



Solar activity during the space weather incident of Nov 4., 2015 - Complex data and lessons learned

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During the afternoon of November 4, 2015 most southern Swedish aviation radar systems experienced heavy disturbances, which eventually forced an outing of the majority of the radars. In consequence the entire southern Swedish aerospace had to be closed for incoming and leaving air traffic for about 2 hours.

Immediately after the incident space weather anomalies were made responsible for the radar disturbances, but it took a very thorough investigation to differentiate disturbances from an ongoing magnetic storm caused by earlier solar activity, which had no disturbing effects on the flight radars, from a new and, indeed, extreme radio-burst on the Sun, which caused the Swedish radar anomalies. Other systems in various European countries also experienced major radio-disturbances during this extreme event, but they were not of the gravity as experienced in Sweden, or at least not causing a similar damage.

One of the problems in reaching the right conclusions about the incident was that the extreme radio-burst around 1400 UT on Nov 4 (more than 50000 SFU at GHz frequencies), emerged from a medium size M3.7 Flare on the Sun, which did not trigger any immediate warnings.

We will report about the analysis leading to the improved understanding of this extreme space weather event, evaluate the importance of solar radio observations, and discuss possible mitigation strategies for future events of similar nature.