

HFUS 1 BOU 151300

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 349A

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 1300Z 15 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 14/1200Z TO 15/1200Z: SOLAR ACTIVITY HAS BEEN VERY HIGH. ONE OF THE GREATEST XRAY BURSTS OF THE PAST 10 YEARS OCCURRED AT 0155Z, AN X12/2B FLARE IN REGION 4026(S11E17). THE FLARE WAS SEEN IN WHITE LIGHT AND PRODUCED TYPE II AND TYPE IV RADIO BURSTS WHICH SATURATED THE CULGOORA RADIOHELIOGRAPH. THE RADIO U-BURST INCLUDED A 7300 FU BURST AT 10 CM. THIS EXTREMELY IMPULSIVE EVENT CAUSED A MAGNETIC CROCHET DUE TO RAPID IONIZATION OF THE IONOSPHERE. EJECTED MATERIAL WAS VISIBLE IN H-ALPHA. THE ASSOCIATED SUNSPOT GROUP IS A DELTA CONFIGURATION CLOSELY ASSOCIATED WITH ANOTHER DELTA IN REGION 4025(S07E07). SLOW GROWTH IS REPORTED IN THESE REGIONS, WITH MAGNETIC GRADIENTS EVEN STRONGER FOLLOWING THE GREAT FLARE. REGION 4022(N11W20) ALSO HAS A STEEP GRADIENT IN ITS DELTA CONFIGURATION, BUT ITS SPOTS AND PLAGE SHOW SLIGHT DECAY. THE LARGE FILAMENT INVOLVED WITH REGION 4022 HAS DIMINISHED IN ACTIVITY. REGION 4021(S17W36) HAS THE LARGEST SPOT GROUP ON THE DISK AND HAS DEVELOPED MINOR MAGNETIC COMPLEXITY IN RECENT HOURS. A MINOR REGION(4029) HAS RETURNED AT S25E72 WITH A SINGLE SMALL SPOT. LARGE CORONAL HOLES ARE INFERRED TO BE AT CENTRAL MERIDIAN AT HIGH LATITUDES IN BOTH HEMISPHERES.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO BE MODERATE TO OCCASIONALLY HIGH. THE PERSISTENCE OF STRONG DELTA CONFIGURATIONS WITH INVOLVED ACTIVE FILAMENTS INDICATES POTENTIAL FOR ADDITIONAL PROTON FLARES OF CLASS X OR STRONG CLASS M INTENSITY. ADDITIONAL MODERATE ACTIVITY MAY APPEAR AT EAST LIMB DURING THIS PERIOD.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD HAS BEEN UNSETTLED TO ACTIVE. A SUDDEN COMMENCEMENT OF MAJOR MAGNETIC STORM IS EXPECTED AS EARLY AS MIDDAY ON 16 DECEMBER. K-INDICES AS HIGH AS 8 SHOULD BE EXPECTED EARLY ON 17 DECEMBER. THE STORM SHOULD SUBSIDE TO MINOR LEVEL ON 18 DECEMBER.

III. EVENT PROBABILITIES 16 DEC-18 DEC

CLASS M 80/80/80

CLASS X 30/20/20

PROTON 50/30/30

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 14 DEC 243

ESTIMATED 15 DEC 230

PREDICTED 16 DEC-18 DEC 220/213/206

90 DAY MEAN 14 DEC 175

V. GEOMAGNETIC A INDICES

OBSERVED AFR 13 DEC 006 1P 14 DEC 009

ESTIMATED AFR 14 DEC 006 AFR/AP 15 DEC 015/015

PREDICTED AFR/AP 16 DEC-18 DEC 025/020-060/050-235/030

SOLTERWARN

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HFUS 3 BOU 152200
FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO
SDF NUMBER 349B
JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.
ISSUED 2200Z 15 DEC 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM
15/1200Z TO 15/2100Z: SOLAR ACTIVITY HAS BEEN VERY HIGH. AFTER
THE X12/2B AT 0155Z, REGION 4026 (S11E12) PRODUCED AN X5/2B AT
1620Z. THOUGH MAJOR DISCRETE RADIO BURSTS WERE RECORDED, THEY
WERE NOT AS STRONG AS THOSE ASSOCIATED WITH THE X12. THE 2695
MHZ BURST WAS 840 FU. STRONG SHORT WAVE FADE THROUGH 15 MHZ AND
A TYPE IV DEKAMTETRIC BURST WERE RECORDED WITH THE X5 FLARE.
REGION 4025 (S07E01) PRODUCED A M2/1B AT 2245Z. REGIONS 4026,
4025, AND 4022 (N10W27) ARE ALL MAGNETICALLY COMPLEX AND
CAPABLE OF PRODUCING ENERGETIC FLARES. REGION 4030 (N10E75) HAS
BEEN ADDED TODAY.

IB. SOLAR ACTIVITY FORECAST: WITH THE THREE COMPLEX REGIONS ON
THE DISK, SOLAR ACTIVITY IS EXPECTED TO REMAIN MODERATE TO
HIGH.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD HAS
BEEN UNSETTLED. THE FIELD IS EXPECTED TO REMAIN UNSETTLED UNTIL
NEAR 16/1800Z WHEN THE FLARE EFFECTS ARE EXPECTED TO IMPACT THE
EARTH'S ENVIRONMENT. THE FIELD IS THEN EXPECTED TO BE AT OR
NEAR STORM LEVEL THE BALANCE OF THE FORECAST PERIOD.

III. EVENT PROBABILITIES 16 DEC-18 DEC

CLASS M 95/95/95

CLASS X 30/20/20

PROTON 30/30/30

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 15 DEC 236

PREDICTED 16 DEC-18 DEC 230/220/210

90 DAY MEAN 15 DEC 176

V. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 14 DEC 006/009

ESTIMATED AFR/AP 15 DEC 011/012

PREDICTED AFR/AP 16 DEC-18 DEC 025/025-050/050-035/030

SOLTERWARN

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