

The electron and proton precipitation in Scandinavian sector during SC on 24 January 2012

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The sudden commencement on 24 January 2012 at 1503 UT was caused by the shock wave with changes on the front by pressure from 1 to 10 nPa, by velocity from 400 to 700 km/s and by Bz from +1 to +15 nT. The sky transparency permitted to make optical observations during the event in Lovozero, Barentsburg and Longyearbyen.

In Lovozero three minutes after SC and two minutes after an electron aurora the hydrogen emission H α appears. It is seen during 5 minutes and moves poleward. In Barentsburg the H α appears eight minutes after SC at one time with 1PGN2 band which due to high energy electrons, and it has been observed during twenty minutes. The meridional scanning photometer in Longyearbyen disclosed beginning of 5577 emission at 1507 UT along the all meridian, its maximum occurred at 1512-1515. The H α appears also at 1507 and it is maximal at 1512 with brightness about of 300 R, is seen mainly in the South

In Lovozero a particle precipitation starts at 15:03.30 UT, but the perceptible magnetic disturbance by negative polarity begins at 15:04:20, i.e. 50 sec later. The peak of luminosity lags one and half minute to the positive magnetic peak.

In Lovozero this SC gives rise to beginning of Pc2 and Pc5 geomagnetic pulsations, but they are absent in Barentsburg.