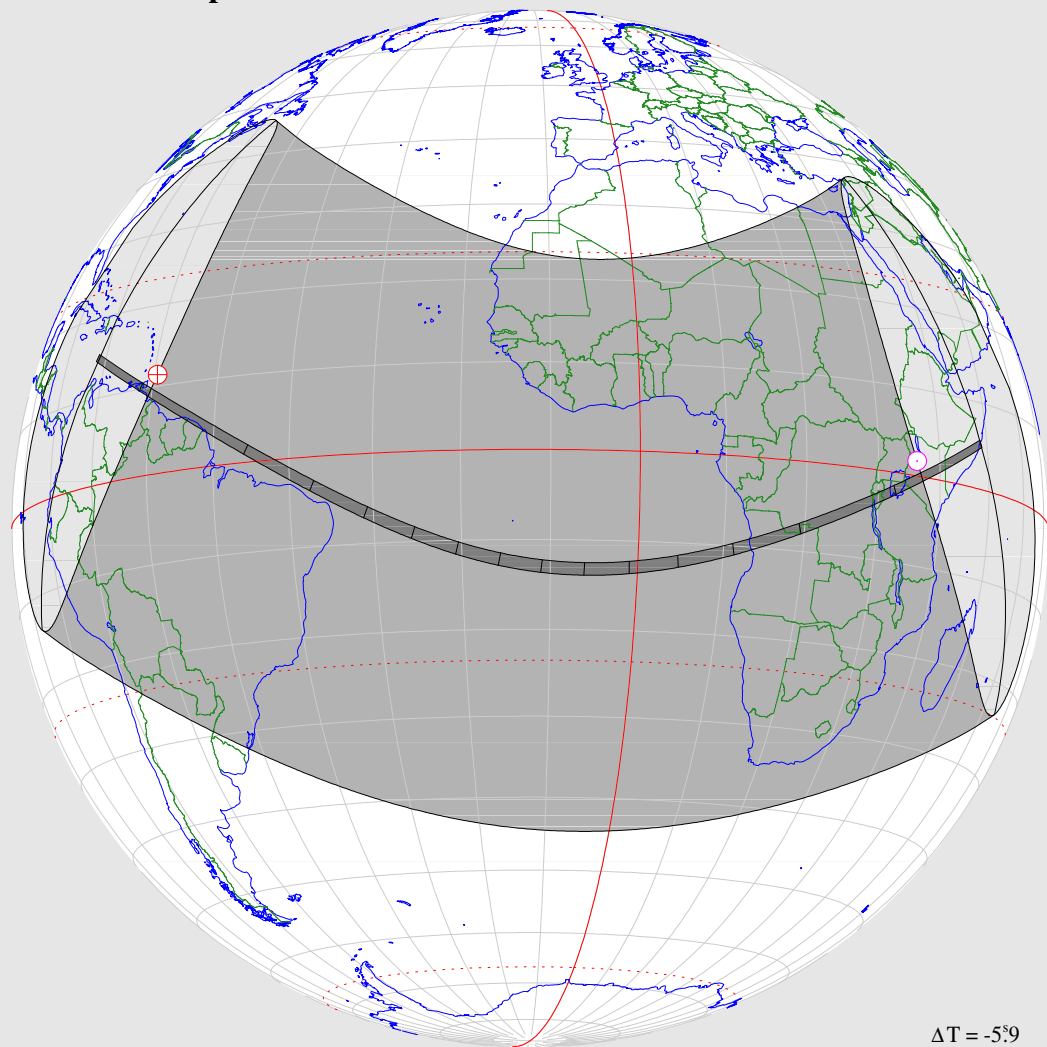


V. - Total Eclipse of the Sun

1889 December 22



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$\Delta T = -5^s 9$
Globe centred on W 12°3 and S 8°8

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	10	16.7	W 59	25.4	N 11	23.3
Beginning of centre line; central eclipse begins	11	13.0	W 71	53.0	N 14	53.6
Beginning of northern limit of umbra	11	13.0	W 71	42.4	N 15	16.6
Beginning of southern limit of umbra	11	13.0	W 72	03.6	N 14	30.6
Beginning of southern limit of penumbra	11	26.1	W 87	48.9	S 13	38.3
Beginning of northern limit of penumbra	11	35.3	W 57	15.1	N 46	08.1
Central eclipse at local apparent noon	12	52.5	W 13	22.8	S 12	36.2
End of northern limit of penumbra	14	13.4	E 37	10.6	N 37	11.8
End of southern limit of penumbra	14	22.5	E 64	51.9	S 23	14.9
End of southern limit of umbra	14	35.7	E 48	45.2	N 4	48.5
End of northern limit of umbra	14	35.6	E 48	24.9	N 5	35.5
End of centre line; central eclipse ends	14	35.7	E 48	35.0	N 5	11.9
⊙ Eclipse ends; last contact with Earth	15	31.9	E 36	03.2	N 1	40.6