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FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 206A

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 1300Z 25 JULY 1981

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM

24/1200Z TO 25/1200Z:

SOLAR ACTIVITY HAS BEEN LOW DURING THE PAST 24 HOURS. THE LARGEST EVENT WAS A C9/1B FLARE IN REGION 3224 (N 16W48) AT 25/0918UT. REGION 3224 ALSO PRODUCED HALF A DOZEN C-CLASS SUBFLARES. REGIONS 3221 (S 07W17) AND 3234 (S 13E35) ALSO PRODUCED THEIR SHARE OF C-CLASS FLARES. ALL THREE REGIONS ARE LARGE, COMPLEX AND OMINOUS LOOKING. DESPITE THE RELATIVE LUML IN ACTIVITY, ANY OF THE THREE REGIONS MENTIONED ABOVE COULD PRODUCE A LARGE ENERGETIC FLARE AT ANY TIME. NEW REGIONS 3240 (S 16W37) AND 3241 (N 13E03) HAVE BEEN NUMBERED IN THE PAST 24 HOURS.

IB. SOLAR ACTIVITY FORECAST:

IT IS DIFFICULT TO BELIEVE THAT THE THREE AWESOME REGIONS NOW ON THE VISIBLE DISK WILL ROTATE OUT OF VIEW WITHOUT PRODUCING AT LEAST ONE EVENT OF MAJOR GEOPHYSICAL CONSEQUENCE. ALL THREE REGIONS ARE PROVEN X-RAY PRODUCERS. OF THE THREE REGION 3221 HAS BEEN THE LEAST ACTIVE. HOWEVER, OPPOSITE POLARITY STRONG SPOTS IN REGION 3221 ARE REPORTED TO BE DRAWING TOGETHER THEREBY INCREASING THE STRESS (MAGNETIC GRADIENT) IN THE REGION. THUS REGION 3221 APPEARS NOW TO BE THE BEST CANDIDATE TO PRODUCE A SPECTACULAR FLARE. REGIONS 3224 AND 3234 BOTH RETAIN SOME POTENTIAL FOR PRODUCING SIZEABLE FLARES.

II. GEOPHYSICAL SUMMARY AND FORECAST:

ENERGETIC PROTONS (MEASURED AT SATELLITE LEVELS) WERE OBSERVED TO BE RISING SLOWLY AT 24/2300UT AND EVENT THRESHOLD CRITERIA WERE MET AT 25/0600UT WITH FLUXES OF 10 PARTICLES/SFCOND AT ENERGY LEVELS GREATER THAN 10 MEV. PARTICLE FLUXES WERE HOLDING AT BARELY THRESHOLD LEVELS AT 1200UT. THE SOURCE EVENT FOR THESE PROTONS IS UNKNOWN. FLUXES ARE EXPECTED TO FALL SLOWLY THROUGH THE DAY. A DISTINCT SHOCK WAS NOTED ON BOARD ISEE 3 SATELLITE FOLLOWED BY A MODERATELY STRONG SUDDEN COMMENCEMENT AT 25/0515UT SEEN ON GROUND-BASED MAGNETOMETERS. MIDDLE LATITUDE K-VALUES OF 5 WERE REPORTED 0300-0600UT AND 0600-0900UT. MAGNETIC ACTIVITY IS EXPECTED TO DECLINE SLOWLY THROUGH THE UT DAY.

III. EVENT PROBABILITIES: 26 JULY - 28 JULY 1981

CLASS M 90/90/85

CLASS X 30/30/25

PROTON 15/15/15

PCAF IN PROGRESS

IV. OTTAWA 10.7 FLUX

OBSERVED 24 JULY 250

ESTIMATED 25 JULY 254

PREDICTED 26-28 JULY 256/255/252

90 DAY MEAN 24 JULY 178

V. GEOMAGNETIC A INDICES

OBSERVED AFR 23 JULY 25

ESTIMATE

AP 24 JULY 11

HFUS 3 BOU 252200

FROM SPACE ENVIRONMENT SERVICES CENTER BOULDER COLORADO

SDF NUMBER 206B

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY

ISSUED 2200Z 25 JULY 1981

I. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 25/1200Z TO 25/2100Z: SOLAR ACTIVITY HAS BEEN MODERATE. PRINCIPAL ACTIVITY CONSISTED OF AN M4/2B EVENT IN REGION 3234 (S13E28) MAX AT 1256Z. RELATIVELY LARGE 245MHZ BURSTS HAVE OCCURRED IN RECENT HOURS UNASSOCIATED WITH REGION ACTIVITY.

II. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO BE MODERATE TO HIGH WITH ACTIVITY LIKELY FROM ANY OF THE REGIONS 3221 (S07W24), 3224 (N16W55), AND 3234.

III. GEOPHYSICAL SUMMARY AND FORECAST: A PROTON EVENT AT SATELLITE ALTITUDE ENDED AT 1600Z PRODUCING MAXIMUM FLUXES OF ABOUT 18 PARTICLES GREATER THAN 10 MEV AT 1320Z. A RELATED SMALL PCA ENDED AT 1630Z. THE GEOMAGNETIC SUDDEN COMMENCEMENT EARLY 25 JULY WAS FOLLOWED BY MAJOR STORM LEVELS. A K-INDEX OF 8 OCCURRED AT 1500Z AND K VALUES OF 6 FOLLOWED. MAGNETIC ACTIVITY IS EXPECTED TO CONTINUE AT OR NEAR STORM LEVELS.

IV. EVENT PROBABILITIES 26 JULY - 28 JULY

CLASS M 90/90/85

CLASS X 30/30/25

PROTON 15/15/15

PCA 15/15/15 YELLOW

V. OTTAWA 10.7 CM FLUX

OBSERVED 25 JULY 252

PREDICTED 26-28 JULY 256/255/252

90-DAY MEAN 25 JULY 1.79

VI. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 24 JULY 14/11

ESTIMATED AFR/AP 25 JULY 84/100

PREDICTED AFR/AP 26-28 JULY 35/43 - 22/25 - 16/18

SOLAR WARNS

BT