SOME SECULAR VARIATION EXPRESSIONS OF THE MAGNETIC DECLINATION.¹

STATION	Latitude	Longitude from Greenwich	Empirical Expression D =	Epoch	Prob. error of a single obs'n	Period assumed
Aden,	12 47 N	44 59 E	$9.20 + 5.89 \times \sin(\tau + 224.00)$	1612-1887	± 43.0	440
Arica, Peru,	18 28 S	70 20.5 W	$-9.40 + 1.46 \sin(1.5 \tau + 278.8)$	1713-1893	06.0	240
Ascension Id.,	7 55.5 S	14 24 W	$10.55 + 13.45 \sin(0.6 \tau + 45.3)$	1700-1890	22.6	600
Auckland, N. Z.,	36 50 S	174 49 E	$-14.36 + 0.46 \sin(1.1 \tau + 30.6)$	1848-1891	10.0	327
Batavia, Java,	6 08 S	106 48 E	$1.50 + 3.16 \sin(0.9 \tau + 247.8)$	1605-1885	15.0	400
Bombay,	18 56 N	72 54 E	$2.66 + 3.49 \sin(0.8 \tau + 242.2)$	1722-1889	12.0	450
Bridgetown,	13 05 N	59 37 W	$-1.54 + 2.74 \sin(1.2 \tau + 17.2)$	1726-1893	15.0	300
Buenos Ayres,	34 36 S	58 22 W	$-12.03 + 3.50 \sin(1.0 \tau + 10.05)$	1829-1883	38.0	360
Cartagena,	10 25 N	75 32 W	$-5.81 + 2.08 \sin(1.2 \tau + 22.5)$	1705-1888	15.8	300
Cape of Good Hope,	33 56 S	18 29 E	$14.63 + 15.00 \sin(0.61 \tau + 77.8)$	1605-1890	22.5	590
Charlottetown, Pr. Ed. Id.,	46 14 N	63 08 W	$15.15 + 7.96 \sin(1.3 \tau + 77.6)$	1842-1886	20.0	380
City of Mexico,	19 26 N	99 05 W	$-5.52 + 3.09 \sin(1.0 \tau + 270.5)$	1769-1885	18.0	360
Concepcion,	36 42 S	73 07 W	$-13.63 + 3.52 \sin(1.0 \tau + 256.6)$	1709-1893	23.2	360
Coquimbo,	29 57 S	71 22 W	$-11.55 + 2.83 \sin(1.0 \tau + 264.3)$	1700-1891	21.0	360
Curaçao,	12 07 N	68 57 W	$-4.91 + 2.82 \sin(1.0 \tau + 23.1)$	1704-1894	13.7	360
Fayal, Azores,	38 32 N	28 33 W	$11.82 + 14.75 \sin(0.8 \tau + 89.1)$	1590-1891	46.0	530
Fort de France,	14 36 N	61 04 W	$-2.73 + 3.30 \sin(1.1 \tau + 27.6)$	1682-1887	19.0	330
Galapagos Is.,	1 00 S	90 00 W	$-7.49 + 1.91 \sin(1.5 \tau + 272.1)$	1794-1880	25.0	240
Halifax, Nova Scotia,	44 39.6 N	63 35.3 W	$16.74 + 4.30 \sin(0.8 \tau + 39.5)$	1700-1879	26.0	350
Havana,	23 09 N	82 22 W	$-3.42 + 3.14 \sin(1.0 \tau + 318.75)$	1726-1889	17.0	360
La Guayra,	10 36 N	66 56.5 W	$-3.58 + 1.61 \sin(1.0 \tau + 357.7)$	1800-1890	21.0	360
Lagoon Head, Mexico,	28 15 N	114 06 W	$-9.85 + 1.99 \sin(1.0 \tau + 229.7)$	1783-1888	09.0	252
Magdalena Bay,	24 38 N	112 07 W	$-7.48 + 3.11 \sin(1.0 \tau + 241.8)$	1783-1881	35.0	252
Manila, Luzon Id.,	14 36 N	120 58 E	$0.22 + 0.58 \sin(1.0 \tau + 226.3)$	1766-1890	08.3	260
Montevideo,	34 54 S	56 12 W	$-10.28 + 3.90 \sin(1.0 \tau + 358.3)$	1790-1894	12.3	360
Nagasaki,	32 43 N	129 51 E	$2.74 + 0.0237(\tau) + 0.000774(\tau)^2$	1805-1892	05.1	—
Nosy Ve,	23 39 S	43 36 E	$15.31 + 8.30 \sin(0.6 \tau + 146.1)$	1607-1890	30.0	600
Panama,	8 57 N	79 32 W	$-6.54 + 1.37 \sin(1.8 \tau + 4.4)$	1776-1885	13.0	200
Payta, Peru,	5 05 S	81 05.5 W	$-7.42 + 1.76 \sin(1.2 \tau + 288.4)$	1821-1894	14.2	300
Pekin,	39 54 N	116 28 E	$2.179 + 0.0131(\tau) - 0.000117(\tau)^2$	1755-1887	06.0	—
Pernambuco,	8 03 S	34 52 W	$8.99 + 9.46 \sin(0.9 \tau + 356.7)$	1815-1894	17.4	400
Petropaulowski,	53 01 N	158 43 E	$-2.68 + 3.35 \sin(1.0 \tau + 0.3)$	1779-1891	21.3	252
Puna and Guayaquil,	$2 \frac{1}{2}^{\circ}$ S	79 52 W	$-8.46 + 0.02(\tau) + 0.0001(\tau)^2$	1791-1880	10.0	—
Punta Arenas,	53 10 S	70 54 W	$-18.68 + 5.12 \sin(1.0 \tau + 301.9)$	1766-1893	16.6	360
Rio de Janeiro,	22 54 S	43 10 W	$1.81 + 8.86 \sin(1.0 \tau + 348.1)$	1768-1888	25.0	360
St. Johns, N. F.,	47 34 N	52 41 W	$15.63 + 15.52 \sin(1.0 \tau + 72.0)$	1845-1885	17.4	360
San Blas, Mexico,	21 32 N	105 19 W	$-6.60 + 2.82 \sin(1.0 \tau + 258.6)$	1783-1880	26.0	252
St. Helena,	15 55 S	5 44 W	$7.90 + 15.92 \sin(0.6 \tau + 68.2)$	1610-1890	41.8	600
St. Vincent,	16 53 N	24 59 W	$10.48 + 10.22 \sin(0.6 \tau + 45.2)$	1615-1894	25.0	600
San Diego, Cal.,	32 43 N	117 10.3 W	$-11.85 + 1.33 \sin(1.5 \tau + 214.6)$	1783-1880	11.0	240
Singapore,	1 18 N	103 51 E	$0.24 + 2.70 \sin(0.9 \tau + 244.1)$	1824-1891	17.0	400
Surabaya, Java,	7 14 S	112 45 E	$2.74 + 4.70 \sin(0.9 \tau + 234.6)$	1793-1876	06.4	400
Tahiti, Society Id.,	17 31 S	149 34 W	$-5.64 + 1.95 \sin(1.0 \tau + 244.9)$	1768-1878	14.0	360
Vera Cruz,	19 12 N	96 08 W	$-4.77 + 3.91 \sin(1.0 \tau + 279.0)$	1726-1889	± 29.0	360

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¹ For details, I beg to refer to the Hydrographic Office Publication, No. 1092, *Contributions to Terrestrial Magnetism, the Variation of the Compass*. West declination is *plus*; east declination, *minus*; τ stands for date—1850. Special care has been taken in the preparation of the above table. Where discrepancies occur between the data contained therein and those on pages 50 and 52, "Publication 1092," the data given here should be taken. The expression for Bahia, Brazil, it was thought better to omit.