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Real-time auroral and solar activity

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Solar activity report

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Report of Solar-Geophysical Activity 2003 Nov 04 2200 UTC

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Joint USAF/NOAA Report of Solar and Geophysical Activity

SDF Number 308 Issued at 2200Z on 04 Nov 2003

IA. Analysis of Solar Active Regions and Activity from 03-2100Z to 04-2100Z

Solar activity was at high levels today. Region 486 (S17W89) has been rotating off the visible disk today. Even so, as a parting display of it's massive size and complicated magnetic structure, it managed to produce one of the largest x-ray flares on record, an X17(plus)/3b flare at 04/1929Z. The x-ray sensor on GOES was saturated at X17.4 between 04/1944 and 1956Z. Intense radio busts were observed at all frequencies, a Tenflare (at 20000 sfu's), and Type II (estimated shock velocity of 1268 km/s) and Type IV radio sweeps. Indications of an extremely fast moving (2301 km/s) full halo CME were seen on SOHO/LASCO imagery. This region also produced an M2 flare at 04/0556Z and an M1 flare at 04/1349Z. Region 488 (N08W95) produced an M3 x-ray flare as it rotated off the visible disk earlier in the period. Region 497 (N10W45) was newly numbered today.

IB. Solar Activity Forecast

Solar activity is expected to be at high levels. Region 486 is still capable of producing an isolated major flare even though it will have rotated off the visible disk throughout day one. Days two and three may see moderate levels.

IIA. Geophysical Activity Summary 03-2100Z to 04-2100Z

The geomagnetic field was at quiet to severe storm levels. A shock passage occurred at the ACE satellite at approximately 04/0600Z due to the CME from the X8 event on 02 Nov. A sudden impulse of 72 nT was observed by the Boulder magnetometer at 04/0627Z. The Bz component of the interplanetary magnetic field remained north though most of the day; however, an isolated period of severe storm conditions were observed from 04/0900 to 1200Z. The greater than 10 MeV proton fluxes at geosynchronous orbit have been on a steady decrease through the period and continue above alert levels; the event began at 02/1105Z, and had a maximum of 1570 pfu's which was observed at 03/0815Z. The greater than 2 MeV electron fluxes at geosynchronous orbit reached high levels again today.

IIB. Geophysical Activity Forecast

The geomagnetic field is expected to be at predominantly unsettled to active levels. Isolated minor storm conditions are possible during day one due to the elevated wind speeds from the shock passage from earlier today. Day two's activity may stay enhanced due to a glancing blow from the X17 (plus) flare from today. The greater than 10 MeV proton fluxes are currently above alert levels and are expected to be further enhanced due to today's X17 (plus) event. The greater than 100 MeV fluxes are also expected to rise above alert levels early on day one of the period due to the aforementioned activity.

III. Event Probabilities 05 Nov to 07 Nov

Class M	70%	30%	10%
X	40%	10%	01%

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IV. Penticton 10.7 cm Flux

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Observed       04 Nov 168
Predicted   05 Nov-07 Nov  140/130/125
90 Day Mean        04 Nov 132
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V. Geomagnetic A Indices

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Observed Afr/Ap 03 Nov  015/010
Estimated     Afr/Ap 04 Nov  020/030
Predicted    Afr/Ap 05 Nov-07 Nov  020/030-020/030-010/020
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VI. Geomagnetic Activity Probabilities 05 Nov to 07 Nov

A. Middle Latitudes

Active	35%	35%	20%
Minor storm	20%	20%	10%
Major-severe storm	10%	10%	05%

B. High Latitudes

Active	45%	45%	25%
Minor storm	35%	35%	15%
Major-severe storm	20%	20%	10%

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The maximum X-ray flux of the past two hours is:

C7.29

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