

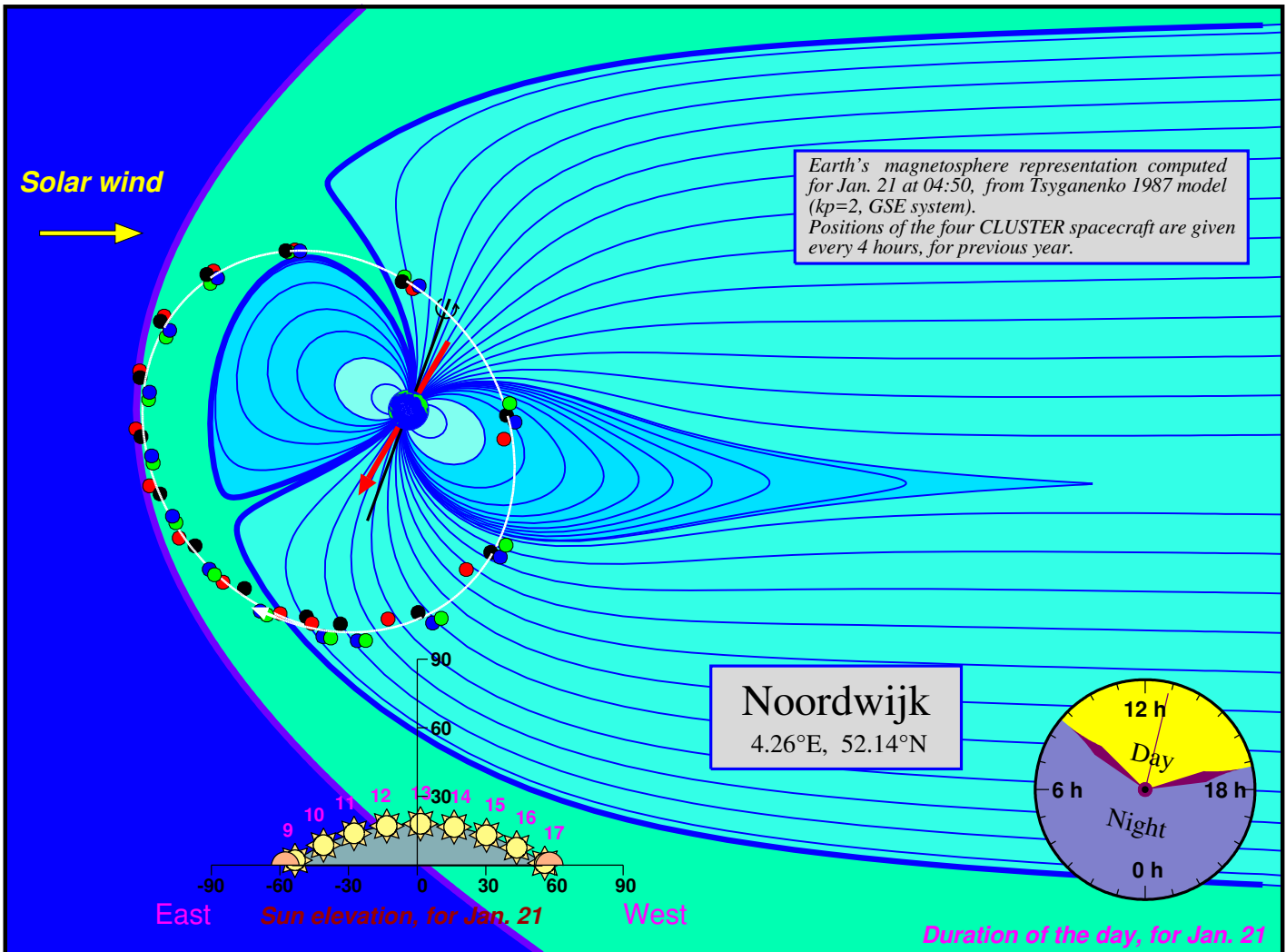


*Here is the classical magnetospheric calendar **2018**,
available for any city across the world,*

English or French version

Happy new year for everybody

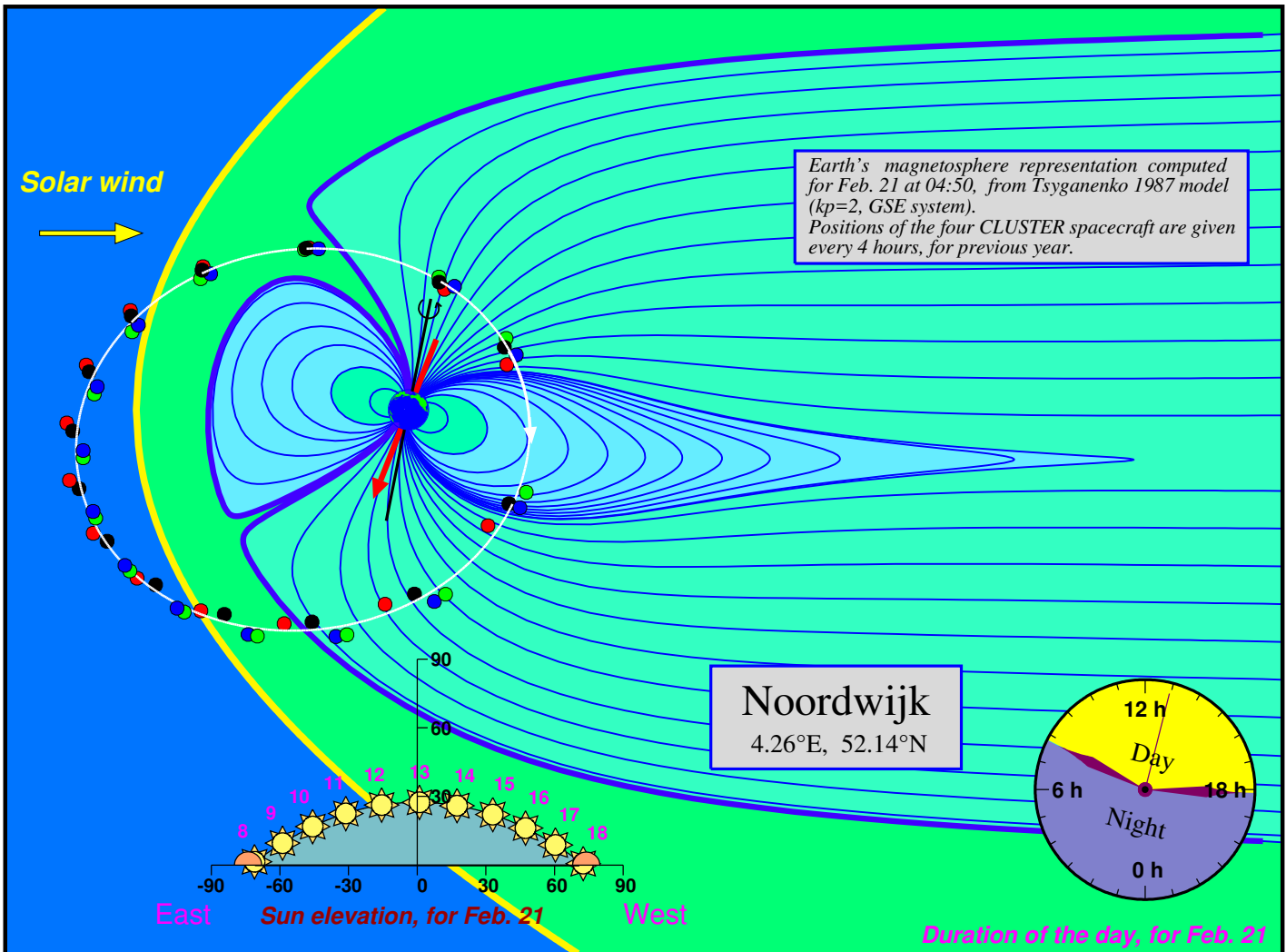
Patrick



January 2018

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

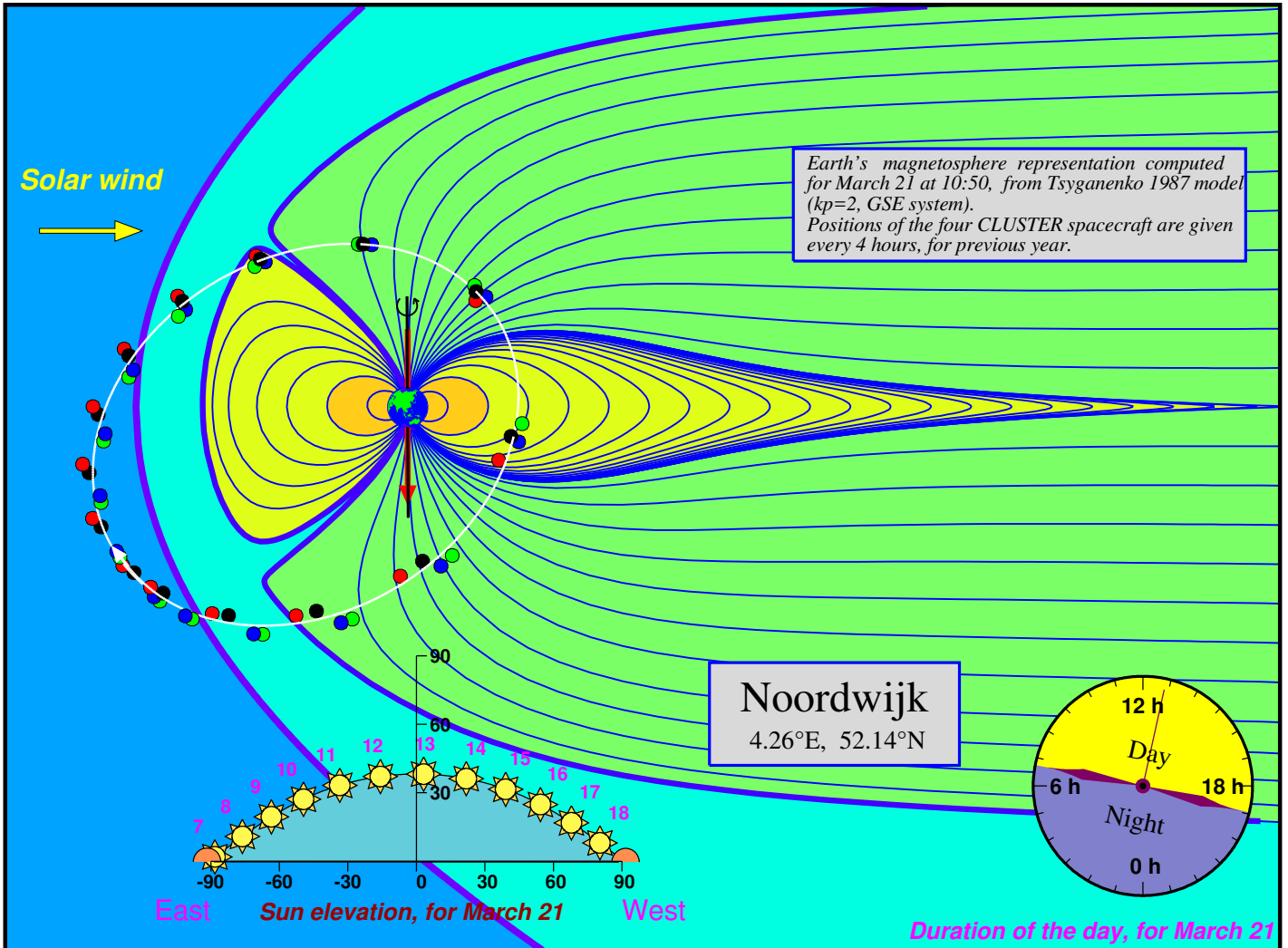
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	1 1 - 364 08:52 - 16:42 7:49 +1 m. 15°	2 2 - 363 08:52 - 16:43 7:50 +1 m. 15°	3 3 - 362 08:52 - 16:44 7:52 +2 m. 15°	4 4 - 361 08:51 - 16:45 7:53 +1 m. 15°	5 5 - 360 08:51 - 16:46 7:55 +2 m. 15°	6 6 - 359 08:51 - 16:48 7:56 +1 m. 15°	7 7 - 358 08:50 - 16:49 7:58 +2 m. 16°
	8 8 - 357 08:50 - 16:50 8:00 +2 m. 16°	9 9 - 356 08:49 - 16:52 8:02 +2 m. 16°	10 10 - 355 08:49 - 16:53 8:04 +2 m. 16°	11 11 - 354 08:48 - 16:54 8:06 +2 m. 16°	12 12 - 353 08:47 - 16:56 8:08 +2 m. 16°	13 13 - 352 08:47 - 16:57 8:10 +2 m. 16°	14 14 - 351 08:46 - 16:59 8:13 +3 m. 17°
	15 15 - 350 08:45 - 17:01 8:15 +2 m. 17°	16 16 - 349 08:44 - 17:02 8:18 +3 m. 17°	17 17 - 348 08:43 - 17:04 8:20 +2 m. 17°	18 18 - 347 08:42 - 17:05 8:23 +3 m. 17°	19 19 - 346 08:41 - 17:07 8:26 +3 m. 18°	20 20 - 345 08:40 - 17:09 8:28 +2 m. 18°	21 21 - 344 08:39 - 17:11 8:31 +3 m. 18°
2	22 22 - 343 08:38 - 17:12 8:34 +3 m. 18°	23 23 - 342 08:36 - 17:14 8:37 +3 m. 19°	24 24 - 341 08:35 - 17:16 8:40 +3 m. 19°	25 25 - 340 08:34 - 17:18 8:43 +3 m. 19°	26 26 - 339 08:33 - 17:19 8:46 +3 m. 19°	27 27 - 338 08:31 - 17:21 8:50 +4 m. 20°	28 28 - 337 08:30 - 17:23 8:53 +3 m. 20°
	29 29 - 336 08:28 - 17:25 8:56 +3 m. 20°	30 30 - 335 08:27 - 17:27 8:59 +3 m. 20°	31 31 - 334 08:25 - 17:28 9:03 +4 m. 21°	1 32 - 333 08:24 - 17:30 9:06 +3 m. 21°	2 33 - 332 08:22 - 17:32 9:10 +4 m. 21°	3 34 - 331 08:20 - 17:34 9:13 +3 m. 21°	4 35 - 330 08:19 - 17:36 9:17 +4 m. 22°



February 2018

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

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

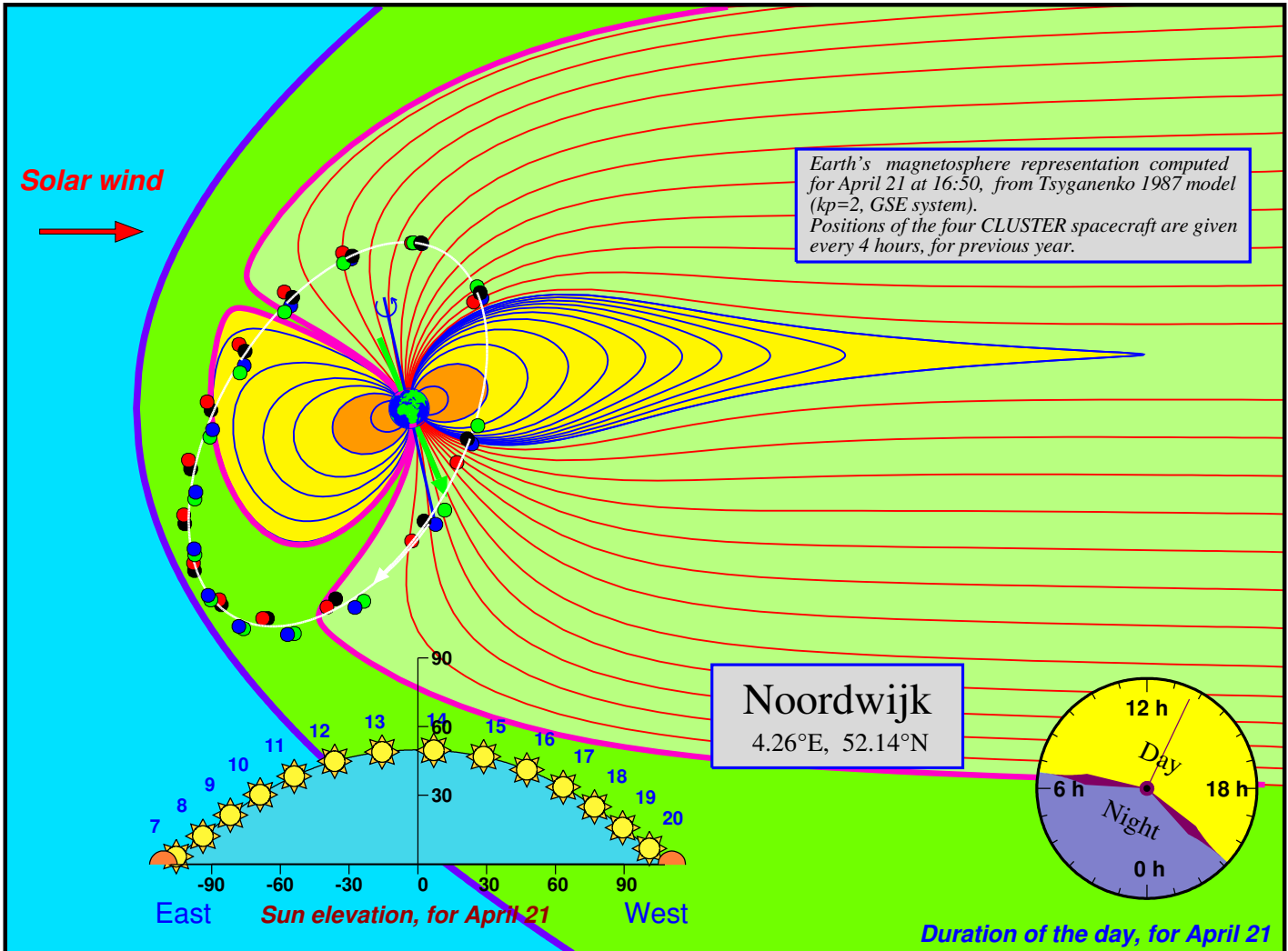


March 2018

Time change
March 25

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

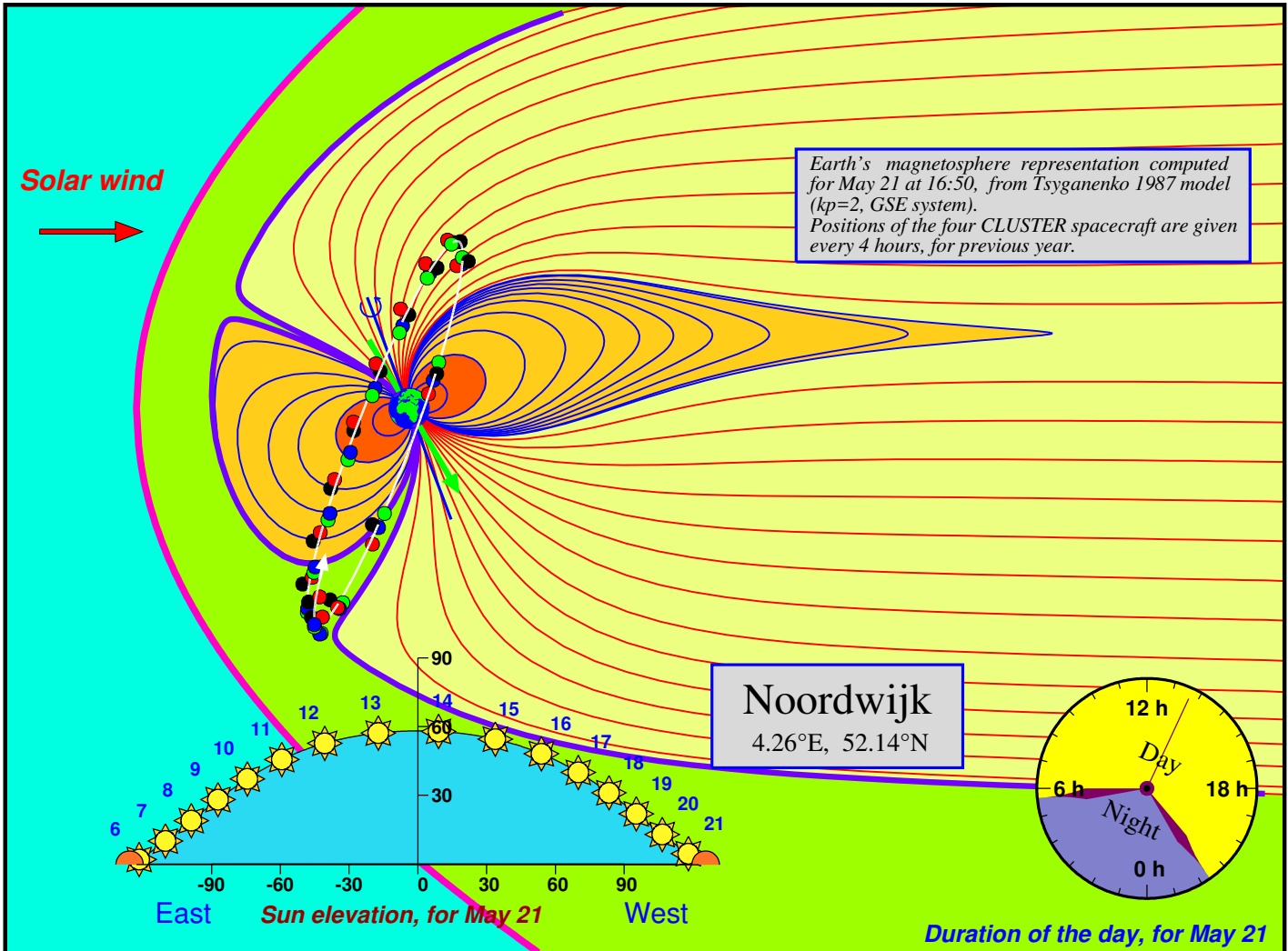
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9	26 57 - 308 07:36 - 18:17 10:41 +4 m. 29°	27 58 - 307 07:34 - 18:19 10:45 +4 m. 30°	28 59 - 306 07:32 - 18:21 10:49 +4 m. 30°	1 60 - 305 07:29 - 18:22 10:53 +4 m. 30°	2 61 - 304 07:27 - 18:24 10:57 +4 m. 31°	3 62 - 303 07:25 - 18:26 11:01 +4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



April 2018

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

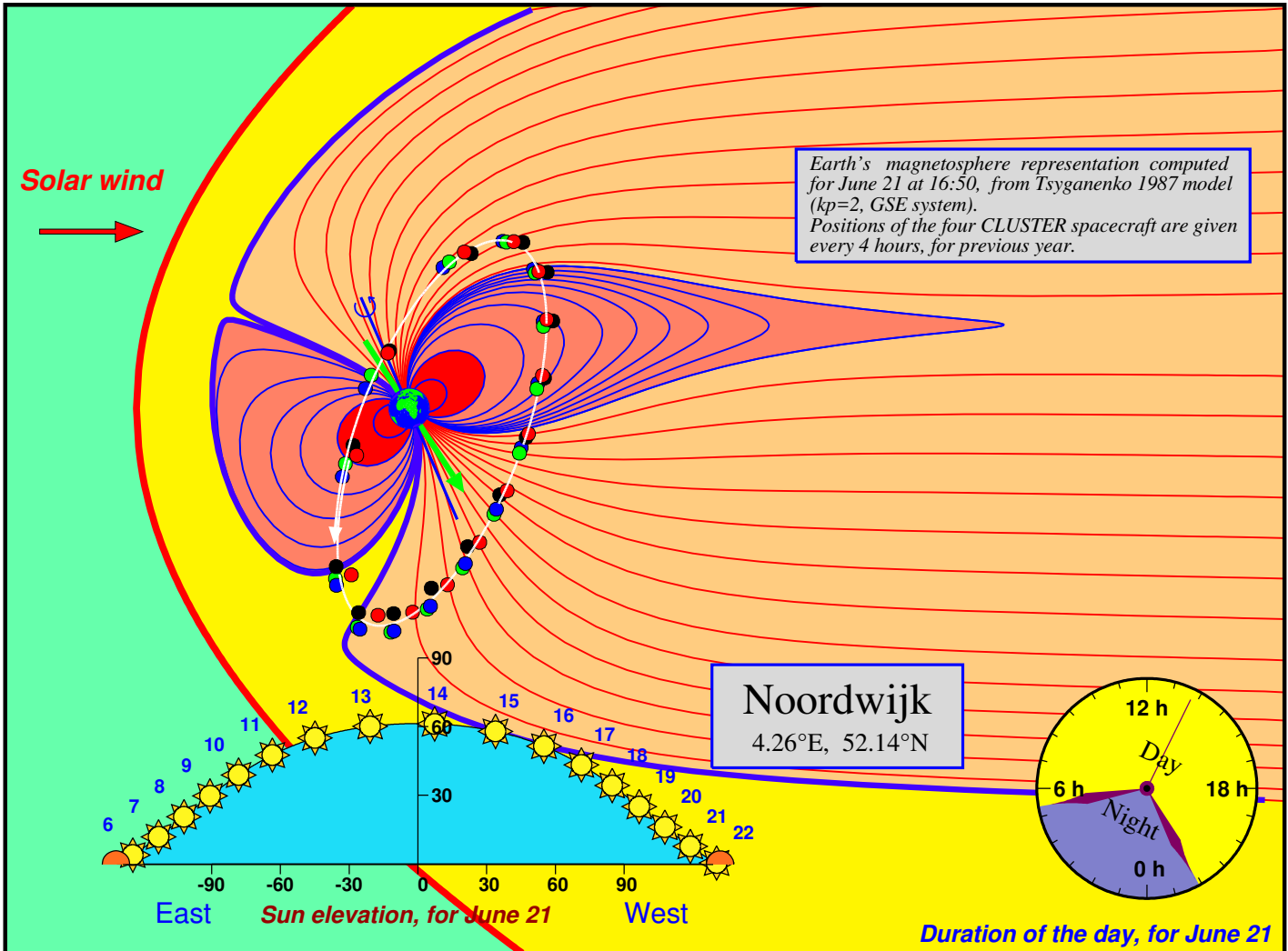
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
13	26 85 - 280 07:32 - 20:07 12:34 +4 m. 40°	27 86 - 279 07:30 - 20:08 12:38 +4 m. 41°	28 87 - 278 07:28 - 20:10 12:42 +4 m. 41°	29 88 - 277 07:25 - 20:12 12:47 +5 m. 41°	30 89 - 276 07:23 - 20:13 12:51 +4 m. 42°	31 90 - 275 07:21 - 20:15 12:55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



May 2018

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

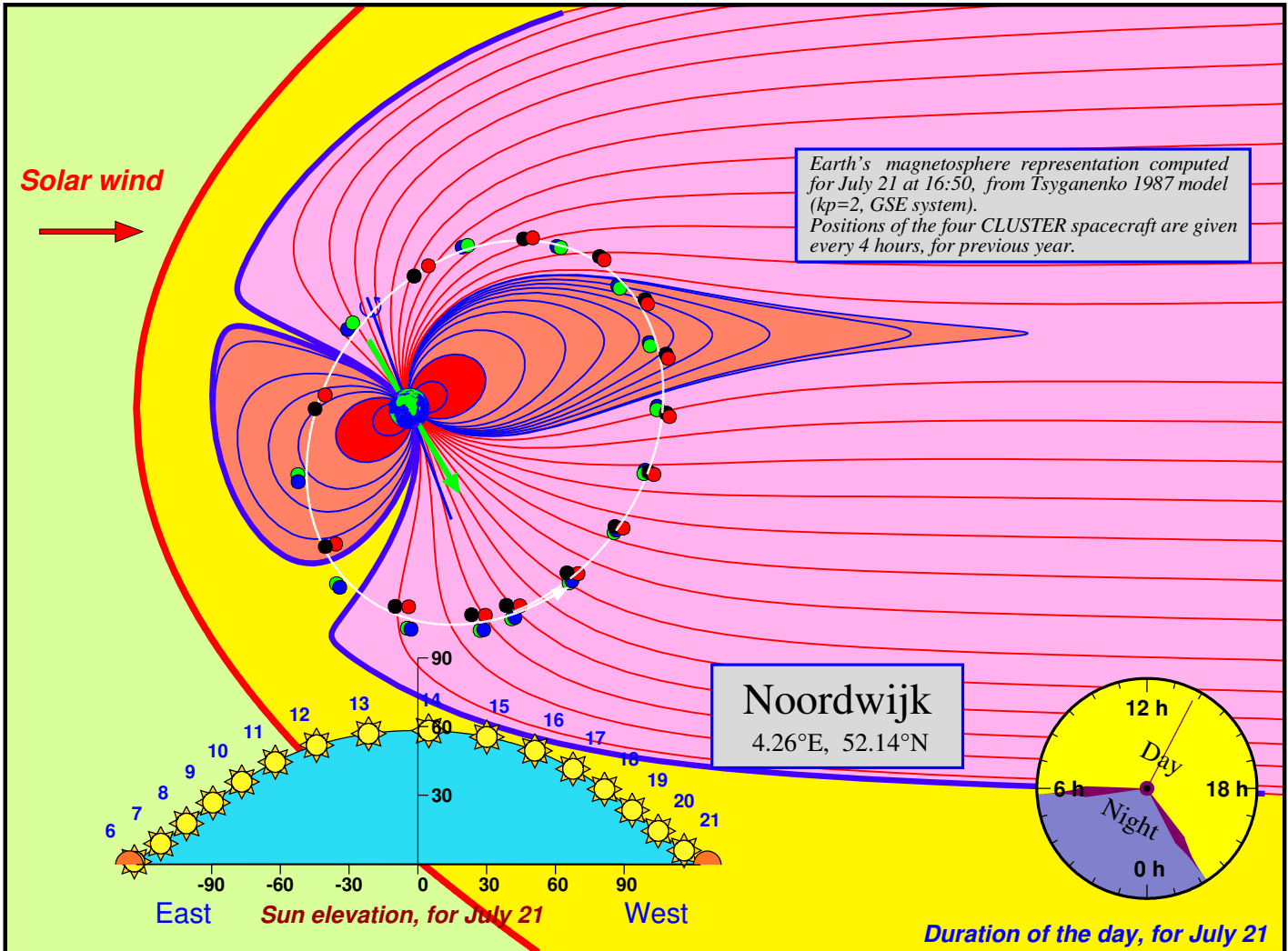
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	30 120 - 245 06:15 - 21:07 14:51 +3 m. 53°	1 121 - 244 06:13 - 21:08 14:55 +4 m. 53°	2 122 - 243 06:11 - 21:10 14:59 +4 m. 53°	3 123 - 242 06:09 - 21:12 15:02 +3 m. 54°	4 124 - 241 06:08 - 21:13 15:06 +4 m. 54°	5 125 - 240 06:06 - 21:15 15:09 +3 m. 54°	6 126 - 239 06:04 - 21:17 15:13 +4 m. 54°
19	7 127 - 238 06:02 - 21:18 15:16 +3 m. 55°	8 128 - 237 06:00 - 21:20 15:20 +4 m. 55°	9 129 - 236 05:59 - 21:22 15:23 +3 m. 55°	10 130 - 235 05:57 - 21:23 15:26 +3 m. 56°	11 131 - 234 05:55 - 21:25 15:30 +4 m. 56°	12 132 - 233 05:54 - 21:26 15:33 +3 m. 56°	13 133 - 232 05:52 - 21:28 15:36 +3 m. 56°
20	14 134 - 231 05:50 - 21:30 15:39 +3 m. 57°	15 135 - 230 05:49 - 21:31 15:42 +3 m. 57°	16 136 - 229 05:47 - 21:33 15:45 +3 m. 57°	17 137 - 228 05:46 - 21:34 15:48 +3 m. 57°	18 138 - 227 05:44 - 21:36 15:51 +3 m. 57°	19 139 - 226 05:43 - 21:37 15:54 +3 m. 58°	20 140 - 225 05:42 - 21:39 15:57 +3 m. 58°
21	21 141 - 224 05:40 - 21:40 16:00 +3 m. 58°	22 142 - 223 05:39 - 21:41 16:02 +2 m. 58°	23 143 - 222 05:38 - 21:43 16:05 +3 m. 58°	24 144 - 221 05:37 - 21:44 16:08 +3 m. 59°	25 145 - 220 05:35 - 21:46 16:10 +2 m. 59°	26 146 - 219 05:34 - 21:47 16:13 +3 m. 59°	27 147 - 218 05:33 - 21:48 16:15 +2 m. 59°
22	28 148 - 217 05:32 - 21:49 16:17 +2 m. 59°	29 149 - 216 05:31 - 21:51 16:19 +2 m. 60°	30 150 - 215 05:30 - 21:52 16:22 +3 m. 60°	31 151 - 214 05:29 - 21:53 16:24 +2 m. 60°	1 152 - 213 05:28 - 21:54 16:26 +2 m. 60°	2 153 - 212 05:28 - 21:55 16:28 +2 m. 60°	3 154 - 211 05:27 - 21:56 16:29 +1 m. 60°



June 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
22	28 148 - 217 05:32 - 21:49 16:17 +2 m. 59°	29 149 - 216 05:31 - 21:51 16:19 +2 m. 60°	30 150 - 215 05:30 - 21:52 16:22 +3 m. 60°	31 151 - 214 05:29 - 21:53 16:24 +2 m. 60°	1 152 - 213 05:28 - 21:54 16:26 +2 m. 60°	2 153 - 212 05:28 - 21:55 16:28 +2 m. 60°	3 154 - 211 05:27 - 21:56 16:29 +1 m. 60°
23	4 155 - 210 05:26 - 21:57 16:31 +2 m. 60°	5 156 - 209 05:26 - 21:58 16:33 +2 m. 60°	6 157 - 208 05:25 - 21:59 16:34 +1 m. 61°	7 158 - 207 05:24 - 22:00 16:36 +2 m. 61°	8 159 - 206 05:24 - 22:01 16:37 +1 m. 61°	9 160 - 205 05:23 - 22:02 16:38 +1 m. 61°	10 161 - 204 05:23 - 22:03 16:40 +2 m. 61°
24	11 162 - 203 05:23 - 22:03 16:41 +1 m. 61°	12 163 - 202 05:22 - 22:04 16:42 +1 m. 61°	13 164 - 201 05:22 - 22:05 16:43 +1 m. 61°	14 165 - 200 05:22 - 22:05 16:43 +0 m. 61°	15 166 - 199 05:22 - 22:06 16:44 +1 m. 61°	16 167 - 198 05:22 - 22:06 16:44 +0 m. 61°	17 168 - 197 05:22 - 22:07 16:45 +1 m. 61°
25	18 169 - 196 05:22 - 22:07 16:45 +0 m. 61°	19 170 - 195 05:22 - 22:07 16:46 +1 m. 61°	20 171 - 194 05:22 - 22:08 16:46 +0 m. 61°	21 172 - 193 05:22 - 22:08 16:46 +0 m. 61°	22 173 - 192 05:22 - 22:08 16:46 +0 m. 61°	23 174 - 191 05:23 - 22:08 16:46 +0 m. 61°	24 175 - 190 05:23 - 22:08 16:45 -1 m. 61°
26	25 176 - 189 05:23 - 22:08 16:45 +0 m. 61°	26 177 - 188 05:24 - 22:08 16:44 -1 m. 61°	27 178 - 187 05:24 - 22:08 16:44 +0 m. 61°	28 179 - 186 05:25 - 22:08 16:43 -1 m. 61°	29 180 - 185 05:25 - 22:08 16:42 -1 m. 61°	30 181 - 184 05:26 - 22:07 16:42 +0 m. 61°	1 182 - 183 05:27 - 22:07 16:41 -1 m. 61°

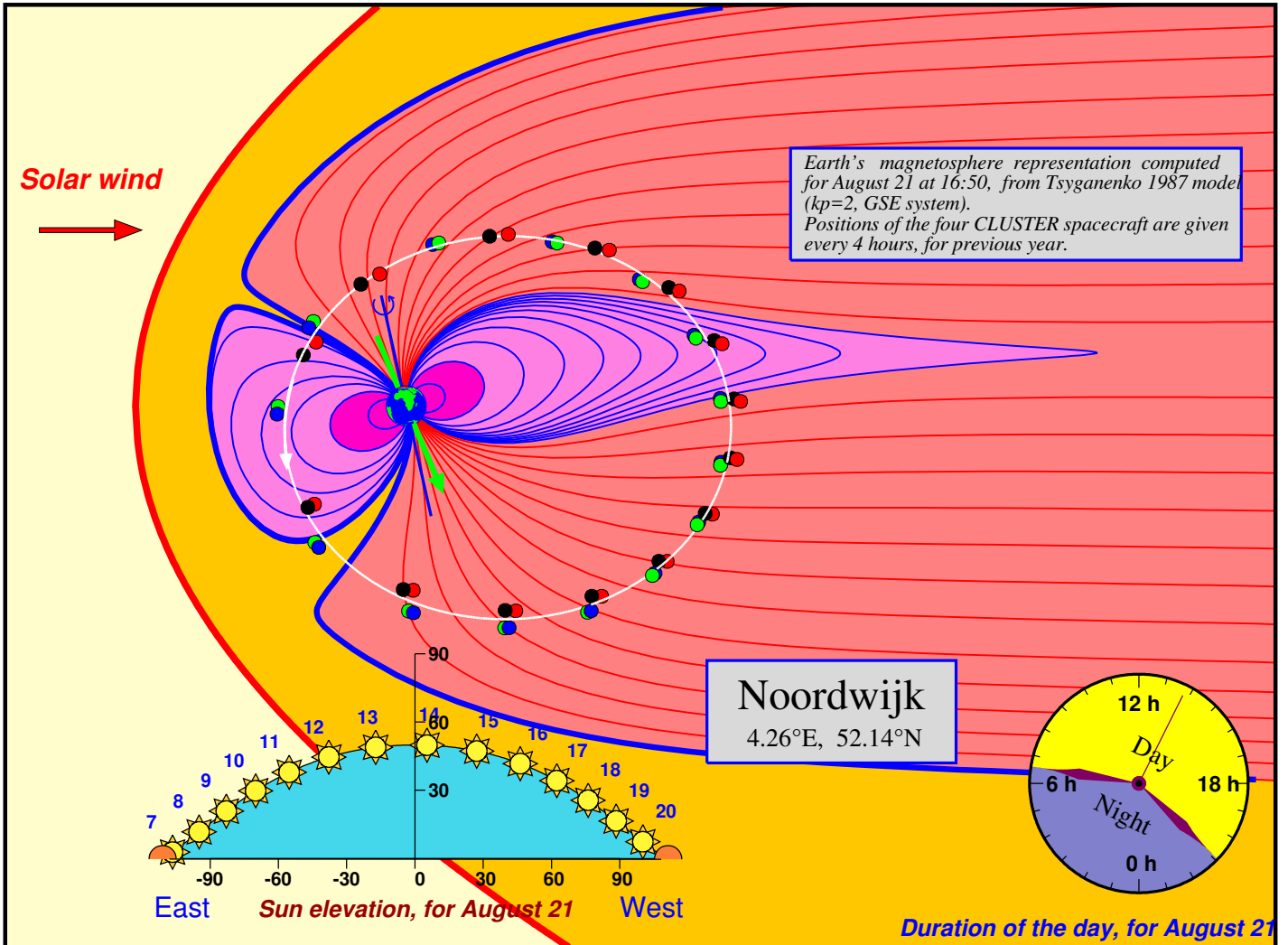


July 2018

Sunrise and Sunset at Noordwijk (TL ± 1 mn)

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
26	25 176 - 189 05:23 - 22:08 16:45 +0 m. 61°	26 177 - 188 05:24 - 22:08 16:44 -1 m. 61°	27 178 - 187 05:24 - 22:08 16:44 +0 m. 61°	28 179 - 186 05:25 - 22:08 16:43 -1 m. 61°	29 180 - 185 05:25 - 22:08 16:42 -1 m. 61°	30 181 - 184 05:26 - 22:07 16:42 +0 m. 61°	1 182 - 183 05:27 - 22:07 16:41 -1 m. 61°
27	2 183 - 182 05:27 - 22:07 16:40 -1 m. 61°	3 184 - 181 05:28 - 22:06 16:38 -2 m. 61°	4 185 - 180 05:29 - 22:06 16:37 -1 m. 61°	5 186 - 179 05:30 - 22:05 16:36 -1 m. 61°	6 187 - 178 05:31 - 22:05 16:34 -2 m. 61°	7 188 - 177 05:32 - 22:04 16:33 -1 m. 60°	8 189 - 176 05:32 - 22:03 16:31 -2 m. 60°
28	9 190 - 175 05:33 - 22:03 16:29 -2 m. 60°	10 191 - 174 05:35 - 22:02 16:27 -2 m. 60°	11 192 - 173 05:36 - 22:01 16:26 -1 m. 60°	12 193 - 172 05:37 - 22:00 16:24 -2 m. 60°	13 194 - 171 05:38 - 21:59 16:21 -3 m. 60°	14 195 - 170 05:39 - 21:58 16:19 -2 m. 60°	15 196 - 169 05:40 - 21:57 16:17 -2 m. 59°
29	16 197 - 168 05:41 - 21:56 16:15 -2 m. 59°	17 198 - 167 05:43 - 21:55 16:12 -3 m. 59°	18 199 - 166 05:44 - 21:54 16:10 -2 m. 59°	19 200 - 165 05:45 - 21:53 16:08 -2 m. 59°	20 201 - 164 05:47 - 21:52 16:05 -3 m. 58°	21 202 - 163 05:48 - 21:50 16:02 -3 m. 58°	22 203 - 162 05:49 - 21:49 16:00 -2 m. 58°
30	23 204 - 161 05:51 - 21:48 15:57 -3 m. 58°	24 205 - 160 05:52 - 21:46 15:54 -3 m. 58°	25 206 - 159 05:54 - 21:45 15:51 -3 m. 57°	26 207 - 158 05:55 - 21:43 15:48 -3 m. 57°	27 208 - 157 05:57 - 21:42 15:45 -3 m. 57°	28 209 - 156 05:58 - 21:40 15:42 -3 m. 57°	29 210 - 155 06:00 - 21:39 15:39 -3 m. 57°
31	30 211 - 154 06:01 - 21:37 15:36 -3 m. 56°	31 212 - 153 06:03 - 21:35 15:33 -3 m. 56°	1 213 - 152 06:04 - 21:34 15:30 -3 m. 56°	2 214 - 151 06:06 - 21:32 15:26 -4 m. 56°	3 215 - 150 06:07 - 21:30 15:23 -3 m. 55°	4 216 - 149 06:09 - 21:29 15:20 -3 m. 55°	5 217 - 148 06:10 - 21:27 15:17 -3 m. 55°

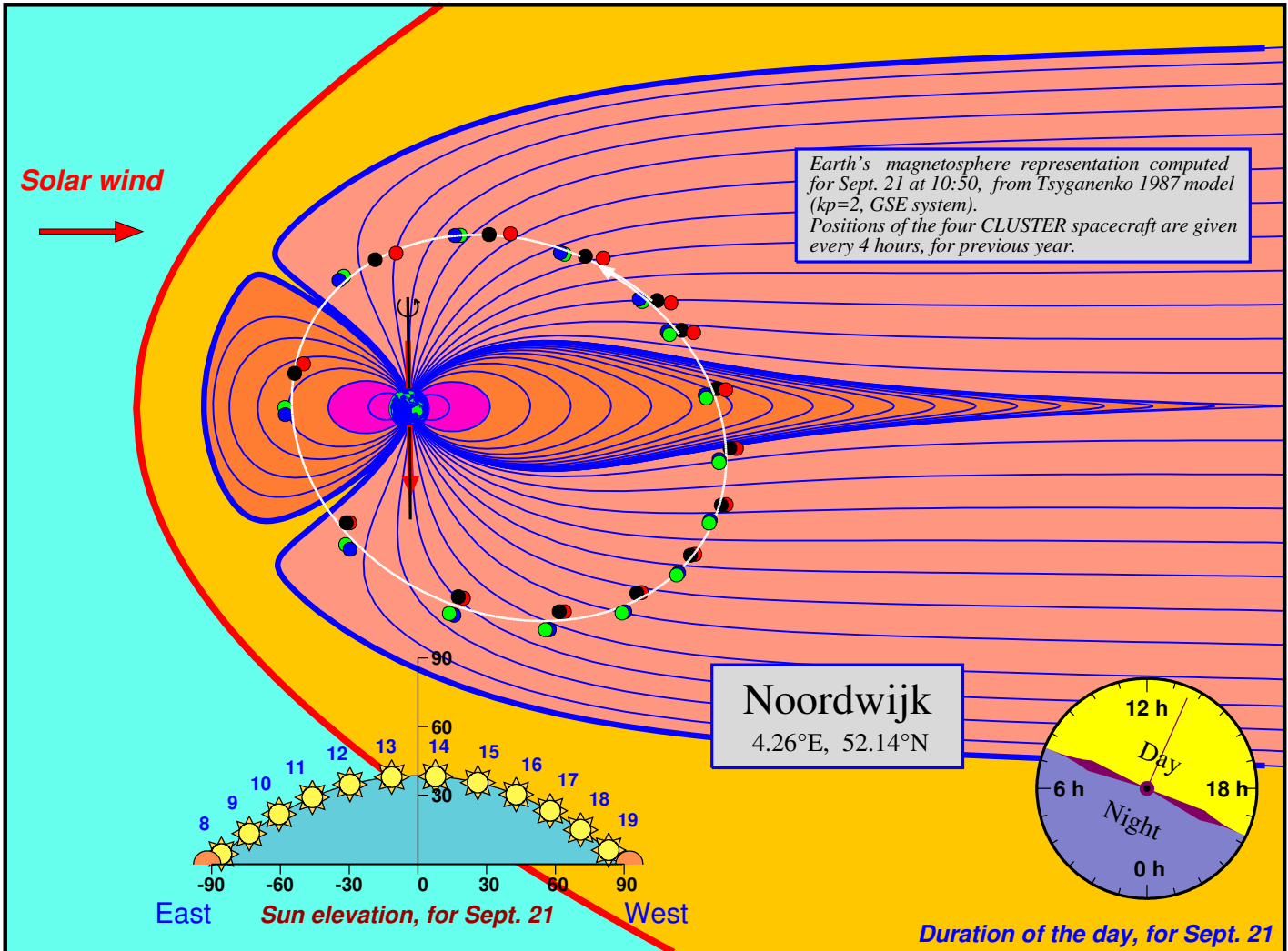


August 2018

Sunrise and Sunset at Noordwijk (TL ± 1 mn)

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

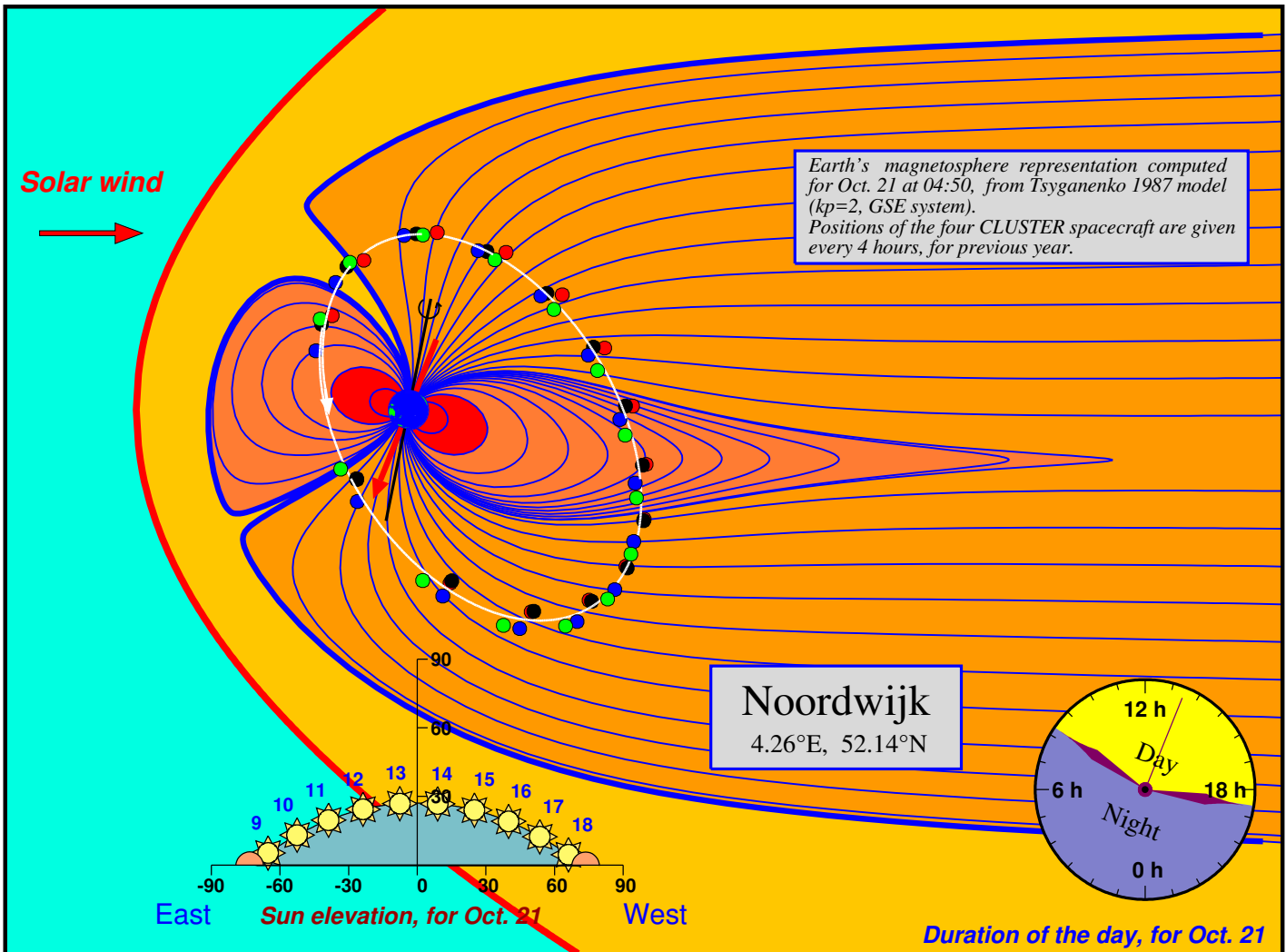
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	30 211 - 154 06:01 - 21:37 15:36 -3 m. 56°	31 212 - 153 06:03 - 21:35 15:33 -3 m. 56°	1 213 - 152 06:04 - 21:34 15:30 -3 m. 56°	2 214 - 151 06:06 - 21:32 15:26 -4 m. 56°	3 215 - 150 06:07 - 21:30 15:23 -3 m. 55°	4 216 - 149 06:09 - 21:29 15:20 -3 m. 55°	5 217 - 148 06:10 - 21:27 15:17 -3 m. 55°
32	6 218 - 147 06:12 - 21:25 15:13 -4 m. 55°	7 219 - 146 06:14 - 21:23 15:10 -3 m. 54°	8 220 - 145 06:15 - 21:21 15:06 -4 m. 54°	9 221 - 144 06:17 - 21:19 15:03 -3 m. 54°	10 222 - 143 06:18 - 21:18 14:59 -4 m. 53°	11 223 - 142 06:20 - 21:16 14:56 -3 m. 53°	12 224 - 141 06:22 - 21:14 14:52 -4 m. 53°
33	13 225 - 140 06:23 - 21:12 14:48 -4 m. 52°	14 226 - 139 06:25 - 21:10 14:45 -3 m. 52°	15 227 - 138 06:27 - 21:08 14:41 -4 m. 52°	16 228 - 137 06:28 - 21:06 14:38 -3 m. 52°	17 229 - 136 06:30 - 21:04 14:34 -4 m. 51°	18 230 - 135 06:31 - 21:01 14:30 -4 m. 51°	19 231 - 134 06:33 - 20:59 14:26 -4 m. 51°
34	20 232 - 133 06:35 - 20:57 14:23 -3 m. 50°	21 233 - 132 06:36 - 20:55 14:19 -4 m. 50°	22 234 - 131 06:38 - 20:53 14:15 -4 m. 50°	23 235 - 130 06:40 - 20:51 14:11 -4 m. 49°	24 236 - 129 06:41 - 20:49 14:07 -4 m. 49°	25 237 - 128 06:43 - 20:46 14:04 -3 m. 49°	26 238 - 127 06:45 - 20:44 14:00 -4 m. 48°
35	27 239 - 126 06:46 - 20:42 13:56 -4 m. 48°	28 240 - 125 06:48 - 20:40 13:52 -4 m. 48°	29 241 - 124 06:49 - 20:38 13:48 -4 m. 47°	30 242 - 123 06:51 - 20:35 13:44 -4 m. 47°	31 243 - 122 06:53 - 20:33 13:40 -4 m. 46°	1 244 - 121 06:54 - 20:31 13:36 -4 m. 46°	2 245 - 120 06:56 - 20:29 13:33 -3 m. 46°



September 2018

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

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

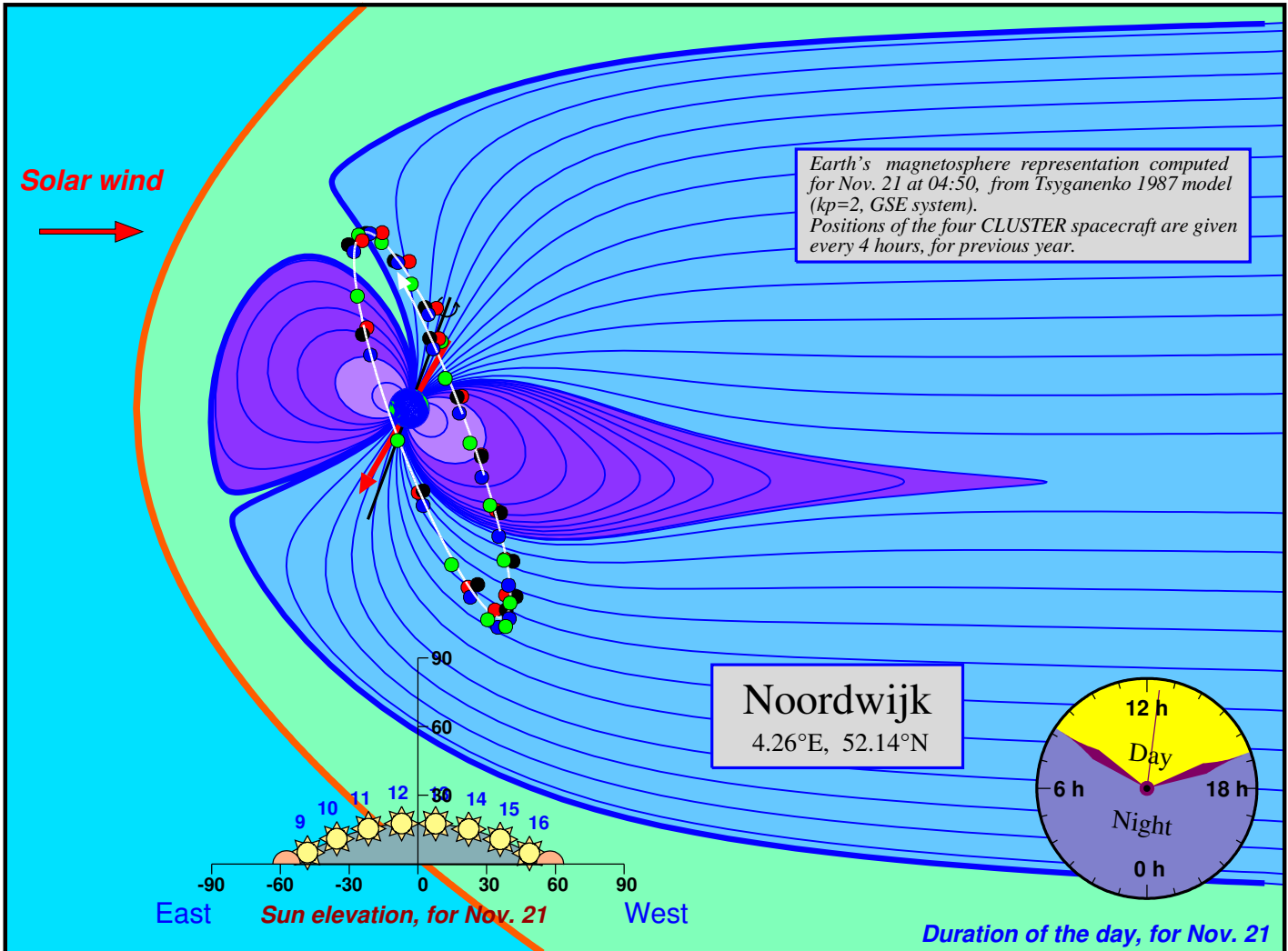


October 2018

Time change
Oct. 28

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

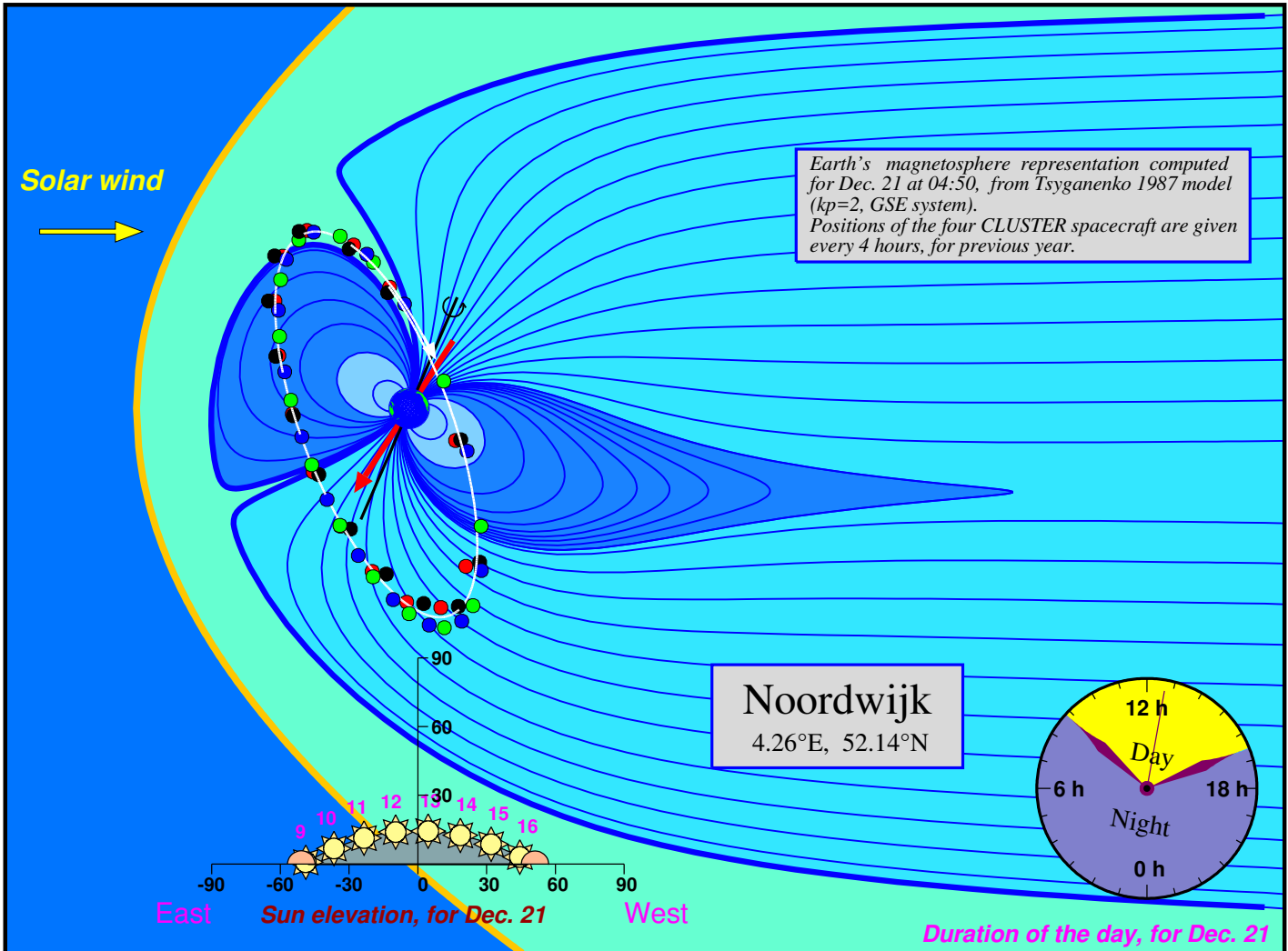
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
40	1 274 - 91 07:44 - 19:21 11:37 -4 m. 35°	2 275 - 90 07:45 - 19:19 11:33 -4 m. 34°	3 276 - 89 07:47 - 19:16 11:29 -4 m. 34°	4 277 - 88 07:49 - 19:14 11:25 -4 m. 33°	5 278 - 87 07:51 - 19:12 11:21 -4 m. 33°	6 279 - 86 07:52 - 19:09 11:17 -4 m.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



November 2018

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

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



December 2018

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
48	26 330 - 35 08:22 - 16:39 8:17 -2 m. 17°	27 331 - 34 08:23 - 16:38 8:14 -3 m. 17°	28 332 - 33 08:25 - 16:37 8:12 -2 m. 17°	29 333 - 32 08:26 - 16:36 8:09 -3 m. 16°	30 334 - 31 08:28 - 16:35 8:07 -2 m. 16°	1 335 - 30 08:29 - 16:35 8:05 -2 m. 16°	2 336 - 29 08:31 - 16:34 8:03 -2 m. 16°
49	3 337 - 28 08:32 - 16:33 8:01 -2 m. 16°	4 338 - 27 08:33 - 16:33 7:59 -2 m. 16°	5 339 - 26 08:35 - 16:32 7:57 -2 m. 16°	6 340 - 25 08:36 - 16:32 7:56 -1 m. 15°	7 341 - 24 08:37 - 16:32 7:54 -2 m. 15°	8 342 - 23 08:38 - 16:31 7:53 -1 m. 15°	9 343 - 22 08:39 - 16:31 7:51 -2 m. 15°
50	10 344 - 21 08:41 - 16:31 7:50 -1 m. 15°	11 345 - 20 08:42 - 16:31 7:49 -1 m. 15°	12 346 - 19 08:43 - 16:31 7:48 -1 m. 15°	13 347 - 18 08:44 - 16:31 7:47 -1 m. 15°	14 348 - 17 08:45 - 16:31 7:46 -1 m. 15°	15 349 - 16 08:45 - 16:31 7:45 -1 m. 15°	16 350 - 15 08:46 - 16:31 7:44 -1 m. 15°
51	17 351 - 14 08:47 - 16:31 7:44 +0 m. 15°	18 352 - 13 08:48 - 16:32 7:43 -1 m. 15°	19 353 - 12 08:48 - 16:32 7:43 +0 m. 15°	20 354 - 11 08:49 - 16:32 7:43 +0 m. 14°	21 355 - 10 08:50 - 16:33 7:43 +0 m. 14°	22 356 - 9 08:50 - 16:33 7:43 +0 m. 14°	23 357 - 8 08:51 - 16:34 7:43 +0 m. 14°
52	24 358 - 7 08:51 - 16:34 7:43 +0 m. 15°	25 359 - 6 08:51 - 16:35 7:43 +0 m. 15°	26 360 - 5 08:52 - 16:36 7:44 +1 m. 15°	27 361 - 4 08:52 - 16:37 7:44 +0 m. 15°	28 362 - 3 08:52 - 16:37 7:45 +1 m. 15°	29 363 - 2 08:52 - 16:38 7:46 +1 m. 15°	30 364 - 1 08:52 - 16:39 7:47 +1 m. 15°
53	31 365 - 0 08:52 - 16:40 7:48 +1 m. 15°						

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>