

IV. - Annular-Total Eclipse of the Sun

1663 September 01



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$\Delta T = +33^s.3$
Globe centred on W 86°8' and N 51°0'

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	16	34.8	W167	49.3	N47	27.8
Beginning of southern limit of penumbra	17	09.4	W172	29.5	N31	24.9
Beginning of southern limit of umbra	17	54.6	E 159	19.3	N68	58.3
Beginning of centre line; central eclipse begins	17	54.7	E 159	14.3	N69	01.3
Beginning of northern limit of umbra	17	54.8	E 159	09.3	N69	04.4
Central eclipse at local apparent noon	18	32.6	W 98	15.6	N65	51.9
End of northern limit of umbra	20	02.6	W 24	32.3	N37	17.3
End of centre line; central eclipse ends	20	02.8	W 24	35.3	N37	12.5
End of southern limit of umbra	20	02.9	W 24	38.3	N37	07.8
End of southern limit of penumbra	20	47.9	W 42	17.6	S 1	19.0
⊙ Eclipse ends; last contact with Earth	21	22.6	W 48	37.1	N14	55.5