

May 2019 has been a more active month in the sense of solar activity. A number of 27 CMEs has been spotted (source <http://sidc.oma.be/cactus/catalog.php>) with angular width $w < 90^\circ$ and one CME has angular width $90^\circ < 180^\circ$. These CMEs together with the high-speed streams of solar wind for this month resulted to a distinct modulation of the galactic cosmic rays. May was also a more active month in the sense of proton flux levels of solar flares (SFs). 13 solar flares with magnitude $> C1.0$ were recorded during this period. The most energetic solar flare was a M1.0 noticed on 06/05/2019, 05:10 UT peak time from AR2740 with coordinates N08E50 (Fig. 1).

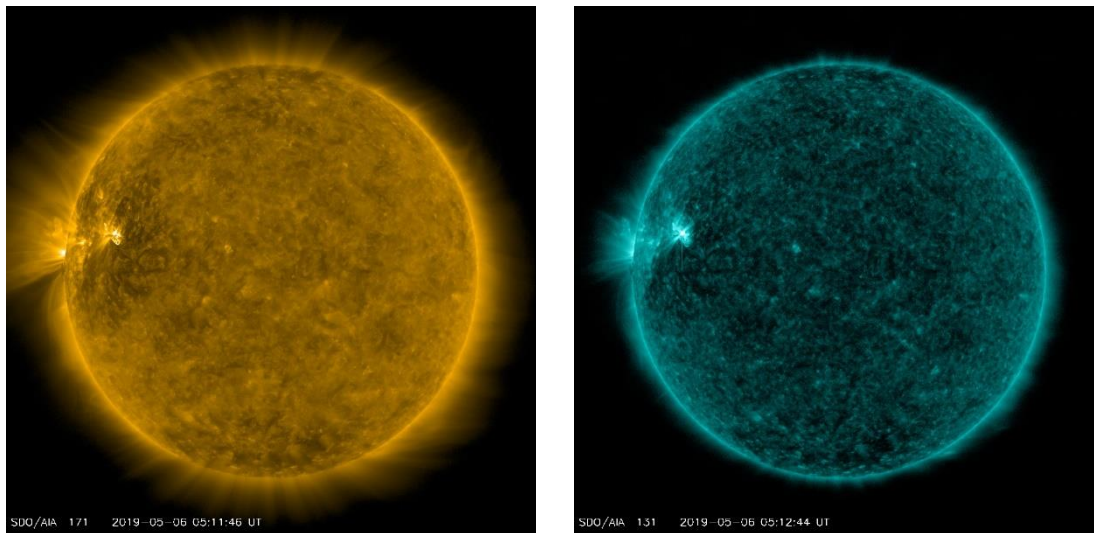


Figure 1: The M1.0 solar flare of 06/05/2019 at 05:10 UT peak time (from <https://sdo.gsfc.nasa.gov/data/aiahmi/>)

May was more active month in the sense of geomagnetic activity in contrary to previous months. The interaction of high-speed solar wind streams from coronal holes on May 1-2 and 29 triggered minor geomagnetic storms of G1 level. The interaction of the ambient solar wind with Earth’s magnetosphere on May 14 triggered the most intense geomagnetic storm of 2019 reaching the G3 level. On May 11 the arrival of a CME triggered also a geomagnetic storm of G1 level. The Kp index values during the period May 10-15 is presented in Fig. 2.

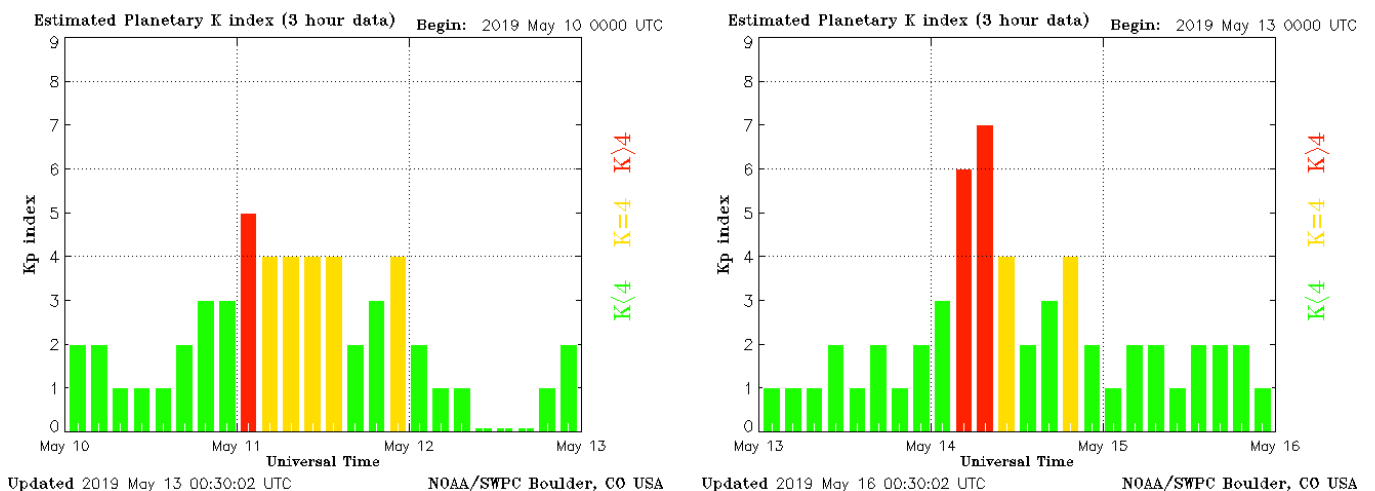
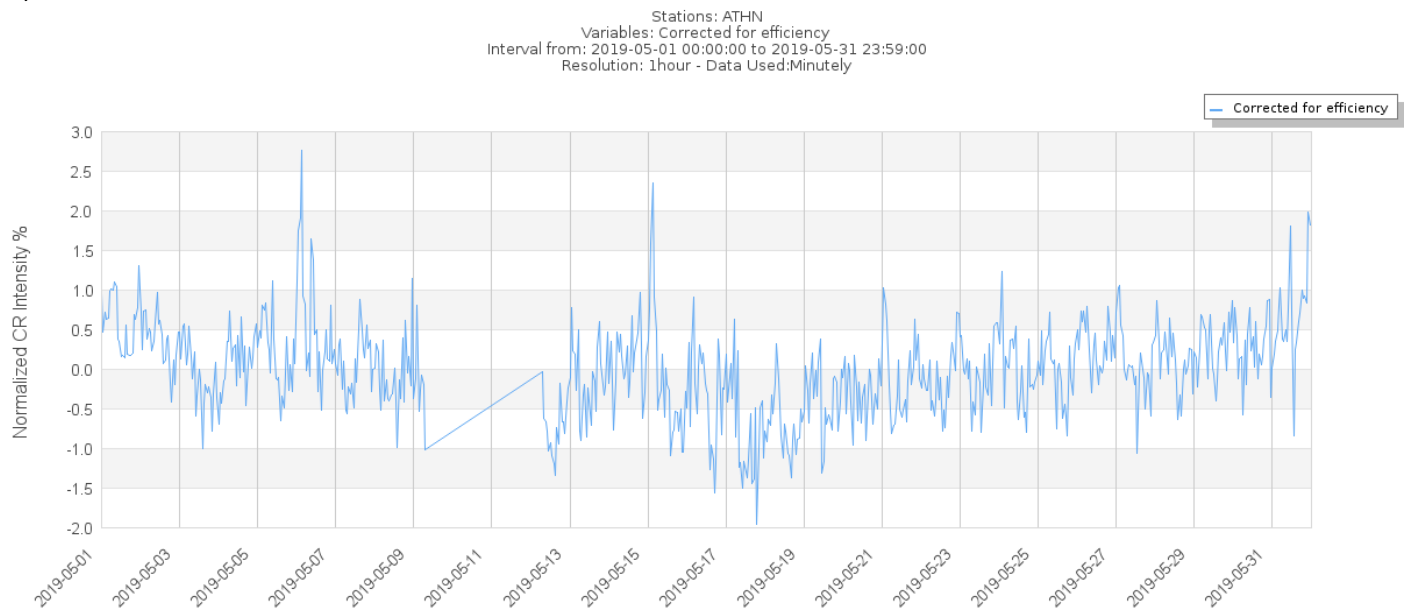


Figure 2: The arrival of a CME triggered a geomagnetic storm of G1 level (left panel) and the interaction of ambient solar wind with Earth’s magnetosphere triggered a strong geomagnetic storm of G3 level (right panel). (from ftp://ftp.swpc.noaa.gov/pub/warehouse/2019_plots/kp/)

The results of these events during this month were spotted on the cosmic ray intensity as Forbush effects, recorded at Athens Neutron Monitor Station (cut-off rigidity 8.53 GV) with amplitudes varied from 1% up to almost 3.5% (Fig. 3).



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Figure 3: Hourly corrected for pressure and efficiency values of the cosmic ray intensity recorded by Athens Neutron Monitor Station from 01-31/05/2019 (From the multi station data service of [Athens NM Station](http://athens.nmdb.eu))

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