

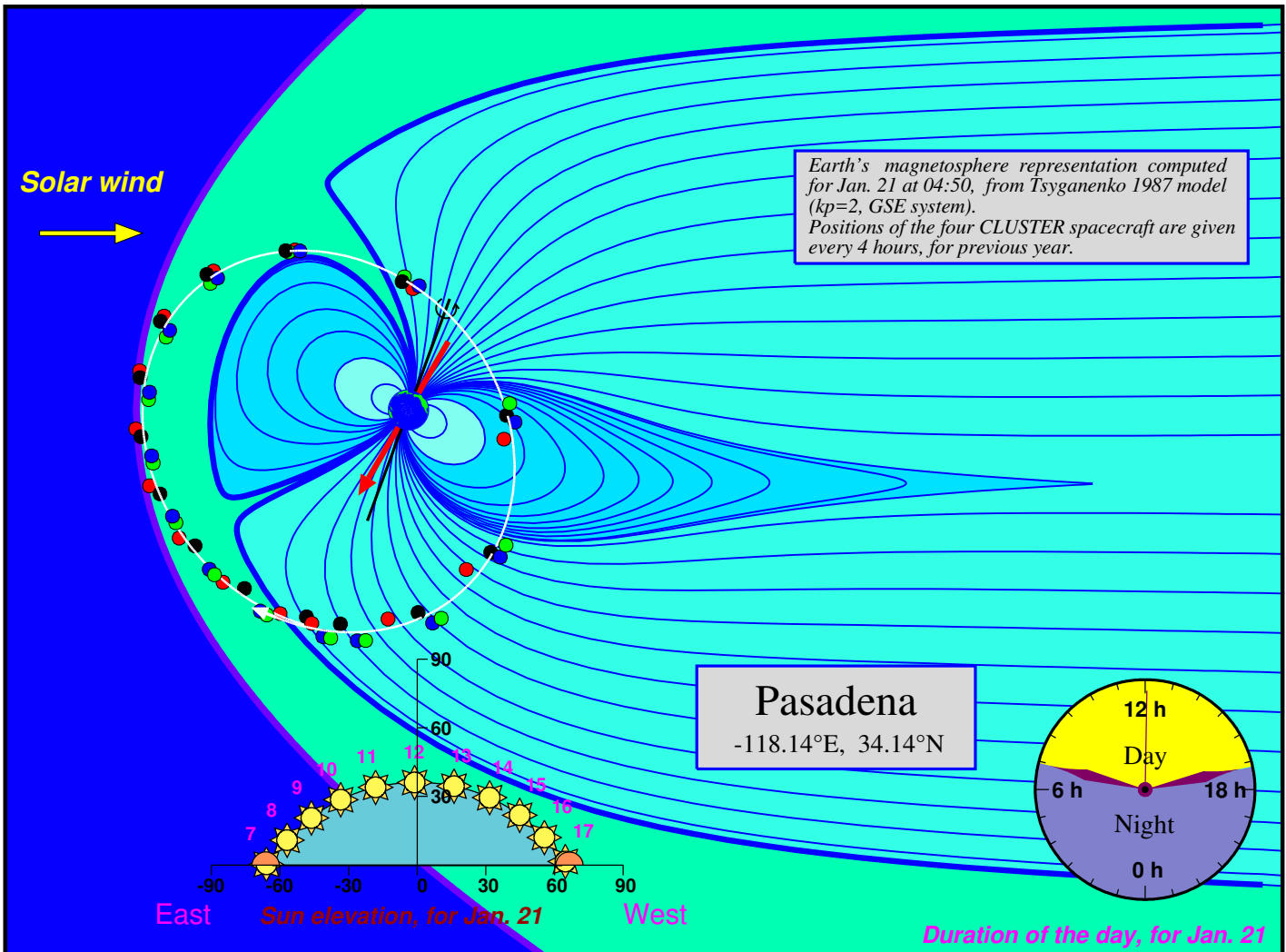


*Here is the classical magnetospheric calendar **2018**,
available for any city across the world,*

English or French version

Happy new year for everybody

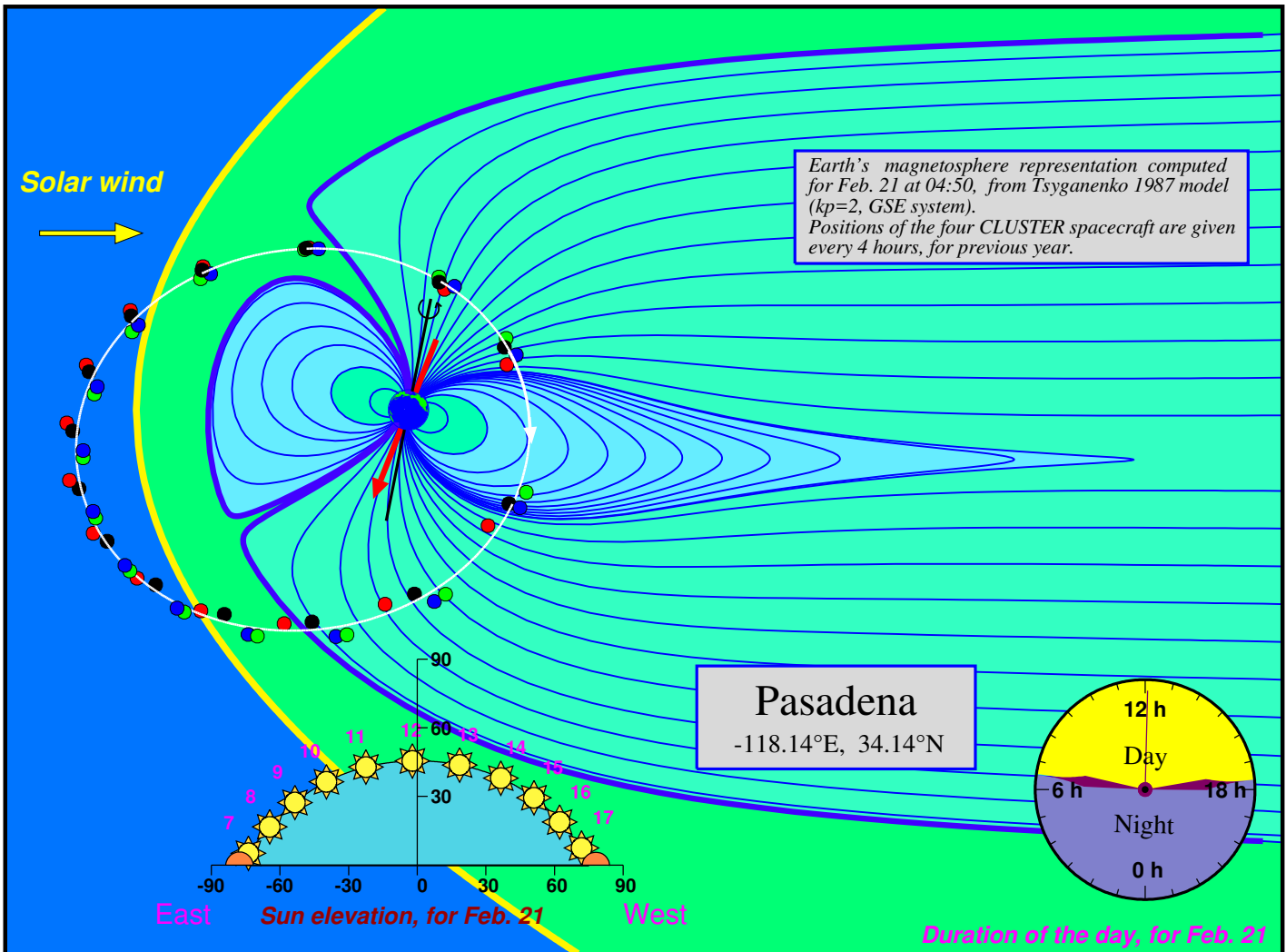
Patrick



January 2018

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

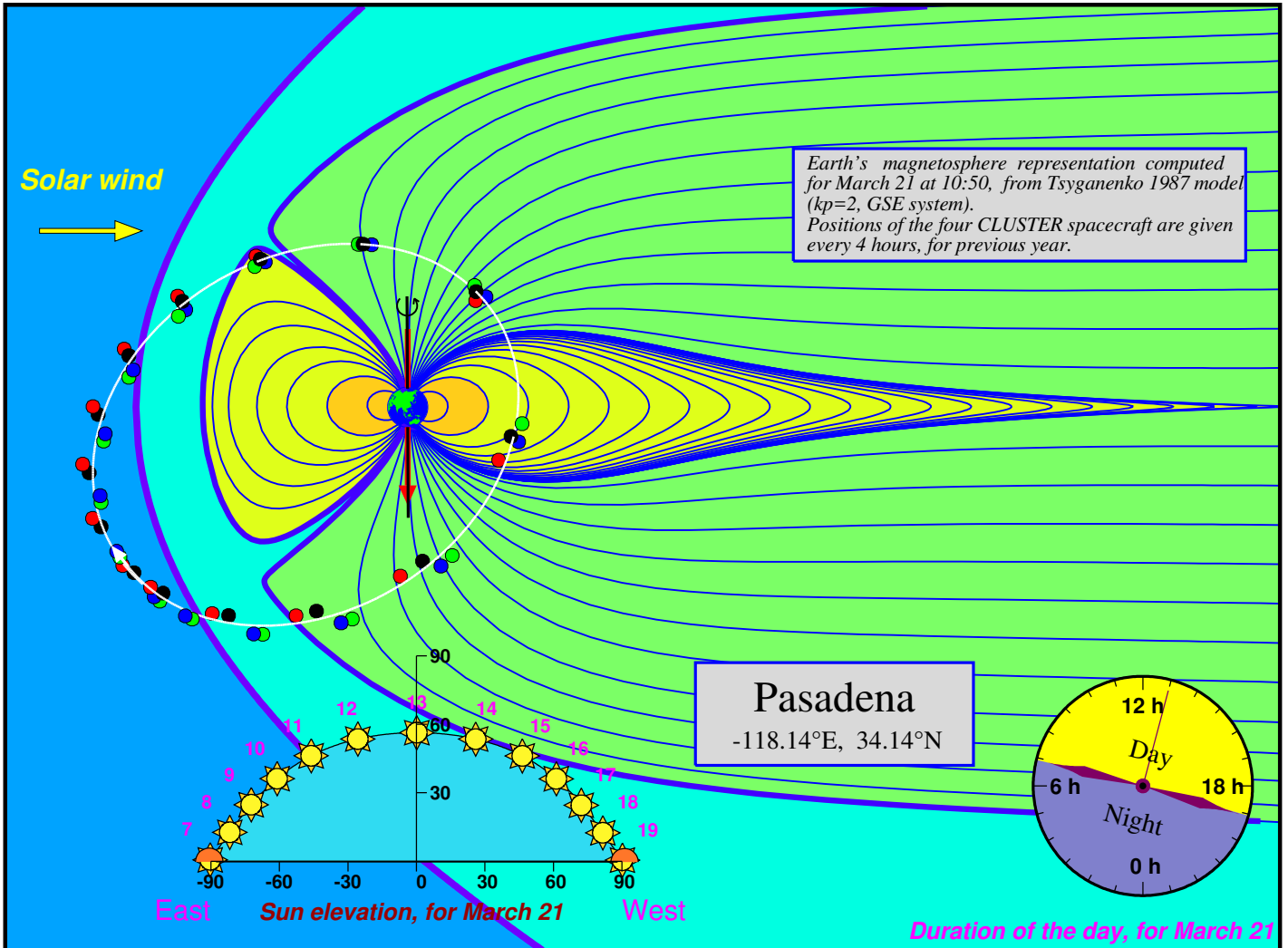
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	1 1 - 364 06:59 - 16:54 9:55 +1 m. 33°	2 2 - 363 06:59 - 16:54 9:55 +0 m. 33°	3 3 - 362 06:59 - 16:55 9:56 +1 m. 33°	4 4 - 361 06:59 - 16:56 9:56 +0 m. 33°	5 5 - 360 06:59 - 16:57 9:57 +1 m. 33°	6 6 - 359 06:59 - 16:58 9:58 +1 m. 33°	7 7 - 358 06:59 - 16:58 9:59 +1 m. 34°
	8 8 - 357 06:59 - 16:59 10:00 +1 m. 34°	9 9 - 356 06:59 - 17:00 10:01 +1 m. 34°	10 10 - 355 06:59 - 17:01 10:02 +1 m. 34°	11 11 - 354 06:59 - 17:02 10:03 +1 m. 34°	12 12 - 353 06:59 - 17:03 10:04 +1 m. 34°	13 13 - 352 06:59 - 17:04 10:05 +1 m. 35°	14 14 - 351 06:58 - 17:05 10:06 +1 m. 35°
	15 15 - 350 06:58 - 17:06 10:07 +1 m. 35°	16 16 - 349 06:58 - 17:07 10:09 +2 m. 35°	17 17 - 348 06:58 - 17:07 10:10 +1 m. 35°	18 18 - 347 06:57 - 17:08 10:11 +1 m. 35°	19 19 - 346 06:57 - 17:09 10:12 +1 m. 36°	20 20 - 345 06:57 - 17:10 10:14 +2 m. 36°	21 21 - 344 06:56 - 17:11 10:15 +1 m. 36°
4	22 22 - 343 06:56 - 17:12 10:17 +2 m. 36°	23 23 - 342 06:55 - 17:13 10:18 +1 m. 37°	24 24 - 341 06:55 - 17:14 10:20 +2 m. 37°	25 25 - 340 06:54 - 17:15 10:21 +1 m. 37°	26 26 - 339 06:54 - 17:16 10:23 +2 m. 37°	27 27 - 338 06:53 - 17:17 10:24 +1 m. 38°	28 28 - 337 06:53 - 17:18 10:26 +2 m. 38°
	29 29 - 336 06:52 - 17:19 10:27 +1 m. 38°	30 30 - 335 06:51 - 17:20 10:29 +2 m. 38°	31 31 - 334 06:51 - 17:21 10:31 +2 m. 39°	1 32 - 333 06:50 - 17:22 10:32 +1 m. 39°	2 33 - 332 06:49 - 17:23 10:34 +2 m. 39°	3 34 - 331 06:48 - 17:24 10:36 +2 m. 40°	4 35 - 330 06:48 - 17:25 10:38 +2 m. 40°



February 2018

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

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

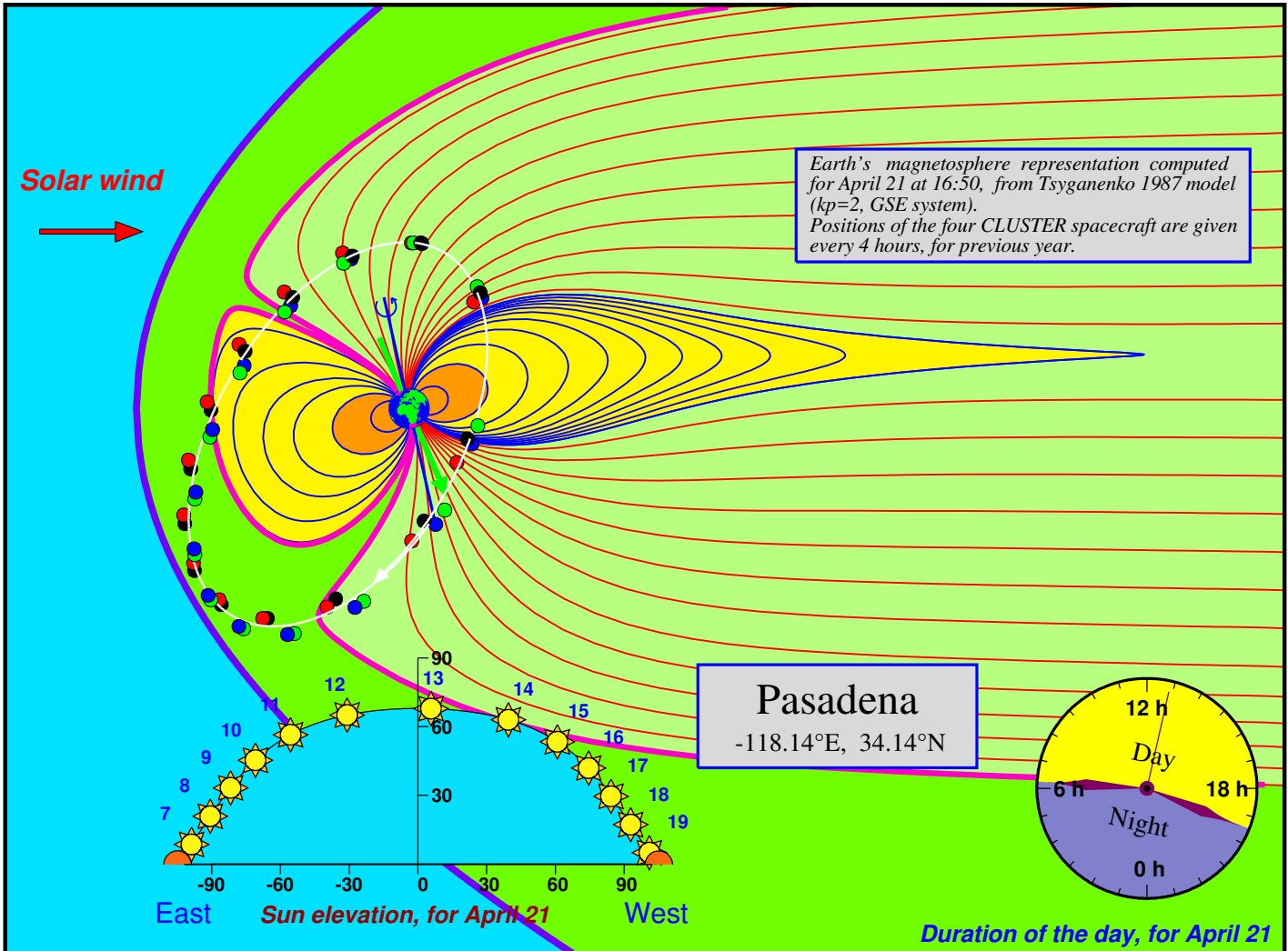


March 2018

Time change
March 11

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

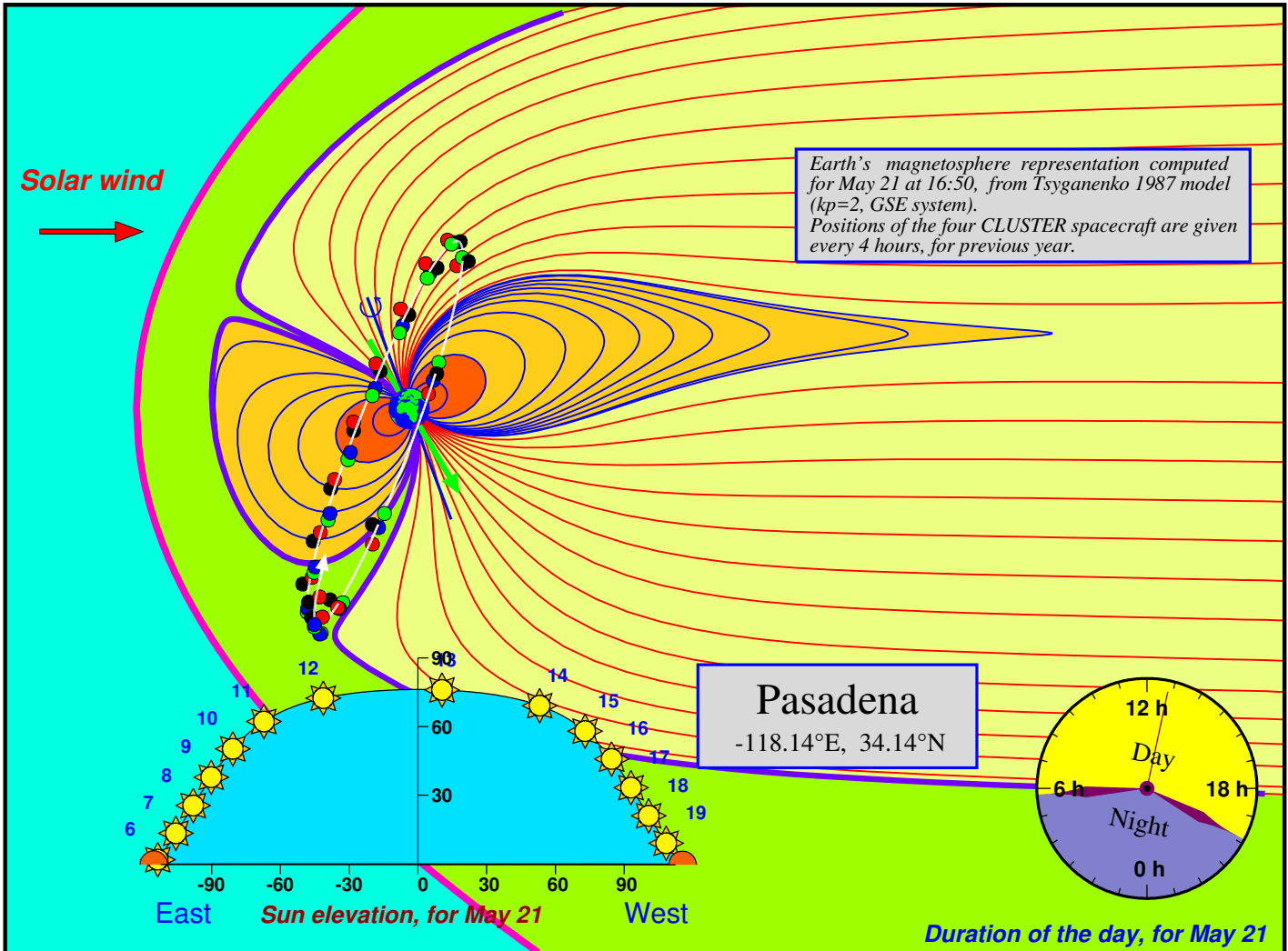
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9	26 57 - 308 06:25 - 17:46 11:21 +2 m. 47°	27 58 - 307 06:24 - 17:47 11:23 +2 m. 48°	28 59 - 306 06:23 - 17:47 11:25 +2 m. 48°	1 60 - 305 06:21 - 17:48 11:27 +2 m. 49°	2 61 - 304 06:20 - 17:49 11:29 +2 m. 49°	3 62 - 303 06:19 - 17:50 11:31 +2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



April 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
13	26 85 - 280 06:48 - 19:08 12:20 +2 m. 58°	27 86 - 279 06:47 - 19:09 12:22 +2 m. 59°	28 87 - 278 06:45 - 19:10 12:25 +3 m. 59°	29 88 - 277 06:44 - 19:11 12:27 +2 m. 59°	30 89 - 276 06:43 - 19:11 12:29 +2 m. 60°	31 90 - 275 06:41 - 19:12 12:31 +2 m. 60°	1 91 - 274 06:40 - 19:13 12:33 +2 m. 61°
14	2 92 - 273 06:39 - 19:14 12:35 +2 m. 61°	3 93 - 272 06:37 - 19:14 12:37 +2 m. 61°	4 94 - 271 06:36 - 19:15 12:40 +3 m. 62°	5 95 - 270 06:34 - 19:16 12:42 +2 m. 62°	6 96 - 269 06:33 - 19:17 12:44 +2 m. 63°	7 97 - 268 06:32 - 19:18 12:46 +2 m. 63°	8 98 - 267 06:31 - 19:18 12:48 +2 m. 63°
15	9 99 - 266 06:29 - 19:19 12:50 +2 m. 64°	10 100 - 265 06:28 - 19:20 12:52 +2 m. 64°	11 101 - 264 06:27 - 19:21 12:54 +2 m. 64°	12 102 - 263 06:25 - 19:21 12:56 +2 m. 65°	13 103 - 262 06:24 - 19:22 12:58 +2 m. 65°	14 104 - 261 06:23 - 19:23 13:00 +2 m. 65°	15 105 - 260 06:22 - 19:24 13:02 +2 m. 66°
16	16 106 - 259 06:20 - 19:24 13:04 +2 m. 66°	17 107 - 258 06:19 - 19:25 13:06 +2 m. 67°	18 108 - 257 06:18 - 19:26 13:08 +2 m. 67°	19 109 - 256 06:17 - 19:27 13:10 +2 m. 67°	20 110 - 255 06:15 - 19:27 13:12 +2 m. 68°	21 111 - 254 06:14 - 19:28 13:14 +2 m. 68°	22 112 - 253 06:13 - 19:29 13:16 +2 m. 68°
17	23 113 - 252 06:12 - 19:30 13:18 +2 m. 69°	24 114 - 251 06:11 - 19:31 13:20 +2 m. 69°	25 115 - 250 06:10 - 19:31 13:22 +2 m. 69°	26 116 - 249 06:09 - 19:32 13:24 +2 m. 70°	27 117 - 248 06:07 - 19:33 13:26 +2 m. 70°	28 118 - 247 06:06 - 19:34 13:27 +1 m. 70°	29 119 - 246 06:05 - 19:35 13:29 +2 m. 71°
18	30 120 - 245 06:04 - 19:35 13:31 +2 m. 71°	1 121 - 244 06:03 - 19:36 13:33 +2 m. 71°	2 122 - 243 06:02 - 19:37 13:35 +2 m. 71°	3 123 - 242 06:01 - 19:38 13:36 +1 m. 72°	4 124 - 241 06:00 - 19:38 13:38 +2 m. 72°	5 125 - 240 05:59 - 19:39 13:40 +2 m. 72°	6 126 - 239 05:58 - 19:40 13:42 +2 m. 73°

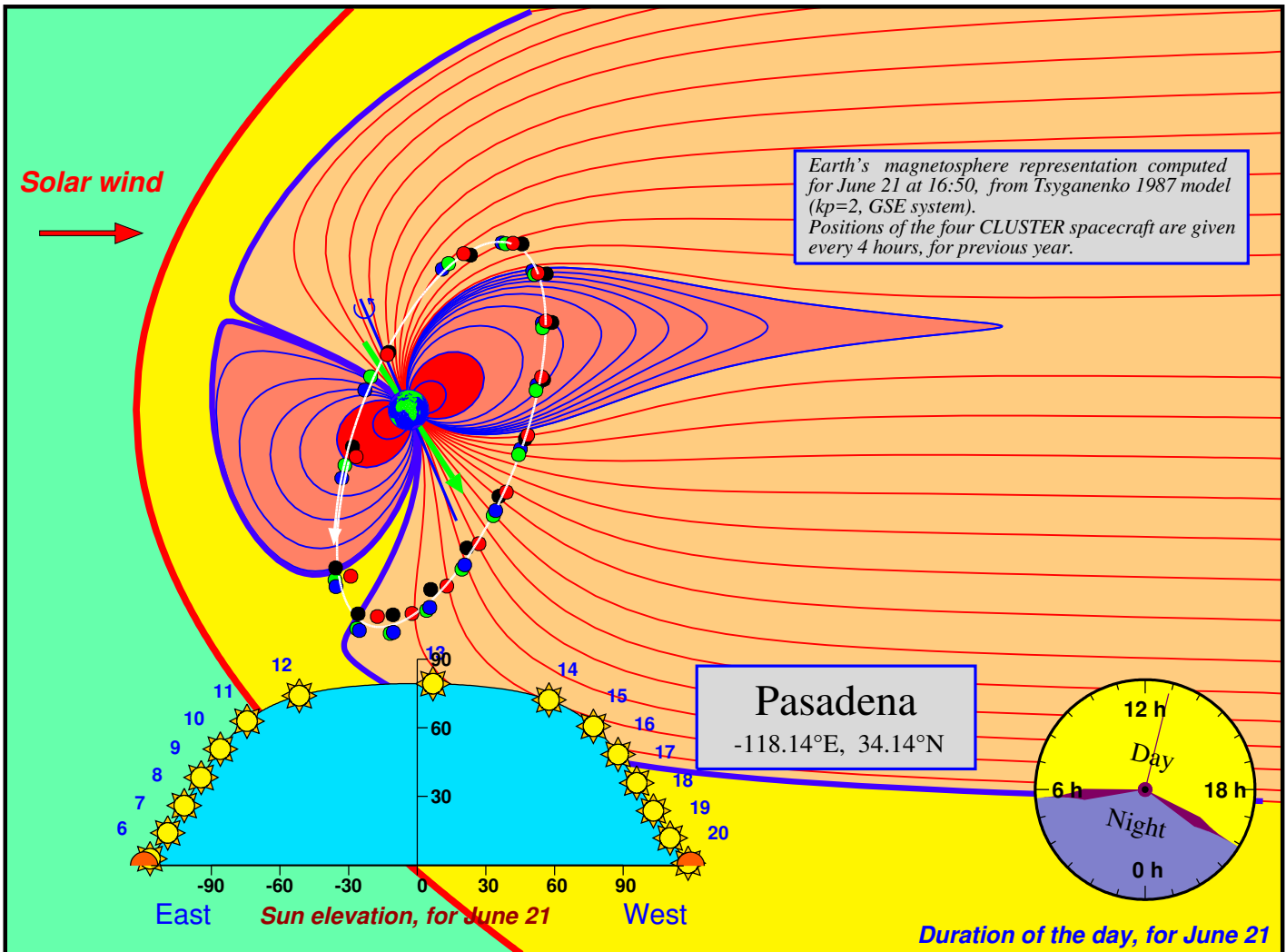


May 2018

Sunrise and Sunset at Pasadena (TL ± 1 mn)

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

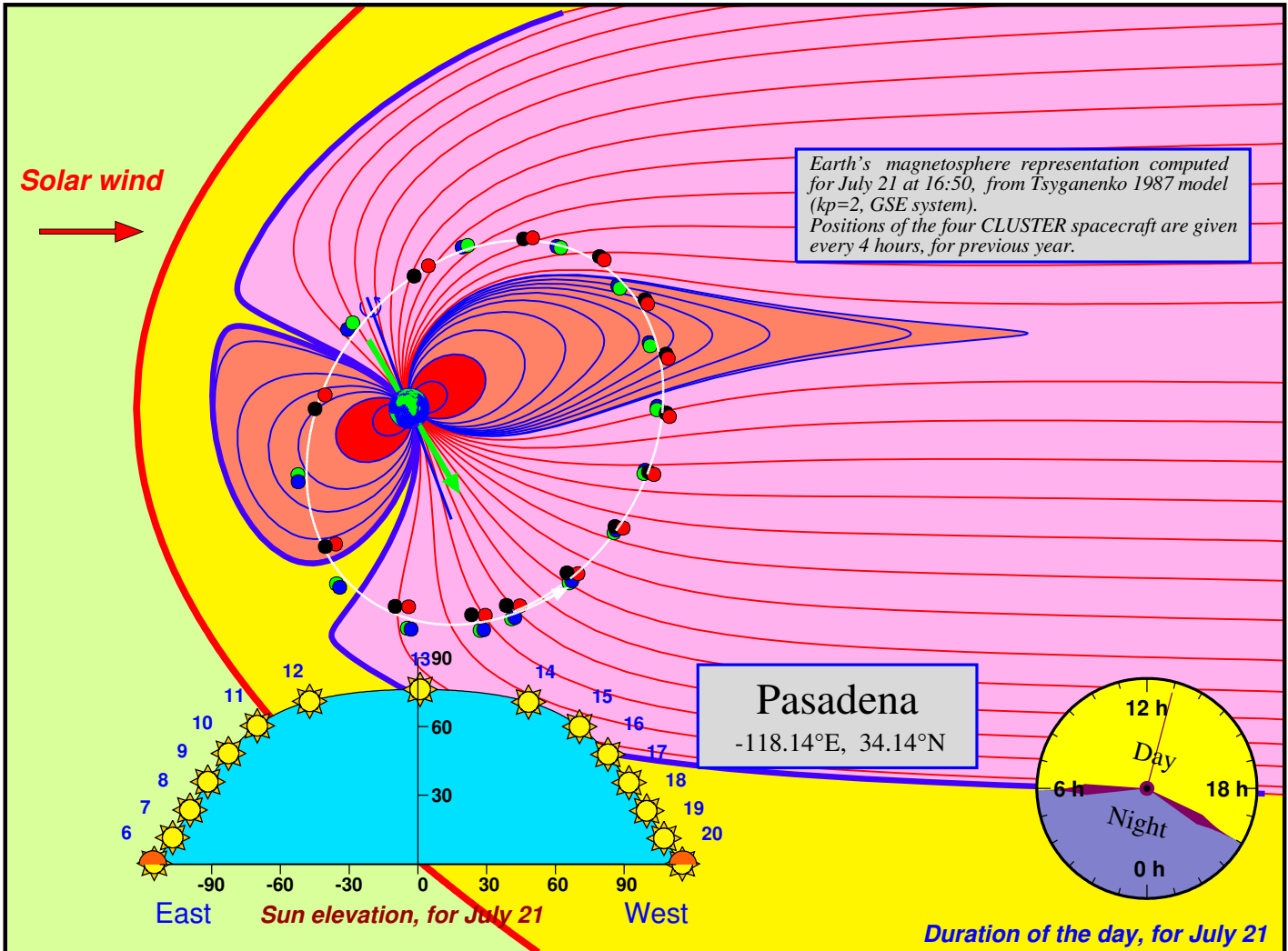
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	30 120 - 245 06:04 - 19:35 13:31 +2 m. 71°	1 121 - 244 06:03 - 19:36 13:33 +2 m. 71°	2 122 - 243 06:02 - 19:37 13:35 +2 m. 71°	3 123 - 242 06:01 - 19:38 13:36 +1 m. 72°	4 124 - 241 06:00 - 19:38 13:38 +2 m. 72°	5 125 - 240 05:59 - 19:39 13:40 +2 m. 72°	6 126 - 239 05:58 - 19:40 13:42 +2 m. 73°
19	7 127 - 238 05:57 - 19:41 13:43 +1 m. 73°	8 128 - 237 05:57 - 19:42 13:45 +2 m. 73°	9 129 - 236 05:56 - 19:42 13:47 +2 m. 73°	10 130 - 235 05:55 - 19:43 13:48 +1 m. 74°	11 131 - 234 05:54 - 19:44 13:50 +2 m. 74°	12 132 - 233 05:53 - 19:45 13:51 +1 m. 74°	13 133 - 232 05:52 - 19:45 13:53 +2 m. 74°
20	14 134 - 231 05:52 - 19:46 13:55 +2 m. 75°	15 135 - 230 05:51 - 19:47 13:56 +1 m. 75°	16 136 - 229 05:50 - 19:48 13:58 +2 m. 75°	17 137 - 228 05:49 - 19:48 13:59 +1 m. 75°	18 138 - 227 05:49 - 19:49 14:01 +2 m. 76°	19 139 - 226 05:48 - 19:50 14:02 +1 m. 76°	20 140 - 225 05:48 - 19:51 14:03 +1 m. 76°
21	21 141 - 224 05:47 - 19:51 14:05 +2 m. 76°	22 142 - 223 05:46 - 19:52 14:06 +1 m. 76°	23 143 - 222 05:46 - 19:53 14:07 +1 m. 77°	24 144 - 221 05:45 - 19:54 14:08 +1 m. 77°	25 145 - 220 05:45 - 19:54 14:09 +1 m. 77°	26 146 - 219 05:44 - 19:55 14:11 +2 m. 77°	27 147 - 218 05:44 - 19:56 14:12 +1 m. 77°
22	28 148 - 217 05:44 - 19:56 14:13 +1 m. 77°	29 149 - 216 05:43 - 19:57 14:14 +1 m. 78°	30 150 - 215 05:43 - 19:58 14:15 +1 m. 78°	31 151 - 214 05:42 - 19:58 14:16 +1 m. 78°	1 152 - 213 05:42 - 19:59 14:17 +1 m. 78°	2 153 - 212 05:42 - 19:59 14:18 +1 m. 78°	3 154 - 211 05:42 - 20:00 14:18 +0 m. 78°



June 2018

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

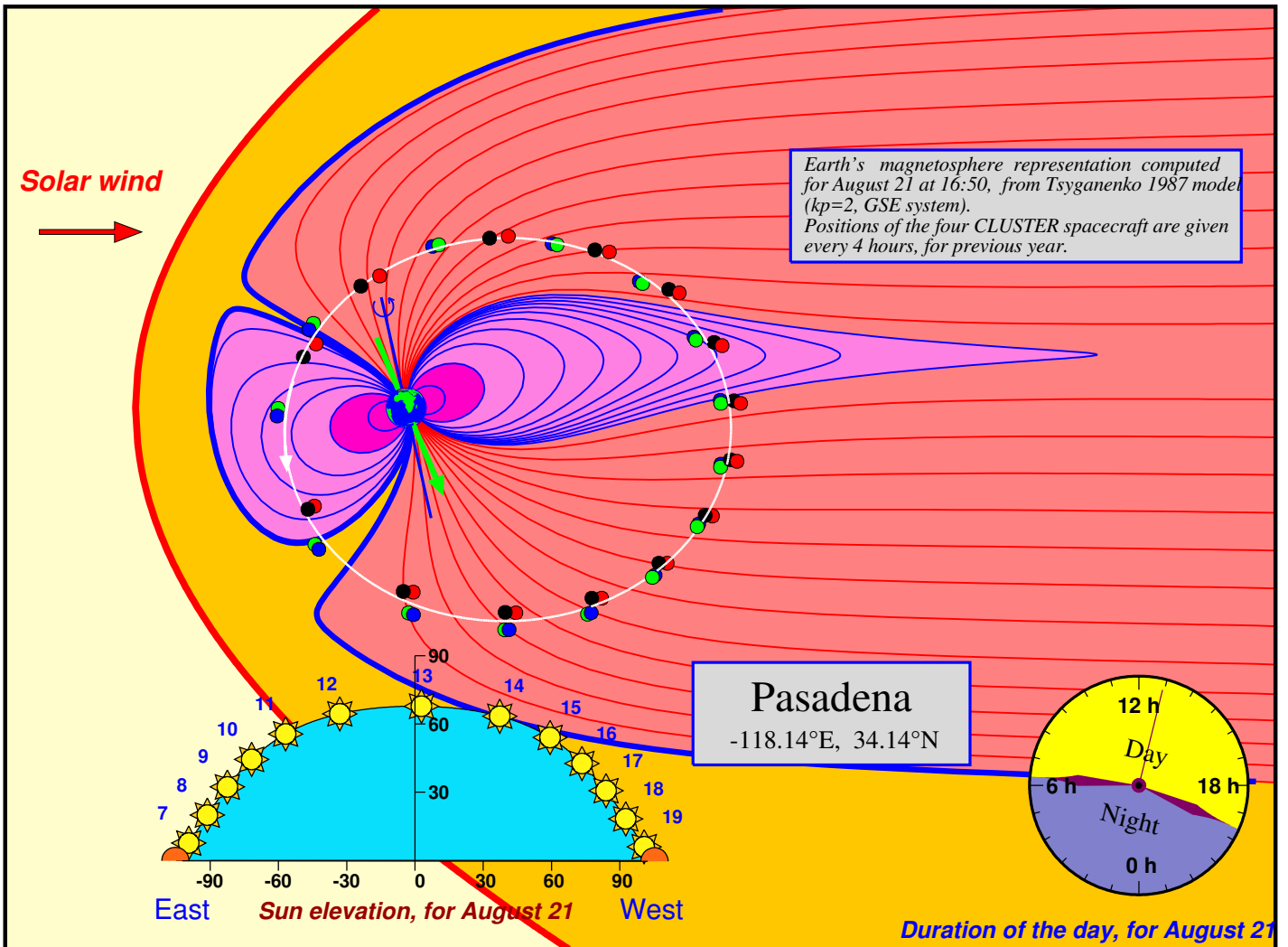
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
22	28 148 - 217 05:44 - 19:56 14:13 +1 m. 77°	29 149 - 216 05:43 - 19:57 14:14 +1 m. 78°	30 150 - 215 05:43 - 19:58 14:15 +1 m. 78°	31 151 - 214 05:42 - 19:58 14:16 +1 m. 78°	1 152 - 213 05:42 - 19:59 14:17 +1 m. 78°	2 153 - 212 05:42 - 19:59 14:18 +1 m. 78°	3 154 - 211 05:42 - 20:00 14:18 +0 m. 78°
23	4 155 - 210 05:41 - 20:01 14:19 +1 m. 78°	5 156 - 209 05:41 - 20:01 14:20 +1 m. 78°	6 157 - 208 05:41 - 20:02 14:21 +1 m. 79°	7 158 - 207 05:41 - 20:02 14:21 +0 m. 79°	8 159 - 206 05:41 - 20:03 14:22 +1 m. 79°	9 160 - 205 05:41 - 20:03 14:23 +1 m. 79°	10 161 - 204 05:41 - 20:04 14:23 +0 m. 79°
24	11 162 - 203 05:41 - 20:04 14:24 +1 m. 79°	12 163 - 202 05:41 - 20:04 14:24 +0 m. 79°	13 164 - 201 05:41 - 20:05 14:24 +0 m. 79°	14 165 - 200 05:41 - 20:05 14:25 +1 m. 79°	15 166 - 199 05:41 - 20:06 14:25 +0 m. 79°	16 167 - 198 05:41 - 20:06 14:25 +0 m. 79°	17 168 - 197 05:41 - 20:06 14:26 +1 m. 79°
25	18 169 - 196 05:41 - 20:07 14:26 +0 m. 79°	19 170 - 195 05:41 - 20:07 14:26 +0 m. 79°	20 171 - 194 05:41 - 20:07 14:26 +0 m. 79°	21 172 - 193 05:42 - 20:07 14:26 +0 m. 79°	22 173 - 192 05:42 - 20:08 14:26 +0 m. 79°	23 174 - 191 05:42 - 20:08 14:26 +0 m. 79°	24 175 - 190 05:42 - 20:08 14:26 +0 m. 79°
26	25 176 - 189 05:43 - 20:08 14:26 +0 m. 79°	26 177 - 188 05:43 - 20:08 14:25 -1 m. 79°	27 178 - 187 05:43 - 20:08 14:25 +0 m. 79°	28 179 - 186 05:44 - 20:08 14:25 +0 m. 79°	29 180 - 185 05:44 - 20:08 14:24 -1 m. 79°	30 181 - 184 05:44 - 20:08 14:24 +0 m. 79°	1 182 - 183 05:45 - 20:08 14:24 +0 m. 79°



July 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
26	25 176 - 189 05:43 - 20:08 14:26 +0 m. 79°	26 177 - 188 05:43 - 20:08 14:25 -1 m. 79°	27 178 - 187 05:43 - 20:08 14:25 +0 m. 79°	28 179 - 186 05:44 - 20:08 14:25 +0 m. 79°	29 180 - 185 05:44 - 20:08 14:24 -1 m. 79°	30 181 - 184 05:44 - 20:08 14:24 +0 m. 79°	1 182 - 183 05:45 - 20:08 14:24 +0 m. 79°
27	2 183 - 182 05:45 - 20:08 14:23 -1 m. 79°	3 184 - 181 05:46 - 20:08 14:23 +0 m. 79°	4 185 - 180 05:46 - 20:08 14:22 -1 m. 79°	5 186 - 179 05:47 - 20:08 14:21 -1 m. 79°	6 187 - 178 05:47 - 20:08 14:21 +0 m. 78°	7 188 - 177 05:48 - 20:08 14:20 -1 m. 78°	8 189 - 176 05:48 - 20:08 14:19 -1 m. 78°
28	9 190 - 175 05:49 - 20:07 14:19 +0 m. 78°	10 191 - 174 05:49 - 20:07 14:18 -1 m. 78°	11 192 - 173 05:50 - 20:07 14:17 -1 m. 78°	12 193 - 172 05:51 - 20:06 14:16 -1 m. 78°	13 194 - 171 05:51 - 20:06 14:15 -1 m. 78°	14 195 - 170 05:52 - 20:06 14:14 -1 m. 77°	15 196 - 169 05:52 - 20:05 14:13 -1 m. 77°
29	16 197 - 168 05:53 - 20:05 14:12 -1 m. 77°	17 198 - 167 05:54 - 20:04 14:11 -1 m. 77°	18 199 - 166 05:54 - 20:04 14:10 -1 m. 77°	19 200 - 165 05:55 - 20:03 14:09 -1 m. 77°	20 201 - 164 05:56 - 20:03 14:07 -2 m. 76°	21 202 - 163 05:56 - 20:02 14:06 -1 m. 76°	22 203 - 162 05:57 - 20:02 14:05 -1 m. 76°
30	23 204 - 161 05:58 - 20:01 14:04 -1 m. 76°	24 205 - 160 05:58 - 20:00 14:02 -2 m. 76°	25 206 - 159 05:59 - 20:00 14:01 -1 m. 75°	26 207 - 158 06:00 - 19:59 13:59 -2 m. 75°	27 208 - 157 06:00 - 19:58 13:58 -1 m. 75°	28 209 - 156 06:01 - 19:58 13:57 -1 m. 75°	29 210 - 155 06:02 - 19:57 13:55 -2 m. 74°
31	30 211 - 154 06:03 - 19:56 13:54 -1 m. 74°	31 212 - 153 06:03 - 19:55 13:52 -2 m. 74°	1 213 - 152 06:04 - 19:55 13:51 -1 m. 74°	2 214 - 151 06:05 - 19:54 13:49 -2 m. 73°	3 215 - 150 06:05 - 19:53 13:47 -2 m. 73°	4 216 - 149 06:06 - 19:52 13:46 -1 m. 73°	5 217 - 148 06:07 - 19:51 13:44 -2 m. 73°

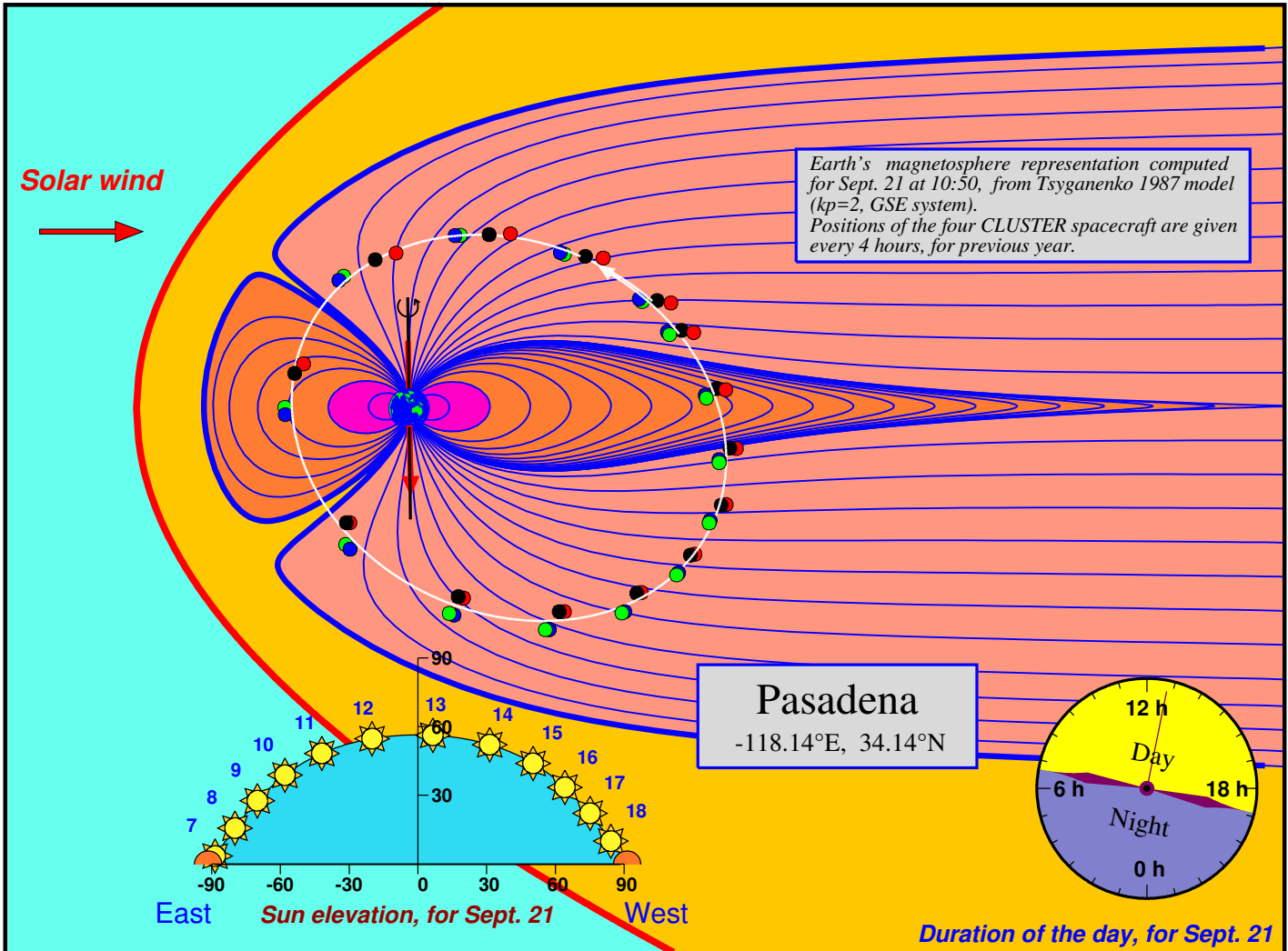


August 2018

Sunrise and Sunset at Pasadena (TL ± 1 mn)

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

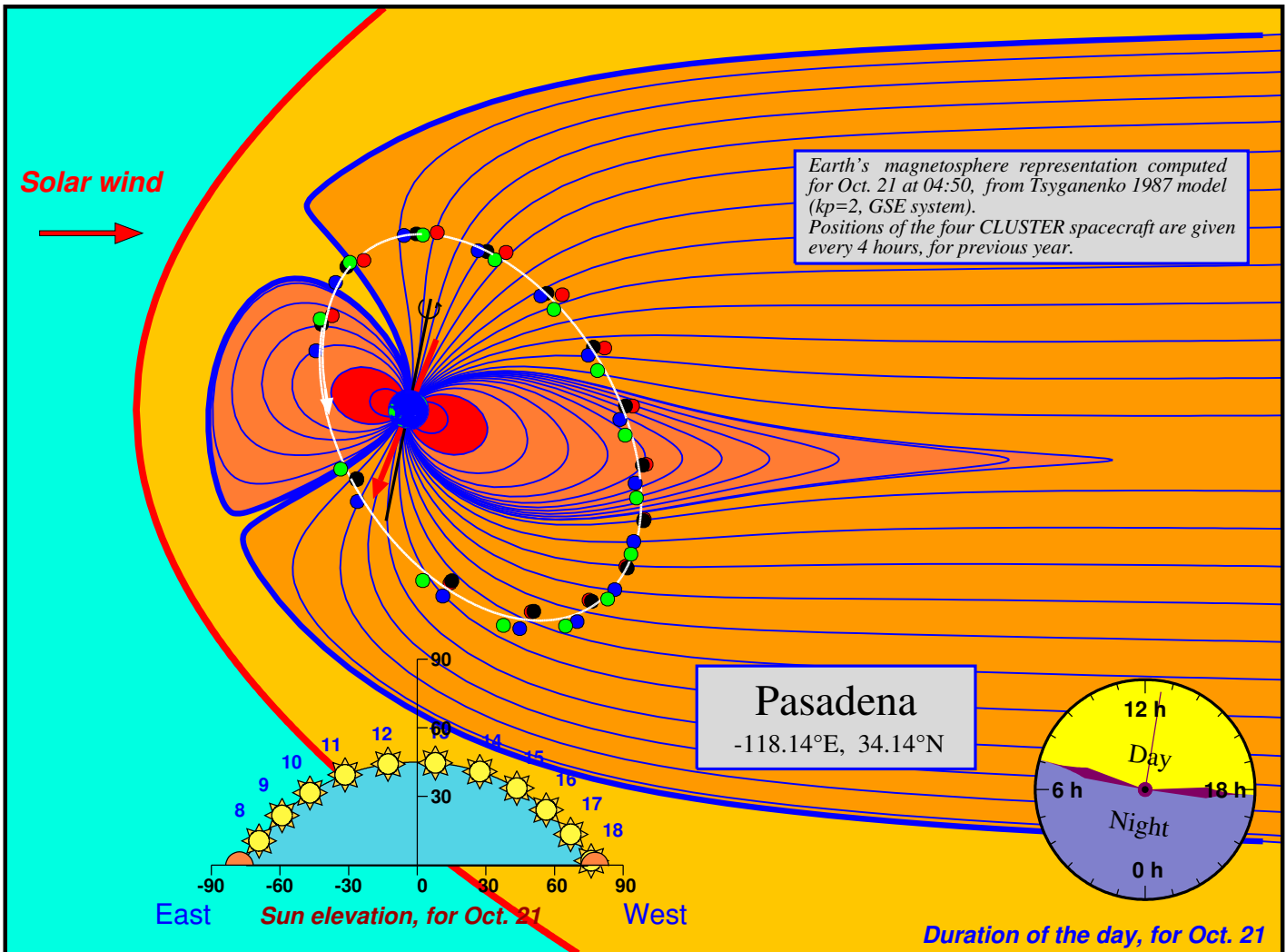
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	30 211 - 154 06:03 - 19:56 13:54 -1 m. 74°	31 212 - 153 06:03 - 19:55 13:52 -2 m. 74°	1 213 - 152 06:04 - 19:55 13:51 -1 m. 74°	2 214 - 151 06:05 - 19:54 13:49 -2 m. 73°	3 215 - 150 06:05 - 19:53 13:47 -2 m. 73°	4 216 - 149 06:06 - 19:52 13:46 -1 m. 73°	5 217 - 148 06:07 - 19:51 13:44 -2 m. 73°
32	6 218 - 147 06:08 - 19:50 13:43 -1 m. 72°	7 219 - 146 06:08 - 19:49 13:41 -2 m. 72°	8 220 - 145 06:09 - 19:48 13:39 -2 m. 72°	9 221 - 144 06:10 - 19:47 13:37 -2 m. 72°	10 222 - 143 06:11 - 19:46 13:36 -1 m. 71°	11 223 - 142 06:11 - 19:45 13:34 -2 m. 71°	12 224 - 141 06:12 - 19:44 13:32 -2 m. 71°
33	13 225 - 140 06:13 - 19:43 13:30 -2 m. 70°	14 226 - 139 06:13 - 19:42 13:29 -1 m. 70°	15 227 - 138 06:14 - 19:41 13:27 -2 m. 70°	16 228 - 137 06:15 - 19:40 13:25 -2 m. 69°	17 229 - 136 06:16 - 19:38 13:23 -2 m. 69°	18 230 - 135 06:16 - 19:37 13:21 -2 m. 69°	19 231 - 134 06:17 - 19:36 13:19 -2 m. 68°
34	20 232 - 133 06:18 - 19:35 13:17 -2 m. 68°	21 233 - 132 06:19 - 19:34 13:15 -2 m. 68°	22 234 - 131 06:19 - 19:33 13:13 -2 m. 67°	23 235 - 130 06:20 - 19:31 13:11 -2 m. 67°	24 236 - 129 06:21 - 19:30 13:10 -1 m. 67°	25 237 - 128 06:21 - 19:29 13:08 -2 m. 66°	26 238 - 127 06:22 - 19:28 13:06 -2 m. 66°
35	27 239 - 126 06:23 - 19:26 13:04 -2 m. 66°	28 240 - 125 06:23 - 19:25 13:02 -2 m. 65°	29 241 - 124 06:24 - 19:24 13:00 -2 m. 65°	30 242 - 123 06:25 - 19:22 12:58 -2 m. 65°	31 243 - 122 06:26 - 19:21 12:56 -2 m. 64°	1 244 - 121 06:26 - 19:20 12:54 -2 m. 64°	2 245 - 120 06:27 - 19:18 12:52 -2 m. 64°



September 2018

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

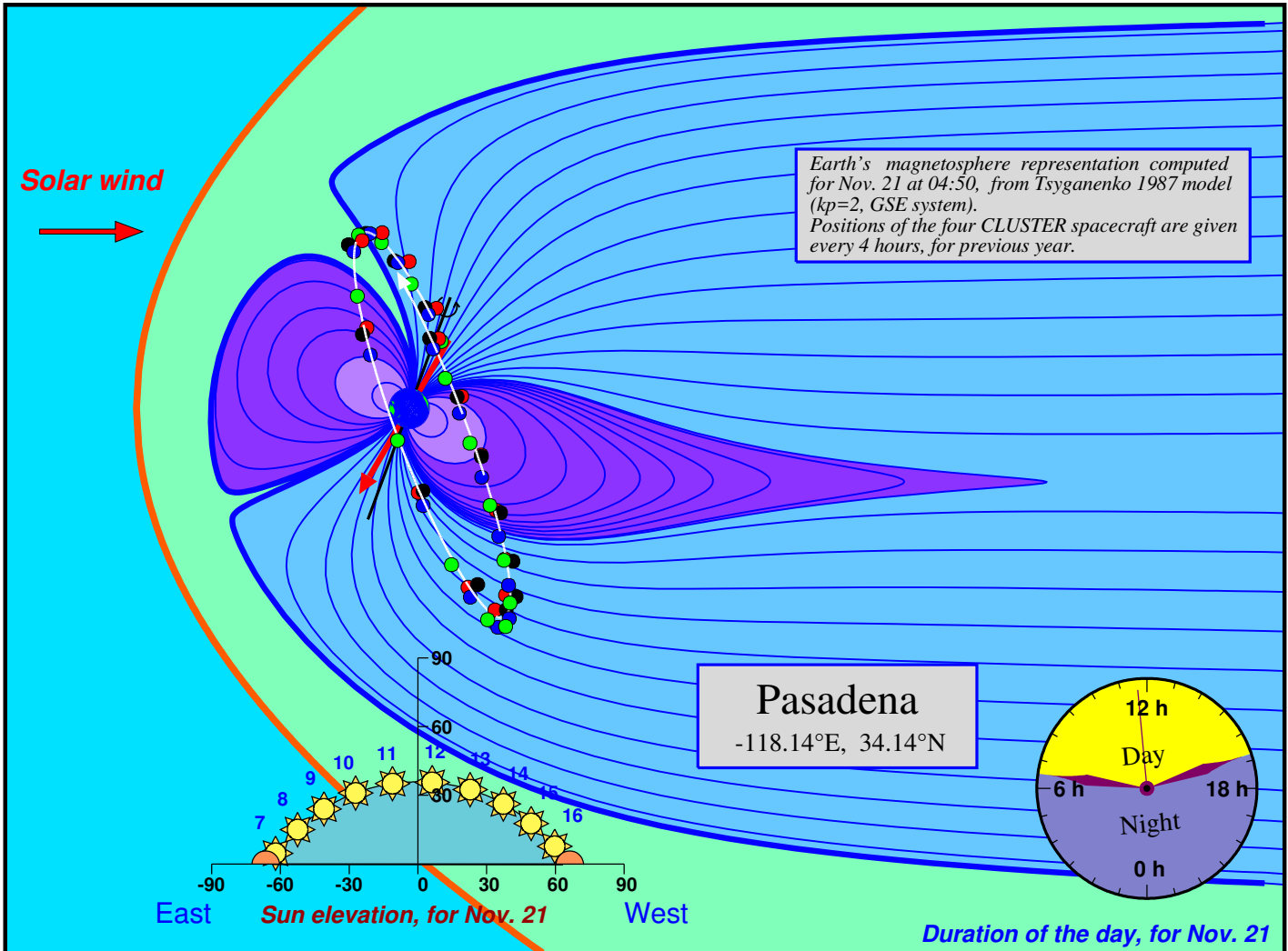
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
35	27 239 - 126 06:23 - 19:26 13:04 -2 m. 66°	28 240 - 125 06:23 - 19:25 13:02 -2 m. 65°	29 241 - 124 06:24 - 19:24 13:00 -2 m. 65°	30 242 - 123 06:25 - 19:22 12:58 -2 m. 65°	31 243 - 122 06:26 - 19:21 12:56 -2 m. 64°	1 244 - 121 06:26 - 19:20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



October 2018

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

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

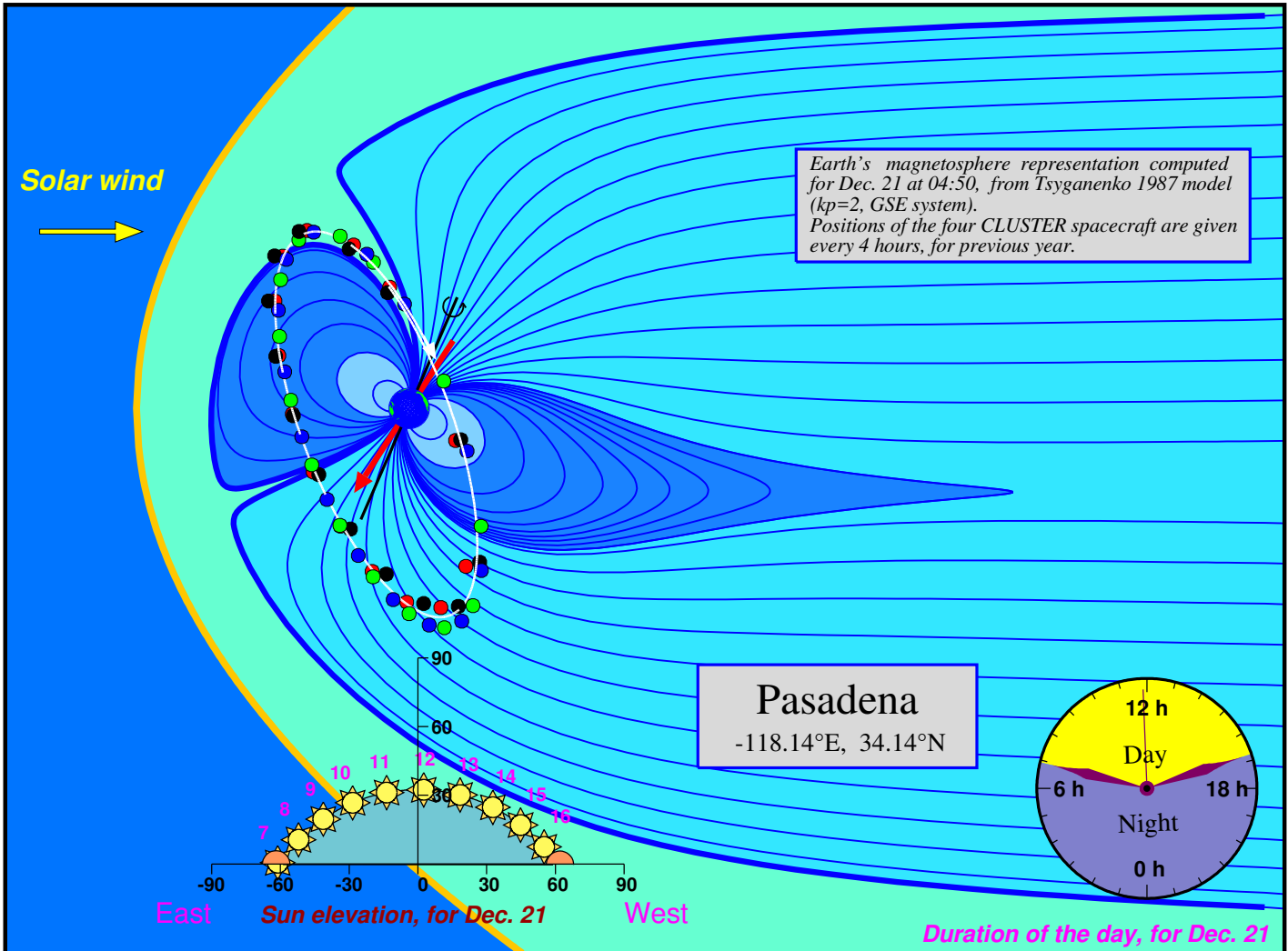


November 2018

Time change
Nov. 4

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

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



December 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
48	26 330 - 35 06:36 - 16:44 10:08 -2 m. 35°	27 331 - 34 06:37 - 16:44 10:07 -1 m. 35°	28 332 - 33 06:38 - 16:44 10:06 -1 m. 34°	29 333 - 32 06:39 - 16:44 10:05 -1 m. 34°	30 334 - 31 06:40 - 16:43 10:04 -1 m. 34°	1 335 - 30 06:40 - 16:43 10:03 -1 m. 34°	2 336 - 29 06:41 - 16:43 10:02 -1 m. 34°
49	3 337 - 28 06:42 - 16:43 10:01 -1 m. 34°	4 338 - 27 06:43 - 16:43 10:00 -1 m. 34°	5 339 - 26 06:44 - 16:43 9:59 -1 m. 33°	6 340 - 25 06:45 - 16:43 9:58 -1 m. 33°	7 341 - 24 06:45 - 16:43 9:57 -1 m. 33°	8 342 - 23 06:46 - 16:43 9:56 -1 m. 33°	9 343 - 22 06:47 - 16:43 9:56 +0 m. 33°
50	10 344 - 21 06:48 - 16:43 9:55 -1 m. 33°	11 345 - 20 06:48 - 16:43 9:55 +0 m. 33°	12 346 - 19 06:49 - 16:44 9:54 -1 m. 33°	13 347 - 18 06:50 - 16:44 9:54 +0 m. 33°	14 348 - 17 06:51 - 16:44 9:53 -1 m. 33°	15 349 - 16 06:51 - 16:44 9:53 +0 m. 33°	16 350 - 15 06:52 - 16:45 9:53 +0 m. 33°
51	17 351 - 14 06:52 - 16:45 9:52 -1 m. 33°	18 352 - 13 06:53 - 16:45 9:52 +0 m. 32°	19 353 - 12 06:54 - 16:46 9:52 +0 m. 32°	20 354 - 11 06:54 - 16:46 9:52 +0 m. 32°	21 355 - 10 06:55 - 16:47 9:52 +0 m. 32°	22 356 - 9 06:55 - 16:47 9:52 +0 m. 32°	23 357 - 8 06:56 - 16:48 9:52 +0 m. 32°
52	24 358 - 7 06:56 - 16:48 9:52 +0 m. 32°	25 359 - 6 06:56 - 16:49 9:52 +0 m. 33°	26 360 - 5 06:57 - 16:49 9:52 +0 m. 33°	27 361 - 4 06:57 - 16:50 9:52 +0 m. 33°	28 362 - 3 06:58 - 16:51 9:53 +1 m. 33°	29 363 - 2 06:58 - 16:51 9:53 +0 m. 33°	30 364 - 1 06:58 - 16:52 9:54 +1 m. 33°
53	31 365 - 0 06:58 - 16:53 9:54 +0 m. 33°						

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>