# TABLE 9
## LOCAL CIRCUMSTANCES FOR INDIA
## TOTAL SOLAR ECLIPSE OF 2009 JULY 22

| Location Name | Latitude | Longitude | Elev. | First Contact | | | | Second Contact | | | Third Contact | | | Fourth Contact | | | | Maximum Eclipse | | | | | Eclip. | Eclip. | Umbral | Umbral |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | U.T. | P | V | Alt | U.T. | P | V | U.T. | P | V | U.T. | P | V | Alt | U.T. | P | V | Alt | Azm | Mag. | Obs. | Depth | Durat. |
| | | | m | h m s | ° | ° | ° | h m s | ° | ° | h m s | ° | ° | h m s | ° | ° | ° | h m s | ° | ° | ° | ° | | | | |
| **INDIA** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Agra | 27°11'N | 078°01'E | — | — | | | | — | | | — | | | 01:54:42.2 | 108 | 176 | 22 | 00:55:51.3 | 190 | 254 | 10 | 72 | 0.906 | 0.895 | | |
| Ahmadabad | 23°02'N | 072°37'E | 55 | — | | | | — | | | — | | | 01:50:29.4 | 103 | 174 | 15 | 00:53:42.4 | 189 | 256 | 3 | 69 | 0.973 | 0.977 | | |
| Allahabad | 25°27'N | 081°51'E | — | 00:00:19.6 | 278 | 341 | 1 | — | | | — | | | 01:56:43.9 | 103 | 174 | 26 | 00:55:32.0 | 190 | 257 | 12 | 73 | 0.999 | 1.000 | | |
| Amritsar | 31°35'N | 074°53'E | — | — | | | | — | | | — | | | 01:53:51.0 | 117 | 180 | 20 | 00:58:21.8 | 190 | 250 | 9 | 72 | 0.741 | 0.687 | | |
| Ara | 25°34'N | 084°40'E | — | 23:59:59.5 | 279 | 343 | 3 | 00:54:33.7 | 83 | 151 | 00:58:10.3 | 297 | 5 | 01:59:04.8 | 102 | 173 | 29 | 00:56:21.6 | 190 | 258 | 15 | 74 | 1.066 | 1.000 | 0.705 | 03m37s |
| Asansol | 23°41'N | 086°59'E | — | 23:59:04.8 | 284 | 350 | 4 | — | | | — | | | 02:00:16.2 | 97 | 171 | 31 | 00:56:17.4 | 10 | 81 | 16 | 75 | 0.961 | 0.963 | | |
| Aurangabad | 19°53'N | 075°20'E | — | — | | | | — | | | — | | | 01:50:18.4 | 96 | 170 | 17 | 00:52:21.6 | 9 | 79 | 4 | 70 | 0.962 | 0.964 | | |
| Bangalore | 12°59'N | 077°35'E | 895 | — | | | | — | | | — | | | 01:46:59.6 | 82 | 164 | 16 | 00:50:38.1 | 9 | 86 | 3 | 70 | 0.720 | 0.660 | | |
| Bhagalpur | 25°15'N | 087°00'E | — | 23:59:42.4 | 281 | 346 | 5 | 00:55:38.3 | 144 | 212 | 00:58:29.0 | 238 | 307 | 02:01:05.1 | 100 | 172 | 31 | 00:57:03.3 | 11 | 79 | 17 | 75 | 1.066 | 1.000 | 0.319 | 02m51s |
| Bhavnagar | 21°46'N | 072°09'E | — | — | | | | 00:52:13.7 | 47 | 114 | 00:54:12.0 | 331 | 39 | 01:49:51.3 | 101 | 173 | 15 | 00:53:12.7 | 189 | 257 | 2 | 69 | 1.062 | 1.000 | 0.209 | 01m58s |
| Bhopal | 23°16'N | 077°24'E | — | — | | | | 00:52:14.5 | 76 | 144 | 00:55:23.8 | 303 | 11 | 01:52:52.1 | 101 | 173 | 20 | 00:53:48.9 | 189 | 257 | 7 | 71 | 1.063 | 1.000 | 0.601 | 03m09s |
| Bihar | 25°11'N | 085°31'E | — | 23:59:44.0 | 280 | 345 | 3 | 00:54:39.2 | 119 | 188 | 00:58:15.9 | 262 | 330 | 01:59:39.6 | 101 | 173 | 29 | 00:56:27.1 | 10 | 79 | 15 | 74 | 1.066 | 1.000 | 0.679 | 03m37s |
| Mumbai | 18°58'N | 072°50'E | 8 | — | | | | — | | | — | | | 01:48:55.7 | 96 | 170 | 14 | 00:52:08.0 | 9 | 79 | 2 | 69 | 0.961 | 0.963 | | |
| Burhanpur | 21°18'N | 076°14'E | — | — | | | | — | | | — | | | 01:51:23.1 | 98 | 171 | 18 | 00:52:54.8 | 9 | 79 | 5 | 70 | 0.996 | 0.998 | | |
| Calicut | 11°15'N | 075°46'E | — | — | | | | — | | | — | | | 01:45:10.3 | 80 | 163 | 14 | 00:50:20.6 | 9 | 87 | 1 | 69 | 0.686 | 0.618 | | |
| Cochin | 09°58'N | 076°14'E | — | — | | | | — | | | — | | | 01:44:16.1 | 77 | 161 | 13 | 00:50:14.5 | 9 | 88 | 1 | 70 | 0.640 | 0.562 | | |
| Coimbatore | 11°00'N | 076°58'E | — | — | | | | — | | | — | | | 01:45:17.1 | 79 | 162 | 15 | 00:50:21.4 | 9 | 88 | 2 | 70 | 0.664 | 0.591 | | |
| Darbhanga | 26°10'N | 085°54'E | — | 00:00:12.7 | 279 | 343 | 4 | 00:55:27.1 | 70 | 138 | 00:58:45.9 | 311 | 19 | 02:00:27.5 | 102 | 173 | 30 | 00:57:06.1 | 190 | 258 | 16 | 75 | 1.066 | 1.000 | 0.494 | 03m19s |
| Delhi | 28°40'N | 077°13'E | — | — | | | | — | | | — | | | 01:54:38.2 | 111 | 177 | 22 | 00:56:38.4 | 190 | 253 | 9 | 72 | 0.852 | 0.827 | | |
| Dhanbad | 23°48'N | 086°27'E | — | 23:59:07.3 | 283 | 349 | 4 | — | | | — | | | 01:59:49.7 | 98 | 172 | 30 | 00:56:07.7 | 10 | 80 | 16 | 74 | 0.970 | 0.973 | | |
| Dhule | 20°54'N | 074°47'E | — | — | | | | — | | | — | | | 01:50:32.4 | 98 | 171 | 17 | 00:52:44.4 | 9 | 78 | 4 | 70 | 0.999 | 1.000 | | |
| Gaya | 24°47'N | 085°00'E | — | 23:59:35.0 | 281 | 345 | 3 | 00:54:30.1 | 134 | 203 | 00:57:39.3 | 247 | 316 | 01:59:00.5 | 100 | 172 | 29 | 00:56:04.4 | 10 | 79 | 15 | 74 | 1.066 | 1.000 | 0.447 | 03m09s |
| Guwahati | 26°10'N | 091°45'E | — | 00:00:25.2 | 282 | 348 | 9 | — | | | — | | | 02:06:40.4 | 100 | 173 | 37 | 00:59:55.7 | 11 | 80 | 22 | 77 | 0.998 | 0.999 | | |
| Gwalior | 26°13'N | 078°10'E | — | — | | | | — | | | — | | | 01:54:28.4 | 106 | 175 | 22 | 00:55:20.5 | 190 | 255 | 9 | 72 | 0.937 | 0.934 | | |
| Haora | 22°35'N | 088°20'E | — | 23:58:49.1 | 286 | 354 | 5 | — | | | — | | | 02:00:58.2 | 95 | 170 | 32 | 00:56:24.1 | 10 | 82 | 17 | 75 | 0.913 | 0.905 | | |
| Hubli-Dharwar | 15°21'N | 075°10'E | — | — | | | | — | | | — | | | 01:47:47.0 | 88 | 167 | 15 | 00:51:01.7 | 9 | 83 | 2 | 69 | 0.822 | 0.788 | | |
| Hyderabad | 17°23'N | 078°29'E | 531 | — | | | | — | | | — | | | 01:50:22.6 | 90 | 168 | 19 | 00:51:42.4 | 9 | 83 | 6 | 71 | 0.849 | 0.823 | | |
| Indore | 22°43'N | 075°50'E | — | — | | | | 00:51:57.3 | 76 | 143 | 00:55:02.5 | 303 | 11 | 01:51:48.5 | 101 | 173 | 18 | 00:53:29.6 | 189 | 257 | 6 | 70 | 1.063 | 1.000 | 0.597 | 03m05s |
| Jabalpur | 23°10'N | 079°57'E | — | — | | | | 00:52:35.1 | 133 | 202 | 00:55:33.0 | 246 | 315 | 01:54:22.3 | 99 | 172 | 23 | 00:54:03.7 | 10 | 78 | 10 | 72 | 1.064 | 1.000 | 0.452 | 02m58s |
| Jaipur | 26°55'N | 075°49'E | — | — | | | | — | | | — | | | 01:53:18.2 | 108 | 176 | 20 | 00:55:33.7 | 190 | 254 | 8 | 71 | 0.891 | 0.876 | | |
| Jamshedpur | 22°48'N | 086°11'E | — | 23:58:48.3 | 285 | 352 | 3 | — | | | — | | | 01:59:02.1 | 96 | 171 | 29 | 00:55:34.2 | 10 | 81 | 15 | 74 | 0.940 | 0.939 | | |
| Jodhpur | 26°17'N | 073°02'E | — | — | | | | — | | | — | | | 01:51:41.8 | 108 | 176 | 17 | 00:55:14.7 | 189 | 253 | 5 | 70 | 0.880 | 0.862 | | |
| Kanpur | 26°28'N | 080°21'E | — | 00:01:14.4 | 275 | 337 | 0 | — | | | — | | | 01:56:01.8 | 105 | 175 | 24 | 00:55:46.5 | 190 | 256 | 11 | 73 | 0.952 | 0.952 | | |
| Kanpur | 26°28'N | 080°21'E | — | 00:01:14.4 | 275 | 337 | 0 | — | | | — | | | 01:56:01.8 | 105 | 175 | 24 | 00:55:46.5 | 190 | 256 | 11 | 73 | 0.952 | 0.952 | | |
| Kolcuta | 22°32'N | 088°22'E | 6 | 23:58:48.6 | 287 | 354 | 5 | — | | | — | | | 02:00:58.4 | 95 | 170 | 32 | 00:56:23.7 | 10 | 82 | 17 | 75 | 0.911 | 0.902 | | |
| Lucknow | 26°51'N | 080°55'E | 122 | 00:01:21.1 | 275 | 336 | 1 | — | | | — | | | 01:56:34.9 | 106 | 175 | 25 | 00:56:05.2 | 190 | 256 | 12 | 73 | 0.946 | 0.945 | | |
| Ludhaina | 30°54'N | 075°51'E | — | — | | | | — | | | — | | | 01:54:18.5 | 115 | 179 | 21 | 00:57:56.8 | 190 | 251 | 9 | 72 | 0.772 | 0.725 | | |
| Madras | 13°05'N | 080°17'E | 16 | — | | | | — | | | — | | | 01:48:10.5 | 81 | 163 | 19 | 00:50:59.7 | 9 | 87 | 6 | 70 | 0.693 | 0.626 | | |
| Madurai | 09°56'N | 078°07'E | — | — | | | | — | | | — | | | 01:44:42.4 | 76 | 161 | 15 | 00:50:21.5 | 9 | 89 | 3 | 70 | 0.617 | 0.534 | | |
| Meerut | 28°59'N | 077°42'E | — | — | | | | — | | | — | | | 01:55:01.9 | 111 | 177 | 22 | 00:56:52.3 | 190 | 253 | 10 | 72 | 0.848 | 0.822 | | |
| Mirzapur | 25°09'N | 082°35'E | — | 00:00:02.6 | 279 | 342 | 1 | 00:53:59.8 | 68 | 136 | 00:57:07.1 | 312 | 20 | 01:57:10.1 | 102 | 173 | 26 | 00:55:33.1 | 190 | 258 | 13 | 73 | 1.065 | 1.000 | 0.471 | 03m07s |
| Mumbai | 18°58'N | 072°50'E | 8 | — | | | | — | | | — | | | 01:48:55.7 | 96 | 170 | 14 | 00:52:08.0 | 9 | 79 | 2 | 69 | 0.961 | 0.963 | | |
| Munger | 25°23'N | 086°28'E | — | 23:59:46.9 | 281 | 345 | 4 | 00:55:08.9 | 124 | 193 | 00:58:40.9 | 257 | 325 | 02:00:38.2 | 101 | 173 | 30 | 00:56:54.5 | 10 | 79 | 16 | 75 | 1.066 | 1.000 | 0.597 | 03m32s |
| Muzaffarpur | 26°07'N | 085°24'E | — | 00:00:13.2 | 279 | 342 | 4 | 00:55:22.8 | 63 | 131 | 00:58:25.4 | 317 | 25 | 01:59:58.6 | 102 | 173 | 30 | 00:56:53.8 | 190 | 258 | 16 | 75 | 1.066 | 1.000 | 0.397 | 03m03s |
| Nagpur | 21°09'N | 079°06'E | — | — | | | | — | | | — | | | 01:52:51.2 | 96 | 171 | 21 | 00:53:04.9 | 9 | 80 | 8 | 71 | 0.960 | 0.962 | | |
| Navsari | 20°51'N | 072°55'E | — | — | | | | 00:51:18.6 | 123 | 191 | 00:54:17.2 | 256 | 324 | 01:49:46.4 | 99 | 172 | 15 | 00:52:47.6 | 9 | 78 | 3 | 69 | 1.062 | 1.000 | 0.601 | 02m59s |
| Patna | 25°36'N | 085°07'E | — | 23:59:58.1 | 279 | 343 | 3 | 00:54:40.2 | 89 | 157 | 00:58:23.8 | 291 | 360 | 01:59:29.5 | 102 | 173 | 29 | 00:56:31.6 | 190 | 258 | 15 | 74 | 1.066 | 1.000 | 0.806 | 03m44s |
| Pune | 18°32'N | 073°52'E | — | — | | | | — | | | — | | | 01:49:04.6 | 94 | 170 | 15 | 00:51:56.0 | 9 | 80 | 2 | 69 | 0.936 | 0.933 | | |
| Ranchi | 23°21'N | 085°20'E | — | 23:58:59.9 | 283 | 349 | 3 | — | | | — | | | 01:58:34.6 | 97 | 171 | 29 | 00:55:30.2 | 10 | 80 | 15 | 74 | 0.966 | 0.969 | | |
| Sagar | 23°50'N | 078°43'E | — | — | | | | 00:52:41.8 | 69 | 137 | 00:55:43.0 | 310 | 18 | 01:53:53.2 | 101 | 173 | 22 | 00:54:12.1 | 190 | 257 | 9 | 72 | 1.064 | 1.000 | 0.495 | 03m01s |
| Salem | 11°39'N | 078°10'E | — | — | | | | — | | | — | | | 01:46:10.4 | 79 | 162 | 16 | 00:50:31.0 | 9 | 88 | 3 | 70 | 0.671 | 0.600 | | |
| Shiliguri | 26°42'N | 088°26'E | — | 00:00:26.5 | 280 | 344 | 6 | 00:56:33.5 | 83 | 151 | 01:00:20.3 | 298 | 6 | 02:03:11.7 | 102 | 173 | 33 | 00:58:26.5 | 191 | 259 | 19 | 76 | 1.067 | 1.000 | 0.697 | 03m47s |
| Solapur | 17°41'N | 075°55'E | — | — | | | | — | | | — | | | 01:49:24.7 | 92 | 169 | 17 | 00:51:38.8 | 9 | 82 | 4 | 70 | 0.887 | 0.871 | | |
| Srinagar | 34°05'N | 074°49'E | — | 00:10:12.4 | 259 | 313 | 1 | — | | | — | | | 01:54:07.3 | 121 | 182 | 21 | 01:00:05.4 | 190 | 248 | 10 | 72 | 0.668 | 0.596 | | |
| Surat | 21°10'N | 072°50'E | — | — | | | | 00:51:18.4 | 102 | 170 | 00:54:32.8 | 276 | 345 | 01:49:52.3 | 99 | 172 | 15 | 00:52:55.3 | 9 | 77 | 3 | 69 | 1.062 | 1.000 | 0.947 | 03m14s |
| Tiruchchirappal | 10°49'N | 078°41'E | — | — | | | | — | | | — | | | 01:45:38.8 | 77 | 161 | 16 | 00:50:29.1 | 9 | 89 | 4 | 70 | 0.639 | 0.560 | | |
| Trivandrum | 08°29'N | 076°55'E | — | — | | | | — | | | — | | | 01:43:07.9 | 74 | 159 | 13 | 00:50:12.5 | 9 | 90 | 1 | 70 | 0.585 | 0.496 | | |
| Ujjain | 23°11'N | 075°46'E | — | — | | | | 00:52:54.4 | 37 | 105 | 00:54:29.8 | 341 | 49 | 01:51:57.9 | 101 | 173 | 19 | 00:53:41.9 | 189 | 257 | 6 | 70 | 1.063 | 1.000 | 0.118 | 01m35s |
| Vadodara | 22°18'N | 073°12'E | — | — | | | | 00:52:46.3 | 30 | 98 | 00:53:56.9 | 348 | 56 | 01:50:27.4 | 101 | 173 | 16 | 00:53:21.4 | 189 | 257 | 3 | 69 | 1.062 | 1.000 | 0.067 | 01m11s |
| Varanasi | 25°20'N | 083°00'E | — | 00:00:04.4 | 279 | 342 | 2 | 00:54:14.7 | 65 | 132 | 00:57:16.2 | 315 | 23 | 01:57:34.7 | 102 | 173 | 27 | 00:55:45.1 | 190 | 258 | 13 | 74 | 1.065 | 1.000 | 0.424 | 03m01s |
| Vijayawada | 16°31'N | 080°37'E | — | — | | | | — | | | — | | | 01:50:56.1 | 87 | 166 | 21 | 00:51:46.7 | 9 | 84 | 8 | 71 | 0.798 | 0.758 | | |
| Vishakhapatnam | 17°42'N | 083°18'E | — | — | | | | — | | | — | | | 01:53:26.7 | 88 | 167 | 24 | 00:52:43.7 | 10 | 85 | 11 | 72 | 0.807 | 0.770 | | |