AM-91-448

The crystal structure of norrishite, $KLiMn^{3+}_2Si_4O_{12}$: An oxygen-rich mica

Paul L. Tyrna, Stephen Guggenheim

For deposit: Table 3 + 4

American Mineralogist, 76, 1-2, 266-271.

Atom	Axis	Displacement (Å)	Angle (°) with respect to X	Y	Z
K	r_1	0.142(8)	90	0	90
	r_2	0.154(8)	178(8)	90	82(8)
	r_3	0.196(8)	91(8)	90	7(8)
M(1)	r_1	0.10(4)	8(36)	90	106(36)
	r_2	0.13(3)	90	180	90
	r_3	0.15(3)	81(36)	90	16(36)
M(2)	r_1	0.066(6)	90	0	90
	r_2	0.071(6)	179(3)	90	81(3)
	r_3	0.138(4)	89(3)	90	9(3)
Si	r_1	0.069(8)	91(31)	1(27)	90(4)
	r_2	0.078(7)	177(8)	91(31)	85(4)
	r_3	0.141(5)	93(4)	90(3)	5(4)
O(1)	r_1	0.09(2)	90	0	90
	r_2	0.12(2)	173(18)	90	88(18)
	r_3	0.16(2)	97(1)	90	2(18)
O(2)	r_1	0.08(2)	32(9)	58(9)	93(9)
	r_2	0.14(1)	67(24)	134(40)	58(58)
	r_3	0.15(1)	111(25)	61(47)	32(58)
O(3)	r_1	0.07(2)	122(58)	33(58)	82(11)
	r_2	0.08(1)	148(58)	122(58)	82(11)
	r_3	0.15(1)	87(9)	93(7)	11(8)
O(4)	r_1	0.08(2)	90	0	90
	r_2	0.11(2)	169(17)	90	71(17)
	r_3	0.15(2)	79(17)	90	19(17)

Table 3. Orientation of thermal ellipsoids

Atom	Axis	rms (Å) Displacement	Angle (°) with respect to *X*	*Y*	*Z*
K	r_1	0.142(8)	90	0	90
	r_2	0.154(8)	178(8)	90	82(8)
	r_3	0.196(8)	91(8)	90	7(8)
M(1)	r_1	0.10(4)	8(36)	90	106(36)
	r_2	0.13(3)	90	180	90
	r_3	0.15(3)	81(36)	90	16(36)
M(2)	r_1	0.066(6)	90	0	90
	r_2	0.071(6)	179(3)	90	81(3)
	r_3	0.138(4)	89(3)	90	9(3)
Si	r_1	0.069(8)	91(31)	1(27)	90(4)
	r_2	0.078(7)	177(8)	91(31)	85(4)
	r_3	0.141(5)	93(4)	90(3)	5(4)
O(1)	r_1	0.09(2)	90	0	90
	r_2	0.12(2)	173(18)	90	88(18)
	r_3	0.16(2)	97(1)	90	2(18)
O(2)	r_1	0.08(2)	32(9)	58(9)	93(9)
	r_2	0.14(1)	67(24)	134(40)	58(58)
	r_3	0.15(1)	111(25)	61(47)	32(58)
O(3)	r_1	0.07(2)	122(58)	33(58)	82(11)
	r_2	0.08(1)	148(58)	122(58)	82(11)
	r_3	0.15(1)	87(9)	93(7)	11(8)
O(4)	r_1	0.08(2)	90	0	90
	r_2	0.11(2)	169(17)	90	71(17)
	r_3	0.15(2)	79(17)	90	19(17)

Table 4. Observed and calculated structure amplitudes for Norrishite (For deposit)

H	K	L	Fo Y(OBS)	Fc Y(CALC)	SF IQ
0	0	1	34.4942	38.9328	3
0	0	2	7.7113	7.9683	3
0	0	3	58.9065	64.9059	3
0	0	4	30.6369	32.0451	3
0	0	5	33.0565	31.3159	3
0	0	6	28.6613	29.8874	3
0	0	7	30.9600	33.4360	3
0	0	8	38.1276	41.7186	3
0	0	9	15.8829	16.5601	3
0	0	10	19.7463	17.9284	3
0	0	11	25.7525	23.7933	3
0	0	12	15.9663	14.7830	3
0	2	1	23.2987	16.6921	1
0	2	2	33.0856	31.1302	1
0	2	3	36.7802	37.9210	1
0	2	7	19.7363	21.6128	1
0	2	8	6.1249	7.1146	1
0	2	11	13.4689	12.1067	1
0	4	2	11.1986	9.5199	1
0	4	3	13.7505	13.5587	1
0	4	4	33.6346	36.8102	1
0	4	5	26.9764	29.0295	1
0	4	6	8.8861	9.8282	1
0	4	7	32.7677	36.4674	1
0	4	8	13.3867	14.3180	1
0	4	10	8.3555	8.5273	1
0	4	11	16.5175	16.1737	1
0	6	1	42.0802	31.7424	3
0	6	2	13.0683	11.0112	3
0	6	3	16.2233	15.5718	3
0	6	4	38.9943	40.6301	3
0	6	5	13.2506	12.8466	3
0	6	7	31.1821	33.6024	3
0	6	8	29.9148	32.0547	3
0	6	10	20.2560	19.3859	3
0	6	11	20.6042	19.6318	3
0	8	1	9.1550	7.1653	1
0	8	2	22.1638	21.0128	1
0	8	3	7.0795	7.4531	1
0	8	5	6.3879	7.1712	1
0	8	6	22.1118	24.8790	1
0	8	7	14.4587	16.5020	1
0	8	9	11.6294	12.8770	1

h	k	l	Fo	Fc	SF
0	10	1	16.2531	14.3665	1
0	10	3	24.3680	25.3408	1
0	10	4	15.1818	17.1904	1
0	10	5	16.1719	17.9203	1
0	10	6	9.0707	10.8335	1
1	1	-13	7.7401	6.9795	1
1	1	-12	10.8664	9.4520	1
1	1	-10	12.0977	12.5569	1
1	1	-9	10.4139	11.5203	1
1	1	-8	15.9677	16.5301	1
1	1	-6	14.8995	16.5938	1
1	1	-5	17.1882	18.1254	1
1	1	-4	22.9772	23.9050	1
1	1	-3	19.9120	19.8422	1
1	1	-2	50.6540	52.9660	1
1	1	-1	37.0416	27.3237	1
1	1	1	7.0813	5.0123	1
1	1	2	56.7153	63.1126	1
1	1	4	13.6218	14.0080	1
1	1	5	15.1646	15.4785	1
1	1	6	22.0456	24.0413	1
1	1	8	8.1651	7.7100	1
1	1	9	6.6295	6.6426	1
1	1	10	13.5962	14.1794	1
1	3	-12	24.2944	21.8878	3
1	3	-9	34.3447	35.8897	3
1	3	-7	8.4383	8.5344	3
1	3	-6	28.5812	30.7594	3
1	3	-5	65.4817	73.1580	3
1	3	-4	23.0568	22.7128	3
1	3	-3	56.6653	57.6924	3
1	3	-2	67.8974	66.0268	3
1	3	1	8.0004	6.2216	3
1	3	2	32.7071	30.6906	3
1	3	3	46.4791	47.9895	3
1	3	5	52.8491	57.7736	3
1	3	6	54.7416	60.3452	3
1	3	7	18.3934	18.7700	3
1	3	9	29.5509	29.5927	3
1	3	10	10.4867	10.3660	3
1	5	-7	16.6361	18.6845	1
1	5	-5	7.7597	8.3222	1
1	5	-4	5.7797	4.9923	1
1	5	-3	23.7459	23.2746	1
1	5	-2	31.8661	28.0152	1
1	5	-1	8.5659	6.1444	1
1	5	1	22.1311	17.2228	1
1	5	2	31.7237	30.2146	1
1	5	3	13.6846	13.2956	1
1	5	5	6.1535	6.1647	1
1	5	6	14.2037	15.7502	1
1	5	7	10.6898	12.0672	1
1	5	11	7.8661	6.9340	1
1	7	-10	13.0791	13.6813	1
1	7	-9	11.7186	12.5451	1
1	7	-8	17.8820	19.4612	1
1	7	-7	6.7527	7.4110	1
1	7	-6	16.2885	17.5927	1
1	7	-5	15.1547	16.8526	1
1	7	-4	16.4056	17.4718	1
1	7	-2	35.1540	32.6728	1

h	k	l	Fo	Fc	SF
1	7	-1	28.4518	22.9099	1
1	7	1	21.0000	18.1908	1
1	7	2	42.9709	41.8514	1
1	7	3	8.1122	8.5165	1
1	7	4	13.2445	14.5892	1
1	7	5	10.9581	12.4596	1
1	7	6	15.9074	17.6829	1
1	7	8	11.4786	12.2547	1
1	7	9	9.6088	10.0340	1
1	9	-7	7.5222	7.7296	3
1	9	-6	13.3141	14.5670	3
1	9	-5	34.3625	36.9008	3
1	9	-3	16.1308	15.5676	3
1	9	-2	32.7032	30.4604	3
1	9	-1	32.0491	26.1019	3
1	9	2	21.2351	20.1207	3
1	9	3	19.4888	18.9091	3
1	9	5	24.3205	26.4108	3
1	9	6	27.9957	31.0760	3
1	9	7	7.5452	7.9331	3
1	11	-3	19.4665	19.4488	1
1	11	-2	7.9261	8.8211	1
1	11	1	17.2495	16.0169	1
1	11	2	8.0997	8.3450	1
1	11	3	12.9610	13.2996	1
2	0	-11	12.1356	12.0836	3
2	0	-10	30.4986	29.4807	3
2	0	-8	24.7593	26.1046	3
2	0	-7	57.7797	63.9753	3
2	0	-6	45.3587	48.5430	3
2	0	-5	9.5503	7.0189	3
2	0	-4	45.4993	46.9570	3
2	0	-3	25.1860	23.8816	3
2	0	-1	16.0543	7.4525	3
2	0	1	72.9735	74.9766	3
2	0	2	58.2746	56.2928	3
2	0	3	24.4691	24.2349	3
2	0	4	67.7262	74.0225	3
2	0	5	16.1909	17.7946	3
2	0	6	13.5597	13.5874	3
2	0	7	11.0265	11.4979	3
2	0	8	35.8040	38.7173	3
2	0	10	12.7641	11.8619	3
2	0	11	26.1134	24.8346	3
2	2	-12	9.1231	8.7526	1
2	2	-11	3.0451	7.7709	1
2	2	-10	11.3079	11.3838	1
2	2	-9	7.8293	9.5279	1
2	2	-8	6.7542	7.4997	1
2	2	-7	35.0154	39.3265	1
2	2	-6	8.7334	9.3988	1
2	2	-4	23.9489	24.4857	1
2	2	-3	12.8134	12.9664	1
2	2	-2	20.6273	17.4036	1
2	2	1	39.4980	32.8640	1
2	2	2	10.2023	7.7936	1
2	2	3	8.2416	8.9347	1
2	2	4	12.3290	13.1079	1
2	2	5	23.7227	26.0408	1
2	2	6	25.0515	28.4908	1
2	2	7	11.7440	12.9056	1

SF = Scale factor

h	k	l	Fo	Fc	SF
2	2	8	16.9269	19.1429	1
2	2	11	16.0739	15.0538	1
2	4	-11	16.6668	16.5689	1
2	4	-9	7.2742	7.7779	1
2	4	-7	19.5084	21.2035	1
2	4	-6	10.8496	11.7877	1
2	4	-5	15.8474	16.1686	1
2	4	-4	9.5535	9.7119	1
2	4	-3	48.4537	48.3742	1
2	4	-2	12.8924	10.7226	1
2	4	-1	21.7661	14.6496	1
2	4	1	40.8722	34.5366	1
2	4	2	9.8528	9.3293	1
2	4	3	23.9481	24.1925	1
2	4	4	16.5968	18.0107	1
2	4	5	17.4505	18.4184	1
2	4	7	17.2590	18.8491	1
2	4	8	12.1951	13.2445	1
2	4	9	12.2626	13.0336	1
2	4	11	11.3171	10.4022	1
2	6	-10	13.9725	13.3622	3
2	6	-8	19.8237	20.7256	3
2	6	-7	29.2028	31.6213	3
2	6	-6	39.0880	41.5027	3
2	6	-5	6.5001	5.2771	3
2	6	-4	12.3539	12.6196	3
2	6	-3	40.6569	38.2906	3
2	6	-2	8.4489	4.7496	3
2	6	1	52.8058	45.6151	3
2	6	2	7.7650	7.7400	3
2	6	3	28.4777	28.2825	3
2	6	4	46.5260	49.4996	3
2	6	8	19.7482	20.8738	3
2	8	-9	7.2647	8.7104	1
2	8	-8	6.9994	7.8741	1
2	8	-7	9.6141	10.7208	1
2	8	-5	8.6520	9.8887	1
2	8	-4	10.1320	9.8605	1
2	8	-3	13.0468	13.0888	1
2	8	-2	22.3032	20.0542	1
2	8	-1	20.0473	17.0909	1
2	8	1	12.7779	12.4099	1
2	8	2	22.2798	21.7931	1
2	8	6	16.0657	18.6414	1
2	10	-5	10.1143	11.0704	1
2	10	-4	19.9587	20.7862	1
2	10	-3	20.8016	20.9008	1
2	10	-2	13.4311	12.4112	1
2	10	-1	28.0559	24.8048	1
2	10	1	18.9570	17.8806	1
2	10	2	8.5769	8.9948	1
2	10	4	12.1527	13.3447	1
3	1	-12	10.8401	10.1971	1
3	1	-9	7.2508	8.6216	1
3	1	-8	20.5847	21.2651	1
3	1	-6	8.3749	8.8573	1
3	1	-5	14.5311	15.1165	1
3	1	-4	29.1070	28.9763	1
3	1	-3	16.8187	15.4422	1
3	1	-2	28.2442	22.1908	1
3	1	1	11.8791	10.0560	1

h	k	l	Fo	Fc	SF
3	1	2	39.9145	37.6892	1
3	1	3	11.3738	11.0569	1
3	1	4	7.5784	7.4491	1
3	1	6	21.0620	22.8337	1
3	1	10	12.0786	11.7662	1
3	3	-12	25.5023	23.2621	3
3	3	-11	17.7808	16.8796	3
3	3	-9	34.8135	35.9596	3
3	3	-8	24.5314	26.1258	3
3	3	-5	45.1474	45.8888	3
3	3	-4	18.3128	18.0582	3
3	3	-3	24.5300	21.1425	3
3	3	-2	55.3241	45.4927	3
3	3	-1	91.4877	80.5535	3
3	3	1	11.4686	9.3566	3
3	3	2	18.9492	18.4254	3
3	3	3	38.5493	37.7118	3
3	3	4	12.7468	11.6338	3
3	3	5	10.3686	10.9828	3
3	3	6	39.3417	41.7053	3
3	3	7	32.2447	33.6799	3
3	3	9	22.3015	21.2848	3
3	3	10	20.8279	20.0198	3
3	5	-8	11.1335	11.9613	1
3	5	-7	10.0813	10.6880	1
3	5	-4	11.3320	12.0523	1
3	5	-3	25.5290	25.3060	1
3	5	-2	12.1123	9.6376	1
3	5	-1	22.0031	18.3947	1
3	5	1	25.5455	22.8464	1
3	5	2	18.0321	18.1462	1
3	5	4	7.3257	8.1353	1
3	5	6	13.4175	14.9819	1
3	7	-9	8.1052	9.1468	1
3	7	-8	17.5320	19.0163	1
3	7	-7	8.1197	9.2371	1
3	7	-6	14.5786	16.4872	1
3	7	-5	16.5086	17.9776	1
3	7	-4	24.0766	24.5256	1
3	7	-2	20.1843	17.4250	1
3	7	-1	23.0997	18.6661	1
3	7	2	31.5258	31.2014	1
3	7	3	16.0822	17.3239	1
3	7	4	12.4928	14.2780	1
3	7	5	8.8522	10.1134	1
3	7	6	16.6807	18.5848	1
3	9	-5	25.0213	25.7945	3
3	9	-4	7.6101	7.5021	3
3	9	-2	22.6314	19.8029	3
3	9	-1	45.4378	39.4066	3
3	9	2	10.5454	9.7612	3
3	9	3	21.6144	21.8103	3
3	9	4	9.2767	9.7095	3
4	0	-11	10.4245	10.9172	3
4	0	-10	18.2477	17.7933	3
4	0	-8	7.6476	7.3460	3
4	0	-7	18.4263	18.7546	3
4	0	-6	56.1076	58.1500	3
4	0	-5	22.9397	23.4006	3
4	0	-4	13.5765	14.5300	3
4	0	-3	56.0243	51.5827	3

h	k	l	Fo	Fc	SF
4	0	-2	54.2296	43.6616	3
4	0	1	54.9415	48.8730	3
4	0	2	13.7738	13.0687	3
4	0	3	12.8741	12.4671	3
4	0	4	54.9224	57.6532	3
4	0	5	26.2251	27.5036	3
4	0	6	13.0084	12.9689	3
4	0	8	16.2892	15.9326	3
4	0	9	10.4677	11.3644	3
4	2	-11	8.4437	8.7151	1
4	2	-7	9.5554	10.0613	1
4	2	-6	8.0210	9.0849	1
4	2	-5	7.5379	7.0429	1
4	2	-4	10.1585	10.1720	1
4	2	-3	29.1297	27.3574	1
4	2	-2	9.4549	7.7472	1
4	2	-1	10.3095	8.4101	1
4	2	1	31.7023	29.4688	1
4	2	2	7.7697	7.7392	1
4	2	4	9.0978	9.7563	1
4	2	5	12.8767	13.5365	1
4	2	9	8.7645	8.8523	1
4	4	-10	17.7489	18.4165	1
4	4	-9	9.3672	10.0213	1
4	4	-7	24.3268	26.7392	1
4	4	-6	9.3710	9.5766	1
4	4	-4	13.6665	14.2570	1
4	4	-3	27.0971	25.4949	1
4	4	-2	8.5456	5.6737	1
4	4	-1	33.1767	26.6327	1
4	4	1	26.8485	24.0363	1
4	4	2	17.7581	18.2944	1
4	4	5	25.7584	28.7509	1
4	4	8	16.4328	17.9003	1
4	6	-7	22.3818	23.5400	3
4	6	-6	38.2270	40.2648	3
4	6	-4	20.7843	20.6706	3
4	6	-3	35.1600	32.9216	3
4	6	-2	25.6309	20.6797	3
4	6	-1	19.8415	15.4719	3
4	6	1	30.3109	27.3723	3
4	6	2	22.1847	21.2968	3
4	6	4	34.2748	35.6931	3
4	6	5	29.4685	31.1856	3
4	8	-5	10.3727	10.7241	1
4	8	-3	9.2154	9.0835	1
4	8	-2	12.5408	10.6705	1
4	8	-1	7.2303	6.7526	1
4	8	3	10.3455	11.1532	1
5	1	-8	15.9083	17.0387	1
5	1	-5	7.3150	7.2640	1
5	1	-4	25.6580	26.2756	1
5	1	-2	6.7161	5.0377	1
5	1	-1	20.8175	17.5662	1
5	1	1	8.9951	8.5719	1
5	1	2	15.0062	15.1444	1
5	1	3	12.9825	13.0467	1
5	1	4	7.2843	7.6487	1
5	1	6	12.5239	13.5255	1
5	1	7	7.8911	8.2707	1
5	3	-9	20.5695	21.5905	3

h	k	l	Fo	Fc	SF
5	3	-8	34.3649	36.3626	3
5	3	-7	16.9044	17.9064	3
5	3	-6	7.3183	5.8679	3
5	3	-5	24.6102	25.4072	3
5	3	-4	18.7320	17.5744	3
5	3	-2	10.2247	3.5116	3
5	3	1	17.2735	16.3337	3
5	3	2	12.9402	12.7129	3
5	3	3	37.9541	38.9451	3
5	3	5	8.6989	8.0399	3
5	3	6	11.9890	12.8855	3
5	5	-8	11.2557	12.6461	1
5	5	-4	13.2823	13.3023	1
5	5	-3	14.5483	14.3460	1
5	5	-2	6.8387	5.9327	1
5	5	-1	10.7890	9.6379	1
5	5	1	15.5203	15.0907	1
5	5	5	10.3820	11.5622	1
5	7	-5	10.3490	11.1247	1
5	7	-4	25.0852	26.5500	1
5	7	-3	7.1720	6.7982	1
5	7	-2	12.0519	10.3746	1
5	7	-1	18.0703	16.5587	1
5	7	2	15.5227	16.5853	1
6	0	-6	33.5550	33.7781	3
6	0	-5	11.6816	11.7430	3
6	0	-4	12.6159	12.9954	3
6	0	-3	34.6115	31.8474	3
6	0	-2	48.1737	42.7617	3
6	0	-1	10.0485	6.0894	3
6	0	1	16.9375	16.0849	3
6	0	2	23.8560	23.2207	3
6	0	3	7.3659	6.0833	3
6	0	4	13.1911	13.6424	3
6	2	-6	9.4904	10.1425	1
6	2	-3	15.2030	14.8898	1
6	2	-1	10.4323	9.1512	1
6	2	2	9.5920	10.8193	1
6	4	-6	10.0579	11.1181	1
6	4	-5	14.3449	14.9253	1
6	4	-3	14.6406	13.8679	1
6	4	-2	17.8103	15.8765	1
6	4	-1	9.3037	8.1424	1
6	4	1	23.0420	23.0189	1
6	4	2	8.0470	9.1647	1
0	0	13	11.5186	9.4493	4
0	0	14	9.9496	8.6318	4
0	0	15	15.9292	13.1512	4
0	2	15	9.9195	7.6353	2
0	4	13	8.5243	7.3822	2
0	4	14	8.3892	6.7092	2
0	4	15	7.6528	5.0784	2
0	6	14	8.1391	6.9123	4
0	8	12	11.4589	10.3976	2
0	10	7	14.7506	15.8277	2
0	10	8	7.7162	7.6836	2
0	10	11	12.1968	10.9415	2
0	12	1	8.0727	4.1266	4
0	12	3	14.2624	13.9416	4
0	12	4	12.1303	12.5371	4
0	12	5	11.9068	11.4567	4

h	k	l	Fo	Fc	SF
0	12	7	8.9981	10.4787	4
0	12	8	10.7579	12.3692	4
0	14	1	8.3473	6.0907	2
0	14	2	19.1751	19.1328	2
1	1	-16	7.9696	5.9364	2
1	1	13	10.0786	8.2315	2
1	1	14	7.9360	6.0391	2
1	3	-13	24.2868	21.6350	4
1	3	13	23.9995	20.6098	4
1	3	14	9.0114	7.9694	4
1	7	-13	7.5195	6.8274	2
1	7	-12	9.2335	8.0465	2
1	7	10	15.7404	15.6443	2
1	7	11	6.9941	5.5726	2
1	7	12	8.0047	7.2647	2
1	7	13	8.8629	7.6740	2
1	9	-12	13.9343	13.3280	4
1	9	-9	19.0921	20.3226	4
1	9	9	17.3900	17.2968	4
1	11	-7	16.5785	18.1395	2
1	11	4	10.8389	11.2241	2
1	11	7	11.1896	11.9542	2
1	11	8	8.2137	9.2350	2
1	13	-7	9.1149	9.8848	2
1	13	-6	10.9712	11.7361	2
1	13	-5	8.1412	8.7054	2
1	13	-4	9.5336	9.7149	2
1	13	-2	15.9520	14.4752	2
1	13	-1	14.8039	13.6956	2
1	13	1	14.3355	13.9025	2
1	13	2	22.7659	22.3185	2
1	13	4	8.6238	9.1163	2
1	13	5	7.3156	7.2162	2
1	13	6	8.8444	8.3433	2
2	0	-16	7.8632	5.8168	4
2	0	-15	11.9297	9.7704	4
2	0	-14	19.5126	17.0397	4
2	0	12	21.3445	18.7510	4
2	0	15	8.0671	6.6472	4
2	2	-13	8.9644	7.6441	2
2	4	-15	8.0182	6.4910	2
2	4	-14	10.8327	9.1916	2
2	4	12	8.7554	7.5209	2
2	6	-14	18.3566	15.9088	4
2	6	-11	12.1042	12.2895	4
2	6	11	15.2693	14.5379	4
2	6	12	22.9725	20.6937	4
2	8	-12	9.7465	8.7301	2
2	8	10	9.1976	8.1602	2
2	10	-11	11.8258	11.7615	2
2	10	-10	13.2799	13.8387	2
2	10	-7	19.2392	20.0585	2
2	10	5	21.4406	22.8438	2
2	10	7	16.1625	17.0923	2
2	10	8	15.7487	16.2283	2
2	12	-7	18.1497	19.9847	4
2	12	-6	11.1822	12.5921	4
2	12	-5	8.6603	8.0008	4
2	12	-4	10.6870	10.3160	4
2	12	-3	10.6954	10.8852	4
2	12	-1	10.3648	8.1792	4

h	k	l	Fo	Fc	SF
2	12	1	17.5941	17.6439	4
2	12	4	21.3129	22.3230	4
2	12	6	8.1821	7.9481	4
2	14	-1	10.0254	10.0339	2
3	1	14	10.1010	7.8385	2
3	3	-13	10.8163	9.8340	4
3	3	-12	24.9081	23.2621	4
3	3	13	13.0005	11.0025	4
3	7	-12	10.5460	9.8475	2
3	7	-10	7.4796	8.0133	2
3	7	8	7.7249	7.5402	2
3	7	10	12.0050	11.5209	2
3	9	-12	16.1071	15.5533	4
3	9	-11	9.8225	9.9511	4
3	9	-9	19.5324	21.4105	4
3	9	-8	13.0669	14.7147	4
3	9	6	22.3919	24.6962	4
3	9	7	17.3233	18.5806	4
3	9	9	13.1703	13.3076	4
3	9	10	12.6686	12.5024	4
3	11	-7	13.4171	14.0146	2
3	11	-6	10.4461	10.9552	2
3	11	-3	21.6695	20.2249	2
3	11	-1	6.8810	5.5091	2
3	11	1	21.4144	20.8091	2
3	11	4	12.7569	13.3488	2
3	11	5	9.1723	9.3280	2
3	13	-4	15.6583	16.2659	2
3	13	-2	9.9380	8.9479	2
3	13	-1	10.5571	10.0371	2
3	13	2	19.4694	20.0650	2
3	13	3	11.1989	12.2058	2
4	0	-14	26.8090	23.4132	4
4	0	-13	10.4912	10.1335	4
4	0	12	25.5485	22.3619	4
4	0	13	9.9839	8.2324	4
4	2	-14	8.4002	6.9402	2
4	2	12	8.7873	7.6313	2
4	4	-13	13.6659	12.3754	2
4	4	9	8.2109	8.5077	2
4	4	11	12.9982	12.2085	2
4	6	-13	12.7433	12.2508	4
4	6	-10	19.9971	20.2961	4
4	6	8	19.6388	20.0871	4
4	6	11	7.9329	8.2186	4
4	8	-12	7.8919	7.1348	2
4	8	-8	18.7486	19.8858	2
4	8	-7	9.6779	9.7891	2
4	8	5	13.3921	14.5494	2
4	8	6	14.9527	15.8506	2
4	8	7	8.6169	9.5055	2
4	8	10	10.4581	9.5982	2
4	10	-9	11.1447	12.1371	2
4	10	-8	7.1715	7.9742	2
4	10	-7	11.6970	12.2461	2
4	10	-6	7.5145	8.5957	2
4	10	-5	9.5064	9.9307	2
4	10	-3	20.8666	19.1131	2
4	10	-2	16.4112	14.7359	2
4	10	-1	14.9225	14.1102	2
4	10	1	23.2932	22.4539	2

h	k	l	Fo	Fc	SF
4	10	3	9.1311	9.4540	2
4	10	4	7.4618	8.1062	2
4	10	5	10.5623	11.1559	2
4	10	7	9.2110	10.5988	2
4	12	-3	17.0944	16.9323	4
4	12	-2	13.6890	12.5177	4
4	12	-1	19.2189	17.5626	4
4	12	1	16.0703	16.5669	4
5	1	-12	9.4493	9.0518	2
5	1	10	7.8792	8.2132	2
5	3	-12	12.8888	12.4624	4
5	3	-11	18.2969	17.9779	4
5	3	7	25.5679	26.7994	4
5	3	9	9.4627	10.0234	4
5	3	10	21.0779	19.5517	4
5	3	11	12.9269	11.5615	4
5	7	-8	12.4242	12.8853	2
5	7	-7	8.6155	9.7372	2
5	7	-6	9.4110	10.0898	2
5	7	3	13.0124	13.2706	2
5	7	4	11.9033	12.1520	2
5	7	5	7.4892	8.2182	2
5	7	6	14.5082	14.4307	2
5	7	7	8.4208	8.8310	2
5	7	8	7.8749	8.8115	2
5	9	-9	12.1968	12.8597	4
5	9	-8	19.7175	21.9364	4
5	9	-7	9.0787	10.4226	4
5	9	-5	13.5258	13.4765	4
5	9	-4	11.7052	11.1703	4
5	9	-1	29.0965	28.2811	4
5	9	2	7.2273	7.2334	4
5	9	3	22.2744	22.7728	4
5	9	7	16.0715	16.5010	4
5	11	-3	15.9628	16.2045	2
5	11	-2	12.2213	11.8719	2
5	11	1	15.4775	15.5836	2
6	0	-12	12.2972	12.4509	4
6	0	-10	21.8833	23.4177	4
6	0	-9	13.7689	14.8319	4
6	0	5	31.7962	32.9253	4
6	0	6	18.5055	19.5783	4
6	0	8	17.9509	17.4523	4
6	0	9	11.6840	12.1917	4
6	2	-10	9.4991	10.1767	2
6	2	-9	10.9844	11.5109	2
6	2	-8	11.7244	12.7111	2
6	2	5	19.3916	20.2758	2
6	2	7	6.6668	6.1806	2
6	2	8	7.2345	6.2985	2
6	4	-10	8.6122	9.0822	2
6	4	-9	11.0758	11.9033	2
6	4	-7	9.3331	10.2022	2
6	4	3	7.6955	7.2051	2
6	4	4	7.3125	7.5668	2
6	4	5	12.2947	13.4340	2
6	6	-10	13.9595	15.3948	4
6	6	-6	21.5398	23.0856	4
6	6	-5	16.6780	17.4565	4
6	6	-3	21.8595	21.2752	4
6	6	-2	42.9710	42.3045	4

h	k	l	Fo	Fc	SF
6	6	-1	9.0397	3.5668	4
6	6	1	21.7064	21.2470	4
6	6	2	10.7537	10.4231	4
6	6	4	17.1531	17.6607	4
6	6	5	18.1385	19.6188	4
6	6	6	14.0706	15.1395	4
6	8	-8	9.1011	10.0927	2
6	8	-4	13.8628	13.1971	2
6	8	-1	8.2622	6.7574	2
6	8	3	7.5416	8.4360	2
6	10	-4	7.1725	7.0065	2
6	10	-3	11.1437	11.7569	2
6	10	-1	14.6746	14.5707	2
6	10	1	12.3217	12.6028	2
7	1	-8	9.2280	9.2259	2
7	1	-4	18.7077	18.5184	2
7	1	-1	7.7052	7.2606	2
7	1	3	8.8551	9.2117	2
7	1	4	8.5636	8.9531	2
7	3	-8	20.1405	22.1598	4
7	3	-7	24.8241	27.0019	4
7	3	-5	14.4502	15.7666	4
7	3	-4	21.8362	22.0187	4
7	3	-3	11.2158	10.6669	4
7	3	-2	10.9031	9.1355	4
7	3	-1	14.9233	14.0195	4
7	3	1	13.8655	14.8026	4
7	3	3	26.5733	28.4553	4
7	3	4	18.5578	19.8544	4
7	5	-4	11.8774	12.1680	2
7	5	-2	9.2959	10.0857	2
7	7	-4	16.6329	17.0112	2
7	7	-3	10.4150	10.4288	2
7	7	-2	9.3544	9.3741	2
7	7	-1	11.5040	10.9368	2
7	7	3	8.0700	8.7954	2
8	0	-6	9.0812	10.5043	4
8	0	-5	17.1312	17.3846	4
8	0	-3	9.0254	3.1950	4
8	0	-2	36.2123	37.8401	4
8	0	-1	17.7688	17.8584	4
8	0	1	16.6828	17.4049	4
8	0	2	17.7016	18.7735	4
8	2	-5	9.6109	9.7724	2
8	2	-2	10.6482	10.4577	2
8	2	-1	7.1678	7.3280	2
8	2	1	8.0210	7.8373	2
8	4	-5	8.0151	8.3872	2
8	4	-3	11.0469	11.6073	2
8	4	-1	11.0367	11.3394	2