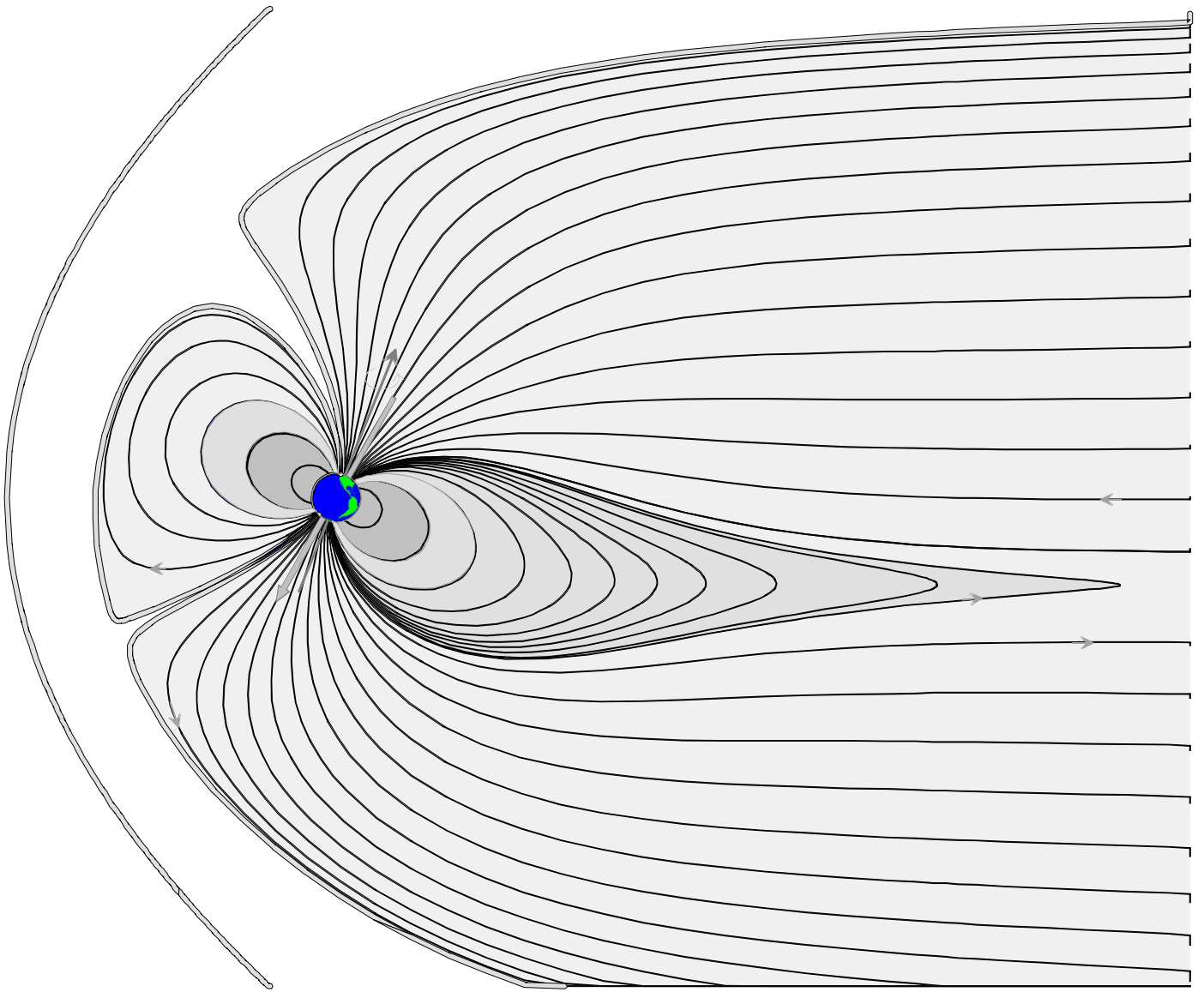


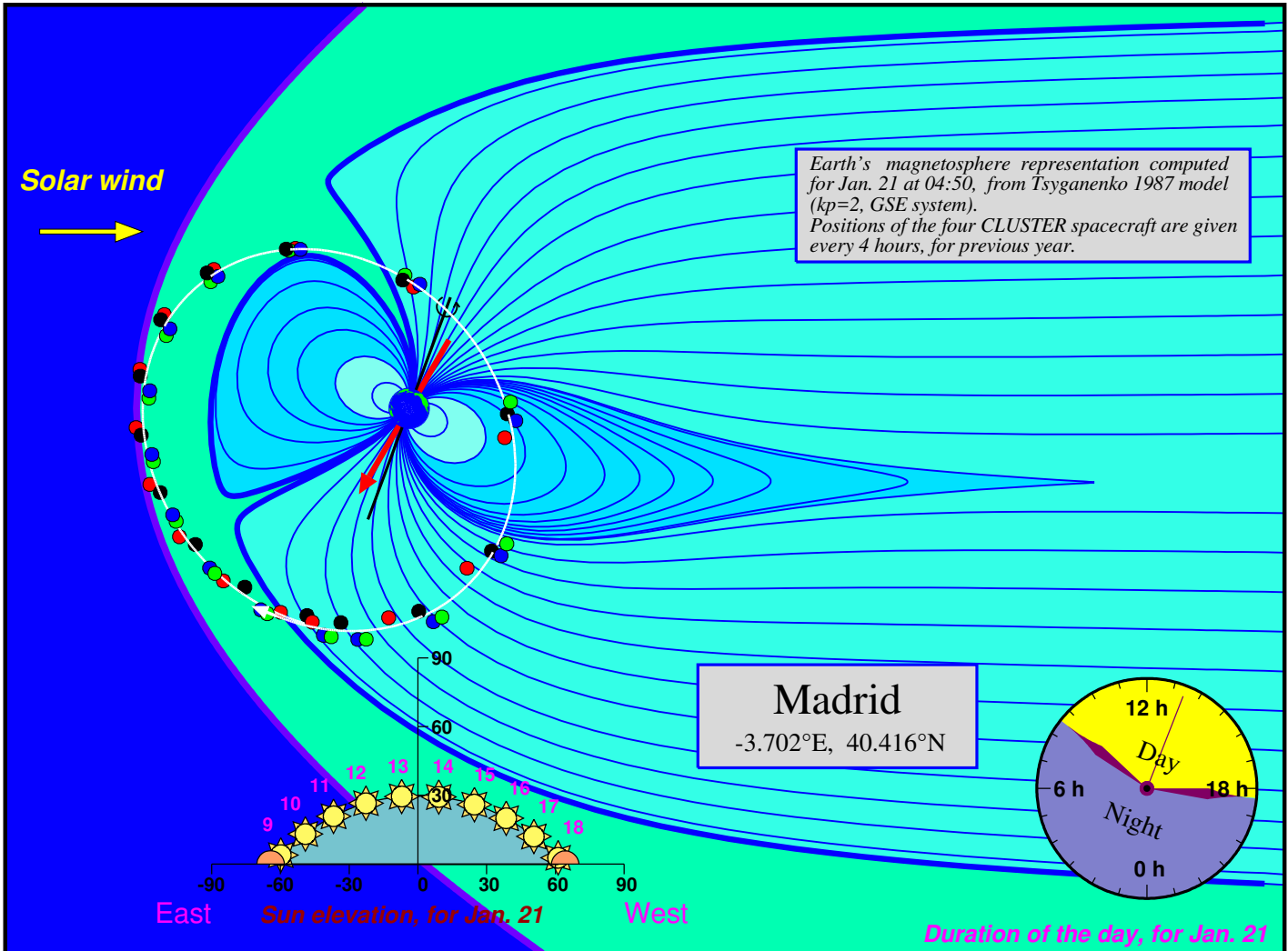


*Here is the classical magnetospheric calendar **2018**,
available for any city across the world,*

English or French version

Happy new year for everybody

Patrick

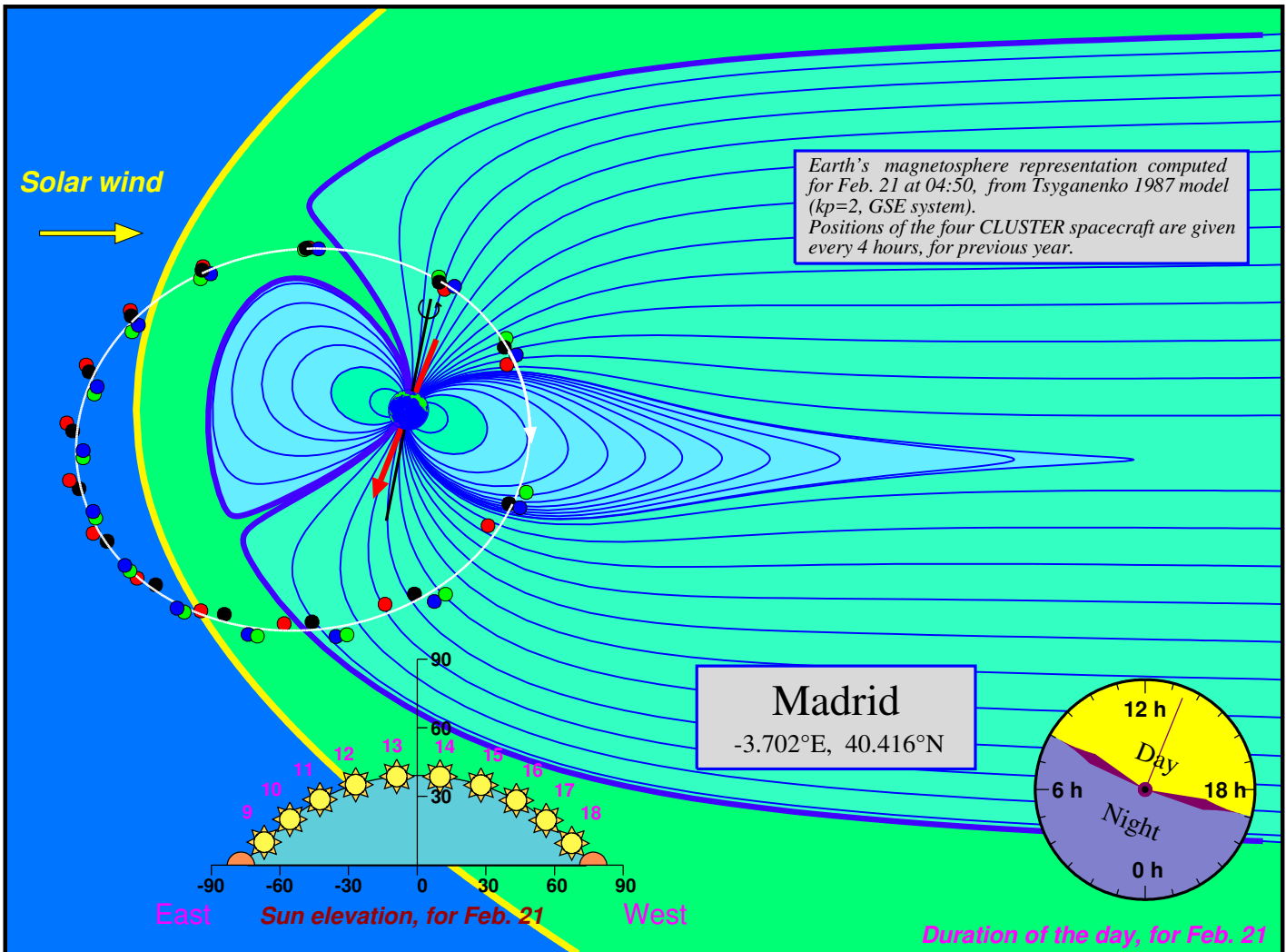


January 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

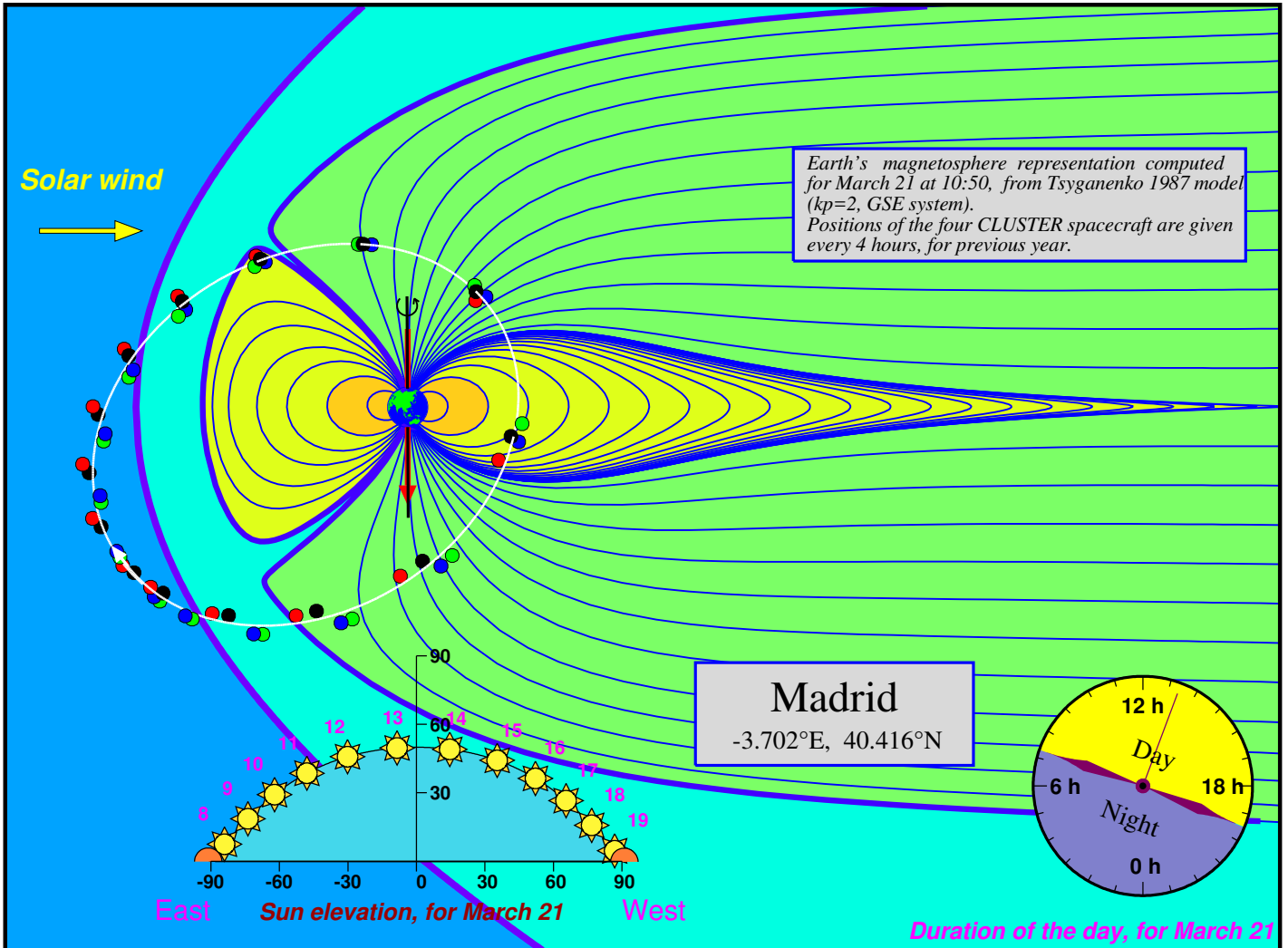
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	1 1 - 364 08:38 - 17:59 9:21 +1 m. 27°	2 2 - 363 08:38 - 18:00 9:21 +0 m. 27°	3 3 - 362 08:38 - 18:01 9:22 +1 m. 27°	4 4 - 361 08:38 - 18:02 9:23 +1 m. 27°	5 5 - 360 08:38 - 18:03 9:24 +1 m. 27°	6 6 - 359 08:38 - 18:04 9:25 +1 m. 27°	7 7 - 358 08:38 - 18:05 9:26 +1 m. 27°
2	8 8 - 357 08:38 - 18:06 9:27 +1 m. 27°	9 9 - 356 08:38 - 18:07 9:28 +1 m. 28°	10 10 - 355 08:38 - 18:08 9:29 +1 m. 28°	11 11 - 354 08:37 - 18:09 9:31 +2 m. 28°	12 12 - 353 08:37 - 18:10 9:32 +1 m. 28°	13 13 - 352 08:37 - 18:11 9:33 +1 m. 28°	14 14 - 351 08:37 - 18:12 9:35 +2 m. 28°
3	15 15 - 350 08:36 - 18:13 9:36 +1 m. 29°	16 16 - 349 08:36 - 18:14 9:38 +2 m. 29°	17 17 - 348 08:35 - 18:15 9:40 +2 m. 29°	18 18 - 347 08:35 - 18:16 9:41 +1 m. 29°	19 19 - 346 08:34 - 18:17 9:43 +2 m. 29°	20 20 - 345 08:34 - 18:19 9:44 +1 m. 30°	21 21 - 344 08:33 - 18:20 9:46 +2 m. 30°
4	22 22 - 343 08:32 - 18:21 9:48 +2 m. 30°	23 23 - 342 08:32 - 18:22 9:50 +2 m. 30°	24 24 - 341 08:31 - 18:23 9:52 +2 m. 30°	25 25 - 340 08:30 - 18:25 9:54 +2 m. 31°	26 26 - 339 08:30 - 18:26 9:56 +2 m. 31°	27 27 - 338 08:29 - 18:27 9:58 +2 m. 31°	28 28 - 337 08:28 - 18:28 10:00 +2 m. 31°
5	29 29 - 336 08:27 - 18:29 10:02 +2 m. 32°	30 30 - 335 08:26 - 18:31 10:04 +2 m. 32°	31 31 - 334 08:25 - 18:32 10:07 +3 m. 32°	1 32 - 333 08:24 - 18:33 10:09 +2 m. 33°	2 33 - 332 08:24 - 18:34 10:11 +2 m. 33°	3 34 - 331 08:23 - 18:36 10:13 +2 m. 33°	4 35 - 330 08:21 - 18:37 10:15 +2 m. 33°



February 2018

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

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

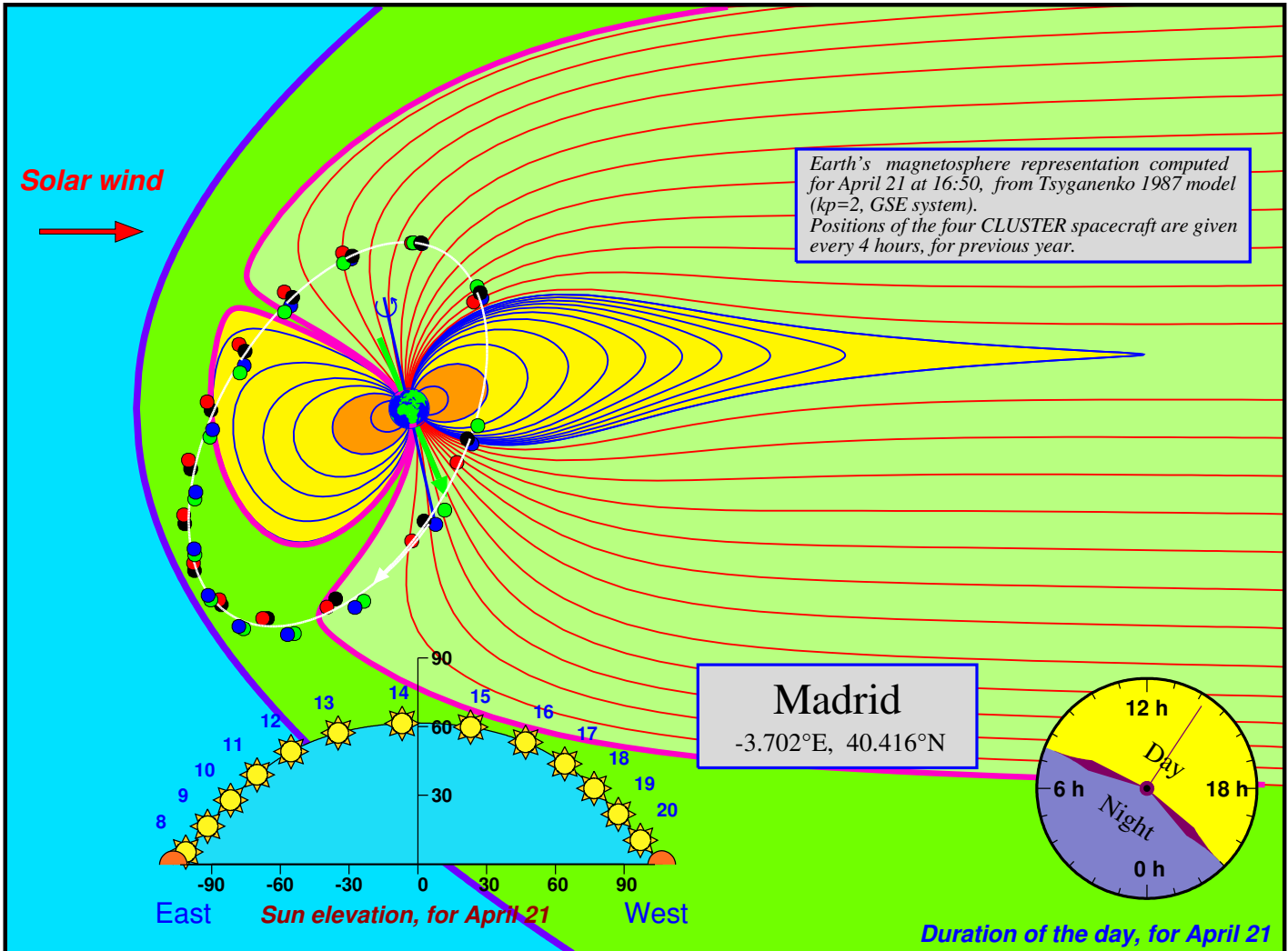


March 2018

Time change
March 25

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

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

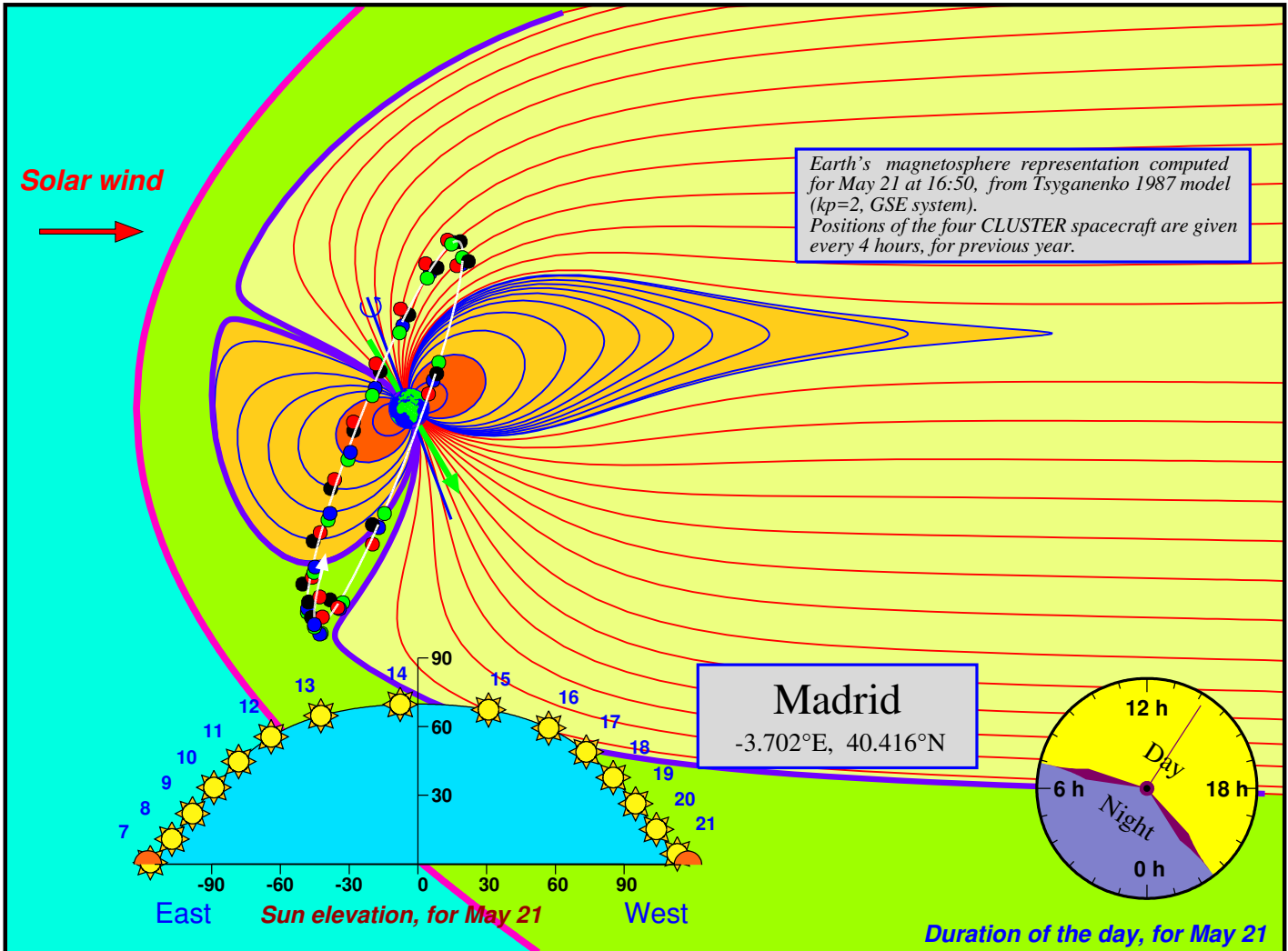


April 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
13	26 85 - 280 08:09 - 20:33 12:24 +2 m. 52°	27 86 - 279 08:07 - 20:34 12:27 +3 m. 52°	28 87 - 278 08:06 - 20:35 12:30 +3 m. 53°	29 88 - 277 08:04 - 20:36 12:32 +2 m. 53°	30 89 - 276 08:02 - 20:37 12:35 +3 m. 53°	31 90 - 275 08:01 - 20:38 12:38 +3 m. 54°	1 91 - 274 07:59 - 20:39 12:40 +2 m. 54°
14	2 92 - 273 07:57 - 20:40 12:43 +3 m. 55°	3 93 - 272 07:56 - 20:41 12:46 +3 m. 55°	4 94 - 271 07:54 - 20:42 12:48 +2 m. 55°	5 95 - 270 07:53 - 20:44 12:51 +3 m. 56°	6 96 - 269 07:51 - 20:45 12:54 +3 m. 56°	7 97 - 268 07:49 - 20:46 12:56 +2 m. 57°	8 98 - 267 07:48 - 20:47 12:59 +3 m. 57°
15	9 99 - 266 07:46 - 20:48 13:01 +2 m. 57°	10 100 - 265 07:45 - 20:49 13:04 +3 m. 58°	11 101 - 264 07:43 - 20:50 13:07 +3 m. 58°	12 102 - 263 07:42 - 20:51 13:09 +2 m. 58°	13 103 - 262 07:40 - 20:52 13:12 +3 m. 59°	14 104 - 261 07:38 - 20:53 13:14 +2 m. 59°	15 105 - 260 07:37 - 20:54 13:17 +3 m. 59°
16	16 106 - 259 07:35 - 20:55 13:20 +3 m. 60°	17 107 - 258 07:34 - 20:56 13:22 +2 m. 60°	18 108 - 257 07:32 - 20:57 13:25 +3 m. 61°	19 109 - 256 07:31 - 20:58 13:27 +2 m. 61°	20 110 - 255 07:29 - 20:59 13:30 +3 m. 61°	21 111 - 254 07:28 - 21:00 13:32 +2 m. 62°	22 112 - 253 07:27 - 21:01 13:35 +3 m. 62°
17	23 113 - 252 07:25 - 21:02 13:37 +2 m. 62°	24 114 - 251 07:24 - 21:03 13:39 +2 m. 63°	25 115 - 250 07:22 - 21:04 13:42 +3 m. 63°	26 116 - 249 07:21 - 21:05 13:44 +2 m. 63°	27 117 - 248 07:20 - 21:06 13:47 +3 m. 64°	28 118 - 247 07:18 - 21:07 13:49 +2 m. 64°	29 119 - 246 07:17 - 21:08 13:51 +2 m. 64°
18	30 120 - 245 07:16 - 21:09 13:54 +3 m. 64°	1 121 - 244 07:14 - 21:10 13:56 +2 m. 65°	2 122 - 243 07:13 - 21:11 13:58 +2 m. 65°	3 123 - 242 07:12 - 21:12 14:01 +3 m. 65°	4 124 - 241 07:11 - 21:13 14:03 +2 m. 66°	5 125 - 240 07:10 - 21:14 14:05 +2 m. 66°	6 126 - 239 07:08 - 21:15 14:07 +2 m. 66°

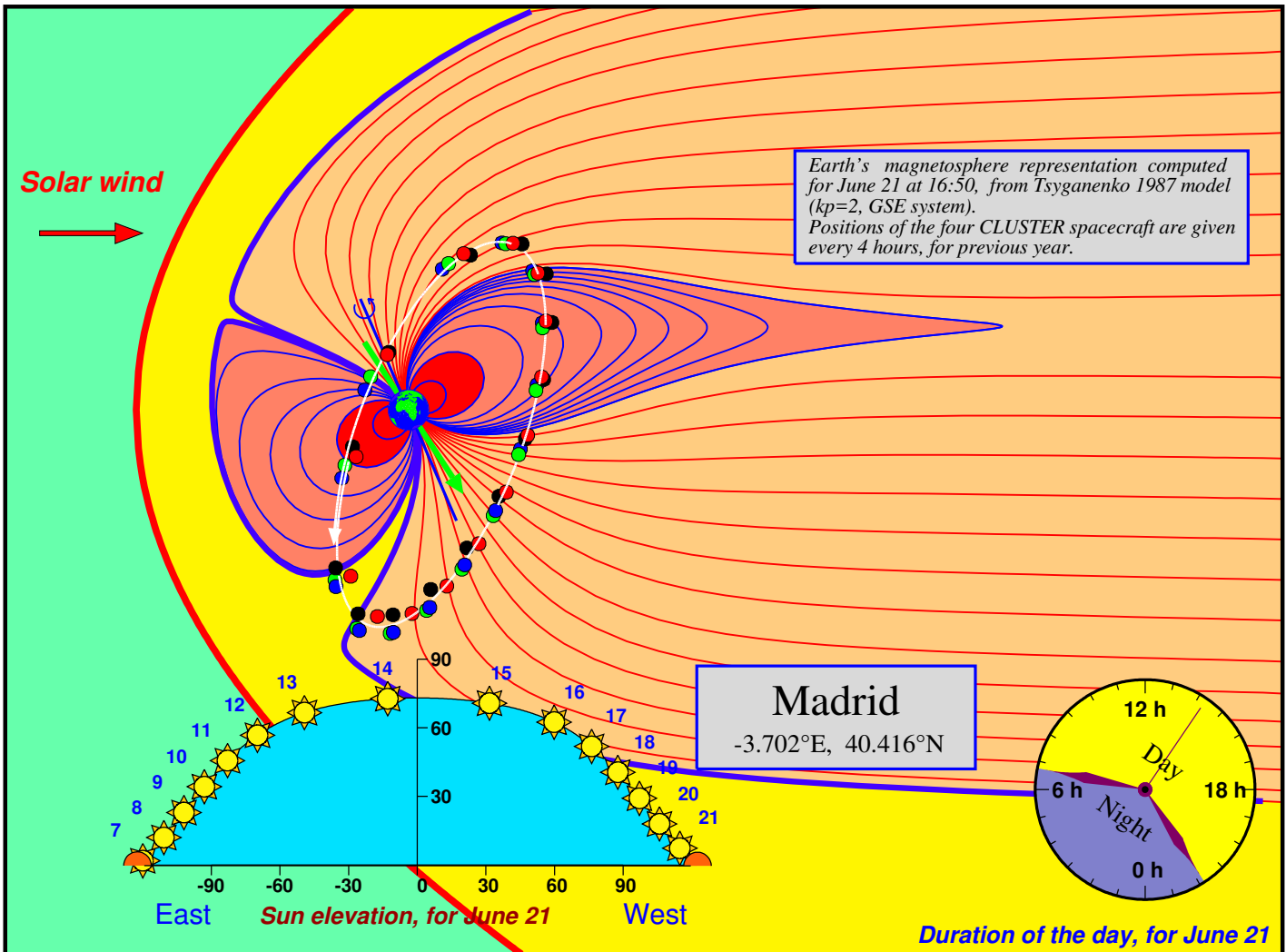


May 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	30 120 - 245 07:16 - 21:09 13:54 +3 m. 64°	1 121 - 244 07:14 - 21:10 13:56 +2 m. 65°	2 122 - 243 07:13 - 21:11 13:58 +2 m. 65°	3 123 - 242 07:12 - 21:12 14:01 +3 m. 65°	4 124 - 241 07:11 - 21:13 14:03 +2 m. 66°	5 125 - 240 07:10 - 21:14 14:05 +2 m. 66°	6 126 - 239 07:08 - 21:15 14:07 +2 m. 66°
19	7 127 - 238 07:07 - 21:16 14:09 +2 m. 66°	8 128 - 237 07:06 - 21:17 14:11 +2 m. 67°	9 129 - 236 07:05 - 21:18 14:14 +3 m. 67°	10 130 - 235 07:04 - 21:19 14:16 +2 m. 67°	11 131 - 234 07:03 - 21:20 14:18 +2 m. 68°	12 132 - 233 07:02 - 21:21 14:20 +2 m. 68°	13 133 - 232 07:01 - 21:22 14:22 +2 m. 68°
20	14 134 - 231 07:00 - 21:23 14:24 +2 m. 68°	15 135 - 230 06:59 - 21:24 14:26 +2 m. 69°	16 136 - 229 06:58 - 21:25 14:27 +1 m. 69°	17 137 - 228 06:57 - 21:26 14:29 +2 m. 69°	18 138 - 227 06:56 - 21:27 14:31 +2 m. 69°	19 139 - 226 06:55 - 21:28 14:33 +2 m. 69°	20 140 - 225 06:54 - 21:29 14:35 +2 m. 70°
21	21 141 - 224 06:54 - 21:30 14:36 +1 m. 70°	22 142 - 223 06:53 - 21:31 14:38 +2 m. 70°	23 143 - 222 06:52 - 21:32 14:40 +2 m. 70°	24 144 - 221 06:52 - 21:33 14:41 +1 m. 70°	25 145 - 220 06:51 - 21:33 14:43 +2 m. 71°	26 146 - 219 06:50 - 21:34 14:44 +1 m. 71°	27 147 - 218 06:50 - 21:35 14:46 +2 m. 71°
22	28 148 - 217 06:49 - 21:36 14:47 +1 m. 71°	29 149 - 216 06:48 - 21:37 14:48 +1 m. 71°	30 150 - 215 06:48 - 21:37 14:50 +2 m. 71°	31 151 - 214 06:47 - 21:38 14:51 +1 m. 72°	1 152 - 213 06:47 - 21:39 14:52 +1 m. 72°	2 153 - 212 06:47 - 21:40 14:53 +1 m. 72°	3 154 - 211 06:46 - 21:40 14:54 +1 m. 72°

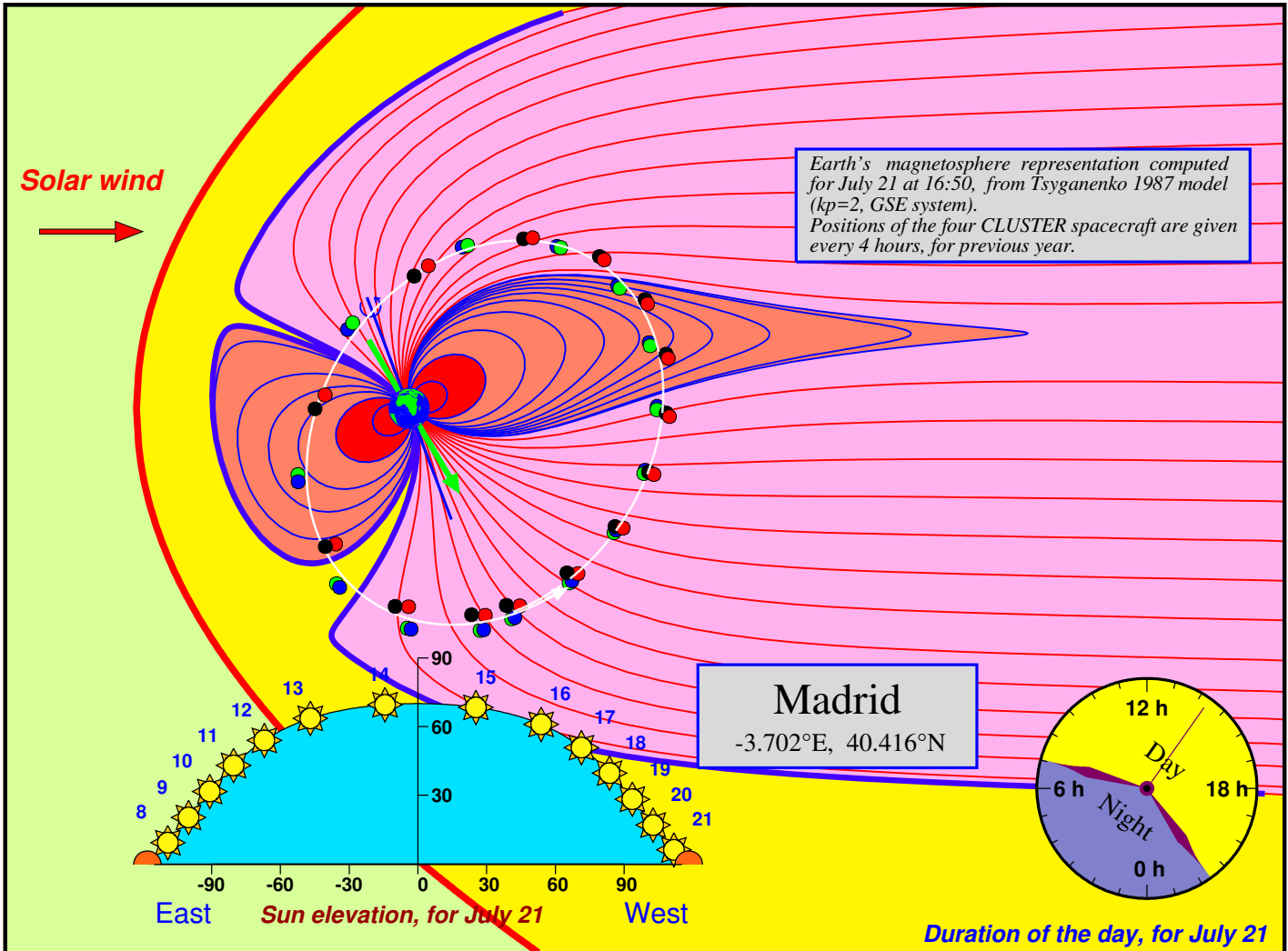


June 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
22	28 148 - 217 06:49 - 21:36 14:47 +1 m. 71°	29 149 - 216 06:48 - 21:37 14:48 +1 m. 71°	30 150 - 215 06:48 - 21:37 14:50 +2 m. 71°	31 151 - 214 06:47 - 21:38 14:51 +1 m. 72°	1 152 - 213 06:47 - 21:39 14:52 +1 m. 72°	2 153 - 212 06:47 - 21:40 14:53 +1 m. 72°	3 154 - 211 06:46 - 21:40 14:54 +1 m. 72°
23	4 155 - 210 06:46 - 21:41 14:55 +1 m. 72°	5 156 - 209 06:46 - 21:42 14:56 +1 m. 72°	6 157 - 208 06:45 - 21:42 14:57 +1 m. 72°	7 158 - 207 06:45 - 21:43 14:58 +1 m. 72°	8 159 - 206 06:45 - 21:44 14:59 +1 m. 72°	9 160 - 205 06:45 - 21:44 15:00 +1 m. 73°	10 161 - 204 06:44 - 21:45 15:00 +0 m. 73°
24	11 162 - 203 06:44 - 21:45 15:01 +1 m. 73°	12 163 - 202 06:44 - 21:46 15:01 +0 m. 73°	13 164 - 201 06:44 - 21:46 15:02 +1 m. 73°	14 165 - 200 06:44 - 21:46 15:02 +0 m. 73°	15 166 - 199 06:44 - 21:47 15:03 +1 m. 73°	16 167 - 198 06:44 - 21:47 15:03 +0 m. 73°	17 168 - 197 06:44 - 21:48 15:03 +0 m. 73°
25	18 169 - 196 06:44 - 21:48 15:04 +1 m. 73°	19 170 - 195 06:45 - 21:48 15:04 +0 m. 73°	20 171 - 194 06:45 - 21:48 15:04 +0 m. 73°	21 172 - 193 06:45 - 21:49 15:04 +0 m. 73°	22 173 - 192 06:45 - 21:49 15:04 +0 m. 73°	23 174 - 191 06:45 - 21:49 15:04 +0 m. 73°	24 175 - 190 06:46 - 21:49 15:04 +0 m. 73°
26	25 176 - 189 06:46 - 21:49 15:03 -1 m. 73°	26 177 - 188 06:46 - 21:49 15:03 +0 m. 73°	27 178 - 187 06:47 - 21:49 15:03 +0 m. 73°	28 179 - 186 06:47 - 21:49 15:02 -1 m. 73°	29 180 - 185 06:48 - 21:49 15:02 +0 m. 73°	30 181 - 184 06:48 - 21:49 15:01 -1 m. 73°	1 182 - 183 06:48 - 21:49 15:01 +0 m. 73°

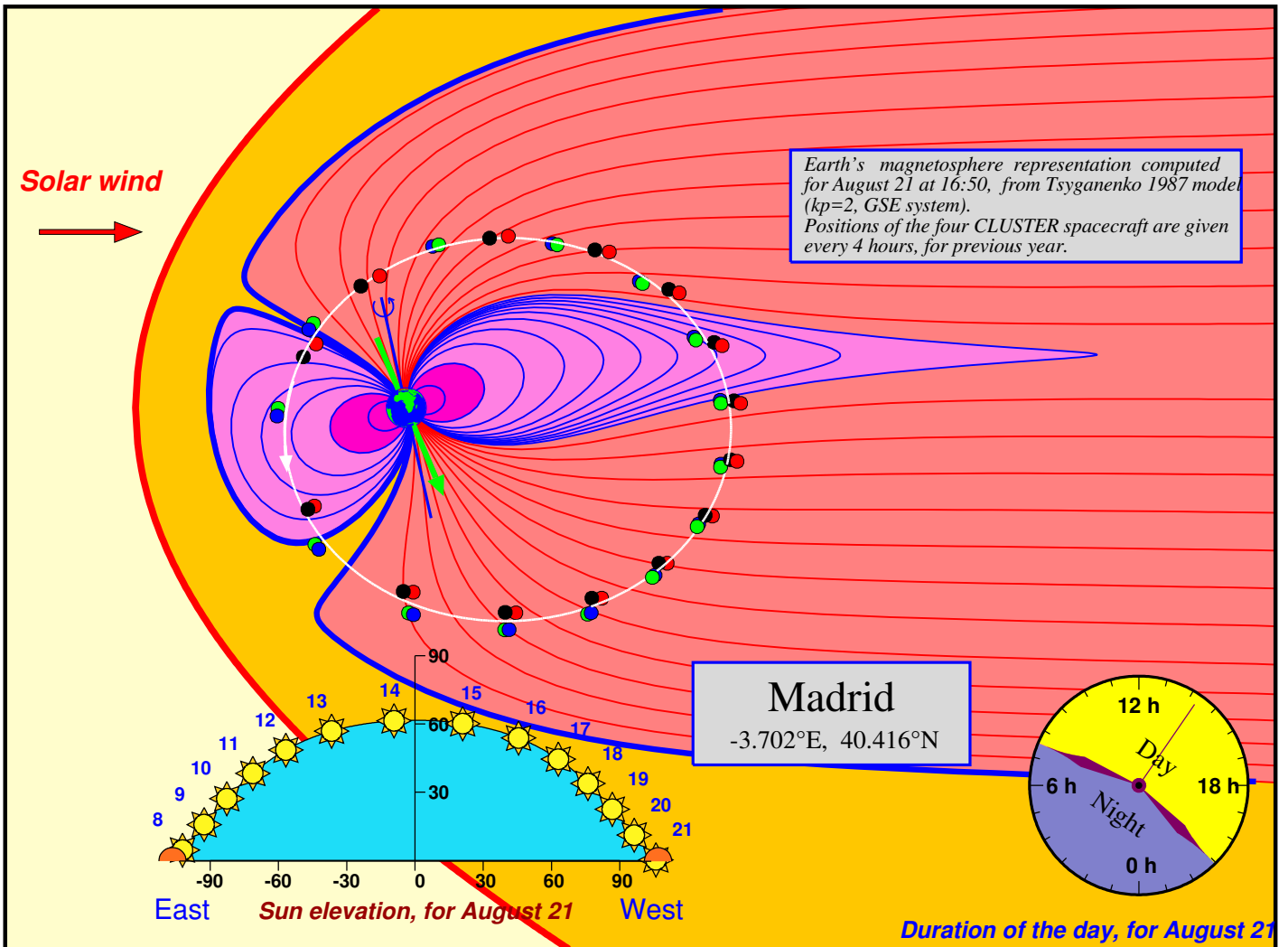


July 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
26	25 176 - 189 06:46 - 21:49 15:03 -1 m. 73°	26 177 - 188 06:46 - 21:49 15:03 +0 m. 73°	27 178 - 187 06:47 - 21:49 15:03 +0 m. 73°	28 179 - 186 06:47 - 21:49 15:02 -1 m. 73°	29 180 - 185 06:48 - 21:49 15:02 +0 m. 73°	30 181 - 184 06:48 - 21:49 15:01 -1 m. 73°	1 182 - 183 06:48 - 21:49 15:01 +0 m. 73°
27	2 183 - 182 06:49 - 21:49 15:00 -1 m. 73°	3 184 - 181 06:49 - 21:49 14:59 -1 m. 73°	4 185 - 180 06:50 - 21:49 14:59 +0 m. 72°	5 186 - 179 06:51 - 21:48 14:58 -1 m. 72°	6 187 - 178 06:51 - 21:48 14:57 -1 m. 72°	7 188 - 177 06:52 - 21:48 14:56 -1 m. 72°	8 189 - 176 06:52 - 21:47 14:55 -1 m. 72°
28	9 190 - 175 06:53 - 21:47 14:54 -1 m. 72°	10 191 - 174 06:54 - 21:47 14:53 -1 m. 72°	11 192 - 173 06:54 - 21:46 14:52 -1 m. 72°	12 193 - 172 06:55 - 21:46 14:51 -1 m. 72°	13 194 - 171 06:56 - 21:45 14:49 -2 m. 71°	14 195 - 170 06:57 - 21:45 14:48 -1 m. 71°	15 196 - 169 06:57 - 21:44 14:47 -1 m. 71°
29	16 197 - 168 06:58 - 21:44 14:45 -2 m. 71°	17 198 - 167 06:59 - 21:43 14:44 -1 m. 71°	18 199 - 166 07:00 - 21:42 14:43 -1 m. 71°	19 200 - 165 07:01 - 21:42 14:41 -2 m. 70°	20 201 - 164 07:01 - 21:41 14:39 -2 m. 70°	21 202 - 163 07:02 - 21:40 14:38 -1 m. 70°	22 203 - 162 07:03 - 21:39 14:36 -2 m. 70°
30	23 204 - 161 07:04 - 21:38 14:34 -2 m. 70°	24 205 - 160 07:05 - 21:38 14:33 -1 m. 69°	25 206 - 159 07:06 - 21:37 14:31 -2 m. 69°	26 207 - 158 07:07 - 21:36 14:29 -2 m. 69°	27 208 - 157 07:08 - 21:35 14:27 -2 m. 69°	28 209 - 156 07:08 - 21:34 14:26 -1 m. 69°	29 210 - 155 07:09 - 21:33 14:24 -2 m. 68°
31	30 211 - 154 07:10 - 21:32 14:22 -2 m. 68°	31 212 - 153 07:11 - 21:31 14:20 -2 m. 68°	1 213 - 152 07:12 - 21:30 14:18 -2 m. 68°	2 214 - 151 07:13 - 21:29 14:16 -2 m. 67°	3 215 - 150 07:14 - 21:28 14:14 -2 m. 67°	4 216 - 149 07:15 - 21:27 14:12 -2 m. 67°	5 217 - 148 07:16 - 21:25 14:10 -2 m. 66°

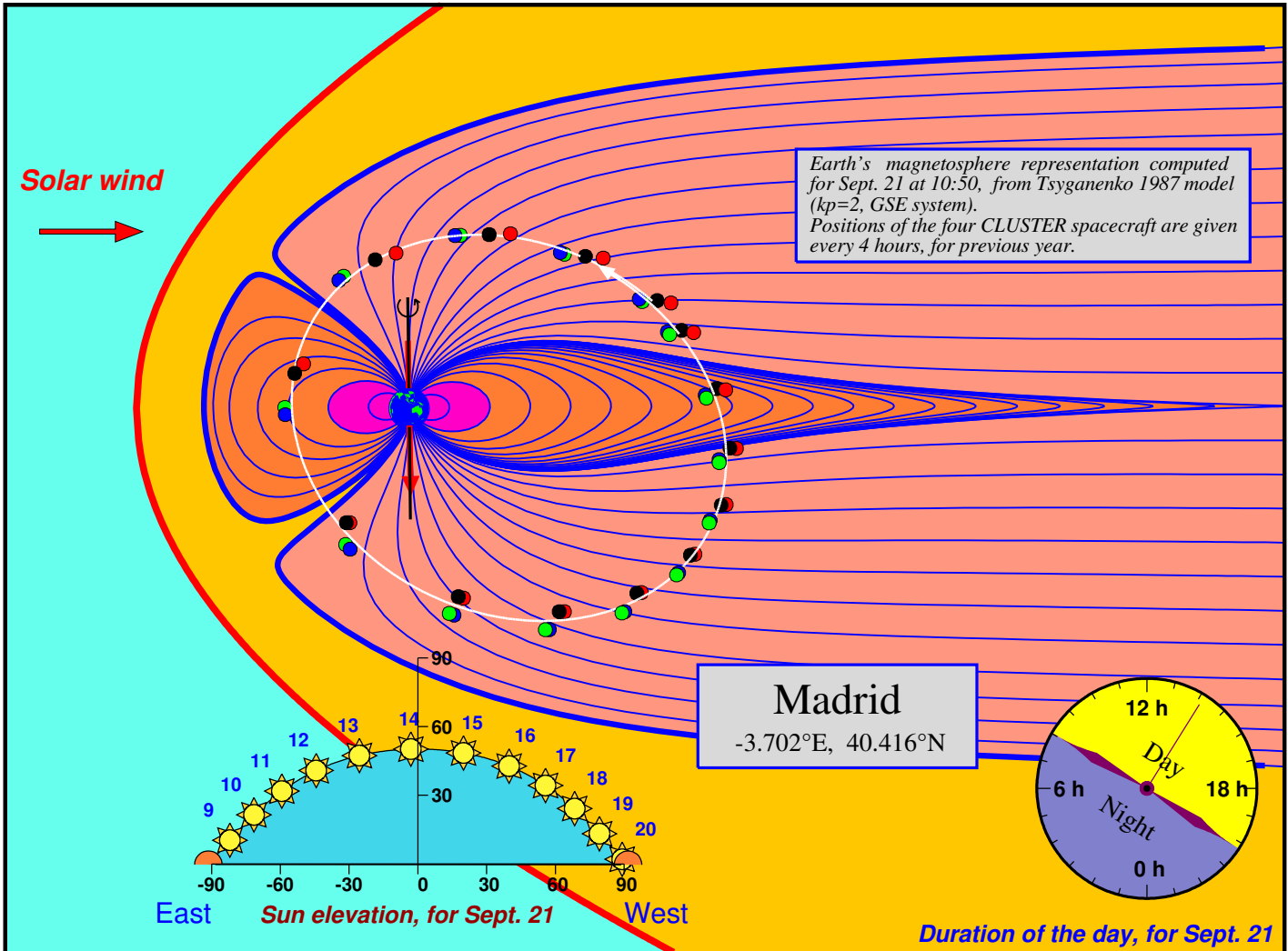


August 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	30 211 - 154 07:10 - 21:32 14:22 -2 m. 68°	31 212 - 153 07:11 - 21:31 14:20 -2 m. 68°	1 213 - 152 07:12 - 21:30 14:18 -2 m. 68°	2 214 - 151 07:13 - 21:29 14:16 -2 m. 67°	3 215 - 150 07:14 - 21:28 14:14 -2 m. 67°	4 216 - 149 07:15 - 21:27 14:12 -2 m. 67°	5 217 - 148 07:16 - 21:25 14:10 -2 m. 66°
32	6 218 - 147 07:17 - 21:24 14:07 -3 m. 66°	7 219 - 146 07:18 - 21:23 14:05 -2 m. 66°	8 220 - 145 07:19 - 21:22 14:03 -2 m. 66°	9 221 - 144 07:20 - 21:21 14:01 -2 m. 65°	10 222 - 143 07:21 - 21:19 13:59 -2 m. 65°	11 223 - 142 07:22 - 21:18 13:56 -3 m. 65°	12 224 - 141 07:23 - 21:17 13:54 -2 m. 64°
33	13 225 - 140 07:24 - 21:15 13:52 -2 m. 64°	14 226 - 139 07:25 - 21:14 13:49 -3 m. 64°	15 227 - 138 07:26 - 21:13 13:47 -2 m. 64°	16 228 - 137 07:27 - 21:11 13:45 -2 m. 63°	17 229 - 136 07:28 - 21:10 13:42 -3 m. 63°	18 230 - 135 07:29 - 21:08 13:40 -2 m. 63°	19 231 - 134 07:30 - 21:07 13:37 -3 m. 62°
34	20 232 - 133 07:31 - 21:06 13:35 -2 m. 62°	21 233 - 132 07:31 - 21:04 13:33 -2 m. 62°	22 234 - 131 07:32 - 21:03 13:30 -3 m. 61°	23 235 - 130 07:33 - 21:01 13:28 -2 m. 61°	24 236 - 129 07:34 - 21:00 13:25 -3 m. 61°	25 237 - 128 07:35 - 20:58 13:23 -2 m. 60°	26 238 - 127 07:36 - 20:57 13:20 -3 m. 60°
35	27 239 - 126 07:37 - 20:55 13:18 -2 m. 60°	28 240 - 125 07:38 - 20:53 13:15 -3 m. 59°	29 241 - 124 07:39 - 20:52 13:13 -2 m. 59°	30 242 - 123 07:40 - 20:50 13:10 -3 m. 59°	31 243 - 122 07:41 - 20:49 13:08 -2 m. 58°	1 244 - 121 07:42 - 20:47 13:05 -3 m. 58°	2 245 - 120 07:43 - 20:46 13:03 -2 m. 57°

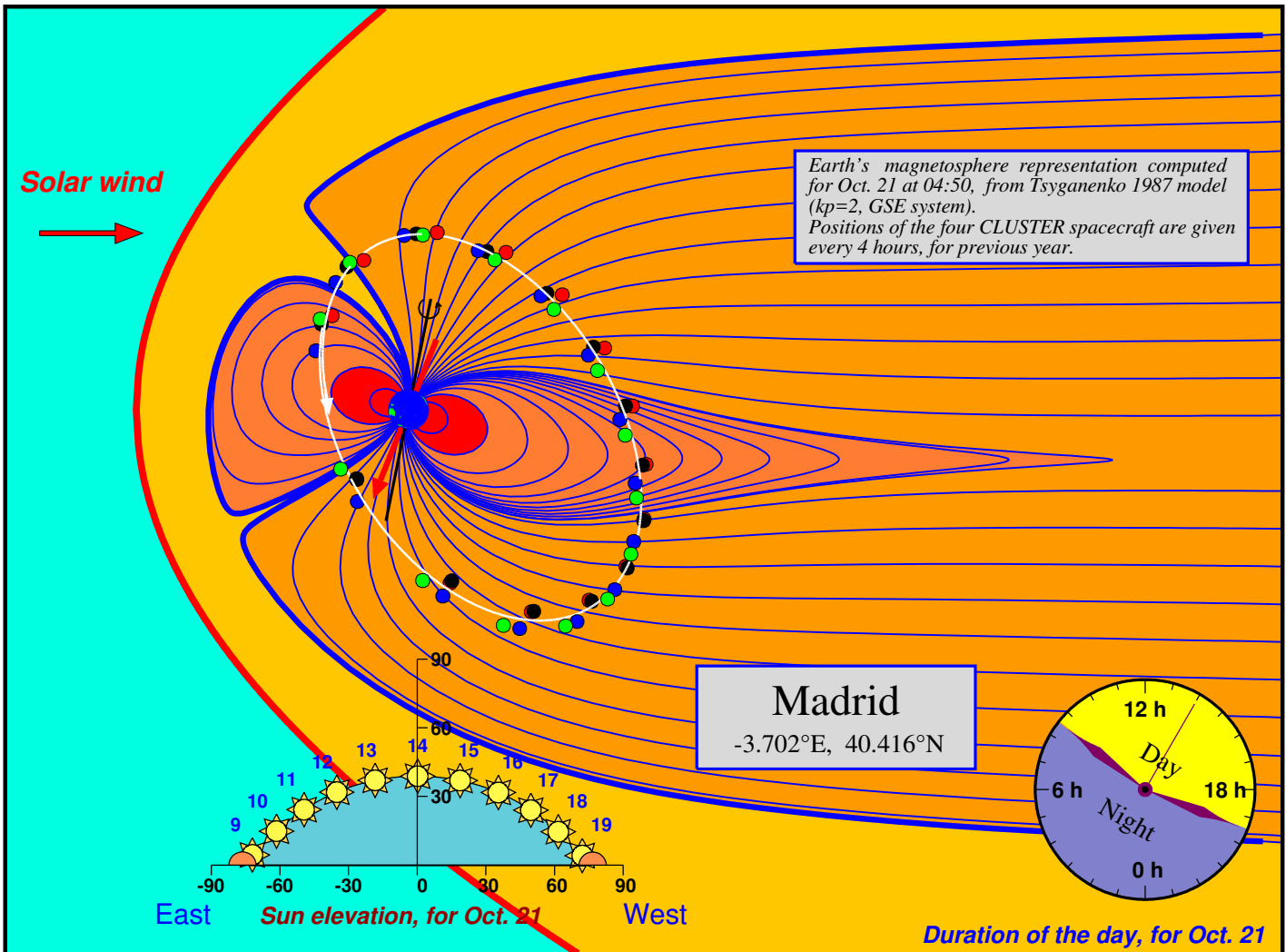


September 2018

Sunrise and Sunset at Madrid (TL ± 1 mn)

Duration of the day - Variation - Sun maximal elevation (°)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
35	27 239 - 126 07:37 - 20:55 13:18 -2 m. 60°	28 240 - 125 07:38 - 20:53 13:15 -3 m. 59°	29 241 - 124 07:39 - 20:52 13:13 -2 m. 59°	30 242 - 123 07:40 - 20:50 13:10 -3 m. 59°	31 243 - 122 07:41 - 20:49 13:08 -2 m. 58°	1 244 - 121 07:42 - 20:47 13:05 -3 m. 58°	2 245 - 120 07:43 - 20:46 13:03 -2 m. 57°
36	3 246 - 119 07:44 - 20:44 13:00 -3 m. 57°	4 247 - 118 07:45 - 20:42 12:57 -3 m. 57°	5 248 - 117 07:46 - 20:41 12:55 -2 m. 56°	6 249 - 116 07:47 - 20:39 12:52 -3 m. 56°	7 250 - 115 07:48 - 20:37 12:50 -2 m. 56°	8 251 - 114 07:49 - 20:36 12:47 -3 m. 55°	9 252 - 113 07:50 - 20:34 12:44 -3 m. 55°
37	10 253 - 112 07:51 - 20:32 12:42 -2 m. 54°	11 254 - 111 07:52 - 20:31 12:39 -3 m. 54°	12 255 - 110 07:53 - 20:29 12:36 -3 m. 54°	13 256 - 109 07:54 - 20:27 12:34 -2 m. 53°	14 257 - 108 07:55 - 20:26 12:31 -3 m. 53°	15 258 - 107 07:56 - 20:24 12:29 -2 m. 53°	16 259 - 106 07:57 - 20:22 12:26 -3 m. 52°
38	17 260 - 105 07:57 - 20:21 12:23 -3 m. 52°	18 261 - 104 07:58 - 20:19 12:21 -2 m. 51°	19 262 - 103 07:59 - 20:17 12:18 -3 m. 51°	20 263 - 102 08:00 - 20:16 12:15 -3 m. 51°	21 264 - 101 08:01 - 20:14 12:13 -2 m. 50°	22 265 - 100 08:02 - 20:12 12:10 -3 m. 50°	23 266 - 99 08:03 - 20:11 12:08 -2 m. 49°
39	24 267 - 98 08:04 - 20:09 12:05 -3 m. 49°	25 268 - 97 08:05 - 20:07 12:02 -3 m. 49°	26 269 - 96 08:06 - 20:06 12:00 -2 m. 48°	27 270 - 95 08:07 - 20:04 11:57 -3 m. 48°	28 271 - 94 08:08 - 20:02 11:54 -3 m. 47°	29 272 - 93 08:09 - 20:01 11:52 -2 m. 47°	30 273 - 92 08:10 - 19:59 11:49 -3 m. 47°

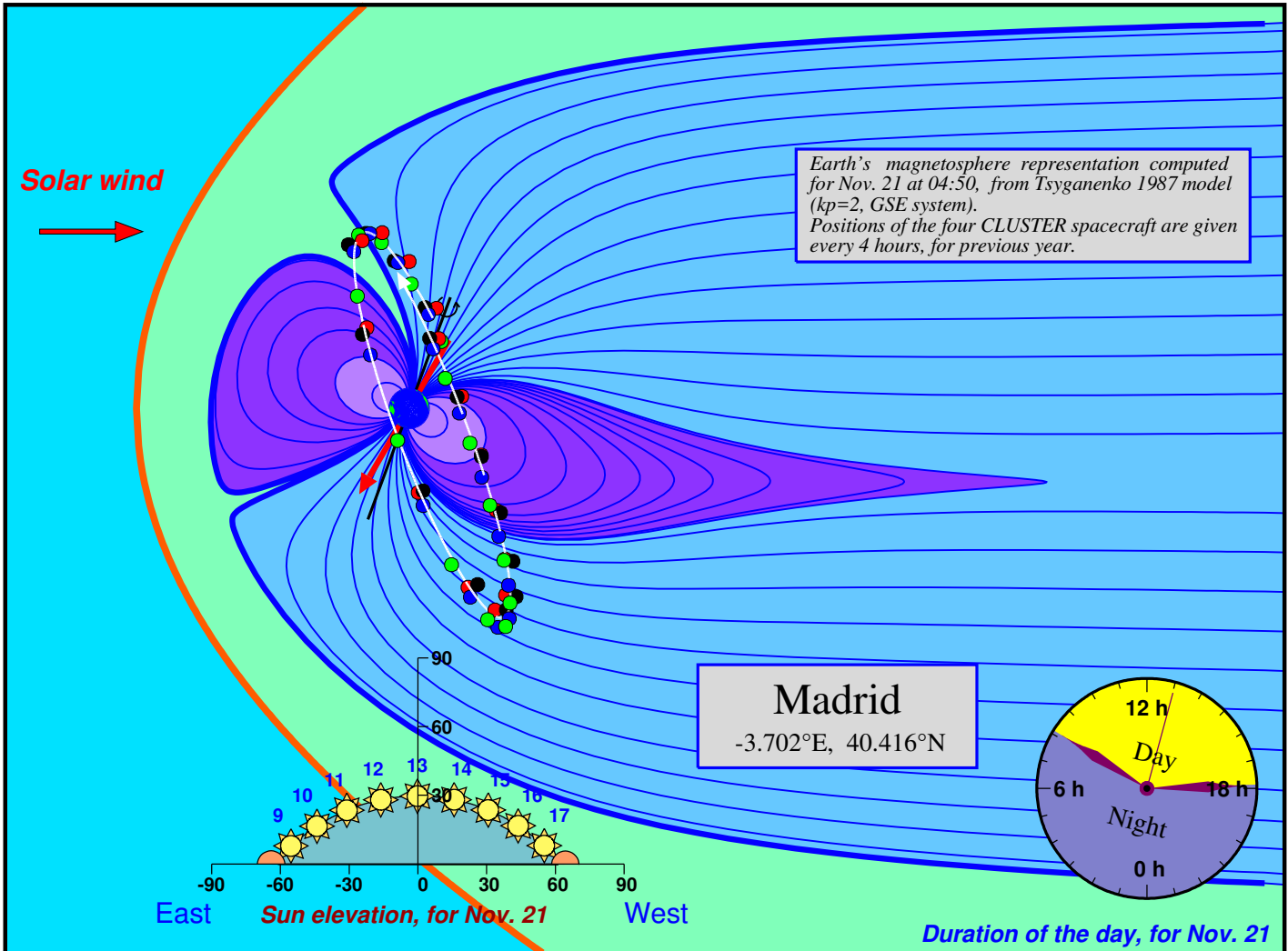


October 2018

Time change
Oct. 28

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

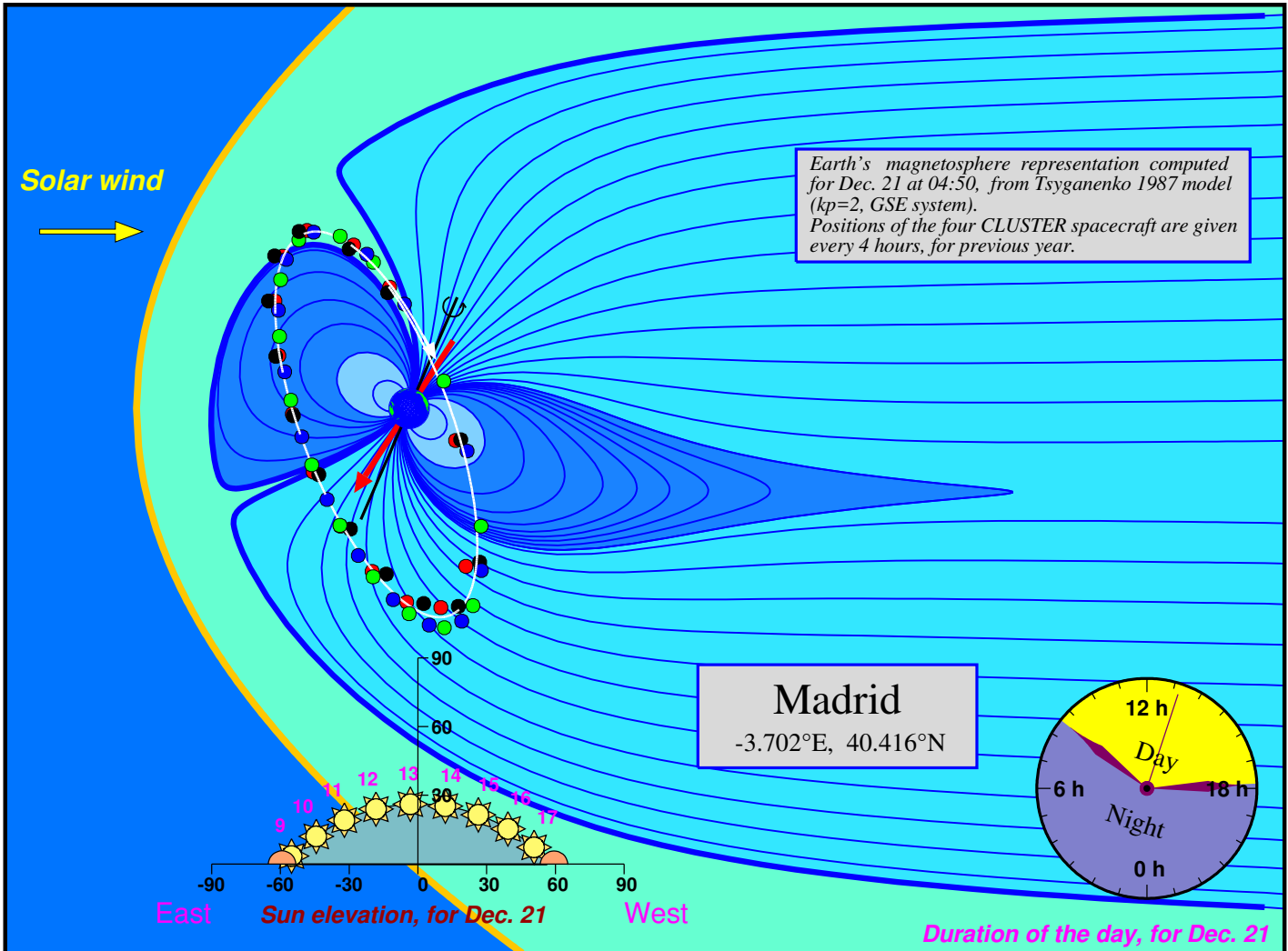
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
40	1 274 - 91 08:11 - 19:57 11:46 -3 m. 46°	2 275 - 90 08:12 - 19:56 11:44 -2 m. 46°	3 276 - 89 08:13 - 19:54 11:41 -3 m. 46°	4 277 - 88 08:14 - 19:53 11:38 -3 m. 45°	5 278 - 87 08:15 - 19:51 11:36 -2 m. 45°	6 279 - 86 08:16 - 19:49 11:33 -3 m.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



November 2018

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

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



December 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
48	26 330 - 35 08:13 - 17:51 9:37 -2 m. 29°	27 331 - 34 08:14 - 17:50 9:36 -1 m. 28°	28 332 - 33 08:15 - 17:50 9:34 -2 m. 28°	29 333 - 32 08:17 - 17:50 9:33 -1 m. 28°	30 334 - 31 08:18 - 17:49 9:31 -2 m. 28°	1 335 - 30 08:19 - 17:49 9:30 -1 m. 28°	2 336 - 29 08:20 - 17:49 9:29 -1 m. 28°
49	3 337 - 28 08:21 - 17:49 9:28 -1 m. 27°	4 338 - 27 08:22 - 17:49 9:27 -1 m. 27°	5 339 - 26 08:23 - 17:48 9:25 -2 m. 27°	6 340 - 25 08:23 - 17:48 9:25 +0 m. 27°	7 341 - 24 08:24 - 17:48 9:23 -2 m. 27°	8 342 - 23 08:25 - 17:48 9:23 +0 m. 27°	9 343 - 22 08:26 - 17:48 9:22 -1 m. 27°
50	10 344 - 21 08:27 - 17:48 9:21 -1 m. 27°	11 345 - 20 08:28 - 17:48 9:20 -1 m. 27°	12 346 - 19 08:29 - 17:49 9:20 +0 m. 27°	13 347 - 18 08:29 - 17:49 9:19 -1 m. 26°	14 348 - 17 08:30 - 17:49 9:19 +0 m. 26°	15 349 - 16 08:31 - 17:49 9:18 -1 m. 26°	16 350 - 15 08:31 - 17:50 9:18 +0 m. 26°
51	17 351 - 14 08:32 - 17:50 9:17 -1 m. 26°	18 352 - 13 08:33 - 17:50 9:17 +0 m. 26°	19 353 - 12 08:33 - 17:51 9:17 +0 m. 26°	20 354 - 11 08:34 - 17:51 9:17 +0 m. 26°	21 355 - 10 08:34 - 17:52 9:17 +0 m. 26°	22 356 - 9 08:35 - 17:52 9:17 +0 m. 26°	23 357 - 8 08:35 - 17:53 9:17 +0 m. 26°
52	24 358 - 7 08:36 - 17:53 9:17 +0 m. 26°	25 359 - 6 08:36 - 17:54 9:17 +0 m. 26°	26 360 - 5 08:37 - 17:54 9:17 +0 m. 26°	27 361 - 4 08:37 - 17:55 9:18 +1 m. 26°	28 362 - 3 08:37 - 17:56 9:18 +0 m. 26°	29 363 - 2 08:38 - 17:57 9:19 +1 m. 26°	30 364 - 1 08:38 - 17:57 9:19 +0 m. 26°
53	31 365 - 0 08:38 - 17:58 9:20 +1 m. 27°						

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

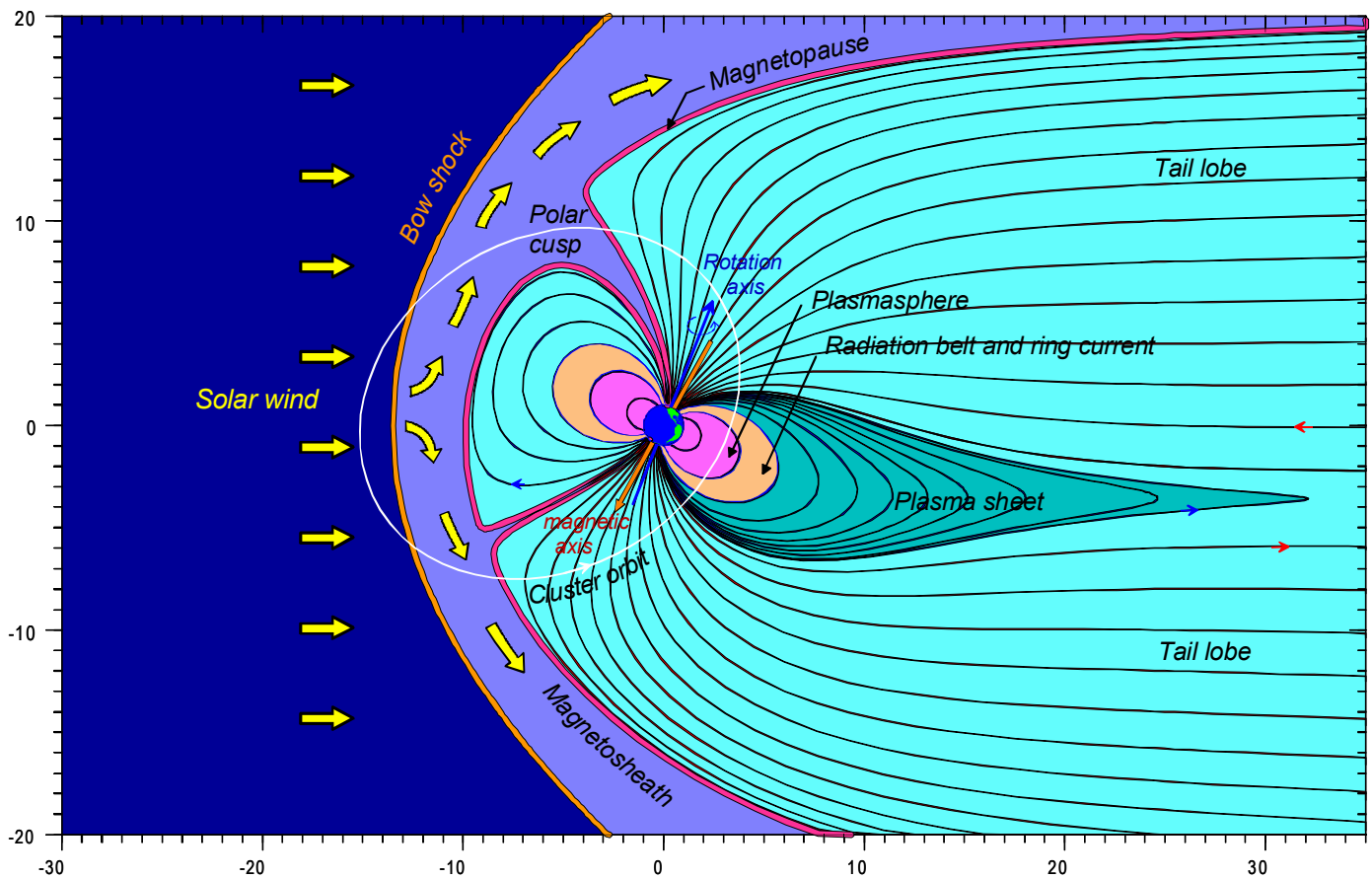


Illustration : Visualization of magnetic field lines of the Earth, showing the magnetosphere.

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

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