
-6	1	7	406.96	426.26	32.76	o
-5	1	7	58.68	61.95	18.44	o
-4	1	7	29.93	25.47	14.24	o
-3	1	7	61.43	49.00	14.64	o
-2	1	7	280.78	284.99	21.34	o
-1	1	7	243.38	241.80	21.21	o
0	1	7	36.13	20.80	12.30	o
1	1	7	133.86	137.51	29.16	o
2	1	7	237.63	168.97	37.37	o
3	1	7	12.66	30.07	25.66	o
4	1	7	100.95	71.95	35.26	o
5	1	7	18.88	16.36	22.40	o
6	1	7	109.85	80.06	30.10	o

7	1	7	21.93	32.18	35.55	o
-18	2	7	1.10	25.24	53.98	o
-17	2	7	19.40	32.44	64.37	o
-16	2	7	51.99	67.42	68.17	o
-15	2	7	0.35	6.67	49.46	o
-14	2	7	94.66	106.81	75.45	o
-13	2	7	62.39	53.35	36.13	o
-12	2	7	15.15	19.04	28.60	o
-11	2	7	0.50	12.94	20.94	o
-10	2	7	4.84	19.75	21.67	o
-9	2	7	90.69	83.17	27.82	o
-8	2	7	768.49	800.11	45.95	o
-7	2	7	45.46	37.52	17.95	o
-6	2	7	100.65	65.73	19.84	o
-5	2	7	62.08	42.35	19.32	o
-4	2	7	153.13	151.52	32.21	o
-3	2	7	197.31	196.46	23.87	o
-2	2	7	81.38	89.90	18.88	o
-1	2	7	72.33	47.58	18.73	o
0	2	7	730.52	811.83	35.04	o
1	2	7	250.98	247.96	25.05	o
2	2	7	18.81	33.91	36.68	o
3	2	7	20.69	14.67	31.71	o
4	2	7	4.47	11.75	27.87	o
5	2	7	58.65	57.43	33.91	o
6	2	7	328.03	405.16	58.35	o
-17	3	7	6.02	27.83	49.27	o
-16	3	7	4.19	24.53	56.69	o
-15	3	7	21.61	19.96	50.96	o
-14	3	7	41.92	25.19	47.77	o
-13	3	7	101.56	119.19	58.73	o
-12	3	7	7.80	10.89	47.50	o
-11	3	7	244.50	215.93	35.62	o
-10	3	7	12.52	24.17	22.71	o
-9	3	7	17.44	19.97	22.10	o
-8	3	7	64.26	56.64	26.82	o
-7	3	7	0.85	14.87	22.79	o
-6	3	7	29.62	29.58	19.97	o
-5	3	7	226.36	227.87	29.19	o
-4	3	7	10.09	13.26	14.62	o
-3	3	7	97.45	104.25	23.34	o
-2	3	7	4.93	13.53	22.10	o
-1	3	7	8.18	6.16	21.11	o
0	3	7	77.02	63.21	23.46	o
1	3	7	13.54	15.39	21.41	o

2	3	7	49.10	77.08	48.21	o
3	3	7	391.49	383.52	76.96	o
4	3	7	91.33	87.12	51.29	o
5	3	7	145.12	125.21	39.20	o
6	3	7	44.35	43.21	36.58	o
-17	4	7	12.56	31.68	56.25	o
-16	4	7	0.24	1.96	39.99	o
-15	4	7	12.03	15.05	59.12	o
-14	4	7	15.21	23.02	44.33	o
-13	4	7	33.39	29.73	43.00	o
-12	4	7	167.84	141.87	74.21	o
-11	4	7	45.72	65.64	50.00	o
-10	4	7	47.37	44.59	27.82	o
-9	4	7	52.66	38.69	22.24	o
-8	4	7	1.41	-2.54	21.18	o
-7	4	7	41.45	35.27	29.64	o
-6	4	7	124.42	90.47	31.94	o
-5	4	7	29.27	16.59	22.00	o
-4	4	7	86.28	95.59	29.51	o
-3	4	7	4.65	3.69	20.84	o
-2	4	7	12.06	14.78	19.49	o
-1	4	7	31.35	60.31	39.68	o
0	4	7	3.34	8.16	24.64	o
1	4	7	19.60	11.94	19.35	o
2	4	7	219.34	228.18	40.91	o
3	4	7	2.57	1.15	36.78	o
4	4	7	99.76	40.47	39.38	o
5	4	7	17.96	15.74	31.76	o
6	4	7	10.43	26.99	47.85	o
-16	5	7	6.18	39.62	70.64	o
-15	5	7	157.09	151.07	87.10	o
-14	5	7	42.58	19.44	48.29	o
-13	5	7	0.27	4.92	48.27	o
-12	5	7	0.56	18.45	59.08	o
-11	5	7	26.04	22.68	34.29	o
-10	5	7	2.25	4.64	35.77	o
-9	5	7	121.77	100.76	38.69	o
-8	5	7	1.82	16.66	22.90	o
-7	5	7	413.73	386.32	50.47	o
-6	5	7	0.45	3.40	22.06	o
-5	5	7	13.39	30.99	26.93	o
-4	5	7	86.43	104.86	35.48	o
-3	5	7	2.25	10.25	36.95	o
-2	5	7	0.13	-3.81	28.81	o
-1	5	7	477.94	493.65	62.92	o

0	5	7	48.69	32.86	37.97	o
1	5	7	63.68	69.38	30.79	o
2	5	7	46.16	29.46	31.70	o
3	5	7	112.58	71.31	47.23	o
4	5	7	5.67	13.41	46.72	o
-16	6	7	3.35	25.27	64.87	o
-15	6	7	0.33	-1.84	40.87	o
-14	6	7	10.70	48.00	70.01	o
-13	6	7	31.36	62.72	80.78	o
-12	6	7	62.73	77.36	64.39	o
-11	6	7	22.35	56.04	59.73	o
-10	6	7	54.04	76.86	53.95	o
-9	6	7	106.73	47.60	47.52	o
-8	6	7	4.59	22.19	31.44	o
-7	6	7	164.98	161.11	40.83	o
-6	6	7	7.59	18.81	25.14	o
-5	6	7	157.52	147.92	39.54	o
-4	6	7	116.68	140.99	53.31	o
-3	6	7	183.50	192.57	70.33	o
-2	6	7	62.30	53.88	47.96	o
-1	6	7	100.55	113.99	37.79	o
0	6	7	43.62	48.00	36.05	o
1	6	7	173.32	235.21	74.63	o
2	6	7	46.91	64.46	36.52	o
3	6	7	11.78	30.26	36.54	o
-15	7	7	1.54	20.81	63.56	o
-14	7	7	10.18	46.05	74.58	o
-13	7	7	36.92	46.93	67.71	o
-12	7	7	2.84	3.30	42.00	o
-11	7	7	38.82	23.38	66.25	o
-10	7	7	15.83	27.07	44.03	o
-9	7	7	4.29	11.78	38.45	o
-8	7	7	0.10	16.65	38.14	o
-7	7	7	5.99	22.40	36.87	o
-6	7	7	0.49	17.83	31.67	o
-5	7	7	237.90	267.38	47.21	o
-4	7	7	1.09	-1.81	38.33	o
-3	7	7	53.61	58.20	44.40	o
-2	7	7	0.05	18.06	42.22	o
-1	7	7	4.09	12.05	29.31	o
0	7	7	1.43	17.32	30.85	o
1	7	7	28.69	47.54	49.68	o
2	7	7	7.21	25.97	36.35	o
3	7	7	172.75	152.54	71.87	o
4	7	7	0.05	14.61	38.84	o

5	7	7	14.87	32.63	61.62	o
-14	8	7	21.08	31.86	55.74	o
-13	8	7	7.29	26.20	49.38	o
-12	8	7	5.51	7.01	49.85	o
-11	8	7	44.97	31.41	57.21	o
-10	8	7	15.50	41.98	53.93	o
-9	8	7	3.04	25.96	50.55	o
-8	8	7	27.44	34.59	53.90	o
-7	8	7	137.17	138.56	61.92	o
-6	8	7	19.45	58.95	60.88	o
-5	8	7	6.54	-4.73	38.49	o
-4	8	7	17.54	12.25	44.27	o
-3	8	7	56.21	32.14	41.76	o
-2	8	7	70.00	34.56	33.83	o
-1	8	7	21.24	17.40	40.68	o
0	8	7	75.40	35.61	33.92	o
1	8	7	30.56	28.44	48.19	o
2	8	7	27.23	25.46	49.61	o
3	8	7	2.56	18.52	49.31	o
4	8	7	0.19	44.58	63.02	o
5	8	7	8.14	15.93	47.51	o
6	8	7	14.02	26.32	52.46	o
7	8	7	12.39	13.67	52.75	o
-13	9	7	0.12	18.57	60.19	o
-12	9	7	16.56	42.93	64.29	o
-11	9	7	2.28	16.90	43.37	o
-10	9	7	20.49	23.41	43.47	o
-9	9	7	54.09	36.38	50.75	o
-8	9	7	1.60	27.58	49.89	o
-7	9	7	53.00	55.30	66.49	o
-6	9	7	28.26	28.74	47.66	o
-5	9	7	2.37	5.95	45.70	o
-16	0	8	7.49	41.29	54.48	o
-14	0	8	126.15	93.90	61.98	o
-12	0	8	11.40	26.27	42.87	o
-10	0	8	22.89	15.63	42.47	o
-8	0	8	410.13	496.76	63.09	o
-6	0	8	610.66	690.14	64.39	o
-4	0	8	110.39	114.83	37.63	o
-2	0	8	19.03	20.24	26.66	o
0	0	8	459.73	506.23	78.94	o
2	0	8	5.16	24.23	43.02	o
-16	1	8	23.05	32.71	45.86	o
-15	1	8	0.52	21.29	54.53	o
-14	1	8	6.04	36.69	42.40	o

-13	1	8	21.00	39.46	66.04	o
-12	1	8	14.78	16.03	41.96	o
-11	1	8	102.21	108.94	46.40	o
-10	1	8	42.42	48.31	34.78	o
-9	1	8	7.42	13.90	24.30	o
-8	1	8	58.39	48.91	19.77	o
-7	1	8	2.82	18.74	17.36	o
-6	1	8	222.16	210.45	32.10	o
-5	1	8	154.72	155.47	30.64	o
-4	1	8	25.64	18.92	16.51	o
-3	1	8	140.89	142.26	29.42	o
-2	1	8	141.79	106.33	29.15	o
-1	1	8	10.78	23.62	26.40	o
0	1	8	28.44	19.62	26.57	o
1	1	8	0.27	9.33	23.72	o
2	1	8	162.13	203.56	45.06	o
3	1	8	47.05	41.49	45.04	o
-16	2	8	2.07	6.30	52.94	o
-15	2	8	0.09	17.30	62.45	o
-14	2	8	6.91	25.71	73.84	o
-13	2	8	22.66	39.97	57.72	o
-12	2	8	170.96	149.76	66.20	o
-11	2	8	2.92	15.35	36.21	o
-10	2	8	99.36	89.90	56.06	o
-9	2	8	14.18	22.76	43.19	o
-8	2	8	0.58	14.95	23.84	o
-7	2	8	9.98	12.08	22.12	o
-6	2	8	3.29	16.32	22.67	o
-5	2	8	12.65	24.61	24.78	o
-4	2	8	148.04	161.93	34.86	o
-3	2	8	16.87	4.23	43.13	o
-2	2	8	47.94	67.85	32.83	o
-1	2	8	16.31	31.04	43.26	o
0	2	8	1.35	21.89	38.17	o
1	2	8	7.52	21.87	41.49	o
2	2	8	73.39	51.18	36.19	o
3	2	8	8.76	-10.96	38.83	o
-16	3	8	53.80	43.83	61.21	o
-15	3	8	63.75	53.78	67.75	o
-14	3	8	9.63	52.81	72.27	o
-13	3	8	48.73	45.53	58.79	o
-12	3	8	52.26	61.18	74.46	o
-11	3	8	0.15	6.09	37.68	o
-10	3	8	6.18	26.50	45.55	o
-9	3	8	12.40	28.54	45.30	o

-8	3	8	27.38	25.30	40.44	o
-7	3	8	189.28	175.61	46.34	o
-6	3	8	70.00	65.19	32.38	o
-5	3	8	0.62	23.04	33.29	o
-4	3	8	2.61	11.88	25.92	o
-3	3	8	12.46	8.10	35.74	o
-2	3	8	107.55	76.95	48.57	o
-1	3	8	222.15	264.11	70.75	o
0	3	8	6.67	-2.44	42.00	o
1	3	8	307.91	274.76	66.20	o
2	3	8	199.17	140.63	38.76	o
3	3	8	5.08	14.56	45.40	o
-15	4	8	8.16	24.46	55.87	o
-14	4	8	76.60	125.61	80.45	o
-13	4	8	85.85	74.57	79.31	o
-12	4	8	20.50	18.35	61.46	o
-11	4	8	11.73	24.71	57.58	o
-10	4	8	0.92	2.45	42.27	o
-9	4	8	141.42	183.12	64.57	o
-8	4	8	11.63	11.75	38.62	o
-7	4	8	4.54	4.90	40.12	o
-6	4	8	83.98	79.65	37.58	o
-5	4	8	181.42	158.40	43.00	o
-4	4	8	7.50	7.50	44.67	o
-3	4	8	32.34	27.76	36.47	o
-2	4	8	32.08	16.63	32.91	o
-1	4	8	143.29	133.04	62.01	o
0	4	8	169.65	134.91	42.53	o
1	4	8	142.77	118.09	41.42	o
2	4	8	30.20	32.08	51.80	o
3	4	8	56.80	40.68	51.43	o
4	4	8	0.15	32.38	49.78	o
-15	5	8	4.20	37.02	72.76	o
-14	5	8	6.28	62.53	77.20	o
-13	5	8	7.86	1.50	56.15	o
-12	5	8	0.04	8.84	53.53	o
-11	5	8	106.47	92.31	48.83	o
-10	5	8	24.39	16.37	46.56	o
-9	5	8	20.57	19.44	55.53	o
-8	5	8	1.78	37.77	50.93	o
-7	5	8	4.85	7.26	31.54	o
-6	5	8	0.01	2.32	35.99	o
-5	5	8	131.08	167.72	57.74	o
-4	5	8	0.58	-0.64	33.36	o
-3	5	8	146.81	180.94	73.02	o

-2	5	8	6.24	14.21	31.31	o
-1	5	8	0.19	23.01	27.51	o
0	5	8	12.83	7.06	40.31	o
1	5	8	10.20	2.76	36.74	o
2	5	8	9.55	20.68	46.05	o
3	5	8	117.94	85.43	58.91	o
4	5	8	1.45	22.30	44.12	o
5	5	8	89.50	97.64	65.41	o
-14	6	8	4.13	22.28	52.38	o
-13	6	8	49.48	20.79	61.58	o
-12	6	8	16.61	33.75	65.85	o
-11	6	8	8.75	22.04	58.77	o
-10	6	8	23.81	45.33	55.08	o
-9	6	8	66.29	101.88	68.43	o
-8	6	8	29.48	56.23	57.37	o
-7	6	8	3.41	30.34	46.30	o
-6	6	8	9.72	39.50	49.35	o
-5	6	8	59.96	57.39	63.30	o
-4	6	8	35.97	65.58	49.61	o
-3	6	8	0.22	25.29	52.51	o
-2	6	8	57.06	53.38	53.17	o
-1	6	8	10.74	3.53	35.15	o
0	6	8	28.51	51.14	33.78	o
1	6	8	8.34	28.42	53.51	o
2	6	8	9.18	18.79	46.19	o
3	6	8	1.85	18.13	50.59	o
4	6	8	8.21	25.09	51.20	o
5	6	8	27.76	33.89	49.93	o
6	6	8	15.92	9.72	43.56	o
-13	7	8	22.39	33.33	56.37	o
-12	7	8	4.81	13.79	65.08	o
-11	7	8	1.10	15.86	45.86	o
-10	7	8	0.13	13.95	44.52	o
-9	7	8	25.40	44.17	65.03	o
-8	7	8	1.46	24.93	47.68	o
-7	7	8	236.83	326.48	82.88	o
-6	7	8	4.13	44.43	55.80	o
-5	7	8	1.88	8.81	41.89	o
-4	7	8	0.78	17.94	51.17	o
-3	7	8	27.85	43.72	60.78	o
-2	7	8	49.91	101.37	66.55	o
-1	7	8	40.85	42.09	59.65	o
0	7	8	1.99	5.30	38.13	o
1	7	8	172.82	167.24	56.77	o
2	7	8	30.74	63.89	65.94	o

3	7	8	0.58	19.56	48.00	o
4	7	8	0.27	54.88	63.69	o
5	7	8	0.34	2.72	39.51	o
6	7	8	11.71	16.56	38.63	o
7	7	8	72.11	58.30	61.34	o
-11	8	8	0.52	14.44	43.31	o
-10	8	8	51.32	52.97	67.61	o
-9	8	8	29.69	28.76	57.92	o
-8	8	8	0.14	5.22	47.38	o
-7	8	8	9.54	23.82	57.73	o
-6	8	8	6.74	29.84	59.97	o
-5	8	8	64.91	41.80	69.14	o
-4	8	8	119.34	86.54	63.85	o
-3	8	8	4.91	30.61	47.04	o
-2	8	8	31.27	59.47	78.74	o
-1	8	8	20.06	42.89	68.60	o
0	8	8	11.39	20.29	49.84	o
1	8	8	5.40	0.86	40.63	o
2	8	8	12.93	21.04	66.25	o
3	8	8	0.01	29.95	54.06	o
4	8	8	76.01	73.79	67.64	o
5	8	8	34.52	53.14	69.46	o
-10	9	8	5.96	13.93	44.74	o
-9	9	8	35.93	24.92	64.32	o
-8	9	8	1.27	30.90	56.92	o
-7	9	8	0.21	26.25	42.42	o
-6	9	8	10.49	10.38	56.18	o
-5	9	8	20.74	15.52	43.69	o
-4	9	8	0.95	10.45	37.34	o
-3	9	8	44.33	39.39	61.66	o
-2	9	8	18.01	28.63	52.33	o
-1	9	8	9.65	9.42	47.71	o
-14	0	9	6.19	8.29	61.73	o
-12	0	9	64.54	52.64	62.84	o
-10	0	9	107.92	134.01	72.20	o
-8	0	9	12.34	28.81	48.21	o
-6	0	9	0.84	4.26	38.24	o
-4	0	9	47.92	39.67	42.87	o
-2	0	9	9.50	8.64	47.91	o
0	0	9	5.67	5.80	42.39	o
2	0	9	24.94	59.68	64.50	o
4	0	9	123.26	93.39	73.41	o
-14	1	9	0.37	40.81	70.65	o
-13	1	9	8.56	29.45	71.38	o
-12	1	9	38.35	24.46	54.58	o

-11	1	9	26.75	44.74	66.67	o
-10	1	9	7.40	35.71	55.64	o
-9	1	9	17.97	-7.95	42.01	o
-8	1	9	89.69	51.63	46.56	o
-7	1	9	26.03	45.21	68.43	o
-6	1	9	7.38	6.80	55.26	o
-5	1	9	32.32	22.34	51.59	o
-4	1	9	75.24	73.36	45.00	o
-3	1	9	8.66	18.33	29.14	o
-2	1	9	2.30	23.20	28.28	o
-1	1	9	19.89	16.95	31.14	o
0	1	9	34.85	30.24	30.05	o
1	1	9	41.98	55.55	38.30	o
2	1	9	29.03	20.39	35.20	o
3	1	9	9.41	28.82	30.79	o
4	1	9	1.80	43.07	43.82	o
5	1	9	17.51	36.04	42.67	o
-14	2	9	62.69	73.40	84.93	o
-13	2	9	1.86	25.95	52.46	o
-12	2	9	40.59	34.34	57.12	o
-11	2	9	9.28	52.83	63.64	o
-10	2	9	0.62	17.34	57.84	o
-9	2	9	2.13	25.60	52.23	o
-8	2	9	0.80	16.49	41.69	o
-7	2	9	6.09	13.37	37.70	o
-6	2	9	182.96	254.93	81.06	o
-5	2	9	23.41	16.84	47.40	o
-4	2	9	2.57	-8.52	41.61	o
-3	2	9	0.03	42.00	54.71	o
-2	2	9	2.64	27.11	60.01	o
-1	2	9	45.03	54.61	71.12	o
0	2	9	138.98	150.47	58.33	o
1	2	9	0.64	10.08	37.92	o
2	2	9	129.52	170.41	81.53	o
3	2	9	33.34	23.37	58.91	o
4	2	9	26.01	34.65	56.46	o
5	2	9	4.31	40.68	60.42	o
-13	3	9	0.25	16.60	50.23	o
-12	3	9	1.94	30.88	67.77	o
-11	3	9	51.63	84.66	75.22	o
-10	3	9	2.79	28.97	59.76	o
-9	3	9	18.53	52.36	64.42	o
-8	3	9	5.37	9.34	37.39	o
-7	3	9	0.32	30.43	55.17	o
-6	3	9	3.12	34.03	56.84	o

-5	3	9	46.13	29.43	61.90	o
-4	3	9	27.57	17.36	49.06	o
-3	3	9	115.89	100.37	50.50	o
-2	3	9	8.89	12.94	47.81	o
-1	3	9	24.12	43.06	60.62	o
0	3	9	59.89	68.29	63.25	o
1	3	9	0.53	16.93	38.05	o
2	3	9	7.42	23.03	52.45	o
3	3	9	12.73	65.81	67.18	o
4	3	9	7.09	47.96	65.86	o
5	3	9	31.90	57.60	63.58	o
6	3	9	0.16	-1.75	39.49	o
-13	4	9	9.94	23.70	74.57	o
-12	4	9	2.30	33.84	63.51	o
-11	4	9	2.41	21.07	65.65	o
-10	4	9	33.57	34.24	64.24	o
-9	4	9	2.69	13.50	52.22	o
-8	4	9	30.49	43.18	70.72	o
-7	4	9	1.28	48.50	63.95	o
-6	4	9	2.05	8.64	54.17	o
-5	4	9	10.01	10.46	53.76	o
-4	4	9	70.29	101.92	67.69	o
-3	4	9	14.47	41.96	66.65	o
-2	4	9	65.92	40.70	44.17	o
-1	4	9	12.31	12.55	55.99	o
0	4	9	5.20	9.85	41.62	o
1	4	9	1.86	15.47	57.46	o
2	4	9	4.47	10.84	42.56	o
3	4	9	20.63	2.97	52.82	o
4	4	9	24.28	25.09	55.06	o
5	4	9	0.13	5.59	39.00	o
6	4	9	45.96	72.65	75.56	o
-12	5	9	12.83	9.83	61.72	o
-11	5	9	0.61	25.39	46.98	o
-10	5	9	0.09	33.86	66.75	o
-9	5	9	0.09	13.30	46.14	o
-8	5	9	9.45	26.78	59.83	o
-7	5	9	113.80	139.54	80.07	o
-6	5	9	1.53	5.58	47.77	o
-5	5	9	67.32	59.30	58.57	o
-4	5	9	16.16	35.52	54.72	o
-3	5	9	15.35	42.59	53.79	o
-2	5	9	0.14	22.60	49.41	o
-1	5	9	0.33	17.10	54.47	o
0	5	9	28.58	39.25	52.36	o

1	5	9	138.73	155.63	60.22	o
2	5	9	1.03	30.52	58.39	o
3	5	9	12.77	15.73	55.36	o
4	5	9	7.19	23.47	56.59	o
5	5	9	0.86	15.25	40.24	o
-11	6	9	25.87	83.71	76.75	o
-10	6	9	13.08	34.27	69.04	o
-9	6	9	7.10	26.51	50.84	o
-8	6	9	1.17	25.23	55.29	o
-7	6	9	70.42	50.77	54.06	o
-6	6	9	28.97	46.80	65.67	o
-5	6	9	32.38	48.27	65.22	o
-4	6	9	32.96	31.12	55.81	o
-3	6	9	18.12	35.15	43.66	o
-2	6	9	12.36	20.02	53.73	o
-1	6	9	40.67	22.06	48.07	o
0	6	9	1.83	13.40	53.70	o
1	6	9	0.00	9.23	49.12	o
2	6	9	20.99	39.26	72.22	o
3	6	9	62.80	62.79	78.04	o
4	6	9	17.07	30.27	63.18	o
-9	7	9	55.16	30.97	57.70	o
-8	7	9	1.61	14.52	52.24	o
-7	7	9	3.09	36.33	64.29	o
-6	7	9	13.06	23.07	64.52	o
-5	7	9	4.91	27.01	52.56	o
-4	7	9	2.10	25.96	50.99	o
-3	7	9	47.39	86.43	84.34	o
-2	7	9	5.22	30.21	50.36	o
-1	7	9	64.86	42.67	68.91	o
0	7	9	0.98	44.70	72.72	o
1	7	9	0.71	15.09	63.11	o
2	7	9	0.06	4.85	45.11	o
3	7	9	15.50	31.26	57.28	o
-7	8	9	32.41	37.35	64.92	o
-6	8	9	6.17	24.18	64.58	o
-5	8	9	10.30	31.16	60.85	o
-4	8	9	3.83	9.46	40.11	o
-3	8	9	5.17	13.18	44.14	o
-2	8	9	9.37	-7.49	50.63	o
-1	8	9	3.86	7.95	47.15	o
0	8	9	19.79	15.71	42.29	o
-8	0	10	27.53	15.09	53.70	o
-6	0	10	43.95	10.63	49.75	o
-4	0	10	80.77	53.17	59.07	o

-2	0	10	0.74	41.93	64.23	o
0	0	10	3.39	25.13	55.17	o
2	0	10	148.10	201.57	85.66	o
-10	1	10	18.64	32.26	62.91	o
-9	1	10	23.65	18.74	40.79	o
-8	1	10	3.44	6.24	50.92	o
-7	1	10	9.55	44.44	68.61	o
-6	1	10	49.19	24.90	52.39	o
-5	1	10	9.58	6.86	44.88	o
-4	1	10	3.91	23.11	41.65	o
-3	1	10	17.18	54.59	74.59	o
-2	1	10	10.25	22.29	51.12	o
-1	1	10	19.29	17.40	45.20	o
0	1	10	3.70	12.46	39.29	o
1	1	10	14.06	34.86	70.29	o
2	1	10	0.34	43.01	62.83	o
3	1	10	4.25	22.56	49.46	o
-10	2	10	21.81	28.89	58.94	o
-9	2	10	0.90	16.87	64.32	o
-8	2	10	26.77	8.69	39.41	o
-7	2	10	0.89	17.07	45.70	o
-6	2	10	0.33	24.18	52.10	o
-5	2	10	0.90	21.32	56.42	o
-4	2	10	15.36	31.45	69.08	o
-3	2	10	0.02	17.42	39.58	o
-2	2	10	40.76	58.06	80.80	o
-1	2	10	0.07	17.88	52.72	o
0	2	10	30.12	13.44	53.17	o
1	2	10	3.44	25.67	60.11	o
2	2	10	1.53	39.11	60.12	o
3	2	10	0.27	-7.43	52.97	o
-9	3	10	4.05	17.59	58.18	o
-8	3	10	12.91	23.95	74.30	o
-7	3	10	2.96	16.20	49.72	o
-6	3	10	9.06	17.62	54.14	o
-5	3	10	54.83	68.28	77.16	o
-4	3	10	35.31	27.87	63.28	o
-3	3	10	11.95	38.61	88.72	o
-2	3	10	9.09	10.95	55.13	o
-1	3	10	1.13	12.48	50.35	o
0	3	10	19.21	36.25	69.68	o
1	3	10	14.97	33.94	67.69	o
2	3	10	5.47	9.28	49.27	o
-8	4	10	2.36	44.46	68.73	o
-7	4	10	20.20	13.98	50.04	o

-6	4	10	53.42	18.49	66.14	o
-5	4	10	0.67	16.64	55.47	o
-4	4	10	19.82	20.00	56.09	o
-3	4	10	41.44	48.51	55.85	o
-2	4	10	5.21	33.62	59.26	o
-1	4	10	5.68	39.03	81.85	o
0	4	10	0.22	31.66	65.90	o
-5	5	10	3.60	25.78	56.13	o
-4	5	10	11.53	27.52	67.00	o
-3	5	10	6.80	25.23	63.10	o
-2	5	10	1.76	37.79	48.72	o

```
data_Co-bloedite

_audit_update_record
;
2013-03-18 # Formatted by publCIF
;

_audit_creation_method            SHELXL-97
_chemical_name_systematic
?
_chemical_name_common             Co-bloedite
_chemical_melting_point           ?
_chemical_formula_moiety          ?
_chemical_formula_sum
 'H8 Co0.36 Mg0.30 Mn0.17 Na1.96 Ni0.12 O12 S2.02'
_chemical_formula_weight          354.78

loop_
 _atom_type_symbol
 _atom_type_description
 _atom_type_scat_dispersion_real
 _atom_type_scat_dispersion_imag
 _atom_type_scat_source
 'H'  'H'   0.0000   0.0000
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'O'  'O'   0.0106   0.0060
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'S'  'S'   0.1246   0.1234
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Mn'  'Mn'   0.3368   0.7283
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Na'  'Na'   0.0362   0.0249
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Mg'  'Mg'   0.0486   0.0363
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Co'  'Co'   0.3494   0.9721
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'
 'Ni'  'Ni'   0.3393   1.1124
```

```
 'International Tables Vol C Tables 4.2.6.8 and
6.1.1.4'

_symmetry_cell_setting                 monoclinic
_symmetry_space_group_name_Hall      '-P 2yab'
_symmetry_space_group_name_H-M       'P 21/a'
_symmetry_Int_Tables_number                 14

loop_
 _symmetry_equiv_pos_as_xyz
 'x, y, z'
 '-x+1/2, y+1/2, -z'
 '-x, -y, -z'
 'x-1/2, -y-1/2, z'

_cell_length_a                     11.1470(10)
_cell_length_b                     8.2680(10)
_cell_length_c                     5.5396(7)
_cell_angle_alpha                  90.00
_cell_angle_beta                   100.517(11)
_cell_angle_gamma                  90.00
_cell_volume                       501.97(10)
_cell_formula_units_Z              2
_cell_measurement_temperature      296(2)
_cell_measurement_reflns_used      6391
_cell_measurement_theta_min        3.09
_cell_measurement_theta_max        43.08

_exptl_crystal_description         ?
_exptl_crystal_colour              ?
_exptl_crystal_size_max            0.12
_exptl_crystal_size_mid            0.05
_exptl_crystal_size_min            0.04
_exptl_crystal_density_meas        ?
_exptl_crystal_density_diffrn      2.347
_exptl_crystal_density_method      'not measured'
_exptl_crystal_F_000               358
_exptl_absorpt_coefficient_mu      1.694
_exptl_absorpt_correction_type     numerical
_exptl_absorpt_correction_T_min    ?
_exptl_absorpt_correction_T_max    ?
_exptl_absorpt_process_details     'X-Red, X-Shape'

_exptl_special_details
?
```

```
_diffrn_ambient_temperature       296(2)
_diffrn_radiation_wavelength      0.71073
_diffrn_radiation_type            MoK\a
_diffrn_radiation_source          'fine-focus sealed
tube'
_diffrn_radiation_monochromator   graphite
_diffrn_measurement_device_type   ?
_diffrn_measurement_method        ?
_diffrn_detector_area_resol_mean  ?
_diffrn_standards_number          0
_diffrn_standards_interval_count  0
_diffrn_standards_interval_time   0
_diffrn_standards_decay_%         0
_diffrn_reflns_number             6391
_diffrn_reflns_av_R_equivalents   0.0422
_diffrn_reflns_av_sigmaI/netI     0.1332
_diffrn_reflns_limit_h_min        -21
_diffrn_reflns_limit_h_max        9
_diffrn_reflns_limit_k_min        -12
_diffrn_reflns_limit_k_max        12
_diffrn_reflns_limit_l_min        -8
_diffrn_reflns_limit_l_max        10
_diffrn_reflns_theta_min          3.09
_diffrn_reflns_theta_max          43.08
_reflns_number_total              2631
_reflns_number_gt                 1214
_reflns_threshold_expression      >2sigma(I)

_computing_data_collection        'Crysalis CCD'
_computing_cell_refinement        'Crysalis RED'
_computing_data_reduction         'Crysalis RED'
_computing_structure_solution     'SHELXS-97'
_computing_structure_refinement   'SHELXL-97'
_computing_molecular_graphics     ?
_computing_publication_material   'publCIF'

_refine_special_details
;
 Refinement of F^2^ against ALL reflections.  The
weighted R-factor wR and
 goodness of fit S are based on F^2^, conventional R-
factors R are based
 on F, with F set to zero for negative F^2^. The
threshold expression of
```

```
 F^2^ > 2sigma(F^2^) is used only for calculating R-
factors(gt) etc. and is
 not relevant to the choice of reflections for
refinement.  R-factors based
 on F^2^ are statistically about twice as large as
those based on F, and R-
 factors based on ALL data will be even larger.
;

_refine_ls_structure_factor_coef  Fsqd
_refine_ls_matrix_type            full
_refine_ls_weighting_scheme       calc
_refine_ls_weighting_details
; calc
 [0.00000+1.00000exp(2.00(sin\q/\l)^2^)]/

[\s^2^(Fo^2^)+0.0000+0.0000*P+(0.0340P)^2^+0.0000sin\q/
\l]
 where P = 0.33333Fo^2^ + 0.66667Fc^2^
;
_atom_sites_solution_primary      direct
_atom_sites_solution_secondary    difmap
_atom_sites_solution_hydrogens    difmap
_refine_ls_hydrogen_treatment     refxyz
_refine_ls_extinction_method      none
_refine_ls_extinction_coef        ?
_refine_ls_number_reflns          2631
_refine_ls_number_parameters      91
_refine_ls_number_restraints      0
_refine_ls_R_factor_all           0.1081
_refine_ls_R_factor_gt            0.0339
_refine_ls_wR_factor_ref          0.0859
_refine_ls_wR_factor_gt           0.0669
_refine_ls_goodness_of_fit_ref    1.001
_refine_ls_restrained_S_all       1.001
_refine_ls_shift/su_max           0.000
_refine_ls_shift/su_mean          0.000

loop_
 _atom_site_label
 _atom_site_type_symbol
 _atom_site_fract_x
 _atom_site_fract_y
 _atom_site_fract_z
 _atom_site_U_iso_or_equiv
```

```
 _atom_site_adp_type
 _atom_site_occupancy
 _atom_site_symmetry_multiplicity
 _atom_site_calc_flag
 _atom_site_refinement_flags
 _atom_site_disorder_assembly
 _atom_site_disorder_group
Co1 Co 0.0000 0.0000 0.0000 0.01592(12) Uani 0.37 2 d
SP . .
Mg1 Mg 0.0000 0.0000 0.0000 0.01592(12) Uani 0.32 2 d
SP . .
Mn1 Mn 0.0000 0.0000 0.0000 0.01592(12) Uani 0.18 2 d
SP . .
Ni1 Ni 0.0000 0.0000 0.0000 0.01592(12) Uani 0.12 2 d
SP . .
S1 S 0.13624(4) 0.28981(6) 0.37043(8) 0.01457(11) Uani
1 1 d . . .
Na1 Na 0.36203(8) 0.07052(11) 0.12983(16) 0.0235(2)
Uani 1 1 d . . .
O1 O 0.26554(14) 0.27159(19) 0.3473(3) 0.0237(3) Uani 1
1 d . . .
O2 O 0.07923(14) 0.4172(2) 0.2079(3) 0.0255(3) Uani 1 1
d . . .
O3 O 0.07173(15) 0.13550(19) 0.3131(3) 0.0245(3) Uani 1
1 d . . .
O4 O 0.13185(15) 0.32970(19) 0.6293(3) 0.0245(4) Uani 1
1 d . . .
O5 O 0.16260(15) 0.0382(2) 0.8720(3) 0.0206(3) Uani 1 1
d . . .
O6 O 0.08181(16) 0.7872(2) 0.1784(3) 0.0219(3) Uani 1 1
d . . .
H5A H 0.164(4) 0.114(5) 0.794(8) 0.080 Uiso 1 1 d . . .
H5B H 0.174(4) -0.042(5) 0.785(7) 0.080 Uiso 1 1 d . .
.
H6A H 0.039(5) 0.731(5) 0.232(8) 0.080 Uiso 1 1 d . . .
H6B H 0.125(5) 0.796(5) 0.304(8) 0.080 Uiso 1 1 d . . .

loop_
 _atom_site_aniso_label
 _atom_site_aniso_U_11
 _atom_site_aniso_U_22
 _atom_site_aniso_U_33
 _atom_site_aniso_U_23
 _atom_site_aniso_U_13
 _atom_site_aniso_U_12
```

```
Co1 0.0152(2) 0.0151(2) 0.0175(2) -0.00065(19)
0.00302(18) -0.00108(19)
Mg1 0.0152(2) 0.0151(2) 0.0175(2) -0.00065(19)
0.00302(18) -0.00108(19)
Mn1 0.0152(2) 0.0151(2) 0.0175(2) -0.00065(19)
0.00302(18) -0.00108(19)
Ni1 0.0152(2) 0.0151(2) 0.0175(2) -0.00065(19)
0.00302(18) -0.00108(19)
S1 0.0145(2) 0.0148(2) 0.01413(19) 0.00056(18)
0.00179(16) -0.00074(18)
Na1 0.0203(4) 0.0232(5) 0.0264(4) -0.0007(4) 0.0027(3)
0.0010(4)
O1 0.0152(7) 0.0250(8) 0.0313(8) 0.0028(7) 0.0056(6)
0.0024(6)
O2 0.0198(8) 0.0269(9) 0.0293(8) 0.0115(7) 0.0032(6)
0.0036(7)
O3 0.0303(9) 0.0221(8) 0.0210(7) -0.0039(6) 0.0046(6) -
0.0106(7)
O4 0.0341(10) 0.0232(8) 0.0171(7) -0.0043(6) 0.0074(7)
-0.0024(7)
O5 0.0216(8) 0.0203(8) 0.0209(7) 0.0014(6) 0.0065(6)
0.0003(6)
O6 0.0222(8) 0.0190(8) 0.0222(7) 0.0008(6) -0.0017(6) -
0.0017(6)

_geom_special_details
;
 All esds (except the esd in the dihedral angle between
two l.s. planes)
 are estimated using the full covariance matrix.  The
cell esds are taken
 into account individually in the estimation of esds in
distances, angles
 and torsion angles; correlations between esds in cell
parameters are only
 used when they are defined by crystal symmetry.  An
approximate (isotropic)
 treatment of cell esds is used for estimating esds
involving l.s. planes.
;

loop_
 _geom_bond_atom_site_label_1
 _geom_bond_atom_site_label_2
 _geom_bond_distance
```

```
 _geom_bond_site_symmetry_2
 _geom_bond_publ_flag
Co1 O5 2.0874(15) 1_554 ?
Co1 O5 2.0874(15) 3_556 ?
Co1 O3 2.0966(15) . ?
Co1 O3 2.0966(15) 3 ?
Co1 O6 2.1391(17) 3_565 ?
Co1 O6 2.1391(17) 1_545 ?
S1 O2 1.4542(16) . ?
S1 O3 1.4705(16) . ?
S1 O1 1.4777(16) . ?
S1 O4 1.4810(15) . ?
S1 Na1 3.3114(11) 4_565 ?
Na1 O2 2.3827(18) 4_665 ?
Na1 O4 2.3909(17) 2_546 ?
Na1 O1 2.4178(18) . ?
Na1 O5 2.4277(19) 1_554 ?
Na1 O2 2.4462(17) 2_545 ?
Na1 O6 2.6278(19) 2_545 ?
Na1 S1 3.3114(11) 4_665 ?
Na1 Na1 3.8086(18) 3_655 ?
O2 Na1 2.3827(18) 4_565 ?
O2 Na1 2.4462(17) 2 ?
O4 Na1 2.3909(17) 2_556 ?
O5 Ni1 2.0874(15) 1_556 ?
O5 Co1 2.0874(15) 1_556 ?
O5 Mg1 2.0874(15) 1_556 ?
O5 Mn1 2.0874(15) 1_556 ?
O5 Na1 2.4277(19) 1_556 ?
O5 H5A 0.76(4) . ?
O5 H5B 0.84(4) . ?
O6 Ni1 2.1391(17) 1_565 ?
O6 Co1 2.1391(17) 1_565 ?
O6 Mg1 2.1391(17) 1_565 ?
O6 Mn1 2.1391(17) 1_565 ?
O6 Na1 2.6278(19) 2 ?
O6 H6A 0.77(5) . ?
O6 H6B 0.77(5) . ?

loop_
 _geom_angle_atom_site_label_1
 _geom_angle_atom_site_label_2
 _geom_angle_atom_site_label_3
 _geom_angle
 _geom_angle_site_symmetry_1
```

```
 _geom_angle_site_symmetry_3
 _geom_angle_publ_flag
O5 Co1 O5 180.00(3) 1_554 3_556 ?
O5 Co1 O3 88.64(6) 1_554 . ?
O5 Co1 O3 91.36(6) 3_556 . ?
O5 Co1 O3 91.36(6) 1_554 3 ?
O5 Co1 O3 88.64(6) 3_556 3 ?
O3 Co1 O3 180.00(9) . 3 ?
O5 Co1 O6 92.40(6) 1_554 3_565 ?
O5 Co1 O6 87.60(6) 3_556 3_565 ?
O3 Co1 O6 90.49(6) . 3_565 ?
O3 Co1 O6 89.51(6) 3 3_565 ?
O5 Co1 O6 87.60(6) 1_554 1_545 ?
O5 Co1 O6 92.40(6) 3_556 1_545 ?
O3 Co1 O6 89.51(6) . 1_545 ?
O3 Co1 O6 90.49(6) 3 1_545 ?
O6 Co1 O6 180.00(5) 3_565 1_545 ?
O2 S1 O3 110.70(10) . . ?
O2 S1 O1 110.07(9) . . ?
O3 S1 O1 109.82(10) . . ?
O2 S1 O4 110.50(10) . . ?
O3 S1 O4 107.53(9) . . ?
O1 S1 O4 108.16(9) . . ?
O2 S1 Na1 39.76(7) . 4_565 ?
O3 S1 Na1 80.59(7) . 4_565 ?
O1 S1 Na1 147.56(7) . 4_565 ?
O4 S1 Na1 96.94(7) . 4_565 ?
O2 Na1 O4 90.55(7) 4_665 2_546 ?
O2 Na1 O1 114.20(6) 4_665 . ?
O4 Na1 O1 105.33(6) 2_546 . ?
O2 Na1 O5 154.49(7) 4_665 1_554 ?
O4 Na1 O5 99.58(6) 2_546 1_554 ?
O1 Na1 O5 85.75(6) . 1_554 ?
O2 Na1 O2 75.88(6) 4_665 2_545 ?
O4 Na1 O2 90.63(6) 2_546 2_545 ?
O1 Na1 O2 160.57(7) . 2_545 ?
O5 Na1 O2 80.63(6) 1_554 2_545 ?
O2 Na1 O6 74.59(6) 4_665 2_545 ?
O4 Na1 O6 160.79(7) 2_546 2_545 ?
O1 Na1 O6 92.03(6) . 2_545 ?
O5 Na1 O6 89.65(6) 1_554 2_545 ?
O2 Na1 O6 74.19(6) 2_545 2_545 ?
O2 Na1 S1 22.98(4) 4_665 4_665 ?
O4 Na1 S1 97.79(5) 2_546 4_665 ?
O1 Na1 S1 91.23(5) . 4_665 ?
```

```
O5 Na1 S1 162.55(5) 1_554 4_665 ?
O2 Na1 S1 97.60(5) 2_545 4_665 ?
O6 Na1 S1 73.26(4) 2_545 4_665 ?
O2 Na1 Na1 38.53(4) 4_665 3_655 ?
O4 Na1 Na1 90.75(5) 2_546 3_655 ?
O1 Na1 Na1 149.56(6) . 3_655 ?
O5 Na1 Na1 117.39(5) 1_554 3_655 ?
O2 Na1 Na1 37.35(4) 2_545 3_655 ?
O6 Na1 Na1 70.05(5) 2_545 3_655 ?
S1 Na1 Na1 60.59(3) 4_665 3_655 ?
S1 O1 Na1 130.01(10) . . ?
S1 O2 Na1 117.26(9) . 4_565 ?
S1 O2 Na1 134.52(9) . 2 ?
Na1 O2 Na1 104.12(6) 4_565 2 ?
S1 O3 Co1 137.73(9) . . ?
S1 O4 Na1 136.32(9) . 2_556 ?
Ni1 O5 Co1 0.0 1_556 1_556 ?
Ni1 O5 Mg1 0.0 1_556 1_556 ?
Co1 O5 Mg1 0.0 1_556 1_556 ?
Ni1 O5 Mn1 0.0 1_556 1_556 ?
Co1 O5 Mn1 0.0 1_556 1_556 ?
Mg1 O5 Mn1 0.0 1_556 1_556 ?
Ni1 O5 Na1 125.13(7) 1_556 1_556 ?
Co1 O5 Na1 125.13(7) 1_556 1_556 ?
Mg1 O5 Na1 125.13(7) 1_556 1_556 ?
Mn1 O5 Na1 125.13(7) 1_556 1_556 ?
Ni1 O5 H5A 116(3) 1_556 . ?
Co1 O5 H5A 116(3) 1_556 . ?
Mg1 O5 H5A 116(3) 1_556 . ?
Mn1 O5 H5A 116(3) 1_556 . ?
Na1 O5 H5A 97(3) 1_556 . ?
Ni1 O5 H5B 108(3) 1_556 . ?
Co1 O5 H5B 108(3) 1_556 . ?
Mg1 O5 H5B 108(3) 1_556 . ?
Mn1 O5 H5B 108(3) 1_556 . ?
Na1 O5 H5B 102(3) 1_556 . ?
H5A O5 H5B 107(4) . . ?
Ni1 O6 Co1 0.0 1_565 1_565 ?
Ni1 O6 Mg1 0.0 1_565 1_565 ?
Co1 O6 Mg1 0.0 1_565 1_565 ?
Ni1 O6 Mn1 0.0 1_565 1_565 ?
Co1 O6 Mn1 0.0 1_565 1_565 ?
Mg1 O6 Mn1 0.0 1_565 1_565 ?
Ni1 O6 Na1 113.12(7) 1_565 2 ?
Co1 O6 Na1 113.12(7) 1_565 2 ?
```

```
Mg1 O6 Na1 113.12(7) 1_565 2 ?
Mn1 O6 Na1 113.12(7) 1_565 2 ?
Ni1 O6 H6A 116(3) 1_565 . ?
Co1 O6 H6A 116(3) 1_565 . ?
Mg1 O6 H6A 116(3) 1_565 . ?
Mn1 O6 H6A 116(3) 1_565 . ?
Na1 O6 H6A 94(3) 2 . ?
Ni1 O6 H6B 119(3) 1_565 . ?
Co1 O6 H6B 119(3) 1_565 . ?
Mg1 O6 H6B 119(3) 1_565 . ?
Mn1 O6 H6B 119(3) 1_565 . ?
Na1 O6 H6B 118(3) 2 . ?
H6A O6 H6B 92(4) . . ?

loop_
 _geom_hbond_atom_site_label_D
 _geom_hbond_atom_site_label_H
 _geom_hbond_atom_site_label_A
 _geom_hbond_distance_DH
 _geom_hbond_distance_HA
 _geom_hbond_distance_DA
 _geom_hbond_angle_DHA
 _geom_hbond_site_symmetry_A
O5 H5A O4  0.76(4) 2.01(4) 2.750(2) 165(4) .
O5 H5B O1  0.84(4) 1.88(5) 2.708(2) 165(4) 2_546
O6 H6A O4  0.77(5) 2.24(5) 2.944(2) 154(4) 3_566
O6 H6B O1  0.77(5) 2.10(5) 2.861(2) 169(4) 2_556

_diffrn_measured_fraction_theta_max    0.705
_diffrn_reflns_theta_full              32.50
_diffrn_measured_fraction_theta_full   0.993
_refine_diff_density_max    0.640
_refine_diff_density_min   -0.430
_refine_diff_density_rms    0.104
```