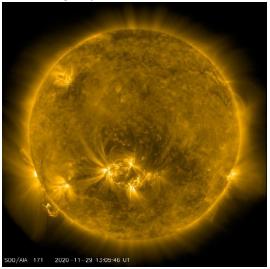
## **Newsletter Cosmic Rays / November 2020**

November 2020 has been a more active month in the sense of solar activity. A number of 34 CMEs has been spotted (source http://sidc.oma.be/cactus/catalog.php) with angular width  $w < 90^\circ$  and 2 CMEs with angular width  $90^\circ < w < 180^\circ$ . These CMEs together with the high-speed streams of solar wind for this month resulted to a distinct modulation of the galactic cosmic rays. November was also the most active month in the sense of proton flux levels of solar flares (SFs) during the last three years. 53 solar flares with magnitude > C1.0 were recorded during this period. The most energetic solar flare of the last three years was a M4.4 noticed on 29/11/2020, 13:11 UT peak time from an active region just behind the south/east limb of visible solar disk (Fig. 1).



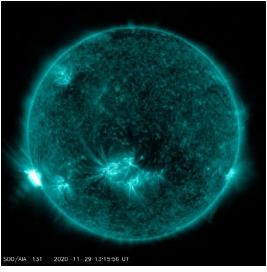


Figure 1: The M4.4 solar flare of 29/11/2020 at 13:11 UT peak time (from <a href="https://sdo.gsfc.nasa.gov/data/aiahmi/">https://sdo.gsfc.nasa.gov/data/aiahmi/</a>)

November was not a more active month in the sense of geomagnetic activity in contrary to previous months. The interaction of weak CME effects combined with high-speed solar wind streams from coronal holes on November 1, 6-7, 20-23 and 28 triggered minor geomagnetic disturbances. These disturbances 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 2.5% (Fig. 2).

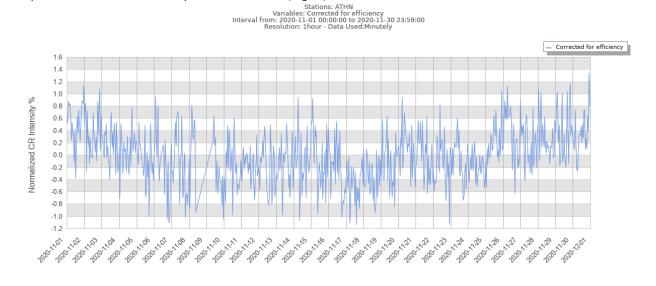


Figure 2: Hourly corrected for pressure and efficiency values of the cosmic ray intensity recorded by Athens Neutron Monitor Station from 01-30/11/2020 (From the multi station data service of Athens NM Station)

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