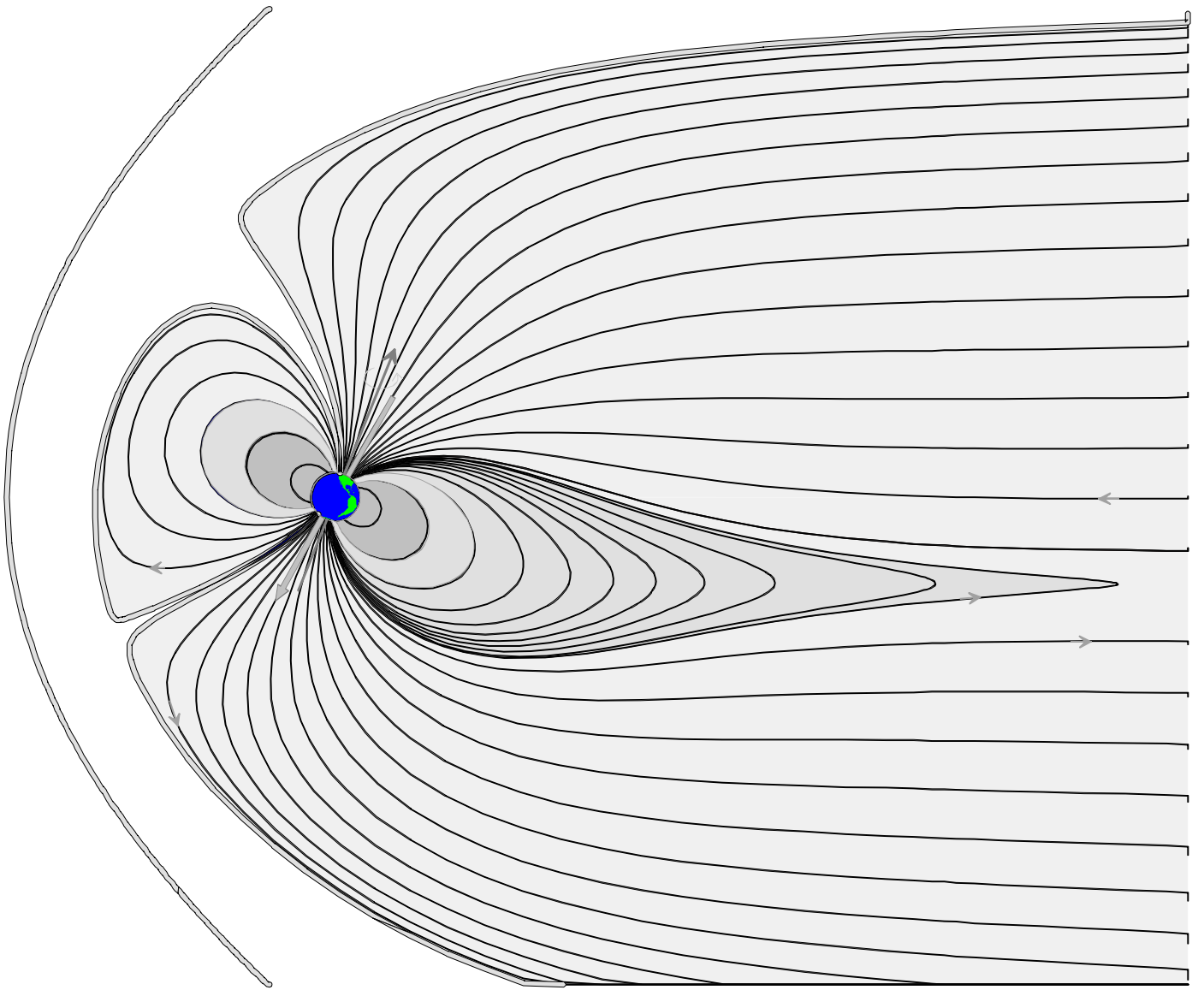
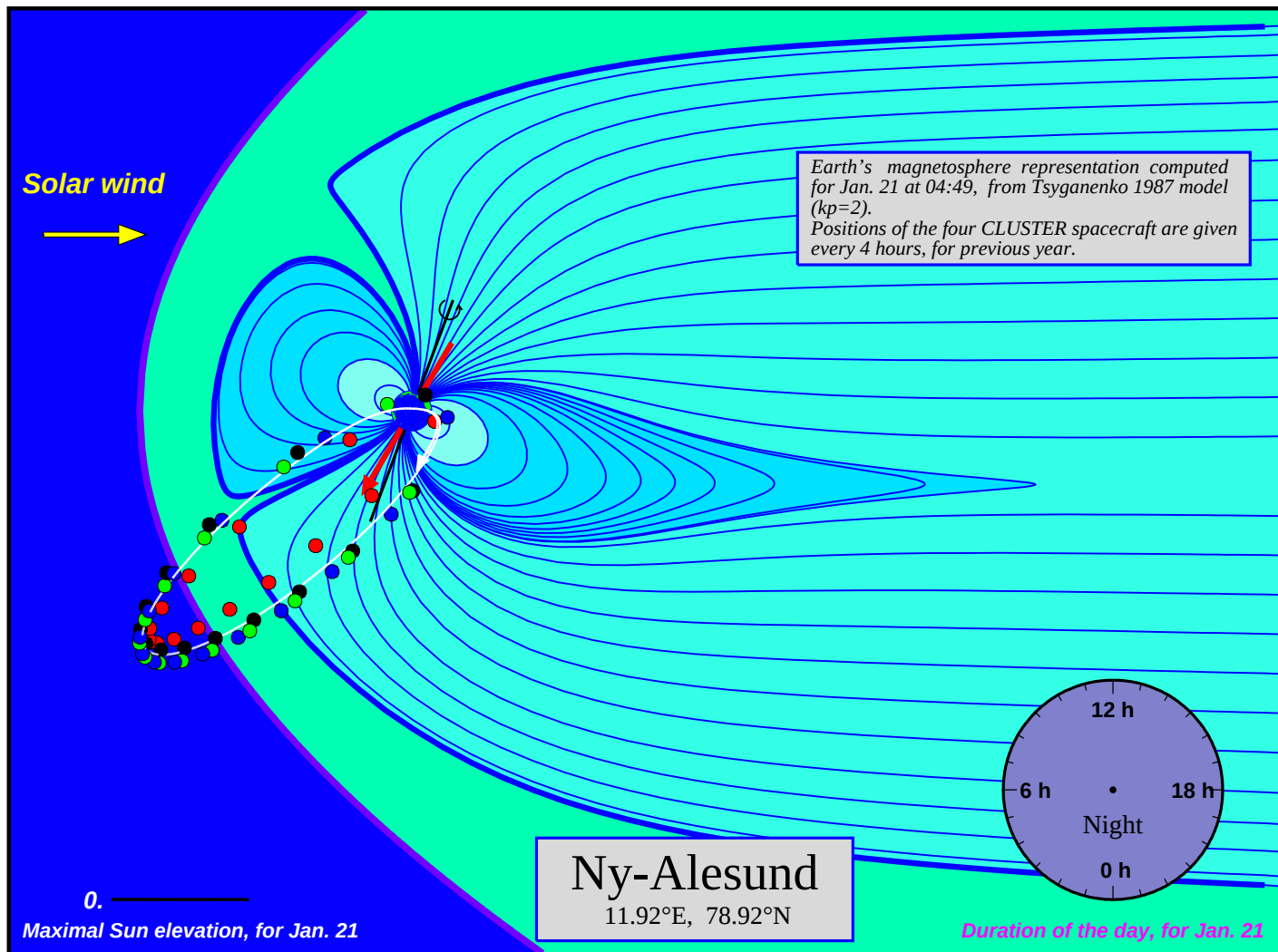




*Here is the classical magnetospheric calendar 2012,  
available for any city across the world,  
English or French version*

*Happy new year for everybody  
Patrick*



# January 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

Monday

Tuesday

Wednesday

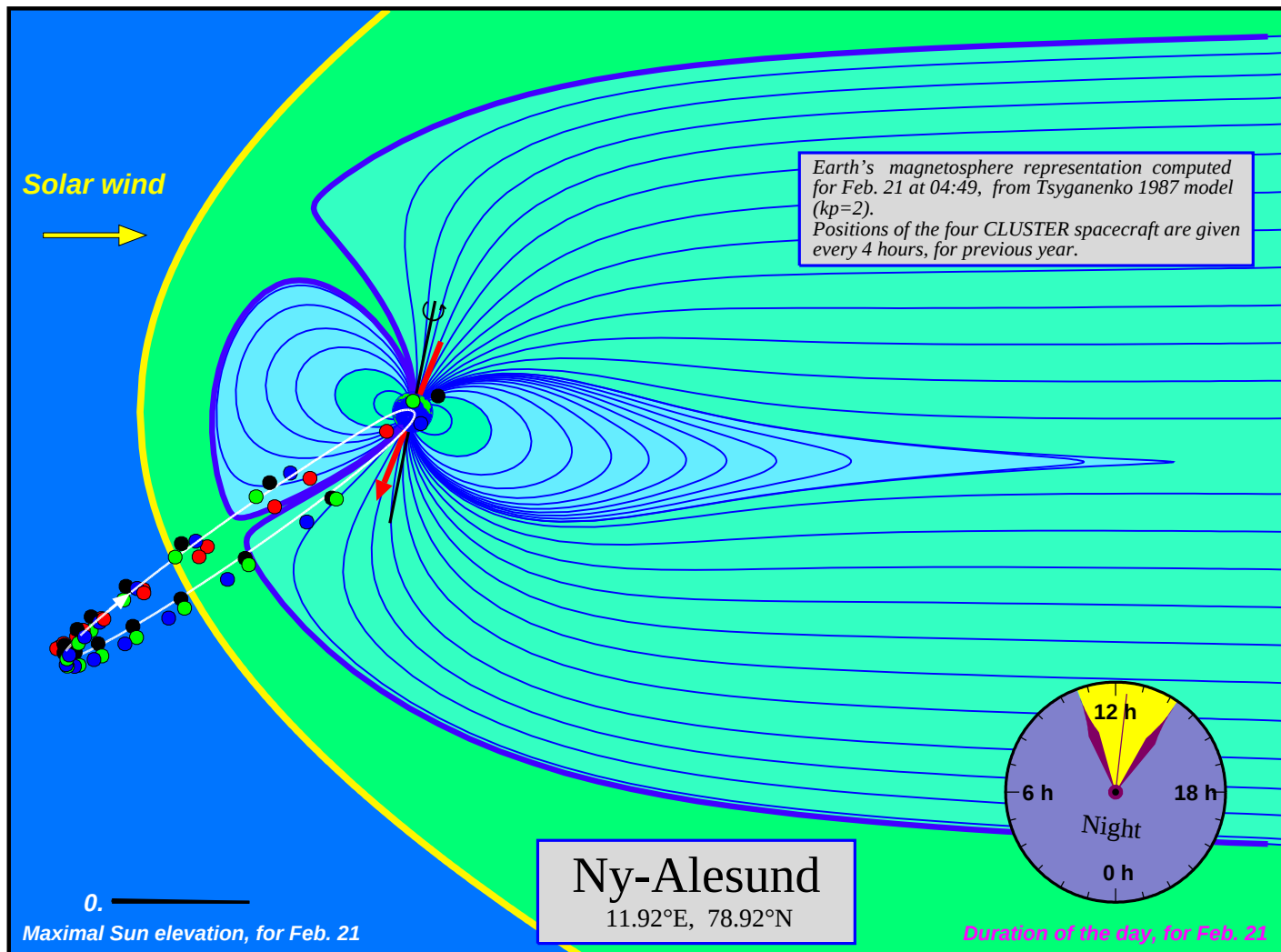
Thursday

Friday

Saturday

Sunday

|          |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
|----------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|          |                                   |                                   |                                   |                                   |                                   |                                   | <b>1</b> 1 - 364<br>Polar Night   |
| <b>1</b> | <b>2</b> 2 - 364<br>Polar Night   | <b>3</b> 3 - 363<br>Polar Night   | <b>4</b> 4 - 362<br>Polar Night   | <b>5</b> 5 - 361<br>Polar Night   | <b>6</b> 6 - 360<br>Polar Night   | <b>7</b> 7 - 359<br>Polar Night   | <b>8</b> 8 - 358<br>Polar Night   |
| <b>2</b> | <b>9</b> 9 - 357<br>Polar Night   | <b>10</b> 10 - 356<br>Polar Night | <b>11</b> 11 - 355<br>Polar Night | <b>12</b> 12 - 354<br>Polar Night | <b>13</b> 13 - 353<br>Polar Night | <b>14</b> 14 - 352<br>Polar Night | <b>15</b> 15 - 351<br>Polar Night |
| <b>3</b> | <b>16</b> 16 - 350<br>Polar Night | <b>17</b> 17 - 349<br>Polar Night | <b>18</b> 18 - 348<br>Polar Night | <b>19</b> 19 - 347<br>Polar Night | <b>20</b> 20 - 346<br>Polar Night | <b>21</b> 21 - 345<br>Polar Night | <b>22</b> 22 - 344<br>Polar Night |
| <b>4</b> | <b>23</b> 23 - 343<br>Polar Night | <b>24</b> 24 - 342<br>Polar Night | <b>25</b> 25 - 341<br>Polar Night | <b>26</b> 26 - 340<br>Polar Night | <b>27</b> 27 - 339<br>Polar Night | <b>28</b> 28 - 338<br>Polar Night | <b>29</b> 29 - 337<br>Polar Night |
| <b>5</b> | <b>30</b> 30 - 336<br>Polar Night | <b>31</b> 31 - 335<br>Polar Night | <b>1</b> 32 - 334<br>Polar Night  | <b>2</b> 33 - 333<br>Polar Night  | <b>3</b> 34 - 332<br>Polar Night  | <b>4</b> 35 - 331<br>Polar Night  | <b>5</b> 36 - 330<br>Polar Night  |

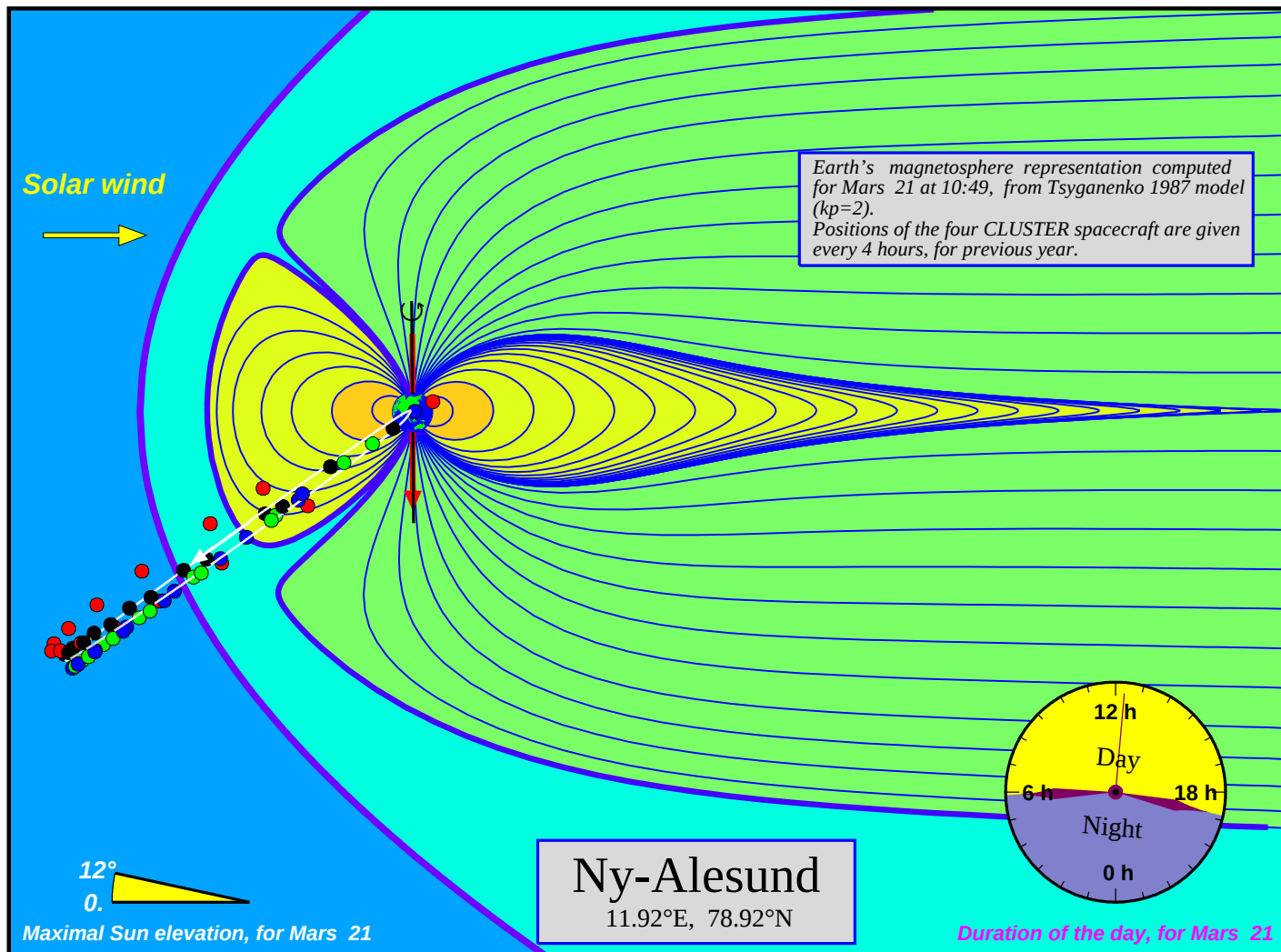


# February 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|   | Monday                                                | Tuesday                                               | Wednesday                                             | Thursday                                              | Friday                                                | Saturday                                              | Sunday                                                |
|---|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| 5 | <b>30</b> 30 - 336<br>Polar Night                     | <b>31</b> 31 - 335<br>Polar Night                     | <b>1</b> 32 - 334<br>Polar Night                      | <b>2</b> 33 - 333<br>Polar Night                      | <b>3</b> 34 - 332<br>Polar Night                      | <b>4</b> 35 - 331<br>Polar Night                      | <b>5</b> 36 - 330<br>Polar Night                      |
| 6 | <b>6</b> 37 - 329<br>Polar Night                      | <b>7</b> 38 - 328<br>Polar Night                      | <b>8</b> 39 - 327<br>Polar Night                      | <b>9</b> 40 - 326<br>Polar Night                      | <b>10</b> 41 - 325<br>Polar Night                     | <b>11</b> 42 - 324<br>Polar Night                     | <b>12</b> 43 - 323<br>Polar Night                     |
| 7 | <b>13</b> 44 - 322<br>Polar Night                     | <b>14</b> 45 - 321<br>Polar Night                     | <b>15</b> 46 - 320<br>Polar Night                     | <b>16</b> 47 - 319<br>Polar Night                     | <b>17</b> 48 - 318<br>Polar Night                     | <b>18</b> 49 - 317<br>11:48 - 13:08<br>1:20 +80 m. 0° | <b>19</b> 50 - 316<br>11:16 - 13:39<br>2:22 +62 m. 0° |
| 8 | <b>20</b> 51 - 315<br>10:55 - 14:00<br>3:05 +43 m. 1° | <b>21</b> 52 - 314<br>10:37 - 14:18<br>3:41 +36 m. 1° | <b>22</b> 53 - 313<br>10:21 - 14:33<br>4:12 +31 m. 1° | <b>23</b> 54 - 312<br>10:07 - 14:47<br>4:40 +28 m. 2° | <b>24</b> 55 - 311<br>09:54 - 15:00<br>5:05 +25 m. 2° | <b>25</b> 56 - 310<br>09:42 - 15:12<br>5:30 +25 m. 2° | <b>26</b> 57 - 309<br>09:30 - 15:23<br>5:52 +22 m. 3° |
| 9 | <b>27</b> 58 - 308<br>09:19 - 15:34<br>6:14 +22 m. 3° | <b>28</b> 59 - 307<br>09:09 - 15:44<br>6:35 +21 m. 4° | <b>29</b> 60 - 306<br>08:58 - 15:54<br>6:56 +21 m. 4° | <b>1</b> 61 - 305<br>08:48 - 16:04<br>7:15 +19 m. 4°  | <b>2</b> 62 - 304<br>08:39 - 16:14<br>7:35 +20 m. 5°  | <b>3</b> 63 - 303<br>08:29 - 16:23<br>7:53 +18 m. 5°  | <b>4</b> 64 - 302<br>08:20 - 16:32<br>8:12 +19 m. 5°  |

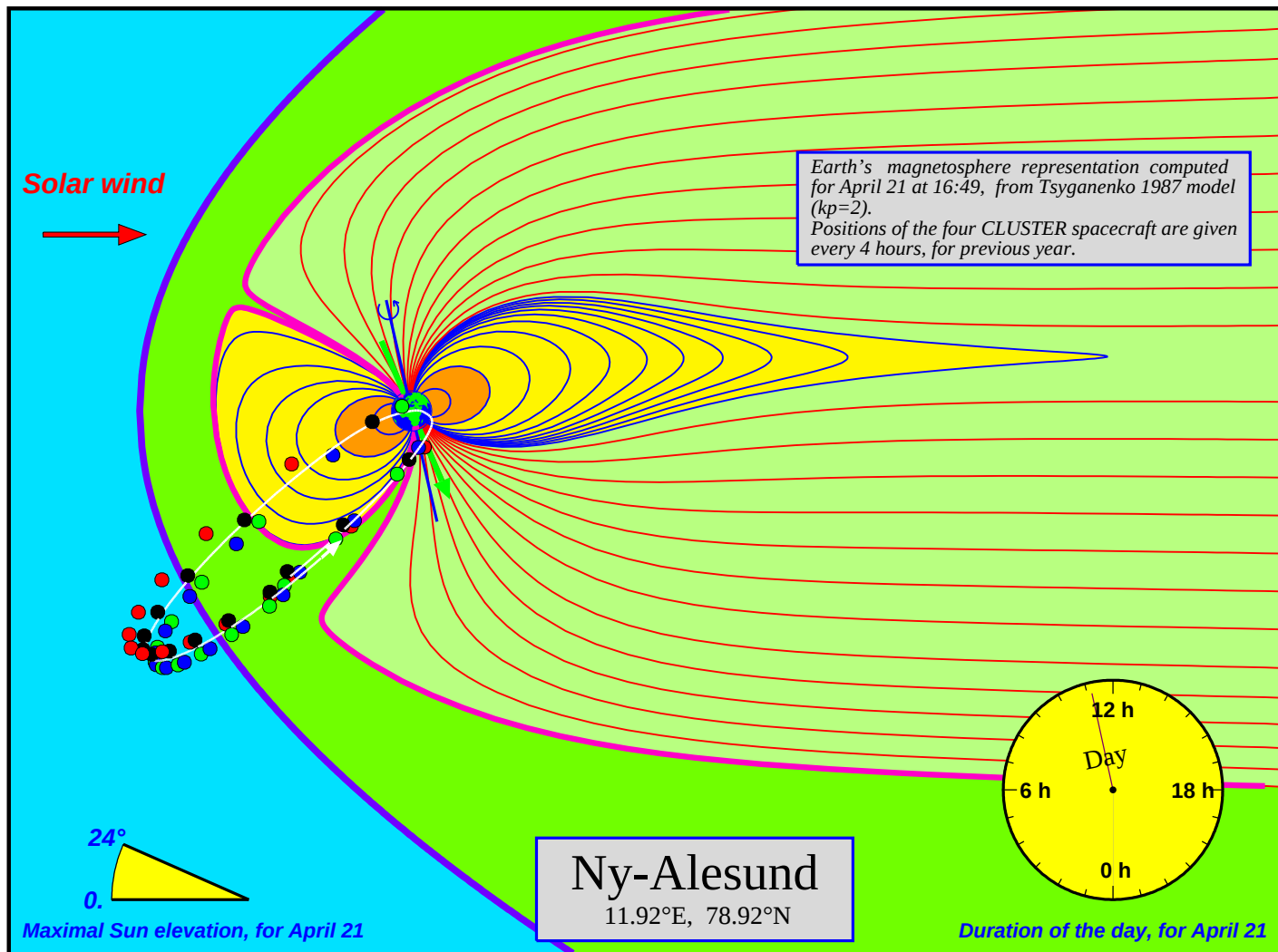


# Mars 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                  | Tuesday                                                 | Wednesday                                               | Thursday                                                | Friday                                                  | Saturday                                                | Sunday                                                  |
|----|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 9  | <b>27</b> 58 - 308<br>09:19 - 15:34<br>6:14 +22 m. 3°   | <b>28</b> 59 - 307<br>09:09 - 15:44<br>6:35 +21 m. 4°   | <b>29</b> 60 - 306<br>08:58 - 15:54<br>6:56 +21 m. 4°   | <b>1</b> 61 - 305<br>08:48 - 16:04<br>7:15 +19 m. 4°    | <b>2</b> 62 - 304<br>08:39 - 16:14<br>7:35 +20 m. 5°    | <b>3</b> 63 - 303<br>08:29 - 16:23<br>7:53 +18 m. 5°    | <b>4</b> 64 - 302<br>08:20 - 16:32<br>8:12 +19 m. 5°    |
| 10 | <b>5</b> 65 - 301<br>08:10 - 16:40<br>8:30 +18 m. 6°    | <b>6</b> 66 - 300<br>08:01 - 16:49<br>8:47 +17 m. 6°    | <b>7</b> 67 - 299<br>07:53 - 16:58<br>9:05 +18 m. 7°    | <b>8</b> 68 - 298<br>07:44 - 17:06<br>9:22 +17 m. 7°    | <b>9</b> 69 - 297<br>07:35 - 17:14<br>9:39 +17 m. 7°    | <b>10</b> 70 - 296<br>07:26 - 17:22<br>9:55 +16 m. 8°   | <b>11</b> 71 - 295<br>07:18 - 17:30<br>10:13 +18 m. 8°  |
| 11 | <b>12</b> 72 - 294<br>07:09 - 17:38<br>10:29 +16 m. 9°  | <b>13</b> 73 - 293<br>07:01 - 17:46<br>10:45 +16 m. 9°  | <b>14</b> 74 - 292<br>06:53 - 17:54<br>11:02 +17 m. 9°  | <b>15</b> 75 - 291<br>06:44 - 18:02<br>11:18 +16 m. 10° | <b>16</b> 76 - 290<br>06:36 - 18:10<br>11:34 +16 m. 10° | <b>17</b> 77 - 289<br>06:28 - 18:18<br>11:50 +16 m. 11° | <b>18</b> 78 - 288<br>06:19 - 18:26<br>12:06 +16 m. 11° |
| 12 | <b>19</b> 79 - 287<br>06:11 - 18:33<br>12:23 +17 m. 11° | <b>20</b> 80 - 286<br>06:03 - 18:41<br>12:39 +16 m. 12° | <b>21</b> 81 - 285<br>05:54 - 18:49<br>12:55 +16 m. 12° | <b>22</b> 82 - 284<br>05:46 - 18:57<br>13:11 +16 m. 13° | <b>23</b> 83 - 283<br>05:37 - 19:05<br>13:28 +17 m. 13° | <b>24</b> 84 - 282<br>05:29 - 19:13<br>13:44 +16 m. 13° | <b>25</b> 85 - 281<br>05:20 - 19:21<br>14:01 +17 m. 14° |
| 13 | <b>26</b> 86 - 280<br>05:12 - 19:29<br>14:17 +16 m. 14° | <b>27</b> 87 - 279<br>05:03 - 19:37<br>14:34 +17 m. 15° | <b>28</b> 88 - 278<br>04:54 - 19:46<br>14:51 +17 m. 15° | <b>29</b> 89 - 277<br>04:46 - 19:54<br>15:09 +18 m. 15° | <b>30</b> 90 - 276<br>04:37 - 20:03<br>15:26 +17 m. 16° | <b>31</b> 91 - 275<br>04:28 - 20:11<br>15:44 +18 m. 16° | <b>1</b> 92 - 274<br>04:18 - 20:20<br>16:02 +18 m. 16°  |

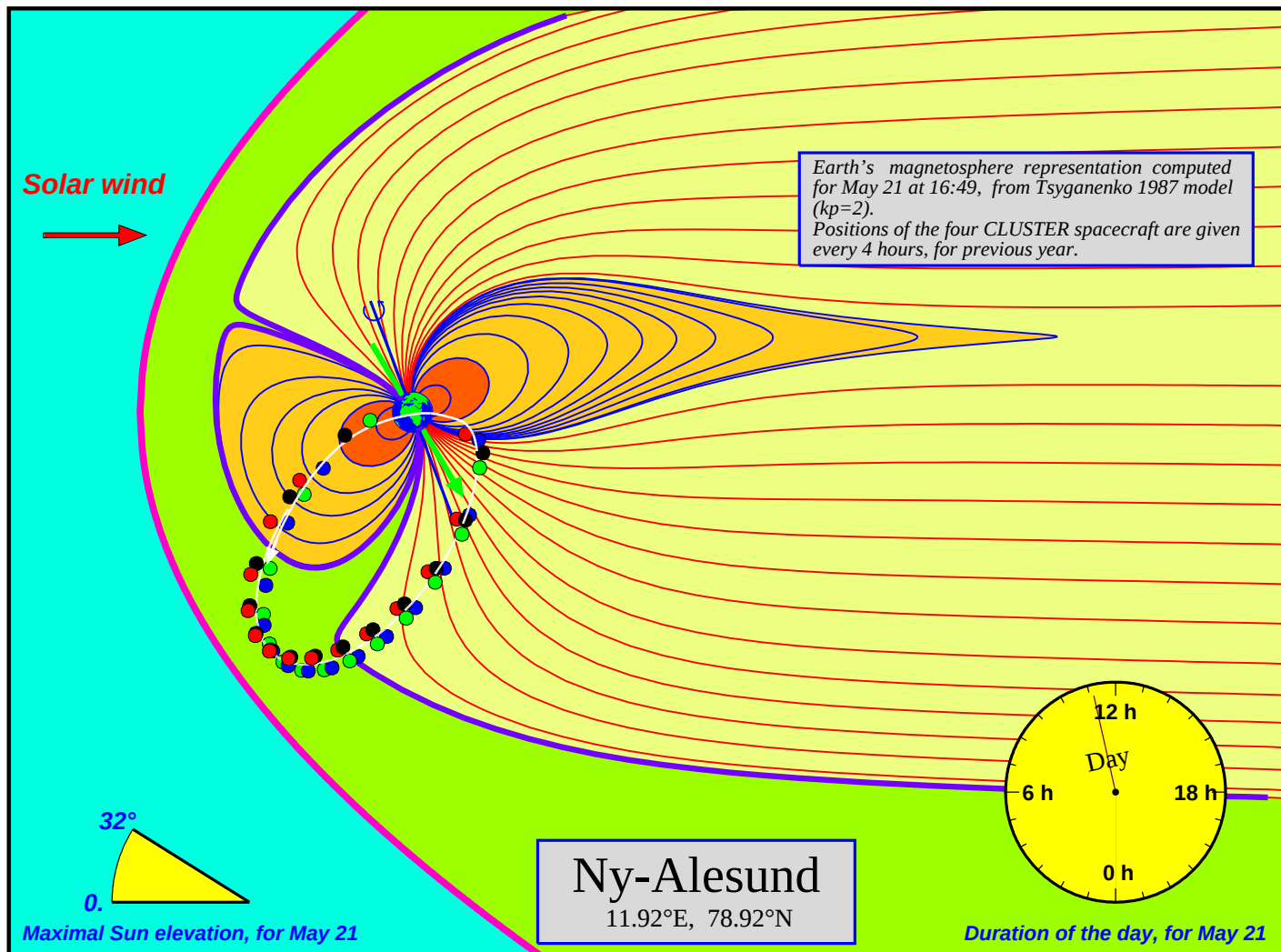


# April 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                    | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                    |
|----|-----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|
| 13 | <b>26</b> 86 - 280<br>05:12 - 19:29<br>14:17 +16 m. 14°   | <b>27</b> 87 - 279<br>05:03 - 19:37<br>14:34 +17 m. 15°  | <b>28</b> 88 - 278<br>04:54 - 19:46<br>14:51 +17 m. 15°  | <b>29</b> 89 - 277<br>04:46 - 19:54<br>15:09 +18 m. 15°  | <b>30</b> 90 - 276<br>04:37 - 20:03<br>15:26 +17 m. 16°  | <b>31</b> 91 - 275<br>04:28 - 20:11<br>15:44 +18 m. 16°  | <b>1</b> 92 - 274<br>04:18 - 20:20<br>16:02 +18 m. 16°    |
| 14 | <b>2</b> 93 - 273<br>04:09 - 20:29<br>16:21 +19 m. 17°    | <b>3</b> 94 - 272<br>03:59 - 20:39<br>16:40 +19 m. 17°   | <b>4</b> 95 - 271<br>03:49 - 20:48<br>16:59 +19 m. 18°   | <b>5</b> 96 - 270<br>03:39 - 20:58<br>17:19 +20 m. 18°   | <b>6</b> 97 - 269<br>03:29 - 21:09<br>17:40 +21 m. 18°   | <b>7</b> 98 - 268<br>03:18 - 21:20<br>18:02 +22 m. 19°   | <b>8</b> 99 - 267<br>03:06 - 21:31<br>18:25 +23 m. 19°    |
| 15 | <b>9</b> 100 - 266<br>02:55 - 21:43<br>18:48 +23 m. 19°   | <b>10</b> 101 - 265<br>02:42 - 21:56<br>19:14 +26 m. 20° | <b>11</b> 102 - 264<br>02:29 - 22:10<br>19:41 +27 m. 20° | <b>12</b> 103 - 263<br>02:14 - 22:26<br>20:12 +31 m. 21° | <b>13</b> 104 - 262<br>01:58 - 22:44<br>20:46 +34 m. 21° | <b>14</b> 105 - 261<br>01:39 - 23:07<br>21:28 +42 m. 21° | <b>15</b> 106 - 260<br>24:37 - 23:45<br>23:08 +100 m. 22° |
| 16 | <b>16</b> 107 - 259<br>Day at anytime<br>24:00 +52 m. 22° | <b>17</b> 108 - 258<br>Day at anytime<br>24:00 +0 m. 22° | <b>18</b> 109 - 257<br>Day at anytime<br>24:00 +0 m. 23° | <b>19</b> 110 - 256<br>Day at anytime<br>24:00 +0 m. 23° | <b>20</b> 111 - 255<br>Day at anytime<br>24:00 +0 m. 23° | <b>21</b> 112 - 254<br>Day at anytime<br>24:00 +0 m. 24° | <b>22</b> 113 - 253<br>Day at anytime<br>24:00 +0 m. 24°  |
| 17 | <b>23</b> 114 - 252<br>Day at anytime<br>24:00 +0 m. 24°  | <b>24</b> 115 - 251<br>Day at anytime<br>24:00 +0 m. 25° | <b>25</b> 116 - 250<br>Day at anytime<br>24:00 +0 m. 25° | <b>26</b> 117 - 249<br>Day at anytime<br>24:00 +0 m. 25° | <b>27</b> 118 - 248<br>Day at anytime<br>24:00 +0 m. 26° | <b>28</b> 119 - 247<br>Day at anytime<br>24:00 +0 m. 26° | <b>29</b> 120 - 246<br>Day at anytime<br>24:00 +0 m. 26°  |
| 18 | <b>30</b> 121 - 245<br>Day at anytime<br>24:00 +0 m. 27°  | <b>1</b> 122 - 244<br>Day at anytime<br>24:00 +0 m. 27°  | <b>2</b> 123 - 243<br>Day at anytime<br>24:00 +0 m. 27°  | <b>3</b> 124 - 242<br>Day at anytime<br>24:00 +0 m. 28°  | <b>4</b> 125 - 241<br>Day at anytime<br>24:00 +0 m. 28°  | <b>5</b> 126 - 240<br>Day at anytime<br>24:00 +0 m. 28°  | <b>6</b> 127 - 239<br>Day at anytime<br>24:00 +0 m. 28°   |

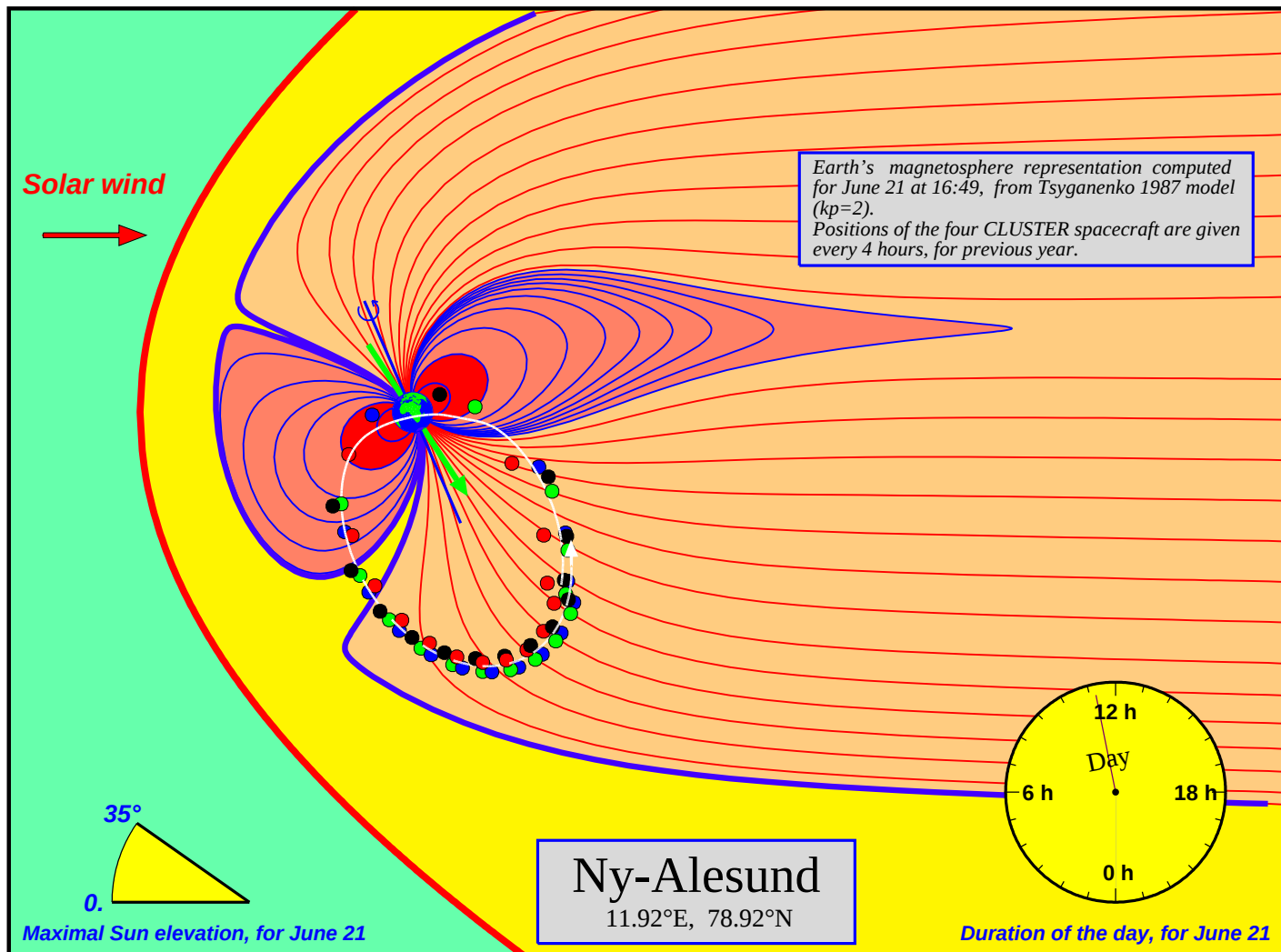


# May 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                   | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                   |
|----|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 18 | <b>30</b> 121 - 245<br>Day at anytime<br>24:00 +0 m. 27° | <b>1</b> 122 - 244<br>Day at anytime<br>24:00 +0 m. 27°  | <b>2</b> 123 - 243<br>Day at anytime<br>24:00 +0 m. 27°  | <b>3</b> 124 - 242<br>Day at anytime<br>24:00 +0 m. 28°  | <b>4</b> 125 - 241<br>Day at anytime<br>24:00 +0 m. 28°  | <b>5</b> 126 - 240<br>Day at anytime<br>24:00 +0 m. 28°  | <b>6</b> 127 - 239<br>Day at anytime<br>24:00 +0 m. 28°  |
| 19 | <b>7</b> 128 - 238<br>Day at anytime<br>24:00 +0 m. 29°  | <b>8</b> 129 - 237<br>Day at anytime<br>24:00 +0 m. 29°  | <b>9</b> 130 - 236<br>Day at anytime<br>24:00 +0 m. 29°  | <b>10</b> 131 - 235<br>Day at anytime<br>24:00 +0 m. 29° | <b>11</b> 132 - 234<br>Day at anytime<br>24:00 +0 m. 30° | <b>12</b> 133 - 233<br>Day at anytime<br>24:00 +0 m. 30° | <b>13</b> 134 - 232<br>Day at anytime<br>24:00 +0 m. 30° |
| 20 | <b>14</b> 135 - 231<br>Day at anytime<br>24:00 +0 m. 30° | <b>15</b> 136 - 230<br>Day at anytime<br>24:00 +0 m. 31° | <b>16</b> 137 - 229<br>Day at anytime<br>24:00 +0 m. 31° | <b>17</b> 138 - 228<br>Day at anytime<br>24:00 +0 m. 31° | <b>18</b> 139 - 227<br>Day at anytime<br>24:00 +0 m. 31° | <b>19</b> 140 - 226<br>Day at anytime<br>24:00 +0 m. 32° | <b>20</b> 141 - 225<br>Day at anytime<br>24:00 +0 m. 32° |
| 21 | <b>21</b> 142 - 224<br>Day at anytime<br>24:00 +0 m. 32° | <b>22</b> 143 - 223<br>Day at anytime<br>24:00 +0 m. 32° | <b>23</b> 144 - 222<br>Day at anytime<br>24:00 +0 m. 32° | <b>24</b> 145 - 221<br>Day at anytime<br>24:00 +0 m. 33° | <b>25</b> 146 - 220<br>Day at anytime<br>24:00 +0 m. 33° | <b>26</b> 147 - 219<br>Day at anytime<br>24:00 +0 m. 33° | <b>27</b> 148 - 218<br>Day at anytime<br>24:00 +0 m. 33° |
| 22 | <b>28</b> 149 - 217<br>Day at anytime<br>24:00 +0 m. 33° | <b>29</b> 150 - 216<br>Day at anytime<br>24:00 +0 m. 33° | <b>30</b> 151 - 215<br>Day at anytime<br>24:00 +0 m. 34° | <b>31</b> 152 - 214<br>Day at anytime<br>24:00 +0 m. 34° | <b>1</b> 153 - 213<br>Day at anytime<br>24:00 +0 m. 34°  | <b>2</b> 154 - 212<br>Day at anytime<br>24:00 +0 m. 34°  | <b>3</b> 155 - 211<br>Day at anytime<br>24:00 +0 m. 34°  |

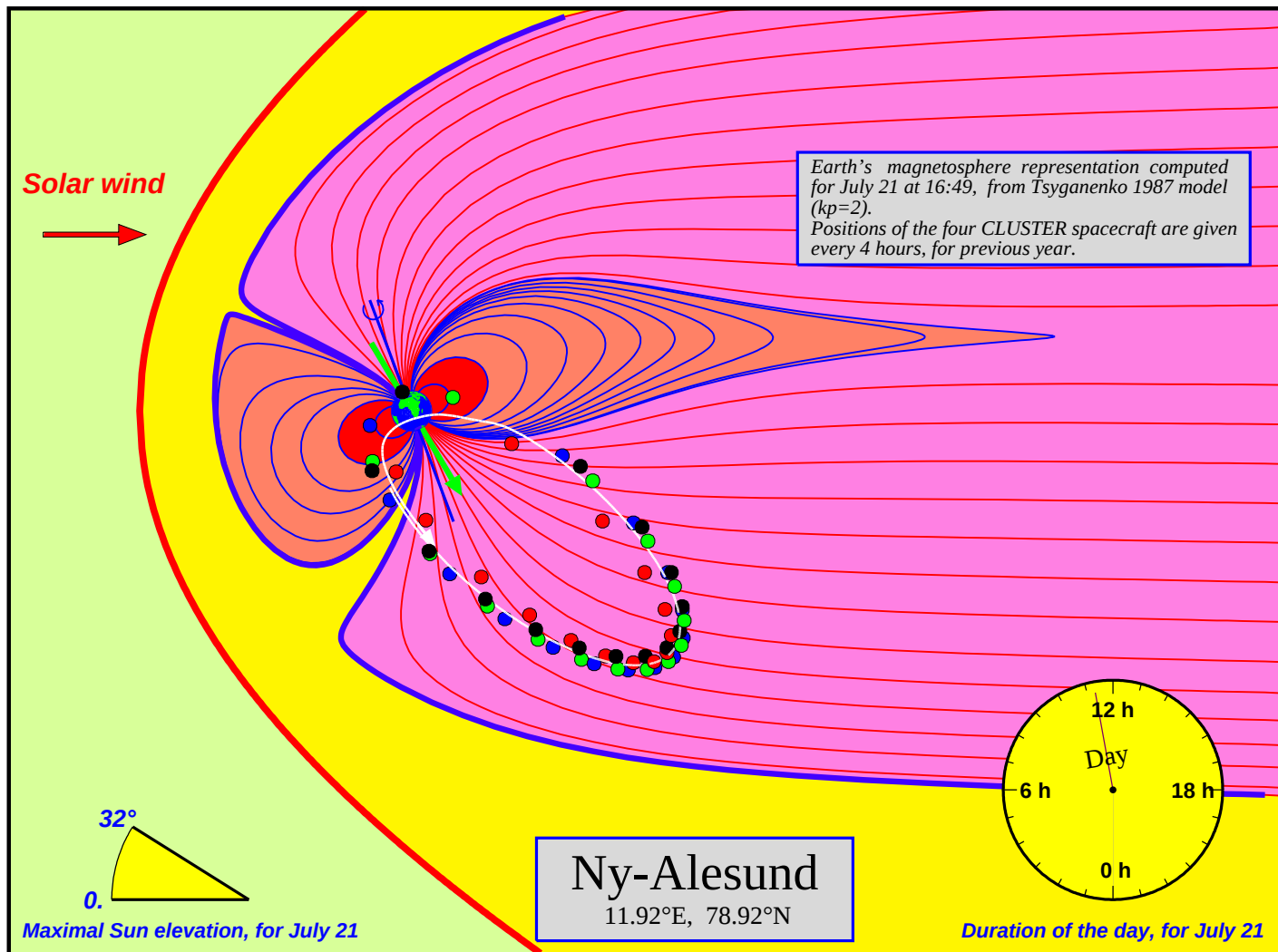


# June 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                   | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                   |
|----|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 22 | <b>28</b> 149 - 217<br>Day at anytime<br>24:00 +0 m. 33° | <b>29</b> 150 - 216<br>Day at anytime<br>24:00 +0 m. 33° | <b>30</b> 151 - 215<br>Day at anytime<br>24:00 +0 m. 34° | <b>31</b> 152 - 214<br>Day at anytime<br>24:00 +0 m. 34° | <b>1</b> 153 - 213<br>Day at anytime<br>24:00 +0 m. 34°  | <b>2</b> 154 - 212<br>Day at anytime<br>24:00 +0 m. 34°  | <b>3</b> 155 - 211<br>Day at anytime<br>24:00 +0 m. 34°  |
| 23 | <b>4</b> 156 - 210<br>Day at anytime<br>24:00 +0 m. 34°  | <b>5</b> 157 - 209<br>Day at anytime<br>24:00 +0 m. 34°  | <b>6</b> 158 - 208<br>Day at anytime<br>24:00 +0 m. 34°  | <b>7</b> 159 - 207<br>Day at anytime<br>24:00 +0 m. 34°  | <b>8</b> 160 - 206<br>Day at anytime<br>24:00 +0 m. 35°  | <b>9</b> 161 - 205<br>Day at anytime<br>24:00 +0 m. 35°  | <b>10</b> 162 - 204<br>Day at anytime<br>24:00 +0 m. 35° |
| 24 | <b>11</b> 163 - 203<br>Day at anytime<br>24:00 +0 m. 35° | <b>12</b> 164 - 202<br>Day at anytime<br>24:00 +0 m. 35° | <b>13</b> 165 - 201<br>Day at anytime<br>24:00 +0 m. 35° | <b>14</b> 166 - 200<br>Day at anytime<br>24:00 +0 m. 35° | <b>15</b> 167 - 199<br>Day at anytime<br>24:00 +0 m. 35° | <b>16</b> 168 - 198<br>Day at anytime<br>24:00 +0 m. 35° | <b>17</b> 169 - 197<br>Day at anytime<br>24:00 +0 m. 35° |
| 25 | <b>18</b> 170 - 196<br>Day at anytime<br>24:00 +0 m. 35° | <b>19</b> 171 - 195<br>Day at anytime<br>24:00 +0 m. 35° | <b>20</b> 172 - 194<br>Day at anytime<br>24:00 +0 m. 35° | <b>21</b> 173 - 193<br>Day at anytime<br>24:00 +0 m. 35° | <b>22</b> 174 - 192<br>Day at anytime<br>24:00 +0 m. 35° | <b>23</b> 175 - 191<br>Day at anytime<br>24:00 +0 m. 35° | <b>24</b> 176 - 190<br>Day at anytime<br>24:00 +0 m. 35° |
| 26 | <b>25</b> 177 - 189<br>Day at anytime<br>24:00 +0 m. 35° | <b>26</b> 178 - 188<br>Day at anytime<br>24:00 +0 m. 35° | <b>27</b> 179 - 187<br>Day at anytime<br>24:00 +0 m. 35° | <b>28</b> 180 - 186<br>Day at anytime<br>24:00 +0 m. 35° | <b>29</b> 181 - 185<br>Day at anytime<br>24:00 +0 m. 35° | <b>30</b> 182 - 184<br>Day at anytime<br>24:00 +0 m. 35° | <b>1</b> 183 - 183<br>Day at anytime<br>24:00 +0 m. 35°  |

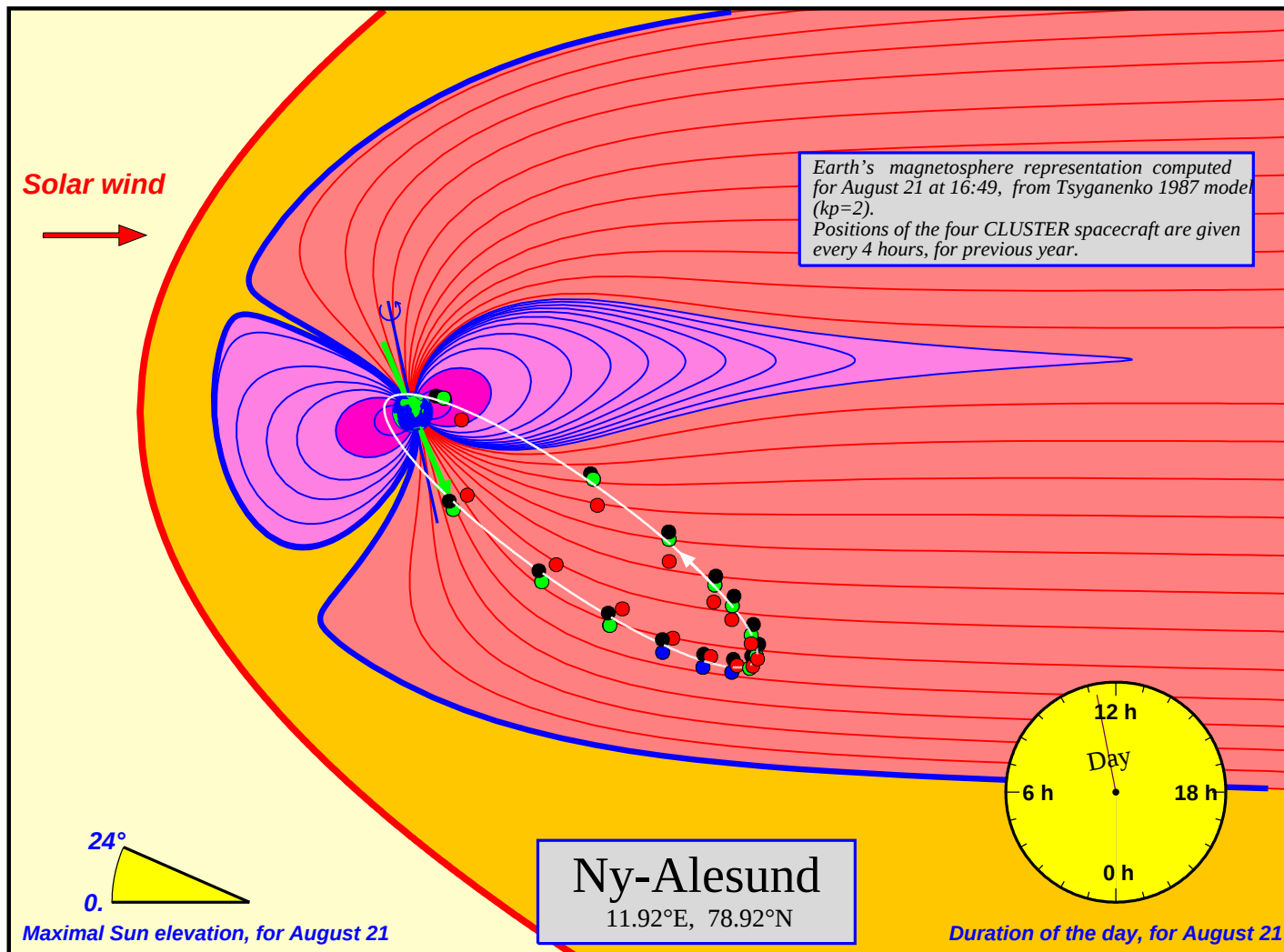


# July 2012

Sunrise and Sunset at Ny-Alesund (TL ± 1 mn)

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

|    | Monday                                                   | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                   |
|----|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 26 | <b>25</b> 177 - 189<br>Day at anytime<br>24:00 +0 m. 35° | <b>26</b> 178 - 188<br>Day at anytime<br>24:00 +0 m. 35° | <b>27</b> 179 - 187<br>Day at anytime<br>24:00 +0 m. 35° | <b>28</b> 180 - 186<br>Day at anytime<br>24:00 +0 m. 35° | <b>29</b> 181 - 185<br>Day at anytime<br>24:00 +0 m. 35° | <b>30</b> 182 - 184<br>Day at anytime<br>24:00 +0 m. 35° | <b>1</b> 183 - 183<br>Day at anytime<br>24:00 +0 m. 35°  |
| 27 | <b>2</b> 184 - 182<br>Day at anytime<br>24:00 +0 m. 35°  | <b>3</b> 185 - 181<br>Day at anytime<br>24:00 +0 m. 35°  | <b>4</b> 186 - 180<br>Day at anytime<br>24:00 +0 m. 34°  | <b>5</b> 187 - 179<br>Day at anytime<br>24:00 +0 m. 34°  | <b>6</b> 188 - 178<br>Day at anytime<br>24:00 +0 m. 34°  | <b>7</b> 189 - 177<br>Day at anytime<br>24:00 +0 m. 34°  | <b>8</b> 190 - 176<br>Day at anytime<br>24:00 +0 m. 34°  |
| 28 | <b>9</b> 191 - 175<br>Day at anytime<br>24:00 +0 m. 34°  | <b>10</b> 192 - 174<br>Day at anytime<br>24:00 +0 m. 34° | <b>11</b> 193 - 173<br>Day at anytime<br>24:00 +0 m. 34° | <b>12</b> 194 - 172<br>Day at anytime<br>24:00 +0 m. 34° | <b>13</b> 195 - 171<br>Day at anytime<br>24:00 +0 m. 33° | <b>14</b> 196 - 170<br>Day at anytime<br>24:00 +0 m. 33° | <b>15</b> 197 - 169<br>Day at anytime<br>24:00 +0 m. 33° |
| 29 | <b>16</b> 198 - 168<br>Day at anytime<br>24:00 +0 m. 33° | <b>17</b> 199 - 167<br>Day at anytime<br>24:00 +0 m. 33° | <b>18</b> 200 - 166<br>Day at anytime<br>24:00 +0 m. 33° | <b>19</b> 201 - 165<br>Day at anytime<br>24:00 +0 m. 32° | <b>20</b> 202 - 164<br>Day at anytime<br>24:00 +0 m. 32° | <b>21</b> 203 - 163<br>Day at anytime<br>24:00 +0 m. 32° | <b>22</b> 204 - 162<br>Day at anytime<br>24:00 +0 m. 32° |
| 30 | <b>23</b> 205 - 161<br>Day at anytime<br>24:00 +0 m. 32° | <b>24</b> 206 - 160<br>Day at anytime<br>24:00 +0 m. 31° | <b>25</b> 207 - 159<br>Day at anytime<br>24:00 +0 m. 31° | <b>26</b> 208 - 158<br>Day at anytime<br>24:00 +0 m. 31° | <b>27</b> 209 - 157<br>Day at anytime<br>24:00 +0 m. 31° | <b>28</b> 210 - 156<br>Day at anytime<br>24:00 +0 m. 30° | <b>29</b> 211 - 155<br>Day at anytime<br>24:00 +0 m. 30° |
| 31 | <b>30</b> 212 - 154<br>Day at anytime<br>24:00 +0 m. 30° | <b>31</b> 213 - 153<br>Day at anytime<br>24:00 +0 m. 30° | <b>1</b> 214 - 152<br>Day at anytime<br>24:00 +0 m. 30°  | <b>2</b> 215 - 151<br>Day at anytime<br>24:00 +0 m. 29°  | <b>3</b> 216 - 150<br>Day at anytime<br>24:00 +0 m. 29°  | <b>4</b> 217 - 149<br>Day at anytime<br>24:00 +0 m. 29°  | <b>5</b> 218 - 148<br>Day at anytime<br>24:00 +0 m. 28°  |

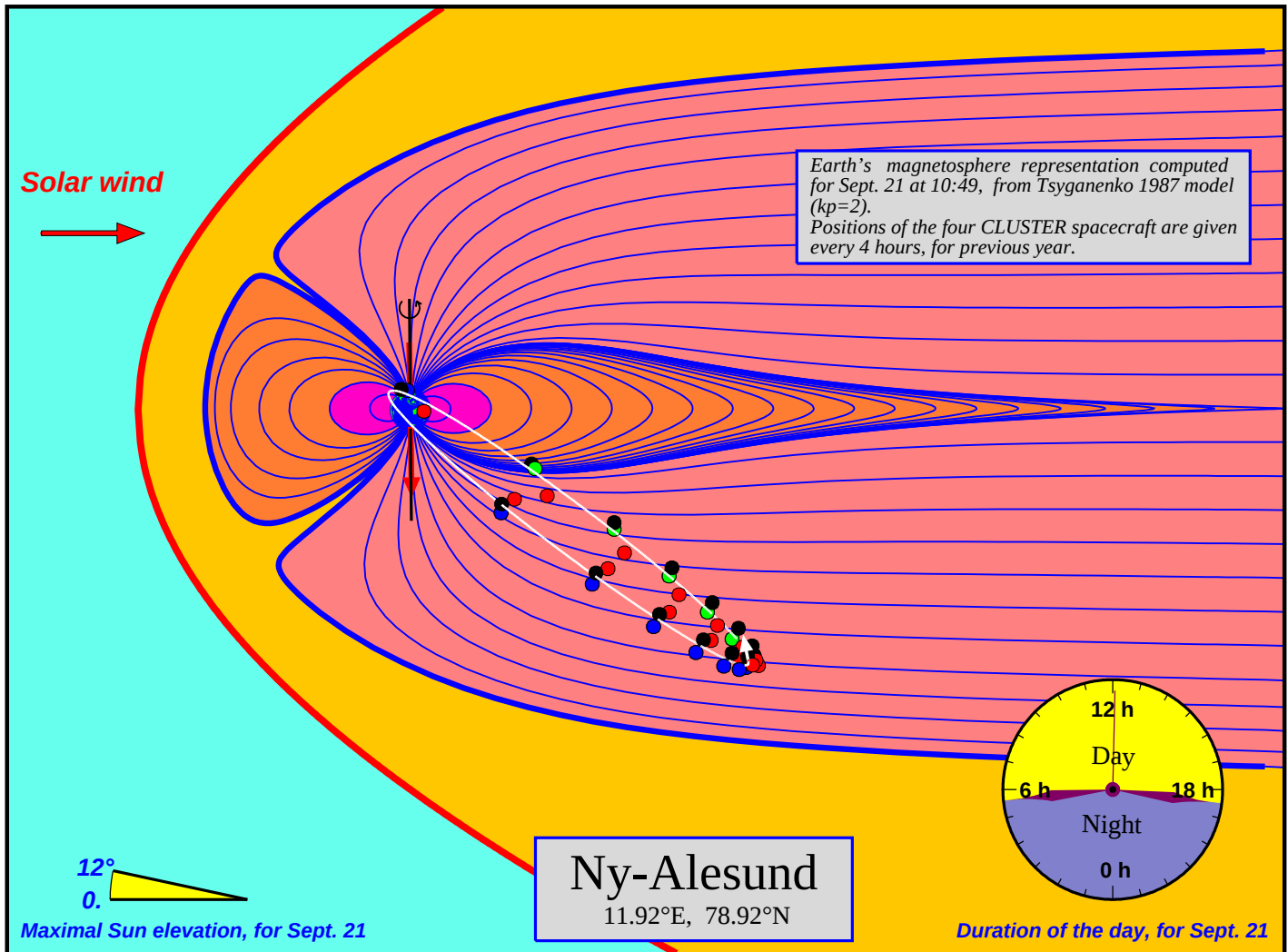


# August 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                   | Tuesday                                                  | Wednesday                                                | Thursday                                                 | Friday                                                   | Saturday                                                 | Sunday                                                   |
|----|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|
| 31 | <b>30</b> 212 - 154<br>Day at anytime<br>24:00 +0 m. 30° | <b>31</b> 213 - 153<br>Day at anytime<br>24:00 +0 m. 30° | <b>1</b> 214 - 152<br>Day at anytime<br>24:00 +0 m. 30°  | <b>2</b> 215 - 151<br>Day at anytime<br>24:00 +0 m. 29°  | <b>3</b> 216 - 150<br>Day at anytime<br>24:00 +0 m. 29°  | <b>4</b> 217 - 149<br>Day at anytime<br>24:00 +0 m. 29°  | <b>5</b> 218 - 148<br>Day at anytime<br>24:00 +0 m. 28°  |
| 32 | <b>6</b> 219 - 147<br>Day at anytime<br>24:00 +0 m. 28°  | <b>7</b> 220 - 146<br>Day at anytime<br>24:00 +0 m. 28°  | <b>8</b> 221 - 145<br>Day at anytime<br>24:00 +0 m. 28°  | <b>9</b> 222 - 144<br>Day at anytime<br>24:00 +0 m. 27°  | <b>10</b> 223 - 143<br>Day at anytime<br>24:00 +0 m. 27° | <b>11</b> 224 - 142<br>Day at anytime<br>24:00 +0 m. 27° | <b>12</b> 225 - 141<br>Day at anytime<br>24:00 +0 m. 26° |
| 33 | <b>13</b> 226 - 140<br>Day at anytime<br>24:00 +0 m. 26° | <b>14</b> 227 - 139<br>Day at anytime<br>24:00 +0 m. 26° | <b>15</b> 228 - 138<br>Day at anytime<br>24:00 +0 m. 25° | <b>16</b> 229 - 137<br>Day at anytime<br>24:00 +0 m. 25° | <b>17</b> 230 - 136<br>Day at anytime<br>24:00 +0 m. 25° | <b>18</b> 231 - 135<br>Day at anytime<br>24:00 +0 m. 25° | <b>19</b> 232 - 134<br>Day at anytime<br>24:00 +0 m. 24° |
| 34 | <b>20</b> 233 - 133<br>Day at anytime<br>24:00 +0 m. 24° | <b>21</b> 234 - 132<br>Day at anytime<br>24:00 +0 m. 24° | <b>22</b> 235 - 131<br>Day at anytime<br>24:00 +0 m. 23° | <b>23</b> 236 - 130<br>Day at anytime<br>24:00 +0 m. 23° | <b>24</b> 237 - 129<br>Day at anytime<br>24:00 +0 m. 23° | <b>25</b> 238 - 128<br>Day at anytime<br>24:00 +0 m. 22° | <b>26</b> 239 - 127<br>01:00 - 23:27<br>22:27 -93 m. 22° |
| 35 | <b>27</b> 240 - 126<br>01:04 - 22:59<br>21:55 -32 m. 21° | <b>28</b> 241 - 125<br>01:31 - 22:38<br>21:07 -48 m. 21° | <b>29</b> 242 - 124<br>01:51 - 22:21<br>20:30 -37 m. 21° | <b>30</b> 243 - 123<br>02:08 - 22:06<br>19:58 -32 m. 20° | <b>31</b> 244 - 122<br>02:22 - 21:52<br>19:30 -28 m. 20° | <b>1</b> 245 - 121<br>02:36 - 21:39<br>19:03 -27 m. 20°  | <b>2</b> 246 - 120<br>02:48 - 21:27<br>18:39 -24 m. 19°  |

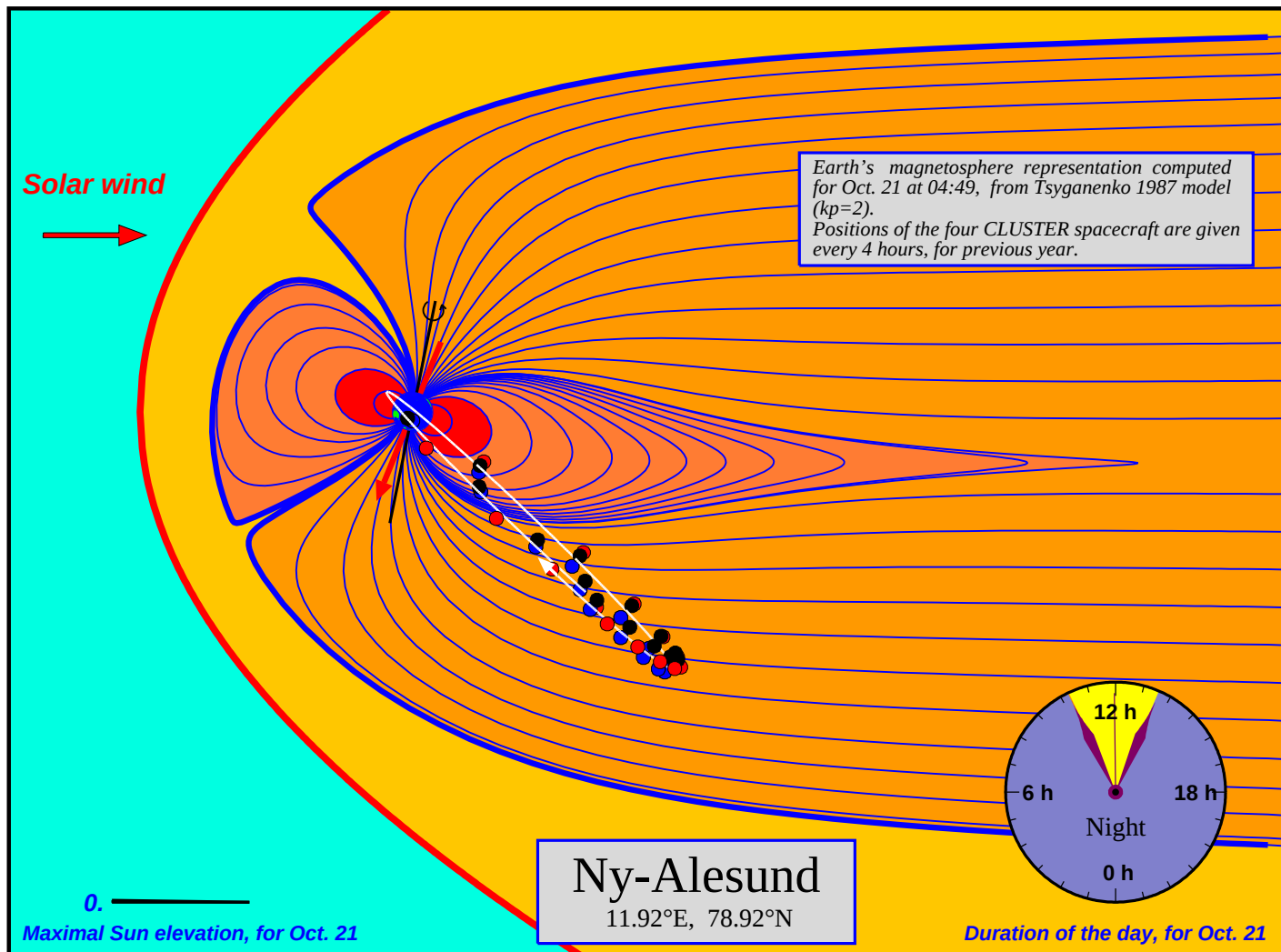


# September 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

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

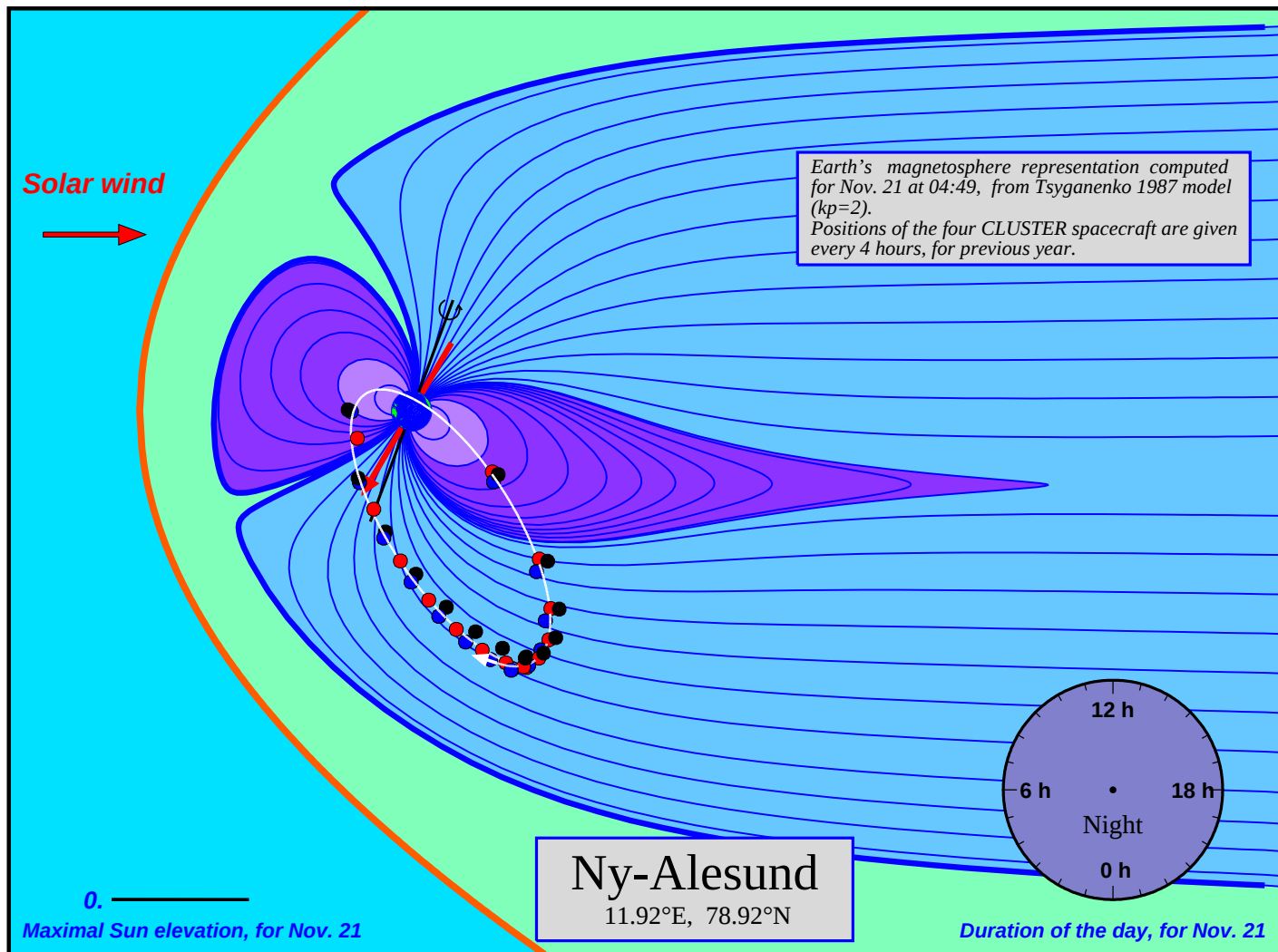


# October 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

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

|    | Monday                                                | Tuesday                                               | Wednesday                                             | Thursday                                              | Friday                                                | Saturday                                              | Sunday                                                |
|----|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| 40 | <b>1</b> 275 - 91<br>06:54 - 17:07<br>10:13 -16 m. 8° | <b>2</b> 276 - 90<br>07:02 - 16:58<br>9:56 -17 m. 8°  | <b>3</b> 277 - 89<br>07:10 - 16:50<br>9:40 -16 m. 7°  | <b>4</b> 278 - 88<br>07:18 - 16:41<br>9:23 -17 m. 7°  | <b>5</b> 279 - 87<br>07:26 - 16:33<br>9:06 -17 m. 7°  | <b>6</b> 280 - 86<br>07:34 - 16:24<br>8:49 -17 m. 6°  | <b>7</b> 281 - 85<br>07:43 - 16:15<br>8:32 -17 m. 6°  |
| 41 | <b>8</b> 282 - 84<br>07:51 - 16:06<br>8:14 -18 m. 6°  | <b>9</b> 283 - 83<br>08:00 - 15:56<br>7:56 -18 m. 5°  | <b>10</b> 284 - 82<br>08:09 - 15:47<br>7:38 -18 m. 5° | <b>11</b> 285 - 81<br>08:18 - 15:37<br>7:19 -19 m. 4° | <b>12</b> 286 - 80<br>08:27 - 15:28<br>7:00 -19 m. 4° | <b>13</b> 287 - 79<br>08:37 - 15:17<br>6:40 -20 m. 4° | <b>14</b> 288 - 78<br>08:47 - 15:07<br>6:19 -21 m. 3° |
| 42 | <b>15</b> 289 - 77<br>08:58 - 14:56<br>5:58 -21 m. 3° | <b>16</b> 290 - 76<br>09:09 - 14:45<br>5:36 -22 m. 3° | <b>17</b> 291 - 75<br>09:20 - 14:33<br>5:12 -24 m. 2° | <b>18</b> 292 - 74<br>09:33 - 14:20<br>4:47 -25 m. 2° | <b>19</b> 293 - 73<br>09:46 - 14:06<br>4:20 -27 m. 1° | <b>20</b> 294 - 72<br>10:00 - 13:51<br>3:51 -29 m. 1° | <b>21</b> 295 - 71<br>10:17 - 13:35<br>3:17 -34 m. 1° |
| 43 | <b>22</b> 296 - 70<br>10:37 - 13:15<br>2:38 -39 m. 0° | <b>23</b> 297 - 69<br>11:02 - 12:49<br>1:46 -52 m. 0° | <b>24</b> 298 - 68<br>Polar Night                     | <b>25</b> 299 - 67<br>Polar Night                     | <b>26</b> 300 - 66<br>Polar Night                     | <b>27</b> 301 - 65<br>Polar Night                     | <b>28</b> 302 - 64<br>Polar Night                     |
| 44 | <b>29</b> 303 - 63<br>Polar Night                     | <b>30</b> 304 - 62<br>Polar Night                     | <b>31</b> 305 - 61<br>Polar Night                     | <b>1</b> 306 - 60<br>Polar Night                      | <b>2</b> 307 - 59<br>Polar Night                      | <b>3</b> 308 - 58<br>Polar Night                      | <b>4</b> 309 - 57<br>Polar Night                      |

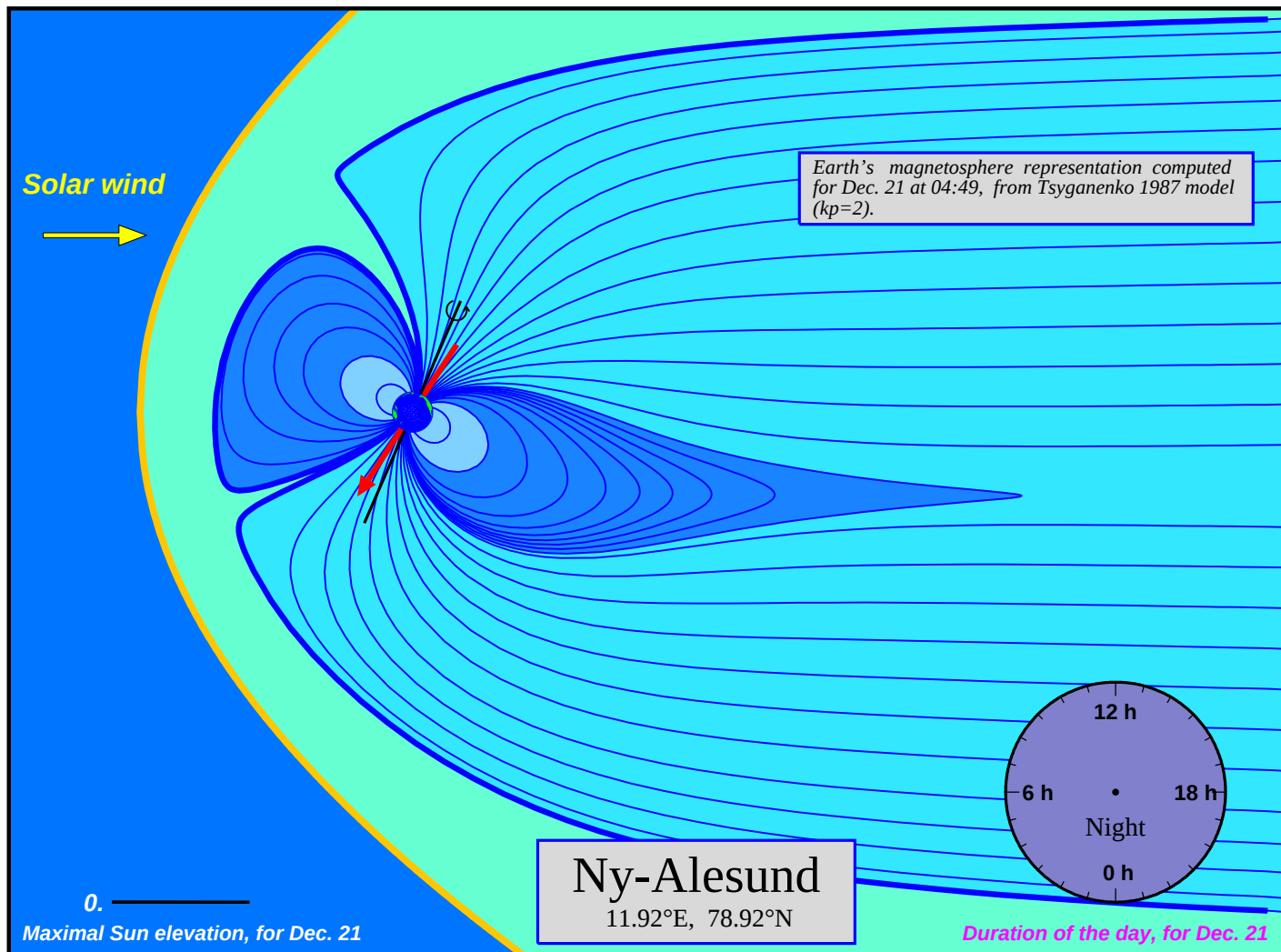


# November 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm$  1 mn)

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

|    | Monday                            | Tuesday                           | Wednesday                         | Thursday                          | Friday                            | Saturday                          | Sunday                            |
|----|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 44 | <b>29</b> 303 - 63<br>Polar Night | <b>30</b> 304 - 62<br>Polar Night | <b>31</b> 305 - 61<br>Polar Night | <b>1</b> 306 - 60<br>Polar Night  | <b>2</b> 307 - 59<br>Polar Night  | <b>3</b> 308 - 58<br>Polar Night  | <b>4</b> 309 - 57<br>Polar Night  |
| 45 | <b>5</b> 310 - 56<br>Polar Night  | <b>6</b> 311 - 55<br>Polar Night  | <b>7</b> 312 - 54<br>Polar Night  | <b>8</b> 313 - 53<br>Polar Night  | <b>9</b> 314 - 52<br>Polar Night  | <b>10</b> 315 - 51<br>Polar Night | <b>11</b> 316 - 50<br>Polar Night |
| 46 | <b>12</b> 317 - 49<br>Polar Night | <b>13</b> 318 - 48<br>Polar Night | <b>14</b> 319 - 47<br>Polar Night | <b>15</b> 320 - 46<br>Polar Night | <b>16</b> 321 - 45<br>Polar Night | <b>17</b> 322 - 44<br>Polar Night | <b>18</b> 323 - 43<br>Polar Night |
| 47 | <b>19</b> 324 - 42<br>Polar Night | <b>20</b> 325 - 41<br>Polar Night | <b>21</b> 326 - 40<br>Polar Night | <b>22</b> 327 - 39<br>Polar Night | <b>23</b> 328 - 38<br>Polar Night | <b>24</b> 329 - 37<br>Polar Night | <b>25</b> 330 - 36<br>Polar Night |
| 48 | <b>26</b> 331 - 35<br>Polar Night | <b>27</b> 332 - 34<br>Polar Night | <b>28</b> 333 - 33<br>Polar Night | <b>29</b> 334 - 32<br>Polar Night | <b>30</b> 335 - 31<br>Polar Night | <b>1</b> 336 - 30<br>Polar Night  | <b>2</b> 337 - 29<br>Polar Night  |



# December 2012

Sunrise and Sunset at Ny-Alesund (TL  $\pm 1$  mn)

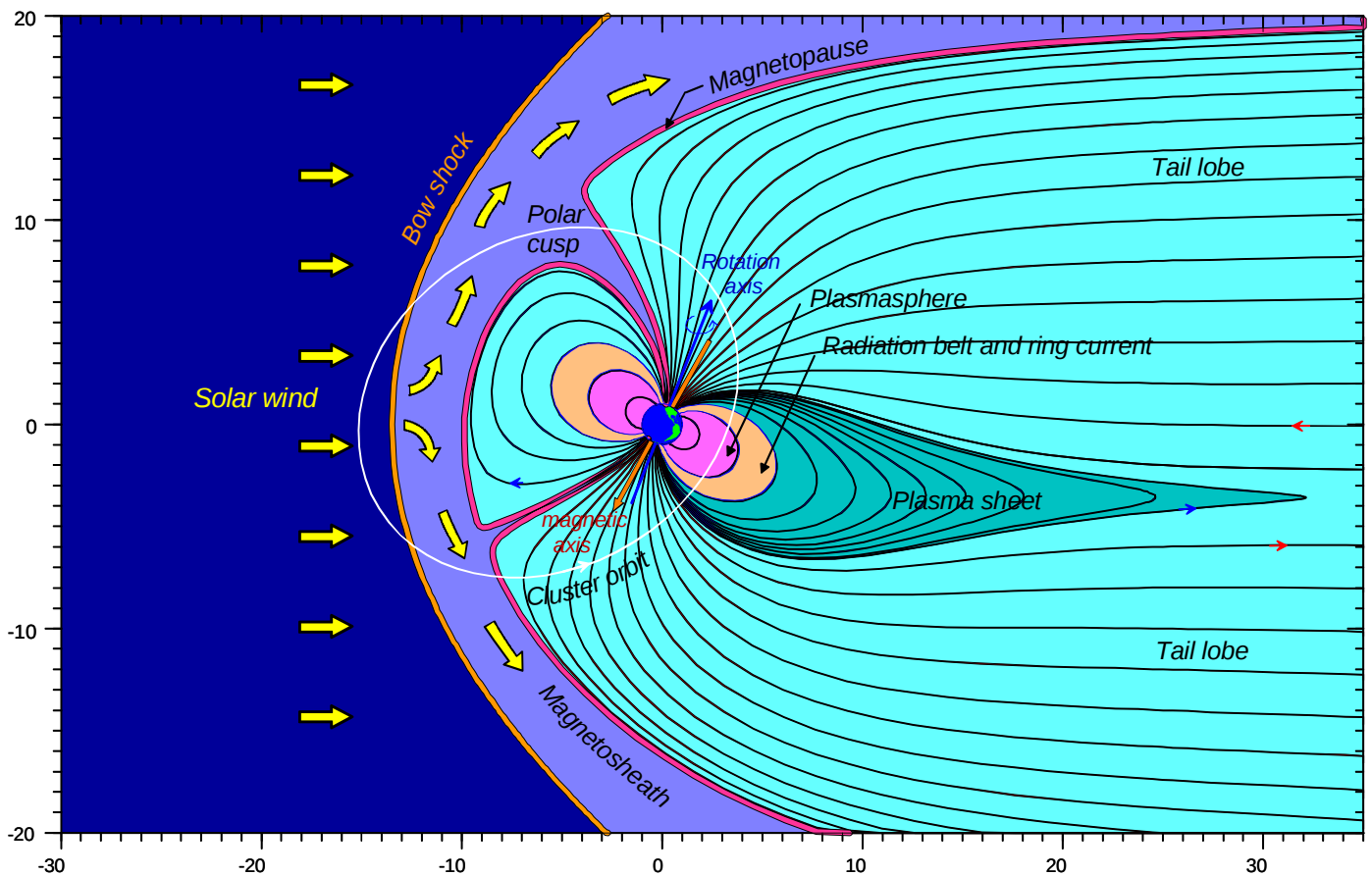
Duration of the day - Variation - Sun maximal elevation (°)

|    | Monday                     | Tuesday                    | Wednesday                  | Thursday                   | Friday                     | Saturday                   | Sunday                     |
|----|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 48 | 26 331 - 35<br>Polar Night | 27 332 - 34<br>Polar Night | 28 333 - 33<br>Polar Night | 29 334 - 32<br>Polar Night | 30 335 - 31<br>Polar Night | 1 336 - 30<br>Polar Night  | 2 337 - 29<br>Polar Night  |
| 49 | 3 338 - 28<br>Polar Night  | 4 339 - 27<br>Polar Night  | 5 340 - 26<br>Polar Night  | 6 341 - 25<br>Polar Night  | 7 342 - 24<br>Polar Night  | 8 343 - 23<br>Polar Night  | 9 344 - 22<br>Polar Night  |
| 50 | 10 345 - 21<br>Polar Night | 11 346 - 20<br>Polar Night | 12 347 - 19<br>Polar Night | 13 348 - 18<br>Polar Night | 14 349 - 17<br>Polar Night | 15 350 - 16<br>Polar Night | 16 351 - 15<br>Polar Night |
| 51 | 17 352 - 14<br>Polar Night | 18 353 - 13<br>Polar Night | 19 354 - 12<br>Polar Night | 20 355 - 11<br>Polar Night | 21 356 - 10<br>Polar Night | 22 357 - 9<br>Polar Night  | 23 358 - 8<br>Polar Night  |
| 52 | 24 359 - 7<br>Polar Night  | 25 360 - 6<br>Polar Night  | 26 361 - 5<br>Polar Night  | 27 362 - 4<br>Polar Night  | 28 363 - 3<br>Polar Night  | 29 364 - 2<br>Polar Night  | 30 365 - 1<br>Polar Night  |
| 53 | 31 366 - 0<br>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, CETP/CNRS, 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 at CETP, the "Comagnetolib". All the graphical is produced by an owner 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", completed by all the routines allowing calendar and time conversions. Sunrise, sunset and local noon time are now available for polar zones in the December 2011 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 "Bureau Des Longitudes" 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 [Patrick.Robert@lpp.polytechnique.fr](mailto:Patrick.Robert@lpp.polytechnique.fr)

Many calendar examples computed for various places in the world are available here : <http://www.lpp.fr/?Patrick-Robert>