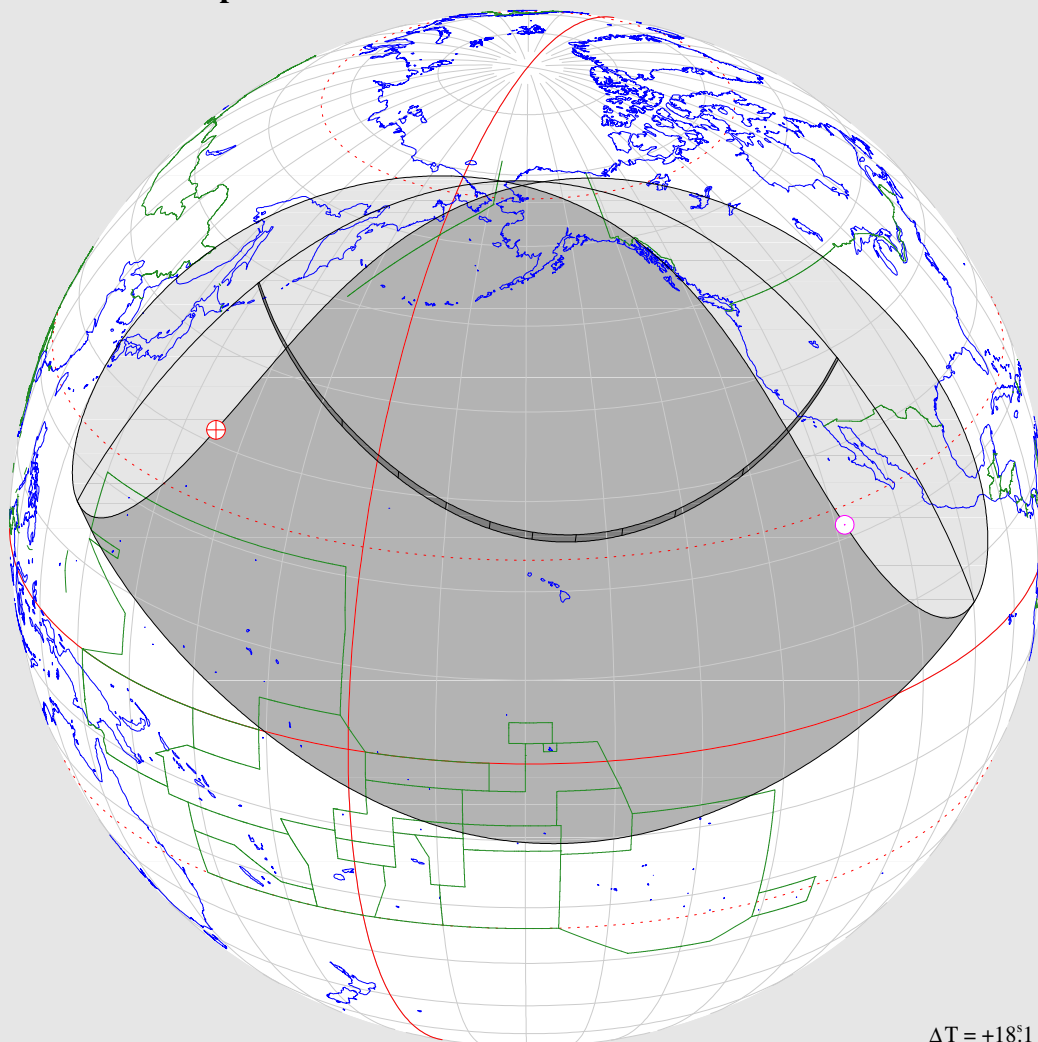


# IV. - Total Eclipse of the Sun

## 1677 November 24-25



©HM Nautical Almanac Office

$\Delta T = +18^s 1$   
Globe centred on W 159°7 and N 27°0

Circumstances	Time (UT)	Longitude	Latitude
	<sup>h</sup> <sup>m</sup>	<sup>o</sup> /	<sup>o</sup> /
⊕ Eclipse begins; first contact with Earth	20 19.8	E 155 25.4	N 31 27.9
Beginning of southern limit of penumbra	21 09.2	E 135 42.8	N 15 40.6
Beginning of southern limit of umbra	21 31.8	E 149 01.1	N 48 03.8
Beginning of centre line; central eclipse begins	21 32.0	E 149 04.6	N 48 09.7
Beginning of northern limit of umbra	21 32.1	E 149 08.1	N 48 15.5
Central eclipse at local apparent noon	22 36.3	W 162 11.7	N 26 45.9
End of northern limit of umbra	23 55.4	W 109 48.7	N 38 48.4
End of centre line; central eclipse ends	23 55.6	W 109 46.4	N 38 41.2
End of southern limit of umbra	23 55.7	W 109 44.1	N 38 34.0
End of southern limit of penumbra	0 18.2	W 99 45.9	N 5 31.4
⊙ Eclipse ends; last contact with Earth	1 07.7	W 118 39.3	N 21 28.4