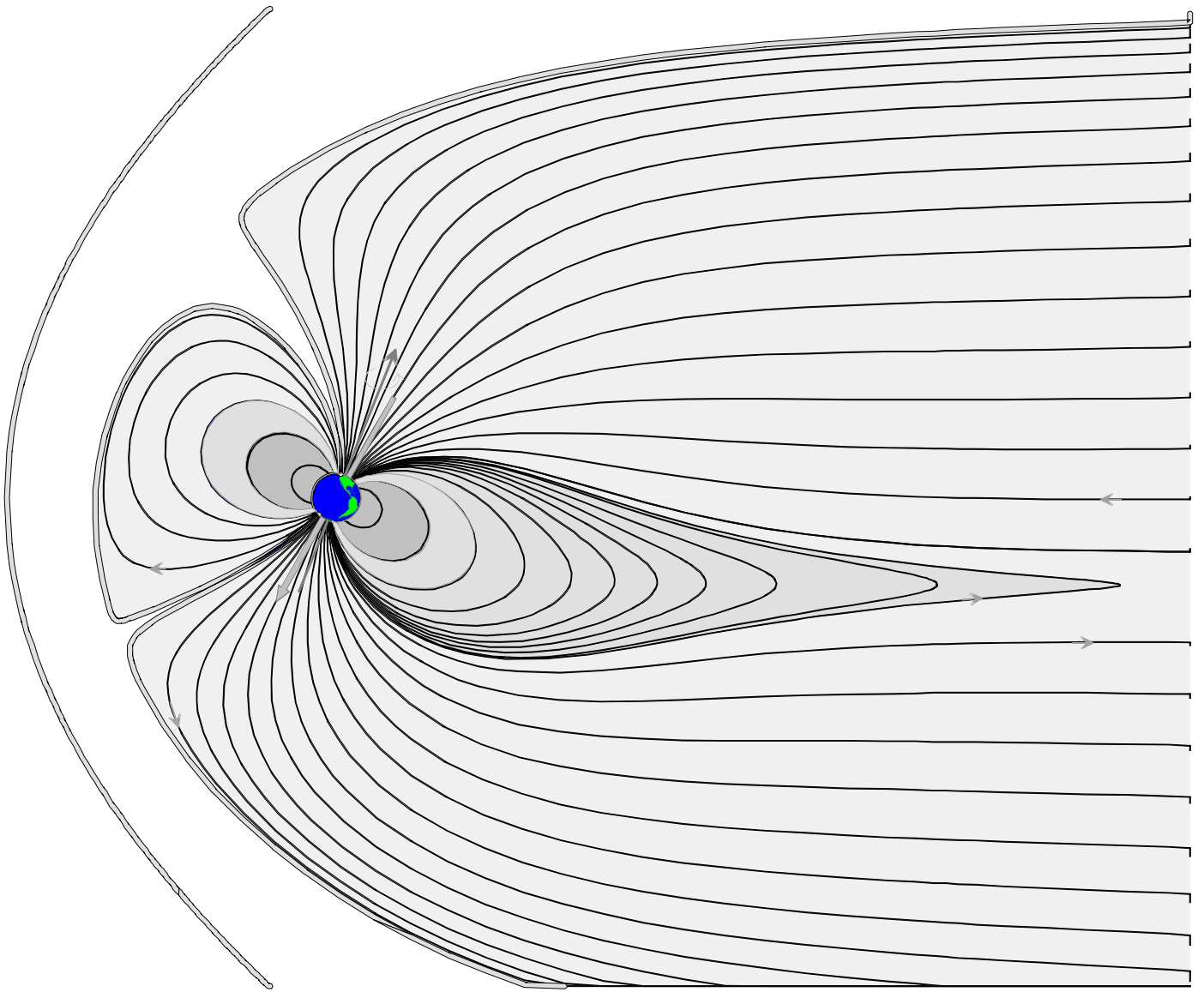


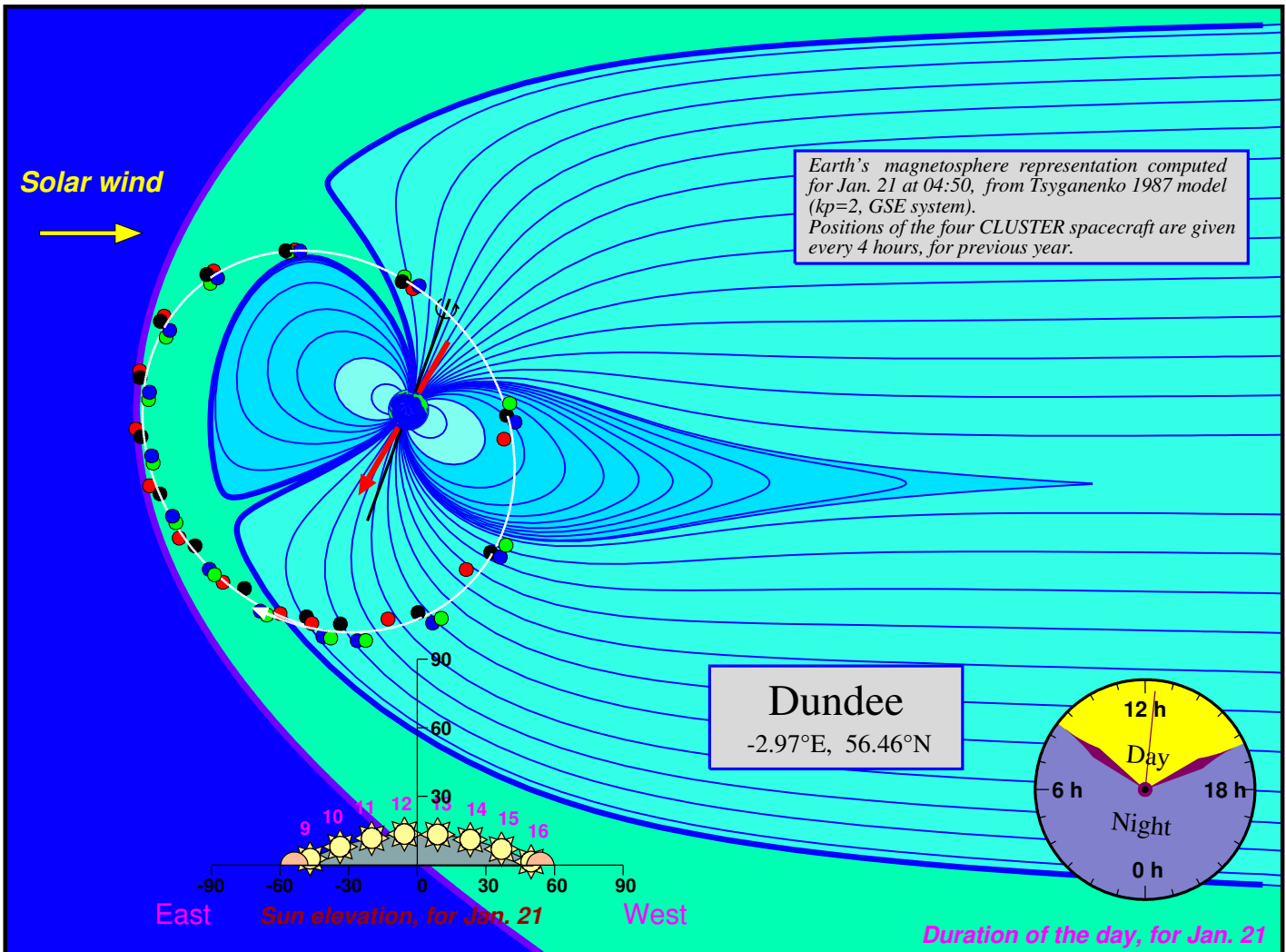


*Here is the classical magnetospheric calendar **2018**,
available for any city across the world,*

English or French version

Happy new year for everybody

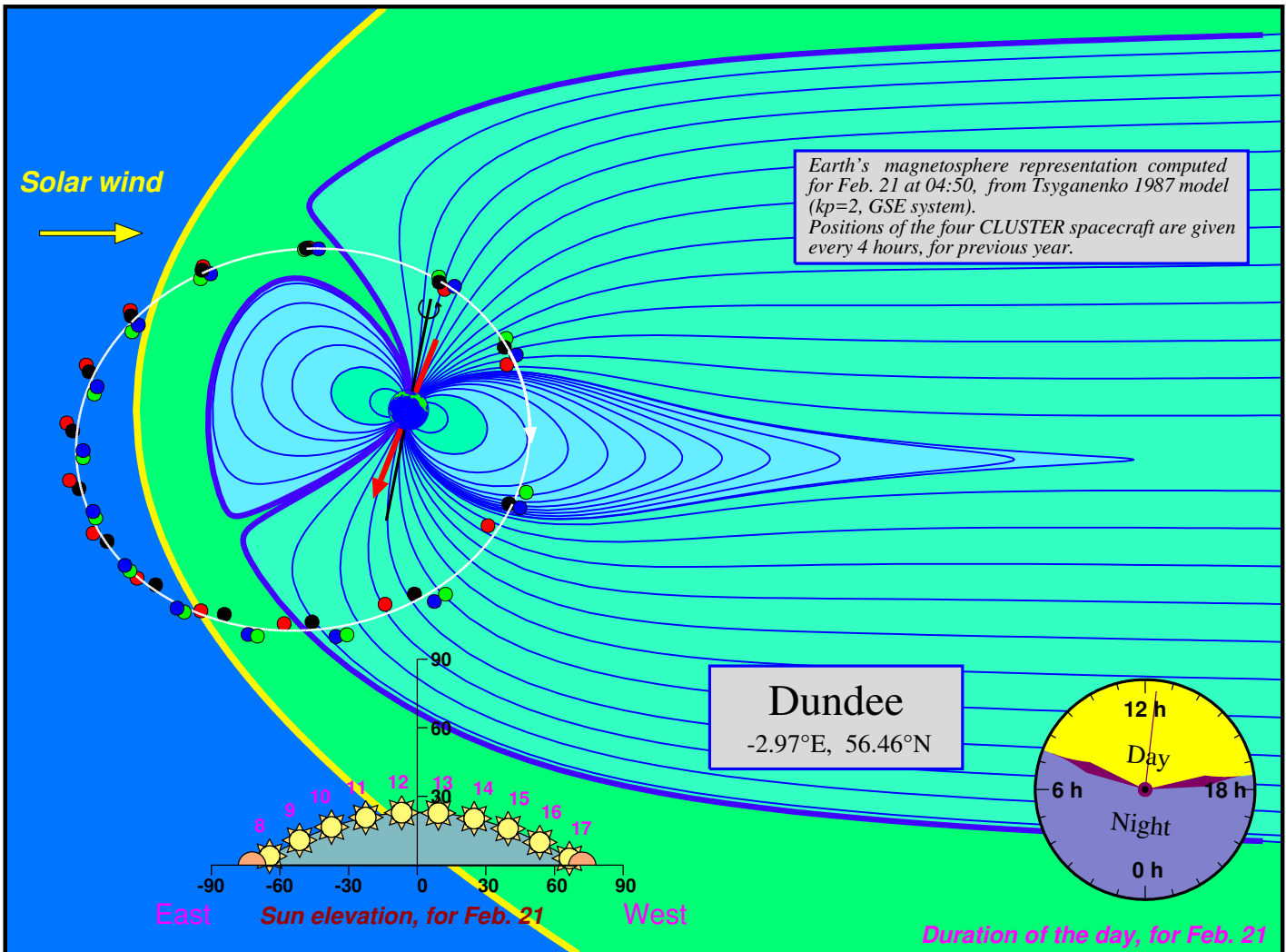
Patrick



January 2018

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

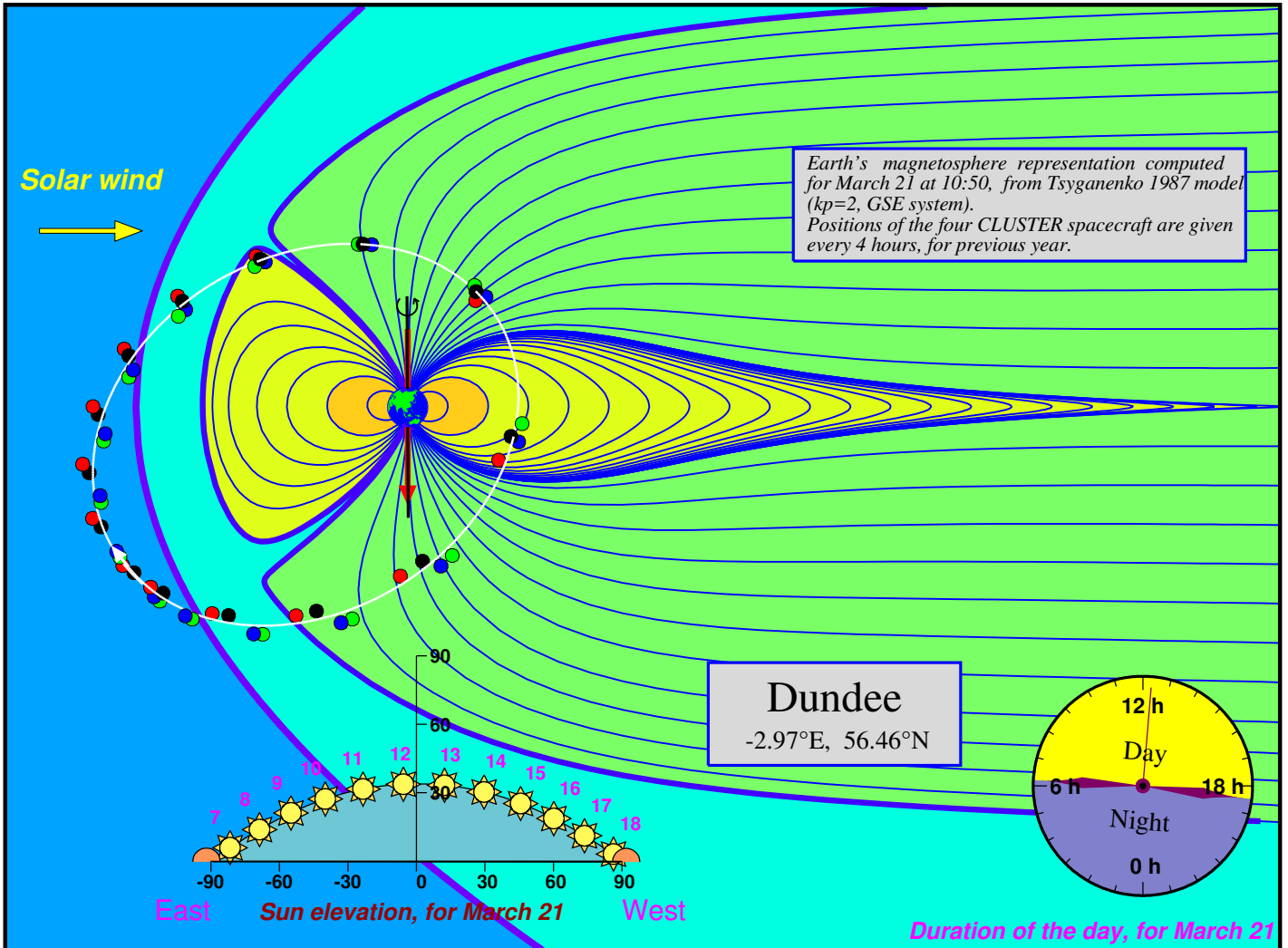
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
1	1 1 - 364 08:46 - 15:45 6:58 +1 m. 11°	2 2 - 363 08:46 - 15:46 7:00 +2 m. 11°	3 3 - 362 08:46 - 15:48 7:02 +2 m. 11°	4 4 - 361 08:45 - 15:49 7:03 +1 m. 11°	5 5 - 360 08:45 - 15:51 7:05 +2 m. 11°	6 6 - 359 08:44 - 15:52 7:07 +2 m. 11°	7 7 - 358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



February 2018

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

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

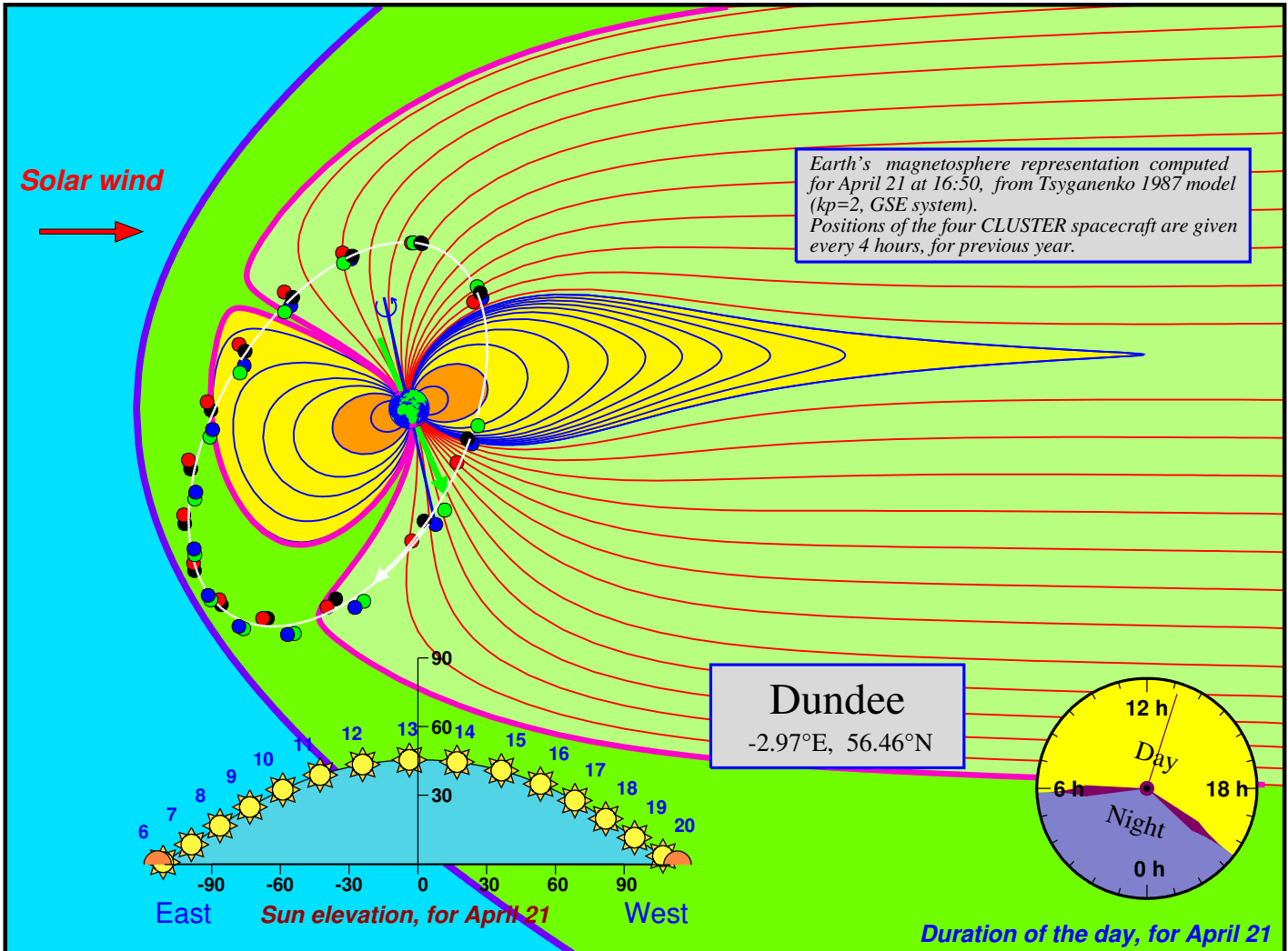


March 2018

Time change
March 25

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

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

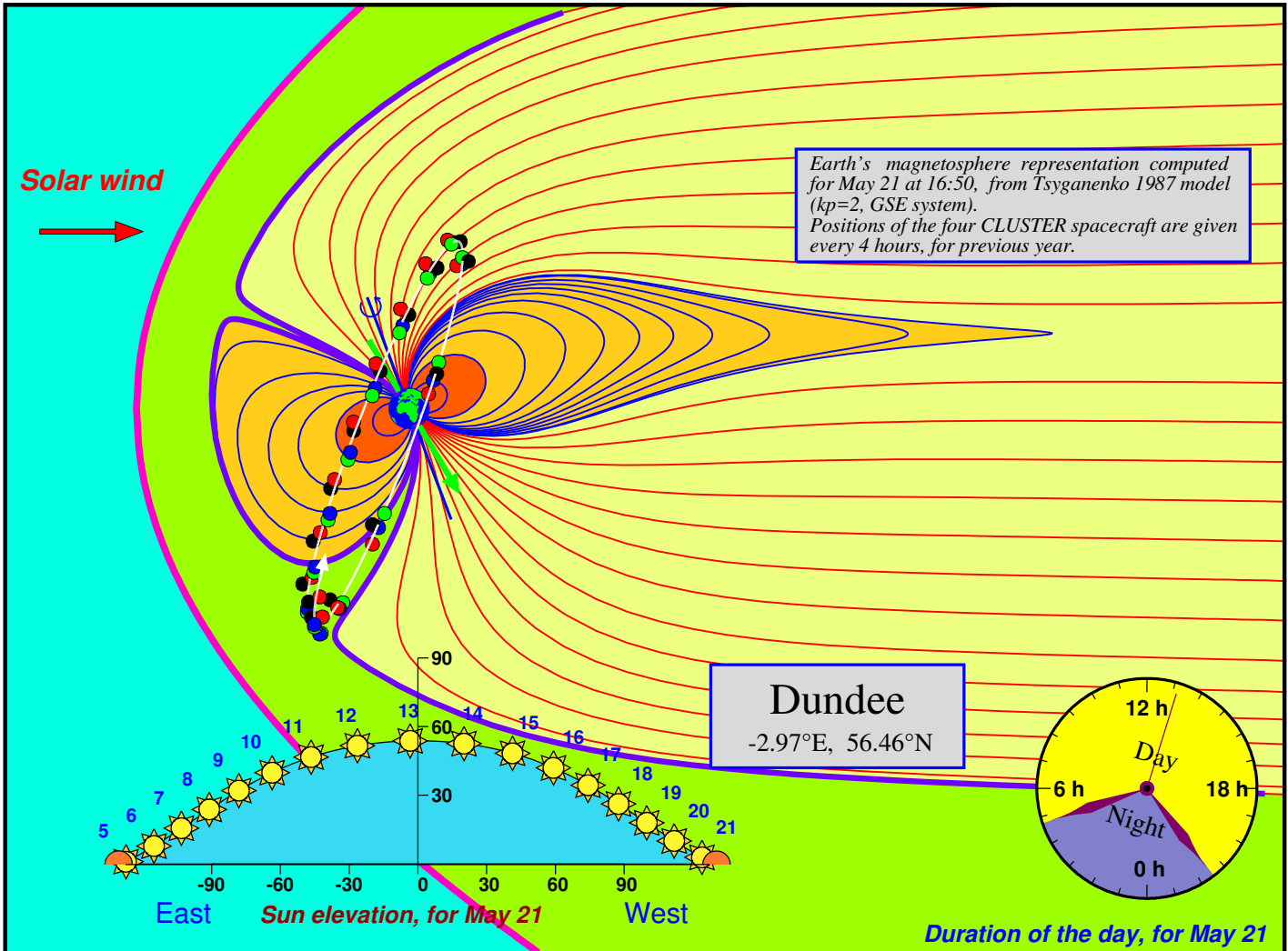


April 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

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

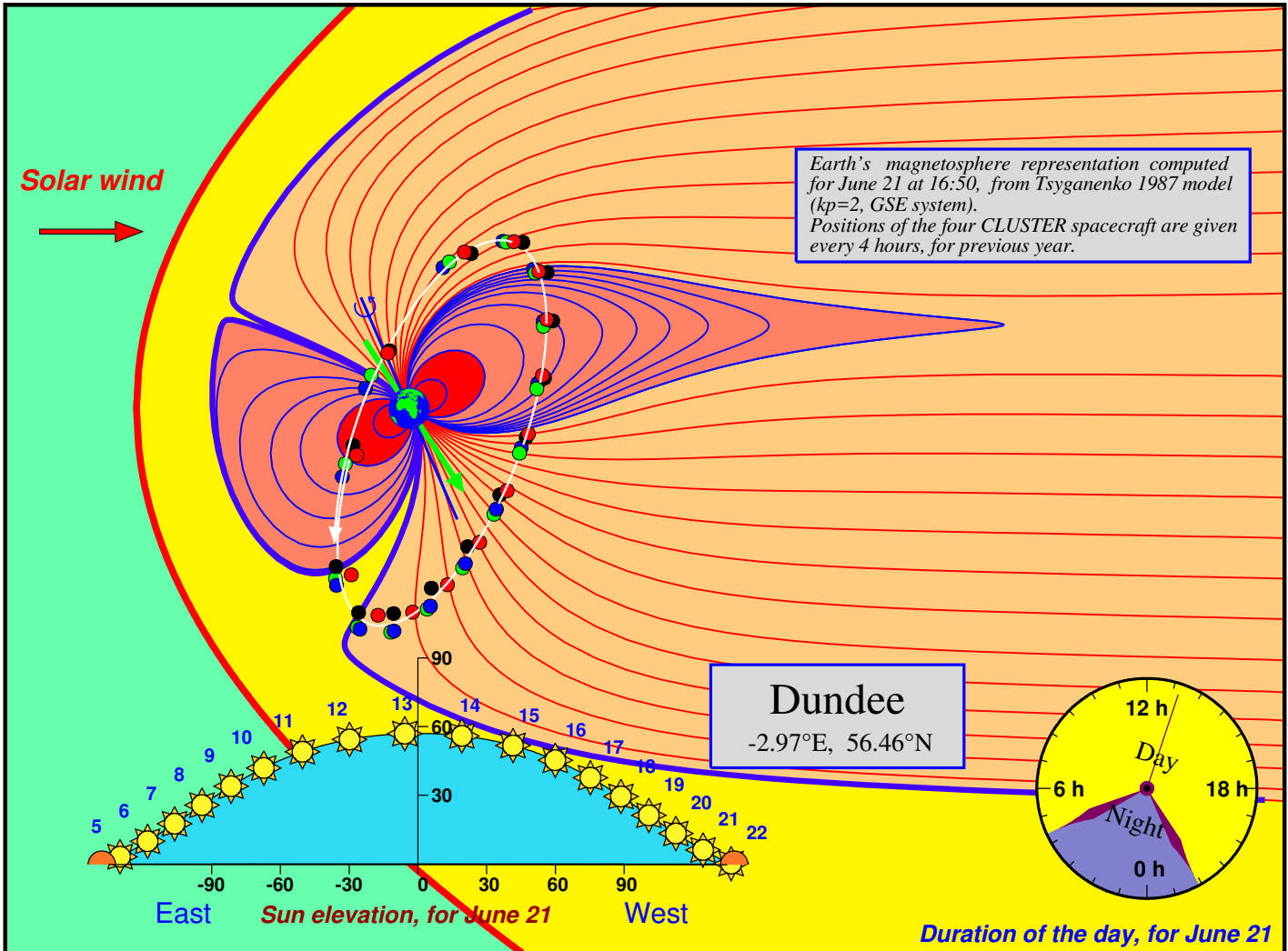


May 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
18	30 120 - 245 05:29 - 20:51 15:22 +4 m. 48°	1 121 - 244 05:27 - 20:53 15:27 +5 m. 49°	2 122 - 243 05:24 - 20:55 15:31 +4 m. 49°	3 123 - 242 05:22 - 20:57 15:35 +4 m. 49°	4 124 - 241 05:20 - 20:59 15:40 +5 m. 50°	5 125 - 240 05:18 - 21:01 15:44 +4 m. 50°	6 126 - 239 05:15 - 21:03 15:48 +4 m. 50°
19	7 127 - 238 05:13 - 21:05 15:52 +4 m. 50°	8 128 - 237 05:11 - 21:07 15:56 +4 m. 51°	9 129 - 236 05:09 - 21:09 16:01 +5 m. 51°	10 130 - 235 05:07 - 21:11 16:05 +4 m. 51°	11 131 - 234 05:05 - 21:13 16:09 +4 m. 51°	12 132 - 233 05:03 - 21:15 16:13 +4 m. 52°	13 133 - 232 05:01 - 21:17 16:17 +4 m. 52°
20	14 134 - 231 04:59 - 21:19 16:20 +3 m. 52°	15 135 - 230 04:57 - 21:21 16:24 +4 m. 52°	16 136 - 229 04:55 - 21:23 16:28 +4 m. 53°	17 137 - 228 04:53 - 21:25 16:32 +4 m. 53°	18 138 - 227 04:51 - 21:27 16:35 +3 m. 53°	19 139 - 226 04:50 - 21:29 16:39 +4 m. 53°	20 140 - 225 04:48 - 21:30 16:43 +4 m. 54°
21	21 141 - 224 04:46 - 21:32 16:46 +3 m. 54°	22 142 - 223 04:45 - 21:34 16:49 +3 m. 54°	23 143 - 222 04:43 - 21:36 16:53 +4 m. 54°	24 144 - 221 04:42 - 21:37 16:56 +3 m. 54°	25 145 - 220 04:40 - 21:39 16:59 +3 m. 55°	26 146 - 219 04:39 - 21:41 17:02 +3 m. 55°	27 147 - 218 04:37 - 21:42 17:05 +3 m. 55°
22	28 148 - 217 04:36 - 21:44 17:08 +3 m. 55°	29 149 - 216 04:35 - 21:45 17:11 +3 m. 55°	30 150 - 215 04:33 - 21:47 17:14 +3 m. 55°	31 151 - 214 04:32 - 21:48 17:16 +2 m. 55°	1 152 - 213 04:31 - 21:50 17:19 +3 m. 56°	2 153 - 212 04:30 - 21:51 17:21 +2 m. 56°	3 154 - 211 04:29 - 21:52 17:24 +3 m. 56°

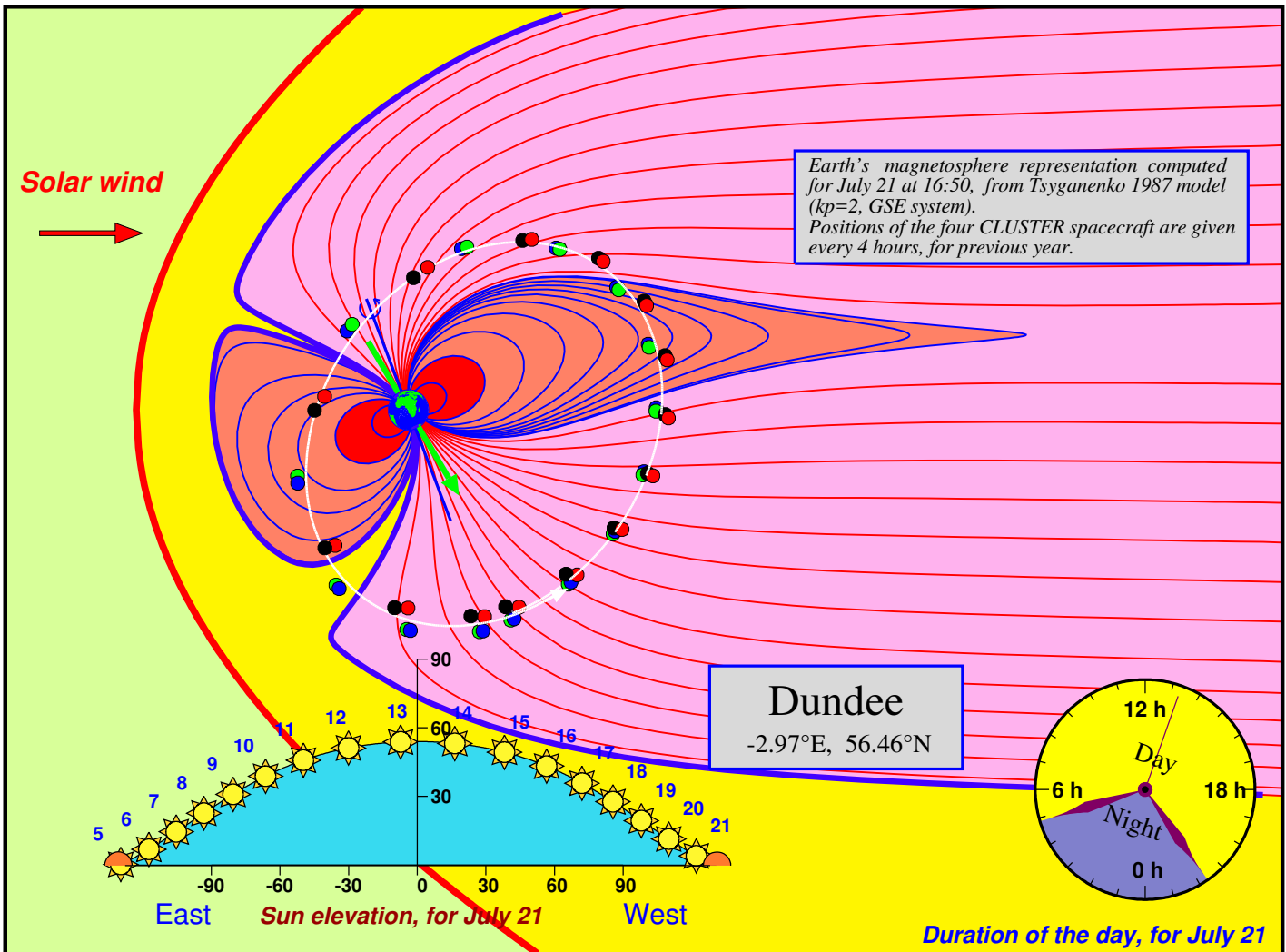


June 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

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

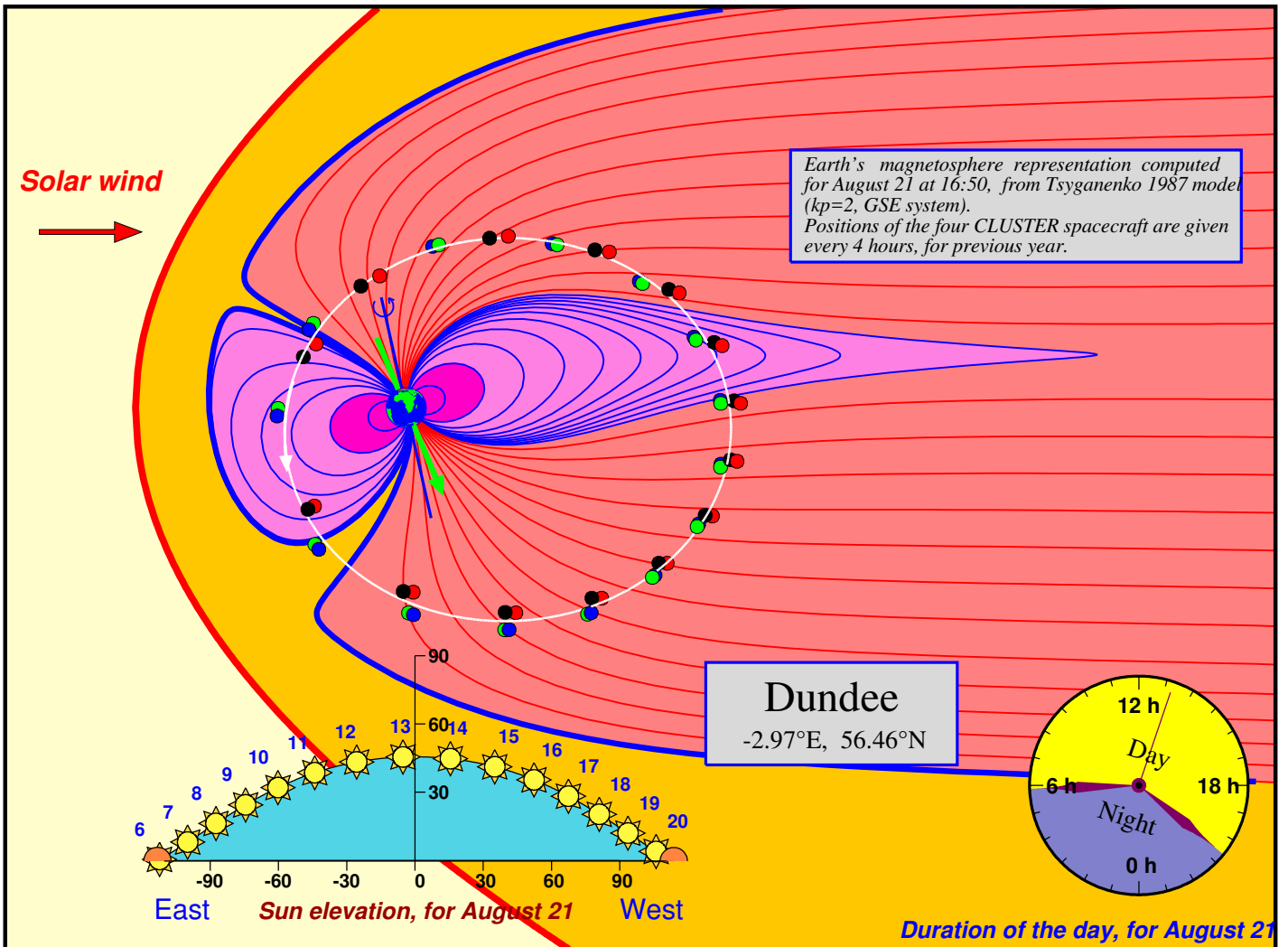


July 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

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

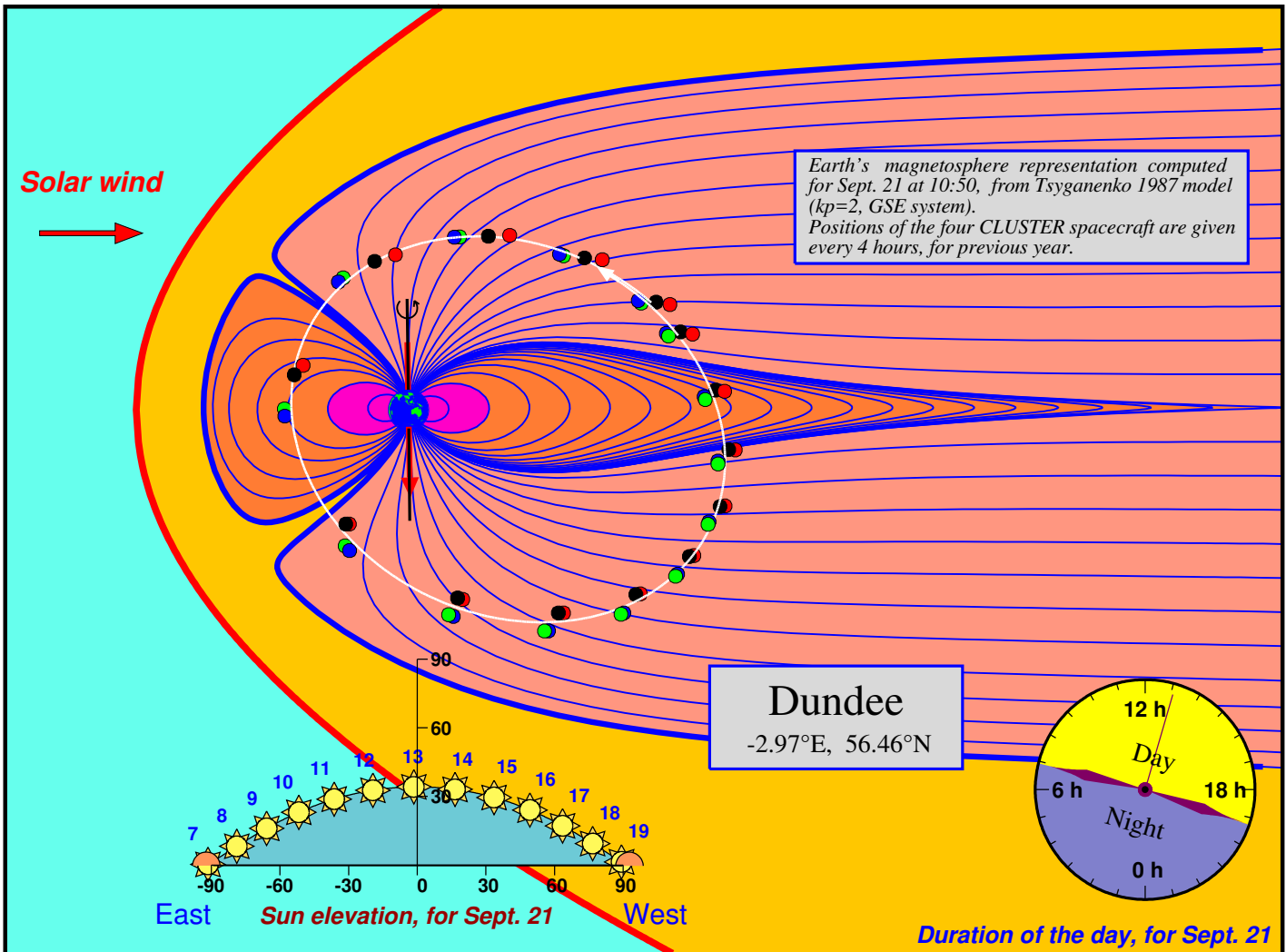


August 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

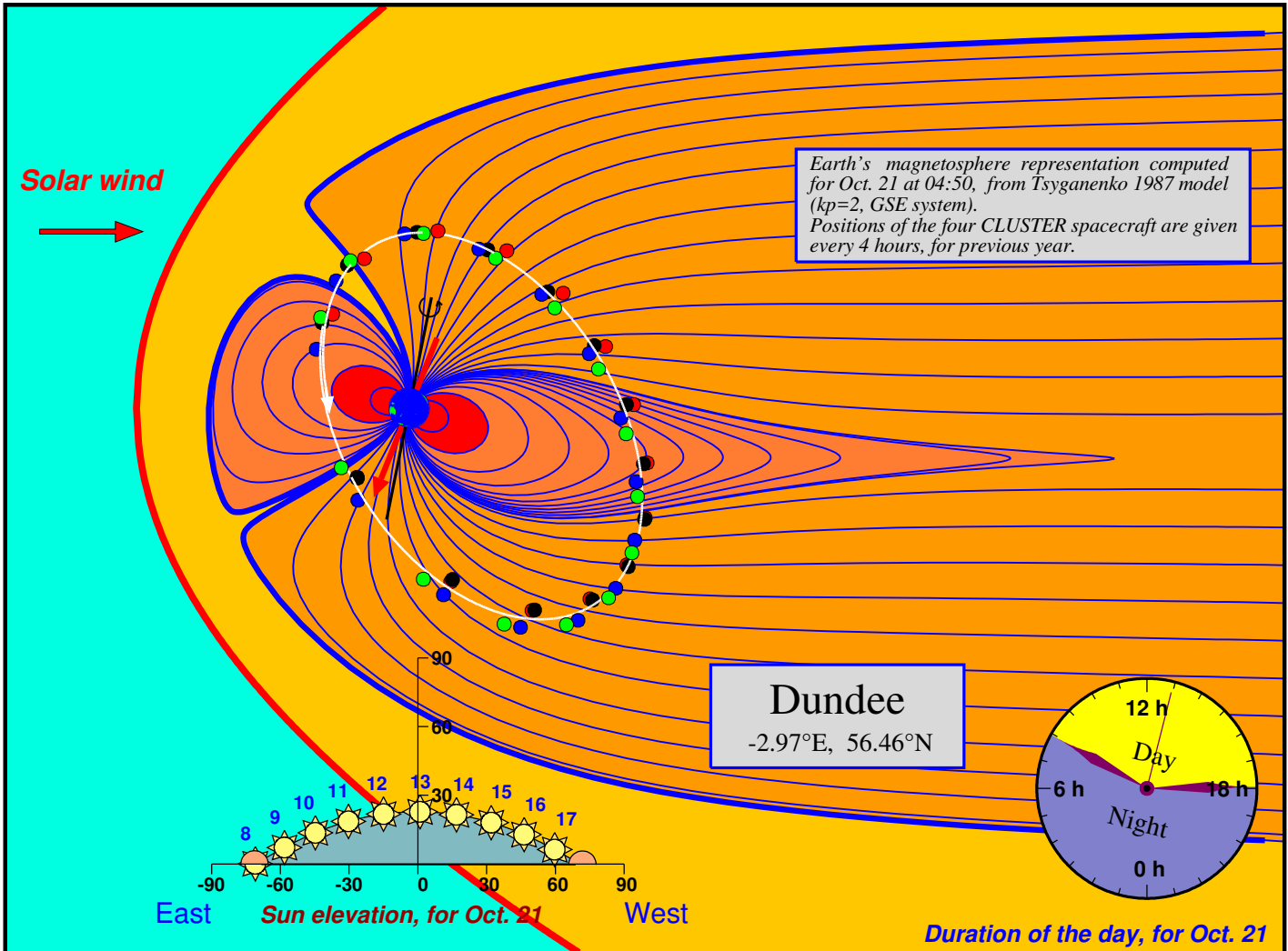
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
31	30 211 - 154 05:10 - 21:26 16:17 -3 m. 52°	31 212 - 153 05:11 - 21:24 16:13 -4 m. 52°	1 213 - 152 05:13 - 21:22 16:09 -4 m. 52°	2 214 - 151 05:15 - 21:20 16:05 -4 m. 51°	3 215 - 150 05:17 - 21:18 16:01 -4 m. 51°	4 216 - 149 05:19 - 21:16 15:57 -4 m. 51°	5 217 - 148 05:21 - 21:14 15:53 -4 m. 50°
32	6 218 - 147 05:23 - 21:11 15:48 -5 m. 50°	7 219 - 146 05:25 - 21:09 15:44 -4 m. 50°	8 220 - 145 05:27 - 21:07 15:40 -4 m. 50°	9 221 - 144 05:29 - 21:05 15:36 -4 m. 49°	10 222 - 143 05:31 - 21:02 15:31 -5 m. 49°	11 223 - 142 05:33 - 21:00 15:27 -4 m. 49°	12 224 - 141 05:35 - 20:58 15:23 -4 m. 48°
33	13 225 - 140 05:37 - 20:55 15:18 -5 m. 48°	14 226 - 139 05:39 - 20:53 15:14 -4 m. 48°	15 227 - 138 05:41 - 20:51 15:10 -4 m. 48°	16 228 - 137 05:43 - 20:48 15:05 -5 m. 47°	17 229 - 136 05:45 - 20:46 15:01 -4 m. 47°	18 230 - 135 05:47 - 20:43 14:56 -5 m. 47°	19 231 - 134 05:49 - 20:41 14:52 -4 m. 46°
34	20 232 - 133 05:51 - 20:38 14:47 -5 m. 46°	21 233 - 132 05:53 - 20:36 14:43 -4 m. 46°	22 234 - 131 05:55 - 20:33 14:38 -5 m. 45°	23 235 - 130 05:57 - 20:31 14:34 -4 m. 45°	24 236 - 129 05:59 - 20:28 14:29 -5 m. 45°	25 237 - 128 06:01 - 20:26 14:25 -4 m. 44°	26 238 - 127 06:03 - 20:23 14:20 -5 m. 44°
35	27 239 - 126 06:05 - 20:21 14:16 -4 m. 44°	28 240 - 125 06:07 - 20:18 14:11 -5 m. 43°	29 241 - 124 06:09 - 20:16 14:07 -4 m. 43°	30 242 - 123 06:11 - 20:13 14:02 -5 m. 42°	31 243 - 122 06:13 - 20:10 13:57 -5 m. 42°	1 244 - 121 06:15 - 20:08 13:53 -4 m. 42°	2 245 - 120 06:17 - 20:05 13:48 -5 m. 41°



September 2018

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

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

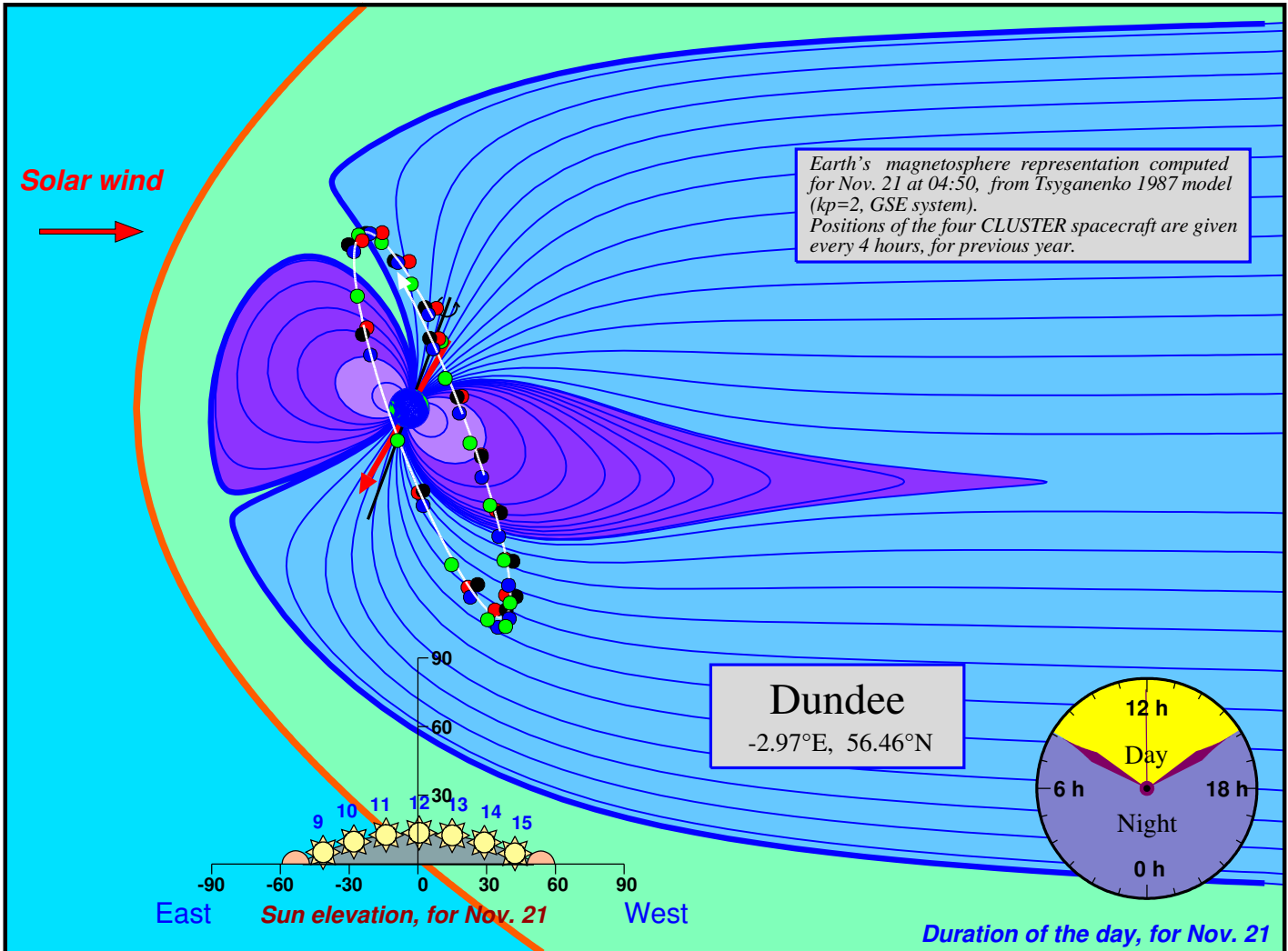


October 2018

Time change
Oct. 28

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

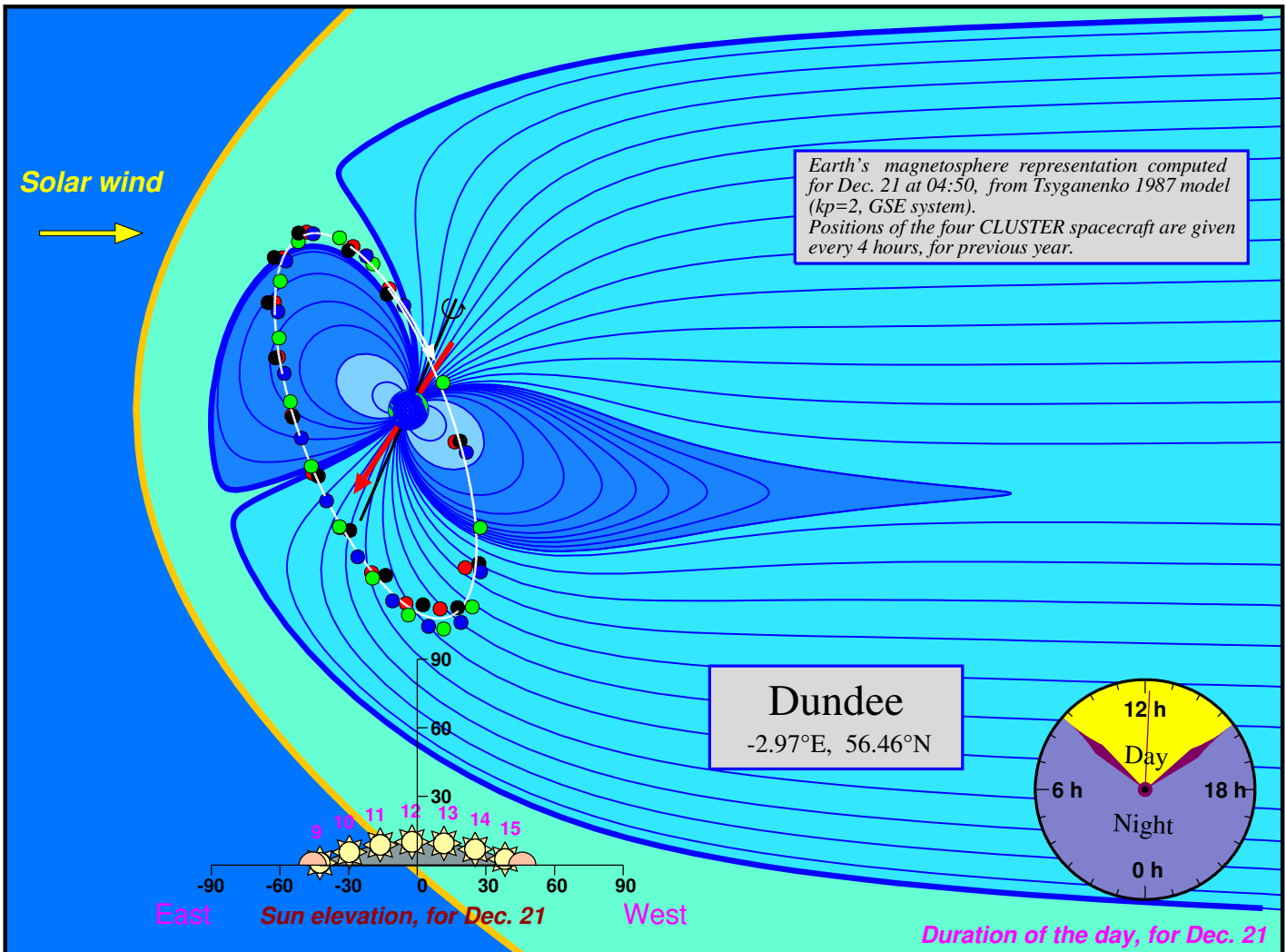
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
40	1 274 - 91 07:15 - 18:47 11:32 -5 m. 30°	2 275 - 90 07:17 - 18:45 11:28 -4 m. 30°	3 276 - 89 07:19 - 18:42 11:23 -5 m. 30°	4 277 - 88 07:21 - 18:39 11:18 -5 m. 29°	5 278 - 87 07:23 - 18:37 11:14 -4 m. 29°	6 279 - 86 07:25 - 18:34 11:09 -5 m.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



November 2018

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

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



December 2018

Sunrise and Sunset at Dundee (TL ± 1 mn)

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

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
48	26 330 - 35 08:13 - 15:46 7:33 -3 m. 13°	27 331 - 34 08:14 - 15:44 7:30 -3 m. 12°	28 332 - 33 08:16 - 15:43 7:27 -3 m. 12°	29 333 - 32 08:18 - 15:42 7:24 -3 m. 12°	30 334 - 31 08:20 - 15:41 7:21 -3 m. 12°	1 335 - 30 08:21 - 15:40 7:18 -3 m. 12°	2 336 - 29 08:23 - 15:39 7:16 -2 m. 12°
49	3 337 - 28 08:25 - 15:38 7:13 -3 m. 11°	4 338 - 27 08:26 - 15:38 7:11 -2 m. 11°	5 339 - 26 08:28 - 15:37 7:09 -2 m. 11°	6 340 - 25 08:29 - 15:36 7:07 -2 m. 11°	7 341 - 24 08:31 - 15:36 7:04 -3 m. 11°	8 342 - 23 08:32 - 15:35 7:03 -1 m. 11°	9 343 - 22 08:34 - 15:35 7:01 -2 m. 11°
50	10 344 - 21 08:35 - 15:35 6:59 -2 m. 11°	11 345 - 20 08:36 - 15:34 6:58 -1 m. 11°	12 346 - 19 08:37 - 15:34 6:56 -2 m. 11°	13 347 - 18 08:38 - 15:34 6:55 -1 m. 10°	14 348 - 17 08:39 - 15:34 6:54 -1 m. 10°	15 349 - 16 08:40 - 15:34 6:53 -1 m. 10°	16 350 - 15 08:41 - 15:34 6:52 -1 m. 10°
51	17 351 - 14 08:42 - 15:34 6:52 +0 m. 10°	18 352 - 13 08:43 - 15:34 6:51 -1 m. 10°	19 353 - 12 08:44 - 15:35 6:51 +0 m. 10°	20 354 - 11 08:44 - 15:35 6:50 -1 m. 10°	21 355 - 10 08:45 - 15:35 6:50 +0 m. 10°	22 356 - 9 08:45 - 15:36 6:50 +0 m. 10°	23 357 - 8 08:46 - 15:36 6:50 +0 m. 10°
52	24 358 - 7 08:46 - 15:37 6:51 +1 m. 10°	25 359 - 6 08:46 - 15:38 6:51 +0 m. 10°	26 360 - 5 08:47 - 15:39 6:52 +1 m. 10°	27 361 - 4 08:47 - 15:40 6:52 +0 m. 10°	28 362 - 3 08:47 - 15:40 6:53 +1 m. 10°	29 363 - 2 08:47 - 15:41 6:54 +1 m. 10°	30 364 - 1 08:47 - 15:43 6:55 +1 m. 10°
53	31 365 - 0 08:47 - 15:44 6:57 +2 m. 11°						

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

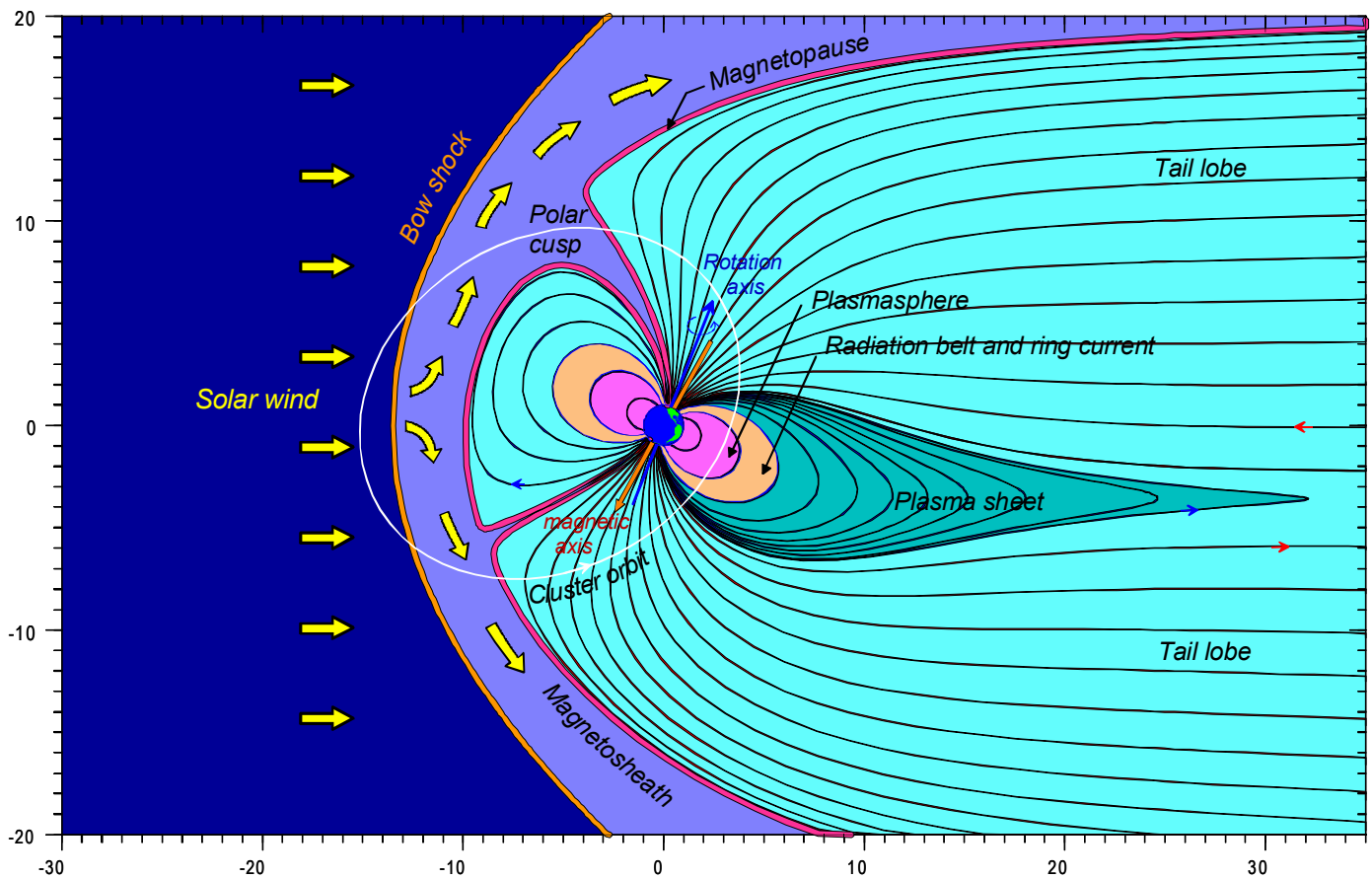


Illustration : Visualization of magnetic field lines of the Earth, showing the magnetosphere.

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>