Solar Activity as a Driver of Space Weather II. Extreme Activity: October-November 2003

조경석[1], 문용재[1], 김록순[1,2], 황유라[1],
김해동[3], 정종균[2,5], 임무택[4], 박영득[1]
[1]한국천문연구원, [2]충남대학교, [3]한국항공우주연구원
[4]한국지질자원연구원, [5]한국해양연구원

In this talk, we present a good example of extreme solar and geomagnetic activities from October to November, 2003. These activities are characterized by very large sunspot groups, X-class solar flares, strong particle events, and huge geomagnetic storms. We discuss ground-based and space-based data in terms of space weather scales. We applied the CME propagation models to these events in order to predict the arrivals of heliospheric disturbances. As a result, we identified very strong geomagnetic storms characterized by Dst and Kp index near the predicted arrival times. Especially, we present several solar and geomagnetic disturbance data produced in Korea: sunspots, geo-magnetograms, aurora, Ionogram, and Total Electron Content(TEC) map by GPS data. Finally, we introduce some examples of the satellite and communication effects caused by these activities; e.g., the disturbance of the KOMPSAT-1 operational orbit.