

**SODANKYLÄ GEOPHYSICAL OBSERVATORY
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MAGNETIC RESULTS

SODANKYLÄ 2011

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Editor: Dr. Thomas Ulich
Sodankylä Geophysical Observatory
University of Oulu
FI-99600 SODANKYLÄ, Finland

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SODANKYLÄ GEOPHYSICAL OBSERVATORY
MAGNETIC RESULTS 2011

The Sodankylä Geophysical Observatory was established in 1913; 1914 was the first year of magnetic recordings. The observatory is situated on the east bank of the river Kitinen, ca. 5 km south of Sodankylä village. Until 31.07.1997 it belonged to the Finnish Academy of Science and Letters. Since 01.08.1997 it has been the independent observatory of the University of Oulu. Coordinates are (IGRF-11 model for 2011):

	Lat.	Long.	
Geographic	67°22'09"N	26 37'47"E	h(N60)=178 m 1 ^h 46 ^m 31.1 ^s
Geomagn.(dip.)	63.89°	119.71°	Ψ = -22.83°
Corr.geomagn.	64.15°	106.65°	L = 5.26

Ψ is azimuth towards geomagnetic north pole.

VARIOMETERS

Three sets of variometers are used:

- FG (Danish) Fluxgate magnetometer
- PSM (Polish) Photoelectric Torsion Magnetometer
- RM (Russian) Photoelectric Torsion Magnetometer

The sampling rate and the adopted scale values of the variometers were:

	X	Y	Z	sampling
FG (nT/digit)	0.005708	0.005720	0.005720	2 Hz
PSM	0.003072	0.003072	0.003075	2 Hz
RM	0.009750	0.009354	0.009544	2 Hz

ABSOLUTE AND BASE-LINE MEASUREMENTS

The base-line values of variometers were determined weekly with the following instrumentation:

- Overhauser magnetometer GSM-90 reduced to the main pillar
- DMI Fluxgate declinometer&inclinometer ("DI-flux") version G with CarlZeiss Jena THEO-010A (serial n:o 278806) cleaned by MinGeo Ltd.

The absolute instrumentation was tested in the 46th Nordic Geomagnetic Workshop hosted by DTU Space, in Brorfelde, Denmark, 25-27 May 2011.

Observations during the year 2011 were made by Tero Raita and June- July also by Emma Postila (marked with asterix in baseline plot).

The adopted base-line values for FG were as follows:

East intensity Y

01.01.-30.01.	1806.5 nT
31.01.-21.06.	06.7
22.06.-09.12.	07.0
09.12.-31.12.	06.7

North intensity X

01.01.-06.01.	11412.5 nT
07.01.-10.02.	12.0
11.02.-22.04.	11.5
23.04.-14.05.	12.0
15.05.-08.06.	12.5
09.06.-18.06.	13.0
19.06.-30.06.	13.5
01.07.-10.07.	14.0
11.07.-26.07.	14.5
27.07.-21.09.	15.0
22.09.-20.10.	15.5
21.10.-17.11.	15.0
18.11.-17.12.	14.5
18.12.-31.12.	14.0

Vertical intensity Z

01.01.-20.01.	51153.8 nT
21.01.-04.04.	54.0
05.04.-30.05.	53.8
31.05.-30.06.	53.6
01.07.-10.07.	53.4
11.07.-20.10.	53.2
21.10.-19.12.	53.4
20.12.-31.12.	53.6

TREATMENT OF RECORDINGS

The components recorded are X, Y and Z. The tabulated components are X, Y, Z, and the tabulations are based on FG digital recording. D (and Y) is positive eastwards, X northwards and Z downwards. The tabular unit of intensity components is 1 nT, that of D is 0.1'. Time used throughout is UT; hourly values are centred at half-hours.

The values were controlled by comparing them with the other digital (PSM, RM) recordings. Monthly and annual tables were computed at the Observatory using a Macintosh computer.

The K- and Ak-indices on the page 15 are determined from all components (HDZ) for historical reasons. The Bartels musical diagram on the page 15 is calculated using only components H and D.

To calculate the variations of other field components than tabulated, the following differential formulas can be used:

$$\begin{aligned} \Delta X &= 0.983 \Delta H - 0.615 \Delta D & \Delta H &= 0.983 \Delta X + 0.183 \Delta Y \\ \Delta Y &= 0.183 \Delta H + 3.305 \Delta D & \Delta D &= 0.292 \Delta Y - 0.054 \Delta X \\ \Delta F &= 0.219 \Delta H + 0.976 \Delta Z & \Delta I &= 0.0143 \Delta Z - 0.0636 \Delta H \\ &= 0.215 \Delta X + 0.040 \Delta Y + 0.976 \Delta Z \end{aligned}$$

where X, Y, H, Z, F are expressed in nT and D, I in arc minutes.

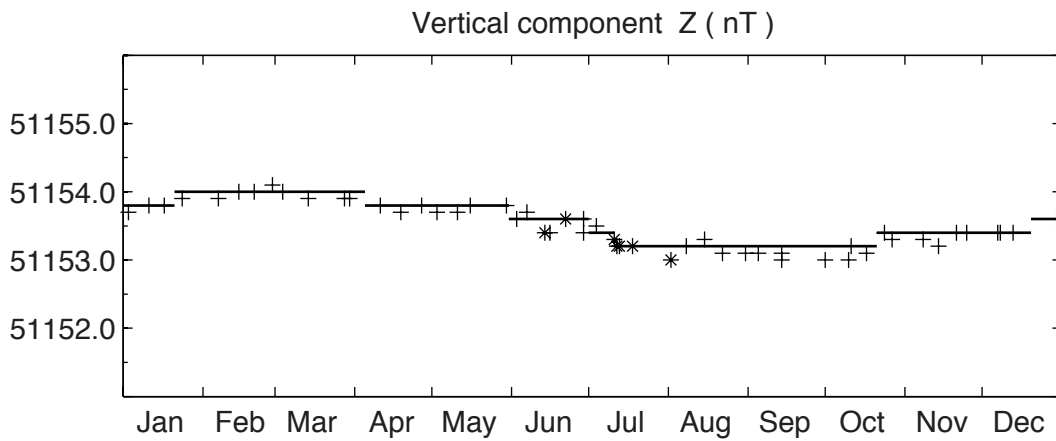
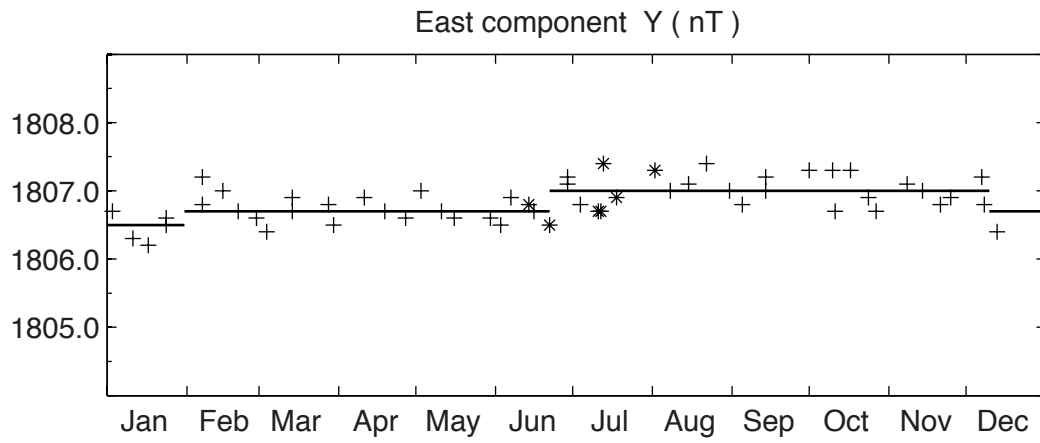
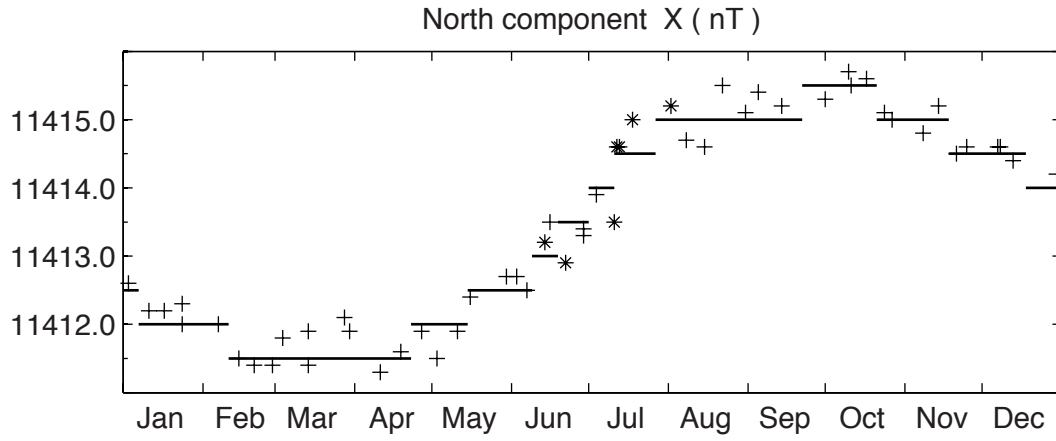
In 1945 new absolute and variation rooms were built on a new site, ca 250 m WWN from the original location of the absolute house. In tables of annual means the values for years 1914-1944 are reduced to the new site, using the following values of site differences (as determined in 1946): (old minus new)

$$\begin{aligned} \Delta D &= + 7.0' & \Delta Y &= + 25 \text{ nT} \\ \Delta H &= + 15 \text{ nT} & \Delta X &= + 12 \text{ nT} \\ \Delta Z &= +124 \text{ nT} & \Delta F &= +124 \text{ nT} \\ & & \Delta I &= + 0.9' \end{aligned}$$

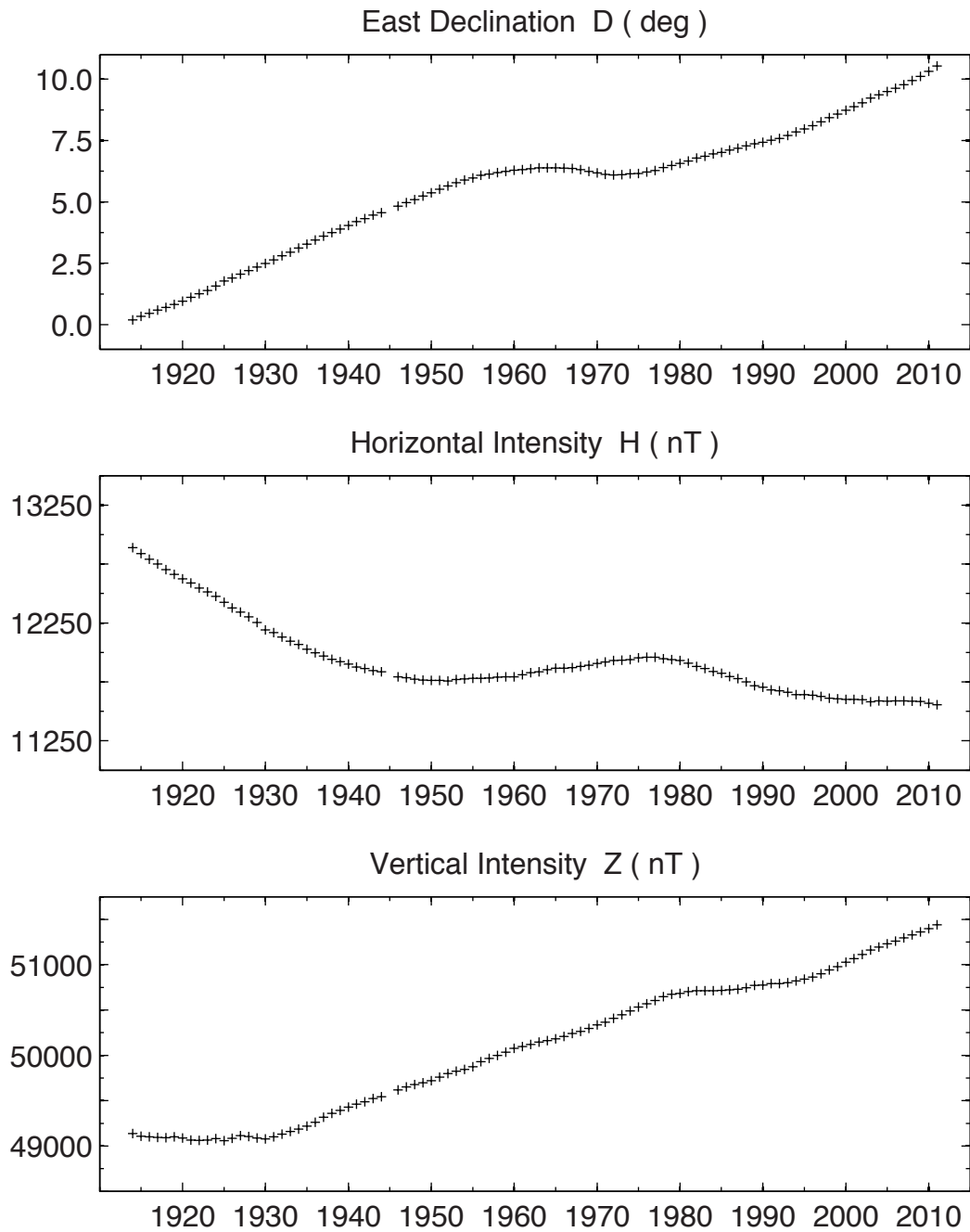
Like the preceding yearbooks, the activity indices K and Ak are given. For continuity, as K the largest value derived from components H, D, Z is given, otherwise that is the present usage. The statistical difference to the standard procedure is rather small, in monthly mean of Ak normally less than 1 unit. The minimum range for K = 9 is 1500 nT.

The analog recording of magnetic variometer was finished at the end of 1995 after having been continued 82 years.

The renovation of the absolute and variometer houses funded by the administration of the University of Oulu was finished in summer 2010.

MEASURED AND ADOPTED BASELINES FOR 2011

ANNUAL MEANS FOR 1914 -2011



ANNUAL MEANS. all days

Year	Z	H	D	F	X	Y	I
1914	49136 nT	12890 nT	0°11.3'	50799 nT	12890 nT	42 nT	75°18.0'
15	108	839	20.1	759	839	75	20.9
16	100	791	27.7	739	791	103	23.9
17	094	750	35.4	723	749	131	26.5
18	(092)	(702)	(42.3)	(709)	(701)	(156)	(29.6)
19	101	661	48.9	707	660	180	32.5
20	087	624	56.9	684	622	209	34.6
1921	065	590	1 06.4	655	588	243	36.5
22	063	545	15.4	641	542	275	39.4
23	066	514	23.6	637	510	304	41.5
24	080	475	34.2	641	470	342	44.3
25	060	425	46.3	609	419	384	47.3
26	086	377	53.9	622	370	410	50.9
27	114	342	2 03.6	641	334	444	53.6
28	104	302	11.9	622	293	472	56.1
29	088	254	20.4	594	244	500	59.0
30	077	192	29.5	569	180	530	76 02.9
1931	100	167	38.1	585	154	559	04.9
32	130	130	48.5	605	115	594	07.9
33	160	095	56.9	626	079	622	10.7
34	187	068	3 06.8	646	050	655	12.9
35	218	027	16.7	666	007	688	16.1
36	263	11997	26.4	703	11975	720	18.8
37	316	970	36.2	748	946	752	21.4
38	361	941	44.8	785	915	780	24.0
39	394	921	53.7	812	893	810	25.9
40	428	901	4 02.2	841	871	838	27.7
1941	460	876	11.5	866	844	868	29.9
42	488	862	19.2	890	828	894	31.2
43	524	845	27.6	921	809	921	32.9
44	(542)	(836)	(33.6)	(939)	(799)	(941)	(33.8)
45	—	—	—	—	—	—	—
46	618	792	49.6	51000	750	992	37.9
47	652	784	58.0	031	740	1020	38.9
48	678	772	5 05.7	054	725	1045	40.1
49	697	764	14.4	070	715	1074	40.9
50	720	763	22.5	093	711	1102	41.4
1951	760	762	30.8	131	708	1130	42.1
52	800	757	39.1	169	700	1158	43.0
53	(826)	(770)	(46.5)	(197)	(710)	(1184)	(42.5)
54	846	776	53.1	218	714	1207	42.5
55	875	781	58.6	248	717	1227	42.6
56	930	779	6 04.9	301	713	1248	43.6
57	966	782	08.0	336	715	1259	43.9
58	999	790	11.2	370	721	1271	43.9
59	50034	793	14.3	405	723	1281	44.2
60	076	792	17.6	446	721	1293	45.0
1961	098	811	18.8'	471	739	1299	44.1'
62	119	827	21.0	496	754	1308	43.3
63	146	836	23.0	524	763	1316	43.2
64	164	852	23.1	545	778	1318	42.4
65	182	865	22.9	566	791	1319	41.8
66	210	866	22.4	593	793	1317	42.2
67	240	870	21.4	623	797	1314	42.4
68	265	880	18.6	650	808	1306	42.1
69	297	891	14.6	684	820	1293	41.9
70	336	905	10.5	724	836	1281	41.6

ANNUAL MEANS. all days (cont)

Year	Z	H	D	F	X	Y	I
1971	50366 nT	11918 nT	6°07.4'	51757 nT	11850 nT	1271 nT	76°41.1'
72	407	930	06.0	800	862	1268	41.1
73	447	934	06.7	839	866	1271	41.4
74	490	939	08.5	882	870	1277	41.8
75	532	953	09.3	926	884	1282	41.5
76	570	960	12.7	965	890	1294	41.6
77	605	960	16.9	998	888	1309	42.1
78	647	946	23.8	52036	872	1331	43.7
79	673	940	29.1	061	863	1348	44.5
80	683	932	34.1	068	853	1364	45.1
1981	702	909	39.9	082	829	1382	46.9
82	714	880	46.7	087	797	1402	48.9
83	712	864	51.1	081	780	1415	49.9
84	713	839	56.9	077	752	1432	51.6
85	715	822	7 01.2	075	733	1445	52.7
86	723	794	06.7	076	703	1460	54.6
87	729	777	11.3	078	684	1473	55.8
88	746	749	16.7	088	654	1488	57.8
89	771	718	22.2	106	621	1503	77 00.2
90	776	704	25.8	107	605	1514	01.2
1991	793	681	30.9	119	581	1528	02.9
92	793	675	35.3	118	572	1542	03.3
93	801	662	42.3	122	557	1563	04.3
94	821	642	51.0	137	533	1590	05.8
95	842	642	57.9	158	530	1613	06.1
96	864	636	8 06.2	178	520	1640	06.8
97	899	627	15.7	210	506	1671	07.9
98	942	612	25.7	248	486	1702	09.6
99	978	607	34.6	282	477	1731	10.4
2000	51026	602	43.7	328	467	1761	11.4
2001	066	602	52.5	367	463	1790	12.0
02	113	599	9 02.3	413	455	1822	12.9
03	163	581	13.9	457	431	1858	14.7
04	195	588	21.3	490	433	1884	14.8
05	231	585	29.7	524	426	1911	15.5
06	261	589	37.3	555	426	1937	15.7
07	296	588	46.4	588	420	1967	16.2
08	329	585	56.2	620	411	1999	16.9
09	362	583	10 06.4	652	403	2033	17.5
10	399	568	19.2	685	381	2072	19.0
2011	51439	11555	10 32.0	52721	11361	2122	77 20.3

ANNUAL MEANS. quiet days

Year	Z	H	D	F	X	Y	I
1914	49138 nT	12893 nT	0°11.1'	50801 nT	12893 nT	42 nT	75°17.9'
15	113	845	19.7	765	845	74	20.6
16	106	801	26.9	747	801	100	23.4
17	097	758	34.4	728	757	128	26.0
18	(097)	(713)	(41.4)	(716)	(712)	(153)	(29.0)
19	105	674	48.4	714	673	178	31.7
20	091	633	56.6	690	631	208	34.1
1921	068	596	1 05.9	659	594	241	36.2
22	070	553	14.8	650	550	273	39.0
23	068	518	23.3	640	514	303	41.3
24	083	478	34.0	644	473	341	44.2
25	062	432	46.0	613	426	383	46.9
26	091	388	53.3	630	381	408	50.2
27	119	349	2 03.0	648	341	442	53.3
28	106	308	11.4	625	299	470	55.8
29	093	264	19.6	602	254	498	58.4
30	085	211	27.6	581	200	524	76 01.8
1931	106	174	37.3	593	161	557	04.6
32	138	140	47.6	615	126	592	07.3
33	166	102	56.2	634	086	620	10.3
34	191	073	3 06.2	651	055	654	12.6
35	223	034	16.0	673	014	686	15.7
36	266	003	25.8	707	11981	718	18.4
37	315	11978	35.3	749	955	750	20.9
38	361	952	43.7	787	927	777	23.3
39	395	935	52.0	816	908	805	25.0
40	431	914	4 00.7	847	885	833	26.9
1941	464	891	09.9	873	860	864	29.0
42	494	874	18.0	898	841	890	30.6
43	531	859	26.0	931	824	917	32.1
44	(547)	(844)	(32.7)	(943)	(807)	(939)	(33.4)
45	—	—	—	—	—	—	—
46	621	806	48.4	51006	764	989	37.0
47	650	795	57.0	032	751	1018	38.2
48	680	781	5 04.8	058	735	1043	39.6
49	697	775	13.1	073	726	1071	40.2
50	723	778	20.8	099	727	1097	40.4
1951	763	777	29.0	138	723	1125	41.1
52	807	778	36.8	181	722	1152	41.7
53	(832)	(783)	(44.6)	(206)	(724)	(1179)	(41.8)
54	850	785	52.1	224	723	1205	41.9
55	877	790	57.7	252	726	1225	42.0
56	926	792	6 03.1	300	726	1243	42.7
57	966	794	06.8	339	727	1256	43.1
58	994	801	09.8	368	733	1267	43.1
59	50031	806	12.7	405	737	1277	43.4
60	073	811	15.1	447	741	1286	43.7
1961	100	823	17.4	476	752	1295	43.3
62	125	837	19.9	504	765	1305	42.8
63	150	845	21.9	530	772	1313	42.6
64	168	858	22.5	550	785	1317	42.1
65	186	868	22.6	570	795	1318	41.7
66	213	873	21.8	598	800	1316	41.8
67	241	880	20.4	627	807	1312	41.8
68	270	889	17.6	657	817	1303	41.6
69	299	899	13.7	687	828	1291	41.5
70	336	912	09.5	726	843	1278	41.2

ANNUAL MEANS. quiet days (cont)

Year	Z	H	D	F	X	Y	I
1971	50370 nT	11928	nT 6°06.4'	51763 nT	11860 nT	1269 nT	76°40.7'
72	409	938	05.0	803	871	1265	40.6
73	452	949	04.9	848	881	1266	40.6
74	497	957	06.3	894	890	1272	40.7
75	539	965	07.6	936	897	1277	40.8
76	576	971	11.3	974	901	1290	41.0
77	608	970	15.6	52004	899	1305	41.6
78	650	960	21.7	043	886	1325	42.9
79	673	949	27.9	063	873	1345	43.9
80	684	937	33.7	071	858	1364	44.9
1981	701	919	38.7	083	839	1379	46.3
82	716	898	44.8	093	816	1397	47.8
83	717	881	49.1	090	797	1410	48.9
84	717	855	54.9	084	769	1427	50.6
85	719	833	59.7	081	744	1441	52.1
86	727	806	7 05.1	083	716	1456	53.9
87	732	783	10.4	082	690	1471	55.5
88	747	758	15.4	092	664	1485	57.3
89	770	735	20.6	108	638	1500	59.1
90	774	715	24.3	108	618	1510	77 00.4
1991	788	696	29.2	118	596	1524	01.9
92	793	686	33.9	120	584	1539	02.6
93	803	675	40.6	128	571	1560	03.4
94	826	663	48.4	147	555	1584	04.5
95	846	654	56.5	165	542	1610	05.4
96	868	645	8 05.0	184	529	1638	06.3
97	900	635	14.7	213	514	1669	07.5
98	943	622	24.6	252	497	1700	08.9
99	981	618	33.5	288	488	1729	09.8
2000	51024	612	42.5	328	478	1758	10.8
2001	065	611	51.6	369	472	1788	11.4
02	112	610	9 01.1	414	466	1820	12.2
03	164	603	11.3	463	454	1853	13.3
04	199	602	19.5	497	449	1880	13.9
05	236	599	28.1	533	441	1908	14.7
06	264	597	36.2	560	435	1935	15.2
07	299	594	45.4	593	426	1965	15.9
08	332	591	55.5	625	417	1998	16.6
09	363	585	10 06.3	654	405	2032	17.4
10	401	573	18.6	688	386	2071	18.7
2011	51440	11562	10 31.3	52724	11368	2111	77 19.9

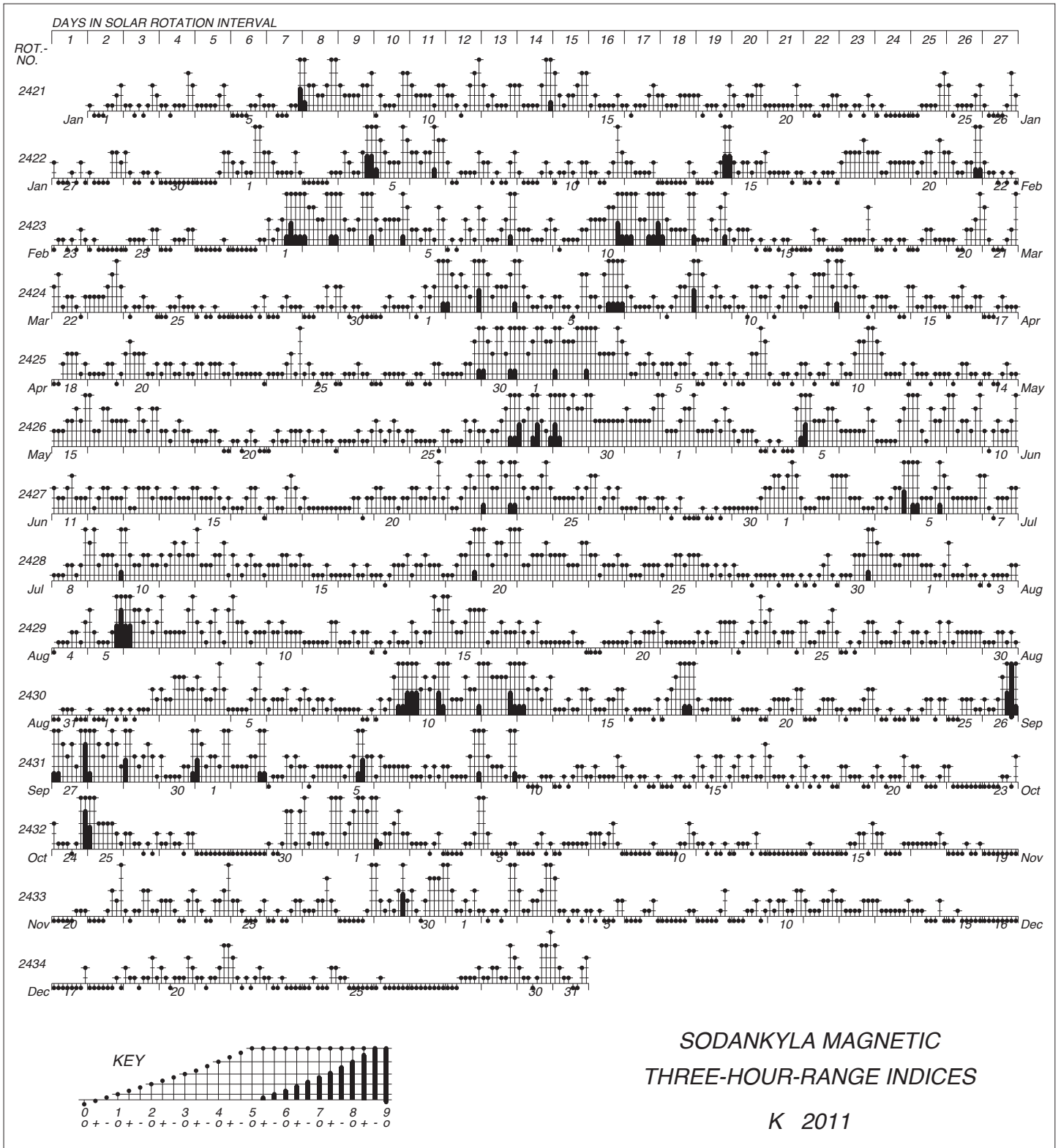
ANNUAL MEANS. disturbed days

Year	Z	H	D	F	X	Y	I
1914	49133 nT	12883 nT	0° 11.8'	50794 nT	12883 nT	44 nT	75° 18.4'
15	097	823	21.1	744	823	79	21.8
16	091	764	29.8	723	764	111	25.5
17	091	734	35.9	716	733	133	27.5
18	(085)	(683)	(43.7)	(697)	(682)	(161)	(30.7)
19	094	638	49.5	695	637	182	33.8
20	082	602	58.1	674	600	213	36.0
1921	066	581	1 07.4	653	579	247	37.1
22	052	532	16.5	628	529	279	40.1
23	059	496	24.8	625	492	308	42.6
24	072	464	34.7	630	459	343	44.9
25	054	403	47.6	598	397	388	48.6
26	084	347	55.0	613	340	413	52.8
27	109	328	2 04.3	633	320	446	54.5
28	102	287	12.5	616	278	473	57.1
29	083	230	21.5	584	220	503	76 00.5
30	067	159	32.3	551	147	538	04.9
1931	088	150	39.7	569	137	564	05.9
32	120	108	50.3	590	093	600	09.2
33	149	079	58.1	612	063	625	11.5
34	180	057	3 07.7	636	039	658	13.5
35	211	012	18.1	656	11992	692	17.0
36	262	11986	26.8	699	964	721	19.5
37	318	948	38.2	745	924	758	22.9
38	360	919	46.5	779	893	785	25.5
39	394	898	56.8	807	870	819	27.4
40	422	877	4 04.8	829	847	845	29.2
1941	449	837	14.8	846	805	877	32.3
42	481	841	21.3	878	807	899	32.5
43	515	821	30.4	906	784	929	34.4
44	(530)	(815)	(35.9)	(920)	(777)	(947)	(35.0)
45	—	—	—	—	—	—	—
46	607	768	51.4	984	726	996	39.3
47	656	766	59.9	51031	721	1025	40.2
48	677	749	5 08.2	047	702	1052	41.6
49	702	737	17.6	069	687	1083	42.8
50	722	727	25.9	086	674	1110	43.8
1951	754	736	33.2	119	681	1136	43.7
52	789	725	43.0	151	667	1168	44.9
53	(812)	(741)	(50.1)	(177)	(680)	(1194)	(44.2)
54	839	759	55.1	207	696	1212	43.5
55	867	761	6 01.0	235	696	1233	43.8
56	938	748	09.2	301	680	1259	45.7
57	968	757	11.3	333	688	1267	45.6
58	50008	767	14.1	374	697	1278	45.5
59	038	765	17.8	402	694	1290	46.1
60	080	750	22.5	440	677	1305	47.8
1961	093	783	21.9	460	710	1306	45.8
62	111	812	22.8	484	739	1313	44.2
63	138	810	26.0	510	736	1323	44.7
64	154	840	24.5	533	766	1322	43.0
65	176	850	24.4	556	776	1322	42.7
66	207	851	23.7	587	777	1320	43.1
67	240	846	24.3	618	772	1321	43.9
68	257	862	21.0	638	789	1312	43.2
69	293	873	16.8	675	802	1299	43.0
70	335	892	13.0	721	822	1288	42.5

ANNUAL MEANS. disturbed days (cont)

Year	Z	H	D	F	X	Y	I
1971	50360 nT	11898 nT	6°09.4'	51747 nT	11829 nT	1276 nT	76°42.4'
72	407	908	08.6	794	839	1274	42.5
73	439	903	10.2	825	834	1279	43.3
74	484	915	11.6	871	846	1285	43.2
75	519	932	12.1	909	862	1289	42.7
76	560	940	15.3	951	869	1301	42.8
77	600	940	19.5	989	868	1315	43.4
78	641	918	28.5	52025	842	1344	45.4
79	669	924	31.5	053	847	1355	45.4
80	682	917	35.7	064	839	1368	46.1
1981	703	898	41.3	080	817	1385	47.6
82	709	851	50.3	076	767	1411	50.7
83	705	836	53.9	068	751	1421	51.6
84	707	808	7 00.6	063	720	1441	53.5
85	707	801	04.1	062	711	1452	53.9
86	714	765	09.8	061	673	1467	56.3
87	725	768	12.4	072	675	1476	56.3
88	740	728	18.8	077	633	1493	59.1
89	778	681	26.1	104	583	1512	77 02.7
90	775	686	28.4	102	587	1520	02.4
1991	800	662	33.4	122	561	1534	04.2
92	790	654	37.5	110	551	1546	04.6
93	793	635	45.8	109	528	1572	05.9
94	813	614	54.6	124	504	1598	07.5
95	833	622	8 00.2	145	509	1618	07.3
96	856	618	08.3	166	501	1645	07.9
97	896	612	17.5	204	491	1675	08.9
98	940	585	28.8	241	459	1709	11.2
99	971	586	36.8	272	456	1735	11.6
2000	51030	580	46.5	327	445	1767	12.9
2001	070	579	55.0	366	439	1795	13.5
02	114	579	9 04.3	409	434	1826	14.2
03	166	546	18.6	453	394	1868	17.0
04	190	555	25.1	478	399	1891	16.8
05	219	559	32.4	508	399	1916	17.0
06	253	568	39.7	542	404	1942	16.9
07	287	571	48.6	576	402	1972	17.2
08	321	572	57.5	609	398	2001	17.6
09	358	578	10 07.0	647	398	2034	17.7
10	395	556	20.6	678	368	2075	19.7
2011	51437	11541	10 33.6	52716	11345	2115	77 21.2

BARTELS DIAGRAM 2011 (K(HD))

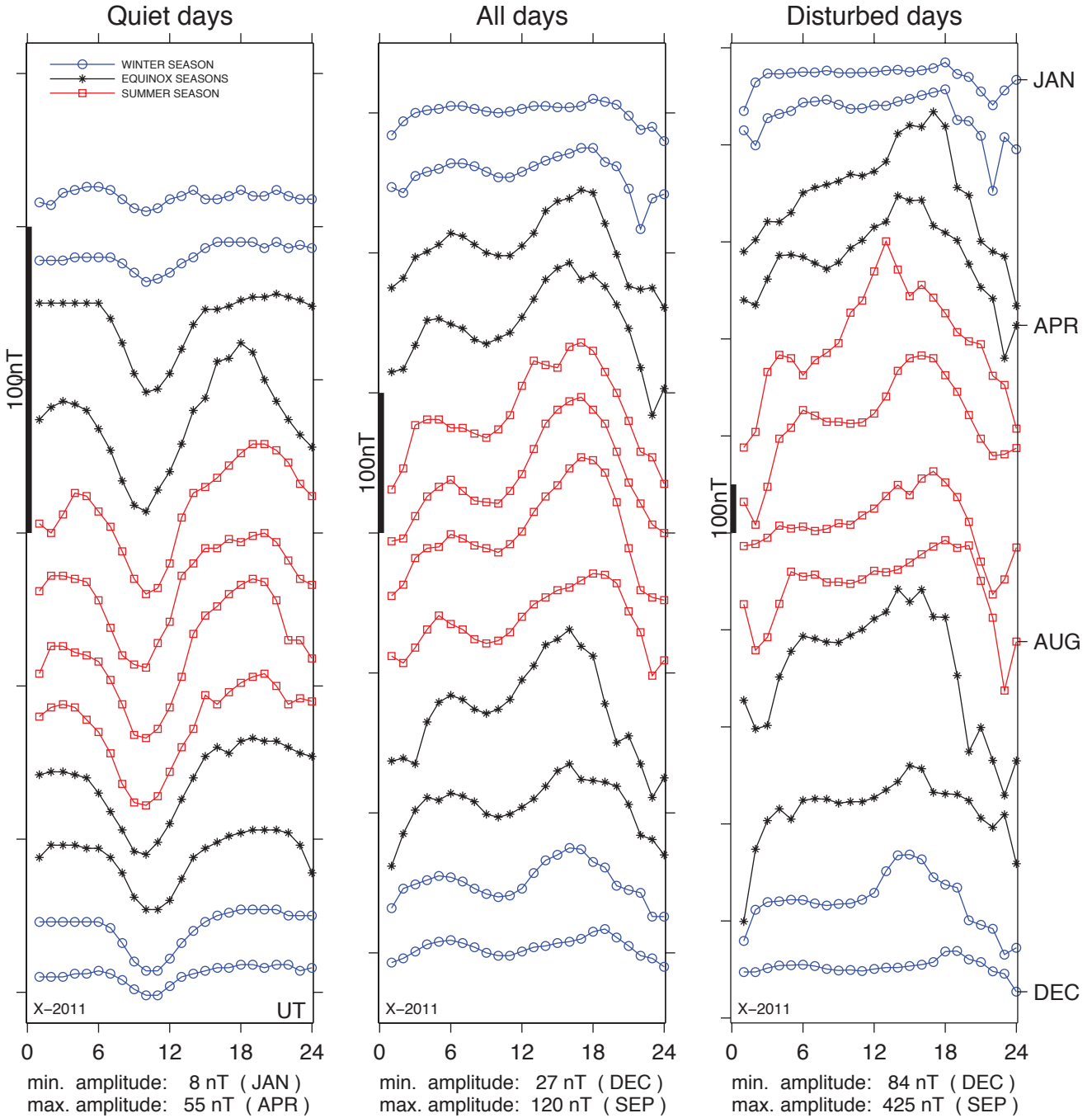


MONTHLY AND ANNUAL MEANS 2011

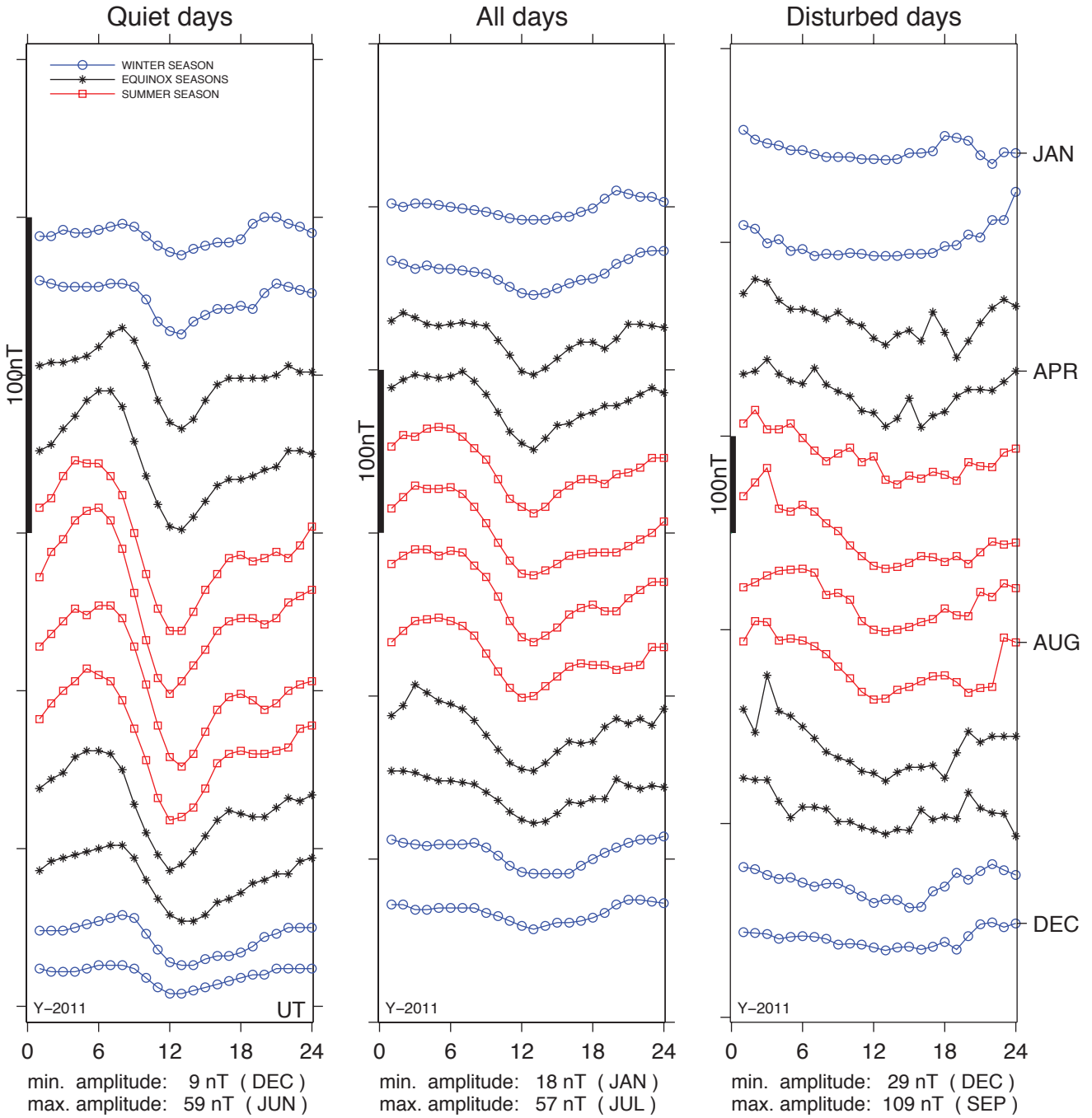
SODANKYLÄ	MONTHLY AND ANNUAL MEANS					ALL DAYS 2011		
	Z	H	D	F	X	Y	I	
JANUARY	51420	11565	10 25.7	52705	11374	2093	77 19.5	
FEBRUARY	51426	11560	10 27.3	52709	11368	2098	77 19.9	
MARCH	51427	11555	10 28.3	52709	11363	2100	77 20.2	
APRIL	51429	11555	10 29.5	52711	11361	2104	77 20.3	
MAY	51429	11560	10 30.0	52712	11366	2106	77 19.9	
JUNE	51435	11562	10 31.0	52718	11367	2110	77 19.9	
JULY	51433	11557	10 32.2	52715	11362	2113	77 20.2	
AUGUST	51444	11554	10 33.7	52726	11358	2118	77 20.5	
SEPTEMBER	51451	11538	10 35.6	52729	11341	2121	77 21.6	
OCTOBER	51454	11546	10 36.2	52734	11349	2124	77 21.1	
NOVEMBER	51460	11556	10 36.6	52741	11358	2128	77 20.6	
DECEMBER	51457	11557	10 37.3	52738	11359	2130	77 20.5	
WINTER	51441	11559	10 31.7	52723	11365	2112	77 20.1	
EQUINOX	51440	11548	10 32.4	52721	11354	2112	77 20.8	
SUMMER	51435	11558	10 31.7	52718	11363	2112	77 20.1	
YEAR	51439	11555	10 32.0	52721	11361	2112	77 20.3	
SODANKYLÄ	MONTHLY AND ANNUAL MEANS					5 QUIET DAYS 2011		
Z	H	D	F	X	Y	I		
JANUARY	51423	11567	10 25.7	52708	11376	2094	77 19.4	
FEBRUARY	51426	11566	10 26.5	52711	11374	2096	77 19.5	
MARCH	51430	11563	10 27.6	52714	11371	2099	77 19.7	
APRIL	51433	11564	10 29.0	52717	11371	2104	77 19.7	
MAY	51431	11565	10 29.0	52715	11372	2104	77 19.6	
JUNE	51437	11567	10 30.6	52722	11373	2110	77 19.6	
JULY	51439	11566	10 31.5	52723	11371	2113	77 19.7	
AUGUST	51444	11561	10 32.6	52727	11365	2115	77 20.1	
SEPTEMBER	51450	11555	10 34.0	52732	11359	2119	77 20.5	
OCTOBER	51456	11555	10 35.5	52737	11358	2124	77 20.6	
NOVEMBER	51458	11557	10 36.2	52740	11360	2127	77 20.5	
DECEMBER	51457	11560	10 37.0	52739	11362	2130	77 20.3	
WINTER	51441	11562	10 31.3	52724	11368	2112	77 19.9	
EQUINOX	51442	11559	10 31.5	52725	11365	2112	77 20.1	
SUMMER	51438	11565	10 30.9	52722	11370	2111	77 19.7	
YEAR	51440	11562	10 31.3	52724	11368	2111	77 19.9	
SODANKYLÄ	MONTHLY AND ANNUAL MEANS					5 DISTURBED DAYS 2011		
Z	H	D	F	X	Y	I		
JANUARY	51416	11558	10 26.7	52699	11367	2095	77 19.8	
FEBRUARY	51423	11546	10 29.2	52703	11353	2101	77 20.7	
MARCH	51426	11531	10 29.8	52702	11338	2101	77 21.7	
APRIL	51428	11550	10 30.3	52708	11356	2106	77 20.6	
MAY	51417	11546	10 32.7	52697	11351	2113	77 20.6	
JUNE	51434	11548	10 33.5	52714	11353	2116	77 20.7	
JULY	51427	11553	10 32.0	52709	11359	2112	77 20.3	
AUGUST	51445	11530	10 36.3	52721	11333	2122	77 22.1	
SEPTEMBER	51454	11489	10 40.3	52721	11290	2128	77 24.8	
OCTOBER	51461	11528	10 37.4	52736	11330	2125	77 22.4	
NOVEMBER	51461	11555	10 37.2	52743	11357	2129	77 20.7	
DECEMBER	51456	11558	10 37.2	52738	11360	2130	77 20.4	
WINTER	51439	11554	10 32.6	52721	11359	2114	77 20.4	
EQUINOX	51442	11524	10 34.5	52717	11329	2115	77 22.4	
SUMMER	51431	11544	10 33.6	52710	11349	2116	77 20.9	
YEAR	51437	11541	10 33.6	52716	11345	2115	77 21.2	

DAILY VARIATION

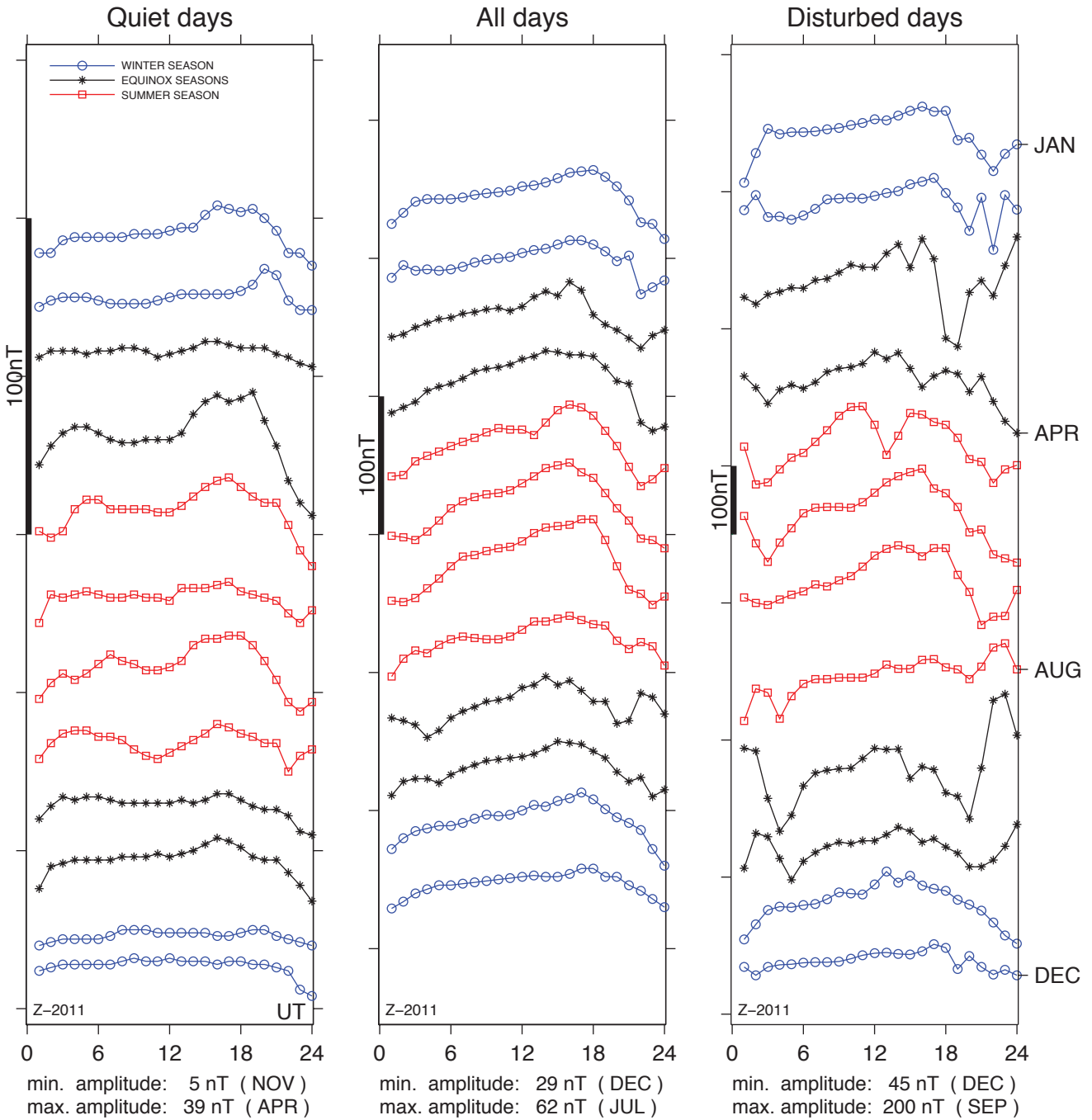
Hourly means minus monthly means 2011
North component (X)



DAILY VARIATION
Hourly means minus monthly means 2011
East component (Y)



DAILY VARIATION
Hourly means minus monthly means 2011
Vertical component (Z)



SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

NORTH COMPONENT X IN NT SEPTEMBER 2011 X = 11000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-30. Includes weather symbols (Q, D) and numerical data.

MEANS ALL QUIET DIST. 304 306 302 332 346 351 348 341 338 341 348 362 372 387 391 398 386 379 345 317 322 302 278 292 341

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

NORTH COMPONENT X IN NT OCTOBER 2011 X = 11000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-31. Includes weather symbols (D, Q) and numerical data.

MEANS ALL QUIET DIST. 306 329 346 355 353 358 356 352 343 341 343 348 354 363 374 379 368 367 366 363 350 328 325 314 349

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

EAST COMPONENT Y IN NT

JANUARY 2011

Y = 2000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-31 for January 2011. Includes mean values for ALL, QUIET, and DIST.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

EAST COMPONENT Y IN NT

FEBRUARY 2011

Y = 2000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-28 for February 2011. Includes mean values for ALL, QUIET, and DIST.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT JANUARY 2011 Z = 51000 + TABULAR VALUES

Table with columns: DAY/ UT, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, MEAN. Rows 1-31 include data points and letters (Q, D). Rows 32-34 are MEANS ALL, QUIET, and DIST.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT FEBRUARY 2011 Z = 51000 + TABULAR VALUES

Table with columns: DAY/ UT, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, MEAN. Rows 1-31 include data points and letters (Q, D). Rows 32-34 are MEANS ALL, QUIET, and DIST.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT

MARCH 2011

Z = 51000 + TABULAR VALUES

Table with 25 columns (DAY/UT, 1-24, MEAN) and 31 rows of data for March 2011. Includes sub-headers D, Q and numerical values.

MEANS

Summary table for March 2011 with 3 columns (ALL, QUIET, DIST.) and 3 rows of mean values.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT

APRIL 2011

Z = 51000 + TABULAR VALUES

Table with 25 columns (DAY/UT, 1-24, MEAN) and 31 rows of data for April 2011. Includes sub-headers D, Q and numerical values.

MEANS

Summary table for April 2011 with 3 columns (ALL, QUIET, DIST.) and 3 rows of mean values.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT NOVEMBER 2011 Z = 51000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-30 containing numerical data for November 2011. Includes a 'Q' marker in rows 9 and 10.

MEANS

Summary table with columns: ALL, QUIET, DIST. and rows for MEANS. Values are averages for the month.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E

VERTICAL COMPONENT Z IN NT DECEMBER 2011 Z = 51000 + TABULAR VALUES

Table with columns: DAY/ UT, 1-24, MEAN. Rows 1-31 containing numerical data for December 2011. Includes a 'Q' marker in row 17 and a 'D' marker in row 31.

MEANS

Summary table with columns: ALL, QUIET, DIST. and rows for MEANS. Values are averages for the month.

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E HOURLY MEANS MINUS MONTHLY MEANS ON ALL DAYS 2011

VERTICAL COMPONENT Z IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-20	-13	-5	-3	-2	-2	-1	1	2	3	4	6	7	10	12	17	18	19	14	7	-3	-19	-20	-32	51420	
FEBRUARY	-12	-3	-6	-6	-7	-6	-4	-1	1	3	3	6	9	10	12	16	15	13	8	0	5	-24	-19	-14	51426	
MARCH	-15	-13	-8	-4	-2	-1	2	3	5	6	4	7	14	19	15	25	19	1	-6	-10	-16	-23	-14	-10	51427	
APRIL	-24	-20	-15	-8	-5	-3	2	6	8	10	12	15	17	22	21	19	19	18	9	-0	-2	-30	-37	-34	51429	
MAY	-24	-23	-13	-9	-6	-2	1	4	8	11	10	10	6	15	24	28	26	20	9	-2	-17	-31	-26	-18	51429	
JUNE	-23	-24	-26	-20	-11	-3	2	5	7	8	10	15	20	27	29	30	24	19	8	-3	-12	-24	-26	-31	51435	
JULY	-28	-29	-27	-19	-13	-4	3	4	8	10	10	15	21	25	26	27	31	30	16	-4	-21	-24	-31	-25	51433	
AUGUST	-28	-15	-8	-10	-4	-0	1	0	-1	0	2	7	12	13	14	16	14	11	10	-2	-7	-2	-5	-19	51444	
SEPTEMBER	-10	-11	-15	-23	-19	-9	-4	-1	2	4	6	12	15	20	15	18	10	3	2	-13	-11	8	6	-6	51451	
OCTOBER	-20	-10	-8	-8	-11	-5	-1	2	5	5	6	7	10	14	18	18	17	12	7	-3	-11	-7	-21	-16	51454	
NOVEMBER	-20	-12	-8	-6	-4	-3	-1	1	4	3	4	7	11	10	14	17	20	15	8	3	-2	-7	-20	-33	51460	
DECEMBER	-18	-13	-6	-4	-1	-0	0	1	2	3	4	5	6	5	6	7	11	11	6	5	-1	-5	-11	-16	51457	
WINTER	-17	-10	-6	-4	-3	-3	-1	1	2	3	4	6	8	9	11	14	16	14	9	4	-0	-14	-18	-24	51441	
EQUINOX	-17	-14	-11	-11	-9	-4	-0	3	5	6	7	11	14	19	17	20	16	8	3	-7	-10	-13	-17	-16	51440	
SUMMER	-26	-23	-19	-15	-9	-2	2	3	6	7	8	12	15	20	23	25	24	20	11	-2	-14	-20	-22	-23	51435	
YEAR	-20	-15	-12	-10	-7	-3	0	2	4	5	6	9	12	16	17	20	19	14	8	-2	-8	-16	-19	-21	51439	

EAST COMPONENT Y IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	3	1	3	3	1	1	-0	-2	-3	-5	-7	-8	-8	-7	-6	-5	-2	-0	6	11	9	6	7	4	2093	
FEBRUARY	7	5	2	4	2	2	1	1	-0	-4	-9	-13	-14	-12	-10	-6	-4	-3	-1	5	8	12	14	14	2098	
MARCH	10	15	12	8	7	8	9	8	6	-2	-11	-21	-23	-19	-13	-8	-3	-3	-7	-1	7	8	7	6	2100	
APRIL	9	14	17	16	15	16	19	13	5	-6	-18	-25	-29	-22	-14	-13	-8	-6	-2	-2	1	4	9	6	2104	
MAY	12	19	19	23	25	23	19	12	5	-8	-19	-24	-28	-25	-17	-12	-8	-8	-10	-5	-3	-0	5	5	2106	
JUNE	15	22	28	27	27	27	24	16	5	-6	-18	-25	-27	-23	-19	-15	-14	-12	-13	-13	-9	-5	-0	6	2110	
JULY	17	22	25	25	21	24	24	16	8	-4	-19	-29	-31	-28	-22	-15	-11	-8	-12	-12	-4	1	5	6	2113	
AUGUST	8	16	21	22	23	22	18	12	2	-10	-19	-26	-25	-19	-13	-7	-4	-5	-5	-8	-6	-6	5	5	2118	
SEPTEMBER	8	14	27	22	17	15	12	5	-4	-13	-21	-25	-26	-21	-14	-9	-9	-8	1	6	3	6	2	12	2121	
OCTOBER	13	14	12	9	7	8	7	6	0	-5	-11	-16	-19	-18	-12	-6	-6	-4	-4	8	4	3	4	4	2124	
NOVEMBER	8	6	5	5	6	5	5	6	4	-2	-8	-12	-13	-13	-13	-13	-8	-4	1	3	6	8	9	10	2128	
DECEMBER	5	5	2	1	2	2	3	2	0	-2	-6	-8	-10	-8	-7	-6	-5	-3	-1	5	8	8	7	5	2130	
WINTER	6	4	3	3	3	3	2	2	0	-3	-7	-10	-11	-10	-9	-8	-5	-3	1	6	8	9	9	8	2112	
EQUINOX	10	14	17	14	11	12	12	8	2	-6	-15	-22	-24	-20	-13	-9	-7	-5	-3	3	4	5	6	7	2112	
SUMMER	13	20	23	24	24	24	21	14	5	-7	-19	-26	-28	-24	-18	-12	-9	-8	-10	-10	-6	-2	4	6	2112	
YEAR	10	13	14	14	13	13	12	8	2	-5	-14	-19	-21	-18	-13	-9	-7	-5	-4	-0	2	4	6	7	2112	

NORTH COMPONENT X IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-16	-6	0	2	3	5	4	3	1	0	1	3	5	5	4	3	5	10	8	6	-2	-12	-11	-20	11374	
FEBRUARY	-9	-13	-2	1	3	7	7	5	1	-3	-3	1	5	9	12	14	18	18	8	5	-11	-40	-18	-15	11368	
MARCH	-29	-22	-8	-4	2	10	8	1	-4	-6	-6	1	9	26	33	34	41	39	16	-6	-29	-31	-29	-43	11363	
APRIL	-33	-31	-15	3	5	1	-2	-10	-14	-10	-6	6	18	33	40	45	33	36	28	14	-2	-30	-65	-45	11361	
MAY	-55	-40	-10	-5	-5	-11	-11	-15	-18	-12	-2	19	36	34	32	46	50	44	29	13	-6	-29	-32	-51	11366	
JUNE	-46	-45	-28	-15	-8	-3	-11	-17	-19	-19	-10	1	20	37	47	54	56	47	38	18	-4	-20	-34	-40	11367	
JULY	-44	-36	-17	-10	-9	-0	-3	-8	-10	-13	-7	1	16	27	35	46	55	53	44	22	-10	-40	-45	-48	11362	
AUGUST	-25	-30	-19	-6	4	-2	-6	-13	-16	-14	-8	4	12	17	23	25	29	34	33	27	8	-8	-39	-28	11358	
SEPTEMBER	-37	-35	-39	-9	5	10	7	0	-3	-1	7	21	31	46	49	57	44	38	4	-24	-19	-39	-63	-49	11341	
OCTOBER	-43	-20	-3	6	3	9	7	2	-6	-8	-6	-1	5	14	25	29	19	18	17	14	1	-21	-24	-35	11349	
NOVEMBER	-18	-5	-2	1	4	4	1	-4	-8	-11	-10	-5	7	16	20	24	23	15	11	-2	-5	-8	-24	-25	11358	
DECEMBER	-11	-7	-3	2	5	5	4	0	-3	-5	-5	-3	0	2	3	5	7	11	13	7	2	-6	-8	-14	11359	
WINTER	-14	-8	-2	1	4	5	4	1	-3	-5	-4	-1	4	8	10	12	13	14	10	4	-4	-16	-15	-18	11365	
EQUINOX	-36	-27	-16	-1	4	7	5	-1	-7	-6	-3	7	16	30	37	41	34	33	16	-0	-12	-30	-45	-43	11354	
SUMMER	-43	-38	-18	-9	-4	-4	-8	-13	-16	-15	-7	6	21	29	34	43	47	44	36	20	-3	-24	-38	-42	11363	
YEAR	-31	-24	-12	-3	1	3	0	-5	-8	-9	-5	4	14	22	27	32	32	30	21	8	-7	-24	-33	-34	11361	

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E HOURLY MEANS MINUS MONTHLY MEANS ON QUIET DAYS 2011

VERTICAL COMPONENT Z IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-6	-7	-3	-1	-2	-2	-1	-1	-1	-0	-0	1	2	2	5	9	8	7	7	5	0	-6	-7	-10	51423	
FEBRUARY	-3	-1	-0	0	-0	-1	-2	-3	-2	-2	-1	0	1	1	1	1	2	4	8	7	-2	-5	-4	51426		
MARCH	-2	0	0	-0	-1	-0	1	1	1	-0	-2	-1	0	2	3	3	2	2	1	1	-1	-2	-4	-5	51430	
APRIL	-9	-2	1	3	3	1	-1	-2	-2	-1	-1	-1	1	7	11	13	11	12	14	5	-3	-14	-21	-25	51433	
MAY	-7	-9	-7	0	3	3	1	-0	1	0	-1	-1	2	4	7	9	11	8	4	3	2	-4	-12	-17	51431	
JUNE	-8	1	0	1	2	1	-0	0	1	0	0	-1	3	3	3	4	5	2	1	-0	-2	-5	-8	-4	51437	
JULY	-10	-5	-2	-3	-2	1	4	2	1	-1	-1	-0	2	7	9	10	10	10	7	2	-3	-11	-14	-11	51439	
AUGUST	-5	0	3	4	4	2	2	1	-2	-4	-5	-3	-1	1	3	6	5	3	2	1	0	-9	-4	-3	51444	
SEPTEMBER	-5	0	2	2	3	3	2	0	1	1	1	1	1	1	2	4	4	2	-0	-1	-1	-4	-9	-9	51450	
OCTOBER	-9	-2	-1	-0	0	-0	1	1	1	1	2	1	2	3	5	7	6	4	1	0	-0	-3	-8	-13	51456	
NOVEMBER	-3	-2	-1	-1	-1	-1	0	1	2	2	2	1	1	1	0	-0	-0	1	3	2	-0	-1	-2	-3	51458	
DECEMBER	-2	-0	0	1	1	0	1	1	2	2	2	2	2	2	1	1	1	1	1	1	0	-1	-7	-10	51457	
WINTER	-4	-3	-1	-0	-1	-1	-1	-0	0	0	0	1	1	1	2	3	3	3	4	4	2	-3	-5	-7	51441	
EQUINOX	-6	-1	1	1	1	1	1	0	0	0	0	0	1	3	5	7	6	5	4	1	-1	-6	-10	-13	51442	
SUMMER	-7	-3	-1	1	2	2	2	1	-0	-1	-2	-1	1	4	5	7	8	6	3	1	-1	-7	-10	-9	51438	
YEAR	-6	-2	-1	0	1	1	0	0	0	-0	-0	-0	1	3	4	5	5	4	4	2	-0	-5	-8	-9	51440	

EAST COMPONENT Y IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-1	-0	1	0	1	1	3	3	2	-0	-4	-6	-6	-5	-4	-3	-2	-2	3	6	6	3	3	1	2094	
FEBRUARY	5	4	4	3	3	4	5	5	4	-0	-7	-10	-11	-8	-5	-3	-3	-2	-3	2	4	3	3	2	2096	
MARCH	3	4	4	4	6	9	13	14	10	3	-8	-16	-18	-15	-8	-4	-1	-1	-1	-1	-0	3	1	1	2099	
APRIL	3	5	10	14	18	22	22	17	6	-5	-14	-21	-22	-19	-13	-8	-7	-6	-5	-3	-2	3	3	2	2104	
MAY	11	14	21	25	25	25	21	15	3	-10	-21	-28	-28	-23	-15	-10	-5	-4	-6	-5	-3	-5	-1	5	2104	
JUNE	8	15	19	25	28	29	26	16	2	-13	-25	-30	-26	-21	-16	-10	-6	-6	-6	-8	-5	-1	1	4	2110	
JULY	10	14	18	22	20	23	23	19	10	-2	-15	-25	-28	-23	-16	-10	-5	-5	-6	-10	-8	-4	-1	-1	2113	
AUGUST	6	11	16	19	22	21	19	13	4	-7	-18	-25	-25	-21	-15	-8	-4	-4	-4	-4	-3	-3	3	4	2115	
SEPTEMBER	5	8	11	15	17	18	17	11	1	-9	-16	-21	-19	-15	-9	-5	-2	-2	-4	-4	-1	2	2	3	2119	
OCTOBER	3	5	6	7	8	9	11	10	7	-0	-6	-11	-14	-13	-12	-8	-6	-5	-2	-1	1	2	5	7	2124	
NOVEMBER	3	2	2	3	4	5	7	8	7	1	-4	-8	-9	-8	-7	-6	-6	-5	-3	0	2	3	3	3	2127	
DECEMBER	2	1	1	1	2	3	4	4	2	-1	-4	-6	-6	-5	-3	-2	-2	-1	0	0	2	2	2	3	2130	
WINTER	2	2	2	2	3	3	5	5	4	0	-5	-7	-8	-6	-5	-4	-3	-2	-1	2	3	3	3	2	2112	
EQUINOX	3	5	8	10	12	14	15	13	6	-3	-11	-17	-18	-15	-11	-6	-4	-4	-3	-2	-1	2	3	3	2112	
SUMMER	9	14	19	23	24	24	22	16	5	-8	-20	-27	-27	-22	-16	-9	-5	-5	-5	-7	-5	-3	0	3	2111	
YEAR	5	7	9	12	13	14	14	11	5	-4	-12	-17	-18	-15	-10	-6	-4	-4	-3	-2	-1	1	2	3	2111	

NORTH COMPONENT X IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-2	-2	1	2	4	4	2	-0	-4	-5	-4	-1	1	2	-0	-1	0	2	0	0	2	0	-1	-0	11376	
FEBRUARY	-1	-1	-1	-1	-0	-0	-1	-2	-5	-9	-7	-5	-2	-0	2	4	5	4	4	3	4	3	4	3	11374	
MARCH	6	5	6	5	6	6	1	-7	-17	-23	-22	-17	-9	-1	3	4	5	7	8	8	8	7	7	5	11371	
APRIL	1	5	7	6	4	-2	-9	-20	-28	-29	-23	-16	-7	3	8	20	21	26	22	14	7	1	-4	-8	11371	
MAY	-6	-9	-3	4	3	-2	-7	-14	-23	-28	-27	-18	-4	4	6	9	13	17	20	20	19	14	7	3	11372	
JUNE	-2	3	2	2	1	-5	-14	-23	-26	-27	-19	-12	3	7	12	12	15	14	16	17	14	8	2	0	11373	
JULY	-7	2	2	-0	-1	-3	-9	-17	-27	-28	-26	-19	-8	6	12	15	19	22	24	22	17	4	4	-2	11371	
AUGUST	3	5	6	6	2	-2	-9	-19	-25	-27	-23	-15	-7	-1	10	7	11	13	16	17	12	7	9	7	11365	
SEPTEMBER	2	3	3	2	1	-4	-10	-16	-23	-25	-21	-14	-7	1	7	11	9	13	14	13	13	11	9	8	11359	
OCTOBER	-0	4	4	4	3	3	-0	-5	-13	-17	-17	-14	-7	0	3	5	7	8	9	9	9	8	4	-5	11358	
NOVEMBER	2	2	2	2	3	2	-0	-5	-11	-14	-14	-9	-5	-1	2	4	5	6	6	6	6	4	4	4	11360	
DECEMBER	-1	-1	-1	0	1	1	0	-2	-5	-7	-6	-4	-1	0	1	2	3	3	3	3	3	3	1	2	11362	
WINTER	-0	-1	0	1	2	2	0	-2	-6	-9	-8	-5	-2	0	1	2	3	4	3	3	4	2	2	2	11368	
EQUINOX	2	4	5	4	4	1	-5	-12	-20	-23	-21	-15	-7	1	5	10	10	13	13	11	9	7	4	-0	11365	
SUMMER	-3	0	2	3	1	-3	-10	-18	-25	-28	-23	-16	-4	4	10	11	14	17	19	19	15	8	5	2	11370	
YEAR	-0	1	2	3	2	-0	-5	-11	-17	-20	-17	-12	-4	2	6	8	9	11	12	11	10	6	4	1	11368	

SODANKYLÄ FINLAND LAT = 67°22.1'N LONG = 26°37.8'E HOURLY MEANS MINUS MONTHLY MEANS ON DIST. DAYS 2011

VERTICAL COMPONENT Z IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-73	-29	6	-1	1	2	3	6	8	11	15	20	19	26	33	38	32	32	-10	-6	-31	-56	-30	-16	51416	
FEBRUARY	-10	13	-19	-19	-24	-18	-8	6	7	8	7	11	15	18	28	33	37	15	-6	-40	9	-68	12	-9	51423	
MARCH	-26	-35	-22	-17	-11	-13	-0	2	10	22	18	19	39	51	18	60	30	-86	-97	-18	-1	-23	20	62	51426	
APRIL	8	-10	-33	-12	-5	-11	-1	14	18	20	25	43	32	42	19	-9	8	16	11	-15	6	-30	-59	-76	51428	
MAY	-4	-58	-56	-37	-19	-12	3	20	41	54	56	28	-16	13	45	43	32	29	9	-22	-26	-57	-37	-30	51417	
JUNE	-2	-42	-69	-41	-20	2	11	11	11	11	18	32	48	56	62	68	39	31	12	-25	-21	-58	-64	-70	51434	
JULY	-24	-31	-34	-27	-20	-14	-4	-7	2	8	21	37	48	52	47	36	48	48	9	-16	-64	-52	-51	-13	51427	
AUGUST	-66	-18	-24	-62	-30	-11	-4	-4	-2	-2	4	17	11	11	24	25	13	10	-5	14	42	48	10	51445		
SEPTEMBER	29	25	-44	-92	-69	-26	-7	-3	-1	1	14	29	27	29	-15	2	-2	-36	-41	-74	0	99	108	48	51454	
OCTOBER	-30	21	15	-16	-47	-20	-7	2	8	6	10	10	19	30	23	7	13	1	-8	-28	-28	-18	2	34	51461	
NOVEMBER	-54	-31	-11	-5	-6	-3	-1	6	15	14	12	27	46	30	40	25	20	18	5	-2	-11	-28	-47	-59	51461	
DECEMBER	-8	-20	-9	-5	-5	-3	-2	-1	-0	4	8	12	13	11	9	15	25	20	-11	8	-8	-19	-13	-21	51456	
WINTER	-36	-17	-8	-7	-8	-5	-2	4	8	9	11	17	23	21	28	28	29	21	-6	-10	-10	-43	-19	-26	51439	
EQUINOX	-5	0	-21	-34	-33	-17	-4	4	9	12	17	25	29	38	11	15	12	-26	-34	-34	-5	7	18	17	51442	
SUMMER	-24	-37	-46	-42	-22	-9	1	5	13	18	23	26	24	33	41	43	36	30	10	-17	-24	-31	-26	-26	51431	
YEAR	-21	-18	-25	-28	-21	-11	-2	4	10	13	17	23	26	31	27	29	26	8	-10	-20	-13	-22	-9	-12	51437	

EAST COMPONENT Y IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	21	12	8	5	1	0	-4	-6	-7	-7	-8	-8	-9	-8	-2	-3	-1	15	14	10	-4	-14	-2	-3	2095	
FEBRUARY	19	15	-1	3	-8	-6	-13	-11	-12	-10	-11	-14	-13	-14	-11	-11	-10	-3	-3	9	5	24	23	53	2101	
MARCH	25	40	37	18	9	9	6	-1	7	-4	-8	-21	-28	-16	-13	-23	5	-15	-41	-24	-4	10	19	12	2101	
APRIL	19	22	34	19	12	9	25	9	1	-4	-19	-21	-34	-26	-6	-36	-24	-19	-4	4	4	2	11	22	2106	
MAY	32	47	27	27	33	18	5	-6	2	7	-7	-1	-26	-30	-21	-24	-17	-20	-26	-8	-11	-12	3	7	2113	
JUNE	42	56	71	28	26	33	26	14	6	-9	-20	-30	-33	-31	-27	-20	-22	-26	-20	-28	-17	-5	-9	-6	2116	
JULY	13	19	25	30	31	32	28	5	8	0	-22	-31	-33	-31	-28	-23	-20	-10	-16	-17	8	3	17	12	2112	
AUGUST	24	46	45	26	28	26	20	12	-1	-13	-27	-35	-34	-25	-22	-16	-11	-10	-17	-28	-23	-22	29	24	2122	
SEPTEMBER	38	14	72	36	31	19	7	-7	-12	-17	-26	-29	-37	-28	-22	-23	-21	-33	-7	15	3	10	9	9	2128	
OCTOBER	36	33	33	12	-5	5	5	3	-9	-9	-16	-18	-22	-18	-18	2	-7	-4	-6	21	5	0	-1	-24	2125	
NOVEMBER	17	15	10	6	6	1	-3	0	1	-6	-13	-19	-15	-17	-25	-24	-8	-3	11	5	14	20	14	10	2129	
DECEMBER	7	6	5	-0	2	3	2	-0	-6	-5	-6	-9	-12	-9	-8	-10	-8	-3	-11	3	15	17	12	16	2130	
WINTER	16	12	5	3	0	-0	-5	-4	-6	-7	-9	-13	-12	-12	-11	-12	-7	1	3	7	8	12	12	19	2114	
EQUINOX	29	27	44	21	12	11	11	1	-3	-9	-17	-22	-30	-22	-15	-20	-12	-18	-15	4	2	6	9	5	2115	
SUMMER	28	42	42	28	29	27	20	6	4	-4	-19	-24	-31	-29	-24	-21	-17	-16	-20	-20	-11	-9	10	9	2116	
YEAR	25	27	31	18	14	12	9	1	-2	-6	-15	-20	-25	-21	-17	-18	-12	-11	-11	-3	-0	3	11	11	2115	

NORTH COMPONENT X IN NT

MONTH	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
JANUARY	-69	-11	7	7	9	10	9	13	8	9	10	11	13	16	10	14	18	30	7	0	-30	-58	-28	-6	11367	
FEBRUARY	-29	-61	-4	5	10	28	30	34	24	15	15	23	22	30	35	43	49	55	-8	-10	-40	-154	-43	-68	11353	
MARCH	-120	-96	-58	-59	-40	1	12	18	25	39	36	45	65	123	140	136	167	138	12	-4	-99	-120	-130	-232	11338	
APRIL	-85	-95	-42	8	8	4	-9	-21	-7	22	38	65	76	130	120	121	68	54	38	-11	-58	-82	-205	-137	11356	
MAY	-219	-187	-63	-28	-35	-70	-39	-24	-4	60	84	144	206	148	93	116	90	58	19	-0	-6	-71	-90	-180	11351	
JUNE	-165	-211	-134	-34	-12	24	13	1	0	-4	-0	17	53	105	131	137	131	97	62	14	-35	-70	-67	-54	11353	
JULY	-47	-44	-31	-5	-11	-8	-16	-12	-1	-4	15	30	55	79	58	92	107	84	53	2	-80	-148	-117	-51	11359	
AUGUST	-35	-131	-104	-34	32	21	25	9	10	7	15	33	31	35	50	67	83	97	80	85	13	-64	-214	-112	11333	
SEPTEMBER	-67	-127	-120	-19	34	64	60	52	52	67	79	101	115	162	136	161	105	104	-16	-173	-124	-191	-263	-192	11290	
OCTOBER	-231	-81	-22	1	-19	20	23	22	14	17	17	25	40	57	91	85	35	33	31	18	-18	-36	-10	-112	11330	
NOVEMBER	-82	-17	-2	1	3	2	-5	-8	-6	-5	3	18	62	94	96	86	49	34	28	-39	-49	-57	-110	-95	11357	
DECEMBER	-9	-10	-2	4	5	5	2	-4	-7	-5	-8	-4	-0	-0	2	5	10	32	33	17	10	-9	-14	-51	11360	
WINTER	-47	-25	-0	4	7	11	9	9	5	3	5	12	24	35	36	37	31	38	15	-8	-27	-69	-49	-55	11359	
EQUINOX	-126	-100	-60	-17	-4	22	21	18	21	36	42	59	74	118	122	126	94	82	16	-42	-75	-107	-152	-168	11329	
SUMMER	-117	-143	-83	-26	-7	-8	-4	-6	1	15	28	56	86	92	83	103	103	84	53	25	-27	-88	-122	-99	11349	
YEAR	-97	-89	-48	-13	-1	9	9	7	9	18	25	42	61	82	80	89	76	68	28	-8	-43	-88	-108	-108	11345	

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**VERÖFFENTLICHUNGEN DES GEOPHYSIKALISCHEN OBSERVATORIUMS
DER FINNISCHEN AKADEMIE DER WISSENSCHAFTEN**

(PUBLICATIONS FROM SODANKYLÄ GEOPHYSICAL OBSERVATORY)

- | No. | | No. | |
|-----|---|-----|---|
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| 2 | J. KERÄNEN: Ergebnisse 1915 | 46 | E. KATAJA: Ergebnisse 1962 |
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| 13 | H. HYYRYLÄINEN: Ergebnisse 1926 | /1 | J. KERÄNEN: Ueber die Verteilung des erdmagnetischen Feldes in Sodankylä |
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| 18 | E. SUCKSDORFF: Ergebnisse 1931 | /6 | H. RANTA and E. KATAJA: Bibliography of the geophysical observatories at Sodankylä |
| 19 | E. SUCKSDORFF: Ergebnisse 1932 | 57 | E. KATAJA: Magnetic results 1972 |
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