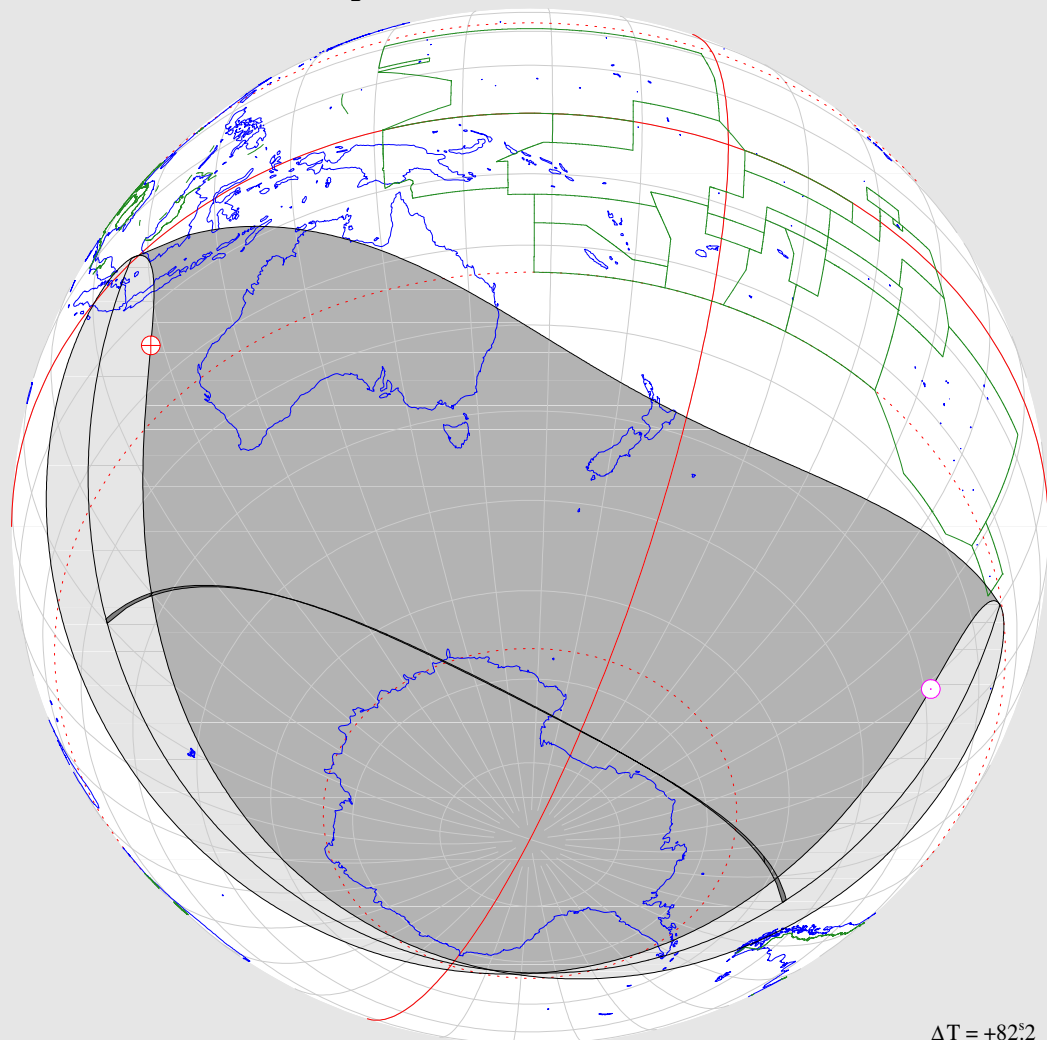


IV. - Annular-Total Eclipse of the Sun

1630 December 03-04



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$\Delta T = +82^s.2$
Globe centred on E 157°5 and S 52°9

Circumstances	Time (UT)	Longitude	Latitude
	h m	° /	° /
⊕ Eclipse begins; first contact with Earth	22 12.6	E 108 19.7	S 14 49.5
Beginning of northern limit of penumbra	22 42.9	E 107 16.2	N 0 44.2
Beginning of northern limit of umbra	23 27.4	E 80 26.3	S 32 58.0
Beginning of centre line; central eclipse begins	23 27.7	E 80 15.4	S 33 08.5
Beginning of southern limit of umbra	23 28.0	E 80 04.4	S 33 19.0
Central eclipse at local apparent noon	0 56.9	E 163 28.6	S 73 48.6
End of southern limit of umbra	1 46.9	W 82 12.3	S 55 38.8
End of centre line; central eclipse ends	1 47.2	W 82 33.1	S 55 29.0
End of northern limit of umbra	1 47.6	W 82 53.6	S 55 19.2
End of northern limit of penumbra	2 32.3	W 119 54.1	S 23 54.5
⊙ Eclipse ends; last contact with Earth	3 02.5	W 118 35.8	S 38 56.7