

TABLE 13
LOCAL CIRCUMSTANCES FOR SOUTHEAST ASIA
TOTAL SOLAR ECLIPSE OF 2009 JULY 22

Location Name	Latitude	Longitude	Elev. m	First Contact			Second Contact			Third Contact			Fourth Contact			Maximum Eclipse				Eclips. Mag.	Eclips. Obs.	Umbral Depth	Umbral Durat.				
				U.T.	P	V Alt	U.T.	P	V	U.T.	P	V	U.T.	P	V Alt	U.T.	P	V Alt	Azm								
				h	m	s	°	′	″	h	m	s	°	′	″	h	m	s	°	′	″	°					
BRUNEI DARUSSALAM																											
Bandar Seri Beg.	04°56'N	114°55'E	3	00:48:00.7	342	81	35	—	—	—	—	—	—	—	02:22:57.1	53	166	56	01:33:33.5	17	121	45	66	0.171	0.084		
BURMA (MYANMAR)																											
Mandalay	22°00'N	096°05'E	77	00:00:28.0	292	3	12	—	—	—	—	—	—	—	02:09:56.7	92	170	41	01:01:12.5	12	86	25	77	0.827	0.796		
Yangon	16°47'N	096°10'E	—	00:01:39.4	302	18	10	—	—	—	—	—	—	—	02:05:41.1	81	166	39	00:59:48.8	11	91	24	75	0.655	0.581		
CAMBODIA																											
Phnum Pénh	11°33'N	104°55'E	12	00:13:58.7	318	43	20	—	—	—	—	—	—	—	02:13:28.5	69	164	48	01:10:06.0	13	102	33	73	0.420	0.311		
INDONESIA																											
Dumai	01°41'N	101°27'E	—	00:34:05.9	343	78	18	—	—	—	—	—	—	—	01:43:12.7	42	144	34	01:07:26.6	12	111	26	68	0.124	0.053		
Kisaran	02°59'N	099°37'E	—	00:26:12.5	337	69	15	—	—	—	—	—	—	—	01:45:54.9	47	147	33	01:04:24.0	12	108	24	69	0.179	0.090		
Manado	01°29'N	124°51'E	—	01:27:58.6	336	111	51	—	—	—	—	—	—	—	02:50:51.2	51	193	67	02:08:49.8	24	149	60	50	0.100	0.038		
Medan	03°35'N	098°40'E	—	00:22:58.9	334	65	13	—	—	—	—	—	—	—	01:46:43.7	49	149	33	01:03:00.4	12	106	23	70	0.206	0.110		
Padang	00°57'S	100°21'E	—	00:45:17.5	353	92	18	—	—	—	—	—	—	—	01:29:42.3	31	133	29	01:07:05.0	12	112	23	67	0.050	0.014		
Padangsidempuan	01°22'N	099°16'E	—	00:31:18.7	342	76	15	—	—	—	—	—	—	—	01:40:12.2	42	143	31	01:04:32.7	12	109	23	69	0.131	0.057		
Pakanbaru	00°32'N	101°27'E	—	00:39:20.4	348	84	19	—	—	—	—	—	—	—	01:38:15.7	37	140	32	01:07:57.6	12	112	25	68	0.088	0.032		
Pematangsiantar	02°57'N	099°03'E	—	00:25:26.2	336	68	14	—	—	—	—	—	—	—	01:45:16.3	47	147	33	01:03:41.1	12	107	23	69	0.183	0.093		
Singkawang	00°54'N	109°00'E	—	00:55:44.3	355	96	30	—	—	—	—	—	—	—	01:48:46.2	35	143	42	01:21:39.7	15	119	35	66	0.057	0.017		
Tembilahan	00°19'S	103°09'E	—	00:48:31.3	354	93	22	—	—	—	—	—	—	—	01:34:30.9	31	135	33	01:11:04.4	13	114	27	67	0.050	0.014		
MALAYSIA																											
Ipoh	04°35'N	101°05'E	—	00:23:39.3	333	64	16	—	—	—	—	—	—	—	01:52:11.6	51	151	37	01:05:51.6	12	107	26	70	0.219	0.121		
Kuala Lumpur	03°10'N	101°42'E	34	00:28:59.9	338	71	17	—	—	—	—	—	—	—	01:48:44.8	47	148	36	01:07:13.1	12	109	26	69	0.169	0.083		
PHILIPPINES																											
Caloocan	14°39'N	120°58'E	—	00:32:50.6	319	46	40	—	—	—	—	—	—	—	03:01:48.0	82	191	74	01:43:49.7	20	114	57	75	0.496	0.394		
Cebu	10°18'N	123°54'E	—	00:48:19.6	329	65	45	—	—	—	—	—	—	—	03:08:04.1	75	207	76	01:55:46.8	22	128	61	67	0.367	0.257		
Davao	07°04'N	125°36'E	27	01:02:15.0	338	81	49	—	—	—	—	—	—	—	03:10:15.4	69	216	74	02:04:41.3	24	139	63	59	0.276	0.170		
General Santos	06°07'N	125°11'E	—	01:05:00.3	341	85	49	—	—	—	—	—	—	—	03:06:40.4	66	211	73	02:04:22.2	23	140	62	58	0.243	0.142		
Iloilo	10°42'N	122°34'E	—	00:44:32.6	328	63	43	—	—	—	—	—	—	—	03:03:31.2	74	200	74	01:51:19.2	21	124	59	68	0.373	0.262		
Las Pinas	14°29'N	120°59'E	—	00:33:10.4	319	47	40	—	—	—	—	—	—	—	03:01:43.7	81	191	74	01:43:58.7	20	115	57	75	0.490	0.388		
Manila	14°35'N	121°00'E	15	00:33:01.3	319	47	40	—	—	—	—	—	—	—	03:01:51.6	82	191	74	01:43:57.6	20	114	57	75	0.493	0.392		
Marikina	14°38'N	121°06'E	—	00:33:06.8	319	47	40	—	—	—	—	—	—	—	03:02:13.9	82	191	75	01:44:12.1	20	114	57	75	0.495	0.394		
Paranaque	14°30'N	120°59'E	—	00:33:08.6	319	47	40	—	—	—	—	—	—	—	03:01:44.4	81	191	74	01:43:58.0	20	115	57	75	0.491	0.389		
Quezon City	14°38'N	121°03'E	—	00:33:01.4	319	47	40	—	—	—	—	—	—	—	03:02:03.9	82	191	75	01:44:03.9	20	114	57	75	0.495	0.394		
Zamboanga	06°54'N	122°04'E	—	00:55:23.5	338	79	44	—	—	—	—	—	—	—	02:55:07.6	64	194	70	01:53:12.3	21	131	57	63	0.249	0.146		
SINGAPORE																											
Singapore	01°17'N	103°51'E	10	00:40:51.5	347	84	22	—	—	—	—	—	—	—	01:43:55.7	39	143	36	01:11:25.4	13	113	29	68	0.096	0.036		
TAIWAN																											
Kaohsiung	22°38'N	120°17'E	—	00:22:34.6	302	19	38	—	—	—	—	—	—	—	03:02:16.2	97	176	75	01:38:30.2	19	99	56	87	0.762	0.716		
T'aipei	25°03'N	121°30'E	6	00:23:17.4	298	12	40	—	—	—	—	—	—	—	03:05:03.4	102	170	76	01:40:30.0	20	95	57	91	0.848	0.824		
THAILAND																											
Bangkok	13°45'N	100°31'E	16	00:06:48.2	311	31	15	—	—	—	—	—	—	—	02:08:44.7	74	164	43	01:03:58.4	12	97	28	74	0.521	0.422		
Nonthaburi	13°50'N	100°29'E	—	00:06:41.6	310	31	15	—	—	—	—	—	—	—	02:08:48.0	74	164	43	01:03:56.2	12	97	28	74	0.524	0.426		
VIETNAM																											
Da Nang	16°04'N	108°13'E	—	00:12:03.4	310	31	24	—	—	—	—	—	—	—	02:26:51.3	79	170	55	01:15:09.8	14	100	38	77	0.553	0.460		
Hai Phong	20°52'N	106°41'E	—	00:07:17.3	300	15	22	—	—	—	—	—	—	—	02:27:45.4	89	171	55	01:13:01.1	14	93	37	80	0.722	0.663		
Ha Noi	21°02'N	105°51'E	6	00:06:30.7	299	14	21	—	—	—	—	—	—	—	02:26:08.1	89	171	53	01:11:50.6	14	92	36	80	0.731	0.675		
Ho Chi Minh	10°45'N	106°40'E	10	00:17:28.7	321	48	22	—	—	—	—	—	—	—	02:15:43.8	67	164	49	01:13:05.4	14	105	35	73	0.384	0.274		