

| No. crt. | Year | Month | Day | 3-H | V0 (km/s) | V1 (km/s) | $\Delta t1$ | Vmax (km/s) | Dur (days) | $\Delta V1$ (km/s) | $\Delta VM$ (km/s) | I       | Source            | IMF | Dst_min (nT) | Dst_date (mm:dd:hh) | Bz_min (nT) | Bz_date (mm:dd:hh) | SSC_date (mm:dd:hh) | Energy estimates $\epsilon$ (J/S) | Energy estimates W (J/S) | SYM_min (nT) | SYM_min date |
|----------|------|-------|-----|-----|-----------|-----------|-------------|-------------|------------|--------------------|--------------------|---------|-------------------|-----|--------------|---------------------|-------------|--------------------|---------------------|-----------------------------------|--------------------------|--------------|--------------|
| 1        | 2015 | 1     | 4   | 6   | 395.7     | 518.3     | 9           | 518.3       | 2.5        | 122.6              | 122.6              | 306.5   | CH648             | -   | -71          | 01:04:21            | -6.4        | 01:04:20           |                     | 1.01E+15                          | 1.49E+17                 | -75          | 01:04:21:46  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -42          | 01:06:09            | -6.6        | 01:06:08           |                     |                                   |                          | -48          | 01:06:10:04  |
| 2        | 2015 | 1     | 10  | 1   | 397.3     | 560       | 10          | 560         | 4.1        | 162.7              | 162.7              | 667.07  | CH649             | +   | -30          | 01:10:01            | -2.9        | 01:09:23           |                     |                                   |                          | -36          | 01:10:01:17  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -30          | 01:11:13            | -1.8        | 01:11:12           |                     |                                   |                          | -36          | 01:11:13:30  |
| 3        | 2015 | 1     | 20  | 7   | 283       | 474.7     | 8           | 476         | 5.4        | 191.7              | 193                | 1042.2  | CH*               | -   |              |                     |             |                    |                     |                                   |                          |              |              |
| 4        | 2015 | 1     | 26  | 2   | 335.3     | 488       | 12          | 501         | 5.8        | 152.7              | 165.7              | 961.06  | CH*               | -   | -34          | 01:26:10            | -10.9       | 01:26:09           |                     |                                   |                          | -54          | 01:26:10:30  |
| 5        | 2015 | 1     | 31  | 8   | 399       | 646.7     | 8           | 685.7       | 5.1        | 247.7              | 286.7              | 1462.17 | CH*               | -   |              |                     |             |                    |                     |                                   |                          |              |              |
| 6        | 2015 | 2     | 7   | 8   | 399.7     | 551.3     | 6           | 551.3       | 1.9        | 151.7              | 151.7              | 288.23  | CH652             | +   | -38          | 02:07:10            | -5.3        | 02:07:08           |                     |                                   |                          | -45          | 02:07:10:12  |
| 7        | 2015 | 2     | 17  | 1   | 343       | 460.7     | 12          | 460.7       | 3.5        | 117.7              | 117.7              | 411.95  | CH654             | -   | -64          | 02:18:00            | -12         | 02:17:21           |                     | 1.70E+15                          | 3.32E+16                 | -70          | 02:17:23:58  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -32          | 02:19:04            | -5.2        | 02:19:03           |                     |                                   |                          | -34          | 02:19:04:08  |
| 8        | 2015 | 2     | 22  | 6   | 303       | 431       | 9           | 480.3       | 5.2        | 128                | 177.3              | 921.96  | CH655             | +   | -56          | 02:24:07            | -5.6        | 02:24:05           |                     | 2.49E+16                          | 2.13E+17                 | -62          | 02:24:07:02  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -31          | 02:25:08            | -2.4        | 02:25:06           |                     |                                   |                          | -38          | 02:25:07:59  |
| 9        | 2015 | 2     | 27  | 8   | 324.7     | 462.7     | 8           | 638.3       | 6.1        | 138                | 313.6              | 1912.96 | CH*               | -   | -46          | 03:01:08            | -5.4        | 03:01:07           |                     |                                   |                          | -61          | 03:01:07:56  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -54          | 03:02:08            | -8.5        | 03:02:06           |                     | 2.27E+16                          | 3.02E+17                 | -70          | 03:02:08:51  |
| 10       | 2015 | 3     | 6   | 1   | 414.7     | 564.3     | 13          | 567         | 3.6        | 149.6              | 152.3              | 548.28  | CH657             | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 11       | 2015 | 3     | 21  | 1   | 581       | 690.3     | 11          | 690.3       | 4          | 109.3              | 109.3              | 437.2   | CH660             | +   | -57          | 03:21:00            | -3.4        | 03:20:22           |                     | 7.56E+14                          | 2.27E+16                 | -60          | 03:21:00:25  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -43          | 03:22:14            | -2.1        | 03:22:12           |                     |                                   |                          | -43          | 03:22:14:14  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -39          | 03:23:21            | -1.7        | 03:23:20           |                     |                                   |                          | -43          | 03:23:21:19  |
| 12       | 2015 | 3     | 31  | 1   | 320       | 426.3     | 14          | 570.7       | 13.9       | 106.3              | 250.7              | 3484.73 | CH661             | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 13       | 2015 | 4     | 14  | 1   | 297.7     | 597.3     | 14          | 696.7       | 6.2        | 299.6              | 399                | 2473.8  | CH663             | -   | -37          | 04:14:22            | -5.4        | 04:14:21           |                     |                                   |                          | -46          | 04:14:22:32  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -79          | 04:16:23            | -6          | 04:16:23           |                     | 5.85E+15                          | 1.51E+17                 | -88          | 04:16:23:29  |
| 14       | 2015 | 4     | 20  | 3   | 380       | 570.3     | 10          | 570.3       | 4.4        | 190.3              | 190.3              | 837.32  | CH664             | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 15       | 2015 | 4     | 30  | 2   | 288.3     | 440       | 13          | 440         | 5.5        | 151.7              | 151.7              | 834.35  | CH665             | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 16       | 2015 | 5     | 12  | 2   | 342       | 466.3     | 6           | 720.3       | 6.4        | 124.3              | 378.3              | 2421.12 | CH667             | -   | -76          | 05:13:06            | -8.9        | 05:13:05           |                     | 8.59E+13                          | 1.16E+16                 | -98          | 05:13:06:59  |
| 17       | 2015 | 5     | 18  | 5   | 351.3     | 531.3     | 9           | 531.3       | 4.4        | 180                | 180                | 792     | CH668             | +   | -44          | 05:19:03            | -4.4        | 05:19:02           |                     |                                   |                          | -64          | 05:19:02:55  |
| 18       | 2015 | 5     | 28  | 1   | 290.7     | 401.3     | 15          | 401.3       | 7.1        | 110.6              | 110.6              | 785.26  | CH670             | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 19       | 2015 | 6     | 7   | 2   | 299.7     | 652       | 12          | 652         | 7          | 352.3              | 352.3              | 2466.1  | CH671             | -   | -73          | 06:08:08            | -14.4       | 06:08:06           |                     | 5.62E+15                          | 4.95E+16                 | -105         | 06:08:07:45  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -42          | 06:09:18            | -1.7        | 06:09:17           |                     |                                   |                          | -60          | 06:09:18:49  |
| 20       | 2015 | 6     | 14  | 2   | 453.7     | 576.7     | 4           | 590.7       | 3.8        | 123                | 137                | 520.6   | CH672             | +   | -44          | 06:17:15            | -5.7        | 06:17:14           |                     |                                   |                          | -36          | 06:17:15:52  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -32          | 06:18:15            | -2.8        | 06:18:13           |                     |                                   |                          | -30          | 06:18:15:53  |
| 21       | 2015 | 6     | 24  | 4   | 556       | 700.6     | 6           | 754.3       | 4.5        | 144.7              | 198.3              | 892.35  | CME, CH673        | +   | -86          | 06:25:15            | -6.7        | 06:25:13           |                     | 1.46E+16                          | 2.13E+17                 | -82          | 06:25:14:39  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -55          | 06:28:07            | -5.4        | 06:28:05           |                     | 8.35E+14                          | 1.61E+16                 | -63          | 06:28:06:22  |
| 22       | 2015 | 7     | 4   | 1   | 310.7     | 538.7     | 7           | 538.7       | 6.2        | 228                | 228                | 1413.6  | CH675             | -   | -67          | 07:05:05            | -10.1       | 07:05:05           |                     | 1.54E+17                          | 1.27E+18                 | -87          | 07:05:04:52  |
| 23       | 2015 | 7     | 10  | 3   | 318       | 626       | 9           | 626         | 10.5       | 308                | 308                | 3234    | CH676             | +   | -61          | 07:13:15            | -4.8        | 07:13:12           |                     | 1.71E+16                          | 6.12E+17                 | -63          | 07:13:15:33  |
| 24       | 2015 | 7     | 20  | 1   | 284.3     | 390.7     | 14          | 495.3       | 10.5       | 106.4              | 211                | 2215.5  | CHs677, 678       | +   | -63          | 07:23:07            | -11         | 07:23:05           |                     | 1.47E+14                          | 2.78E+16                 | -83          | 07:23:07:28  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -36          | 07:26:00            | -4.2        | 07:25:23           |                     |                                   |                          | -39          | 07:25:23:59  |
| 25       | 2015 | 7     | 30  | 5   | 342       | 579.3     | 10          | 603         | 6.4        | 237.3              | 261                | 1670.4  | CH679             | -   |              |                     |             |                    |                     |                                   |                          |              |              |
| 26       | 2015 | 8     | 5   | 8   | 371.3     | 555       | 6           | 557.7       | 6.4        | 183.7              | 186.4              | 1192.96 | CHs680, 681       | +   |              |                     |             |                    |                     |                                   |                          |              |              |
| 27       | 2015 | 8     | 14  | 3   | 323       | 497.7     | 13          | 572         | 8.1        | 174.7              | 249                | 2016.9  | CH682, 683        | +   | -84          | 08:16:07            | -8.4        | 08:16:06           | 08:15:08            | 2.41E+17                          | 2.10E+18                 | -94          | 08:16:07:37  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -38          | 08:17:16            | -3.7        | 08:17:14           |                     |                                   |                          | -32          | 08:17:16:33  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -50          | 08:19:06            | -6.2        | 08:19:04           |                     | 2.35E+15                          | 1.06E+17                 | -57          | 08:19:06:14  |
| 28       | 2015 | 8     | 22  | 4   | 363       | 569       | 10          | 569         | 5          | 206                | 206                | 1030    | CH684             | +   | -43          | 08:23:08            | -8.5        | 08:23:07           |                     |                                   |                          | -62          | 08:23:08:34  |
| 29       | 2015 | 8     | 28  | 4   | 335.3     | 471.3     | 12          | 491.3       | 8.9        | 136                | 156                | 1388.4  | CH685             | -   | -92          | 08:27:20            | -10.8       | 08:27:18           |                     | 7.44E+14                          | 2.90E+16                 | -101         | 08:27:20:32  |
| 30       | 2015 | 9     | 6   | 3   | 435.7     | 589       | 11          | 589         | 2.8        | 153.3              | 153.3              | 429.24  | CH687             | +   | -70          | 09:07:20            | -8.2        | 09:07:18           |                     | 2.75E+15                          | 1.20E+17                 | -73          | 09:07:20:16  |
| 31       | 2015 | 9     | 10  | 3   | 385.3     | 623.3     | 10          | 623.3       | 4          | 238                | 238                | 952     | CH688             | +   | -98          | 09:09:12            | -10.2       | 09:09:08           |                     | 1.47E+17                          | 1.22E+18                 | -100         | 09:09:12:18  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -81          | 09:11:14            | -0.3        | 09:11:14           |                     | 2.21E+16                          | 3.17E+17                 | -95          | 09:11:14:26  |
| 32       | 2015 | 9     | 14  | 3   | 415.7     | 521.7     | 9           | 521.7       | 3.8        | 106                | 106                | 402.8   | CH689             | +   | -41          | 09:14:16            | -4.4        | 09:14:14           |                     |                                   |                          | -47          | 09:14:16:15  |
| 33       | 2015 | 9     | 19  | 7   | 391       | 551.7     | 8           | 631         | 8.2        | 160.7              | 240                | 1968    | CHs690, 691, CM F | +   | -75          | 09:20:15            | -3          | 09:20:12           | 09:20:06            | 5.16E+16                          | 8.01E+17                 | -70          | 09:20:15:49  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -37          | 09:23:17            | -6.7        | 09:23:16           |                     |                                   |                          | -37          | 09:23:17:30  |
| 34       | 2015 | 10    | 3   | 6   | 372.3     | 479.3     | 8           | 479.3       | 2.9        | 107                | 107                | 310.3   | CH*               | +   | -55          | 10:04:09            | -7.7        | 10:04:04           |                     | 9.78E+15                          | 2.55E+17                 | -52          | 10:04:07:33  |
| 35       | 2015 | 10    | 6   | 5   | 380       | 762.7     | 11          | 764.3       | 5.8        | 382.7              | 384.3              | 2228.94 | CH694             | +   | -124         | 10:07:22            | -6.4        | 10:07:20           |                     | 2.69E+17                          | 3.21E+18                 | -124         | 10:07:22:23  |
| 36       | 2015 | 10    | 12  | 3   | 437       | 568.7     | 7           | 568.7       | 3.4        | 131.7              | 131.7              | 447.78  | CH695             | +   | -42          | 10:12:18            | -6.5        | 10:12:16           |                     |                                   |                          | -39          | 10:12:18:29  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -46          | 10:14:06            | -4.9        | 10:14:04           |                     |                                   |                          | -52          | 10:14:06:05  |
| 37       | 2015 | 10    | 17  | 6   | 344       | 456.3     | 8           | 456.3       | 3.5        | 112.3              | 112.3              | 393.05  | CH695 partII      | +   | -48          | 10:18:09            | -11         | 10:18:08           |                     |                                   |                          | -46          | 10:18:10:00  |
| 38       | 2015 | 10    | 21  | 2   | 351.3     | 476       | 5           | 495         | 6.8        | 124.7              | 143.7              | 977.16  | CH696             | -   |              |                     |             |                    |                     |                                   |                          |              |              |
| 39       | 2015 | 11    | 2   | 8   | 311.3     | 691.7     | 7           | 714         | 3.8        | 380.4              | 402.7              | 1530.26 | CH697             | +   | -55          | 11:03:12            | -2.9        | 11:03:11           | 11:03:01            | 3.50E+16                          | 2.20E+17                 | -60          | 11:03:12:43  |
|          |      |       |     |     |           |           |             |             |            |                    |                    |         |                   |     | -60          | 11:04:12            | -3.2        | 11:04:11           |                     | 1.08E+16                          | 3.00E+17                 | -67          | 11:04:13:01  |
| 40       | 2015 | 11    | 8   | 5   | 462.3     | 599       | 11          | 713         | 4.2        | 136.7              | 250.7              | 1052.94 |                   |     |              |                     |             |                    |                     |                                   |                          |              |              |