Newsletter Cosmic Rays / May 2016

May 2016 has been quieter month than April in the sense of solar activity. A number of 72 CMEs have been spotted, with only 1 CME with angular width 90° < da < 180° resulting into distinct modulation of the galactic cosmic rays (source: http://sidc.oma.be/cactus/catalog.php). May was also quiet in the production rate of solar flares (SFs). A number of 25 C-class solar flares were spotted, the most energetic one being a C8.4 one on 14/05/2016 at 11:28 UT (start time) from the AR 12543, S06W56 (Fig. 1).

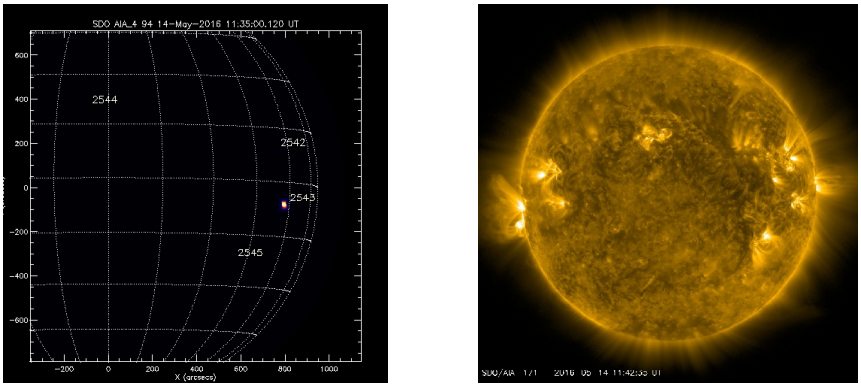

Figure 1: The C8.4 solar flare of 14/05/2016 at 11:34 peak time (from http://www.lmsal.com/solarsoft and http://sdo.gsfc.nasa.gov/data/aiahmi/)

The interaction of high speed solar wind streams with Earth's magnetosphere had as a result three geomagnetic storms on May 6, 8-10 and 21 (G1, G3 and G1, respectively). As Earth entered in a region with negative polarity magnetic fields triggered on May 8 the most intense (G3) geomagnetic storm of 2016 (Fig. 2).

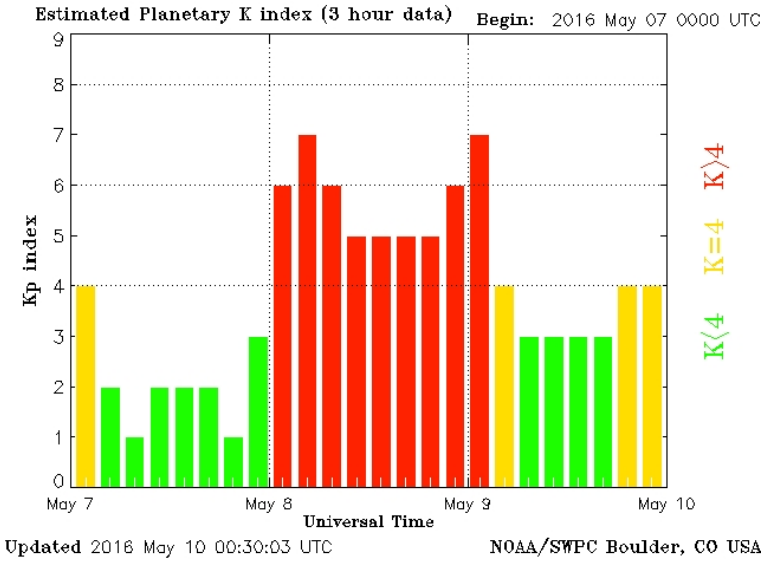

Figure 2: Kp index as a function of time during the G3 geomagnetic storm of May 8, 2016. (From http://legacy-www.swpc.noaa.gov/ftpdir/warehouse/2016/2016_plots/kp/)

The results of these events, as well as disturbances on May 15-17 without storm effects, were spotted on the cosmic ray intensity as a series of Forbush decreases during this month, recorded at Athens Neutron Monitor Station (cut-off rigidity 8.53 GV) with amplitudes varied from 2% to 3% (Fig. 3).

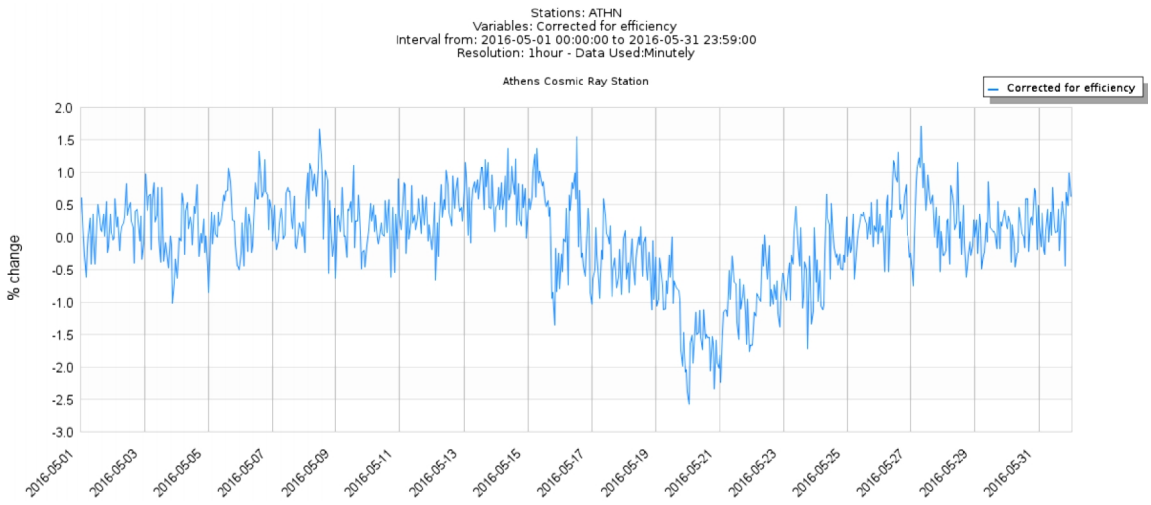

Figure 3: Hourly corrected for pressure and efficiency values of the cosmic ray intensity recorded at Athens Neutron Monitor Station from 01-31/05/2016 (From the multi station data service of Athens NM Station).

Contact: *Prof. H. Mavromichalaki*
Email: emavromi@phys.uoa.gr
http://cosray.phys.uoa.gr