

# The Wandering of the Geomagnetic Poles

Historic Table taken from NOAA website

Year	N. Mag. Lat.	N. Mag. Lon.	S. Mag. Lat.	S. Mag. Lon.
1590	73.923	248.169	-77.964	207.125
1591	74.059	248.165	-77.971	206.749
1592	74.204	248.157	-77.974	206.377
1593	74.345	248.158	-77.980	205.997
1594	74.477	248.171	-77.985	205.607
1595	74.604	248.192	-77.989	205.208
1596	74.730	248.220	-77.994	204.807
1597	74.853	248.252	-77.999	204.404
1598	74.974	248.290	-78.003	203.997
1599	75.092	248.334	-78.007	203.591
1600	75.207	248.382	-78.012	203.180
1601	75.320	248.436	-78.016	202.767
1602	75.430	248.492	-78.019	202.358
1603	75.538	248.552	-78.023	201.948
1604	75.644	248.614	-78.028	201.540
1605	75.747	248.677	-78.031	201.134
1606	75.849	248.742	-78.035	200.730
1607	75.947	248.806	-78.039	200.331
1608	76.044	248.870	-78.044	199.940
1609	76.138	248.932	-78.048	199.552
1610	76.228	248.991	-78.054	199.168
1611	76.315	249.045	-78.060	198.794
1612	76.399	249.096	-78.067	198.428
1613	76.480	249.140	-78.075	198.073
1614	76.556	249.179	-78.084	197.725
1615	76.627	249.211	-78.094	197.384
1616	76.693	249.238	-78.103	197.047
1617	76.753	249.258	-78.115	196.719
1618	76.808	249.273	-78.126	196.391
1619	76.856	249.283	-78.139	196.069

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1620	76.898	249.289	-78.152	195.749
1621	76.934	249.293	-78.164	195.433
1622	76.966	249.295	-78.176	195.117
1623	76.993	249.297	-78.189	194.808
1624	77.016	249.299	-78.200	194.501
1625	77.036	249.302	-78.211	194.193
1626	77.051	249.306	-78.220	193.888
1627	77.063	249.311	-78.229	193.583
1628	77.072	249.317	-78.238	193.282
1629	77.078	249.325	-78.245	192.979
1630	77.083	249.335	-78.251	192.677
1631	77.085	249.347	-78.257	192.376
1632	77.086	249.360	-78.261	192.076
1633	77.085	249.376	-78.264	191.775
1634	77.083	249.392	-78.266	191.475
1635	77.077	249.409	-78.266	191.175
1636	77.071	249.428	-78.265	190.876
1637	77.064	249.447	-78.263	190.575
1638	77.053	249.466	-78.260	190.277
1639	77.039	249.485	-78.256	189.977
1640	77.024	249.503	-78.251	189.678
1641	77.005	249.521	-78.246	189.378
1642	76.984	249.536	-78.239	189.078
1643	76.958	249.550	-78.234	188.780
1644	76.931	249.561	-78.228	188.482
1645	76.899	249.569	-78.222	188.184
1646	76.865	249.573	-78.216	187.890
1647	76.829	249.574	-78.209	187.598
1648	76.790	249.572	-78.204	187.310
1649	76.750	249.565	-78.198	187.027
1650	76.708	249.555	-78.194	186.752
1651	76.666	249.541	-78.188	186.481
1652	76.622	249.524	-78.183	186.218
1653	76.578	249.504	-78.178	185.965

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1654	76.535	249.481	-78.173	185.719
1655	76.491	249.456	-78.169	185.481
1656	76.447	249.428	-78.164	185.257
1657	76.405	249.398	-78.160	185.040
1658	76.362	249.366	-78.155	184.833
1659	76.321	249.332	-78.149	184.633
1660	76.280	249.297	-78.143	184.440
1661	76.238	249.261	-78.138	184.248
1662	76.196	249.223	-78.132	184.054
1663	76.154	249.186	-78.126	183.859
1664	76.110	249.148	-78.119	183.657
1665	76.066	249.110	-78.112	183.447
1666	76.020	249.072	-78.103	183.228
1667	75.974	249.034	-78.094	183.003
1668	75.926	248.996	-78.086	182.772
1669	75.879	248.957	-78.076	182.535
1670	75.831	248.919	-78.066	182.290
1671	75.783	248.882	-78.055	182.039
1672	75.734	248.845	-78.044	181.782
1673	75.685	248.808	-78.031	181.523
1674	75.639	248.772	-78.017	181.261
1675	75.591	248.736	-78.003	181.004
1676	75.546	248.700	-77.988	180.746
1677	75.503	248.663	-77.973	180.495
1678	75.460	248.624	-77.957	180.252
1679	75.420	248.583	-77.941	180.014
1680	75.382	248.539	-77.926	179.786
1681	75.345	248.490	-77.910	179.564
1682	75.309	248.436	-77.896	179.351
1683	75.274	248.376	-77.882	179.143
1684	75.239	248.311	-77.869	178.939
1685	75.204	248.241	-77.859	178.741
1686	75.168	248.166	-77.849	178.543
1687	75.131	248.086	-77.840	178.348

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1688	75.092	248.002	-77.833	178.151
1689	75.052	247.913	-77.828	177.957
1690	75.011	247.819	-77.824	177.763
1691	74.969	247.721	-77.822	177.569
1692	74.927	247.618	-77.822	177.375
1693	74.883	247.510	-77.823	177.182
1694	74.840	247.398	-77.824	176.988
1695	74.796	247.283	-77.827	176.791
1696	74.752	247.163	-77.832	176.596
1697	74.709	247.039	-77.836	176.398
1698	74.666	246.913	-77.841	176.196
1699	74.625	246.782	-77.847	175.995
1700	74.582	246.650	-77.853	175.787
1701	74.541	246.516	-77.860	175.577
1702	74.499	246.381	-77.867	175.357
1703	74.458	246.248	-77.873	175.134
1704	74.416	246.119	-77.878	174.900
1705	74.374	245.995	-77.883	174.658
1706	74.330	245.879	-77.886	174.403
1707	74.284	245.772	-77.887	174.131
1708	74.235	245.676	-77.887	173.845
1709	74.183	245.591	-77.885	173.537
1710	74.129	245.519	-77.880	173.211
1711	74.072	245.459	-77.873	172.870
1712	74.013	245.413	-77.863	172.513
1713	73.952	245.380	-77.853	172.142
1714	73.890	245.359	-77.840	171.762
1715	73.826	245.348	-77.826	171.373
1716	73.760	245.348	-77.811	170.980
1717	73.694	245.355	-77.797	170.581
1718	73.628	245.369	-77.783	170.186
1719	73.562	245.389	-77.771	169.793
1720	73.499	245.411	-77.760	169.412
1721	73.438	245.434	-77.752	169.044

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1722	73.381	245.455	-77.745	168.694
1723	73.327	245.474	-77.742	168.366
1724	73.280	245.487	-77.744	168.065
1725	73.240	245.494	-77.750	167.791
1726	73.208	245.493	-77.760	167.544
1727	73.182	245.486	-77.774	167.327
1728	73.164	245.473	-77.791	167.130
1729	73.152	245.457	-77.810	166.953
1730	73.148	245.440	-77.830	166.791
1731	73.149	245.422	-77.851	166.636
1732	73.157	245.405	-77.872	166.488
1733	73.171	245.391	-77.891	166.344
1734	73.193	245.378	-77.910	166.201
1735	73.220	245.369	-77.927	166.062
1736	73.251	245.361	-77.942	165.920
1737	73.289	245.356	-77.957	165.778
1738	73.328	245.354	-77.971	165.632
1739	73.370	245.357	-77.982	165.480
1740	73.413	245.365	-77.993	165.324
1741	73.456	245.379	-78.004	165.164
1742	73.500	245.399	-78.013	164.997
1743	73.542	245.427	-78.020	164.828
1744	73.585	245.461	-78.027	164.655
1745	73.628	245.501	-78.034	164.483
1746	73.670	245.547	-78.039	164.313
1747	73.712	245.599	-78.042	164.143
1748	73.755	245.657	-78.045	163.983
1749	73.799	245.723	-78.046	163.825
1750	73.844	245.796	-78.045	163.679
1751	73.889	245.879	-78.043	163.543
1752	73.933	245.974	-78.037	163.415
1753	73.978	246.080	-78.028	163.297
1754	74.020	246.204	-78.017	163.186
1755	74.057	246.348	-78.001	163.078

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1756	74.090	246.514	-77.980	162.968
1757	74.115	246.704	-77.952	162.855
1758	74.135	246.918	-77.921	162.735
1759	74.146	247.154	-77.886	162.615
1760	74.150	247.410	-77.847	162.490
1761	74.148	247.682	-77.804	162.364
1762	74.138	247.969	-77.761	162.240
1763	74.121	248.268	-77.716	162.118
1764	74.098	248.579	-77.669	161.995
1765	74.069	248.900	-77.620	161.872
1766	74.032	249.234	-77.568	161.739
1767	73.987	249.579	-77.510	161.600
1768	73.939	249.933	-77.449	161.460
1769	73.885	250.294	-77.383	161.314
1770	73.828	250.656	-77.317	161.178
1771	73.769	251.015	-77.248	161.051
1772	73.706	251.366	-77.181	160.936
1773	73.640	251.707	-77.116	160.832
1774	73.572	252.035	-77.053	160.731
1775	73.501	252.347	-76.991	160.634
1776	73.429	252.645	-76.933	160.538
1777	73.357	252.928	-76.875	160.434
1778	73.281	253.200	-76.817	160.313
1779	73.203	253.463	-76.760	160.172
1780	73.120	253.720	-76.700	160.007
1781	73.035	253.973	-76.639	159.818
1782	72.945	254.225	-76.575	159.605
1783	72.850	254.479	-76.509	159.370
1784	72.753	254.735	-76.440	159.109
1785	72.649	254.994	-76.368	158.823
1786	72.542	255.255	-76.293	158.513
1787	72.433	255.515	-76.216	158.189
1788	72.326	255.769	-76.141	157.862
1789	72.223	256.016	-76.067	157.536

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1790	72.127	256.251	-75.998	157.225
1791	72.040	256.473	-75.932	156.931
1792	71.960	256.683	-75.873	156.656
1793	71.890	256.882	-75.819	156.400
1794	71.825	257.073	-75.769	156.160
1795	71.767	257.260	-75.722	155.934
1796	71.712	257.445	-75.677	155.722
1797	71.662	257.629	-75.634	155.523
1798	71.615	257.813	-75.591	155.340
1799	71.574	257.995	-75.549	155.173
1800	71.534	258.179	-75.509	155.020
1801	71.495	258.365	-75.467	154.878
1802	71.457	258.551	-75.424	154.743
1803	71.417	258.739	-75.381	154.615
1804	71.375	258.925	-75.339	154.494
1805	71.331	259.109	-75.296	154.374
1806	71.284	259.290	-75.251	154.257
1807	71.235	259.468	-75.208	154.145
1808	71.185	259.642	-75.165	154.037
1809	71.134	259.811	-75.122	153.935
1810	71.082	259.976	-75.080	153.839
1811	71.032	260.137	-75.038	153.750
1812	70.983	260.292	-74.997	153.668
1813	70.938	260.441	-74.956	153.596
1814	70.897	260.583	-74.917	153.536
1815	70.859	260.719	-74.879	153.485
1816	70.825	260.847	-74.842	153.446
1817	70.795	260.966	-74.807	153.418
1818	70.768	261.077	-74.774	153.401
1819	70.744	261.179	-74.742	153.394
1820	70.722	261.275	-74.710	153.389
1821	70.699	261.367	-74.678	153.384
1822	70.677	261.456	-74.644	153.371
1823	70.653	261.546	-74.608	153.345

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1824	70.627	261.632	-74.571	153.305
1825	70.602	261.705	-74.532	153.246
1826	70.579	261.755	-74.495	153.168
1827	70.557	261.789	-74.460	153.074
1828	70.533	261.813	-74.428	152.966
1829	70.504	261.836	-74.398	152.847
1830	70.464	261.872	-74.369	152.718
1831	70.411	261.931	-74.337	152.581
1832	70.346	262.011	-74.305	152.441
1833	70.271	262.108	-74.271	152.305
1834	70.189	262.221	-74.237	152.181
1835	70.105	262.350	-74.203	152.079
1836	70.021	262.496	-74.167	152.002
1837	69.936	262.657	-74.130	151.943
1838	69.848	262.829	-74.089	151.886
1839	69.761	262.998	-74.045	151.826
1840	69.681	263.140	-74.003	151.768
1841	69.615	263.235	-73.968	151.716
1842	69.560	263.289	-73.936	151.662
1843	69.510	263.311	-73.906	151.598
1844	69.463	263.312	-73.874	151.516
1845	69.420	263.301	-73.836	151.404
1846	69.379	263.287	-73.791	151.255
1847	69.341	263.270	-73.739	151.078
1848	69.311	263.251	-73.682	150.885
1849	69.288	263.231	-73.620	150.685
1850	69.271	263.215	-73.555	150.486
1851	69.259	263.206	-73.485	150.293
1852	69.249	263.203	-73.415	150.109
1853	69.240	263.204	-73.346	149.933
1854	69.230	263.208	-73.281	149.767
1855	69.219	263.214	-73.218	149.609
1856	69.205	263.221	-73.157	149.453
1857	69.192	263.229	-73.100	149.305

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1858	69.180	263.238	-73.046	149.166
1859	69.174	263.243	-72.996	149.038
1860	69.178	263.237	-72.951	148.922
1861	69.196	263.211	-72.913	148.819
1862	69.225	263.174	-72.880	148.727
1863	69.259	263.135	-72.848	148.644
1864	69.296	263.101	-72.818	148.569
1865	69.336	263.076	-72.787	148.498
1866	69.375	263.066	-72.755	148.428
1867	69.414	263.063	-72.722	148.365
1868	69.455	263.062	-72.692	148.315
1869	69.496	263.056	-72.662	148.277
1870	69.536	263.044	-72.635	148.243
1871	69.575	263.025	-72.607	148.207
1872	69.615	263.004	-72.578	148.177
1873	69.659	262.986	-72.548	148.154
1874	69.708	262.968	-72.518	148.143
1875	69.760	262.942	-72.487	148.140
1876	69.812	262.900	-72.455	148.144
1877	69.863	262.847	-72.422	148.156
1878	69.914	262.789	-72.391	148.177
1879	69.964	262.733	-72.359	148.209
1880	70.013	262.686	-72.327	148.254
1881	70.061	262.652	-72.292	148.313
1882	70.111	262.628	-72.257	148.383
1883	70.163	262.611	-72.221	148.461
1884	70.218	262.598	-72.183	148.548
1885	70.276	262.591	-72.144	148.642
1886	70.335	262.589	-72.105	148.745
1887	70.394	262.590	-72.066	148.848
1888	70.448	262.590	-72.028	148.946
1889	70.497	262.585	-71.989	149.031
1890	70.546	262.574	-71.952	149.110
1891	70.584	262.606	-71.923	149.153

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1892	70.600	262.718	-71.905	149.124
1893	70.592	262.894	-71.895	149.030
1894	70.564	263.110	-71.888	148.888
1895	70.525	263.338	-71.879	148.726
1896	70.483	263.547	-71.866	148.569
1897	70.449	263.712	-71.843	148.440
1898	70.430	263.813	-71.812	148.349
1899	70.433	263.845	-71.770	148.309
1900	70.460	263.814	-71.721	148.324
1901	70.499	263.756	-71.668	148.369
1902	70.539	263.697	-71.616	148.412
1903	70.578	263.638	-71.563	148.455
1904	70.618	263.579	-71.510	148.499
1905	70.657	263.520	-71.458	148.542
1906	70.683	263.472	-71.397	148.562
1907	70.708	263.424	-71.336	148.582
1908	70.734	263.376	-71.274	148.602
1909	70.760	263.328	-71.213	148.622
1910	70.785	263.280	-71.151	148.641
1911	70.834	263.218	-71.082	148.620
1912	70.883	263.156	-71.012	148.599
1913	70.931	263.094	-70.942	148.578
1914	70.981	263.031	-70.871	148.558
1915	71.030	262.968	-70.801	148.537
1916	71.091	262.898	-70.724	148.469
1917	71.152	262.827	-70.646	148.401
1918	71.214	262.756	-70.568	148.334
1919	71.275	262.686	-70.491	148.268
1920	71.337	262.615	-70.413	148.202
1921	71.426	262.494	-70.328	148.084
1922	71.516	262.374	-70.242	147.967
1923	71.606	262.252	-70.157	147.852
1924	71.696	262.130	-70.071	147.737
1925	71.786	262.007	-69.987	147.624

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1926	71.881	261.872	-69.892	147.453
1927	71.977	261.735	-69.797	147.284
1928	72.073	261.597	-69.704	147.117
1929	72.170	261.457	-69.610	146.951
1930	72.268	261.317	-69.516	146.788
1931	72.371	261.191	-69.424	146.579
1932	72.475	261.064	-69.331	146.371
1933	72.580	260.934	-69.239	146.166
1934	72.687	260.802	-69.146	145.963
1935	72.796	260.667	-69.054	145.762
1936	72.894	260.564	-68.957	145.523
1937	72.993	260.458	-68.859	145.287
1938	73.093	260.351	-68.761	145.053
1939	73.195	260.241	-68.663	144.820
1940	73.299	260.129	-68.566	144.590
1941	73.421	260.062	-68.480	144.556
1942	73.544	259.992	-68.396	144.524
1943	73.670	259.918	-68.314	144.495
1944	73.797	259.842	-68.232	144.467
1945	73.926	259.762	-68.150	144.440
1946	74.066	259.643	-68.098	144.264
1947	74.208	259.521	-68.045	144.087
1948	74.350	259.397	-67.993	143.908
1949	74.494	259.270	-67.941	143.728
1950	74.638	259.141	-67.888	143.546
1951	74.741	259.039	-67.752	143.135
1952	74.848	258.932	-67.613	142.724
1953	74.957	258.821	-67.475	142.316
1954	75.069	258.704	-67.335	141.909
1955	75.184	258.582	-67.194	141.504
1956	75.208	258.658	-67.099	141.256
1957	75.232	258.734	-67.001	141.004
1958	75.255	258.812	-66.902	140.749
1959	75.278	258.889	-66.802	140.490

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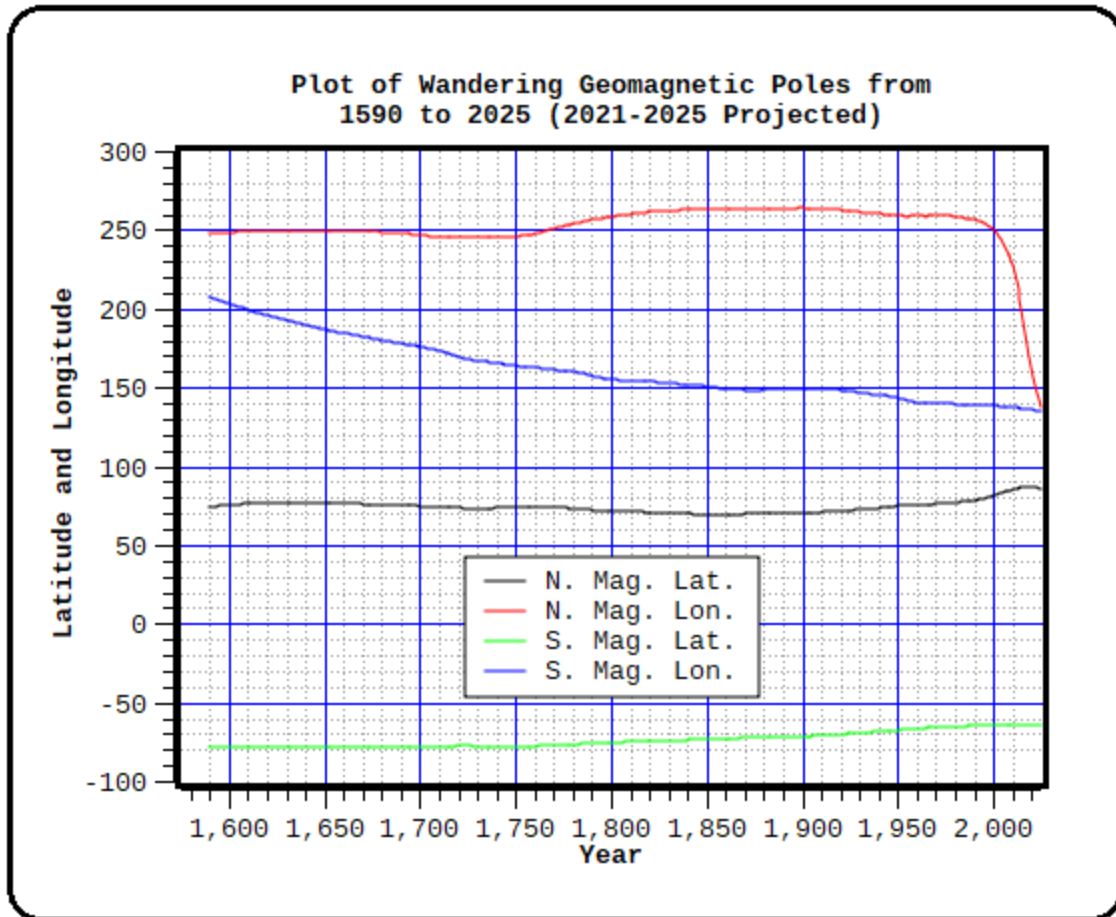
1960	75.301	258.967	-66.700	140.228
1961	75.364	258.908	-66.626	140.087
1962	75.429	258.848	-66.551	139.946
1963	75.494	258.787	-66.478	139.807
1964	75.560	258.725	-66.404	139.668
1965	75.626	258.663	-66.331	139.530
1966	75.677	258.735	-66.270	139.504
1967	75.728	258.807	-66.208	139.478
1968	75.778	258.880	-66.146	139.451
1969	75.829	258.953	-66.085	139.426
1970	75.878	259.026	-66.023	139.400
1971	75.934	259.092	-65.967	139.425
1972	75.989	259.158	-65.910	139.450
1973	76.044	259.225	-65.853	139.474
1974	76.098	259.293	-65.795	139.498
1975	76.153	259.362	-65.738	139.522
1976	76.303	259.158	-65.676	139.488
1977	76.454	258.952	-65.613	139.453
1978	76.604	258.745	-65.549	139.418
1979	76.755	258.535	-65.486	139.384
1980	76.906	258.323	-65.423	139.349
1981	77.005	258.140	-65.363	139.314
1982	77.104	257.956	-65.304	139.280
1983	77.202	257.769	-65.244	139.246
1984	77.300	257.581	-65.184	139.212
1985	77.398	257.391	-65.125	139.178
1986	77.537	257.184	-65.081	139.122
1987	77.677	256.973	-65.038	139.067
1988	77.816	256.757	-64.995	139.011
1989	77.956	256.537	-64.952	138.956
1990	78.095	256.311	-64.910	138.902
1991	78.286	256.010	-64.885	138.867
1992	78.476	255.699	-64.860	138.832
1993	78.665	255.380	-64.836	138.798

Wandering Magnetic Poles

1994	78.854	255.050	-64.812	138.764
1995	79.043	254.710	-64.788	138.730
1996	79.417	253.995	-64.762	138.644
1997	79.798	253.211	-64.737	138.558
1998	80.185	252.350	-64.711	138.473
1999	80.576	251.403	-64.687	138.388
2000	80.972	250.360	-64.661	138.303
2001	81.427	248.992	-64.638	138.211
2002	81.879	247.468	-64.615	138.120
2003	82.325	245.769	-64.591	138.029
2004	82.762	243.881	-64.568	137.938
2005	83.186	241.782	-64.545	137.848
2006	83.602	239.408	-64.523	137.742
2007	83.995	236.784	-64.500	137.637
2008	84.363	233.900	-64.477	137.532
2009	84.702	230.751	-64.454	137.428
2010	85.020	227.166	-64.432	137.325
2011	85.370	222.596	-64.401	137.176
2012	85.676	217.521	-64.370	137.028
2013	85.933	211.982	-64.340	136.881
2014	86.138	206.059	-64.309	136.734
2015	86.305	199.659	-64.279	136.597
2016	86.467	192.206	-64.239	136.449
2017	86.562	184.522	-64.199	136.303
2018	86.598	176.901	-64.160	136.156
2019	86.568	169.615	-64.120	136.011
2020	86.494	162.867	-64.081	135.866
2021	86.400	156.786	-64.035	135.703
2022	86.275	151.272	-63.988	135.542
2023	86.126	146.334	-63.942	135.381
2024	85.958	141.945	-63.897	135.221
2025	85.778	138.057	-63.851	135.061

Wandering Magnetic Poles

This plot of the wandering geomagnetic poles taken from the preceding table using the raw data taken from the NOAA website illustrates the geographical movements of the magnetic poles. The raw data was in the form of two independent text files, one for each of the geomagnetic poles. They were buried in plain site where they would be generally overlooked by the majority of the viewers.



Observe how by a past projection of 150 years that both of the geomagnetic poles appear to have shares the same meridian around the year of 1,440 AD. Further observe how by a future projection of 5 years that the two geomagnetic poles return to a common meridian in the year of 2025. Finally, observe that the separation was very gradual for around 415 years, but then suddenly snapped back around the year 2,000 AD over a period of a mere 25 years.

The preceding is the raw data. I have issues with data taken from government sources. However, this only means that the publishers, the interpreters, the administrators, and the men and associations driving the administrators are suspect. There are many well meaning men and women working as researchers under NOAA who are open, honest, and truly interested in their subject. The latter are the unsung heroes whose raw observations are normally buried under the socialistic spin.

Now let us consider the "spread" of the magnetic poles. This is a simple "great circle" problem in navigation. We will use the standard spherical trigonometric formula of:

$$\cos(a) = \cos(b) \cdot \cos(c) + \sin(b) \cdot \sin(c) \cdot \cos(\alpha)$$

Where the angles are expressed in degrees as:

**a = Great Circle in Degrees**

**b = 90° - North Geomagnetic Latitude**

**c = 90° - South Geomagnetic Latitude**

**$\alpha$  = North Geomagnetic Longitude - South Geomagnetic Longitude**

The following is a revisit of the preceding table with a sixth column added for the great circle between the two geomagnetic poles.

Year	N Mag Lat	N Mag Lon	S Mag Lat	S Mag Lon	Gr. Circle
1590	73.923	248.169	-77.964	207.125	153.397
1591	74.059	248.165	-77.971	206.749	153.565
1592	74.204	248.157	-77.974	206.377	153.736
1593	74.345	248.158	-77.980	205.997	153.908
1594	74.477	248.171	-77.985	205.607	154.072
1595	74.604	248.192	-77.989	205.208	154.232
1596	74.730	248.220	-77.994	204.807	154.393
1597	74.853	248.252	-77.999	204.404	154.551
1598	74.974	248.290	-78.003	203.997	154.708
1599	75.092	248.334	-78.007	203.591	154.862
1600	75.207	248.382	-78.012	203.180	155.015
1601	75.320	248.436	-78.016	202.767	155.166
1602	75.430	248.492	-78.019	202.358	155.314
1603	75.538	248.552	-78.023	201.948	155.461
1604	75.644	248.614	-78.028	201.540	155.607
1605	75.747	248.677	-78.031	201.134	155.748
1606	75.849	248.742	-78.035	200.730	155.889
1607	75.947	248.806	-78.039	200.331	156.026
1608	76.044	248.870	-78.044	199.940	156.163
1609	76.138	248.932	-78.048	199.552	156.295
1610	76.228	248.991	-78.054	199.168	156.425
1611	76.315	249.045	-78.060	198.794	156.550
1612	76.399	249.096	-78.067	198.428	156.673
1613	76.480	249.140	-78.075	198.073	156.792
1614	76.556	249.179	-78.084	197.725	156.907
1615	76.627	249.211	-78.094	197.384	157.016
1616	76.693	249.238	-78.103	197.047	157.119
1617	76.753	249.258	-78.115	196.719	157.218
1618	76.808	249.273	-78.126	196.391	157.310
1619	76.856	249.283	-78.139	196.069	157.398
1620	76.898	249.289	-78.152	195.749	157.479
1621	76.934	249.293	-78.164	195.433	157.553
1622	76.966	249.295	-78.176	195.117	157.624

Wandering Magnetic Poles



1623	76.993	249.297	-78.189	194.808	157.691
1624	77.016	249.299	-78.200	194.501	157.752
1625	77.036	249.302	-78.211	194.193	157.810
1626	77.051	249.306	-78.220	193.888	157.863
1627	77.063	249.311	-78.229	193.583	157.912
1628	77.072	249.317	-78.238	193.282	157.959
1629	77.078	249.325	-78.245	192.979	158.003
1630	77.083	249.335	-78.251	192.677	158.044
1631	77.085	249.347	-78.257	192.376	158.083
1632	77.086	249.360	-78.261	192.076	158.120
1633	77.085	249.376	-78.264	191.775	158.155
1634	77.083	249.392	-78.266	191.475	158.188
1635	77.077	249.409	-78.266	191.175	158.216
1636	77.071	249.428	-78.265	190.876	158.243
1637	77.064	249.447	-78.263	190.575	158.269
1638	77.053	249.466	-78.260	190.277	158.291
1639	77.039	249.485	-78.256	189.977	158.310
1640	77.024	249.503	-78.251	189.678	158.326
1641	77.005	249.521	-78.246	189.378	158.340
1642	76.984	249.536	-78.239	189.078	158.350
1643	76.958	249.550	-78.234	188.780	158.358
1644	76.931	249.561	-78.228	188.482	158.363
1645	76.899	249.569	-78.222	188.184	158.364
1646	76.865	249.573	-78.216	187.890	158.363
1647	76.829	249.574	-78.209	187.598	158.359
1648	76.790	249.572	-78.204	187.310	158.353
1649	76.750	249.565	-78.198	187.027	158.345
1650	76.708	249.555	-78.194	186.752	158.336
1651	76.666	249.541	-78.188	186.481	158.324
1652	76.622	249.524	-78.183	186.218	158.310
1653	76.578	249.504	-78.178	185.965	158.295
1654	76.535	249.481	-78.173	185.719	158.280
1655	76.491	249.456	-78.169	185.481	158.264
1656	76.447	249.428	-78.164	185.257	158.245

Wandering Magnetic Poles

1657	76.405	249.398	-78.160	185.040	158.227
1658	76.362	249.366	-78.155	184.833	158.207
1659	76.321	249.332	-78.149	184.633	158.187
1660	76.280	249.297	-78.143	184.440	158.165
1661	76.238	249.261	-78.138	184.248	158.144
1662	76.196	249.223	-78.132	184.054	158.122
1663	76.154	249.186	-78.126	183.859	158.100
1664	76.110	249.148	-78.119	183.657	158.076
1665	76.066	249.110	-78.112	183.447	158.054
1666	76.020	249.072	-78.103	183.228	158.029
1667	75.974	249.034	-78.094	183.003	158.006
1668	75.926	248.996	-78.086	182.772	157.982
1669	75.879	248.957	-78.076	182.535	157.958
1670	75.831	248.919	-78.066	182.290	157.935
1671	75.783	248.882	-78.055	182.039	157.912
1672	75.734	248.845	-78.044	181.782	157.889
1673	75.685	248.808	-78.031	181.523	157.865
1674	75.639	248.772	-78.017	181.261	157.843
1675	75.591	248.736	-78.003	181.004	157.819
1676	75.546	248.700	-77.988	180.746	157.797
1677	75.503	248.663	-77.973	180.495	157.776
1678	75.460	248.624	-77.957	180.252	157.754
1679	75.420	248.583	-77.941	180.014	157.733
1680	75.382	248.539	-77.926	179.786	157.713
1681	75.345	248.490	-77.910	179.564	157.692
1682	75.309	248.436	-77.896	179.351	157.671
1683	75.274	248.376	-77.882	179.143	157.650
1684	75.239	248.311	-77.869	178.939	157.629
1685	75.204	248.241	-77.859	178.741	157.608
1686	75.168	248.166	-77.849	178.543	157.586
1687	75.131	248.086	-77.840	178.348	157.563
1688	75.092	248.002	-77.833	178.151	157.540
1689	75.052	247.913	-77.828	177.957	157.516
1690	75.011	247.819	-77.824	177.763	157.492

Wandering Magnetic Poles

1691	74.969	247.721	-77.822	177.569	157.468
1692	74.927	247.618	-77.822	177.375	157.444
1693	74.883	247.510	-77.823	177.182	157.419
1694	74.840	247.398	-77.824	176.988	157.395
1695	74.796	247.283	-77.827	176.791	157.371
1696	74.752	247.163	-77.832	176.596	157.347
1697	74.709	247.039	-77.836	176.398	157.324
1698	74.666	246.913	-77.841	176.196	157.301
1699	74.625	246.782	-77.847	175.995	157.281
1700	74.582	246.650	-77.853	175.787	157.259
1701	74.541	246.516	-77.860	175.577	157.240
1702	74.499	246.381	-77.867	175.357	157.221
1703	74.458	246.248	-77.873	175.134	157.203
1704	74.416	246.119	-77.878	174.900	157.186
1705	74.374	245.995	-77.883	174.658	157.170
1706	74.330	245.879	-77.886	174.403	157.154
1707	74.284	245.772	-77.887	174.131	157.139
1708	74.235	245.676	-77.887	173.845	157.123
1709	74.183	245.591	-77.885	173.537	157.109
1710	74.129	245.519	-77.880	173.211	157.095
1711	74.072	245.459	-77.873	172.870	157.082
1712	74.013	245.413	-77.863	172.513	157.069
1713	73.952	245.380	-77.853	172.142	157.058
1714	73.890	245.359	-77.840	171.762	157.048
1715	73.826	245.348	-77.826	171.373	157.038
1716	73.760	245.348	-77.811	170.980	157.029
1717	73.694	245.355	-77.797	170.581	157.023
1718	73.628	245.369	-77.783	170.186	157.018
1719	73.562	245.389	-77.771	169.793	157.016
1720	73.499	245.411	-77.760	169.412	157.016
1721	73.438	245.434	-77.752	169.044	157.018
1722	73.381	245.455	-77.745	168.694	157.021
1723	73.327	245.474	-77.742	168.366	157.027
1724	73.280	245.487	-77.744	168.065	157.037

Wandering Magnetic Poles

1725	73.240	245.494	-77.750	167.791	157.051
1726	73.208	245.493	-77.760	167.544	157.069
1727	73.182	245.486	-77.774	167.327	157.089
1728	73.164	245.473	-77.791	167.130	157.114
1729	73.152	245.457	-77.810	166.953	157.142
1730	73.148	245.440	-77.830	166.791	157.175
1731	73.149	245.422	-77.851	166.636	157.211
1732	73.157	245.405	-77.872	166.488	157.252
1733	73.171	245.391	-77.891	166.344	157.297
1734	73.193	245.378	-77.910	166.201	157.348
1735	73.220	245.369	-77.927	166.062	157.403
1736	73.251	245.361	-77.942	165.920	157.460
1737	73.289	245.356	-77.957	165.778	157.523
1738	73.328	245.354	-77.971	165.632	157.587
1739	73.370	245.357	-77.982	165.480	157.654
1740	73.413	245.365	-77.993	165.324	157.723
1741	73.456	245.379	-78.004	165.164	157.793
1742	73.500	245.399	-78.013	164.997	157.865
1743	73.542	245.427	-78.020	164.828	157.935
1744	73.585	245.461	-78.027	164.655	158.008
1745	73.628	245.501	-78.034	164.483	158.081
1746	73.670	245.547	-78.039	164.313	158.153
1747	73.712	245.599	-78.042	164.143	158.224
1748	73.755	245.657	-78.045	163.983	158.296
1749	73.799	245.723	-78.046	163.825	158.368
1750	73.844	245.796	-78.045	163.679	158.439
1751	73.889	245.879	-78.043	163.543	158.509
1752	73.933	245.974	-78.037	163.415	158.577
1753	73.978	246.080	-78.028	163.297	158.643
1754	74.020	246.204	-78.017	163.186	158.707
1755	74.057	246.348	-78.001	163.078	158.767
1756	74.090	246.514	-77.980	162.968	158.824
1757	74.115	246.704	-77.952	162.855	158.874
1758	74.135	246.918	-77.921	162.735	158.924

Wandering Magnetic Poles

1759	74.146	247.154	-77.886	162.615	158.968
1760	74.150	247.410	-77.847	162.490	159.007
1761	74.148	247.682	-77.804	162.364	159.043
1762	74.138	247.969	-77.761	162.240	159.075
1763	74.121	248.268	-77.716	162.118	159.102
1764	74.098	248.579	-77.669	161.995	159.125
1765	74.069	248.900	-77.620	161.872	159.146
1766	74.032	249.234	-77.568	161.739	159.162
1767	73.987	249.579	-77.510	161.600	159.173
1768	73.939	249.933	-77.449	161.460	159.181
1769	73.885	250.294	-77.383	161.314	159.186
1770	73.828	250.656	-77.317	161.178	159.187
1771	73.769	251.015	-77.248	161.051	159.185
1772	73.706	251.366	-77.181	160.936	159.178
1773	73.640	251.707	-77.116	160.832	159.167
1774	73.572	252.035	-77.053	160.731	159.154
1775	73.501	252.347	-76.991	160.634	159.137
1776	73.429	252.645	-76.933	160.538	159.120
1777	73.357	252.928	-76.875	160.434	159.102
1778	73.281	253.200	-76.817	160.313	159.083
1779	73.203	253.463	-76.760	160.172	159.066
1780	73.120	253.720	-76.700	160.007	159.048
1781	73.035	253.973	-76.639	159.818	159.032
1782	72.945	254.225	-76.575	159.605	159.017
1783	72.850	254.479	-76.509	159.370	159.002
1784	72.753	254.735	-76.440	159.109	158.992
1785	72.649	254.994	-76.368	158.823	158.981
1786	72.542	255.255	-76.293	158.513	158.973
1787	72.433	255.515	-76.216	158.189	158.968
1788	72.326	255.769	-76.141	157.862	158.966
1789	72.223	256.016	-76.067	157.536	158.967
1790	72.127	256.251	-75.998	157.225	158.973
1791	72.040	256.473	-75.932	156.931	158.982
1792	71.960	256.683	-75.873	156.656	158.995

Wandering Magnetic Poles

1793	71.890	256.882	-75.819	156.400	159.012
1794	71.825	257.073	-75.769	156.160	159.031
1795	71.767	257.260	-75.722	155.934	159.054
1796	71.712	257.445	-75.677	155.722	159.077
1797	71.662	257.629	-75.634	155.523	159.102
1798	71.615	257.813	-75.591	155.340	159.127
1799	71.574	257.995	-75.549	155.173	159.153
1800	71.534	258.179	-75.509	155.020	159.179
1801	71.495	258.365	-75.467	154.878	159.203
1802	71.457	258.551	-75.424	154.743	159.227
1803	71.417	258.739	-75.381	154.615	159.248
1804	71.375	258.925	-75.339	154.494	159.267
1805	71.331	259.109	-75.296	154.374	159.284
1806	71.284	259.290	-75.251	154.257	159.297
1807	71.235	259.468	-75.208	154.145	159.309
1808	71.185	259.642	-75.165	154.037	159.318
1809	71.134	259.811	-75.122	153.935	159.324
1810	71.082	259.976	-75.080	153.839	159.329
1811	71.032	260.137	-75.038	153.750	159.332
1812	70.983	260.292	-74.997	153.668	159.334
1813	70.938	260.441	-74.956	153.596	159.336
1814	70.897	260.583	-74.917	153.536	159.337
1815	70.859	260.719	-74.879	153.485	159.338
1816	70.825	260.847	-74.842	153.446	159.337
1817	70.795	260.966	-74.807	153.418	159.335
1818	70.768	261.077	-74.774	153.401	159.333
1819	70.744	261.179	-74.742	153.394	159.328
1820	70.722	261.275	-74.710	153.389	159.323
1821	70.699	261.367	-74.678	153.384	159.316
1822	70.677	261.456	-74.644	153.371	159.310
1823	70.653	261.546	-74.608	153.345	159.306
1824	70.627	261.632	-74.571	153.305	159.302
1825	70.602	261.705	-74.532	153.246	159.300
1826	70.579	261.755	-74.495	153.168	159.299

Wandering Magnetic Poles

1827	70.557	261.789	-74.460	153.074	159.300
1828	70.533	261.813	-74.428	152.966	159.302
1829	70.504	261.836	-74.398	152.847	159.303
1830	70.464	261.872	-74.369	152.718	159.304
1831	70.411	261.931	-74.337	152.581	159.302
1832	70.346	262.011	-74.305	152.441	159.298
1833	70.271	262.108	-74.271	152.305	159.290
1834	70.189	262.221	-74.237	152.181	159.279
1835	70.105	262.350	-74.203	152.079	159.265
1836	70.021	262.496	-74.167	152.002	159.248
1837	69.936	262.657	-74.130	151.943	159.230
1838	69.848	262.829	-74.089	151.886	159.212
1839	69.761	262.998	-74.045	151.826	159.193
1840	69.681	263.140	-74.003	151.768	159.172
1841	69.615	263.235	-73.968	151.716	159.151
1842	69.560	263.289	-73.936	151.662	159.129
1843	69.510	263.311	-73.906	151.598	159.105
1844	69.463	263.312	-73.874	151.516	159.082
1845	69.420	263.301	-73.836	151.404	159.064
1846	69.379	263.287	-73.791	151.255	159.054
1847	69.341	263.270	-73.739	151.078	159.050
1848	69.311	263.251	-73.682	150.885	159.053
1849	69.288	263.231	-73.620	150.685	159.061
1850	69.271	263.215	-73.555	150.486	159.073
1851	69.259	263.206	-73.485	150.293	159.086
1852	69.249	263.203	-73.415	150.109	159.101
1853	69.240	263.204	-73.346	149.933	159.115
1854	69.230	263.208	-73.281	149.767	159.129
1855	69.219	263.214	-73.218	149.609	159.142
1856	69.205	263.221	-73.157	149.453	159.153
1857	69.192	263.229	-73.100	149.305	159.164
1858	69.180	263.238	-73.046	149.166	159.176
1859	69.174	263.243	-72.996	149.038	159.189
1860	69.178	263.237	-72.951	148.922	159.204

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1861	69.196	263.211	-72.913	148.819	159.222
1862	69.225	263.174	-72.880	148.727	159.242
1863	69.259	263.135	-72.848	148.644	159.264
1864	69.296	263.101	-72.818	148.569	159.287
1865	69.336	263.076	-72.787	148.498	159.313
1866	69.375	263.066	-72.755	148.428	159.341
1867	69.414	263.063	-72.722	148.365	159.369
1868	69.455	263.062	-72.692	148.315	159.396
1869	69.496	263.056	-72.662	148.277	159.419
1870	69.536	263.044	-72.635	148.243	159.439
1871	69.575	263.025	-72.607	148.207	159.456
1872	69.615	263.004	-72.578	148.177	159.472
1873	69.659	262.986	-72.548	148.154	159.488
1874	69.708	262.968	-72.518	148.143	159.504
1875	69.760	262.942	-72.487	148.140	159.517
1876	69.812	262.900	-72.455	148.144	159.522
1877	69.863	262.847	-72.422	148.156	159.522
1878	69.914	262.789	-72.391	148.177	159.518
1879	69.964	262.733	-72.359	148.209	159.510
1880	70.013	262.686	-72.327	148.254	159.500
1881	70.061	262.652	-72.292	148.313	159.488
1882	70.111	262.628	-72.257	148.383	159.477
1883	70.163	262.611	-72.221	148.461	159.466
1884	70.218	262.598	-72.183	148.548	159.454
1885	70.276	262.591	-72.144	148.642	159.443
1886	70.335	262.589	-72.105	148.745	159.431
1887	70.394	262.590	-72.066	148.848	159.420
1888	70.448	262.590	-72.028	148.946	159.407
1889	70.497	262.585	-71.989	149.031	159.392
1890	70.546	262.574	-71.952	149.110	159.378
1891	70.584	262.606	-71.923	149.153	159.383
1892	70.600	262.718	-71.905	149.124	159.422
1893	70.592	262.894	-71.895	149.030	159.486
1894	70.564	263.110	-71.888	148.888	159.565

Wandering Magnetic Poles



1895	70.525	263.338	-71.879	148.726	159.645
1896	70.483	263.547	-71.866	148.569	159.716
1897	70.449	263.712	-71.843	148.440	159.767
1898	70.430	263.813	-71.812	148.349	159.795
1899	70.433	263.845	-71.770	148.309	159.797
1900	70.460	263.814	-71.721	148.324	159.777
1901	70.499	263.756	-71.668	148.369	159.745
1902	70.539	263.697	-71.616	148.412	159.715
1903	70.578	263.638	-71.563	148.455	159.682
1904	70.618	263.579	-71.510	148.499	159.650
1905	70.657	263.520	-71.458	148.542	159.618
1906	70.683	263.472	-71.397	148.562	159.584
1907	70.708	263.424	-71.336	148.582	159.548
1908	70.734	263.376	-71.274	148.602	159.512
1909	70.760	263.328	-71.213	148.622	159.477
1910	70.785	263.280	-71.151	148.641	159.440
1911	70.834	263.218	-71.082	148.620	159.420
1912	70.883	263.156	-71.012	148.599	159.398
1913	70.931	263.094	-70.942	148.578	159.376
1914	70.981	263.031	-70.871	148.558	159.353
1915	71.030	262.968	-70.801	148.537	159.329
1916	71.091	262.898	-70.724	148.469	159.319
1917	71.152	262.827	-70.646	148.401	159.307
1918	71.214	262.756	-70.568	148.334	159.295
1919	71.275	262.686	-70.491	148.268	159.282
1920	71.337	262.615	-70.413	148.202	159.268
1921	71.426	262.494	-70.328	148.084	159.263
1922	71.516	262.374	-70.242	147.967	159.256
1923	71.606	262.252	-70.157	147.852	159.249
1924	71.696	262.130	-70.071	147.737	159.239
1925	71.786	262.007	-69.987	147.624	159.229
1926	71.881	261.872	-69.892	147.453	159.226
1927	71.977	261.735	-69.797	147.284	159.222
1928	72.073	261.597	-69.704	147.117	159.216

Wandering Magnetic Poles

1929	72.170	261.457	-69.610	146.951	159.208
1930	72.268	261.317	-69.516	146.788	159.198
1931	72.371	261.191	-69.424	146.579	159.207
1932	72.475	261.064	-69.331	146.371	159.214
1933	72.580	260.934	-69.239	146.166	159.219
1934	72.687	260.802	-69.146	145.963	159.221
1935	72.796	260.667	-69.054	145.762	159.222
1936	72.894	260.564	-68.957	145.523	159.233
1937	72.993	260.458	-68.859	145.287	159.241
1938	73.093	260.351	-68.761	145.053	159.246
1939	73.195	260.241	-68.663	144.820	159.250
1940	73.299	260.129	-68.566	144.590	159.253
1941	73.421	260.062	-68.480	144.556	159.226
1942	73.544	259.992	-68.396	144.524	159.198
1943	73.670	259.918	-68.314	144.495	159.169
1944	73.797	259.842	-68.232	144.467	159.138
1945	73.926	259.762	-68.150	144.440	159.106
1946	74.066	259.643	-68.098	144.264	159.124
1947	74.208	259.521	-68.045	144.087	159.141
1948	74.350	259.397	-67.993	143.908	159.157
1949	74.494	259.270	-67.941	143.728	159.171
1950	74.638	259.141	-67.888	143.546	159.183
1951	74.741	259.039	-67.752	143.135	159.188
1952	74.848	258.932	-67.613	142.724	159.187
1953	74.957	258.821	-67.475	142.316	159.183
1954	75.069	258.704	-67.335	141.909	159.174
1955	75.184	258.582	-67.194	141.504	159.161
1956	75.208	258.658	-67.099	141.256	159.174
1957	75.232	258.734	-67.001	141.004	159.186
1958	75.255	258.812	-66.902	140.749	159.197
1959	75.278	258.889	-66.802	140.490	159.208
1960	75.301	258.967	-66.700	140.228	159.218
1961	75.364	258.908	-66.626	140.087	159.190
1962	75.429	258.848	-66.551	139.946	159.160

Wandering Magnetic Poles

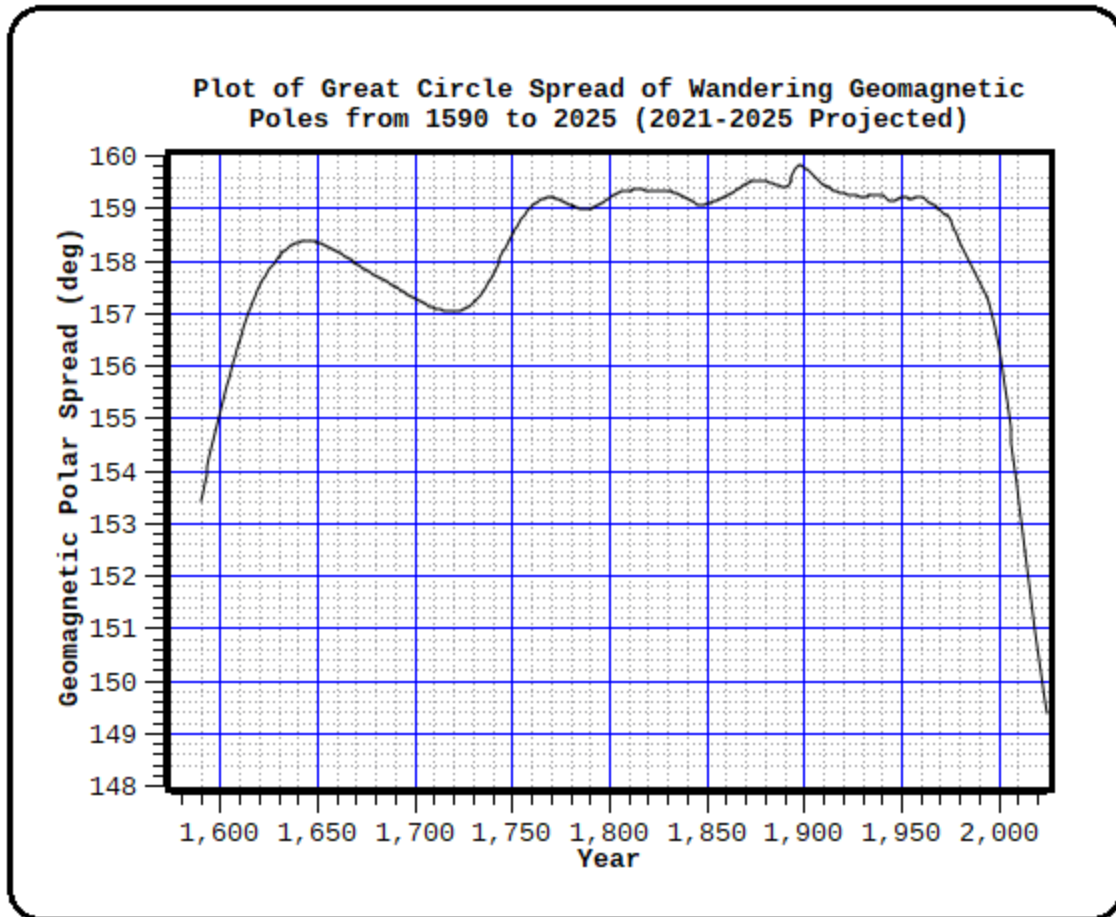
1963	75.494	258.787	-66.478	139.807	159.131
1964	75.560	258.725	-66.404	139.668	159.100
1965	75.626	258.663	-66.331	139.530	159.069
1966	75.677	258.735	-66.270	139.504	159.050
1967	75.728	258.807	-66.208	139.478	159.030
1968	75.778	258.880	-66.146	139.451	159.010
1969	75.829	258.953	-66.085	139.426	158.990
1970	75.878	259.026	-66.023	139.400	158.968
1971	75.934	259.092	-65.967	139.425	158.937
1972	75.989	259.158	-65.910	139.450	158.906
1973	76.044	259.225	-65.853	139.474	158.874
1974	76.098	259.293	-65.795	139.498	158.841
1975	76.153	259.362	-65.738	139.522	158.808
1976	76.303	259.158	-65.676	139.488	158.725
1977	76.454	258.952	-65.613	139.453	158.640
1978	76.604	258.745	-65.549	139.418	158.554
1979	76.755	258.535	-65.486	139.384	158.466
1980	76.906	258.323	-65.423	139.349	158.378
1981	77.005	258.140	-65.363	139.314	158.297
1982	77.104	257.956	-65.304	139.280	158.215
1983	77.202	257.769	-65.244	139.246	158.132
1984	77.300	257.581	-65.184	139.212	158.049
1985	77.398	257.391	-65.125	139.178	157.966
1986	77.537	257.184	-65.081	139.122	157.897
1987	77.677	256.973	-65.038	139.067	157.827
1988	77.816	256.757	-64.995	139.011	157.756
1989	77.956	256.537	-64.952	138.956	157.683
1990	78.095	256.311	-64.910	138.902	157.610
1991	78.286	256.010	-64.885	138.867	157.531
1992	78.476	255.699	-64.860	138.832	157.450
1993	78.665	255.380	-64.836	138.798	157.369
1994	78.854	255.050	-64.812	138.764	157.285
1995	79.043	254.710	-64.788	138.730	157.200
1996	79.417	253.995	-64.762	138.644	157.047

Wandering Magnetic Poles

1997	79.798	253.211	-64.737	138.558	156.885
1998	80.185	252.350	-64.711	138.473	156.711
1999	80.576	251.403	-64.687	138.388	156.529
2000	80.972	250.360	-64.661	138.303	156.335
2001	81.427	248.992	-64.638	138.211	156.100
2002	81.879	247.468	-64.615	138.120	155.855
2003	82.325	245.769	-64.591	138.029	155.600
2004	82.762	243.881	-64.568	137.938	155.339
2005	83.186	241.782	-64.545	137.848	155.072
2006	83.602	239.408	-64.523	137.742	154.800
2007	83.995	236.784	-64.500	137.637	154.525
2008	84.363	233.900	-64.477	137.532	154.251
2009	84.702	230.751	-64.454	137.428	153.980
2010	85.020	227.166	-64.432	137.325	153.701
2011	85.370	222.596	-64.401	137.176	153.383
2012	85.676	217.521	-64.370	137.028	153.068
2013	85.933	211.982	-64.340	136.881	152.759
2014	86.138	206.059	-64.309	136.734	152.455
2015	86.305	199.659	-64.279	136.597	152.155
2016	86.467	192.206	-64.239	136.449	151.843
2017	86.562	184.522	-64.199	136.303	151.535
2018	86.598	176.901	-64.160	136.156	151.237
2019	86.568	169.615	-64.120	136.011	150.939
2020	86.494	162.867	-64.081	135.866	150.653
2021	86.400	156.786	-64.035	135.703	150.386
2022	86.275	151.272	-63.988	135.542	150.124
2023	86.126	146.334	-63.942	135.381	149.868
2024	85.958	141.945	-63.897	135.221	149.618
2025	85.778	138.057	-63.851	135.061	149.373

Wandering Magnetic Poles

Here is the graphical plot of the first and sixth column of the preceding table. Observe the plunge that was suggested by the preceding plot to have started around 2,000 AD may actually have begun around 1,970 AD. Curiously, this was about the same time that the United States put a man on the Moon and planted an American Flag on Lunar Soil.



Since the spread is uniformly less than  $160^\circ$ , the geomagnetic field of the Earth must have a source that is off-center with respect to the polar axis of the Earth. It takes a considerable amount of energy to maintain a magnetic field. Where is the energy coming from?

Another great question, seldom asked, is whether the magnetic field of the Earth is natural, or whether it represents a voluntary action by others who long preceded us on this Earth?