

# V. - Annular-Total Eclipse of the Sun

2013 November 03



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$\Delta T = +68^s.9$   
Globe centred on W 11°9' and N 27°7'

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	10	04.5	W 58	21.2	N 23	50.4
Beginning of centre line; central eclipse begins	11	05.3	W 71	14.9	N 30	26.5
Beginning of southern limit of umbra	11	05.3	W 71	15.0	N 30	26.2
Beginning of northern limit of umbra	11	05.3	W 71	14.9	N 30	26.8
Beginning of southern limit of penumbra	11	08.5	W 81	14.7	S 0	03.8
Beginning of northern limit of penumbra	11	50.7	W 50	16.4	N 67	43.1
Central eclipse at local apparent noon	12	38.7	W 13	47.7	N 4	23.3
End of northern limit of penumbra	13	42.5	E 43	38.8	N 46	26.3
End of southern limit of penumbra	14	24.3	E 56	47.0	S 24	01.5
End of southern limit of umbra	14	27.7	E 47	10.9	N 6	32.4
End of northern limit of umbra	14	27.7	E 47	11.2	N 6	30.5
End of centre line; central eclipse ends	14	27.7	E 47	11.1	N 6	31.4
⊙ Eclipse ends; last contact with Earth	15	28.3	E 33	50.7	S 0	08.7