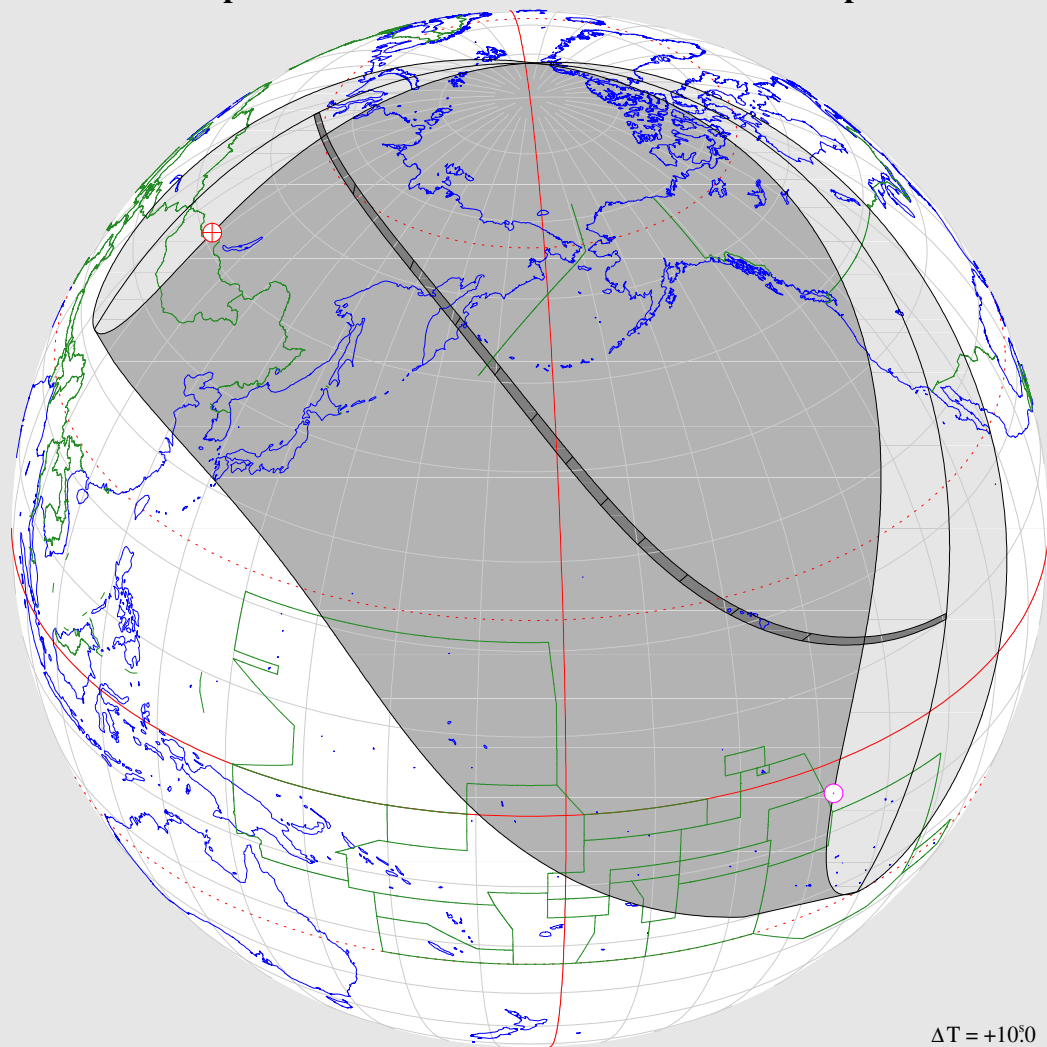


III. - Total Eclipse of the Sun

1690 September 02-03



©HM Nautical Almanac Office

$\Delta T = +10^{\circ}0$
Globe centred on E 176°0 and N 33°7

Circumstances	Time (UT)	Longitude	Latitude
	h m	° /	° /
⊕ Eclipse begins; first contact with Earth	22 46.7	E 98 37.9	N 51 04.9
Beginning of southern limit of penumbra	23 27.4	E 93 07.7	N 32 08.3
Beginning of southern limit of umbra	23 53.4	E 75 01.1	N 64 52.4
Beginning of centre line; central eclipse begins	23 53.8	E 74 41.2	N 65 10.6
Beginning of northern limit of umbra	23 54.2	E 74 20.8	N 65 28.9
Central eclipse at local apparent noon	0 42.6	E 169 05.8	N 52 07.8
End of northern limit of umbra	2 41.3	W 129 12.1	N 10 28.2
End of centre line; central eclipse ends	2 41.7	W 129 20.0	N 10 10.4
End of southern limit of umbra	2 42.1	W 129 27.8	N 9 52.7
End of southern limit of penumbra	3 07.8	W 140 29.0	S 23 29.5
⊙ Eclipse ends; last contact with Earth	3 48.8	W 148 01.5	S 4 20.0