

HFUS3 BOU 232200

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 023

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 2200Z 23 JAN 1985

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 22/2100Z TO 23/2100Z: SOLAR ACTIVITY HAS BEEN MODERATE. REGION 4617 (S10W66) CONTINUES TO EXHIBIT A FAIR AMOUNT OF ACTIVITY. IT PRODUCED AN M1/1B FLARE AT APPROXIMATELY 0734UT (MAX TIME), AND ALSO PRODUCED NUMEROUS OTHER LESS IMPRESSIVE FLARES (C-LEVEL AND BELOW) THROUGHOUT THE DAY. THIS REGION SEEMS TO HAVE DECAYED SLIGHTLY MAGNETICALLY (NOW A BETA-GAMMA), BUT IT SEEMS TO BE STABLE IN AREA AND NUMBER OF SPOTS. REGION 4618 (N05W16) CONTINUES TO EXHIBIT A C-TYPE SPOT GROUP. REGION 4619 (S06 CAR 356) CURRENTLY HAS NO SPOTS. NO NEW REGIONS HAVE BEEN NUMBERED TODAY.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO REMAIN HIGH AS REGION 4617 STILL SHOWS GOOD POTENTIAL.

IIA. GEOPHYSICAL ACTIVITY SUMMARY FROM 22/2100Z TO 23/2100Z: THE GEOMAGNETIC FIELD HAS BEEN ACTIVE TO MINOR STORM AT ALL LATITUDES FOR THE PAST 24 HOURS. A SUDDEN STORM COMMENCEMENT WAS OBSERVED WORLDWIDE AT 0806UT. THE CAUSE OF THIS ACTIVITY IS HARD TO DETERMINE SINCE A NUMBER OF EVENTS (WHICH HAVE OCCURRED FROM THE 19TH TO THE 22ND) CAN BE CORRELATED WITH WHAT HAS BEEN HAPPENING. GOOD CANDIDATES ARE THE FILAMENT DISRUPTIONS (THESE WERE ACCOMPANIED BY A LONG DURATION X-RAY EVENT) WHICH OCCURRED LATE ON THE 19TH AND EARLY ON THE 20TH OF JAN. THIS ACTIVITY PRECEDED THE VIOLENT GROWTH OF REGION 4617. THE OTHER CANDIDATES ARE THE ENERGETIC FLARES THAT HAVE OCCURRED OUT OF REGION 4617, WITH THE MOST OBVIOUS BEING THE X4 THAT OCCURRED LATE ON THE 21ST AND INTO THE 22ND. WITH A LACK OF PROTON ENHANCEMENT AFTER THE SSC THE FORMER IS THOUGHT TO BE THE CULPRIT. THE PROTON EVENT WHICH STARTED 22/0415Z ENDED 23/0005Z WITH MAXIMUM FLUX AT 10MEV OF 14 PARTICLES AT 0550Z.

IIB. GEOPHYSICAL ACTIVITY FORECAST: THE GEOMAGNETIC FIELD IS EXPECTED TO CLIMB TO MAJOR STORM LEVELS EARLY ON THE 24TH OF JANUARY. THE FIELD SHOULD THEN DECLINE TO MINOR STORM LEVELS BY THE 25TH, AND FINALLY ACTIVE TO MINOR STORM BY THE 26TH. A SUDDEN STORM COMMENCEMENT IS STILL EXPECTED TO OCCUR EARLY ON THE 24TH AND WILL BE DUE TO THE X4 FLARE MENTIONED ABOVE. (NOTE: CULGOORA PLAIN LANGUAGE DATA INDICATED THAT A STRONG TYPE II BURST ACCOMPANIED THE X4 FLARE. SDF 022 HAD NOT INCLUDED THAT INFORMATION).

III. EVENT PROBABILITIES 24 JAN-26 JAN

CLASS M 75/75/60

CLASS X 10/10/05

PROTON 10/10/05

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 23 JAN 085

PREDICTED 24 JAN-26 JAN 085/085/083

90 DAY MEAN 23 JAN 075

V. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 22 JAN 012/014

ESTIMATED AFR/AP 23 JAN 028/039

PREDICTED AFR/AP 24 JAN-26 JAN 050/060-030/035-019/025

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