STCE Newsletter

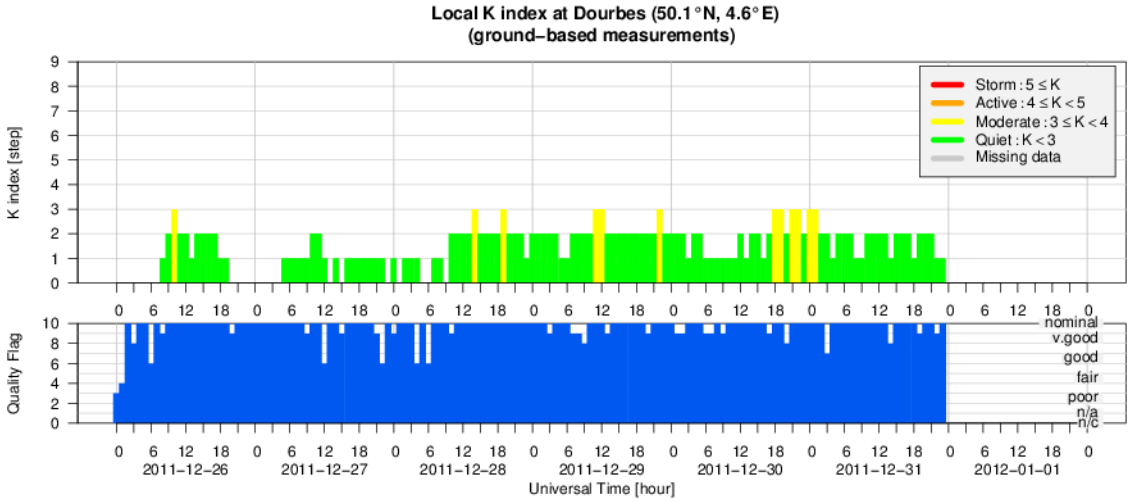
26 Dec 2011 - 1 Jan 2012

Published by the STCE - this issue : 6 Jan 2012. Available online at http://www.stce.be/newsletter/ .

The Solar-Terrestrial Centre of Excellence (STCE) is a collaborative network of the Belgian Institute for Space Aeronomy, the Royal Observatory of Belgium and the Royal Meteorological Institute of Belgium.

Final Editor : Petra Vanlommel
Contact : R. Van der Linden, General Coordinator STCE,
Ringlaan - 3 - Avenue Circulaire, 1180 Brussels,
Belgium

1. Geomagnetic Observations at Dourbes (26 Dec 2011 - 1 Jan 2012)



2. Review of solar activity (26 Dec 2011 - 1 Jan 2012)

The last week of the year started with flaring at M-level. An M1.5 flare was observed in NOAA AR 11387 (no Catania number), peaking at 02:27 UT on December 26th. This region also produced an M2.3 flare on the same day with peak time 20:30 UT. Also on December 26, a long duration C5.7 flare at 11:50 UT occurred, associated with a filament activation to the northeast of AR 11384. In the following days NOAA ARs 11387 and 11386 produced several C-flares. Starting from December 28, NOAA AR 11389 became the main source of activity. It produced an M1.9 flare at 13:50 UT and an M2.0 flare at 21:51 on December 29, as well as an M1.2 flare at 03:09 on December 30. The same region produced an M2.4 flare on December 31 at 13:15 UT and an M1.5 flare at 16:26 UT.

A filament in the form of an O was present in the northern hemisphere during the week before. It partially erupted on Dec 24 from 23:29UT. Starting from Dec 25, 06:29 UT the remaining part of the filament rose and was ejected. Based on STEREO A/B COR2 data, the speed of the first ejection was estimated between 400 and 500 km/s. The second ejection was less powerful. Since the filament was located near the central meridian, the CME's were Earth-directed. NOAA AR 11387 produced an M4.0 flare on December 25 at 18:16 UT. This eruption was associated with a CME towards the south-west and a proton flux enhancement which did not reach the >10 Mev threshold. The filament activation on December 26 was followed by a CME observed by STEREOa/b COR2 and SOHO/LASCO coronographs. CACTUS estimates the speed of this earth-directed CME around 470 km/s. More CME's were observed during the past week, but these were not Earth-directed.

3. Review of geomagnetic activity (26 Dec 2011 - 1 Jan 2012)

Due to the arrivals of (glancing blows from) the CME's observed on December 25 and 26, we expected unsettled to active geomagnetic conditions starting from December 27th late. Throughout the week, however, geomagnetic conditions have remained very quiet, due to a relatively low solar wind speed and positive southward component of the magnetic field. The southern polar coronal hole had a big extension towards the equator, but no clear disturbance of the solar wind was noticed during this week due to this.