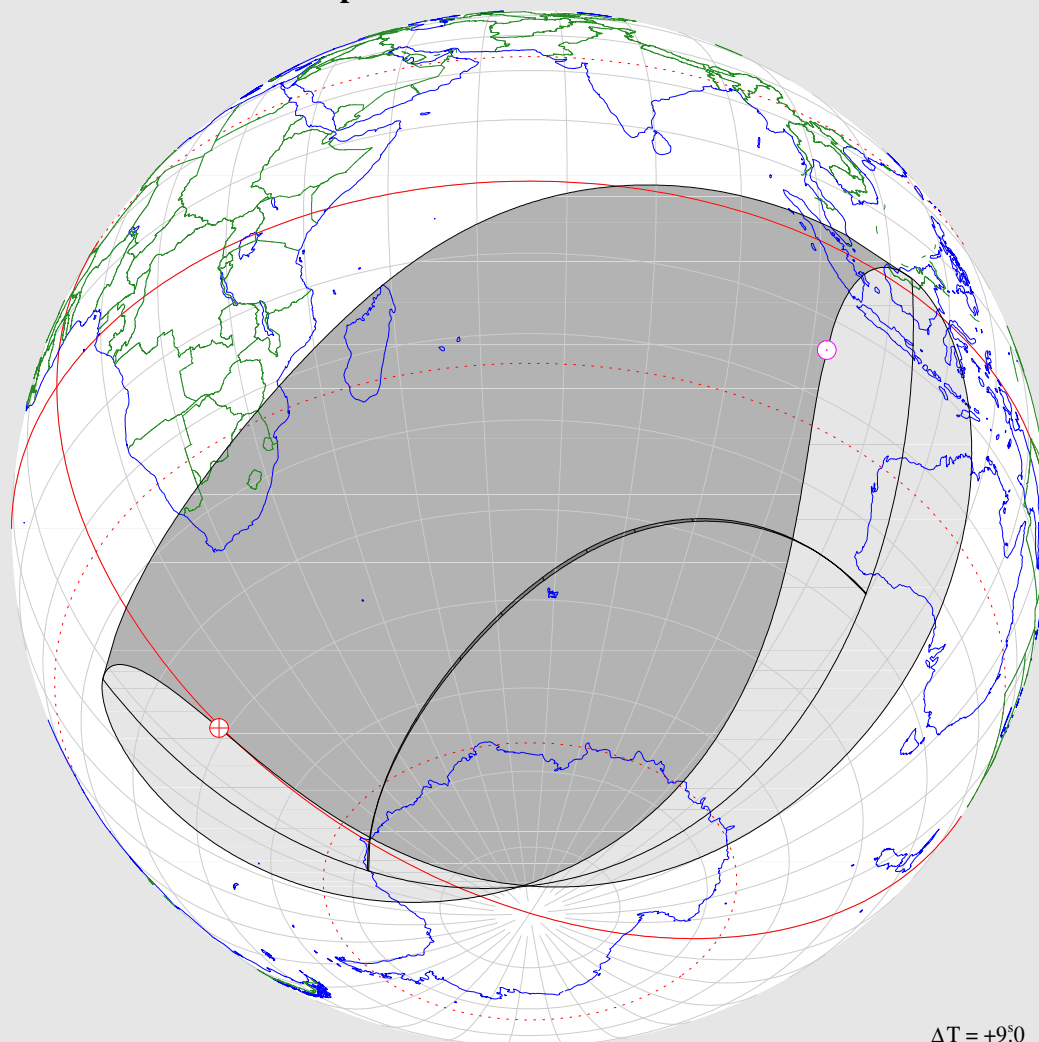


II. - Annular-Total Eclipse of the Sun

1699 March 31



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$\Delta T = +9^s 0$
Globe centred on E 65°9' and S 42°1'

Circumstances	Time (UT)	Longitude	Latitude
	h m	° /	° /
⊕ Eclipse begins; first contact with Earth	6 25.8	W 0 26.5	S 49 05.1
Beginning of northern limit of penumbra	7 05.9	W 12 40.1	S 32 47.3
Beginning of northern limit of umbra	7 45.3	W 12 27.0	S 71 18.0
Beginning of centre line; central eclipse begins	7 45.4	W 12 25.2	S 71 22.8
Beginning of southern limit of umbra	7 45.5	W 12 23.5	S 71 27.6
Central eclipse at local apparent noon	8 20.9	E 55 49.7	S 54 06.7
End of centre line; central eclipse ends	9 52.1	E 119 47.7	S 36 37.8
End of southern limit of umbra	9 52.0	E 119 48.6	S 36 41.3
End of northern limit of umbra	9 52.2	E 119 46.8	S 36 34.3
End of northern limit of penumbra	10 31.3	E 113 24.2	N 2 19.1
⊙ Eclipse ends; last contact with Earth	11 11.5	E 102 04.4	S 14 03.9