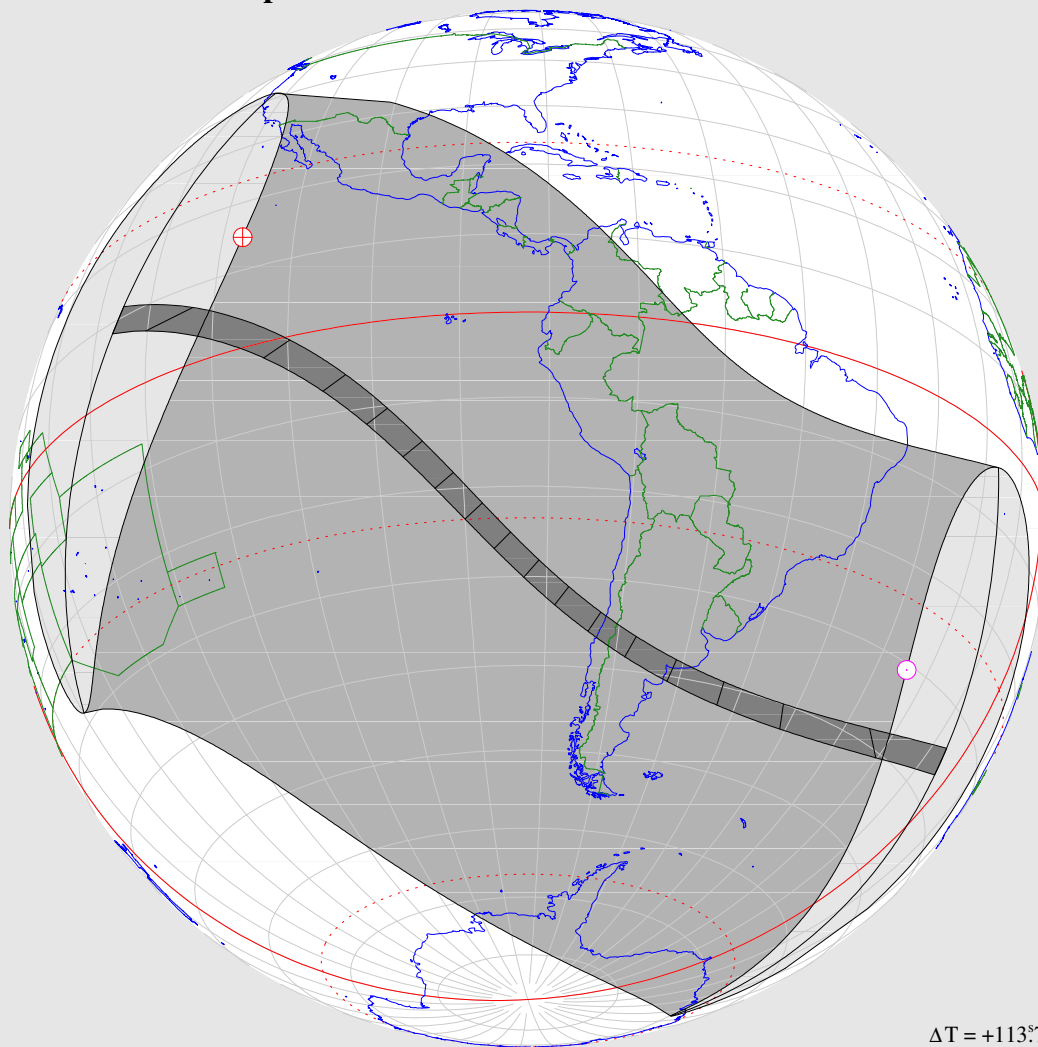


IV. - Annular Eclipse of the Sun

2078 November 04



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ΔT = +113:7
Globe centred on W 82°4 and S 24°7

Circumstances	Time (UT)	Longitude	Latitude
	h m	o /	o /
⊕ Eclipse begins; first contact with Earth	13 48.6	W117 04.9	N 14 39.0
Beginning of northern limit of penumbra	14 52.5	W122 56.3	N41 30.6
Beginning of northern limit of umbra	14 56.8	W135 05.6	N11 25.1
Beginning of centre line; central eclipse begins	14 57.9	W135 47.8	N 9 56.5
Beginning of southern limit of umbra	14 59.1	W136 30.9	N 8 27.2
Beginning of southern limit of penumbra	15 47.5	W159 47.5	S 28 39.0
Central eclipse at local apparent noon	17 05.6	W 80 31.8	S 30 14.7
End of southern limit of penumbra	17 59.6	E 45 06.3	S 69 40.5
End of southern limit of umbra	18 48.4	W 4 09.5	S 36 42.9
End of centre line; central eclipse ends	18 49.6	W 5 05.6	S 35 15.4
End of northern limit of umbra	18 50.7	W 5 59.0	S 33 48.2
End of northern limit of penumbra	18 55.4	W 16 59.0	S 3 31.5
⊙ Eclipse ends; last contact with Earth	19 59.0	W 24 18.9	S 30 37.3