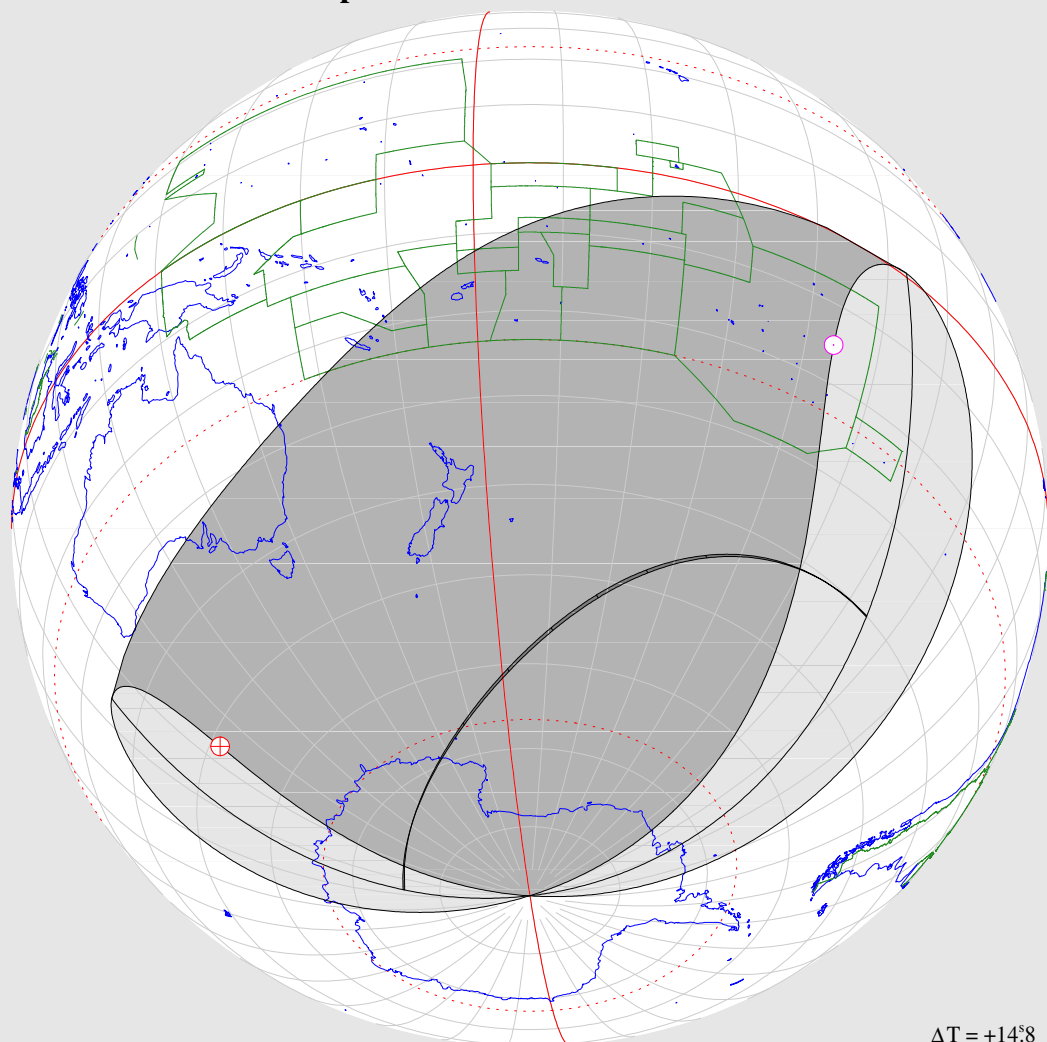


II. - Annular-Total Eclipse of the Sun

1681 March 19-20



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$\Delta T = +14^s 8$
Globe centred on W 173°7' and S 44°9'

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	22	32.8	E 113	41.2	S 51	12.8
Beginning of northern limit of penumbra	23	09.5	E 104	31.9	S 35	23.6
Beginning of northern limit of umbra	23	55.3	E 93	04.9	S 75	49.0
Beginning of centre line; central eclipse begins	23	55.5	E 93	02.8	S 75	54.2
Beginning of southern limit of umbra	23	55.6	E 93	00.7	S 75	59.5
Central eclipse at local apparent noon	0	23.2	E 176	06.2	S 63	00.5
End of southern limit of umbra	1	50.2	W 115	40.7	S 40	05.6
End of centre line; central eclipse ends	1	50.3	W 115	42.2	S 40	01.8
End of northern limit of umbra	1	50.4	W 115	43.7	S 39	58.0
End of northern limit of penumbra	2	36.0	W 127	06.1	N 0	35.9
○ Eclipse ends; last contact with Earth	3	12.8	W 136	18.4	S 15	16.9