

HFUS 1 BOU 171300

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 351A

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 1300Z 17 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 16/1200Z TO 17/1200Z: SOLAR ACTIVITY CONTINUED VERY HIGH. REGION 4025(S07W19) PRODUCED AN X1/2B FLARE AT 1452Z WITH A 630 FU 10CM BURST AND MAJOR SID. THERE WAS NO EVIDENCE OF SHOCK WAVE OR PARTICLE PRODUCTION. CLOSELY-ASSOCIATED REGION 4026(S12W07) PRODUCED AN M1 EVENT AT 1416Z AND AN M4 AT 0142Z. RAPID EVOLUTION CONTINUES AMONG THE SPOTS IN THESE REGIONS ALTHOUGH THERE IS A GENERAL TREND TOWARD DECAY. A LARGE FILAMENT INVOLVED WITH REGION 4026 DISAPPEARED AT APPROXIMATELY 0600Z. GROWTH OF NEW SPOTS NEAR THE LARGE LEADER SPOT IN REGION 4021(S16W61) WAS ACCCOMPANIED BY M1 EVENTS AT 1924Z AND 0958Z. THE NEUTRAL LINE AND PLAGE CHARACTERISTICS IN THIS REGION ARE ASSUMING QUALITIES LIKE A CLASS OF MINOR PROTON-FLARE REGIONS. DELTA CONFIGURATIONS CONTINUE IN REGIONS 4022(N11W46), 4025 AND 4026. THE EASTERN HALF OF THE SOLAR DISK IS DOMINATED BY CORONAL HOLES AND MINOR SOLAR REGIONS.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO CONTINUE HIGH. CONTINUED EMERGENCE OF NEW SPOTS IN REGIONS 4021, 4025 AND 4026 IS LIKELY TO LEAD TO PROTON FLARES. WEST LIMB PASSAGE OF REGIONS 4021 AND 4022 WILL BRING A SHARP DROP IN SOLAR INDICES. A RAPID DECAY IN REGION 4025/4026 IS EXPECTED BY THE END OF THE FORECAST PERIOD.

II. GEOPHYSICAL SUMMARY AND FORECAST: A MAJOR GEOMAGNETIC STORM BEGAN GRADUALLY AT 0735Z. ACTIVITY IS EXPECTED TO REDUCE TO MINOR STORM LEVELS IN THE NEXT 12 HOURS. PERIODS OF MAJOR STORM ACTIVITY ARE EXPECTED INTERMITTENTLY THROUGHOUT THE FORECAST PERIOD WITH ACTIVITY MOSTLY AT MINOR STORM LEVEL.

III. EVENT PROBABILITIES 18 DEC-20 DEC

CLASS M 90/90/80

CLASS X 40/20/10

PROTON 60/40/20

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 16 DEC 214

ESTIMATED 17 DEC 230

PREDICTED 18 DEC-20 DEC 190/180/170

90 DAY MEAN 16 DEC 177

V. GEOMAGNETIC A INDICES

OBSERVED AFR 15 DEC 011 AP 16 DEC 016

ESTIMATED AFR 16 DEC 016 AFR/AP 17 DEC 050/050

PREDICTED AFR/AP 18 DEC-20 DEC 035/030-035/035-020/020

SOLTERWARN

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HFUS 3 BOU 172200  
FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO  
SDF NUMBER 351B  
JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.  
ISSUED 2200Z 17 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 17/1200Z TO 17/2100Z: SOLAR ACTIVITY HAS REMAINED VERY HIGH. REGION 4025 (S06W25) PRODUCED AN X10/S3 AT 1821Z. MAJOR DISCRETE RADIO BURSTS OCCURRED WITH A 1300 FU BURST RECORDED AT 2695 MHZ AND STRONG SHORT WAVE FADE THROUGH 15 MHZ. TOTAL UMBRAL COVERAGE OF THE CENTRAL SUNSPOT WAS REPORTED. ADDITIONALLY, REGION 4026 (S12W13) PRODUCED A M1/SB AT 1637Z WITH ONLY MINOR RADIO BURSTS OCCURRING. BOTH THESE REGIONS HAVE DELTA CONFIGURATIONS AND COMPLEX NEUTRAL LINES. REGION 4022 (N10W50) STILL RETAINS ITS DELTA AND RECENT CHANGES ARE INCREASING THE NEUTRAL LINE COMPLEXITY FOR THIS REGION. REGION 4021 (S16W67) BEGAN ADDING NEW FLUX YESTERDAY AND HAS INCREASED THE MAGNETIC COMPLEXITY FOR THIS REGION.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO REMAIN HIGH WITH EACH OF THE REGIONS LISTED IN PARTIA CAPABLE OF PRODUCING ENERGETIC FLARES.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD HAS BEEN AT MAJOR STORM LEVEL SINCE A GRADUAL ONSET NEAR 0730Z. AURORA WAS VISIBLE IN COLORADO AFTER 0800Z. THE GEOMAGNETIC FIELD IS EXPECTED TO BE GENERALLY AT STORM LEVEL THROUGH 23 DECEMBER, INCREASING TO MAJOR STORM LEVEL IN SURGES AS THE EFFECTS FROM EACH MAJOR FLARE REACHES THE EARTH'S ENVIRONMENT. THE SATELLITE PROTON FLUX OF 10 MEV CROSSED THRESHOLD OF 10 P/CM<sup>2</sup>/SEC/STER AT 1945Z. THE PROTON FLUX CONTINUES TO RISE AT ISSUE TIME.

III. EVENT PROBABILITIES 18 DEC-22 DEC

CIASS M 90/90/80

CLASS X 40/20/10

PROTON 60/40/20

PCAF RED

IV. OTTAWA 10.7 CM FLUX

OBSERVED 17 DEC 202

PREDICTED 18 DEC-22 DEC 190/180/170

90 DAY MEAN 17 DEC 177

V. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 16 DEC 011/016

ESTIMATED AFR/AP 17 DEC 040/050

PREDICTED AFR/AP 18 DEC-20 DEC 035/032-050/035-035/040

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