HFUS 1 BOU 311300
FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO
SDF NUMBER 031A
JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.
ISSUED 1300Z 31 JAN 1982
IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 30/1200Z TO 31/1200Z: SOLAR ACTIVITY WAS HIGH DURING THE LAST 24 HOURS. REGION 3576 (S13E13) PRODUCED AN X1/3B FLARE BEGINNING AT 30/2321Z AND REACHING MAXIMUM AT 2358Z. THE FLARING MATERIAL SPREAD WESTWARD TOWARD REGION 3578 (S09W06) AND INDUCED A 1B OPTICAL FLARE IN 3578 WHICH REACHED MAXIMUM AT 31/0005Z. MULTIPLE WEAK TYPE II SWEEP FREQUENCY EVENTS (OBSCURED BY A STRONG TYPE III STORM) WERE OBSERVED DURING THESE FLARES, FOLLOWED BY A STRONG TYPE IV RADIO NOISE STORM. DISCRETE FREQUENCY MICROWAVE NOISE BURSTS WERE REPORTED AS HIGH AS 1000 FLUX UNITS OVER A WIDE RANGE OF FREQUENCIES. ONLY MINOR SHORTWAVE FADES WERE REPORTED. OTHERWISE, AN M4 X-RAY BURST WAS REPORTED AT 30/1221Z, WITHOUT OPTICAL ASSOCIATION AND AN M1/SN WAS REPORTED AT 30/1805Z FROM REGION 3581 (N09E09). ALTHOUGH THE OVERALL RATE OF C-CLASS SUBFLARE OCCURRENCE ON THE SOLAR DISK HAS DECLINED IN THE PAST 24 HOURS, THE PACE OF SUBFLARE ACTIVITY IN REGION 3581 HAS INCREASED. FIVE SMALL NEW REGIONS HAVE BEEN NUMBERED ON 30 JANUARY - ALL BUT ONE HAVING ROTATED INTO VIEW OVER THE EAST LIMB. CURRENTLY, THE LIMBS ARE REPORTED QUIET.
IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO BE MODERATE FOR THE NEXT 24 HOURS. THE THREAT OF ANOTHER MAJOR FLARE IS APT TO INCREASE AGAIN ON 02 FEBRUARY WITH EITHER RAPID GROWTH OR RAPID DECAY IN REGIONS 3573 (N10W01), 3576, 3577 (S13W27), 3578, 3579 (N11E25) OR 3581. OF THESE REGIONS, 3573, 3576, 3577 AND 3579 APPEAR TO HAVE THE GREATEST MAGNETIC FIELD STRESS.
II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD WAS UNSETTLED TO ACTIVE OVER THE PAST 24 HOURS. A SIZEABLE DISTURBANCE IS EXPECTED TO ARRIVE BEFORE THE END OF THE UT DAY ON 31 JANUARY DUE TO THE M8 FLARE PRODUCED BY REGION 3576 ON 28 JANUARY. THIS FLARE MAY HAVE CAUSED THE INTERPLANETARY MAGNETIC FIELD LINES TO HAVE STRAIGHTENED OUT SOMEWHAT AND CAUSED ELEVATED SOLAR WIND VELOCITIES. THAT WOULD MAKE IT EASIER FOR A SUBSEQUENT DISTURBANCE TO REACH THE EARTH AND WOULD ENHANCE ENERGETIC PROTON PROPAGATION TO THE EARTH. THUS, AN ADDITIONAL SUBSTANTIAL GEOMAGNETIC DISTURBANCE (DUE TO THE X1 FLARE) IS EXPECTED TO ARRIVE SOMETIME ON 01 FEBRUARY. ENERGETIC PARTICLES (GREATER THAN 10 MEV) WERE OBSERVED TO ARRIVE AT THE EARTH WITHIN 45 MINUTES OF THE X1 FLARE OF 30/2358Z. SESC EVENT THRESHOLDS (10 PARTICLES/SQ CM/SEC/STERADIAN) WERE EXCEEDED AT 0055Z AND A FIRST PEAK OF THE EVENT WAS OBSERVED AT 640 PARTICLES/SEC AT 0335Z. PARTICLE COUNTS FELL OFF AFTER THAT BUT WERE RISING SLOWLY AGAIN AT 1200Z AND HAD REACHED 390 PARTICLES/SEC. THE POLAR CAP ABSORPTION EVENT THRESHOLD OF 0.5 DB NIGHTTIME ABSORPTION WAS REACHED BRIEFLY BUT THE PCA HAS APPARENTLY QUICKLY SUBSIDED.
III. EVENT PROBABILITIES 01 FEB-03 FEB
CLASS M 85/90/90
CLASS X 15/20/20
PROTON 15/20/20
PCAF YELLOW
IV. OTTAWA 10.7 CM FLUX
OBSERVED 30 JAN 293
ESTIMATED 31 JAN 299
PREDICTED 01 FEB-03 FEB 304/306/295
90 DAY MEAN 30 JAN 197
V. GEOMAGNETIC A INDICES
OBSERVED AFR 29 JAN 011 AP 30 JAN 024
ESTIMATED AFR 30 JAN 022 AFR/AP 31 JAN 021/040
PREDICTED AFR/AP 01 FEB-03 FEB 030/020-045/040-019/015
SOLTERWARN
BT

HXUS BOU 311300
PREDM 08501 09002 09003
PREDX 01501 02002 02003
PREDP 01501 02002 02003
PCAFT 00201
TENCM 30401 30602 29503
AFRED 03001 04502 01903
AFAPF 02001 04002 01503
KKK 35544 33333 46543
BT

HFUS 3 BOU 312200
FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO
SDF NUMBER 031B
JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.
ISSUED 2200Z 31 JAN 1982
IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 31/1200Z TO 31/2100Z: SOLAR ACTIVITY HAS BEEN MODERATE DURING THE LAST 9 HOURS. THE ELEVATED SOLAR PROTON FLUXES CAUSED BY AN X1-CLASS FLARE FROM REGION 3576 (S13E06) AT 2356Z ON 30 JAN PEAKED AT APPROXIMATELY 830 PARTICLES/SQCM/STER/SEC AT GREATER THAN 10 MEV AT 1600Z AND ARE NOW SLOWLY DECLINING. THE ENHANCED FLOW OF PARTICLES INTO THE POLAR REGIONS RESULTED IN MARGINAL HIGH FREQUENCY POLAR CAP ABSORPTION (PCA) CONDITIONS AT HIGH LATITUDES DURING THE APPARENTLY PAST SEVERAL HOURS. REGIONS 3581 (N10E02) AND 3573 (N10W07) HAVE APPARENTLY COMBINED INTO A SINGLE REGION. AS SUCH , THE DESIGNATION OF 3581 WILL BE DROPPED IN FAVOR OF 3573.
IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY CAN BE EXPECTED TO REMAIN AT MODERATE LEVELS OVER THE NEXT SEVERAL DAYS. THE MAGNETIC STRESS IN THE LEADING POLARITY SPOT OF REGION 3576 (THE LOCATION OF YESTERDAYS FLARE) HAS RELAXED SOMEWHAT BUT THE TRAILING SUNSPOTS STILL CONTAIN MIXED (DELTA) POLARITIES. THEREFORE, THIS REGION ALONG WITH THE 3573/3581 COMPLEX (ALSO A MAGNETIC DELTA), ARE BOTH CAPABLE OF M-CLASS OR LARGER EVENTS.
II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD WAS AT ACTIVE LEVELS DURING THIS PERIOD, BUT ACTIVITY NOW APPEARS TO BE SUBSIDING. THE X1 FLARE OF 30/2358Z JAN OCCURRED NEAR THE CENTRAL MERIDIAN OF THE SUN AND THE MAGNETIC DISTURBANCE FROM THIS EVENT IS EXPECTED TO REACH THE EARTH EITHER LATE ON THE 1ST OR EARLY ON THE 2ND, PRODUCING A MINOR GEOMAGNETIC STORM.
III. EVENT PROBABILITIES 01 FEB-03 FEB
CLASS M 85/90/90
CLASS X 15/20/20
PROTON 15/20/20
PCAF IN PROGRES
IV. OTTAWA 10.7 CM FLUX
OBSERVED 31 JAN 298
PREDICTED 01 FEB-03 FEB 304/306/295
90 DAY MEAN 31 JAN 197
V. GEOMAGNETIC A INDICES
OBSERVED AFR/AP 30 JAN 021/024
ESTIMATED AFR/AP 31 JAN 021/027
PREDICTED AFR/AP 01 FEB-03 FEB 025/020-045/040-019/015
SOLTERWARN
BT

HXUS BOU 312200
PREDM 08501 09002 09003
PREDX 01501 02002 02003
PREDP 01501 02002 02003
PCAFT 00401
TENCM 30401 30602 29503
AFRED 02501 04502 01903
AFAPF 02001 04002 01503
BT