

TABLE 3.2

**SHADOW CONTACTS AND CIRCUMSTANCES
TOTAL SOLAR ECLIPSE OF 2010 JULY 11**

$\Delta T = 66.2 \text{ s}$
 $= 000^{\circ}16'35.5''$

		Terrestrial Dynamical Time h m s	Latitude	Ephemeris Longitude†	True Longitude*
External/Internal					
Contacts of Penumbra:	P ₁	17:10:43.8	11°38.9'S	161°30.4'W	161°13.8'W
	P ₄	21:58:20.5	36°47.3'S	075°48.4'W	075°31.9'W
Extreme					
North/South Limits					
of Penumbral Path:	N ₁	18:00:45.9	04°40.3'N	179°17.7'E	179°34.3'E
	S ₁	21:08:25.8	20°55.6'S	054°37.4'W	054°20.8'W
External/Internal					
Contacts of Umbra:	U ₁	18:16:18.3	26°18.4'S	171°08.5'W	170°51.9'W
	U ₂	18:19:36.0	27°25.4'S	171°23.1'W	171°06.5'W
	U ₃	20:49:25.7	51°22.0'S	071°23.4'W	071°06.8'W
	U ₄	20:52:47.2	50°21.7'S	071°03.1'W	070°46.5'W
Extreme					
North/South Limits					
of Umbral Path:	N ₁	18:17:01.6	26°02.9'S	171°27.3'W	171°10.7'W
	S ₁	18:18:54.5	27°40.6'S	171°04.8'W	170°48.2'W
	N ₂	20:52:03.3	50°07.6'S	070°36.2'W	070°19.6'W
	S ₂	20:50:08.0	51°35.5'S	071°50.3'W	071°33.7'W
Extreme Limits					
of Central Line:	C ₁	18:17:56.7	26°51.4'S	171°16.1'W	170°59.5'W
	C ₂	20:51:07.0	50°51.4'S	071°12.4'W	070°55.8'W
Instant of					
Greatest Eclipse:	G ₀	19:34:37.6	19°44.9'S	122°09.1'W	121°52.5'W
Circumstances at					
Greatest Eclipse:	Sun's Altitude = 47.1°		Path Width = 258.6 km		
	Sun's Azimuth = 13.5°		Central Duration = 05m20.2s		

† Ephemeris Longitude is the terrestrial dynamical longitude assuming a uniformly rotating Earth.

* True Longitude is calculated by correcting the Ephemeris Longitude for the non-uniform rotation of Earth.

(T.L. = E.L. + 1.002738* ΔT /240, where ΔT (in seconds) = TDT - UT)

Note: Longitude is measured positive to the East.

Because ΔT is not known in advance, the value used in the predictions is an extrapolation based on pre-2009 measurements. The actual value is expected to fall within ± 0.3 seconds of the estimated ΔT used here.