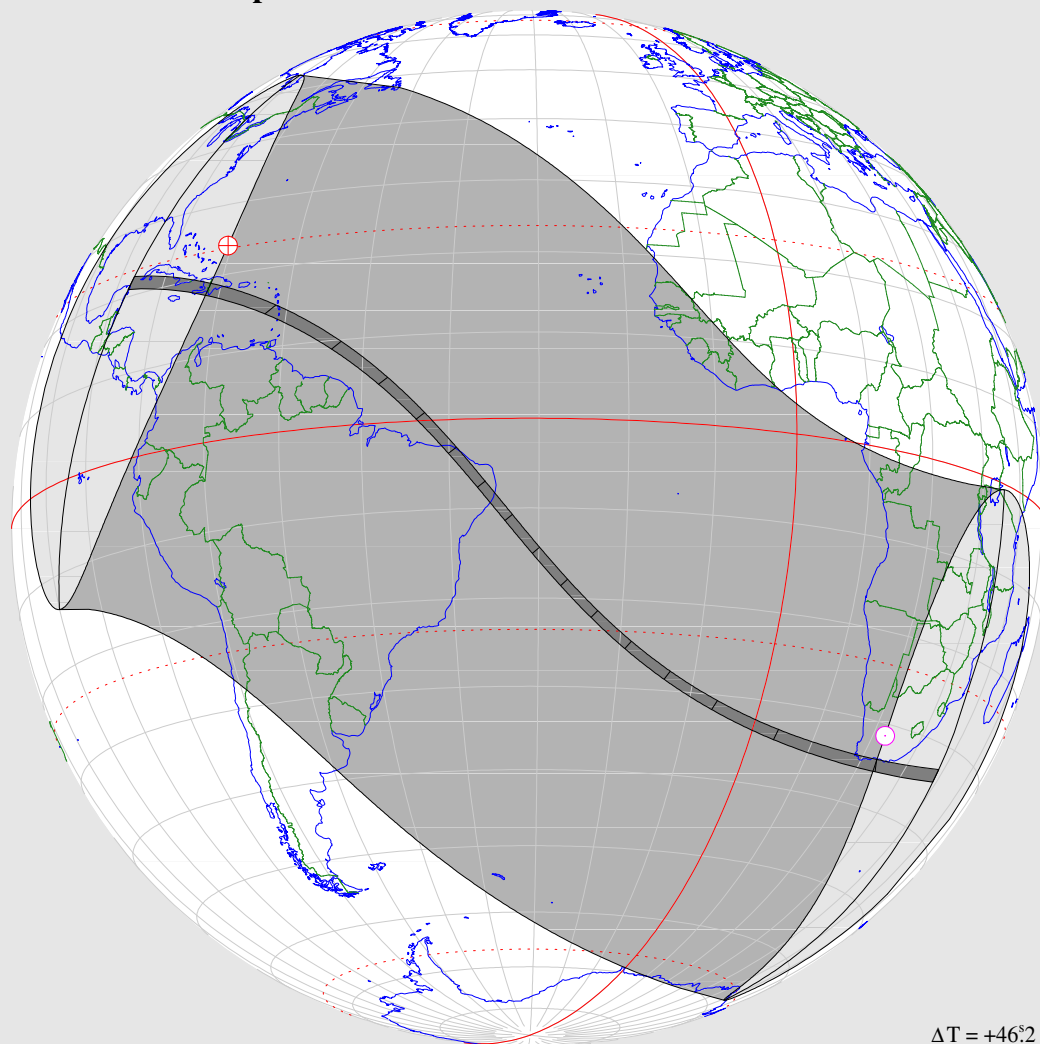


# V. - Annular Eclipse of the Sun

1651 October 14



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$\Delta T = +46^s 2$   
Globe centred on W 31°0 and S 12°3

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	10	43.1	W 70	35.1	N 23	55.1
Beginning of northern limit of umbra	11	46.8	W 86	43.7	N 22	36.1
Beginning of centre line; central eclipse begins	11	47.1	W 86	55.7	N 21	48.4
Beginning of southern limit of umbra	11	47.3	W 87	07.9	N 21	00.6
Beginning of northern limit of penumbra	11	55.0	W 80	36.2	N 54	22.5
Beginning of southern limit of penumbra	12	18.1	W 99	59.6	S 13	37.6
Central eclipse at local apparent noon	13	46.3	W 30	02.8	S 14	59.8
End of southern limit of penumbra	15	01.7	E 62	06.8	S 67	58.0
End of northern limit of penumbra	15	25.6	E 35	12.3	S 0	38.3
End of southern limit of umbra	15	32.8	E 38	58.8	S 34	13.2
End of centre line; central eclipse ends	15	33.1	E 38	44.8	S 33	27.0
End of northern limit of umbra	15	33.4	E 38	31.3	S 32	40.8
⊙ Eclipse ends; last contact with Earth	16	37.0	E 22	21.1	S 31	20.8