

HFUS 1 BOU 111300

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 345A

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 1300Z 11 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 10/1200Z TO 11/1200Z: SOLAR ACTIVITY WAS BEEN MODERATE FOR THE PAST 24 HOURS. SIX M-CLASS EVENTS OCCURRED, WITH THE LARGEST BEING AN M9/2B TENFLARE FROM REGION 4025 (S08E64) MAXING AT 11/0447Z. THIS FLARE WAS ACCCOMPANIED BY A STRONG SHORT WAVE FADE TO 30 MHZ, TWO TEN CM BURSTS OF 230 FU EACH, AND A WEAK TYPE II SWEEP. REGION 4025 IS STILL TOO CLOSE TO THE EAST LIMB FOR ACCURATE ANALYSIS, BUT IS PRESENTLY CLASSED AS AN F-TYPE GROUP OF MODERATE MAGNETIC COMPLEXITY. IT IS THE RETURN OF OLD REGION 3994 WHICH PRODUCED AN X4 PROTON FLARE 26 NOV AT ITS WEST LIMB PASSAGE. REGION 4014 (N07W56) CONTRIBUTED 4 OF THE M-CLASS EVENTS, THE LARGEST BEING AN M4 AT 10/1820Z. IT IS DEVELOPING SPOTS IN ITS INTERIOR AND CONTAINS TWO MAGNETIC DELTAS. REGION 4021 (S11E20) PRODUCED AN M1/SN EVENT AT 11/0249Z. PENUMBRAL GROWTH THROUGHOUT AND A BROAD ARCH FILAMENT SYSTEM HAVE BEEN RECENTLY REPORTED HERE. REGION 4022 (N12E45), THE MOST COMPLEX REGION ON THE DISK, HAS BEEN GENERALLY QUIET DURING THIS REPORTING PERIOD. ITS MAIN LEADER AND TRAILER SPOTS (BOTH CONTAIN DELTAS) ARE EVOLVING AND SLIGHT PENUMBRAL DECAY HAS OCCURRED. HOWEVER, THE MAGNETIC GRADIENTS HERE ARE STILL THE STRONGEST TO BE SEEN. NONE OF THE OTHER 4 SPOTTED AREAS APPEAR SIGNIFICANT AT THIS TIME.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO BE HIGH DURING THE NEXT THREE DAYS. MAJOR FLARES ARE LIKELY FROM REGIONS 4022 AND 4025, AND ARE POSSIBLE FROM 4014 AND 4021. SIGNIFICANT FLARES ARE EXPECTED FROM REGIONS 4014, 4022, AND 4025.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD WAS AT STORM LEVELS EARLY IN THIS REPORTING PERIOD, BUT HAS SINCE BECOME QUIET. THE GEOMAGNETIC FIELD IS EXPECTED TO BE GENERALLY UNSETTLED TO ACTIVE FOR THE NEXT THREE DAYS IN RESPONSE TO MULTIPLE SIGNIFICANT FLARE EVENTS. THE PROTON EVENT AT SATELLITE ALTITUDES WHICH BEGAN DEC 08/0010Z HAS ENDED. PARTICLE FLUXES FELL BELOW THE EVENT THRESHOLD OF 10P/CM<sup>2</sup>/SEC/STER AT GREATER THAN 10 MEV ENERGIES AT APPROXIMATELY 0530Z. HOWEVER, THE FLUX REMAINS NEAR THRESHOLD VALUES, AND THERE IS A GOOD CHANCE OF A NEW PROTON EVENT DURING THIS FORECASTING PERIOD. THULE NEUTRON MONITOR DATA FOR 08 DEC SHOWS A GROUND LEVEL EVENT BEGINNING NEAR FLARE MAXIMUM (07/2354Z) AND LASTING FOR SEVERAL HOURS. THIS INCREASE IN COSMIC RAY BACKGROUND, WHICH IMPLIES PARTICLE FLUXES OF GREATER THAN 500 MEV ENERGIES, REACHED ABOUT 25% ABOVE QUIET DAY VALUES.

III. EVENT PROBABILITIES 12 DEC-14 DEC

CLASS M 99/99/99

CLASS X 30/35/40

PROTON 20/20/30

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 10 DEC 279

ESTIMATED 11 DEC 275

PREDICTED 12 DEC-14 DEC 270/260/240

90 DAY MEAN 10 DEC 170

V. GEOMAGNETIC A INDICES

OBSERVED AFR 09 DEC 018 AP 10 DEC 038

ESTIMATED AFR 10 DEC 040 AFR/AP 11 DEC 012/015

PREDICTED AFR/AP 12 DEC-14 DEC 020/020-015/015-015/015

SOLTERWARN

BT

STOP AT 3060

\*RUN

#FUS 3 BOU 112200

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 345B

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 2200Z 11 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 11/1200Z TO 11/2100Z: SOLAR ACTIVITY HAS BEEN LOW WITH ONLY SMALL CLASS C FLARES BEING OBSERVED. VERY LITTLE DATA HAVE BEEN RECEIVED TODAY. REGION 4025 (S06E55) IS A CLASS D GROUP WITH A BETA DELTA MAGNETIC CONFIGURATION. SPOTS CARRIED YESTERDAY AS THE TRAILER OF 4025 HAVE BEEN NUMBERED AS REGION 4026 (S09E68). THIS REGION IS ALSO A D CLASS GROUP WITH A BETA DELTA MAGNETIC STRUCTURE AND HIGH GRADIENTS. REGION 4022 (N12E26) RETAINS ITS GAMMA DELTA CONFIGURATION AND COMPLEX MAGNETIC STRUCTURES ARE ALSO VISIBLE IN REGION 4014 (N07W62) AND 4021 (S16E12).

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY SHOULD RESUME MODERATE LEVELS FROM MULTIPLE SOURCE REGIONS. THE POSSIBILITY EXISTS FOR MAJOR FLARE OCCURRENCE DURING THE FORECAST PERIOD. NO OTHER SIGNIFICANT ACTIVE REGIONS ARE EXPFCTED TO RETURN TO THE EAST LIMB DURING THE NEXT THREE DAYS.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD HAS BEEN AT ACTIVE TO NEAR MINOR STORM LEVELS SINCE APPROXIMATELY 11/1400Z. THIS DISTURBANCE DOES NOT APPEAR TO BE THE BEGINNING OF ANOTHER GEOMAGNETIC STORM SINCE SOLAR WIND DATA INDICATE A NEARLY STABLE FLOW BUT WITH A MODERATELY STRONG SOUTHWARD DIRECTION. ACTIVE CONDITIONS ARE EXPECTED TO CONTINUE FOR THE NEXT THREE DAYS.

III. EVENT PROBABILITIES 12 DEC-14 DEC

CLASS M 99/99/99

CLASS X 30/35/40

PROTON 20/20/30

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 11 DEC 272

PREDICTED 12 DEC-14 DEC 270/260/240

90 DAY MEAN 11 DEC 171

V. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 10 DEC 039/038

ESTIMATED AFR/AP 11 DEC 016/015

PREDICTED AFR/AP 12 DEC-14 DEC 020/020-015/015-015/015

SOLTERWARN

BT