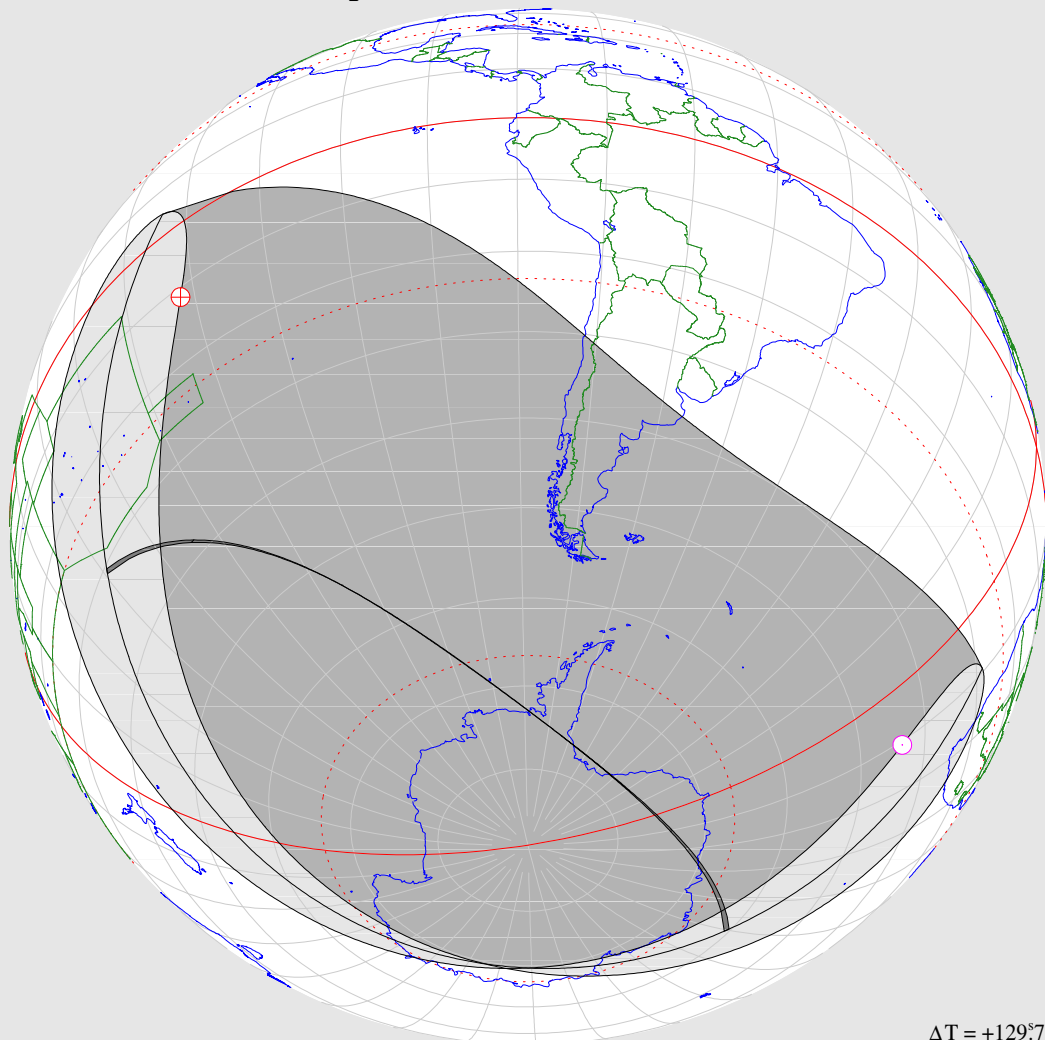


IV. - Annular-Total Eclipse of the Sun

1612 November 22



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$\Delta T = +129^s.7$
Globe centred on W 78°8 and S 52°1

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	13	37.5	W121	56.7	S 11	24.5
Beginning of northern limit of penumbra	14	08.3	W123	45.4	N 4	17.4
Beginning of northern limit of umbra	14	53.3	W149	08.6	S 30	21.4
Beginning of centre line; central eclipse begins	14	53.7	W149	20.4	S 30	34.0
Beginning of southern limit of umbra	14	54.0	W149	32.4	S 30	46.8
Central eclipse at local apparent noon	16	28.7	W 70	26.4	S 74	31.4
End of southern limit of umbra	17	10.4	E 50	31.0	S 60	40.5
End of centre line; central eclipse ends	17	10.8	E 50	03.0	S 60	29.7
End of northern limit of umbra	17	11.2	E 49	35.3	S 60	19.0
End of northern limit of penumbra	17	56.4	E 9	23.4	S 28	43.5
⊙ Eclipse ends; last contact with Earth	18	27.1	E 10	48.5	S 43	46.0