

### III. - Total Eclipse of the Sun

2099 September 14



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$\Delta T = +128^s.3$   
Globe centred on W 66°3 and N 18°6

Circumstances	Time (UT)		Longitude		Latitude	
	h	m	°	'	°	'
⊕ Eclipse begins; first contact with Earth	14	23.6	W130	02.1	N43	53.6
Beginning of southern limit of penumbra	15	12.5	W140	27.4	N21	00.1
Beginning of southern limit of umbra	15	20.9	W145	14.6	N51	22.6
Beginning of centre line; central eclipse begins	15	21.5	W145	31.0	N52	12.8
Beginning of northern limit of umbra	15	22.1	W145	48.2	N53	03.2
Beginning of northern limit of penumbra	16	18.6	E 47	08.7	N82	06.2
Central eclipse at local apparent noon	16	33.4	W 69	29.1	N30	01.9
End of northern limit of penumbra	17	33.5	E 8	00.1	N39	24.1
End of northern limit of umbra	18	29.6	W 8	48.3	S 4	51.0
End of centre line; central eclipse ends	18	30.2	W 9	00.6	S 5	41.9
End of southern limit of umbra	18	30.8	W 9	12.5	S 6	32.6
End of southern limit of penumbra	18	38.8	W 13	09.7	S36	58.5
⊙ Eclipse ends; last contact with Earth	19	28.0	W 23	55.2	S 14	03.2