

% geomagnetic data, & near-Earth interplanetary and (signed) open solar flux (OSF) reconstructions
% M.Lockwood December 2013. (for queries please contact: m.lockwood@reading.ac.uk)
% full explanations are in a series of 4 papers in Annales Geophysicae. Please cite relevant ones if data are used
%
% #1: Lockwood et al. (2013a) Reconstruction of geomagnetic activity and near-Earth interplanetary conditions over
% the past 167 yr - Part 1: A new geomagnetic data composite
% Annales Geophysicae, 31, pp. 1957-1977, doi:10.5194/angeo-31-1957-2013
% open access, available from: <http://www.ann-geophys.net/31/1957/2013/angeo-31-1957-2013.html>
%
% #2: Lockwood et al. (2013b) ..".." - Part 2: A new reconstruction of the interplanetary magnetic field
% Annales Geophysicae, 31, pp. 1979-1992, doi:10.5194/angeo-31-1979-2013
% open access, available from: <http://www.ann-geophys.net/31/1979/2013/angeo-31-1979-2013.html>
%
% #3: Lockwood et al. (2014a) ..".." - Part 3: Improved representation of solar cycle 11
% Annales Geophysicae, in press (will be open access when published)
%
% #4: Lockwood et al. (2014b) ..".." - Part 4: near-Earth solar wind speed, IMF and open solar flux
% Annales Geophysicae, in press (will be open access when published)
%
% Vg1, Bg1 and OSFg1 are the near Earth solar wind speed, IMF and OSF derived using the aaC (corrected aa) and IDV(1d) geomagnetic indices
% OSFg2 is derived using the method of Lockwood et al. (1999) from aaC index and the recurrence index (RI) derived from aaC
%
% Vo, Bo and OSFo are the near Earth solar wind speed, IMF and signed OSF from near-Earth satellite observations.
%
% Bopt is the optimum estimate of the IMF using N pairings and a Monte-Carlo analysis of 10000 fits
% Bmax is the upper limit of IMF at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
% Bmin is the lower limit of IMF at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
%
% Vopt is the optimum value of the SW speed using N pairings and a Monte-Carlo analysis of 10000 fits
% Vmax is the upper limit of SW speed at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
% Vmin is the lower limit of SW speed at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
%
% OSFopt is the optimum estimate of the open solar flux using all 4 pairings and a Monte-Carlo analysis of 10000 fits
% OSFmax is the upper limit of open solar flux at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
% OSFmin is the lower limit of open solar flux at the 2-sigma level from N pairings and a Monte-Carlo analysis of 10000 fits
%
% N is the number of pairing used (see Paper 4 for details)
% N = 4 is aaC and IDV(1d), aaC and IDV, IHV and IDV(1d), and IHV and IDV
% N = 2 is aaC and IDV(1d), aaC and IDV
% N = 1 is aaC and IDV(1d)
%
% Uncertainty ranges Bmin-Bmax and Vmin-Vmax allow for regression fit error, the IMF orientation factor
% IMF and solar wind measurement errors in in-situ data, geomagnetic composite join errors,
% and magnetometer calibration errors
%
% The signed open solar flux estimates OSFo, OSFg1 and OSFg2 all make allowance for the "flux excess" effect of solar
% wind longitudinal structure and Alfvén waves between the coronal source surface and the near-Earth observation point.
% Discussion of the need for this and of the relevant literature
% is given in the on-line review:
%

% M. Lockwood (2013) Reconstruction and Prediction of Variations in the Open Solar Magnetic Flux and Interplanetary Conditions
 % Living Reviews in Solar Physics, 10, 4, 2013. doi: 10.12942/lrsp-2013-4
 % open access, available from: <http://solarphysics.livingreviews.org/Articles/lrsp-2013-4/>

% NaN = missing data

% all OSF values are in units of 10^{15} Wb

%1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	15	17	18	19	20	21
%date	Vg1	Bg1	OSFg1	OSFg2	Vo	Bo	OSFo	aaC	RI	IDV(1d)	Bmin	Bopt	Bmax	Vmin	Vopt	Vmax	OSFmin	OSFopt	OSFmax	N
%	km/s	nT			km/s	nT		nT		nT	nT	nT	nT	km/s	km/s	km/s				
%XXX.X	XXX.XX	X.XX	X.XXXX	X.XXXX	XXX.XX	X.XX	X.XXXX	XX.XX	X.XXX	X.XX	X.XX	X.XX	X.XX	XXX.XX	XXX.XX	XXX.XX	X.XXXX	X.XXXX	X.XXXX	x
1845.5	407.00	5.50	0.2450	0.2447	NaN	NaN	NaN	17.26	0.185	4.54	5.14	5.71	6.28	385.52	405.81	426.10	0.2212	0.2654	0.3097	1
1846.5	445.38	5.85	0.2894	0.3274	NaN	NaN	NaN	14.24	0.185	4.98	5.36	5.96	6.55	413.11	434.85	456.59	0.2531	0.3009	0.3487	1
1847.5	388.87	7.81	0.3972	0.3481	NaN	NaN	NaN	17.69	0.169	8.03	6.87	7.64	8.40	366.76	386.06	405.37	0.3402	0.3977	0.4552	1
1848.5	432.66	7.36	0.3957	0.4097	NaN	NaN	NaN	18.77	0.174	7.25	6.49	7.21	7.93	401.56	422.69	443.83	0.3356	0.3925	0.4495	1
1849.5	415.56	6.30	0.3074	0.3204	NaN	NaN	NaN	21.26	0.113	5.71	5.72	6.36	7.00	390.03	410.56	431.08	0.2687	0.3182	0.3678	1
1850.5	409.53	5.97	0.2802	0.2753	NaN	NaN	NaN	16.94	0.125	5.24	5.49	6.10	6.71	386.23	406.56	426.89	0.2482	0.2955	0.3427	1
1851.5	398.47	6.98	0.3457	0.3346	NaN	NaN	NaN	15.64	0.199	6.77	6.25	6.94	7.64	375.69	395.47	415.24	0.2995	0.3525	0.4054	1
1852.5	481.18	7.20	0.4106	0.4490	NaN	NaN	NaN	17.48	0.118	6.89	6.32	7.02	7.72	439.79	462.93	486.08	0.3444	0.4024	0.4603	1
1853.5	415.63	7.13	0.3678	0.3425	NaN	NaN	NaN	24.93	0.150	6.95	6.34	7.04	7.75	388.64	409.09	429.55	0.3152	0.3699	0.4247	1
1854.5	430.27	6.28	0.3137	0.2909	NaN	NaN	NaN	19.21	0.226	5.64	5.69	6.32	6.96	401.17	422.29	443.40	0.2725	0.3225	0.3725	1
1855.5	415.71	5.51	0.2497	0.2449	NaN	NaN	NaN	17.91	0.353	4.53	5.14	5.71	6.28	391.83	412.45	433.07	0.2242	0.2688	0.3134	1
1856.5	362.15	4.96	0.1835	0.1623	NaN	NaN	NaN	14.78	0.271	3.82	4.78	5.31	5.84	355.74	374.46	393.19	0.1775	0.2169	0.2563	1
1857.5	369.08	6.16	0.2689	0.2286	NaN	NaN	NaN	10.45	0.236	5.61	5.67	6.30	6.93	355.91	374.64	393.38	0.2429	0.2896	0.3363	1
1858.5	414.81	7.00	0.3575	0.3436	NaN	NaN	NaN	13.48	0.172	6.75	6.24	6.93	7.63	388.23	408.66	429.09	0.3073	0.3612	0.4150	1
1859.5	394.51	8.05	0.4188	0.3875	NaN	NaN	NaN	18.77	0.191	8.38	7.05	7.83	8.61	370.73	390.24	409.76	0.3563	0.4156	0.4748	1
1860.5	399.80	7.79	0.4040	0.4000	NaN	NaN	NaN	19.85	0.104	7.97	6.84	7.60	8.36	375.28	395.04	414.79	0.3445	0.4024	0.4604	1
1861.5	412.53	6.94	0.3521	0.3183	NaN	NaN	NaN	19.64	0.048	6.67	6.20	6.89	7.58	386.55	406.90	427.24	0.3034	0.3567	0.4101	1
1862.5	429.43	7.16	0.3785	0.3619	NaN	NaN	NaN	18.45	0.271	6.95	6.34	7.05	7.75	399.29	420.30	441.32	0.3225	0.3781	0.4336	1
1863.5	462.70	6.80	0.3704	0.3891	NaN	NaN	NaN	20.39	0.228	6.35	6.05	6.72	7.39	425.50	447.89	470.29	0.3144	0.3690	0.4236	1
1864.5	457.05	6.74	0.3630	0.3423	NaN	NaN	NaN	22.01	0.216	6.27	6.01	6.68	7.34	421.15	443.32	465.49	0.3089	0.3629	0.4170	1
1865.5	485.75	6.66	0.3707	0.3604	NaN	NaN	NaN	21.37	0.349	6.09	5.92	6.58	7.23	443.45	466.79	490.12	0.3136	0.3681	0.4226	1
1866.5	459.47	6.35	0.3342	0.3620	NaN	NaN	NaN	23.42	0.365	5.69	5.72	6.35	6.99	423.31	445.59	467.86	0.2867	0.3382	0.3898	1
1867.5	425.14	5.80	0.2756	0.2843	NaN	NaN	NaN	20.29	0.221	4.94	5.34	5.93	6.53	398.16	419.11	440.07	0.2436	0.2903	0.3370	1
1868.5	408.35	7.00	0.3537	0.3294	NaN	NaN	NaN	16.18	0.217	6.77	6.25	6.95	7.64	383.23	403.40	423.57	0.3049	0.3585	0.4120	1
1869.5	399.33	8.30	0.4399	0.4004	NaN	NaN	NaN	18.29	0.211	8.73	7.22	8.02	8.82	374.13	393.82	413.51	0.3721	0.4331	0.4941	1
1870.5	405.14	8.62	0.4680	0.4428	NaN	NaN	NaN	20.89	0.123	9.20	7.46	8.28	9.11	378.29	398.20	418.11	0.3933	0.4567	0.5200	1
1871.5	397.20	8.58	0.4582	0.4152	NaN	NaN	NaN	22.28	0.065	9.15	7.43	8.26	9.08	372.05	391.63	411.21	0.3864	0.4491	0.5117	1
1872.5	416.01	8.78	0.4878	0.4395	NaN	NaN	NaN	21.42	0.104	9.39	7.85	8.35	8.87	398.77	409.62	419.02	0.4383	0.4712	0.5047	2
1873.5	420.06	7.39	0.3896	0.3755	NaN	NaN	NaN	23.73	0.135	7.32	6.27	6.78	7.51	406.47	424.68	444.15	0.3295	0.3637	0.4062	2
1874.5	377.53	6.45	0.2942	0.2675	NaN	NaN	NaN	20.28	0.173	6.02	6.10	6.40	6.72	372.38	382.97	391.45	0.2816	0.3029	0.3244	2
1875.5	380.97	4.91	0.1897	0.1794	NaN	NaN	NaN	14.68	0.107	3.70	4.99	5.31	5.59	368.17	381.62	395.89	0.1979	0.2212	0.2430	2
1876.5	334.73	5.22	0.1846	0.1467	NaN	NaN	NaN	11.29	0.203	4.27	4.62	5.25	5.77	340.93	362.66	378.81	0.1620	0.2031	0.2399	2
1877.5	321.10	5.27	0.1794	0.1361	NaN	NaN	NaN	9.60	0.271	4.39	4.88	5.38	5.82	329.27	347.83	361.62	0.1683	0.2044	0.2377	2
1878.5	302.57	4.75	0.1355	0.1132	NaN	NaN	NaN	9.03	0.335	3.64	4.52	5.01	5.45	315.83	335.26	350.08	0.1328	0.1708	0.2066	2
1879.5	297.79	4.72	0.1304	0.1093	NaN	NaN	NaN	7.31	0.165	3.60	4.61	5.03	5.43	310.05	329.83	345.64	0.1331	0.1693	0.2034	2
1880.5	362.42	5.49	0.2197	0.1874	NaN	NaN	NaN	7.05	0.184	4.62	5.44	5.69	5.95	360.09	370.91	380.45	0.2207	0.2430	0.2647	2
1881.5	398.48	5.49	0.2394	0.2296	NaN	NaN	NaN	11.62	0.178	4.54	5.50	5.84	6.13	378.23	391.78	404.91	0.2451	0.2667	0.2860	2
1882.5	481.01	6.64	0.3674	0.4010	NaN	NaN	NaN	13.68	0.204	6.08	6.38	6.94	7.75	427.00	440.68	466.61	0.3498	0.3883	0.4394	2
1883.5	407.72	6.76	0.3362	0.3309	NaN	NaN	NaN	22.98	0.219	6.42	6.41	6.68	6.96	397.65	405.37	411.59	0.3203	0.3393	0.3588	2

1884.5	386.19	6.00	0.2685	0.2535	NaN	NaN	NaN	17.61	0.146	5.33	5.95	6.19	6.41	374.12	384.64	394.63	0.2709	0.2882	0.3050	2
1885.5	394.78	6.29	0.2946	0.2797	NaN	NaN	NaN	14.19	0.114	5.75	6.10	6.33	6.57	387.18	394.34	400.80	0.2879	0.3058	0.3235	2
1886.5	456.18	6.55	0.3477	0.3162	NaN	NaN	NaN	15.48	0.153	5.99	6.14	6.41	6.71	439.63	447.84	453.72	0.3244	0.3444	0.3652	2
1887.5	419.87	6.02	0.2890	0.2425	NaN	NaN	NaN	20.67	0.416	5.28	5.50	5.91	6.30	410.19	423.33	433.56	0.2623	0.2897	0.3162	2
1888.5	423.96	5.57	0.2584	0.2282	NaN	NaN	NaN	16.45	0.499	4.61	5.27	5.62	5.95	413.96	423.44	431.44	0.2431	0.2675	0.2909	2
1889.5	386.93	5.31	0.2208	0.1898	NaN	NaN	NaN	15.47	0.498	4.29	5.11	5.45	5.78	383.92	393.62	400.85	0.2129	0.2387	0.2632	2
1890.5	366.65	4.99	0.1878	0.1658	NaN	NaN	NaN	12.57	0.410	3.85	4.82	5.20	5.57	369.81	393.98	412.96	0.1866	0.2192	0.2500	4
1891.5	442.49	5.72	0.2787	0.3095	NaN	NaN	NaN	10.74	0.274	4.80	5.66	5.92	6.16	423.21	432.74	442.93	0.2779	0.2966	0.3144	4
1892.5	458.90	7.59	0.4288	0.4390	NaN	NaN	NaN	17.12	0.193	7.52	7.06	7.68	8.50	411.40	431.78	447.80	0.3947	0.4360	0.4876	4
1893.5	397.31	6.84	0.3351	0.3156	NaN	NaN	NaN	24.26	0.154	6.56	6.54	6.80	7.06	388.10	399.57	409.08	0.3262	0.3444	0.3629	4
1894.5	439.39	7.00	0.3729	0.3704	NaN	NaN	NaN	17.04	0.157	6.70	6.66	7.26	8.16	391.41	415.38	433.68	0.3550	0.3936	0.4439	4
1895.5	431.90	6.32	0.3175	0.2930	NaN	NaN	NaN	20.75	0.217	5.70	6.16	6.45	6.76	410.76	425.37	438.21	0.3134	0.3345	0.3557	4
1896.5	439.92	6.08	0.3042	0.2841	NaN	NaN	NaN	18.14	0.361	5.33	5.96	6.38	6.82	406.99	429.66	452.06	0.3024	0.3315	0.3613	4
1897.5	402.55	5.37	0.2334	0.2191	NaN	NaN	NaN	18.02	0.395	4.36	5.40	5.82	6.17	377.20	396.91	417.29	0.2420	0.2680	0.2907	4
1898.5	411.88	5.74	0.2647	0.2351	NaN	NaN	NaN	13.63	0.290	4.89	5.71	6.01	6.29	392.64	412.87	429.29	0.2698	0.2918	0.3126	4
1899.5	409.80	5.03	0.2123	0.1969	NaN	NaN	NaN	15.17	0.403	3.83	5.04	5.32	5.59	399.81	419.08	431.11	0.2173	0.2404	0.2629	4
1900.5	306.10	4.82	0.1421	0.1165	NaN	NaN	NaN	13.14	0.441	3.74	4.50	5.03	5.51	322.93	356.85	382.62	0.1405	0.1850	0.2254	4
1901.5	289.42	4.31	0.1014	0.0956	NaN	NaN	NaN	7.58	0.215	3.00	4.14	4.67	5.15	311.66	346.23	366.61	0.1076	0.1526	0.1933	4
1902.5	297.82	4.40	0.1116	0.1022	NaN	NaN	NaN	6.11	0.250	3.11	4.20	4.73	5.21	318.07	345.12	360.56	0.1149	0.1564	0.1947	4
1903.5	378.54	5.27	0.2136	0.1935	NaN	NaN	NaN	6.57	0.206	4.25	5.00	5.39	5.76	378.87	391.18	399.20	0.2039	0.2323	0.2594	4
1904.5	374.75	5.22	0.2079	0.1924	NaN	NaN	NaN	12.02	0.207	4.18	5.27	5.54	5.78	367.40	382.30	395.05	0.2170	0.2380	0.2586	4
1905.5	403.79	5.88	0.2701	0.2527	NaN	NaN	NaN	11.69	0.124	5.11	5.69	5.94	6.20	388.36	397.63	408.06	0.2577	0.2787	0.2994	4
1906.5	382.14	5.40	0.2246	0.2064	NaN	NaN	NaN	15.01	0.252	4.44	5.25	5.55	5.86	380.95	393.95	402.33	0.2220	0.2462	0.2699	4
1907.5	418.67	5.91	0.2807	0.2890	NaN	NaN	NaN	12.52	0.178	5.13	5.80	6.02	6.24	408.35	414.24	419.32	0.2771	0.2942	0.3112	4
1908.5	422.21	6.20	0.3038	0.2898	NaN	NaN	NaN	16.08	0.179	5.55	6.06	6.28	6.50	406.01	412.43	419.08	0.2960	0.3132	0.3302	4
1909.5	431.66	6.00	0.2940	0.3197	NaN	NaN	NaN	17.12	0.289	5.23	5.90	6.30	6.71	398.06	413.88	426.63	0.2897	0.3149	0.3403	4
1910.5	451.17	5.70	0.2806	0.3051	NaN	NaN	NaN	17.21	0.156	4.74	5.54	5.78	6.02	436.55	447.15	459.12	0.2741	0.2931	0.3122	4
1911.5	435.63	5.46	0.2559	0.2467	NaN	NaN	NaN	17.61	0.261	4.43	5.13	5.50	5.85	424.41	437.99	453.79	0.2399	0.2659	0.2909	4
1912.5	347.55	4.55	0.1488	0.1337	NaN	NaN	NaN	15.89	0.408	3.24	4.49	4.89	5.28	354.56	382.54	399.06	0.1536	0.1887	0.2215	4
1913.5	357.18	4.23	0.1319	0.1297	NaN	NaN	NaN	8.91	0.365	2.73	4.24	4.64	5.04	361.44	390.83	407.87	0.1391	0.1740	0.2071	4
1914.5	387.99	4.64	0.1744	0.1785	NaN	NaN	NaN	8.66	0.384	3.29	4.66	4.99	5.32	383.80	412.68	429.41	0.1809	0.2107	0.2392	4
1915.5	421.70	5.69	0.2659	0.2737	NaN	NaN	NaN	11.01	0.117	4.79	5.57	5.80	6.04	412.70	427.13	443.95	0.2637	0.2853	0.3067	4
1916.5	449.43	6.47	0.3385	0.3752	NaN	NaN	NaN	15.65	0.210	5.89	6.09	6.36	6.64	434.93	447.30	460.80	0.3200	0.3400	0.3608	4
1917.5	410.78	6.93	0.3504	0.3293	NaN	NaN	NaN	19.92	0.152	6.67	6.64	6.92	7.21	396.51	412.31	424.76	0.3410	0.3621	0.3838	4
1918.5	449.68	7.01	0.3791	0.3750	NaN	NaN	NaN	18.29	0.212	6.68	6.66	6.99	7.36	426.85	443.45	457.31	0.3626	0.3880	0.4153	4
1919.5	444.70	7.44	0.4086	0.4008	NaN	NaN	NaN	21.61	0.244	7.33	6.94	7.26	7.58	428.04	435.11	441.40	0.3809	0.4045	0.4281	4
1920.5	413.46	6.60	0.3281	0.3049	NaN	NaN	NaN	22.51	0.200	6.17	6.40	6.68	6.98	396.52	415.37	430.22	0.3239	0.3455	0.3681	4
1921.5	425.88	5.93	0.2860	0.3074	NaN	NaN	NaN	17.60	0.260	5.14	5.85	6.09	6.33	409.99	425.14	435.74	0.2862	0.3051	0.3233	4
1922.5	478.29	5.49	0.2763	0.2847	NaN	NaN	NaN	16.62	0.151	4.39	5.42	5.68	5.92	453.18	467.27	482.17	0.2741	0.2939	0.3128	4
1923.5	360.59	4.91	0.1794	0.1529	NaN	NaN	NaN	18.76	0.446	3.75	4.74	5.13	5.52	365.26	391.08	411.29	0.1783	0.2127	0.2448	4
1924.5	359.19	4.91	0.1786	0.1579	NaN	NaN	NaN	10.27	0.412	3.75	5.01	5.31	5.58	353.79	381.98	400.21	0.1919	0.2192	0.2442	4
1925.5	388.08	5.51	0.2352	0.2169	NaN	NaN	NaN	10.20	0.237	4.59	5.53	5.79	6.03	376.52	402.73	419.04	0.2438	0.2673	0.2892	4
1926.5	396.39	8.01	0.4176	0.3800	NaN	NaN	NaN	13.12	0.205	8.32	6.68	7.23	8.11	385.38	412.58	430.53	0.3526	0.3887	0.4355	4
1927.5	412.94	6.27	0.3036	0.3290	NaN	NaN	NaN	19.92	0.135	5.67	6.06	6.29	6.52	403.73	409.02	413.46	0.2944	0.3119	0.3294	4
1928.5	394.75	7.18	0.3571	0.3509	NaN	NaN	NaN	16.67	0.059	7.07	6.25	6.71	7.33	383.44	404.93	416.61	0.3112	0.3415	0.3766	4
1929.5	440.12	6.54	0.3386	0.3455	NaN	NaN	NaN	17.69	0.072	6.01	6.26	6.49	6.72	427.00	432.39	436.04	0.3237	0.3414	0.3591	4
1930.5	542.82	6.72	0.4001	0.3591	NaN	NaN	NaN	19.41	0.229	6.07	6.35	6.60	6.85	497.77	507.67	521.39	0.3680	0.3909	0.4147	4
1931.5	453.08	5.41	0.2596	0.2651	NaN	NaN	NaN	28.60	0.473	4.32	5.27	5.54	5.81	437.68	448.16	460.27	0.2537	0.2740	0.2942	4
1932.5	489.57	5.35	0.2700	0.2899	NaN	NaN	NaN	16.83	0.393	4.17	5.23	5.49	5.75	464.14	476.29	490.66	0.2635	0.2829	0.3022	4
1933.5	463.32	5.05	0.2368	0.2609	NaN	NaN	NaN	19.04	0.439	3.78	5.04	5.33	5.59	440.56	455.26	470.91	0.2380	0.2596	0.2802	4

1934.5	419.75	4.93	0.2093	0.2171	NaN	NaN	NaN	16.33	0.367	3.66	4.97	5.27	5.54	404.71	422.73	437.68	0.2157	0.2388	0.2607	4
1935.5	431.58	5.47	0.2548	0.2762	NaN	NaN	NaN	13.42	0.267	4.45	5.41	5.65	5.89	419.45	432.86	442.25	0.2547	0.2743	0.2936	4
1936.5	429.01	5.74	0.2733	0.2851	NaN	NaN	NaN	15.66	0.197	4.85	5.69	5.99	6.27	407.84	418.62	431.12	0.2744	0.2947	0.3137	4
1937.5	384.94	8.05	0.4111	0.3956	NaN	NaN	NaN	16.27	0.223	8.40	7.14	7.60	8.17	375.14	390.91	403.77	0.3713	0.3990	0.4302	4
1938.5	439.28	7.97	0.4448	0.4721	NaN	NaN	NaN	19.03	0.020	8.12	7.34	7.90	8.57	394.28	414.36	432.07	0.4023	0.4404	0.4845	4
1939.5	431.09	8.09	0.4487	0.4247	NaN	NaN	NaN	23.62	0.044	8.33	7.27	7.67	8.13	415.23	427.87	438.31	0.4049	0.4327	0.4619	4
1940.5	435.03	8.08	0.4503	0.4143	NaN	NaN	NaN	23.24	0.158	8.30	7.20	7.61	8.11	412.14	426.61	438.41	0.3979	0.4271	0.4591	4
1941.5	451.62	8.01	0.4563	0.4451	NaN	NaN	NaN	23.56	0.201	8.16	7.06	7.49	8.02	427.25	444.04	455.77	0.3985	0.4288	0.4632	4
1942.5	472.82	6.49	0.3518	0.3699	NaN	NaN	NaN	24.92	0.160	5.87	6.10	6.36	6.63	453.81	465.16	477.69	0.3300	0.3496	0.3697	4
1943.5	529.45	6.35	0.3653	0.3518	NaN	NaN	NaN	21.80	0.271	5.57	5.94	6.20	6.47	493.14	506.53	520.65	0.3353	0.3553	0.3758	4
1944.5	452.44	5.73	0.2840	0.3130	NaN	NaN	NaN	25.91	0.455	4.80	5.62	5.84	6.06	437.03	443.92	450.25	0.2786	0.2961	0.3135	4
1945.5	419.63	6.00	0.2878	0.3035	NaN	NaN	NaN	17.82	0.242	5.26	5.86	6.08	6.30	410.16	423.20	432.33	0.2845	0.3031	0.3219	4
1946.5	422.29	9.12	0.5178	0.5130	NaN	NaN	NaN	16.39	0.144	9.88	7.81	8.40	9.11	388.19	410.69	431.93	0.4364	0.4766	0.5228	4
1947.5	434.68	8.67	0.4937	0.4738	NaN	NaN	NaN	25.31	0.013	9.17	7.68	8.16	8.67	406.54	421.47	435.18	0.4318	0.4658	0.5019	4
1948.5	469.92	6.81	0.3747	0.4430	NaN	NaN	NaN	25.26	0.098	6.34	6.49	6.79	7.12	440.54	448.30	456.29	0.3523	0.3755	0.3999	4
1949.5	392.64	8.66	0.4603	0.4276	NaN	NaN	NaN	22.63	0.080	9.29	7.58	8.10	8.73	379.65	395.45	408.09	0.4089	0.4403	0.4756	4
1950.5	443.43	8.11	0.4581	0.4038	NaN	NaN	NaN	21.20	0.055	8.32	7.25	7.66	8.12	425.76	438.56	448.51	0.4104	0.4389	0.4693	4
1951.5	511.28	7.47	0.4473	0.4259	NaN	NaN	NaN	24.44	0.261	7.22	6.92	7.31	7.74	480.01	487.16	495.88	0.4093	0.4407	0.4744	4
1952.5	510.86	7.26	0.4302	0.3752	NaN	NaN	NaN	28.73	0.297	6.92	6.66	6.95	7.26	483.97	497.08	510.09	0.3914	0.4150	0.4393	4
1953.5	500.37	6.00	0.3254	0.3383	NaN	NaN	NaN	27.87	0.419	5.10	5.81	6.03	6.25	474.01	487.10	503.41	0.3148	0.3332	0.3516	4
1954.5	465.33	5.29	0.2560	0.3192	NaN	NaN	NaN	22.19	0.398	4.13	5.23	5.48	5.74	445.32	463.23	483.87	0.2545	0.2764	0.2977	4
1955.5	452.05	5.67	0.2794	0.3445	NaN	NaN	NaN	17.25	0.162	4.71	5.61	5.91	6.17	428.58	447.69	464.15	0.2799	0.3019	0.3229	4
1956.5	436.09	8.44	0.4777	0.4912	NaN	NaN	NaN	17.61	0.089	8.83	7.50	7.95	8.45	414.15	427.23	437.50	0.4220	0.4533	0.4866	4
1957.5	397.00	10.68	0.6071	0.5256	NaN	NaN	NaN	24.72	0.040	12.29	8.57	9.45	10.65	373.43	399.82	419.75	0.4936	0.5475	0.6130	4
1958.5	416.84	9.52	0.5424	0.5227	NaN	NaN	NaN	26.70	0.091	10.49	8.20	8.82	9.51	396.55	412.12	424.24	0.4691	0.5092	0.5518	4
1959.5	440.10	9.22	0.5392	0.5458	NaN	NaN	NaN	25.85	0.077	9.97	7.84	8.43	9.17	419.96	439.44	453.45	0.4611	0.5011	0.5465	4
1960.5	442.89	9.94	0.5951	0.5082	NaN	NaN	NaN	27.47	0.073	11.02	8.39	9.07	9.85	416.76	435.39	449.22	0.5018	0.5485	0.5989	4
1961.5	424.25	7.31	0.3861	0.3857	NaN	NaN	NaN	29.95	0.122	7.18	6.81	7.11	7.42	411.55	421.21	429.86	0.3624	0.3837	0.4054	4
1962.5	468.27	5.93	0.3065	0.3453	NaN	NaN	NaN	20.39	0.144	5.06	5.75	5.97	6.20	449.05	454.06	458.45	0.2946	0.3120	0.3293	4
1963.5	451.68	6.24	0.3222	0.3042	NaN	NaN	NaN	19.58	0.244	5.55	5.54	5.99	6.45	427.02	446.00	466.71	0.2784	0.3089	0.3401	4
1964.5	445.05	5.19	0.2395	0.2508	419.82	5.12	NaN	19.36	0.399	4.00	5.12	5.39	5.66	429.91	435.04	441.89	0.2359	0.2561	0.2762	4
1965.5	396.40	5.18	0.2164	0.2329	419.84	5.06	NaN	15.64	0.393	4.08	5.05	5.37	5.68	393.11	402.30	407.27	0.2125	0.2366	0.2603	4
1966.5	420.66	5.77	0.2713	0.3048	429.67	6.35	NaN	12.78	0.106	4.91	5.47	5.79	6.10	412.21	420.97	428.00	0.2572	0.2797	0.3019	4
1967.5	388.69	7.50	0.3757	0.3692	428.13	6.36	0.3628	15.81	0.109	7.57	6.43	6.92	7.65	376.35	399.90	413.48	0.3229	0.3551	0.3942	4
1968.5	458.09	6.45	0.3413	0.4289	468.03	6.19	0.3467	18.02	0.047	5.84	6.09	6.35	6.61	436.13	444.77	453.01	0.3178	0.3374	0.3574	4
1969.5	426.76	6.46	0.3251	0.3842	420.04	6.05	0.3208	20.51	0.012	5.92	6.07	6.35	6.65	406.04	417.29	428.66	0.3005	0.3221	0.3443	4
1970.5	423.97	6.54	0.3296	0.3621	421.63	6.35	NaN	18.17	0.006	6.05	6.28	6.51	6.75	406.10	413.53	420.71	0.3136	0.3320	0.3506	4
1971.5	455.27	5.82	0.2917	0.3249	440.78	6.00	NaN	18.20	0.088	4.91	5.72	5.98	6.21	432.74	438.06	445.90	0.2857	0.3039	0.3217	4
1972.5	433.86	6.48	0.3311	0.3766	403.09	6.38	NaN	18.28	0.241	5.94	6.12	6.38	6.67	421.55	428.99	433.69	0.3117	0.3312	0.3511	4
1973.5	520.68	6.15	0.3453	0.3595	484.82	6.36	NaN	18.78	0.076	5.28	5.94	6.17	6.40	483.12	491.22	501.34	0.3271	0.3464	0.3659	4
1974.5	547.91	6.40	0.3760	0.3494	525.25	6.62	0.4225	24.36	0.387	5.60	6.03	6.26	6.49	508.98	521.46	533.76	0.3484	0.3673	0.3865	4
1975.5	502.49	5.81	0.3109	0.3148	485.53	5.83	0.3521	27.68	0.483	4.82	5.58	5.82	6.06	475.11	484.92	495.24	0.2960	0.3140	0.3322	4
1976.5	486.14	5.76	0.3007	0.3219	445.45	5.48	0.3234	21.62	0.460	4.78	5.65	5.90	6.14	458.62	464.04	472.91	0.2927	0.3115	0.3296	4
1977.5	451.37	5.96	0.3004	0.3510	413.34	5.88	0.3269	20.26	0.373	5.13	5.82	6.04	6.26	435.68	446.58	455.08	0.2953	0.3131	0.3307	4
1978.5	445.53	7.66	0.4261	0.4477	428.04	7.13	0.3603	18.44	0.148	7.66	7.06	7.40	7.74	423.94	432.26	439.54	0.3886	0.4137	0.4392	4
1979.5	436.11	6.99	0.3704	0.3984	417.35	7.59	0.3862	23.28	0.086	6.69	6.66	7.02	7.43	412.67	425.30	437.26	0.3551	0.3798	0.4062	4
1980.5	400.33	6.61	0.3207	0.3410	390.52	6.99	0.3734	20.46	0.105	6.21	6.40	6.65	6.90	388.01	395.87	403.66	0.3134	0.3307	0.3480	4
1981.5	417.01	8.30	0.4539	0.4350	424.83	7.83	0.4654	16.68	0.040	8.68	7.54	7.98	8.42	400.40	409.19	417.57	0.4130	0.4420	0.4713	4
1982.5	481.69	8.85	0.5402	0.5523	466.57	8.81	0.5800	22.53	0.091	9.31	7.88	8.44	9.02	452.35	460.40	469.00	0.4744	0.5172	0.5615	4
1983.5	488.38	7.55	0.4420	0.4330	472.63	7.96	0.4486	30.78	0.060	7.39	6.86	7.19	7.55	465.31	478.42	490.13	0.3999	0.4254	0.4519	4

