

[2-5]

## OVERVIEW OF SOLAR-TERRESTRIAL ENVIRONMENT BETWEEN MARCH AND SEPTEMBER, 2015

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The space weather event report workshop promotes the overview and collaborative analysis of observation and simulation data to study the cause-effect activities of space weather environment between the Sun and the Earth for recent a half year. In this workshop, we will introduce the space weather environment report from March to September, 2015.

The sunspot number has decreased since the middle of 2014. From the 13month moving average of sunspot relative number of Sunspot Index and Long-term Solar Observations, the maximum definitive value of sunspot number is 116.4 at April 2015. In addition, latest definitive value is 101.9 at September 2014, and latest final predicted definitive value is 89.8 at January 2015. Cycle 24 seems to be the declining phase as both this prediction model and observation. We can see some over M-class flares from GOSE satellite X-ray flux observation data during this period. However, there were only two X-class flare, 11 March (X2.1) and 5 May (X2.7). We encountered concentrated flare occurrence at this March, and some long duration events at this June. In present, X-ray flare activity is settled in low. There are three high solar energetic particle events in June. In particular, a proton event with a full halo CME at 21 June has 1070 PFU. This is the fourth largest proton event in solar cycle 24. Except the above period, proton event activity is not so high.

There are two severe geomagnetic storms with Dst-index value less than -100 nT in latest a half year. Especially during 15-18 March 2015, we encountered a severe geomagnetic storm event called "St. Patrick's Day 2015 Event". A long duration C-class solar flare and related CMEs were occurred on 15 March. In the result, a severe geomagnetic storm (minimum Dst index was -228 nT) were observed during 16-18 March. It is the first and largest event reported over -200nT Dst index in solar cycle 24. However, no large solar energetic particle and related events were observed, and therefore, we could not forecast such a huge geomagnetic storm attacked to the Earth. For investigating the mechanism of this complex space weather event between Sun and Earth region, it is important to make cross-cutting studies with various kinds of data observed at various regions and methods. We will show some integrated analysis results of this severe geomagnetic storm event.

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### REFERENCES

STE Event Reports Workshop website: <http://www2.nict.go.jp/aeri/swe/swx/ste/ste-e.html>