Newsletter Cosmic Rays / January 2016

January 2016 has been a less active month in the sense of solar activity. A number of 113 CMEs have been spotted, with 2 CMEs with angular width 90° < da < 180° and 2 halo CMEs resulting into distinct modulation of the galactic cosmic rays (source: http://sidc.oma.be/cactus/catalog.php). January was also a very quiet month in the production rate of solar flares (SFs). A number of only 30 solar flares were spotted with 29 C- and only 1 M-class SF, the most energetic one being a M2.3 on 01/01/2016 at 23:10UT (start time) from the AR 12473, S25W82 which gave also the most energetic solar flare of the previous month (Fig. 1).

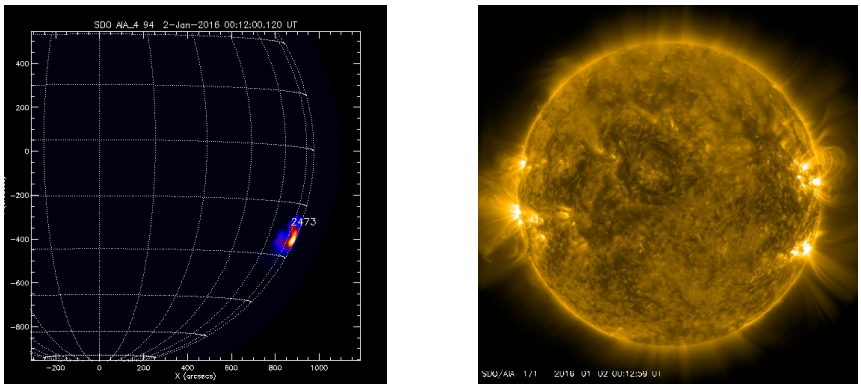

Figure 1: The M2.3 solar flare of 01-02/01/2016 at 00:11 peak time (from http://www.lmsal.com/solarsoft and http://sdo.gsfc.nasa.gov/data/aiahmi/)

The interaction of the arrival of a CME on January 1 triggered the first G2 geomagnetic storm of 2016. A second geomagnetic storm G1 was the result of the interaction between a slow moving CME and Earth's magnetosphere on January 19-20. The results of these events were spotted on the cosmic ray intensity as a series of Forbush decreases. The first one started on January 1 and the second one on the first hours of January 19 recorded at Athens Neutron Monitor Station with amplitude of 3% and 5% respectively. Hourly values of the cosmic ray intensity from the Athens NM station (cut-off rigidity 8.53 GV) are illustrated in Fig. 2.

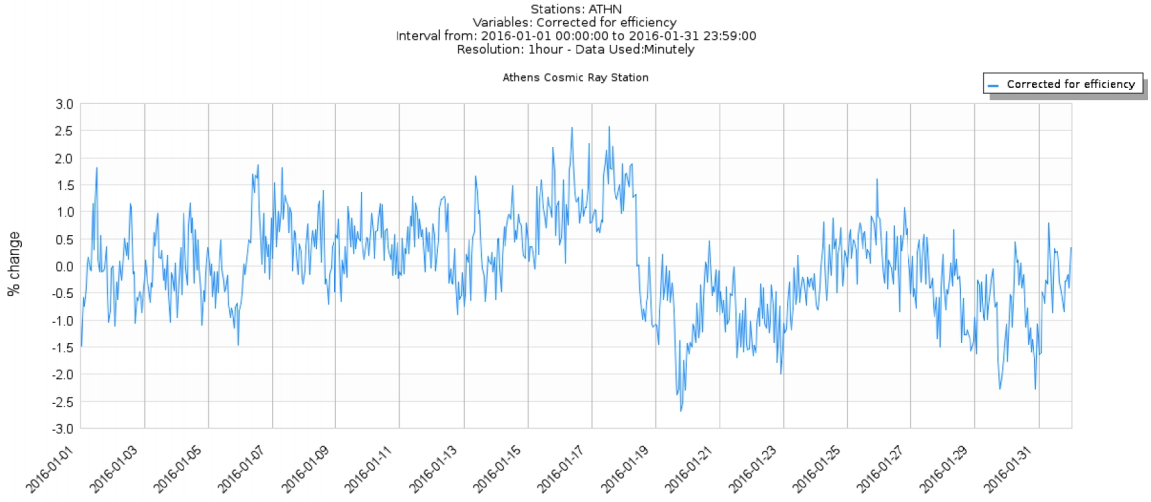

Figure 2: Corrected for pressure and efficiency hourly values of the Athens Neutron Monitor Station from 01-31/01/2016 (From multi station service of Athens NM Station).

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