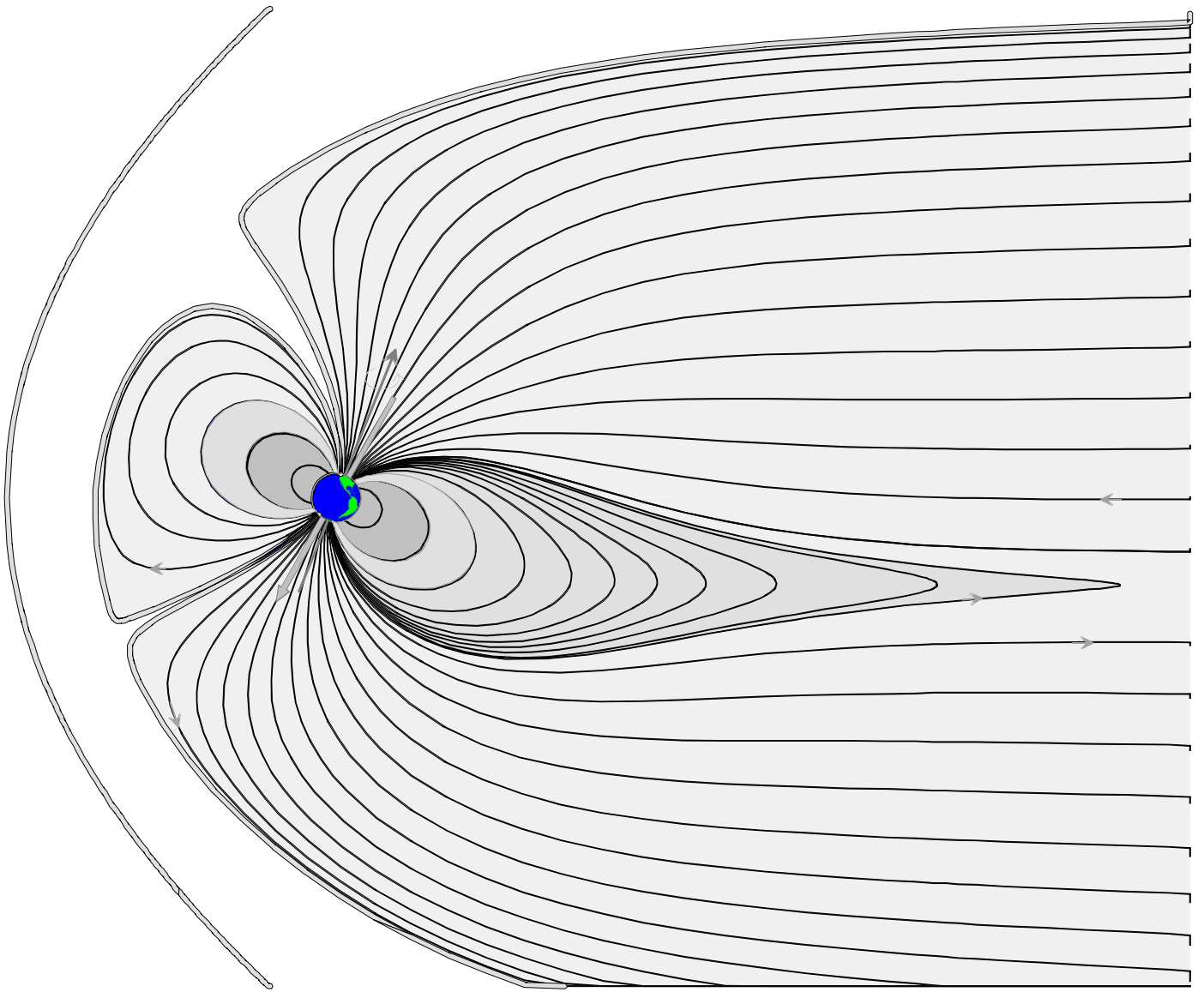


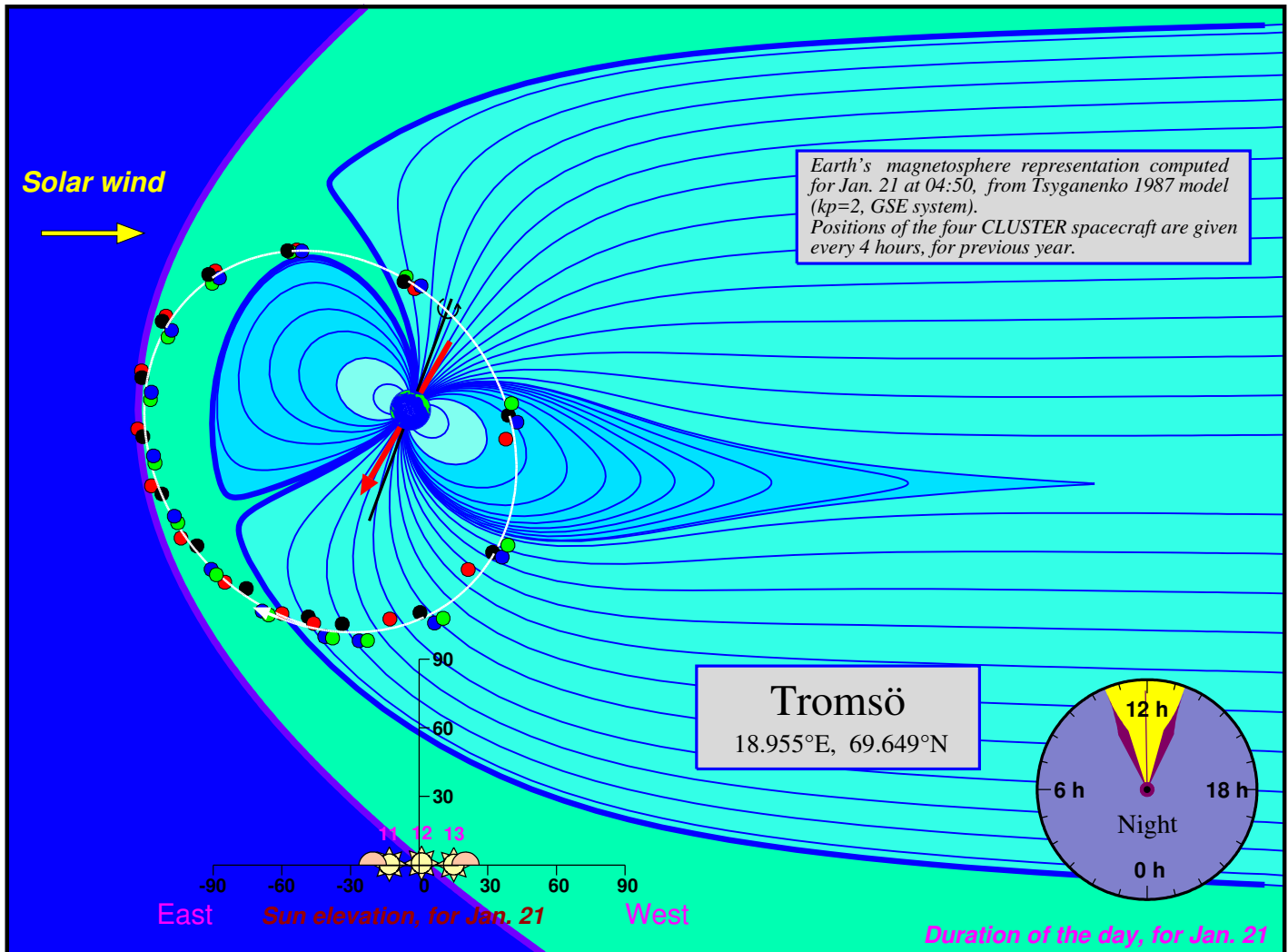


*Here is the classical magnetospheric calendar **2018**,
available for any city across the world,*

English or French version

Happy new year for everybody

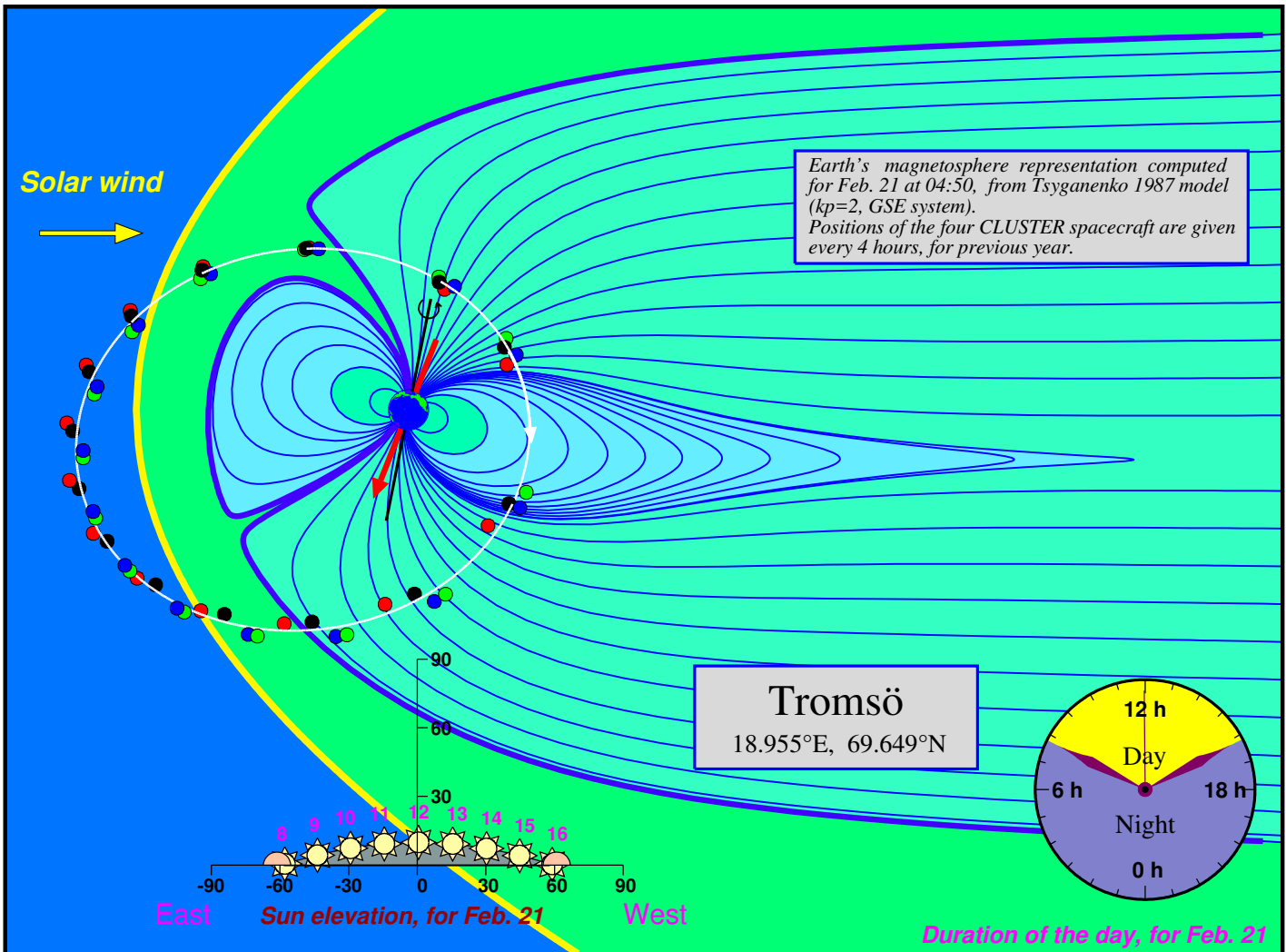
Patrick



January 2018

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

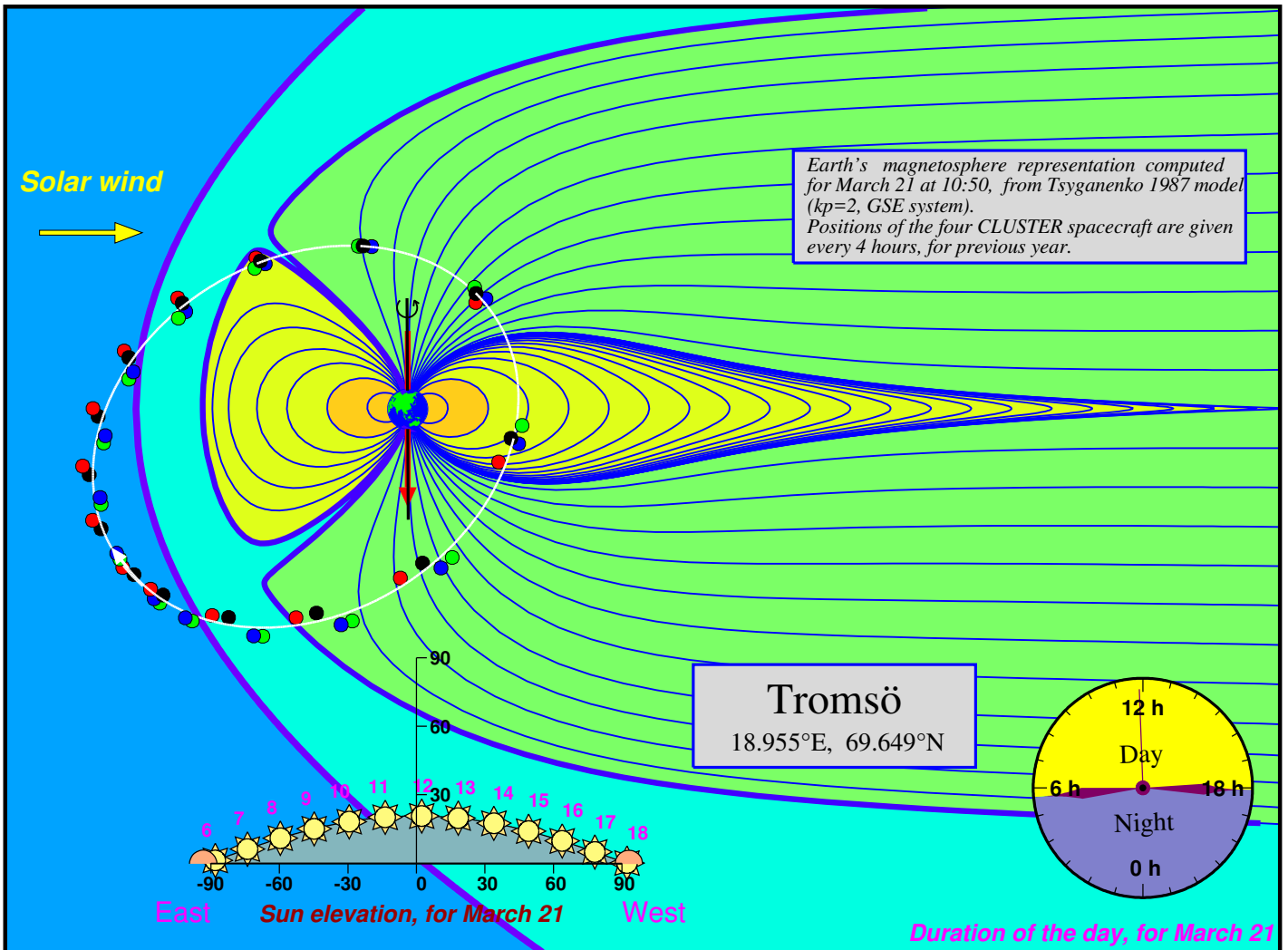
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	1 1 - 364 Polar Night	2 2 - 363 Polar Night	3 3 - 362 Polar Night	4 4 - 361 Polar Night	5 5 - 360 Polar Night	6 6 - 359 Polar Night	7 7 - 358 Polar Night
2	8 8 - 357 Polar Night	9 9 - 356 Polar Night	10 10 - 355 Polar Night	11 11 - 354 Polar Night	12 12 - 353 Polar Night	13 13 - 352 Polar Night	14 14 - 351 Polar Night
3	15 15 - 350 11:31 - 12:18 0:47 +47 m. 0°	16 16 - 349 11:14 - 12:35 1:20 +33 m. 0°	17 17 - 348 11:03 - 12:47 1:44 +24 m. 0°	18 18 - 347 10:53 - 12:57 2:04 +20 m. 0°	19 19 - 346 10:44 - 13:07 2:22 +18 m. 1°	20 20 - 345 10:37 - 13:15 2:38 +16 m. 1°	21 21 - 344 10:29 - 13:23 2:53 +15 m. 1°
4	22 22 - 343 10:22 - 13:30 3:07 +14 m. 1°	23 23 - 342 10:16 - 13:37 3:21 +14 m. 1°	24 24 - 341 10:10 - 13:44 3:34 +13 m. 2°	25 25 - 340 10:03 - 13:51 3:47 +13 m. 2°	26 26 - 339 09:58 - 13:57 3:59 +12 m. 2°	27 27 - 338 09:52 - 14:03 4:11 +12 m. 2°	28 28 - 337 09:46 - 14:09 4:23 +12 m. 2°
5	29 29 - 336 09:41 - 14:15 4:34 +11 m. 3°	30 30 - 335 09:35 - 14:21 4:46 +12 m. 3°	31 31 - 334 09:30 - 14:27 4:57 +11 m. 3°	1 32 - 333 09:25 - 14:32 5:07 +10 m. 4°	2 33 - 332 09:19 - 14:38 5:18 +11 m. 4°	3 34 - 331 09:14 - 14:43 5:29 +11 m. 4°	4 35 - 330 09:09 - 14:49 5:39 +10 m. 4°



February 2018

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

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

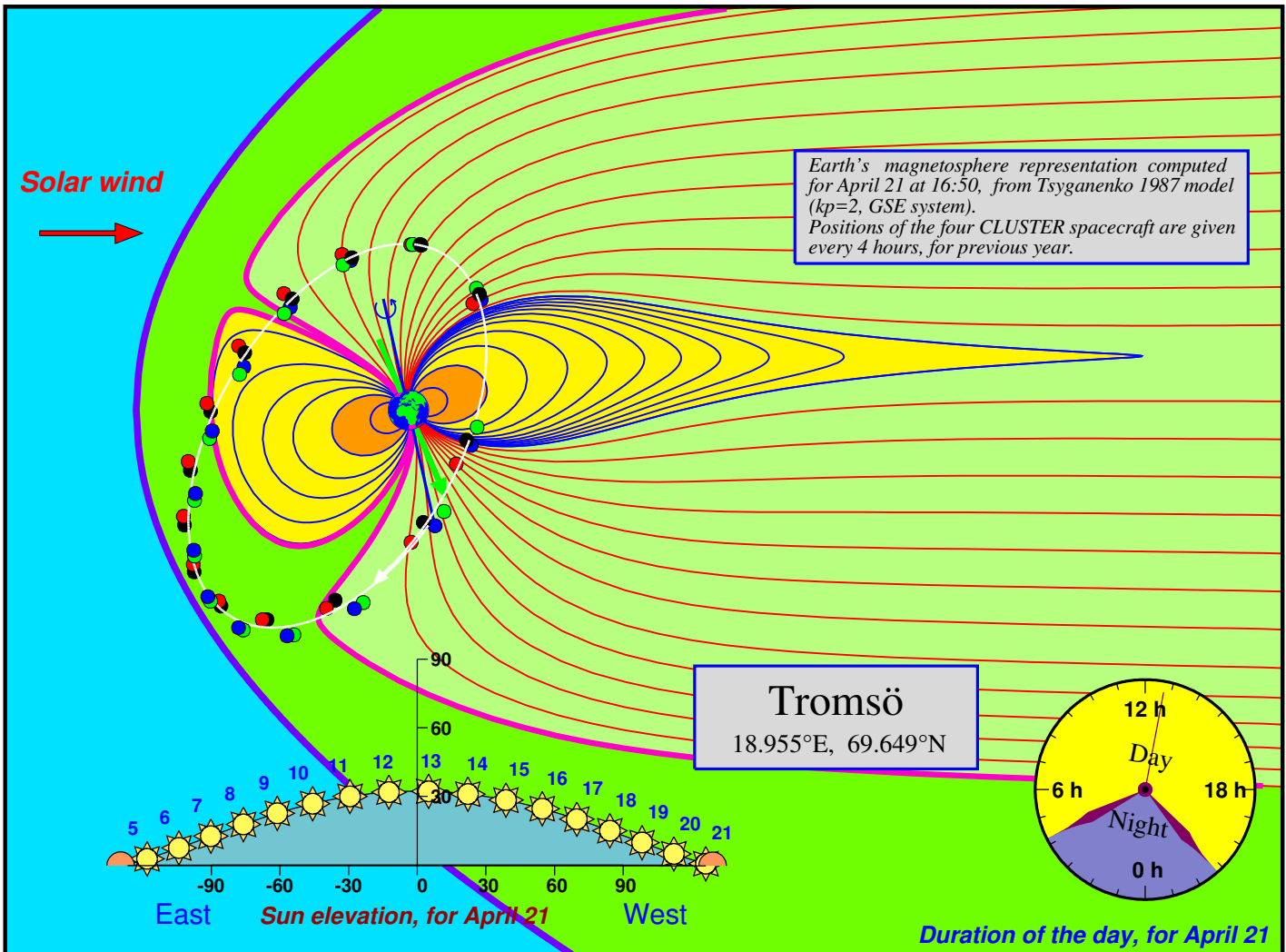


March 2018

Time change
March 25

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

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

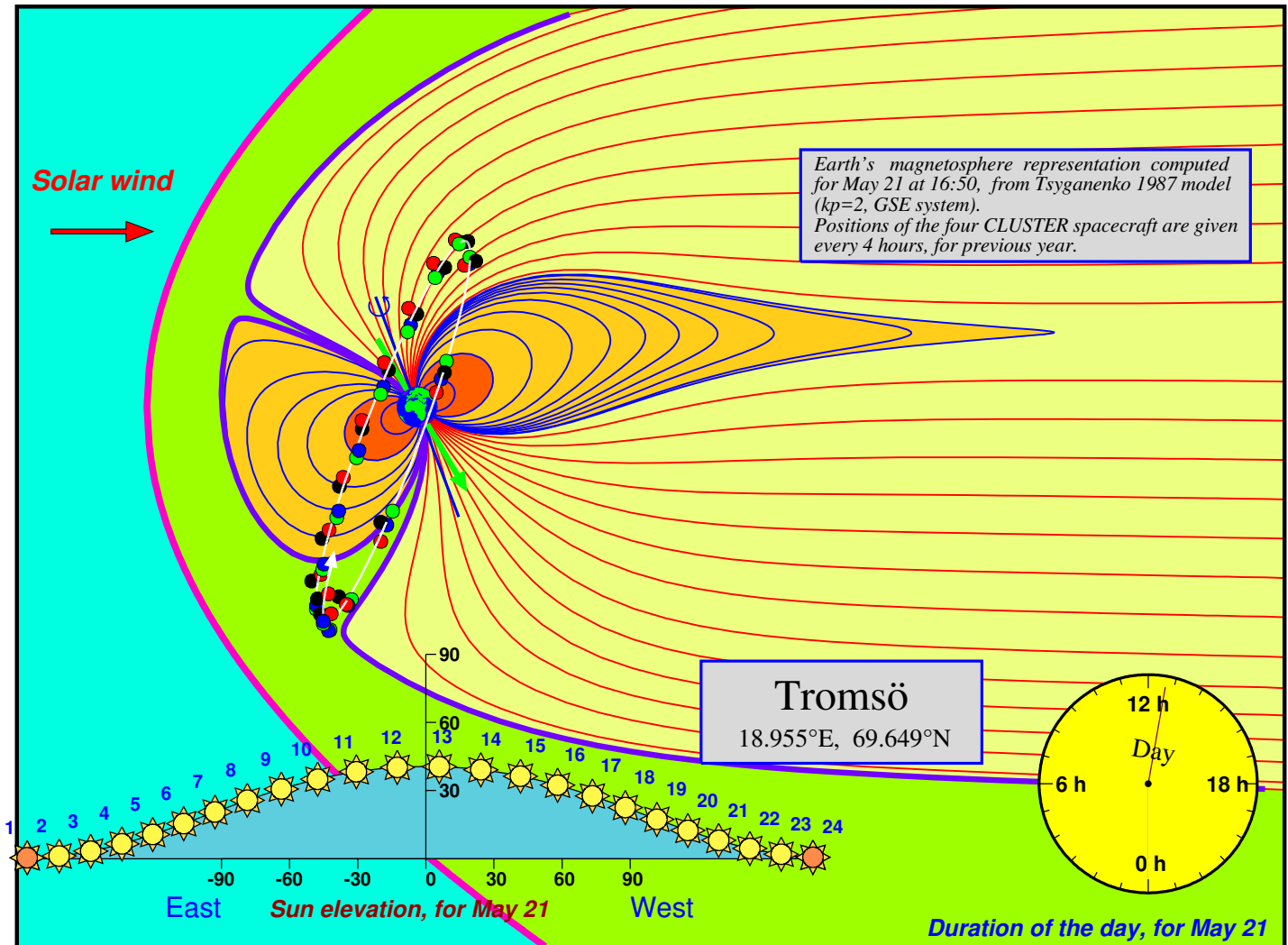


April 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

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

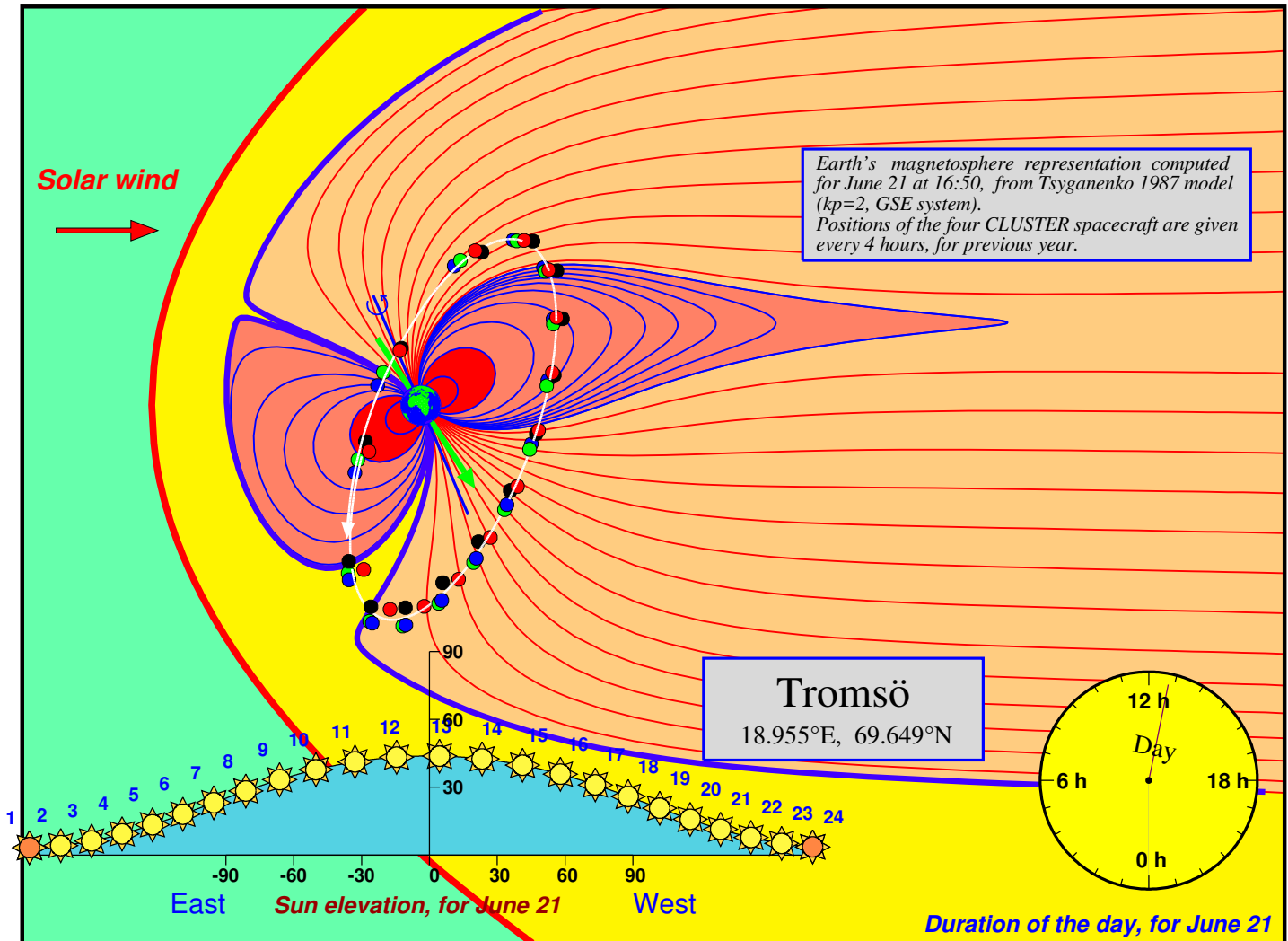


May 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	30 120 - 245 03:27 - 22:00 18:34+11 m.35°	1 121 - 244 03:21 - 22:06 18:45+11 m.36°	2 122 - 243 03:16 - 22:11 18:56+11 m.36°	3 123 - 242 03:10 - 22:17 19:07+11 m.36°	4 124 - 241 03:04 - 22:23 19:19+12 m.36°	5 125 - 240 02:58 - 22:29 19:31+12 m.37°	6 126 - 239 02:52 - 22:35 19:43+12 m.37°
19	7 127 - 238 02:46 - 22:41 19:55+12 m.37°	8 128 - 237 02:39 - 22:48 20:09+14 m.38°	9 129 - 236 02:33 - 22:55 20:22+13 m.38°	10 130 - 235 02:26 - 23:02 20:36+14 m.38°	11 131 - 234 02:19 - 23:10 20:51+15 m.38°	12 132 - 233 02:11 - 23:18 21:07+16 m.39°	13 133 - 232 01:54 - 23:27 21:33+26 m.39°
20	14 134 - 231 01:44 - 23:36 21:52+19 m.39°	15 135 - 230 01:33 - 23:48 22:15+23 m.39°	16 136 - 229 01:19 - 00:02 22:43+28 m.40°	17 137 - 228 00:55 - 00:26 23:31+48 m.40°	18 138 - 227 Day at anytime 24:00+29 m.40°	19 139 - 226 Day at anytime 24:00 +0 m.40°	20 140 - 225 Day at anytime 24:00 +0 m.40°
21	21 141 - 224 Day at anytime 24:00 +0 m.41°	22 142 - 223 Day at anytime 24:00 +0 m.41°	23 143 - 222 Day at anytime 24:00 +0 m.41°	24 144 - 221 Day at anytime 24:00 +0 m.41°	25 145 - 220 Day at anytime 24:00 +0 m.41°	26 146 - 219 Day at anytime 24:00 +0 m.42°	27 147 - 218 Day at anytime 24:00 +0 m.42°
22	28 148 - 217 Day at anytime 24:00 +0 m.42°	29 149 - 216 Day at anytime 24:00 +0 m.42°	30 150 - 215 Day at anytime 24:00 +0 m.42°	31 151 - 214 Day at anytime 24:00 +0 m.42°	1 152 - 213 Day at anytime 24:00 +0 m.42°	2 153 - 212 Day at anytime 24:00 +0 m.43°	3 154 - 211 Day at anytime 24:00 +0 m.43°

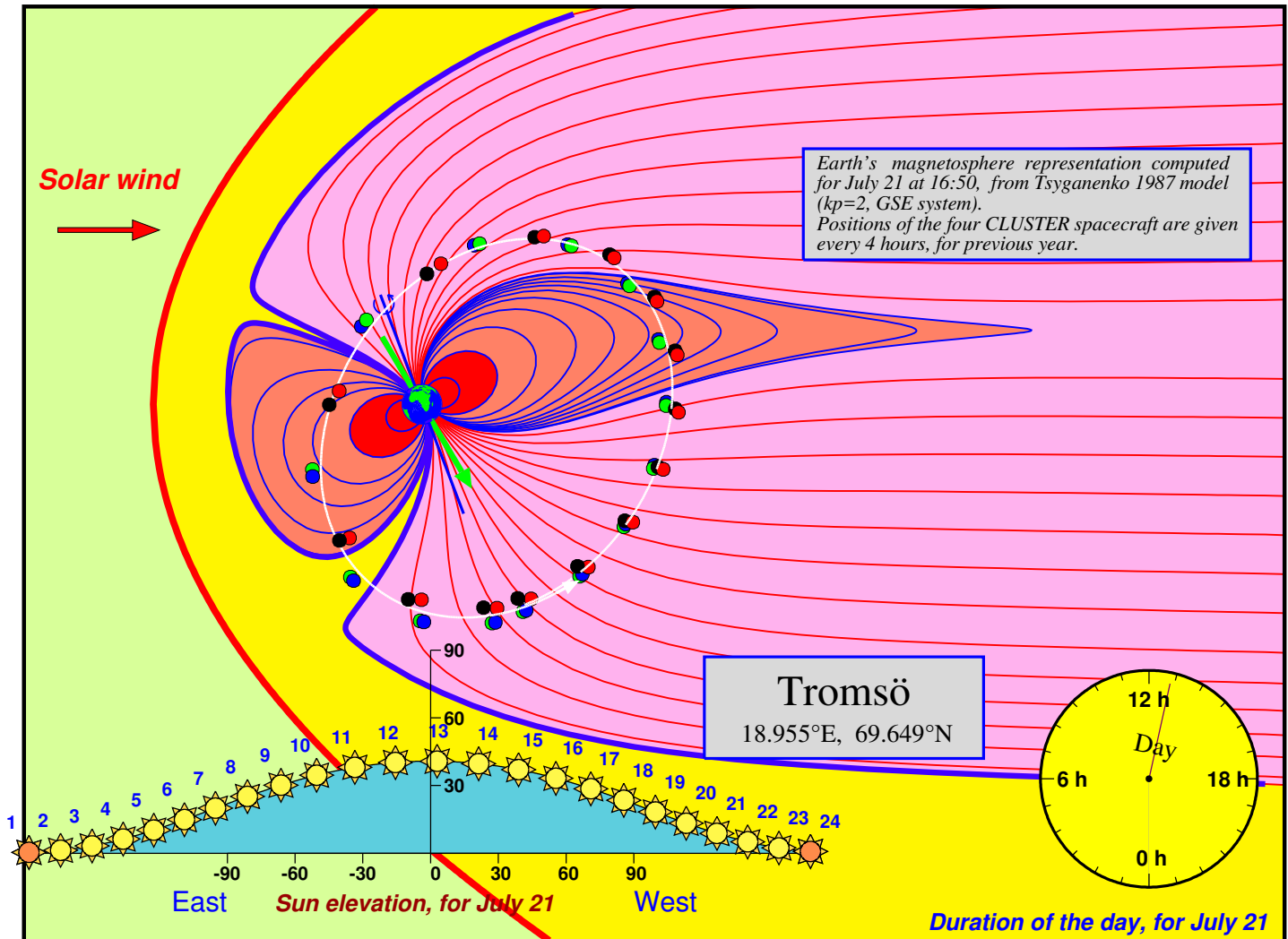


June 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

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

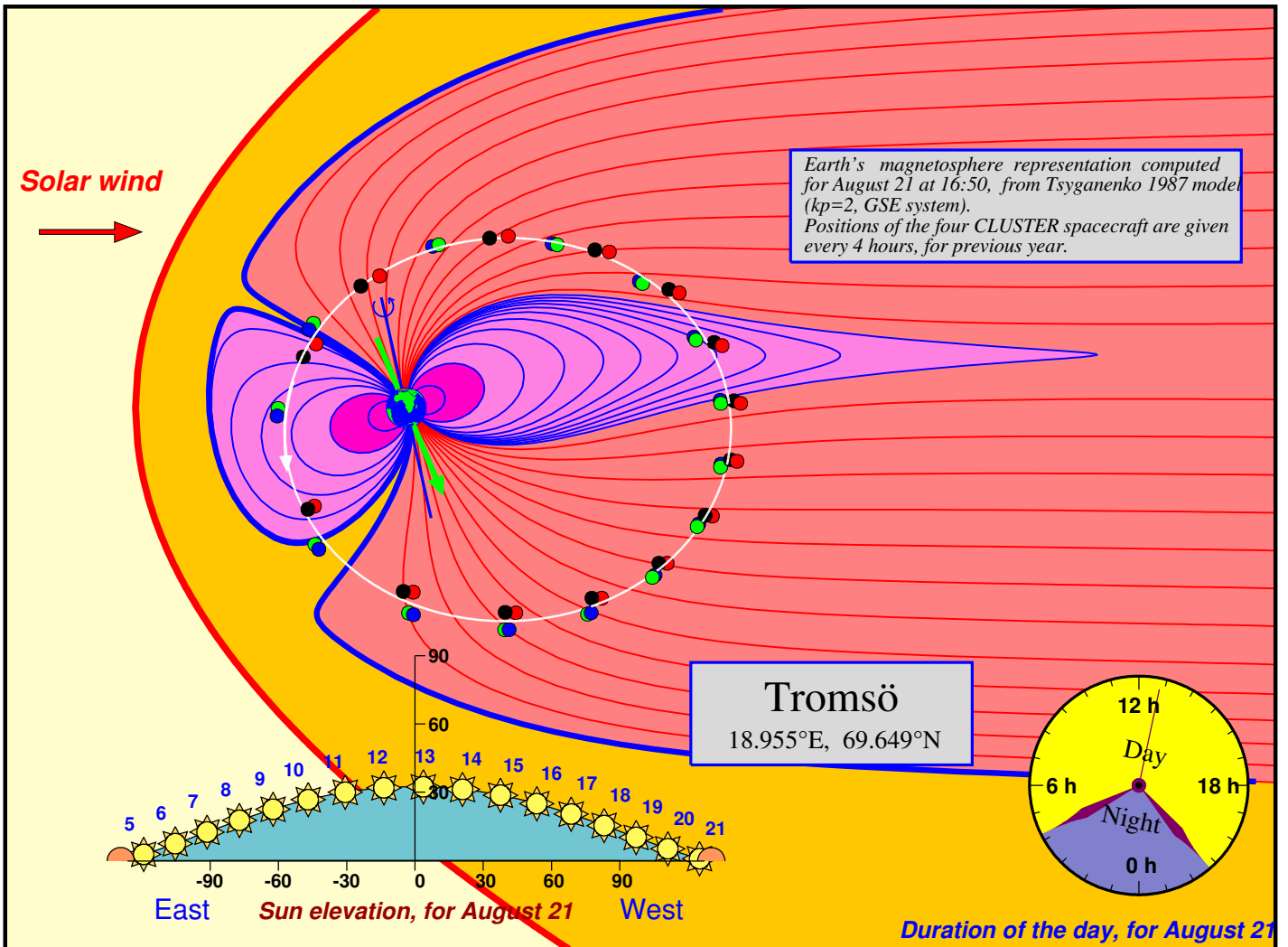


July 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

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

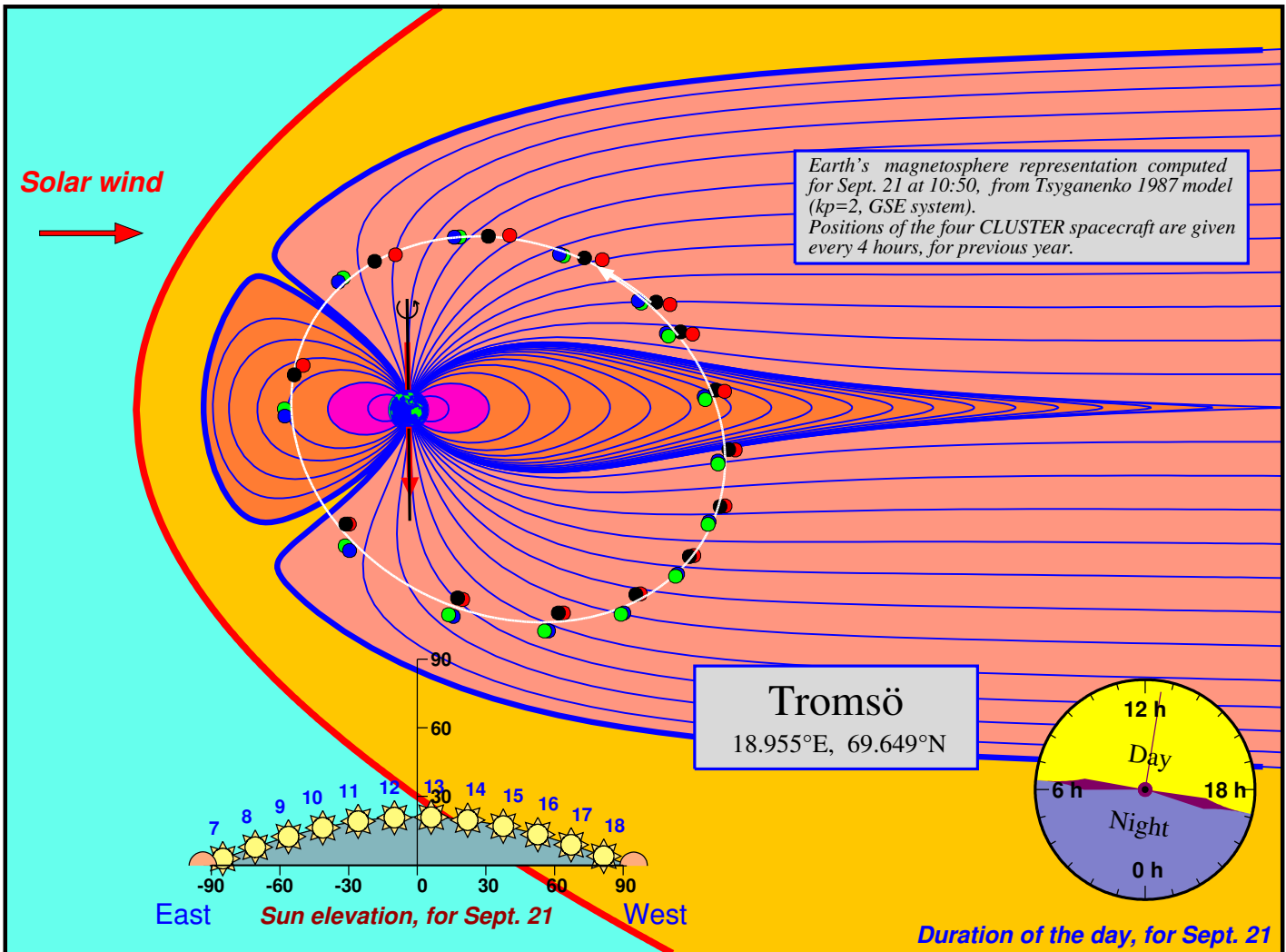


August 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

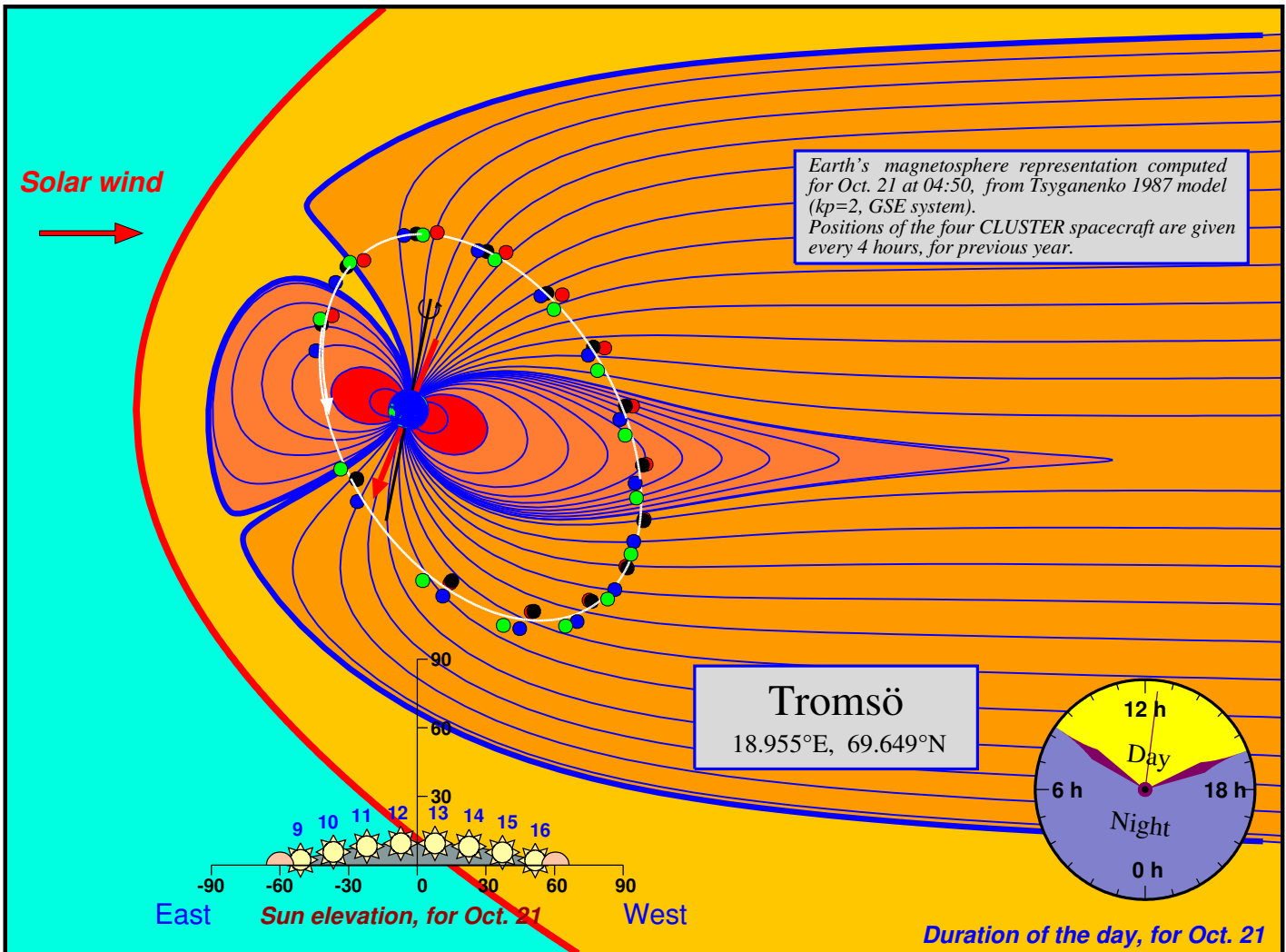
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	30 211 - 154 02:04 - 23:30 21:26 -13 m. 39°	31 212 - 153 02:13 - 23:22 21:09 -17 m. 39°	1 213 - 152 02:21 - 23:14 20:53 -16 m. 38°	2 214 - 151 02:28 - 23:07 20:38 -15 m. 38°	3 215 - 150 02:36 - 23:00 20:24 -14 m. 38°	4 216 - 149 02:42 - 22:53 20:11 -13 m. 38°	5 217 - 148 02:49 - 22:47 19:58 -13 m. 37°
32	6 218 - 147 02:55 - 22:40 19:45 -13 m. 37°	7 219 - 146 03:01 - 22:34 19:33 -12 m. 37°	8 220 - 145 03:07 - 22:28 19:21 -12 m. 36°	9 221 - 144 03:13 - 22:22 19:10 -11 m. 36°	10 222 - 143 03:18 - 22:17 18:58 -12 m. 36°	11 223 - 142 03:24 - 22:11 18:47 -11 m. 36°	12 224 - 141 03:29 - 22:06 18:37 -10 m. 35°
33	13 225 - 140 03:34 - 22:00 18:26 -11 m. 35°	14 226 - 139 03:39 - 21:55 18:15 -11 m. 35°	15 227 - 138 03:45 - 21:49 18:05 -10 m. 34°	16 228 - 137 03:49 - 21:44 17:55 -10 m. 34°	17 229 - 136 03:54 - 21:39 17:45 -10 m. 34°	18 230 - 135 03:59 - 21:34 17:35 -10 m. 33°	19 231 - 134 04:04 - 21:29 17:25 -10 m. 33°
34	20 232 - 133 04:09 - 21:23 17:15 -10 m. 33°	21 233 - 132 04:13 - 21:18 17:05 -10 m. 32°	22 234 - 131 04:18 - 21:13 16:56 -9 m. 32°	23 235 - 130 04:22 - 21:09 16:46 -10 m. 32°	24 236 - 129 04:27 - 21:04 16:37 -9 m. 31°	25 237 - 128 04:31 - 20:59 16:28 -9 m. 31°	26 238 - 127 04:35 - 20:54 16:18 -10 m. 31°
35	27 239 - 126 04:40 - 20:49 16:09 -9 m. 30°	28 240 - 125 04:44 - 20:44 16:00 -9 m. 30°	29 241 - 124 04:48 - 20:39 15:51 -9 m. 30°	30 242 - 123 04:53 - 20:35 15:42 -9 m. 29°	31 243 - 122 04:57 - 20:30 15:33 -9 m. 29°	1 244 - 121 05:01 - 20:25 15:24 -9 m. 29°	2 245 - 120 05:05 - 20:20 15:15 -9 m. 28°



September 2018

Sunrise and Sunset at Tromsø (TL $\pm$ 1 mn)
Duration of the day - Variation - Sun maximal elevation (°)

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

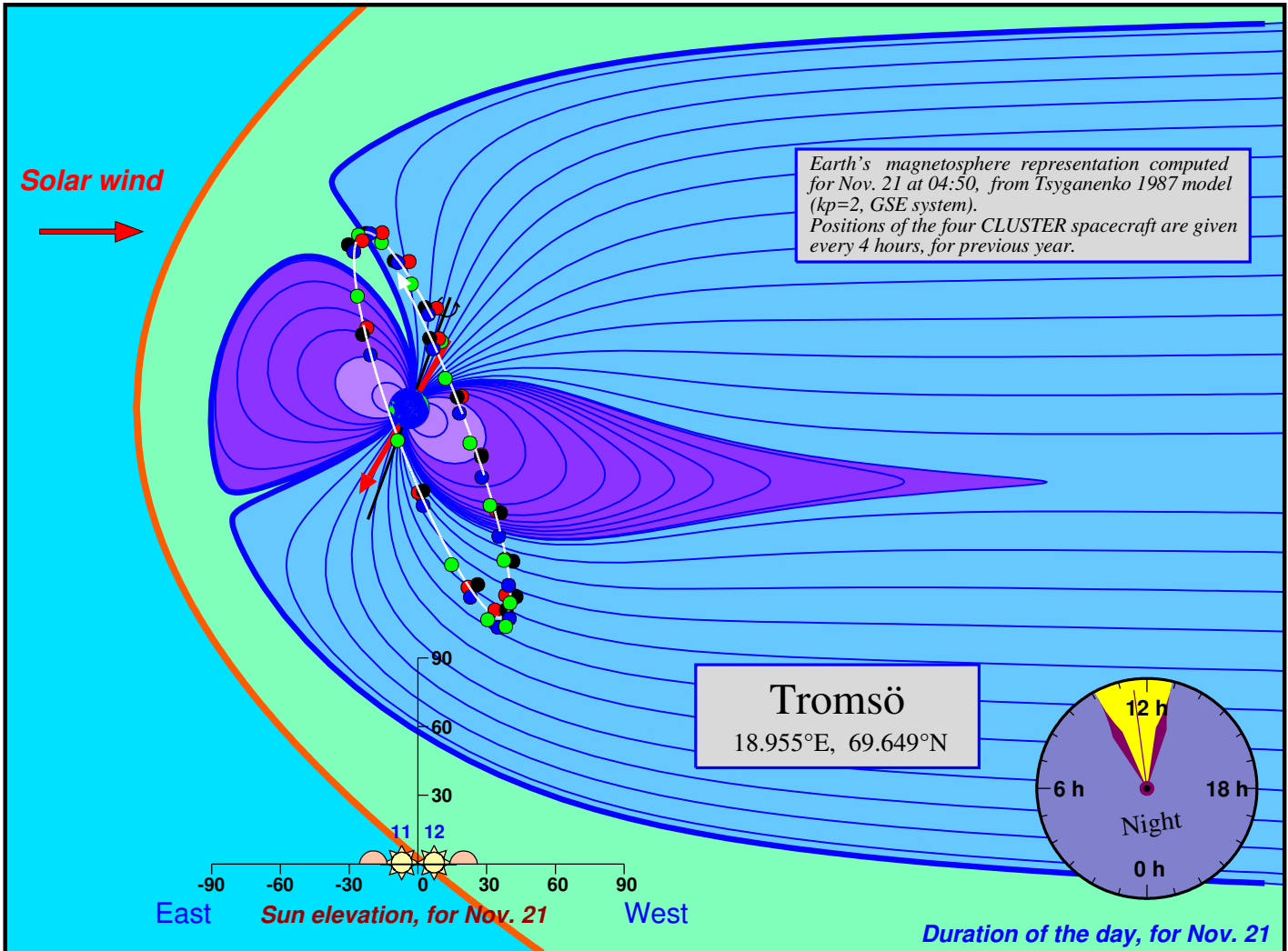


October 2018

Time change
Oct. 28

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

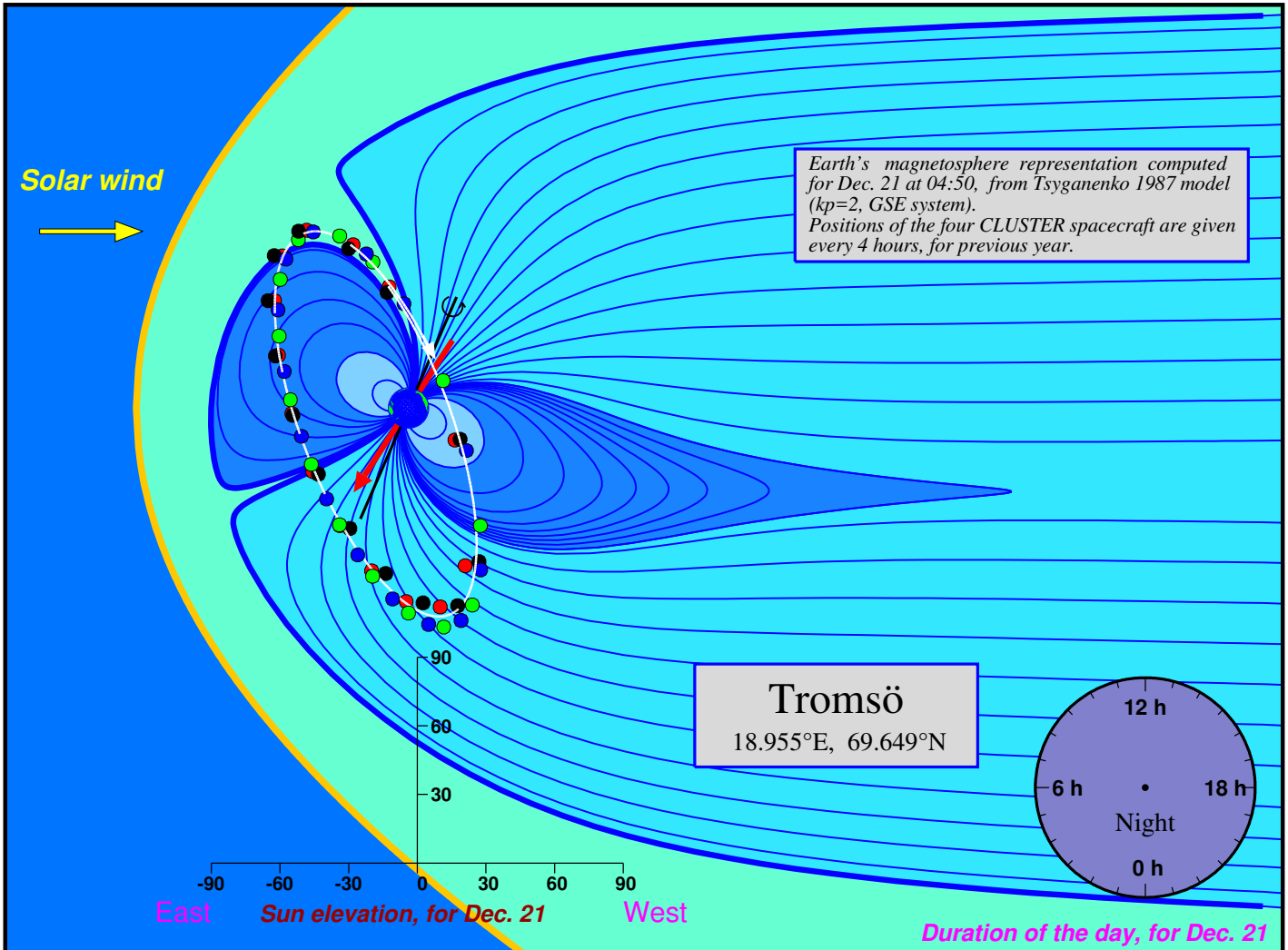
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
40	1 274 - 91 06:59 - 18:07 11:09 -8 m. 17°	2 275 - 90 07:03 - 18:03 11:00 -9 m. 17°	3 276 - 89 07:07 - 17:58 10:52 -8 m. 16°	4 277 - 88 07:10 - 17:54 10:43 -9 m. 16°	5 278 - 87 07:14 - 17:49 10:35 -8 m. 16°	6 279 - 86 07:18 - 17:45 10:26 -9 m.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



November 2018

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

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



December 2018

Sunrise and Sunset at Tromsø (TL ± 1 mn)

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
48	26 330 - 35 10:56 - 12:06 1:10 -26 m. 0°	27 331 - 34 11:18 - 11:45 0:27 -43 m. 0°	28 332 - 33 Polar Night	29 333 - 32 Polar Night	30 334 - 31 Polar Night	1 335 - 30 Polar Night	2 336 - 29 Polar Night
49	3 337 - 28 Polar Night	4 338 - 27 Polar Night	5 339 - 26 Polar Night	6 340 - 25 Polar Night	7 341 - 24 Polar Night	8 342 - 23 Polar Night	9 343 - 22 Polar Night
50	10 344 - 21 Polar Night	11 345 - 20 Polar Night	12 346 - 19 Polar Night	13 347 - 18 Polar Night	14 348 - 17 Polar Night	15 349 - 16 Polar Night	16 350 - 15 Polar Night
51	17 351 - 14 Polar Night	18 352 - 13 Polar Night	19 353 - 12 Polar Night	20 354 - 11 Polar Night	21 355 - 10 Polar Night	22 356 - 9 Polar Night	23 357 - 8 Polar Night
52	24 358 - 7 Polar Night	25 359 - 6 Polar Night	26 360 - 5 Polar Night	27 361 - 4 Polar Night	28 362 - 3 Polar Night	29 363 - 2 Polar Night	30 364 - 1 Polar Night
53	31 365 - 0 Polar Night						

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

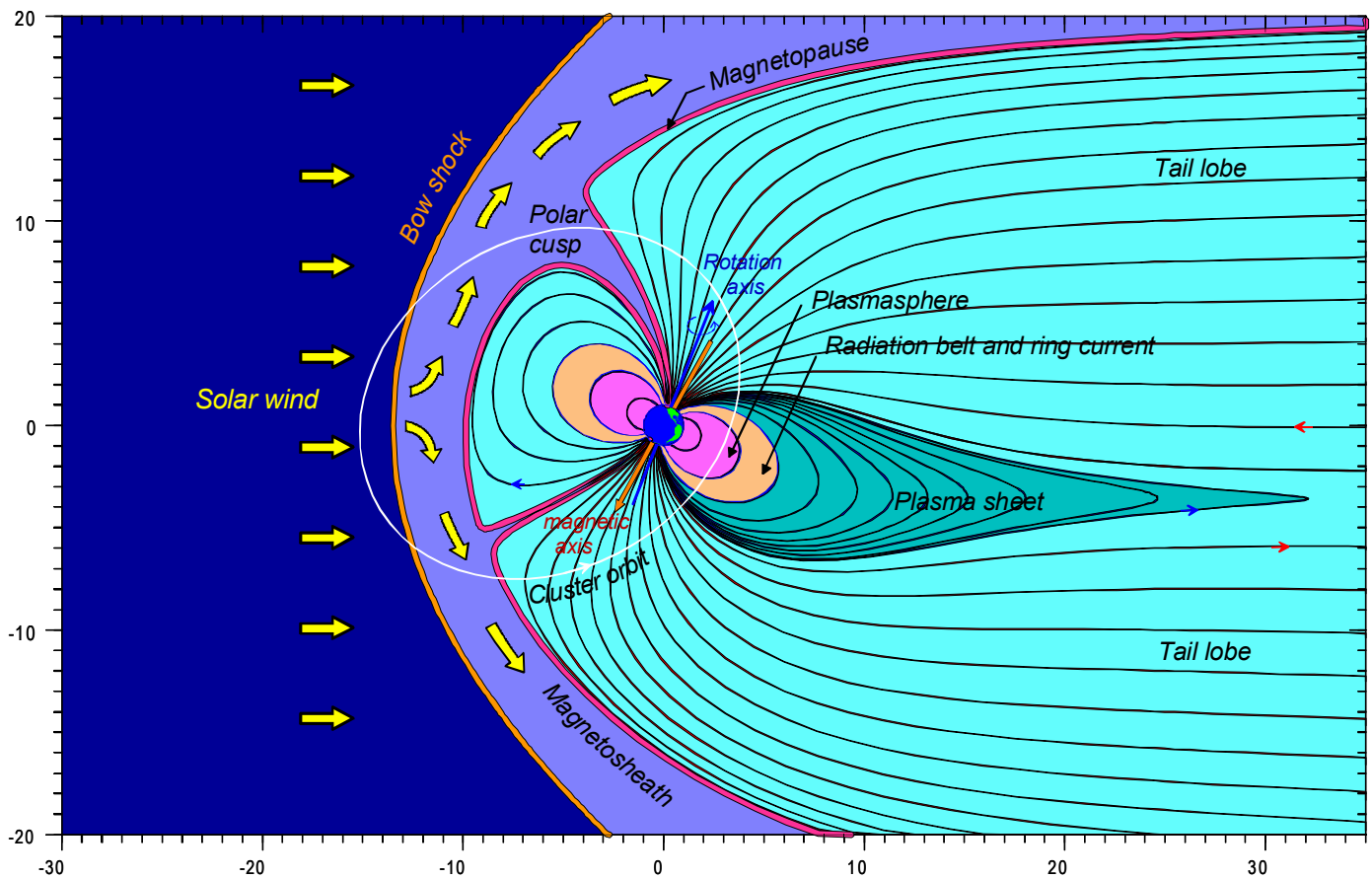


Illustration : Visualization of magnetic field lines of the Earth, showing the magnetosphere.

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>