Newsletter Cosmic Rays / September 2014

September has been the most active month in the last period in terms of solar activity. 144 coronal mass ejections (CMEs) have been spotted, 7 CMEs with angular width 90° < da < 180°, 2 CMEs with angular width 180° < da < 270° and 5 HALO CMEs recorded in this month, resulting into distinct modulation of the galactic cosmic rays (GCRs) (source: http://sidc.oma.be/cactus/catalog.php).

The Sun has been really productive in the sense of solar flares (SFs). 226 C-, M- and X-class solar flares spotted with 216C-, 9M- and 1X-class solar flares. The most energetic one was an X1.6 on 10.09.2014 at 17:21 U.T. from AR 2158, N11E05 (Fig. 1).

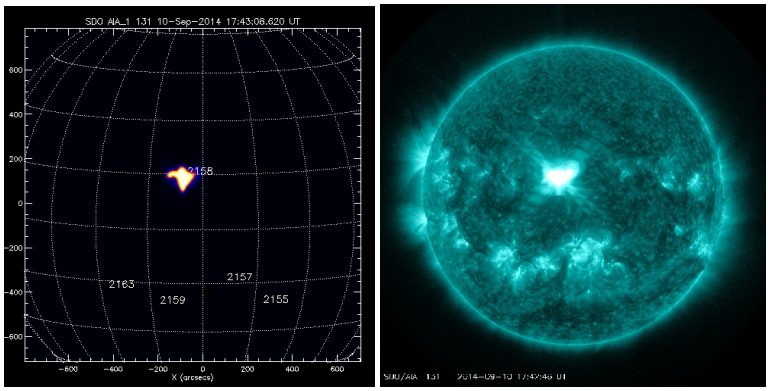

Figure 1: The X1.6 solar flare of 10.09.2014 at 17:43 peak time (from solarmonitor.org)

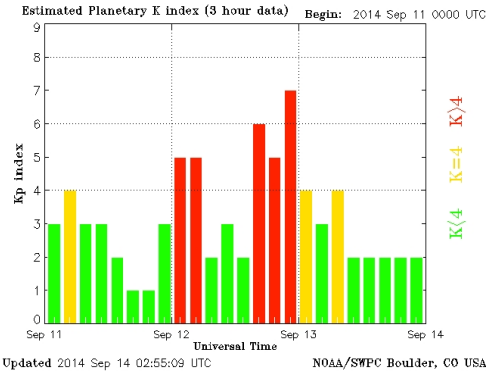

Figure 2: The resulting geomagnetic storm of September 12th.

During this month a series of Forbush decreases was recorded by the neutron monitors. The greatest Forbush decrease started on September 12th with a typical recovery of 10 days. This decrease started 2 days after the strong X1.6 solar flare when the associated HALO CME arrived at Earth causing also a G3 geomagnetic storm (Fig. 2). The hourly values of the cosmic ray intensity recorded at the Athens neutron monitor station (cut-off rigidity 8.53 GV) is illustrated in Figure 3.

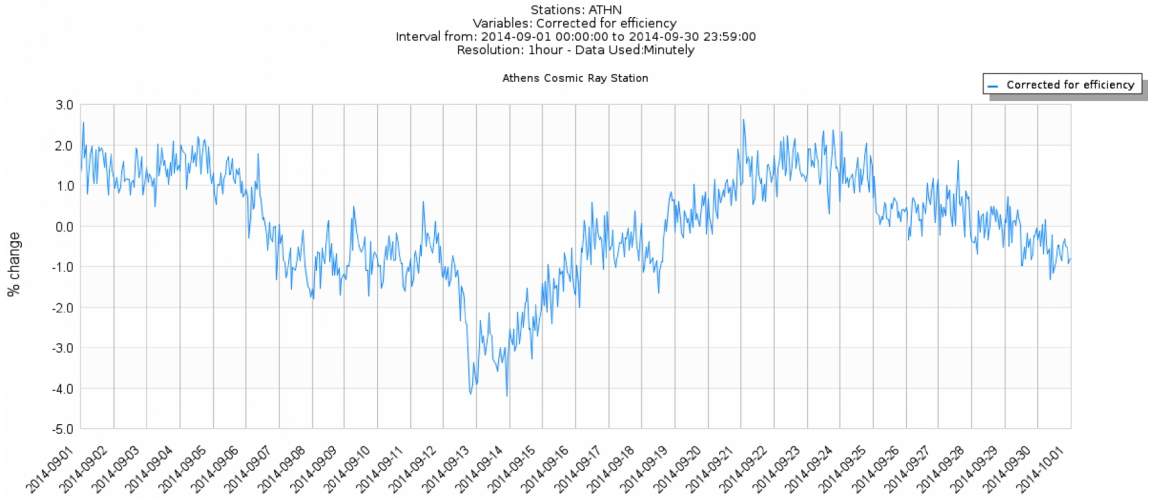

Figure 3: The corrected for efficiency counting rate of the Athens Neutron Monitor Station from 01-30.09.2014 (From multi station service of Athens).

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