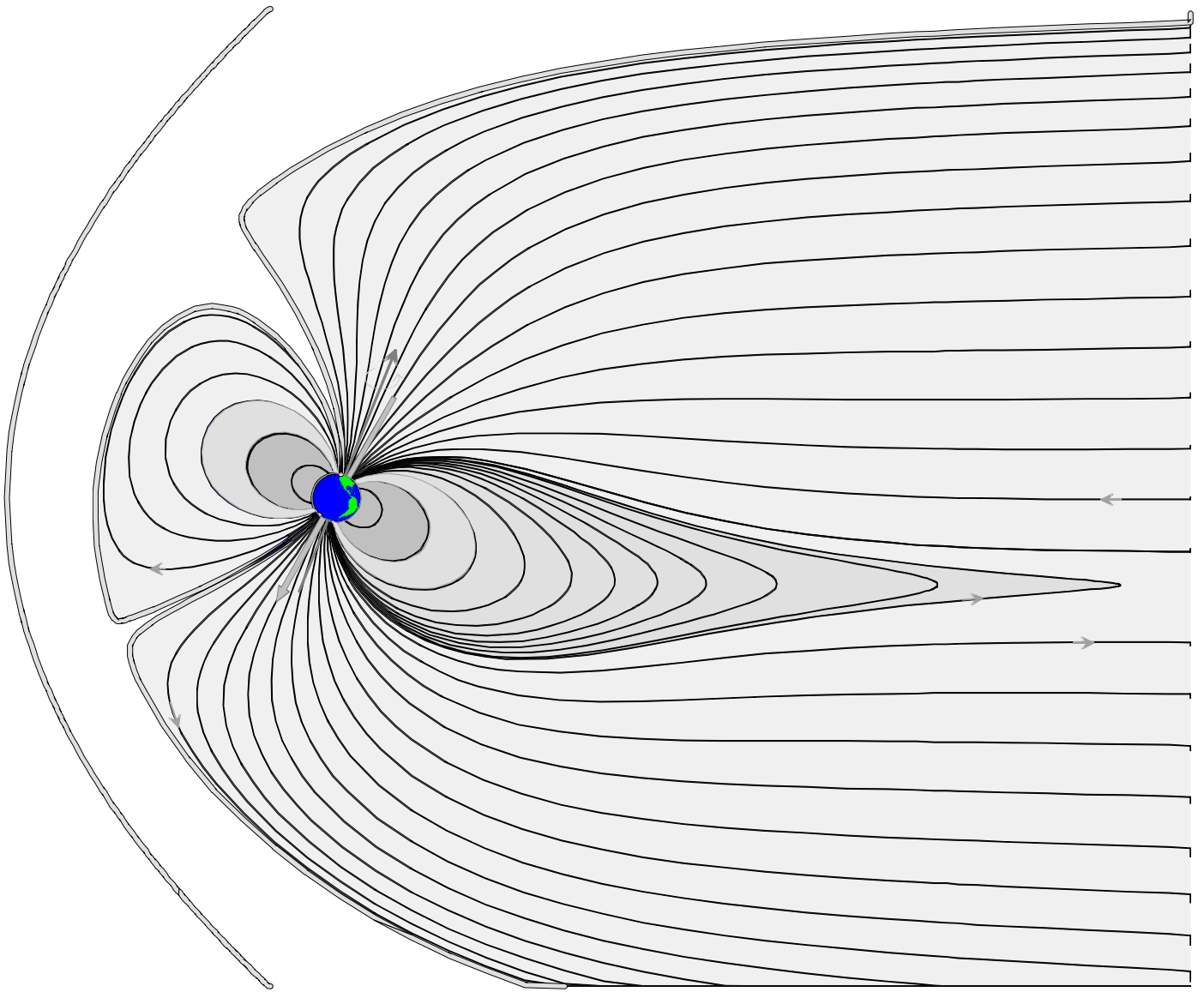
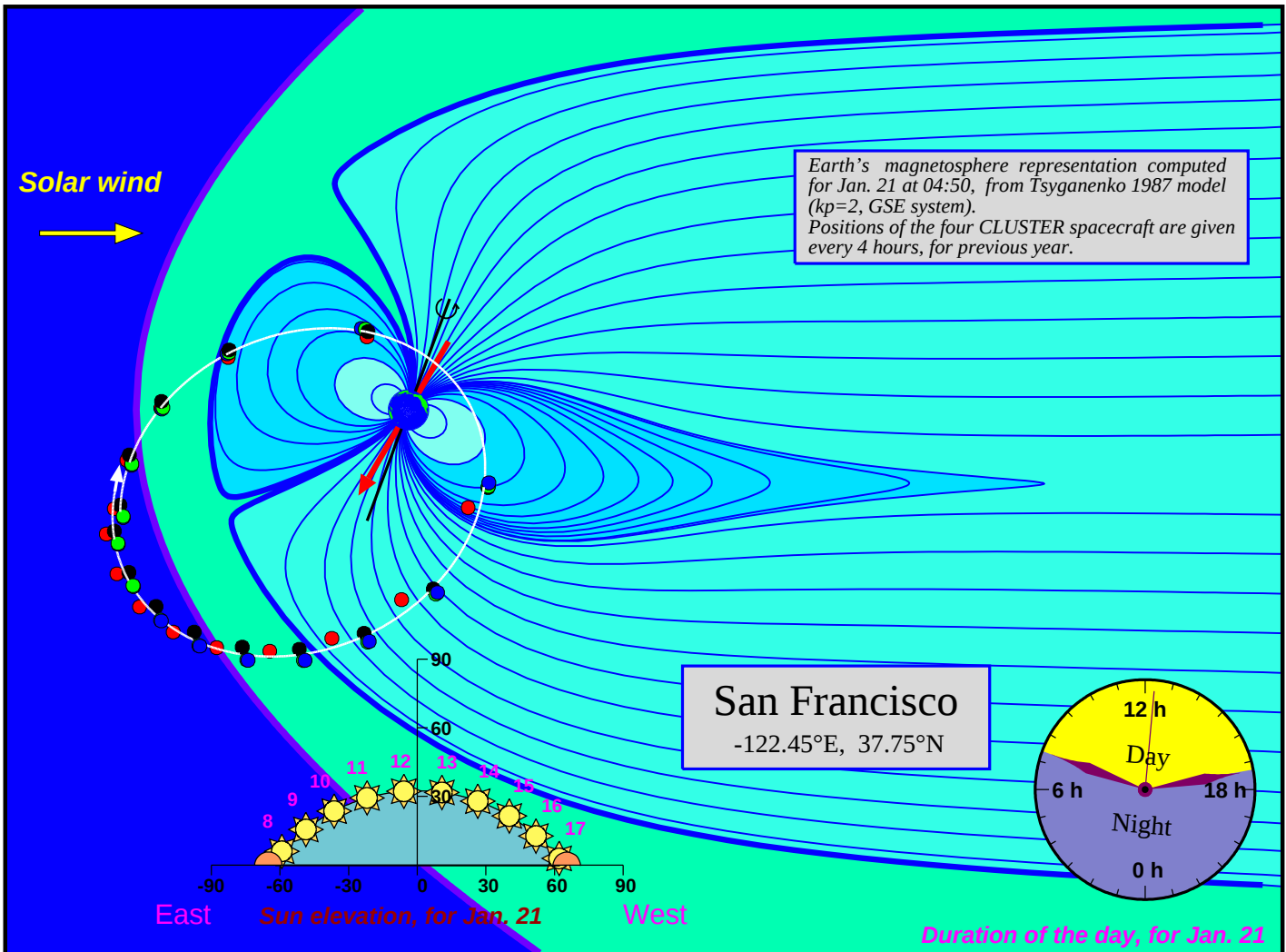




*Here is the classical magnetospheric calendar 2015,  
available for any city across the world,  
English or French version*

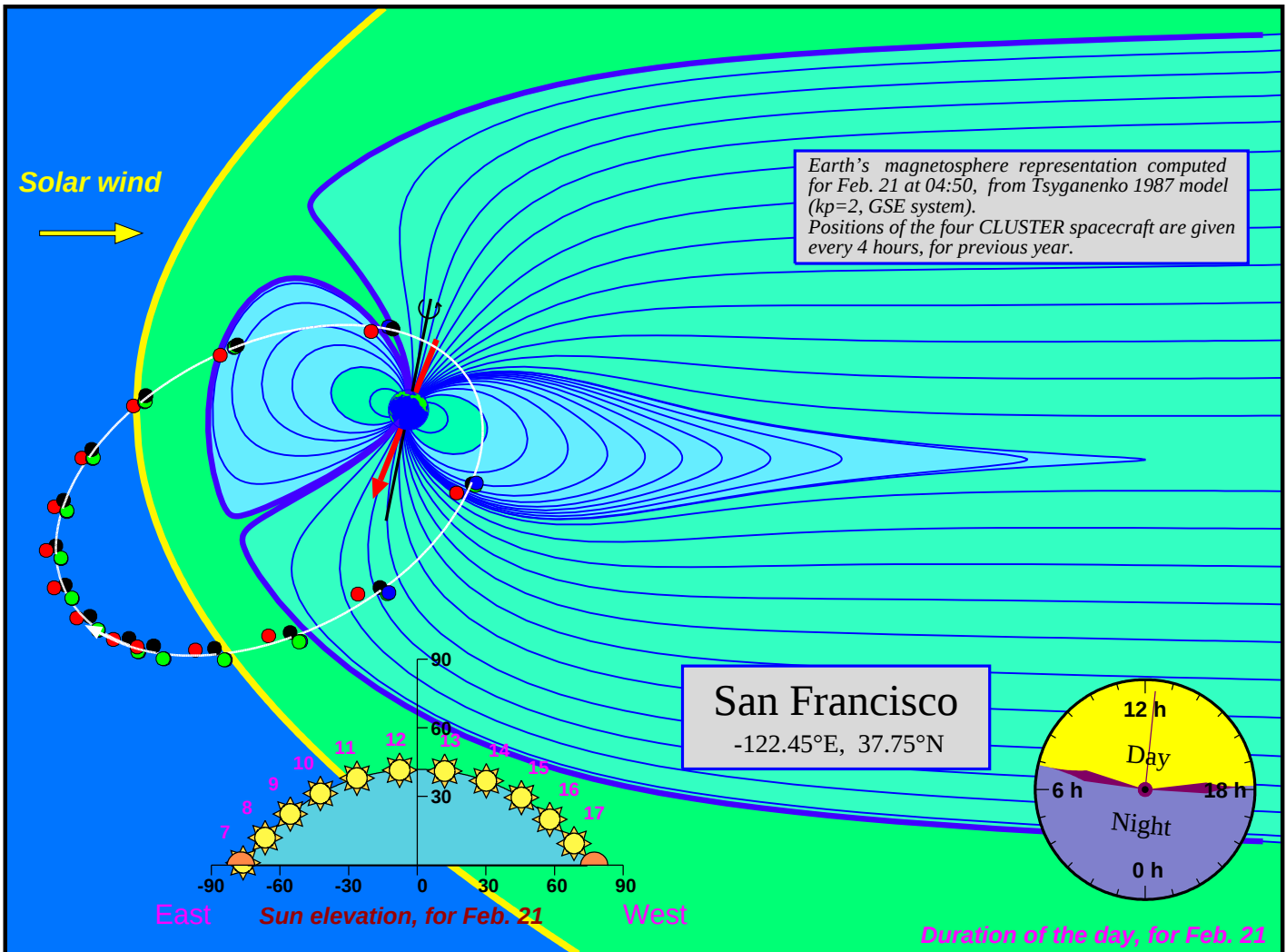
*Happy new year for everybody  
Patrick*



# January 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

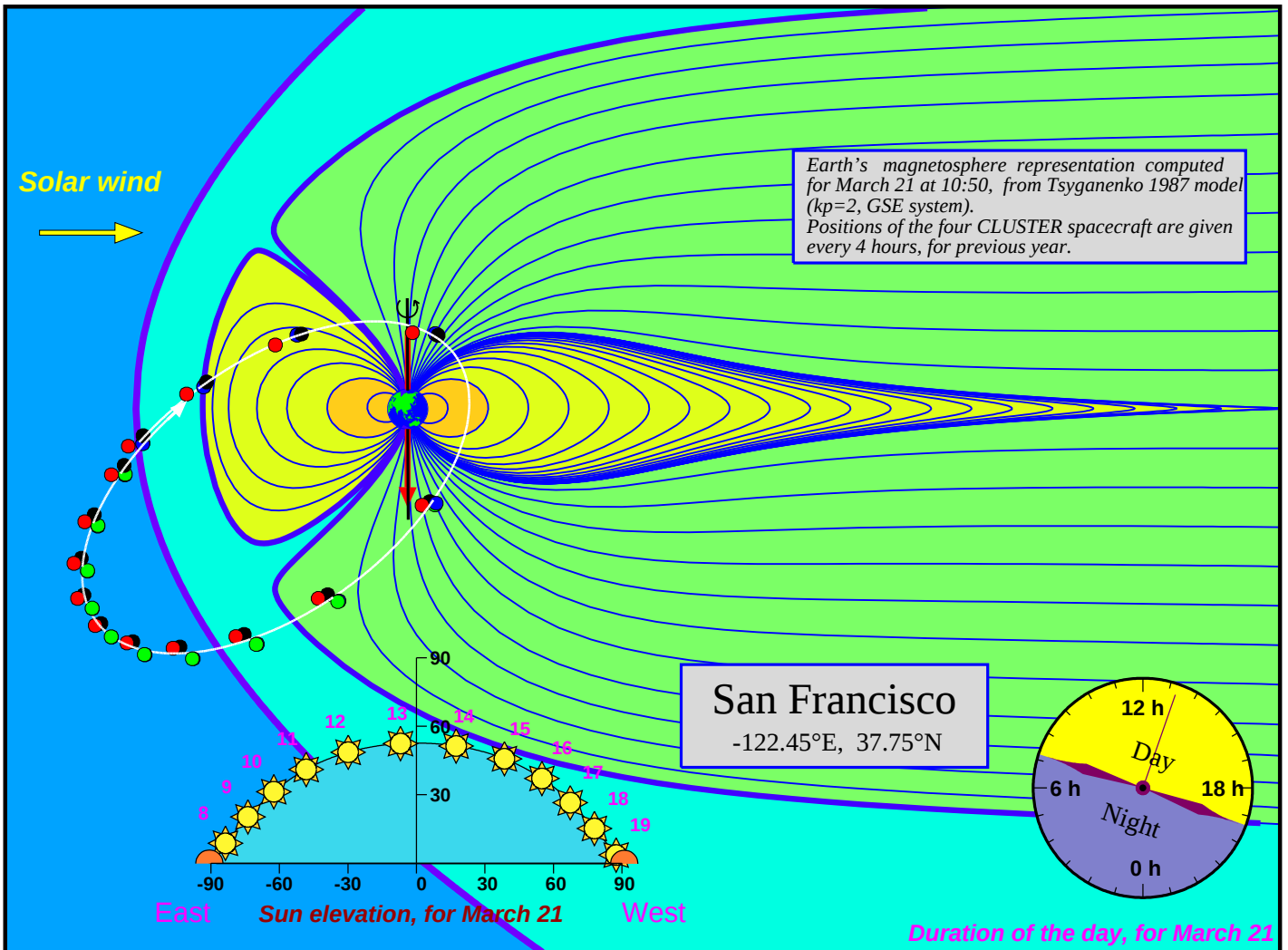
|   | Monday                                                 | Tuesday                                                | Wednesday                                              | Thursday                                               | Friday                                                 | Saturday                                               | Sunday                                                 |
|---|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| 1 | <b>29</b> 363 - 2<br>07:25 - 16:59<br>9:34 +1 m. 29°   | <b>30</b> 364 - 1<br>07:25 - 17:00<br>9:34 +0 m. 29°   | <b>31</b> 365 - 0<br>07:25 - 17:00<br>9:35 +1 m. 29°   | <b>1</b> 1 - 364<br>07:25 - 17:01<br>9:35 +0 m. 29°    | <b>2</b> 2 - 363<br>07:25 - 17:02<br>9:36 +1 m. 29°    | <b>3</b> 3 - 362<br>07:26 - 17:03<br>9:37 +1 m. 29°    | <b>4</b> 4 - 361<br>07:26 - 17:04<br>9:37 +0 m. 30°    |
| 2 | <b>5</b> 5 - 360<br>07:26 - 17:04<br>9:38 +1 m. 30°    | <b>6</b> 6 - 359<br>07:26 - 17:05<br>9:39 +1 m. 30°    | <b>7</b> 7 - 358<br>07:26 - 17:06<br>9:40 +1 m. 30°    | <b>8</b> 8 - 357<br>07:26 - 17:07<br>9:41 +1 m. 30°    | <b>9</b> 9 - 356<br>07:25 - 17:08<br>9:42 +1 m. 30°    | <b>10</b> 10 - 355<br>07:25 - 17:09<br>9:43 +1 m. 30°  | <b>11</b> 11 - 354<br>07:25 - 17:10<br>9:44 +1 m. 31°  |
| 3 | <b>12</b> 12 - 353<br>07:25 - 17:11<br>9:46 +2 m. 31°  | <b>13</b> 13 - 352<br>07:25 - 17:12<br>9:47 +1 m. 31°  | <b>14</b> 14 - 351<br>07:24 - 17:13<br>9:48 +1 m. 31°  | <b>15</b> 15 - 350<br>07:24 - 17:14<br>9:49 +1 m. 31°  | <b>16</b> 16 - 349<br>07:24 - 17:15<br>9:51 +2 m. 31°  | <b>17</b> 17 - 348<br>07:23 - 17:16<br>9:52 +1 m. 32°  | <b>18</b> 18 - 347<br>07:23 - 17:17<br>9:54 +2 m. 32°  |
| 4 | <b>19</b> 19 - 346<br>07:23 - 17:18<br>9:55 +1 m. 32°  | <b>20</b> 20 - 345<br>07:22 - 17:19<br>9:57 +2 m. 32°  | <b>21</b> 21 - 344<br>07:22 - 17:20<br>9:58 +1 m. 32°  | <b>22</b> 22 - 343<br>07:21 - 17:21<br>10:00 +2 m. 33° | <b>23</b> 23 - 342<br>07:20 - 17:22<br>10:02 +2 m. 33° | <b>24</b> 24 - 341<br>07:20 - 17:24<br>10:04 +2 m. 33° | <b>25</b> 25 - 340<br>07:19 - 17:25<br>10:05 +1 m. 33° |
| 5 | <b>26</b> 26 - 339<br>07:19 - 17:26<br>10:07 +2 m. 34° | <b>27</b> 27 - 338<br>07:18 - 17:27<br>10:09 +2 m. 34° | <b>28</b> 28 - 337<br>07:17 - 17:28<br>10:11 +2 m. 34° | <b>29</b> 29 - 336<br>07:16 - 17:29<br>10:13 +2 m. 34° | <b>30</b> 30 - 335<br>07:16 - 17:30<br>10:15 +2 m. 35° | <b>31</b> 31 - 334<br>07:15 - 17:31<br>10:16 +1 m. 35° | <b>1</b> 32 - 333<br>07:14 - 17:32<br>10:18 +2 m. 35°  |



# February 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

|   | Monday                                                 | Tuesday                                                | Wednesday                                              | Thursday                                               | Friday                                                 | Saturday                                               | Sunday                                                 |
|---|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| 5 | <b>26</b> 26 - 339<br>07:19 - 17:26<br>10:07 +2 m. 34° | <b>27</b> 27 - 338<br>07:18 - 17:27<br>10:09 +2 m. 34° | <b>28</b> 28 - 337<br>07:17 - 17:28<br>10:11 +2 m. 34° | <b>29</b> 29 - 336<br>07:16 - 17:29<br>10:13 +2 m. 34° | <b>30</b> 30 - 335<br>07:16 - 17:30<br>10:15 +2 m. 35° | <b>31</b> 31 - 334<br>07:15 - 17:31<br>10:16 +1 m. 35° | <b>1</b> 32 - 333<br>07:14 - 17:32<br>10:18 +2 m. 35°  |
| 6 | <b>2</b> 33 - 332<br>07:13 - 17:34<br>10:21 +3 m. 36°  | <b>3</b> 34 - 331<br>07:12 - 17:35<br>10:22 +1 m. 36°  | <b>4</b> 35 - 330<br>07:11 - 17:36<br>10:24 +2 m. 36°  | <b>5</b> 36 - 329<br>07:10 - 17:37<br>10:27 +3 m. 36°  | <b>6</b> 37 - 328<br>07:09 - 17:38<br>10:29 +2 m. 37°  | <b>7</b> 38 - 327<br>07:08 - 17:39<br>10:31 +2 m. 37°  | <b>8</b> 39 - 326<br>07:07 - 17:40<br>10:33 +2 m. 37°  |
| 7 | <b>9</b> 40 - 325<br>07:06 - 17:41<br>10:35 +2 m. 38°  | <b>10</b> 41 - 324<br>07:05 - 17:42<br>10:37 +2 m. 38° | <b>11</b> 42 - 323<br>07:04 - 17:43<br>10:39 +2 m. 38° | <b>12</b> 43 - 322<br>07:03 - 17:45<br>10:42 +3 m. 39° | <b>13</b> 44 - 321<br>07:02 - 17:46<br>10:44 +2 m. 39° | <b>14</b> 45 - 320<br>07:01 - 17:47<br>10:46 +2 m. 39° | <b>15</b> 46 - 319<br>07:00 - 17:48<br>10:48 +2 m. 40° |
| 8 | <b>16</b> 47 - 318<br>06:59 - 17:49<br>10:50 +2 m. 40° | <b>17</b> 48 - 317<br>06:57 - 17:50<br>10:53 +3 m. 40° | <b>18</b> 49 - 316<br>06:56 - 17:51<br>10:55 +2 m. 41° | <b>19</b> 50 - 315<br>06:55 - 17:52<br>10:57 +2 m. 41° | <b>20</b> 51 - 314<br>06:54 - 17:53<br>11:00 +3 m. 41° | <b>21</b> 52 - 313<br>06:52 - 17:54<br>11:02 +2 m. 42° | <b>22</b> 53 - 312<br>06:51 - 17:55<br>11:04 +2 m. 42° |
| 9 | <b>23</b> 54 - 311<br>06:50 - 17:56<br>11:07 +3 m. 43° | <b>24</b> 55 - 310<br>06:48 - 17:57<br>11:09 +2 m. 43° | <b>25</b> 56 - 309<br>06:47 - 17:58<br>11:11 +2 m. 43° | <b>26</b> 57 - 308<br>06:46 - 17:59<br>11:14 +3 m. 44° | <b>27</b> 58 - 307<br>06:44 - 18:00<br>11:16 +2 m. 44° | <b>28</b> 59 - 306<br>06:43 - 18:01<br>11:18 +2 m. 44° | <b>1</b> 60 - 305<br>06:42 - 18:02<br>11:21 +3 m. 45°  |

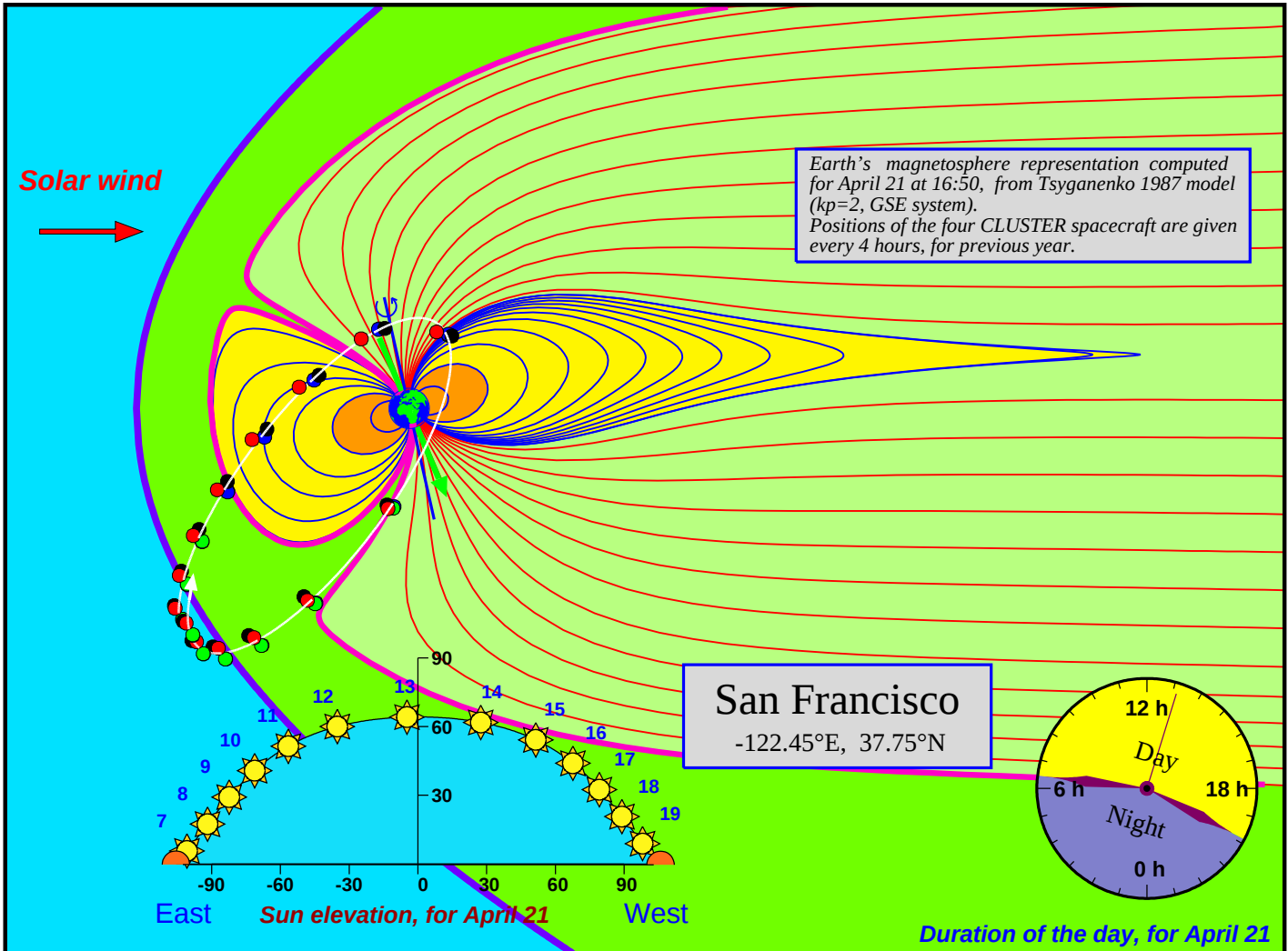


# March 2015

Time change  
March 8

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

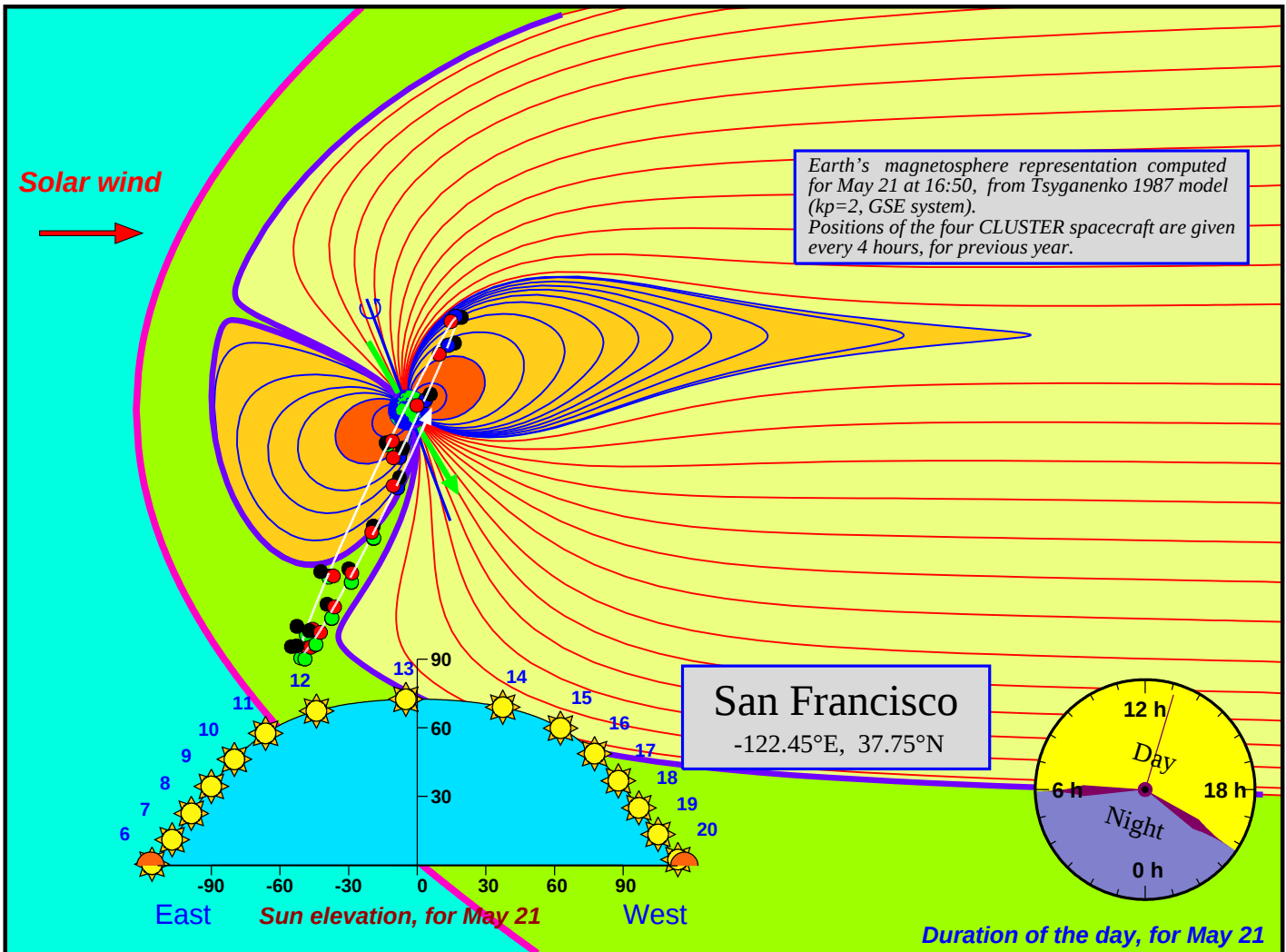
|    | Monday                                                 | Tuesday                                                | Wednesday                                              | Thursday                                               | Friday                                                 | Saturday                                               | Sunday                                                 |
|----|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| 9  | <b>23</b> 54 - 311<br>06:50 - 17:56<br>11:07 +3 m. 43° | <b>24</b> 55 - 310<br>06:48 - 17:57<br>11:09 +2 m. 43° | <b>25</b> 56 - 309<br>06:47 - 17:58<br>11:11 +2 m. 43° | <b>26</b> 57 - 308<br>06:46 - 17:59<br>11:14 +3 m. 44° | <b>27</b> 58 - 307<br>06:44 - 18:00<br>11:16 +2 m. 44° | <b>28</b> 59 - 306<br>06:43 - 18:01<br>11:18 +2 m. 44° | <b>1</b> 60 - 305<br>06:42 - 18:02<br>11:21 +3 m. 45°  |
| 10 | <b>2</b> 61 - 304<br>06:40 - 18:03<br>11:23 +2 m. 45°  | <b>3</b> 62 - 303<br>06:39 - 18:04<br>11:26 +3 m. 46°  | <b>4</b> 63 - 302<br>06:37 - 18:05<br>11:28 +2 m. 46°  | <b>5</b> 64 - 301<br>06:36 - 18:06<br>11:31 +3 m. 46°  | <b>6</b> 65 - 300<br>06:35 - 18:07<br>11:33 +2 m. 47°  | <b>7</b> 66 - 299<br>06:33 - 18:08<br>11:35 +2 m. 47°  | <b>8</b> 67 - 298<br>07:32 - 19:09<br>11:38 +3 m. 47°  |
| 11 | <b>9</b> 68 - 297<br>07:30 - 19:10<br>11:40 +2 m. 48°  | <b>10</b> 69 - 296<br>07:29 - 19:11<br>11:43 +3 m. 48° | <b>11</b> 70 - 295<br>07:27 - 19:12<br>11:45 +2 m. 49° | <b>12</b> 71 - 294<br>07:26 - 19:13<br>11:48 +3 m. 49° | <b>13</b> 72 - 293<br>07:24 - 19:14<br>11:50 +2 m. 49° | <b>14</b> 73 - 292<br>07:23 - 19:15<br>11:53 +3 m. 50° | <b>15</b> 74 - 291<br>07:21 - 19:16<br>11:55 +2 m. 50° |
| 12 | <b>16</b> 75 - 290<br>07:20 - 19:17<br>11:57 +2 m. 51° | <b>17</b> 76 - 289<br>07:18 - 19:18<br>12:00 +3 m. 51° | <b>18</b> 77 - 288<br>07:17 - 19:19<br>12:02 +2 m. 51° | <b>19</b> 78 - 287<br>07:15 - 19:20<br>12:05 +3 m. 52° | <b>20</b> 79 - 286<br>07:14 - 19:21<br>12:07 +2 m. 52° | <b>21</b> 80 - 285<br>07:12 - 19:22<br>12:10 +3 m. 53° | <b>22</b> 81 - 284<br>07:11 - 19:23<br>12:12 +2 m. 53° |
| 13 | <b>23</b> 82 - 283<br>07:09 - 19:24<br>12:15 +3 m. 53° | <b>24</b> 83 - 282<br>07:08 - 19:25<br>12:17 +2 m. 54° | <b>25</b> 84 - 281<br>07:06 - 19:25<br>12:19 +2 m. 54° | <b>26</b> 85 - 280<br>07:05 - 19:26<br>12:22 +3 m. 55° | <b>27</b> 86 - 279<br>07:03 - 19:27<br>12:24 +2 m. 55° | <b>28</b> 87 - 278<br>07:02 - 19:28<br>12:27 +3 m. 55° | <b>29</b> 88 - 277<br>07:00 - 19:29<br>12:29 +2 m. 56° |
| 14 | <b>30</b> 89 - 276<br>06:59 - 19:30<br>12:32 +3 m. 56° | <b>31</b> 90 - 275<br>06:57 - 19:31<br>12:34 +2 m. 57° | <b>1</b> 91 - 274<br>06:56 - 19:32<br>12:36 +2 m. 57°  | <b>2</b> 92 - 273<br>06:54 - 19:33<br>12:39 +3 m. 57°  | <b>3</b> 93 - 272<br>06:53 - 19:34<br>12:41 +2 m. 58°  | <b>4</b> 94 - 271<br>06:51 - 19:35<br>12:44 +3 m. 58°  | <b>5</b> 95 - 270<br>06:50 - 19:36<br>12:46 +2 m. 58°  |



# April 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

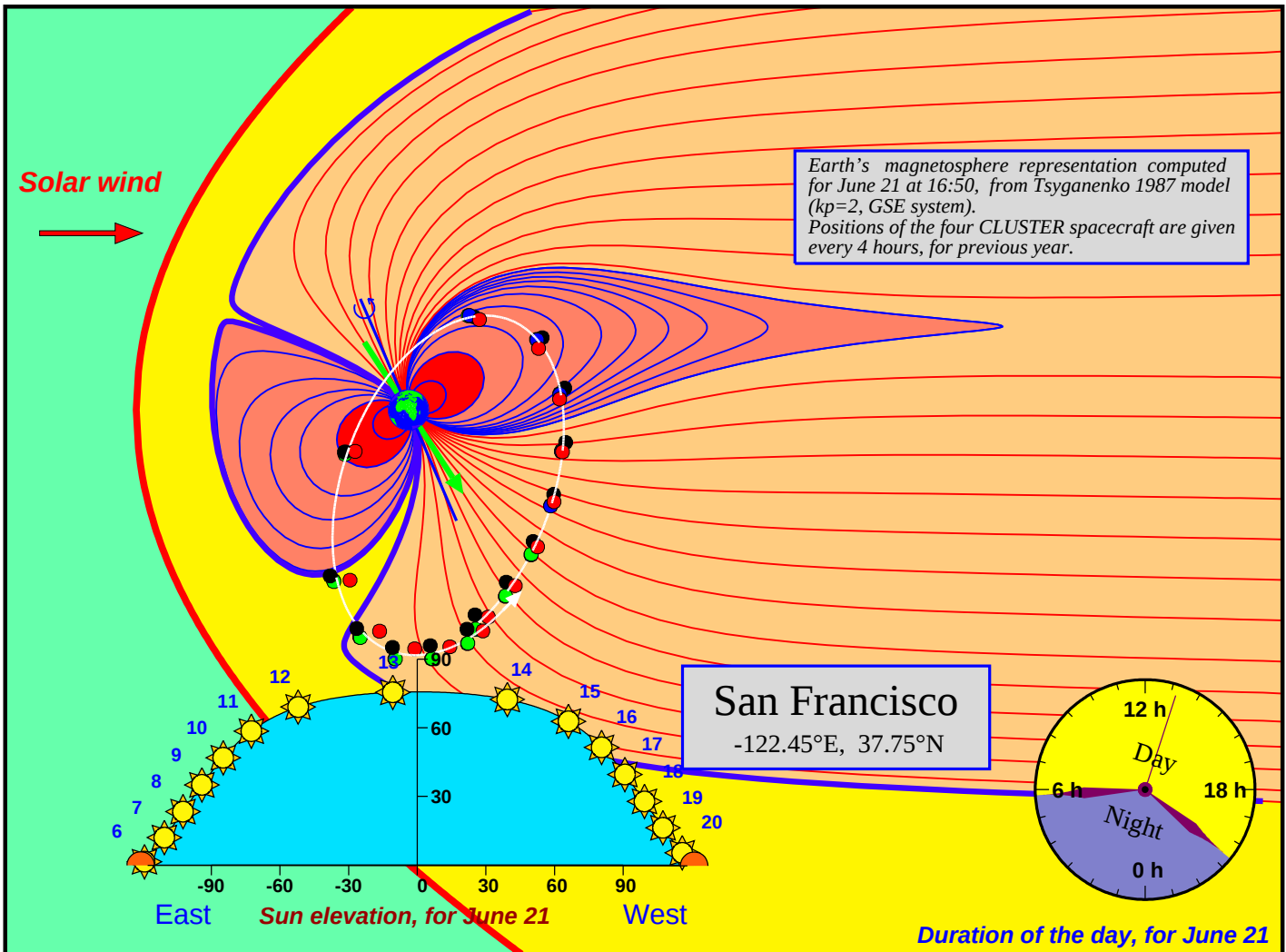
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 14 | <b>30</b> 89 - 276<br>06:59 - 19:30<br>12:32 +3 m. 56°  | <b>31</b> 90 - 275<br>06:57 - 19:31<br>12:34 +2 m. 57°  | <b>1</b> 91 - 274<br>06:56 - 19:32<br>12:36 +2 m. 57°   | <b>2</b> 92 - 273<br>06:54 - 19:33<br>12:39 +3 m. 57°   | <b>3</b> 93 - 272<br>06:53 - 19:34<br>12:41 +2 m. 58°   | <b>4</b> 94 - 271<br>06:51 - 19:35<br>12:44 +3 m. 58°   | <b>5</b> 95 - 270<br>06:50 - 19:36<br>12:46 +2 m. 58°   |
| 15 | <b>6</b> 96 - 269<br>06:48 - 19:36<br>12:48 +2 m. 59°   | <b>7</b> 97 - 268<br>06:47 - 19:37<br>12:51 +3 m. 59°   | <b>8</b> 98 - 267<br>06:45 - 19:38<br>12:53 +2 m. 60°   | <b>9</b> 99 - 266<br>06:44 - 19:39<br>12:56 +3 m. 60°   | <b>10</b> 100 - 265<br>06:42 - 19:40<br>12:58 +2 m. 60° | <b>11</b> 101 - 264<br>06:41 - 19:41<br>13:00 +2 m. 61° | <b>12</b> 102 - 263<br>06:39 - 19:42<br>13:03 +3 m. 61° |
| 16 | <b>13</b> 103 - 262<br>06:38 - 19:43<br>13:05 +2 m. 61° | <b>14</b> 104 - 261<br>06:36 - 19:44<br>13:07 +2 m. 62° | <b>15</b> 105 - 260<br>06:35 - 19:45<br>13:10 +3 m. 62° | <b>16</b> 106 - 259<br>06:34 - 19:46<br>13:12 +2 m. 62° | <b>17</b> 107 - 258<br>06:32 - 19:46<br>13:14 +2 m. 63° | <b>18</b> 108 - 257<br>06:31 - 19:47<br>13:17 +3 m. 63° | <b>19</b> 109 - 256<br>06:30 - 19:48<br>13:19 +2 m. 64° |
| 17 | <b>20</b> 110 - 255<br>06:28 - 19:49<br>13:21 +2 m. 64° | <b>21</b> 111 - 254<br>06:27 - 19:50<br>13:23 +2 m. 64° | <b>22</b> 112 - 253<br>06:26 - 19:51<br>13:26 +3 m. 65° | <b>23</b> 113 - 252<br>06:24 - 19:52<br>13:28 +2 m. 65° | <b>24</b> 114 - 251<br>06:23 - 19:53<br>13:30 +2 m. 65° | <b>25</b> 115 - 250<br>06:22 - 19:54<br>13:32 +2 m. 66° | <b>26</b> 116 - 249<br>06:20 - 19:55<br>13:34 +2 m. 66° |
| 18 | <b>27</b> 117 - 248<br>06:19 - 19:56<br>13:37 +3 m. 66° | <b>28</b> 118 - 247<br>06:18 - 19:57<br>13:39 +2 m. 67° | <b>29</b> 119 - 246<br>06:17 - 19:58<br>13:41 +2 m. 67° | <b>30</b> 120 - 245<br>06:16 - 19:58<br>13:43 +2 m. 67° | <b>1</b> 121 - 244<br>06:14 - 19:59<br>13:45 +2 m. 67°  | <b>2</b> 122 - 243<br>06:13 - 20:00<br>13:47 +2 m. 68°  | <b>3</b> 123 - 242<br>06:12 - 20:01<br>13:49 +2 m. 68°  |



# May 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

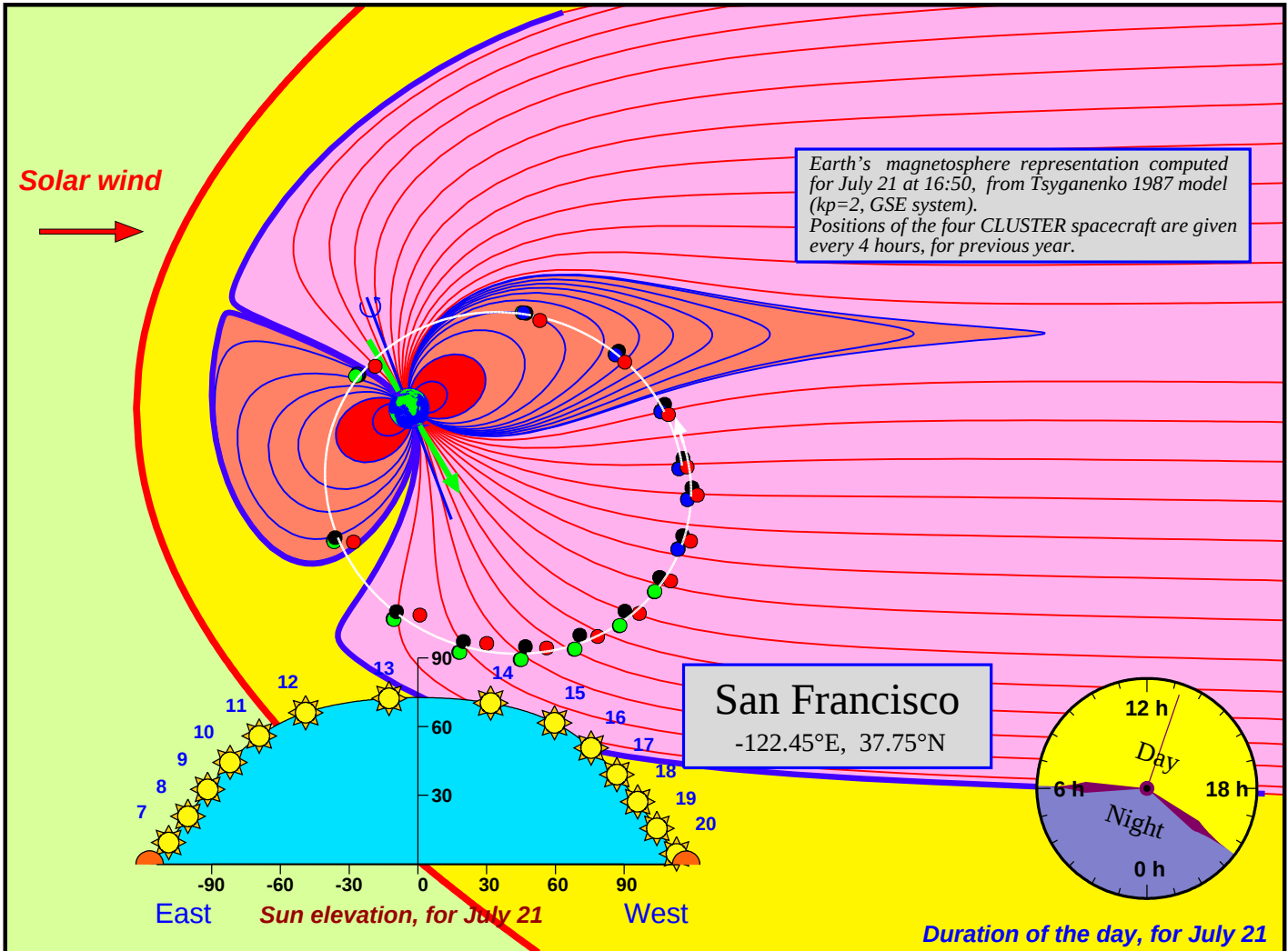
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 18 | <b>27</b> 117 - 248<br>06:19 - 19:56<br>13:37 +3 m. 66° | <b>28</b> 118 - 247<br>06:18 - 19:57<br>13:39 +2 m. 67° | <b>29</b> 119 - 246<br>06:17 - 19:58<br>13:41 +2 m. 67° | <b>30</b> 120 - 245<br>06:16 - 19:58<br>13:43 +2 m. 67° | <b>1</b> 121 - 244<br>06:14 - 19:59<br>13:45 +2 m. 67°  | <b>2</b> 122 - 243<br>06:13 - 20:00<br>13:47 +2 m. 68°  | <b>3</b> 123 - 242<br>06:12 - 20:01<br>13:49 +2 m. 68°  |
| 19 | <b>4</b> 124 - 241<br>06:11 - 20:02<br>13:51 +2 m. 68°  | <b>5</b> 125 - 240<br>06:10 - 20:03<br>13:53 +2 m. 69°  | <b>6</b> 126 - 239<br>06:09 - 20:04<br>13:55 +2 m. 69°  | <b>7</b> 127 - 238<br>06:08 - 20:05<br>13:57 +2 m. 69°  | <b>8</b> 128 - 237<br>06:07 - 20:06<br>13:59 +2 m. 69°  | <b>9</b> 129 - 236<br>06:06 - 20:07<br>14:01 +2 m. 70°  | <b>10</b> 130 - 235<br>06:05 - 20:08<br>14:03 +2 m. 70° |
| 20 | <b>11</b> 131 - 234<br>06:04 - 20:08<br>14:05 +2 m. 70° | <b>12</b> 132 - 233<br>06:03 - 20:09<br>14:06 +1 m. 70° | <b>13</b> 133 - 232<br>06:02 - 20:10<br>14:08 +2 m. 71° | <b>14</b> 134 - 231<br>06:01 - 20:11<br>14:10 +2 m. 71° | <b>15</b> 135 - 230<br>06:00 - 20:12<br>14:12 +2 m. 71° | <b>16</b> 136 - 229<br>05:59 - 20:13<br>14:13 +1 m. 71° | <b>17</b> 137 - 228<br>05:59 - 20:14<br>14:15 +2 m. 72° |
| 21 | <b>18</b> 138 - 227<br>05:58 - 20:15<br>14:17 +2 m. 72° | <b>19</b> 139 - 226<br>05:57 - 20:15<br>14:18 +1 m. 72° | <b>20</b> 140 - 225<br>05:56 - 20:16<br>14:20 +2 m. 72° | <b>21</b> 141 - 224<br>05:56 - 20:17<br>14:21 +1 m. 72° | <b>22</b> 142 - 223<br>05:55 - 20:18<br>14:23 +2 m. 73° | <b>23</b> 143 - 222<br>05:54 - 20:19<br>14:24 +1 m. 73° | <b>24</b> 144 - 221<br>05:54 - 20:19<br>14:26 +2 m. 73° |
| 22 | <b>25</b> 145 - 220<br>05:53 - 20:20<br>14:27 +1 m. 73° | <b>26</b> 146 - 219<br>05:53 - 20:21<br>14:29 +2 m. 73° | <b>27</b> 147 - 218<br>05:52 - 20:22<br>14:30 +1 m. 74° | <b>28</b> 148 - 217<br>05:52 - 20:23<br>14:31 +1 m. 74° | <b>29</b> 149 - 216<br>05:51 - 20:23<br>14:32 +1 m. 74° | <b>30</b> 150 - 215<br>05:51 - 20:24<br>14:34 +2 m. 74° | <b>31</b> 151 - 214<br>05:50 - 20:25<br>14:35 +1 m. 74° |



# June 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

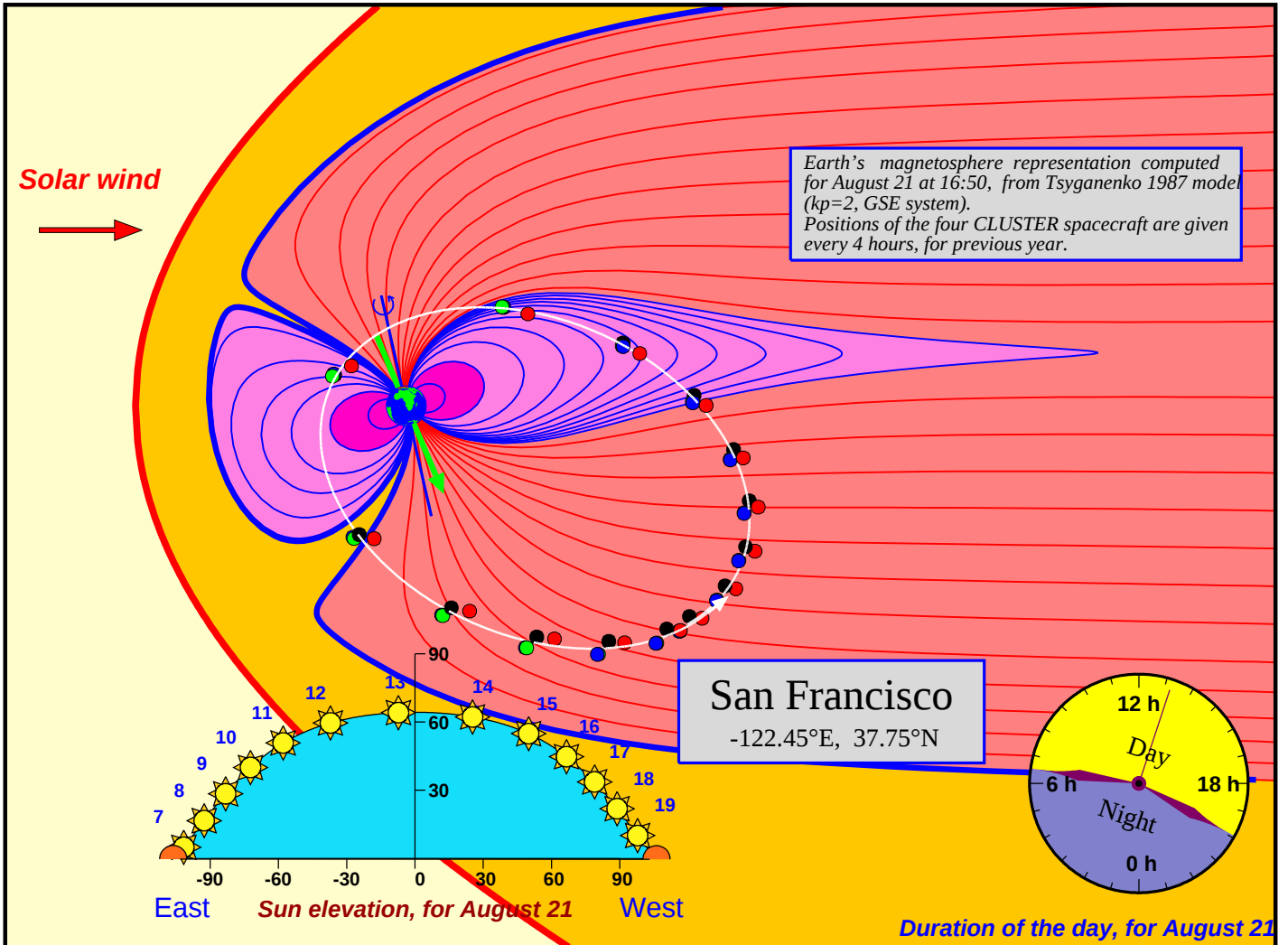
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 23 | <b>1</b> 152 - 213<br>05:50 - 20:25<br>14:36 +1 m. 74°  | <b>2</b> 153 - 212<br>05:49 - 20:26<br>14:37 +1 m. 74°  | <b>3</b> 154 - 211<br>05:49 - 20:27<br>14:38 +1 m. 75°  | <b>4</b> 155 - 210<br>05:49 - 20:27<br>14:39 +1 m. 75°  | <b>5</b> 156 - 209<br>05:49 - 20:28<br>14:40 +1 m. 75°  | <b>6</b> 157 - 208<br>05:48 - 20:29<br>14:40 +0 m. 75°  | <b>7</b> 158 - 207<br>05:48 - 20:29<br>14:41 +1 m. 75°  |
| 24 | <b>8</b> 159 - 206<br>05:48 - 20:30<br>14:42 +1 m. 75°  | <b>9</b> 160 - 205<br>05:48 - 20:30<br>14:43 +1 m. 75°  | <b>10</b> 161 - 204<br>05:48 - 20:31<br>14:43 +0 m. 75° | <b>11</b> 162 - 203<br>05:48 - 20:31<br>14:44 +1 m. 75° | <b>12</b> 163 - 202<br>05:48 - 20:32<br>14:44 +0 m. 75° | <b>13</b> 164 - 201<br>05:48 - 20:32<br>14:45 +1 m. 75° | <b>14</b> 165 - 200<br>05:48 - 20:33<br>14:45 +0 m. 76° |
| 25 | <b>15</b> 166 - 199<br>05:48 - 20:33<br>14:46 +1 m. 76° | <b>16</b> 167 - 198<br>05:48 - 20:33<br>14:46 +0 m. 76° | <b>17</b> 168 - 197<br>05:48 - 20:34<br>14:46 +0 m. 76° | <b>18</b> 169 - 196<br>05:48 - 20:34<br>14:46 +0 m. 76° | <b>19</b> 170 - 195<br>05:48 - 20:34<br>14:47 +1 m. 76° | <b>20</b> 171 - 194<br>05:48 - 20:35<br>14:47 +0 m. 76° | <b>21</b> 172 - 193<br>05:48 - 20:35<br>14:47 +0 m. 76° |
| 26 | <b>22</b> 173 - 192<br>05:49 - 20:35<br>14:47 +0 m. 76° | <b>23</b> 174 - 191<br>05:49 - 20:35<br>14:47 +0 m. 76° | <b>24</b> 175 - 190<br>05:49 - 20:36<br>14:47 +0 m. 76° | <b>25</b> 176 - 189<br>05:49 - 20:36<br>14:46 -1 m. 76° | <b>26</b> 177 - 188<br>05:50 - 20:36<br>14:46 +0 m. 76° | <b>27</b> 178 - 187<br>05:50 - 20:36<br>14:46 +0 m. 76° | <b>28</b> 179 - 186<br>05:50 - 20:36<br>14:46 +0 m. 76° |
| 27 | <b>29</b> 180 - 185<br>05:51 - 20:36<br>14:45 -1 m. 75° | <b>30</b> 181 - 184<br>05:51 - 20:36<br>14:45 +0 m. 75° | <b>1</b> 182 - 183<br>05:52 - 20:36<br>14:44 -1 m. 75°  | <b>2</b> 183 - 182<br>05:52 - 20:36<br>14:44 +0 m. 75°  | <b>3</b> 184 - 181<br>05:53 - 20:36<br>14:43 -1 m. 75°  | <b>4</b> 185 - 180<br>05:53 - 20:36<br>14:42 -1 m. 75°  | <b>5</b> 186 - 179<br>05:54 - 20:35<br>14:42 +0 m. 75°  |



# July 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

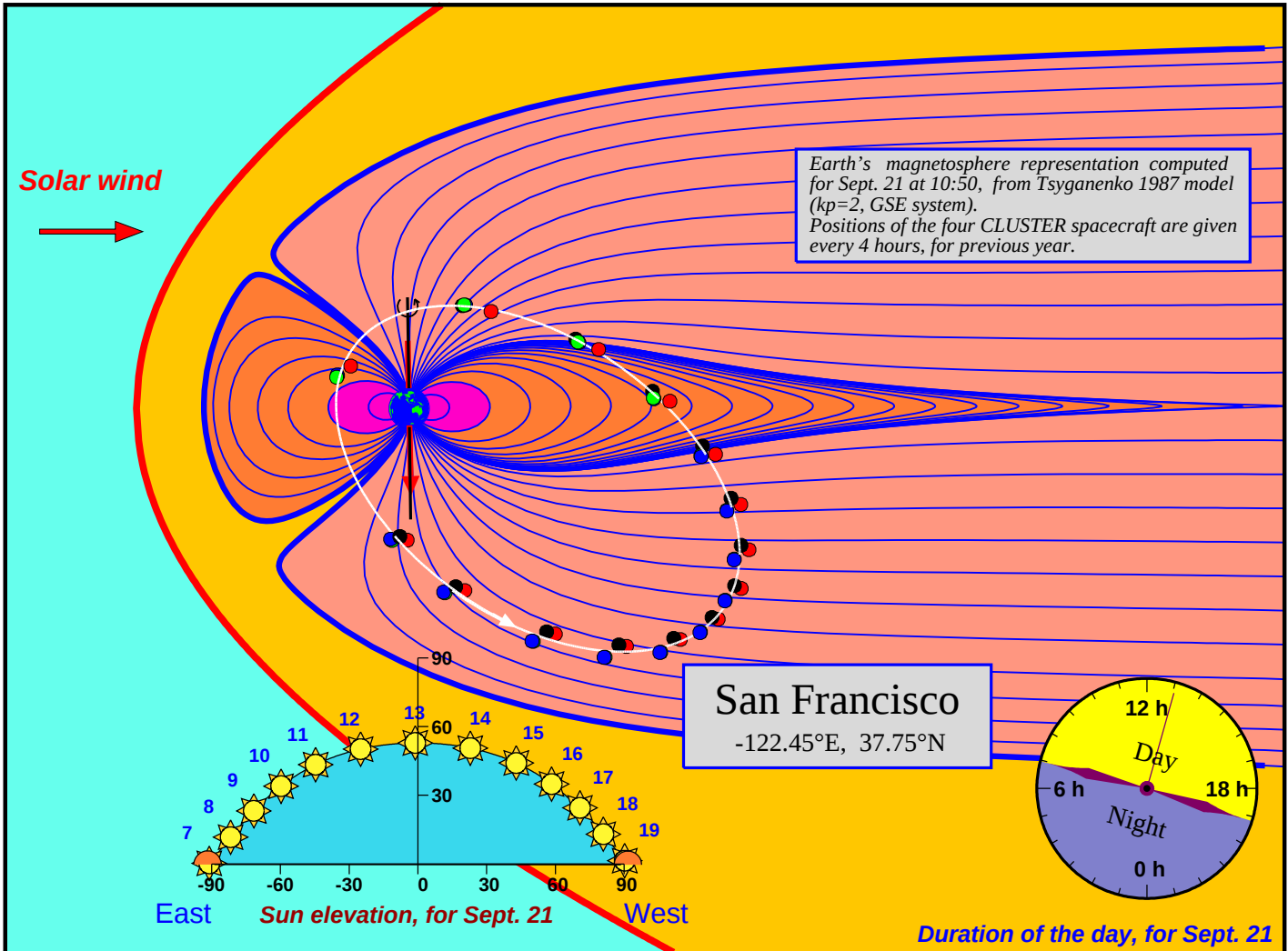
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 27 | <b>29</b> 180 - 185<br>05:51 - 20:36<br>14:45 -1 m. 75° | <b>30</b> 181 - 184<br>05:51 - 20:36<br>14:45 +0 m. 75° | <b>1</b> 182 - 183<br>05:52 - 20:36<br>14:44 -1 m. 75°  | <b>2</b> 183 - 182<br>05:52 - 20:36<br>14:44 +0 m. 75°  | <b>3</b> 184 - 181<br>05:53 - 20:36<br>14:43 -1 m. 75°  | <b>4</b> 185 - 180<br>05:53 - 20:36<br>14:42 -1 m. 75°  | <b>5</b> 186 - 179<br>05:54 - 20:35<br>14:42 +0 m. 75°  |
| 28 | <b>6</b> 187 - 178<br>05:54 - 20:35<br>14:41 -1 m. 75°  | <b>7</b> 188 - 177<br>05:55 - 20:35<br>14:40 -1 m. 75°  | <b>8</b> 189 - 176<br>05:55 - 20:35<br>14:39 -1 m. 75°  | <b>9</b> 190 - 175<br>05:56 - 20:34<br>14:38 -1 m. 75°  | <b>10</b> 191 - 174<br>05:57 - 20:34<br>14:37 -1 m. 74° | <b>11</b> 192 - 173<br>05:57 - 20:34<br>14:36 -1 m. 74° | <b>12</b> 193 - 172<br>05:58 - 20:33<br>14:36 +0 m. 74° |
| 29 | <b>13</b> 194 - 171<br>05:59 - 20:33<br>14:34 -2 m. 74° | <b>14</b> 195 - 170<br>05:59 - 20:32<br>14:33 -1 m. 74° | <b>15</b> 196 - 169<br>06:00 - 20:32<br>14:32 -1 m. 74° | <b>16</b> 197 - 168<br>06:01 - 20:32<br>14:31 -1 m. 74° | <b>17</b> 198 - 167<br>06:01 - 20:31<br>14:30 -1 m. 73° | <b>18</b> 199 - 166<br>06:02 - 20:30<br>14:28 -2 m. 73° | <b>19</b> 200 - 165<br>06:03 - 20:30<br>14:27 -1 m. 73° |
| 30 | <b>20</b> 201 - 164<br>06:04 - 20:29<br>14:26 -1 m. 73° | <b>21</b> 202 - 163<br>06:04 - 20:29<br>14:24 -2 m. 73° | <b>22</b> 203 - 162<br>06:05 - 20:28<br>14:23 -1 m. 72° | <b>23</b> 204 - 161<br>06:06 - 20:27<br>14:21 -2 m. 72° | <b>24</b> 205 - 160<br>06:07 - 20:26<br>14:20 -1 m. 72° | <b>25</b> 206 - 159<br>06:08 - 20:26<br>14:18 -2 m. 72° | <b>26</b> 207 - 158<br>06:08 - 20:25<br>14:17 -1 m. 72° |
| 31 | <b>27</b> 208 - 157<br>06:09 - 20:24<br>14:15 -2 m. 71° | <b>28</b> 209 - 156<br>06:10 - 20:23<br>14:13 -2 m. 71° | <b>29</b> 210 - 155<br>06:11 - 20:22<br>14:12 -1 m. 71° | <b>30</b> 211 - 154<br>06:12 - 20:21<br>14:10 -2 m. 71° | <b>31</b> 212 - 153<br>06:13 - 20:21<br>14:08 -2 m. 70° | <b>1</b> 213 - 152<br>06:13 - 20:20<br>14:06 -2 m. 70°  | <b>2</b> 214 - 151<br>06:14 - 20:19<br>14:04 -2 m. 70°  |



# August 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

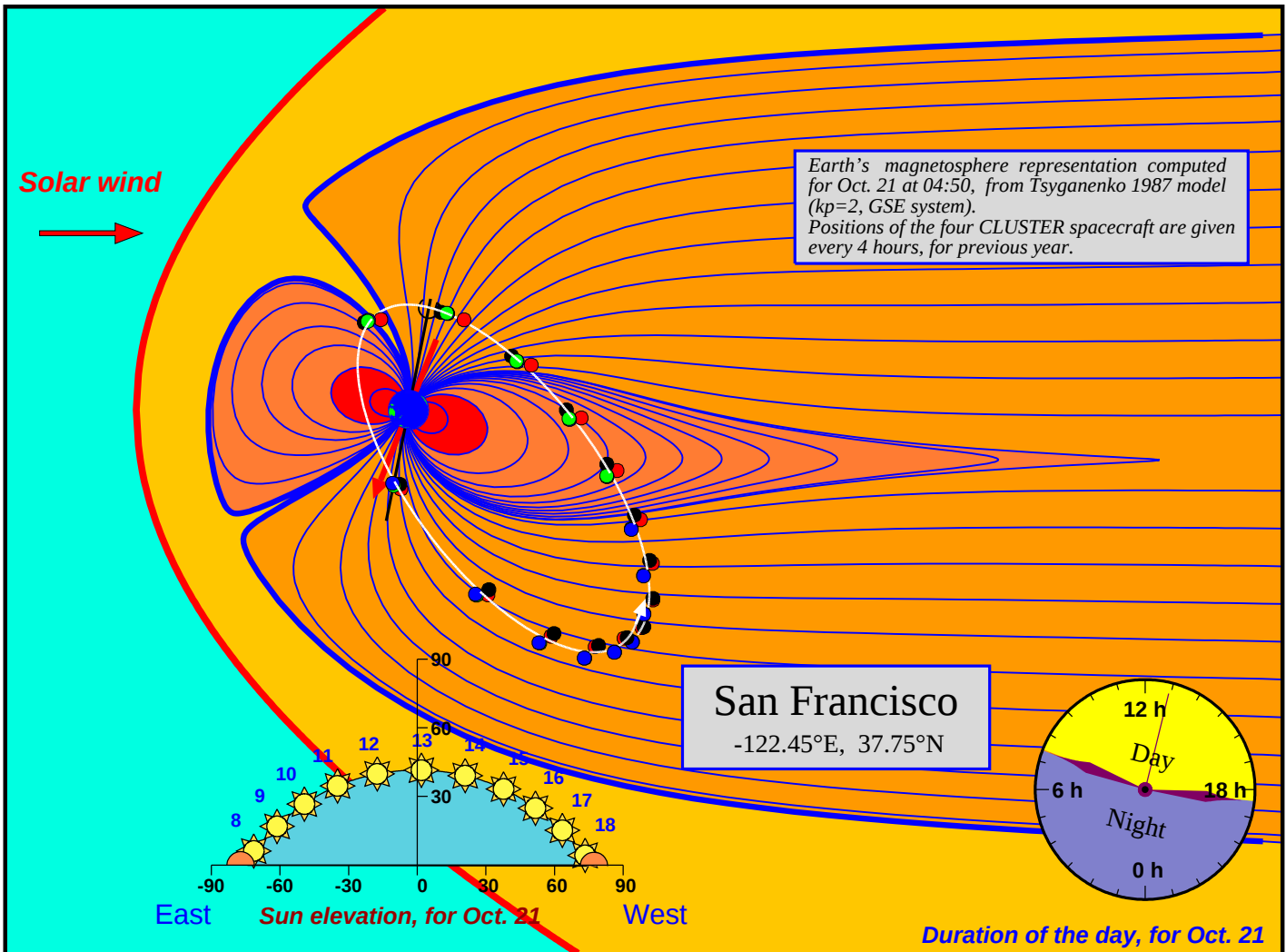
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 31 | <b>27</b> 208 - 157<br>06:09 - 20:24<br>14:15 -2 m. 71° | <b>28</b> 209 - 156<br>06:10 - 20:23<br>14:13 -2 m. 71° | <b>29</b> 210 - 155<br>06:11 - 20:22<br>14:12 -1 m. 71° | <b>30</b> 211 - 154<br>06:12 - 20:21<br>14:10 -2 m. 71° | <b>31</b> 212 - 153<br>06:13 - 20:21<br>14:08 -2 m. 70° | <b>1</b> 213 - 152<br>06:13 - 20:20<br>14:06 -2 m. 70°  | <b>2</b> 214 - 151<br>06:14 - 20:19<br>14:04 -2 m. 70°  |
| 32 | <b>3</b> 215 - 150<br>06:15 - 20:18<br>14:03 -1 m. 70°  | <b>4</b> 216 - 149<br>06:16 - 20:17<br>14:01 -2 m. 69°  | <b>5</b> 217 - 148<br>06:17 - 20:16<br>13:59 -2 m. 69°  | <b>6</b> 218 - 147<br>06:18 - 20:15<br>13:57 -2 m. 69°  | <b>7</b> 219 - 146<br>06:19 - 20:13<br>13:55 -2 m. 69°  | <b>8</b> 220 - 145<br>06:19 - 20:12<br>13:53 -2 m. 68°  | <b>9</b> 221 - 144<br>06:20 - 20:11<br>13:51 -2 m. 68°  |
| 33 | <b>10</b> 222 - 143<br>06:21 - 20:10<br>13:49 -2 m. 68° | <b>11</b> 223 - 142<br>06:22 - 20:09<br>13:47 -2 m. 67° | <b>12</b> 224 - 141<br>06:23 - 20:08<br>13:45 -2 m. 67° | <b>13</b> 225 - 140<br>06:24 - 20:07<br>13:43 -2 m. 67° | <b>14</b> 226 - 139<br>06:25 - 20:05<br>13:41 -2 m. 67° | <b>15</b> 227 - 138<br>06:25 - 20:04<br>13:39 -2 m. 66° | <b>16</b> 228 - 137<br>06:26 - 20:03<br>13:37 -2 m. 66° |
| 34 | <b>17</b> 229 - 136<br>06:27 - 20:02<br>13:35 -2 m. 66° | <b>18</b> 230 - 135<br>06:28 - 20:00<br>13:32 -3 m. 65° | <b>19</b> 231 - 134<br>06:29 - 19:59<br>13:30 -2 m. 65° | <b>20</b> 232 - 133<br>06:30 - 19:58<br>13:28 -2 m. 65° | <b>21</b> 233 - 132<br>06:31 - 19:56<br>13:26 -2 m. 64° | <b>22</b> 234 - 131<br>06:31 - 19:55<br>13:24 -2 m. 64° | <b>23</b> 235 - 130<br>06:32 - 19:54<br>13:21 -3 m. 64° |
| 35 | <b>24</b> 236 - 129<br>06:33 - 19:52<br>13:19 -2 m. 63° | <b>25</b> 237 - 128<br>06:34 - 19:51<br>13:17 -2 m. 63° | <b>26</b> 238 - 127<br>06:35 - 19:49<br>13:15 -2 m. 63° | <b>27</b> 239 - 126<br>06:36 - 19:48<br>13:12 -3 m. 62° | <b>28</b> 240 - 125<br>06:37 - 19:47<br>13:10 -2 m. 62° | <b>29</b> 241 - 124<br>06:37 - 19:45<br>13:08 -2 m. 62° | <b>30</b> 242 - 123<br>06:38 - 19:44<br>13:06 -2 m. 61° |
| 36 | <b>31</b> 243 - 122<br>06:39 - 19:42<br>13:03 -3 m. 61° | <b>1</b> 244 - 121<br>06:40 - 19:41<br>13:01 -2 m. 60°  | <b>2</b> 245 - 120<br>06:41 - 19:39<br>12:59 -2 m. 60°  | <b>3</b> 246 - 119<br>06:42 - 19:38<br>12:56 -3 m. 60°  | <b>4</b> 247 - 118<br>06:42 - 19:36<br>12:54 -2 m. 59°  | <b>5</b> 248 - 117<br>06:43 - 19:35<br>12:52 -2 m. 59°  | <b>6</b> 249 - 116<br>06:44 - 19:33<br>12:49 -3 m. 59°  |



# September 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

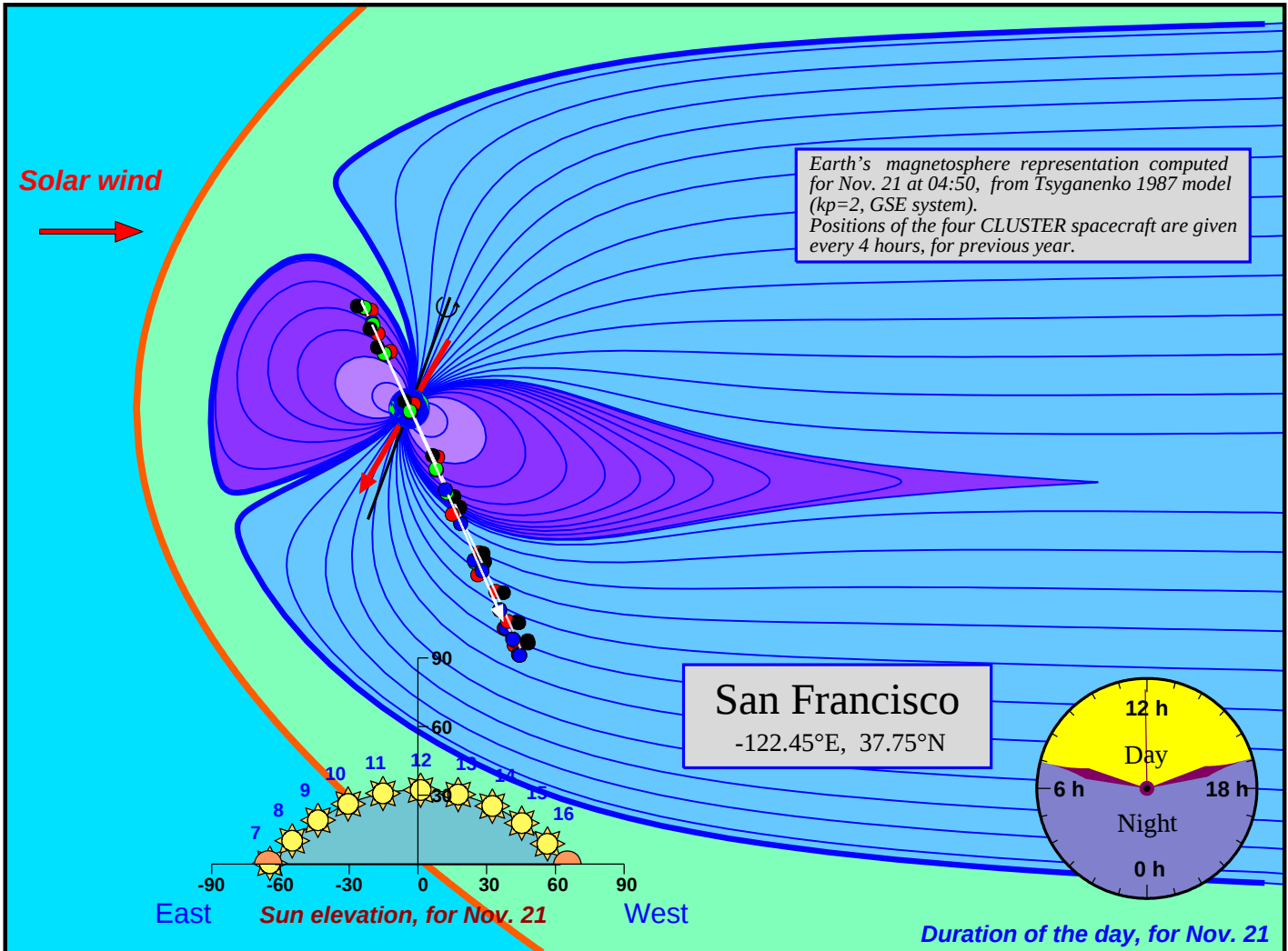
|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 36 | <b>31</b> 243 - 122<br>06:39 - 19:42<br>13:03 -3 m. 61° | <b>1</b> 244 - 121<br>06:40 - 19:41<br>13:01 -2 m. 60°  | <b>2</b> 245 - 120<br>06:41 - 19:39<br>12:59 -2 m. 60°  | <b>3</b> 246 - 119<br>06:42 - 19:38<br>12:56 -3 m. 60°  | <b>4</b> 247 - 118<br>06:42 - 19:36<br>12:54 -2 m. 59°  | <b>5</b> 248 - 117<br>06:43 - 19:35<br>12:52 -2 m. 59°  | <b>6</b> 249 - 116<br>06:44 - 19:33<br>12:49 -3 m. 59°  |
| 37 | <b>7</b> 250 - 115<br>06:45 - 19:32<br>12:47 -2 m. 58°  | <b>8</b> 251 - 114<br>06:46 - 19:30<br>12:45 -2 m. 58°  | <b>9</b> 252 - 113<br>06:47 - 19:29<br>12:42 -3 m. 57°  | <b>10</b> 253 - 112<br>06:47 - 19:27<br>12:40 -2 m. 57° | <b>11</b> 254 - 111<br>06:48 - 19:26<br>12:38 -2 m. 57° | <b>12</b> 255 - 110<br>06:49 - 19:24<br>12:35 -3 m. 56° | <b>13</b> 256 - 109<br>06:50 - 19:23<br>12:33 -2 m. 56° |
| 38 | <b>14</b> 257 - 108<br>06:51 - 19:21<br>12:30 -3 m. 56° | <b>15</b> 258 - 107<br>06:52 - 19:20<br>12:28 -2 m. 55° | <b>16</b> 259 - 106<br>06:53 - 19:18<br>12:26 -2 m. 55° | <b>17</b> 260 - 105<br>06:53 - 19:16<br>12:23 -3 m. 54° | <b>18</b> 261 - 104<br>06:54 - 19:15<br>12:21 -2 m. 54° | <b>19</b> 262 - 103<br>06:55 - 19:13<br>12:18 -3 m. 54° | <b>20</b> 263 - 102<br>06:56 - 19:12<br>12:16 -2 m. 53° |
| 39 | <b>21</b> 264 - 101<br>06:57 - 19:10<br>12:14 -2 m. 53° | <b>22</b> 265 - 100<br>06:58 - 19:09<br>12:11 -3 m. 52° | <b>23</b> 266 - 99<br>06:58 - 19:07<br>12:09 -2 m. 52°  | <b>24</b> 267 - 98<br>06:59 - 19:06<br>12:06 -3 m. 52°  | <b>25</b> 268 - 97<br>07:00 - 19:04<br>12:04 -2 m. 51°  | <b>26</b> 269 - 96<br>07:01 - 19:02<br>12:01 -3 m. 51°  | <b>27</b> 270 - 95<br>07:02 - 19:01<br>11:59 -2 m. 51°  |
| 40 | <b>28</b> 271 - 94<br>07:03 - 18:59<br>11:57 -2 m. 50°  | <b>29</b> 272 - 93<br>07:04 - 18:58<br>11:54 -3 m. 50°  | <b>30</b> 273 - 92<br>07:05 - 18:56<br>11:52 -2 m. 49°  | <b>1</b> 274 - 91<br>07:05 - 18:55<br>11:49 -3 m. 49°   | <b>2</b> 275 - 90<br>07:06 - 18:53<br>11:47 -2 m. 49°   | <b>3</b> 276 - 89<br>07:07 - 18:52<br>11:45 -2 m. 48°   | <b>4</b> 277 - 88<br>07:08 - 18:50<br>11:42 -3 m. 48°   |



# October 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

|    | Monday                                                 | Tuesday                                                | Wednesday                                              | Thursday                                               | Friday                                                 | Saturday                                               | Sunday                                                 |
|----|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| 40 | <b>28</b> 271 - 94<br>07:03 - 18:59<br>11:57 -2 m. 50° | <b>29</b> 272 - 93<br>07:04 - 18:58<br>11:54 -3 m. 50° | <b>30</b> 273 - 92<br>07:05 - 18:56<br>11:52 -2 m. 49° | <b>1</b> 274 - 91<br>07:05 - 18:55<br>11:49 -3 m. 49°  | <b>2</b> 275 - 90<br>07:06 - 18:53<br>11:47 -2 m. 49°  | <b>3</b> 276 - 89<br>07:07 - 18:52<br>11:45 -2 m. 48°  | <b>4</b> 277 - 88<br>07:08 - 18:50<br>11:42 -3 m. 48°  |
| 41 | <b>5</b> 278 - 87<br>07:09 - 18:49<br>11:40 -2 m. 47°  | <b>6</b> 279 - 86<br>07:10 - 18:47<br>11:37 -3 m. 47°  | <b>7</b> 280 - 85<br>07:11 - 18:46<br>11:35 -2 m. 47°  | <b>8</b> 281 - 84<br>07:12 - 18:44<br>11:33 -2 m. 46°  | <b>9</b> 282 - 83<br>07:13 - 18:43<br>11:30 -3 m. 46°  | <b>10</b> 283 - 82<br>07:14 - 18:41<br>11:28 -2 m. 46° | <b>11</b> 284 - 81<br>07:14 - 18:40<br>11:26 -2 m. 45° |
| 42 | <b>12</b> 285 - 80<br>07:15 - 18:38<br>11:23 -3 m. 45° | <b>13</b> 286 - 79<br>07:16 - 18:37<br>11:21 -2 m. 44° | <b>14</b> 287 - 78<br>07:17 - 18:36<br>11:18 -3 m. 44° | <b>15</b> 288 - 77<br>07:18 - 18:34<br>11:16 -2 m. 44° | <b>16</b> 289 - 76<br>07:19 - 18:33<br>11:14 -2 m. 43° | <b>17</b> 290 - 75<br>07:20 - 18:31<br>11:11 -3 m. 43° | <b>18</b> 291 - 74<br>07:21 - 18:30<br>11:09 -2 m. 43° |
| 43 | <b>19</b> 292 - 73<br>07:22 - 18:29<br>11:07 -2 m. 42° | <b>20</b> 293 - 72<br>07:23 - 18:27<br>11:04 -3 m. 42° | <b>21</b> 294 - 71<br>07:24 - 18:26<br>11:02 -2 m. 41° | <b>22</b> 295 - 70<br>07:25 - 18:25<br>11:00 -2 m. 41° | <b>23</b> 296 - 69<br>07:26 - 18:23<br>10:58 -2 m. 41° | <b>24</b> 297 - 68<br>07:27 - 18:22<br>10:55 -3 m. 40° | <b>25</b> 298 - 67<br>07:28 - 18:21<br>10:53 -2 m. 40° |
| 44 | <b>26</b> 299 - 66<br>07:29 - 18:20<br>10:51 -2 m. 40° | <b>27</b> 300 - 65<br>07:30 - 18:18<br>10:48 -3 m. 39° | <b>28</b> 301 - 64<br>07:31 - 18:17<br>10:46 -2 m. 39° | <b>29</b> 302 - 63<br>07:32 - 18:16<br>10:44 -2 m. 39° | <b>30</b> 303 - 62<br>07:33 - 18:15<br>10:42 -2 m. 38° | <b>31</b> 304 - 61<br>07:34 - 18:14<br>10:40 -2 m. 38° | <b>1</b> 305 - 60<br>06:35 - 17:13<br>10:38 -2 m. 38°  |

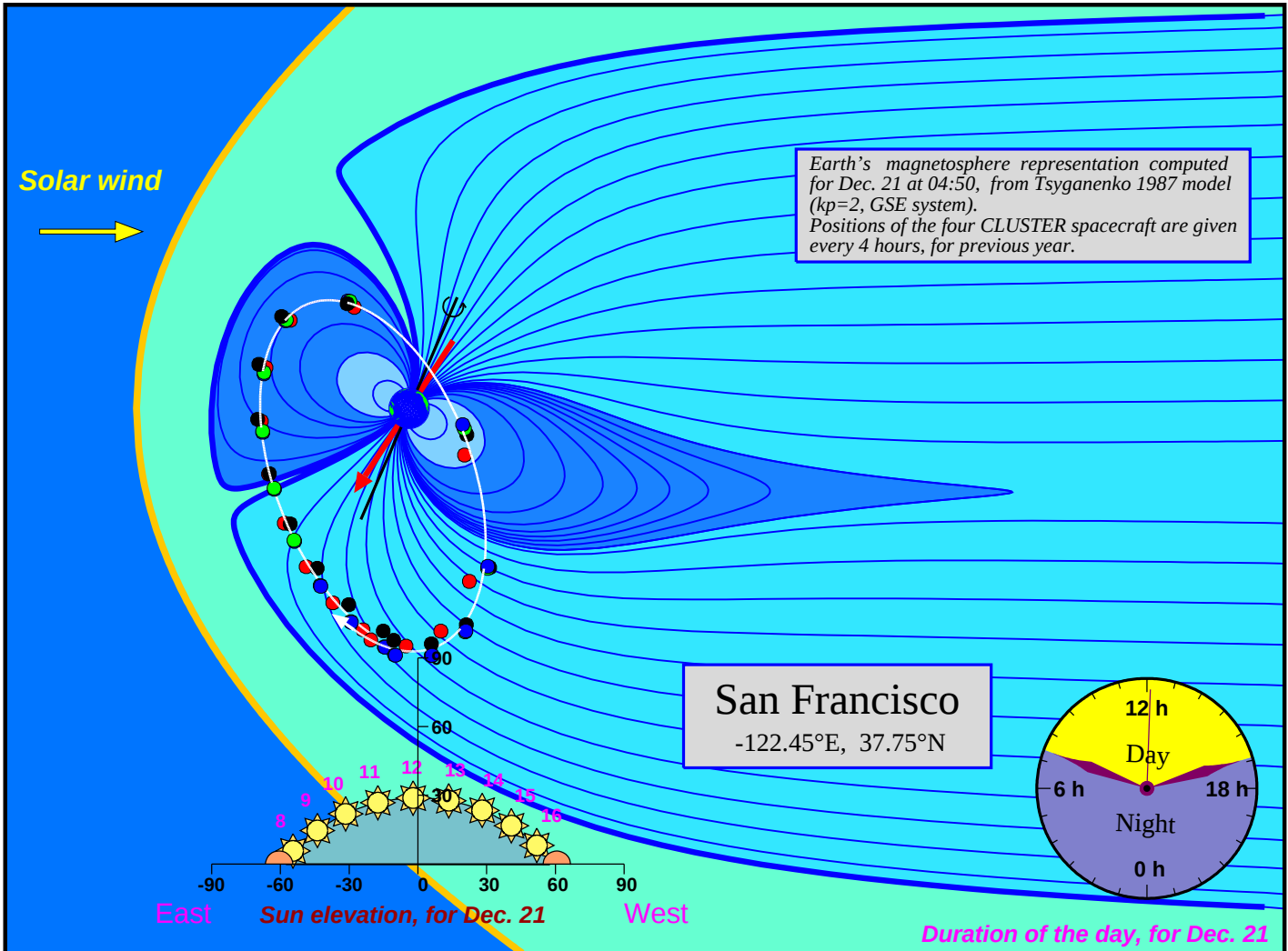


# November 2015

Time change  
Nov. 1

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

|    | Monday                                          | Tuesday                                         | Wednesday                                       | Thursday                                        | Friday                                          | Saturday                                        | Sunday                                          |
|----|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| 44 | 26 299 - 66<br>07:29 - 18:20<br>10:51 -2 m. 40° | 27 300 - 65<br>07:30 - 18:18<br>10:48 -3 m. 39° | 28 301 - 64<br>07:31 - 18:17<br>10:46 -2 m. 39° | 29 302 - 63<br>07:32 - 18:16<br>10:44 -2 m. 39° | 30 303 - 62<br>07:33 - 18:15<br>10:42 -2 m. 38° | 31 304 - 61<br>07:34 - 18:14<br>10:40 -2 m. 38° | 1 305 - 60<br>06:35 - 17:13<br>10:38 -2 m. 38°  |
| 45 | 2 306 - 59<br>06:36 - 17:11<br>10:35 -3 m. 37°  | 3 307 - 58<br>06:37 - 17:10<br>10:33 -2 m. 37°  | 4 308 - 57<br>06:38 - 17:09<br>10:31 -2 m. 37°  | 5 309 - 56<br>06:39 - 17:08<br>10:29 -2 m. 37°  | 6 310 - 55<br>06:40 - 17:07<br>10:27 -2 m. 36°  | 7 311 - 54<br>06:41 - 17:06<br>10:25 -2 m. 36°  | 8 312 - 53<br>06:43 - 17:05<br>10:23 -2 m. 36°  |
| 46 | 9 313 - 52<br>06:44 - 17:04<br>10:21 -2 m. 35°  | 10 314 - 51<br>06:45 - 17:04<br>10:19 -2 m. 35° | 11 315 - 50<br>06:46 - 17:03<br>10:17 -2 m. 35° | 12 316 - 49<br>06:47 - 17:02<br>10:15 -2 m. 35° | 13 317 - 48<br>06:48 - 17:01<br>10:13 -2 m. 34° | 14 318 - 47<br>06:49 - 17:00<br>10:11 -2 m. 34° | 15 319 - 46<br>06:50 - 16:59<br>10:10 -1 m. 34° |
| 47 | 16 320 - 45<br>06:51 - 16:59<br>10:08 -2 m. 33° | 17 321 - 44<br>06:52 - 16:58<br>10:06 -2 m. 33° | 18 322 - 43<br>06:53 - 16:57<br>10:04 -2 m. 33° | 19 323 - 42<br>06:54 - 16:57<br>10:03 -1 m. 33° | 20 324 - 41<br>06:55 - 16:56<br>10:01 -2 m. 33° | 21 325 - 40<br>06:56 - 16:56<br>9:59 -2 m. 32°  | 22 326 - 39<br>06:57 - 16:55<br>9:57 -2 m. 32°  |
| 48 | 23 327 - 38<br>06:58 - 16:55<br>9:56 -1 m. 32°  | 24 328 - 37<br>06:59 - 16:54<br>9:54 -2 m. 32°  | 25 329 - 36<br>07:00 - 16:54<br>9:53 -1 m. 31°  | 26 330 - 35<br>07:01 - 16:53<br>9:51 -2 m. 31°  | 27 331 - 34<br>07:02 - 16:53<br>9:50 -1 m. 31°  | 28 332 - 33<br>07:03 - 16:52<br>9:49 -1 m. 31°  | 29 333 - 32<br>07:04 - 16:52<br>9:47 -2 m. 31°  |
| 49 | 30 334 - 31<br>07:05 - 16:52<br>9:46 -1 m. 31°  | 1 335 - 30<br>07:06 - 16:52<br>9:45 -1 m. 30°   | 2 336 - 29<br>07:07 - 16:51<br>9:44 -1 m. 30°   | 3 337 - 28<br>07:08 - 16:51<br>9:43 -1 m. 30°   | 4 338 - 27<br>07:09 - 16:51<br>9:42 -1 m. 30°   | 5 339 - 26<br>07:10 - 16:51<br>9:40 -2 m. 30°   | 6 340 - 25<br>07:11 - 16:51<br>9:40 +0 m. 30°   |



# December 2015

Sunrise and Sunset at San Francisco (TL ± 1 mn)  
Duration of the day - Variation - Sun maximal elevation (°)

|    | Monday                                                | Tuesday                                               | Wednesday                                             | Thursday                                              | Friday                                                | Saturday                                              | Sunday                                                |
|----|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| 49 | <b>30</b> 334 - 31<br>07:05 - 16:52<br>9:46 -1 m. 31° | <b>1</b> 335 - 30<br>07:06 - 16:52<br>9:45 -1 m. 30°  | <b>2</b> 336 - 29<br>07:07 - 16:51<br>9:44 -1 m. 30°  | <b>3</b> 337 - 28<br>07:08 - 16:51<br>9:43 -1 m. 30°  | <b>4</b> 338 - 27<br>07:09 - 16:51<br>9:42 -1 m. 30°  | <b>5</b> 339 - 26<br>07:10 - 16:51<br>9:40 -2 m. 30°  | <b>6</b> 340 - 25<br>07:11 - 16:51<br>9:40 +0 m. 30°  |
| 50 | <b>7</b> 341 - 24<br>07:12 - 16:51<br>9:39 -1 m. 30°  | <b>8</b> 342 - 23<br>07:13 - 16:51<br>9:38 -1 m. 30°  | <b>9</b> 343 - 22<br>07:13 - 16:51<br>9:37 -1 m. 29°  | <b>10</b> 344 - 21<br>07:14 - 16:51<br>9:36 -1 m. 29° | <b>11</b> 345 - 20<br>07:15 - 16:51<br>9:36 +0 m. 29° | <b>12</b> 346 - 19<br>07:16 - 16:51<br>9:35 -1 m. 29° | <b>13</b> 347 - 18<br>07:17 - 16:51<br>9:34 -1 m. 29° |
| 51 | <b>14</b> 348 - 17<br>07:17 - 16:52<br>9:34 +0 m. 29° | <b>15</b> 349 - 16<br>07:18 - 16:52<br>9:34 +0 m. 29° | <b>16</b> 350 - 15<br>07:19 - 16:52<br>9:33 -1 m. 29° | <b>17</b> 351 - 14<br>07:19 - 16:53<br>9:33 +0 m. 29° | <b>18</b> 352 - 13<br>07:20 - 16:53<br>9:33 +0 m. 29° | <b>19</b> 353 - 12<br>07:20 - 16:53<br>9:32 -1 m. 29° | <b>20</b> 354 - 11<br>07:21 - 16:54<br>9:32 +0 m. 29° |
| 52 | <b>21</b> 355 - 10<br>07:22 - 16:54<br>9:32 +0 m. 29° | <b>22</b> 356 - 9<br>07:22 - 16:55<br>9:32 +0 m. 29°  | <b>23</b> 357 - 8<br>07:23 - 16:55<br>9:32 +0 m. 29°  | <b>24</b> 358 - 7<br>07:23 - 16:56<br>9:32 +0 m. 29°  | <b>25</b> 359 - 6<br>07:23 - 16:56<br>9:32 +0 m. 29°  | <b>26</b> 360 - 5<br>07:24 - 16:57<br>9:33 +1 m. 29°  | <b>27</b> 361 - 4<br>07:24 - 16:57<br>9:33 +0 m. 29°  |
| 53 | <b>28</b> 362 - 3<br>07:24 - 16:58<br>9:33 +0 m. 29°  | <b>29</b> 363 - 2<br>07:25 - 16:59<br>9:34 +1 m. 29°  | <b>30</b> 364 - 1<br>07:25 - 16:59<br>9:34 +0 m. 29°  | <b>31</b> 365 - 0<br>07:25 - 17:00<br>9:35 +1 m. 29°  |                                                       |                                                       |                                                       |

## Visualisation of magnetic field lines of the Earth

Model: Tsyganenko 87 version exshor ikp=4 (kp= 2+) Date/Time: 16 janvier 2001 02:00 Coordinates: GSM

P. Robert, 1996



**Illustration :** Visualization of magnetic field lines of the Earth, showing the magnetosphere.

The magnetic Earth's field lines, due to the internal field, initially dipolar and symmetric around the axis of the magnetic dipole, are deformed by the solar wind, which create a closed cavity, named magnetosphere, and a shock wave upstream of this cavity. The various regions are artificially colored. The color choice, here as well as from one season to another for the calendar, is purely esthetical.

The magnetic field model used is the one of Tsyganenko 1987. The computation of the magnetosphere geometries, from the magnetic field model, is done from a specific library developed, the "Comagnetolib". All the graphical is produced by an own library, the "Rogralib".

### Calendar:

The sunrise and sunset time, the computation of the maximal elevation of the Sun at the local noon, the duration of the day, are computed thanks to a coordinate system library, developed initially for the CLUSTER mission in 1992, the "Rocotlib", then completed by all the routines allowing calendar and time conversions. Sunrise, sunset and local noon time are now available for polar zones in the last version of this library.

Computations are done assuming a spherical Earth, and for a constant value of the indices of refraction of the air at the horizon. Computations have been checked with the ephemerid values delivered by the "Institut de Mécanique Céleste" in Paris. The accuracy is around one minute in time and a few minutes in angles. Sunrise and sunset are defined when the apparent upper edge of the sun reach the local horizon.

This calendar can be automatically produced for any city in the world, including polar zones, and for all years between 1901 and 2099.

For any more information, contact [Patrickjf.Robert@gmail.com](mailto:Patrickjf.Robert@gmail.com)

Many calendar examples computed for various places in the world are available here : <http://www.scientidev.fr>