

Zonnerapport Werkgroep Zon VVS

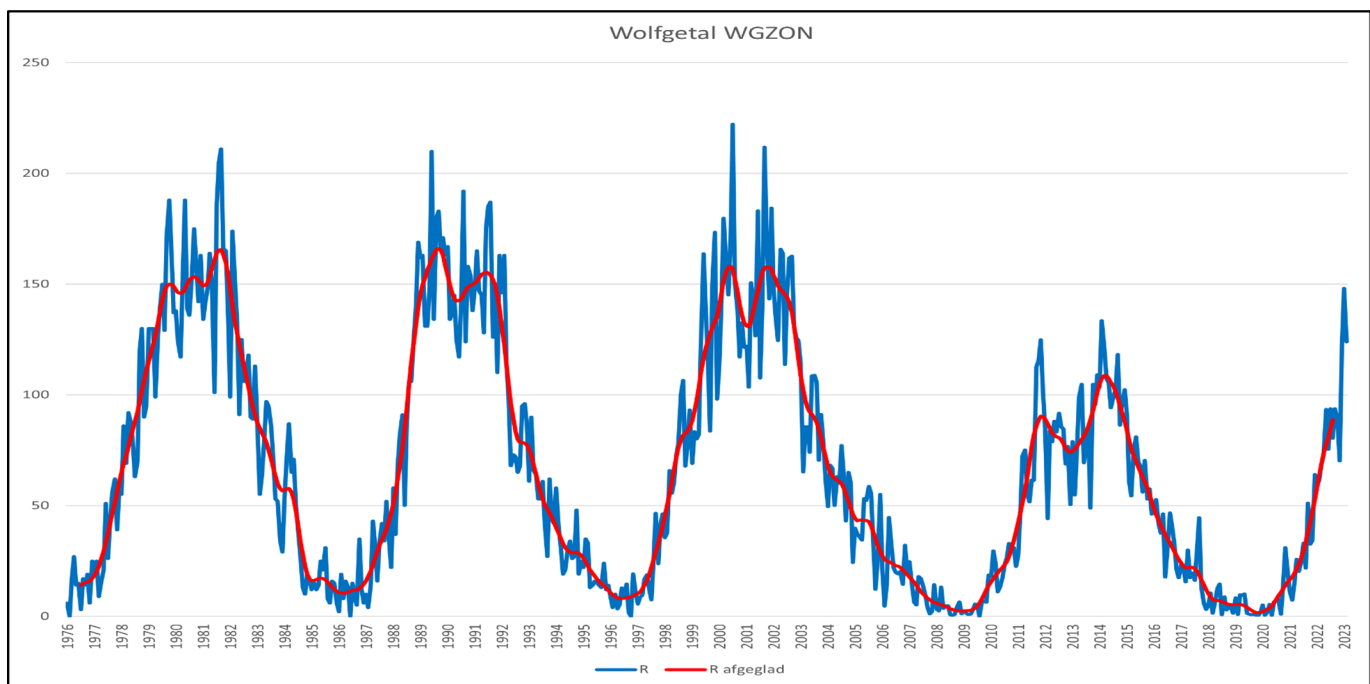
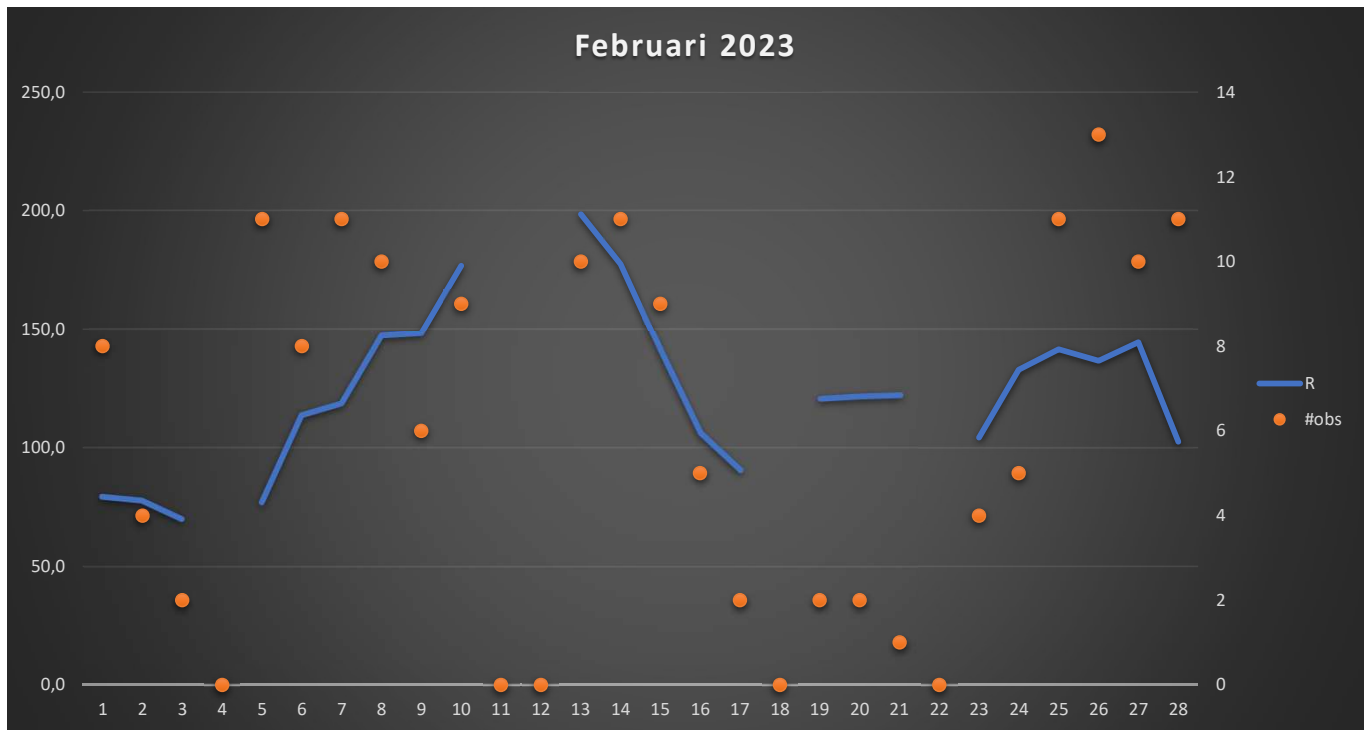
Waarnemingsresultaten en nieuws voor zonneaanemers

Jaargang : 28

Nummer: 321

Februari 2023

Web site: <http://www.bso.vvs.be/> e-mail: waarnemingen-wgzon@carels.be



Gemiddelden werkgroep zon Februari 2023

| | | | | | | | |
|----------------------------------|-----|-----|--------------------|-----|-------|------------|-------|
| <u>Groepen</u> : | N | 5,1 | <u>Wolfgetal</u> : | N | 73,7 | <u>RE'</u> | 870,4 |
| | S | 4,1 | | S | 50,2 | <u>CV</u> | 95,1 |
| | N+S | 9,2 | | N+S | 123,9 | <u>SN</u> | 124,0 |
| 165 waarnemingen - 13 waarnemers | | | | | | <u>IS</u> | 60,8 |

Sunspotnumbers VVS Belgium

Month: February 2023

| Day | GROUPS | | | WOLFNUMBER | | | Other Solar Indices | | | | OBS |
|-----|-------------|-------------|-------------|-------------|-------------|--------------|---------------------|-------------|--------------|-------------|------------|
| | N | S | N+S | N | S | N+S | RE' | CV | SN | IS | |
| 1 | 4 | 4 | 8 | 37,4 | 42,0 | 79,4 | 204,3 | 27,7 | 49,5 | 24,0 | 8 |
| 2 | 4 | 3 | 7 | 41,8 | 36,0 | 77,8 | 256,3 | 25,7 | 51,0 | 32,0 | 4 |
| 3 | 2 | 3 | 5 | 24,5 | 45,5 | 70,0 | 140,0 | 17,5 | 46,0 | 29,0 | 2 |
| 4 | | | | | | | | | | | 0 |
| 5 | 1 | 5 | 6 | 16,2 | 60,8 | 77,0 | 194,7 | 24,4 | 47,7 | 38,5 | 11 |
| 6 | 5 | 5 | 10 | 65,1 | 48,6 | 113,6 | 339,7 | 55,3 | 87,0 | 43,0 | 8 |
| 7 | 6 | 4 | 10 | 83,3 | 35,3 | 118,6 | 536,2 | 73,2 | 102,3 | 40,0 | 11 |
| 8 | 6 | 5 | 11 | 99,7 | 47,5 | 147,2 | 1152,2 | 95,8 | 146,0 | 76,0 | 10 |
| 9 | 6 | 4 | 10 | 110,2 | 38,0 | 148,2 | 1260,3 | 139,0 | 183,0 | 62,0 | 6 |
| 10 | 9 | 4 | 13 | 131,2 | 45,6 | 176,8 | 1789,0 | 185,6 | 218,0 | 107,0 | 9 |
| 11 | | | | | | | | | | | 0 |
| 12 | | | | | | | | | | | 0 |
| 13 | 9 | 6 | 15 | 121,0 | 77,6 | 198,6 | 1267,2 | 180,4 | 218,3 | 114,0 | 10 |
| 14 | 8 | 7 | 15 | 98,3 | 79,1 | 177,5 | 843,3 | 133,8 | 151,3 | 94,0 | 11 |
| 15 | 5 | 5 | 10 | 77,4 | 63,6 | 141,0 | 817,0 | 112,5 | 134,0 | 57,0 | 9 |
| 16 | 4 | 4 | 8 | 62,2 | 44,0 | 106,2 | 528,0 | 79,0 | 68,0 | 23,0 | 5 |
| 17 | 3 | 3 | 6 | 52,0 | 38,5 | 90,5 | 591,0 | 95,0 | | | 2 |
| 18 | | | | | | | | | | | 0 |
| 19 | 5 | 5 | 10 | 68,7 | 51,8 | 120,5 | 773,0 | 131,0 | 111,0 | 50,0 | 2 |
| 20 | 5 | 3 | 8 | 86,4 | 35,1 | 121,5 | | | | | 2 |
| 21 | | | | | | 122,0 | | | | | 1 |
| 22 | | | | | | | | | | | 0 |
| 23 | 4 | 2 | 6 | 74,3 | 29,9 | 104,3 | 898,7 | 95,3 | 124,0 | 66,0 | 4 |
| 24 | 5 | 3 | 8 | 79,8 | 53,2 | 133,0 | 1148,0 | 122,0 | 166,0 | 67,0 | 5 |
| 25 | 6 | 3 | 9 | 86,0 | 55,4 | 141,5 | 1454,1 | 114,0 | 167,3 | 83,0 | 11 |
| 26 | 5 | 4 | 9 | 72,8 | 64,0 | 136,8 | 1550,4 | 103,6 | 156,0 | 82,0 | 13 |
| 27 | 6 | 5 | 11 | 77,9 | 66,6 | 144,5 | 1561,0 | 98,6 | 160,0 | 76,5 | 10 |
| 28 | 3 | 4 | 7 | 56,1 | 46,4 | 102,5 | 974,5 | 87,3 | 92,8 | 51,0 | 11 |
| | 5,05 | 4,14 | 9,18 | 73,7 | 50,2 | 123,9 | 870,4 | 95,1 | 124,0 | 60,8 | 165 |

| | | | | | |
|---------------|--------------|----------------------|-----------|-----------|--------------|
| Monthly mean: | 123,9 | Spotless days: | 0 | Covering: | 23/28 |
| Observations: | 165 | Number of observers: | 13 | | |

V.V.S. BELGIUM SOLAR SECTION

Processing: Jeffrey Carels
e-mail : jeffrey@carels.be

Observers:

E.De Ceuninck; J.Janssens; J.Bourgeois;
H. De Backer; F.Dubois; B.Taillieu; J.Carels; G.Verbanck
KSB; L.Claeys; J.De Wit; J. Neys; D.Van Hessche

Waarnemingen Werkgroep Zon

| Wolfgetal - Individuele waarnemingen | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|--------------|--------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|--------------|-------------|--------------|----------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|-----|
| Dag | SIDC | J. Bourgeois | | | J. Carels | | | L. Claeys | | | H. De Backer | | | E. De Ceuninck | | | J. De Wit | | | F. Dubois | | | Dag |
| | R | g | f | R | g | f | R | g | f | R | g | f | R | g | f | R | g | f | R | g | f | R | |
| 1 | 71 | 4 | 17 | 57 | | | | 4 | 17 | 57 | 6 | 16 | 76 | 6 | 18 | 78 | 7 | 27 | 97 | 7 | 19 | 89 | 1 |
| 2 | 58 | | | | | | | | | | 5 | 18 | 68 | 5 | 23 | 73 | | | | 6 | 27 | 87 | 2 |
| 3 | 64 | | | | | | | | | | | | | 5 | 16 | 66 | | | | 5 | 24 | 74 | 3 |
| 4 | 70 | | | | | | | | | | | | | | | | | | | | | | 4 |
| 5 | 73 | 4 | 26 | 66 | 5 | 31 | 81 | 4 | 16 | 56 | 5 | 27 | 77 | 6 | 32 | 92 | 5 | 29 | 79 | 5 | 36 | 86 | 5 |
| 6 | 113 | 7 | 25 | 95 | | | | 7 | 29 | 99 | 9 | 29 | 119 | 9 | 38 | 128 | 8 | 34 | 114 | 10 | 35 | 135 | 6 |
| 7 | 106 | 8 | 41 | 121 | | | | 8 | 43 | 123 | 8 | 42 | 122 | 9 | 44 | 134 | 6 | 44 | 104 | 7 | 34 | 104 | 7 |
| 8 | 124 | 8 | 78 | 158 | | | | 8 | 63 | 143 | 9 | 55 | 145 | 10 | 86 | 186 | 7 | 55 | 125 | 10 | 76 | 176 | 8 |
| 9 | 128 | | | | | | | 7 | 67 | 137 | 10 | 74 | 174 | | | | 9 | 61 | 151 | 9 | 56 | 146 | 9 |
| 10 | 164 | 9 | 65 | 155 | 12 | 97 | 217 | 8 | 79 | 159 | 11 | 87 | 197 | 11 | 80 | 190 | 9 | 58 | 148 | 11 | 101 | 211 | 10 |
| 11 | 165 | | | | | | | | | | | | | | | | | | | | | | 11 |
| 12 | 156 | | | | | | | | | | | | | | | | | | | | | | 12 |
| 13 | 175 | 8 | 45 | 125 | 13 | 90 | 220 | 10 | 82 | 182 | 13 | 71 | 201 | 13 | 85 | 215 | 11 | 76 | 186 | 12 | 104 | 224 | 13 |
| 14 | 160 | 9 | 64 | 154 | 12 | 57 | 177 | 10 | 64 | 164 | 12 | 60 | 180 | 14 | 63 | 203 | 11 | 53 | 163 | 11 | 73 | 183 | 14 |
| 15 | 122 | 6 | 62 | 122 | | | | 9 | 70 | 160 | 9 | 44 | 134 | 9 | 41 | 131 | 8 | 48 | 128 | 8 | 49 | 129 | 15 |
| 16 | 92 | | | | | | | 7 | 43 | 113 | 7 | 42 | 112 | | | | 6 | 30 | 90 | 6 | 20 | 80 | 16 |
| 17 | 86 | 6 | 27 | 87 | | | | | | | 6 | 34 | 94 | | | | | | | | | | 17 |
| 18 | 104 | | | | | | | | | | | | | | | | | | | | | | 18 |
| 19 | 106 | | | | | | | | | | | | | | | | | | | 10 | 42 | 142 | 19 |
| 20 | 110 | 8 | 48 | 128 | | | | 8 | 35 | 115 | | | | | | | | | | | | | 20 |
| 21 | 104 | | | | | | | 7 | 52 | 122 | | | | | | | | | | | | | 21 |
| 22 | 86 | | | | | | | | | | | | | | | | | | | | | | 22 |
| 23 | 89 | | | | | | | | | | 5 | 48 | 98 | | | | | | | 6 | 61 | 121 | 23 |
| 24 | 117 | 7 | 73 | 143 | | | | | | | | | | 7 | 70 | 140 | | | | 6 | 61 | 121 | 24 |
| 25 | 126 | 7 | 64 | 134 | 7 | 78 | 148 | 7 | 74 | 144 | 7 | 70 | 140 | 8 | 78 | 158 | | | | 7 | 77 | 147 | 25 |
| 26 | 118 | 7 | 51 | 121 | 7 | 77 | 147 | 6 | 62 | 122 | 7 | 76 | 146 | 9 | 62 | 152 | 7 | 60 | 130 | 7 | 75 | 145 | 26 |
| 27 | 127 | 8 | 56 | 136 | 9 | 75 | 165 | 8 | 72 | 152 | 9 | 76 | 166 | 11 | 60 | 170 | 7 | 52 | 122 | 9 | 66 | 156 | 27 |
| 28 | 92 | 5 | 49 | 99 | 6 | 47 | 107 | 7 | 53 | 123 | 6 | 45 | 105 | 6 | 43 | 103 | 5 | 36 | 86 | 6 | 47 | 107 | 28 |
| | 110,9 | 6,9 | 49,4 | 118,8 | 9,0 | 67,9 | 157,9 | 7,4 | 54,2 | 127,7 | 8,0 | 50,8 | 130,8 | 8,6 | 52,4 | 138,7 | 7,6 | 47,4 | 123,1 | 7,9 | 54,2 | 133,2 | |

| Dag | SIDC | KSB | | | D. Laurent | | | J. Neys | | | B. Taillieu | | | G. Verbanck | | | R. Verboven | | | Dag | | | |
|-----|--------------|------------|-------------|--------------|------------|-------------|--------------|------------|-------------|--------------|-------------|-------------|--------------|-------------|-------------|--------------|--------------|--------------|--------------|-----|---|---|----|
| | R | g | f | R | g | f | R | g | f | R | g | f | R | g | f | R | g | f | R | | g | f | R |
| 1 | 71 | 7 | 33 | 103 | | | | | | | 6 | 18 | 78 | | | | | | | | | | 1 |
| 2 | 58 | 5 | 33 | 83 | | | | | | | | | | | | | | | | | | | 2 |
| 3 | 64 | | | | | | | | | | | | | | | | | | | | | | 3 |
| 4 | 70 | | | | | | | | | | | | | | | | | | | | | | 4 |
| 5 | 73 | 5 | 40 | 90 | 4 | 24 | 64 | | | | 4 | 25 | 65 | 6 | 31 | 91 | | | | | | | 5 |
| 6 | 113 | 9 | 32 | 122 | | | | | | | 6 | 37 | 97 | | | | | | | | | | 6 |
| 7 | 106 | 9 | 57 | 147 | 8 | 33 | 113 | 7 | 30 | 100 | 7 | 48 | 118 | | | | | | | | | | 7 |
| 8 | 124 | 9 | 55 | 145 | 7 | 43 | 113 | | | | 8 | 42 | 122 | | | | | | | | | | 8 |
| 9 | 128 | 9 | 73 | 163 | 6 | 58 | 118 | | | | | | | | | | | | | | | | 9 |
| 10 | 164 | | | | | | | 9 | 46 | 136 | 11 | 68 | 178 | | | | | | | | | | 10 |
| 11 | 165 | | | | | | | | | | | | | | | | | | | | | | 11 |
| 12 | 156 | | | | | | | | | | | | | | | | | | | | | | 12 |
| 13 | 175 | 15 | 118 | 268 | 12 | 63 | 183 | | | | 11 | 72 | 182 | | | | | | | | | | 13 |
| 14 | 160 | 14 | 95 | 235 | 10 | 67 | 167 | 13 | 40 | 170 | 10 | 56 | 156 | | | | | | | | | | 14 |
| 15 | 122 | 10 | 100 | 200 | | | | | | | 8 | 44 | 124 | | | | | | | | | | 15 |
| 16 | 92 | 7 | 66 | 136 | | | | | | | | | | | | | | | | | | | 16 |
| 17 | 86 | | | | | | | | | | | | | | | | | | | | | | 17 |
| 18 | 104 | | | | | | | | | | | | | | | | | | | | | | 18 |
| 19 | 106 | | | | | | | | | | 7 | 29 | 99 | | | | | | | | | | 19 |
| 20 | 110 | | | | | | | | | | | | | | | | | | | | | | 20 |
| 21 | 104 | | | | | | | | | | | | | | | | | | | | | | 21 |
| 22 | 86 | | | | | | | | | | | | | | | | | | | | | | 22 |
| 23 | 89 | | | | 6 | 38 | 98 | | | | 5 | 50 | 100 | | | | | | | | | | 23 |
| 24 | 117 | 8 | 63 | 143 | | | | | | | | | | 6 | 58 | 118 | | | | | | | 24 |
| 25 | 126 | 9 | 77 | 167 | 7 | 63 | 133 | 7 | 54 | 124 | 7 | 51 | 121 | 7 | 70 | 140 | | | | | | | 25 |
| 26 | 118 | 9 | 75 | 165 | 7 | 67 | 137 | 7 | 42 | 112 | 7 | 64 | 134 | 7 | 60 | 130 | | | | | | | 26 |
| 27 | 127 | 8 | 71 | 151 | 6 | 48 | 108 | | | | 7 | 49 | 119 | | | | | | | | | | 27 |
| 28 | 92 | 6 | 59 | 119 | 6 | 36 | 96 | 6 | 32 | 92 | 6 | 31 | 91 | | | | | | | | | | 28 |
| | 110,9 | 8,7 | 65,4 | 152,3 | 7,2 | 49,1 | 120,9 | 8,2 | 40,7 | 122,3 | 7,3 | 45,6 | 118,9 | 6,5 | 54,8 | 119,8 | ##### | ##### | ##### | | | | |

Waarnemingen Werkgroep Zon

R' - Beckgetal

| Dag | J. Bourgeois | J. Carels | H. De Backer | E. De Ceuninck | F. Dubois | D. Laurent | J. Neys | G. Verbanck | R. Verboven |
|-----|--------------|---------------|--------------|----------------|--------------|--------------|--------------|---------------|--------------|
| 1 | 215 | | 195 | 203 | 215 | | | | |
| 2 | | | 224 | 140 | 405 | | | | |
| 3 | | | | 96 | 184 | | | | |
| 4 | | | | | | | | | |
| 5 | 144 | 208 | 244 | 128 | 252 | 180 | | 156 | |
| 6 | 334 | | 325 | 325 | 369 | | | | |
| 7 | 464 | | 611 | 597 | 463 | 495 | 515 | | |
| 8 | 1476 | 1199 | 1132 | 1479 | 1163 | 788 | | | |
| 9 | | | 1450 | 1265 | 1066 | | | | |
| 10 | 1536 | 2718 | 1525 | 1392 | 2316 | | 994 | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | 486 | 1320 | 1419 | 1123 | 1312 | 1162 | | | |
| 14 | 967 | 697 | 892 | 839 | 1102 | 950 | 580 | | No data |
| 15 | 1171 | | 828 | 580 | 1043 | | | | |
| 16 | | | 697 | | 359 | | | | |
| 17 | 577 | | 591 | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | 773 | | | | |
| 20 | 1011 | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | 937 | | 1093 | 666 | | | |
| 24 | 1363 | | | 1378 | 1009 | | 1057 | | |
| 25 | 1257 | 1481 | 1584 | 1505 | 1919 | 1106 | 1062 | 1522 | |
| 26 | 950 | 1868 | 2092 | 1185 | 1955 | 1520 | 784 | 1449 | |
| 27 | 980 | 1961 | 2094 | 1121 | 1361 | 1268 | | | |
| 28 | 904 | 948 | 1150 | 807 | 1190 | 978 | 774 | | |
| | 864,7 | 1377,8 | 999,4 | 806,1 | 987,4 | 925,4 | 784,8 | 1046,0 | ##### |

CV - Classification Value

| Dag | J. Carels | H. De Backer | E. De Ceuninck | F. Dubois | J. Janssens | D. Laurent | J. Neys | R. Verboven |
|-----|--------------|--------------|----------------|-------------|-------------|--------------|--------------|--------------|
| 1 | | 33 | 19 | 31 | | | | |
| 2 | | 32 | 11 | 34 | | | | |
| 3 | | | 12 | 23 | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | 23 | 39 | 10 | 25 | | 25 | | |
| 7 | | 72 | 44 | 50 | | | | |
| 8 | | 69 | 87 | 69 | 57 | 88 | 69 | |
| 9 | 120 | 78 | 103 | 89 | | 89 | | |
| 10 | | 154 | | 129 | | 134 | | |
| 11 | 226 | 199 | 144 | 174 | | | 185 | |
| 12 | | | | | | | | |
| 13 | 163 | 236 | 131 | 165 | | 207 | | |
| 14 | 107 | 150 | 116 | 119 | | 129 | 182 | No data |
| 15 | | 128 | 97 | 105 | 120 | | | |
| 16 | | 97 | | 61 | | | | |
| 17 | | 95 | | | | | | |
| 18 | | | | | | | | |
| 19 | | | | 131 | | | | |
| 20 | | | | | | | | |
| 21 | | | | | | | | |
| 22 | | | | | | | | |
| 23 | | 116 | | 82 | | 88 | | |
| 24 | | | 137 | 107 | | | | |
| 25 | 117 | 111 | 99 | 113 | | 118 | 126 | |
| 26 | 114 | 111 | 89 | 100 | 84 | 111 | 116 | |
| 27 | 105 | 135 | 69 | 93 | | 91 | | |
| 28 | 115 | 92 | 48 | 90 | | 90 | 89 | |
| | 121,1 | 108,2 | 76,0 | 89,5 | 87,0 | 106,4 | 127,8 | ##### |

SN- Pettis Index

| Dag | J. Carels | E. De Ceuninck | F. Dubois | J. Neys |
|-----|--------------|----------------|--------------|--------------|
| 1 | | 45 | 54 | |
| 2 | | 40 | 62 | |
| 3 | | 24 | 68 | |
| 4 | | | | |
| 5 | 49 | 32 | 62 | |
| 6 | | 79 | 95 | |
| 7 | | 105 | 99 | 103 |
| 8 | 168 | 142 | 128 | |
| 9 | | | 183 | |
| 10 | 281 | 209 | 230 | 152 |
| 11 | | | | |
| 12 | | | | |
| 13 | 222 | 216 | 217 | |
| 14 | 160 | 174 | 163 | 108 |
| 15 | | 134 | 134 | |
| 16 | | | 68 | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | 111 | |
| 20 | | | | |
| 21 | | | | |
| 22 | | | | |
| 23 | | | 124 | |
| 24 | | 180 | 152 | |
| 25 | 182 | 220 | 152 | 115 |
| 26 | 159 | 181 | 169 | 115 |
| 27 | 181 | 162 | 137 | |
| 28 | 92 | 109 | 93 | 77 |
| | 166,0 | 128,3 | 125,1 | 111,7 |

IS - Inter-sol Index

| Dag | J. Carels | F. Dubois |
|-----|-------------|-------------|
| 1 | | 24 |
| 2 | | 32 |
| 3 | | 29 |
| 4 | | |
| 5 | 36 | 41 |
| 6 | | 43 |
| 7 | | 40 |
| 8 | 66 | 86 |
| 9 | | 62 |
| 10 | 108 | 106 |
| 11 | | |
| 12 | | |
| 13 | 103 | 125 |
| 14 | 109 | 79 |
| 15 | | 57 |
| 16 | | 23 |
| 17 | | |
| 18 | | |
| 19 | | 50 |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | | 66 |
| 24 | | 67 |
| 25 | 83 | 83 |
| 26 | 83 | 81 |
| 27 | 81 | 72 |
| 28 | 51 | 51 |
| | 80,0 | 60,9 |

A - Blote Oog *

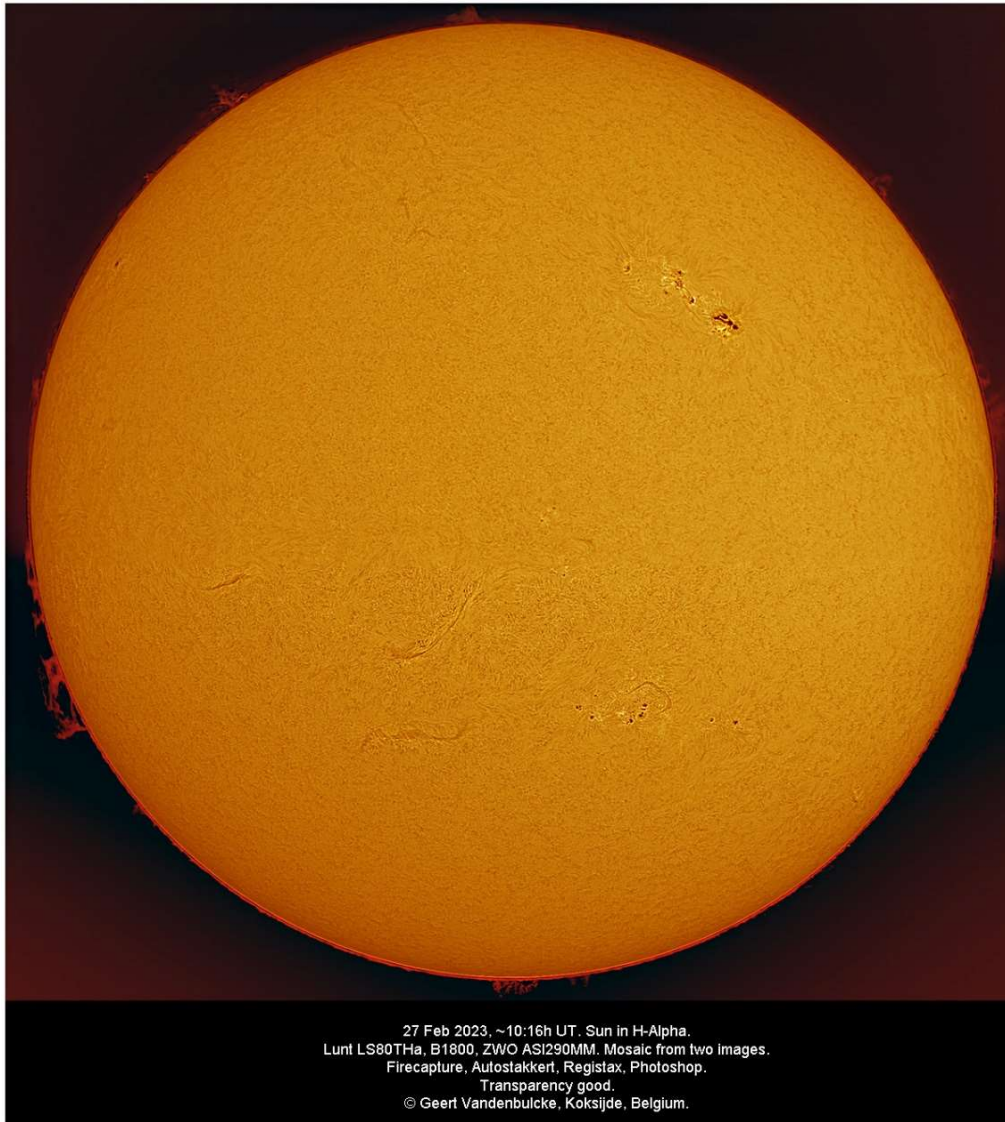
| Dag | J. Carels | J. Janssens |
|-----|------------|-------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | - | |
| 6 | | |
| 7 | | 0 |
| 8 | - | |
| 9 | | |
| 10 | 0 | |
| 11 | | |
| 12 | | |
| 13 | 0 | |
| 14 | 2 | |
| 15 | | 0 |
| 16 | | |
| 17 | | |
| 18 | | |
| 19 | | |
| 20 | | |
| 21 | | |
| 22 | | |
| 23 | | |
| 24 | | |
| 25 | 1 | |
| 26 | 1 | 0 |
| 27 | 1 | |
| 28 | - | |
| | 5,0 | 0,0 |

* waarneming met het blote oog, weliswaar doorheen een veilige zonnfilter

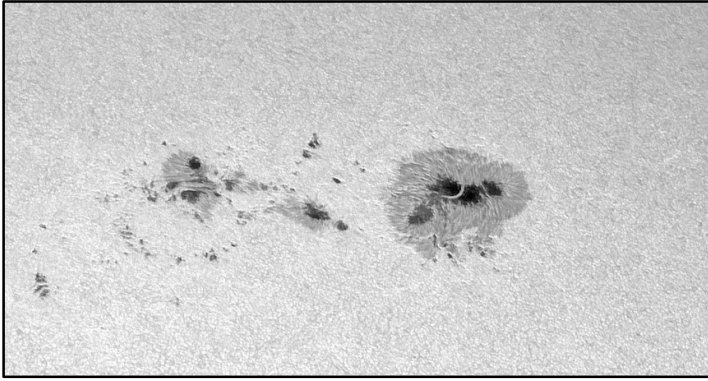
Zonfototo's van de maand

Voor het Zonnerapport van maart '23 ben ik nog op zoek naar tekeningen of foto's van de zon gemaakt door leden van de werkgroep. Ook foto's van jullie instrumentarium zijn welkom! Deze mogen jullie doorsturen naar het emailadres van de werkgroep: waarnemingen-wgzon@carels.be

Geert Vandenbulcke – 27 Februari – zon in H-Alpha

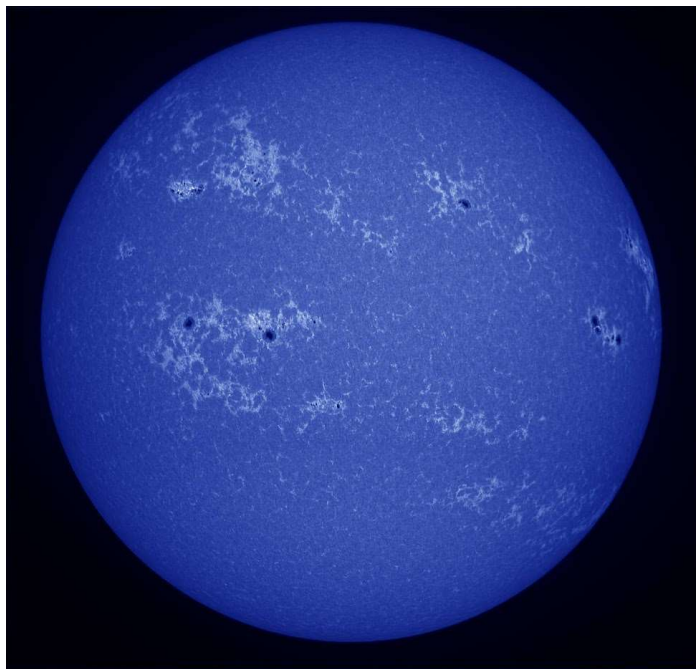


27 Feb 2023, ~10:16h UT. Sun in H-Alpha.
Lunt LS80THa, B1800, ZWO ASI290MM. Mosaic from two images.
Firecapture, Autofokker, Registax, Photoshop.
Transparency good.
© Geert Vandenbulcke, Koksijde, Belgium.

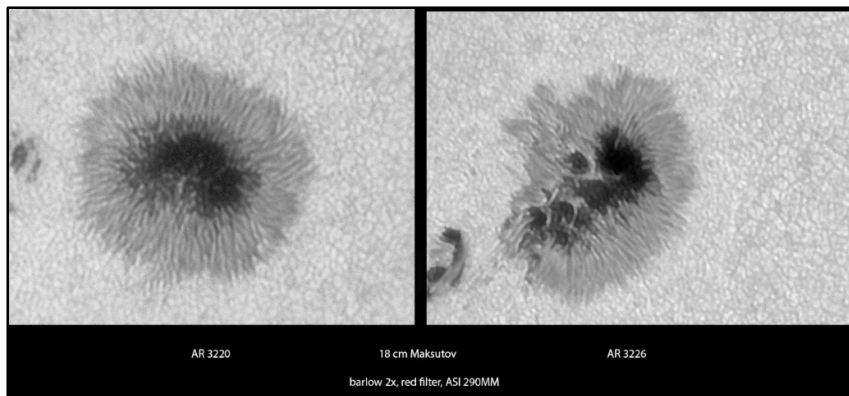


AR 13234
28 februari - Leo Aerts

Full Disk CaK
13 februari - Janos Barabas



AR 13220 & 13226
14 februari
Leo Aerts



AR 13220

19 cm Maksutov

AR 13226

barlow 2x, red filter, ASI 290MM

Krachtige X2.2 uitbarsting op de zon

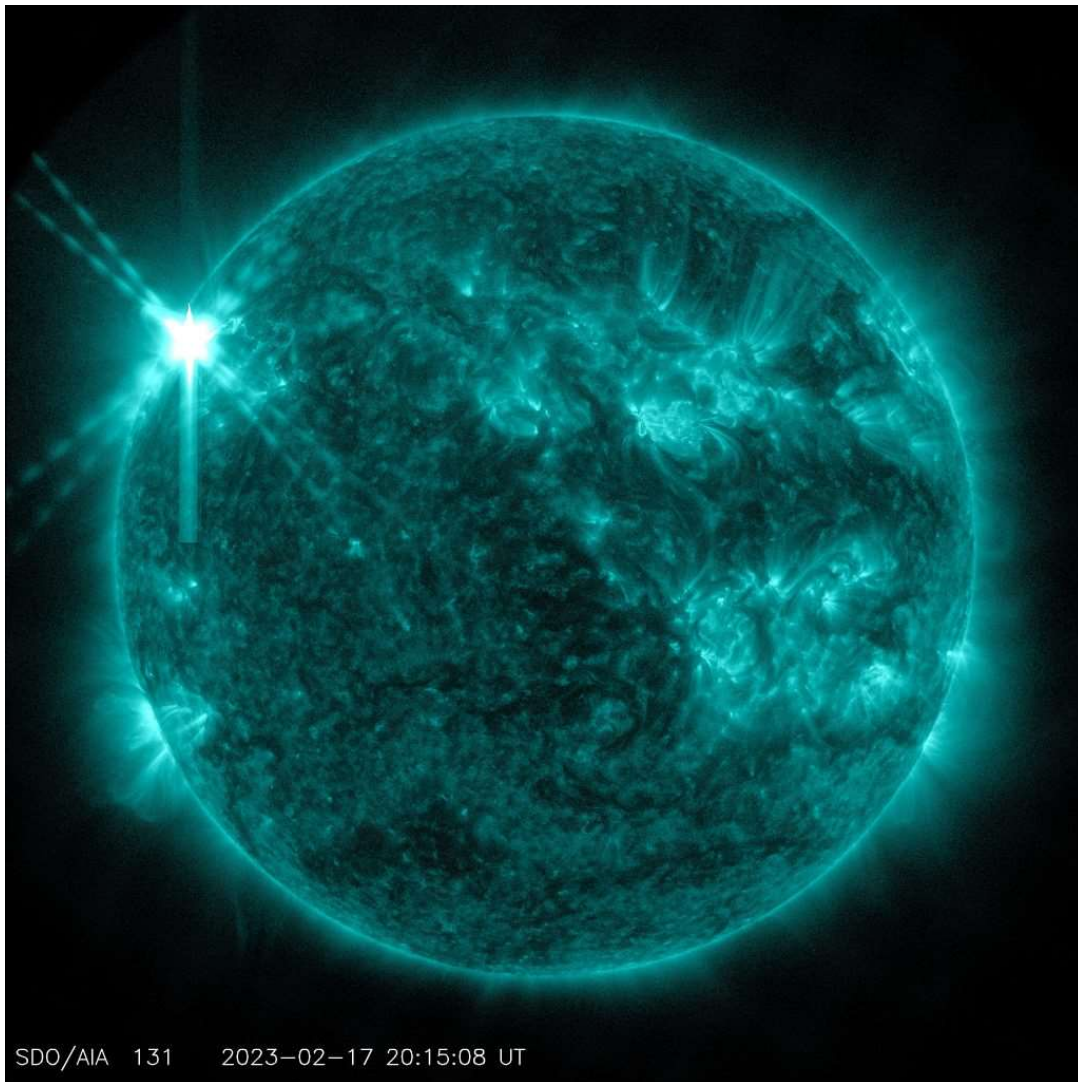


Foto: NASA/SDO

Op vrijdag 17 februari 2023 barstte een sterke zonnevlam uit op de zon. NASA's Solar Dynamics Observatory (SDO) , dat voortdurend naar de zon kijkt, legde een beeld vast van deze gebeurtenis. De zonnevlam werd geregistreerd als een X2.2 uitbarsting, en veroorzaakte een tijdelijke radio black-out aan de zongerichte kant van onze planeet. X-klasse zonnevlammen zijn de meest krachtige uitbarstingen op de zon.
<https://sdo.gsfc.nasa.gov/>