

KMSC

HAUS BOU 190415Z

FROM SPACE DISTURBANCE FORECAST CENTER BOULDER COLO

SDF NUMBER 723A ISSUED 0400Z 19 AUG 1970

CLASS C FLARES ARE EXPECTED DURING THE NEXT 13 HOURS; THERE EXISTS ABOUT A 50-50 CHANCE THE NE REGION WILL PRODUCE AN M EVENT.

A. ENERGETIC ACTIVITY SINCE THE LAST MESSAGE INCLUDE (1) AN M-LEVEL X-RAY BURST AT 18/1835Z AND (2) AN IMPORTANCE 1B FLARE FROM THE N10E15 SPOT GROUP OF 18/2204Z START TIME. THE FLARE MAY WELL RATE AS AN M FROM THE SIZE OF THE IONOSPHERIC DISTURBANCES AND CM WAVELENGTH RADIO BURSTS REPORTED. THIS SAME REGION-NOW CENTERED NEAR N10E15-IS NOT CHANGING ITS WHITE-LIGHT CONFIGURATION RAPIDLY. MOREOVER, THE ASSOCIATED HYDROGEN PLAGE APPEARS TO BE SPREADING OUT AND BECOMING MORE SCATTERED. MINOR MAGNETIC STORM CONDITIONS ARE STILL BEING OBSERVED.

B. THE BIPOLAR REGION IN THE NE IS EXPECTED TO GIVE RISE TO ONE OR TWO SMALL, ENERGETIC FLARES SOMETIME DURING THE NEXT 3 DAYS. THIS ACTIVITY CENTER HAS CHANGED VERY SLOWLY SINCE FIRST ROTATING INTO VIEW 14 AUG MAKING IT UNUSUALLY DIFFICULT TO PREDICT THE SHORT TERM FLARE SEQUENCE. SUBSTORM LEVEL MAGNETIC FLUCTUATIONS ARE ANTICIPATED THROUGH THE 21ST. (THE ANTICIPATED GREAT MAGNETIC STORM FOR 18 AUG FAILED TO MATERIALIZE DESPITE EXTREMELY FAVORABLE EXTRAPOLATED SPACECRAFT DATA. BASED UPON THE LEVEL OF THE EXISTING GEOMAGNETIC DISTURBANCE DURING THE EVENING HOURS OVER NORTH AMERICA YESTERDAY, AURORAL DISPLAYS WOULD HAVE BEEN DETECTED ONLY WITH SOPHISTICATED PHOTOMETRIC EQUIPMENT.)

C. FLARE AND PROTON EVENT PROBABILITIES FOR THE NEXT THREE 24 HOUR PERIODS BEGINNING 19 AUG/0400Z ENDING 22 AUG/0400Z

CLASS M OR GREATER 50/50/50

CLASS X 02/02/02

PROTON EVENTS 15/20/25

D. OTTAWA 10.7 CM FLUXES FOR 18/1700Z AND 18/2000Z WERE 145 AND 146 RESPECTIVELY.

SOLTERWARN

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HAUS BOU 191735Z

FROM SPACE DISTURBANCE FORECAST CENTER BOULDER COLO

SDF NUMBER 723B ISSUED 1700Z 19 AUG 1970

CLASS-M FLARES ARE EXPECTED DURING THE NEXT 11 HOURS.

A. SOLAR ACTIVITY HAS INCREASED DURING THE PAST 13 HOURS. THE MOST SIGNIFICANT EVENT REPORTED CONSISTED OF AN INTENSE CLASS-X SUB-BRILLIANT FLARE AT 19/1114Z FROM THE REGION THAT PASSED OVER THE LIMB NEAR NW22 YESTERDAY; THIS FLARE WAS ACCOMPANIED BY A 10 CM RADIO BURST OF APPROXIMATELY 320 FLUX UNITS ABOVE THE BACKGROUND LEVEL. AT LEAST TWO CLASS-M FLARES HAVE OCCURRED DURING THE PAST 13 HOURS, AND PRELIMINARY REPORTS SUGGEST THAT THESE EVENTS MAY HAVE BEEN PRODUCED BY FLARES HIDDEN BEHIND THE WEST LIMB. THE REGION AT N10E08 PRESENTLY IS IN A NEAR-DORMANT STATE, BUT IT RETAINS ITS POTENTIAL FOR THE PRODUCTION OF ENERGETIC FLARES. A NEW REGION IS GROWING AT N23E27, BUT SO FAR THIS NEW REGION HAS PRODUCED NO SIGNIFICANT ACTIVITY. OTHER DISK REGIONS HAVE SHOWN LITTLE NOTEWORTHY DEVELOPMENT. THE GEOMAGNETIC FIELD HAS GROWN PROGRESSIVELY MORE QUIET DURING THE PAST 13 HOURS, ATS-1 PROTON COUNTING RATES HAVE DECREASED TO NEAR-BACKGROUND LEVELS, AND DEEP RIVER NEUTRON COUNTING RATES HAVE RISEN TO NEAR NORMAL.

B. DURING THE THREE-DAY FORECAST PERIOD, SPORADIC CLASS-M EVENTS ARE EXPECTED TO OCCUR FROM THE N10E08 REGION; THE REGION BEHIND THE LIMB NEAR NW22 MAY PRODUCE SIGNIFICANT X-RAY EVENTS FOR THE NEXT 24-48 HOURS AS IT IS ROTATED BEHIND THE DISK. THERE IS A SMALL CHANCE THAT A PROTON EVENT MAY BE DETECTED NEAR EARTH AS A RESULT OF THE 19/1114Z FLARE; A MINOR GEOMAGNETIC STORM IS EXPECTED TO BEGIN WITHIN 48 HOURS.

C. FLARE AND PROTON EVENT PROBABILITIES FOR THE NEXT THREE 24 HOUR PERIODS BEGINNING 19 AUG/1700Z ENDING 22 AUG/1700Z.

CLASS M OR GREATER 90/90/90

CLASS X 25/20/20

PROTON EVENTS 20/10/10

D. OTTAWA 10.7 CM FLUX FOR 19/1400Z WAS 147. PREDICTED 10.7 CM FLUX FOR 20-22 AUG IS 150/150/150.

E. MAGNETIC A-FREDERICKSBURG FOR 18 AUG WAS 32. FOR 19 AUG ABOUT 17. PREDICTED AP FOR 20-22 AUG, 15/20/25.

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HAUS BOU 190000Z

SDFR 989 ISSUED 19 AUG 1970

HIGHLIGHTS FOR THE PERIOD 12-18 AUG 1970:

SOLAR ACTIVITY WAS AT A HIGH LEVEL FROM 12 THROUGH 16 AUGUST. TWO CLASS X, NINETEEN MEDIUM TO LARGE CLASS M (1-8A PEAK FLUX GREATER THAN 0.03 BUT LESS THAN 0.1 ERG PER SQ CM PER SEC), AND TWENTY SIX SMALL CLASS M EVENTS WERE OBSERVED. ONE OR BOTH OF THE CLASS X EVENTS CAUSED PROTON ENHANCEMENTS NEAR THE EARTH. THE 1-8A X-RAY FLUX WAS ABOVE THE CLASS M THRESHOLD FOR AT LEAST THIRTY HOURS DURING THE WEEK. TWO REGIONS WERE RESPONSIBLE FOR THE ACTIVITY. OLD MCMATH REGION 845, NOW CALLED 882 AND LOCATED NEAR N10E24 (L 096) AS OF 19/0000Z, ANNOUNCED ITS RETURN TO THE VISIBLE DISK WITH A LARGE CLASS M EVENT AT 11/2325Z. AT THIS TIME THE REGION WAS STILL SOME 39 HOURS OR ABOUT 20 DEGREES BEHIND THE LIMB. THIS REGION THEN PRODUCED A CLASS X EAST LIMB PROTON EVENT AT 12/2020Z. OPTICALLY THE EVENT WAS REPORTED AS 1B, BUT THIS WAS MOST LIKELY ONLY THE TOP OF A MUCH LARGER FLARE. THIS EVENT SATURATED THE SOLRAD-9 1-8A X-RAY DETECTORS AT 0.5 ERG PER SQ CM PER SEC FOR 20 MIN. HIGH FREQUENCY RADIO COMMUNICATIONS IN THE SUNSLIT HEMISPHERE WERE SEVERELY DISRUPTED FOR 40 MINUTES. A SECOND LARGE CLASS X FLARE OCCURRED IN THE REGION AT 14/1600Z; IT WAS OPTICALLY A 1N. THE SECOND ACTIVE REGION WAS MCMATH 865 NEAR N18 L 239. THIS REGION HAD DEVELOPED A MAGNETICALLY COMPLEX STRUCTURE THE PREVIOUS WEEK BUT HAD PRODUCED ONLY MINOR ACTIVITY. IT BEGAN A SECOND STAGE OF DEVELOPMENT ON 12 AUGUST AND WAS VERY ACTIVE FROM 13 AUG. UNTIL IT WAS WELL BEHIND THE WEST LIMB ON 17 AUG. MOST OF THE ENERGETIC X-RAY EVENTS WERE PRODUCED BY SUBFLARES OR UNCLASSIFIED LIMB ACTIVITY. REGIONS 882 AND 865 WERE FREQUENTLY ACTIVE SIMULTANEOUSLY AND IT WAS OFTEN IMPOSSIBLE TO DETERMINE THE REGION OF ORIGIN OF THE ENERGETIC EVENTS. REGION 865, HOWEVER, APPARENTLY PRODUCED 23 OF THE CLASS M EVENTS. AT 12/2256Z, TWO AND ONE HALF HOURS AFTER THE EAST LIMB EVENT FROM REGION 882, PIONEER 6 WHICH IS POSITIONED OFF THE EAST LIMB RECORDED A 6000 PERCENT ENHANCEMENT IN THE FLUX OF PROTONS WITH ENERGY GREATER THAN 190 MEV. THE GEOSTATIONARY ATS-1 SATELLITE DETECTED ENHANCED PROTON FLUXES NEAR EARTH AT 13/1500Z. THE FLUX INCREASED SLOWLY AND REACHED A PEAK AT ABOUT 15/1300Z. THE PEAK FLUX IN THE 21-70 MEV ENERGY RANGE WAS ABOUT 40 PARTICLES PER SQ CM PER SEC. DISPLAY EQUIPMENT FOR THE 5-21 MEV CHANNEL BECAME SATURATED AT SOMETHING IN EXCESS OF 2000 PARTICLES PER SQ CM PER SEC. THE FLUXES ARE PRESENTLY SLOWLY APPROACHING BACKGROUND LEVELS. THE THULE 30 MHZ RIOMETER RECORDED ABOUT 2 DB ABSORPTION DURING THE PEAK OF THE EVENT. THE DEEP RIVER NEUTRON MONITOR COUNTING RATE STARTED TO DROP BY 16/1900Z AND REACHED ABOUT 5 PERCENT BELOW NORMAL AT 18/0000Z; NEUTRON COUNTING RATES ARE NOW RECOVERING. A GEOMAGNETIC STORM STARTED WITH A SUDDEN COMMENCEMENT AT 16/2204Z. A-FREDERICKSBURG FOR 17 AUGUST WAS 65. THE MAGNETIC FIELD REMAINS DISTURBED.

FORECAST FOR THE PERIOD 20-26 AUGUST 1970:

ACTIVITY IS EXPECTED TO RETURN TO A MORE NEARLY NORMAL LEVEL WITH AN AVERAGE OF NO MORE THAN THREE CLASS M EVENTS PER DAY. REGION 882 IS PRESENTLY THE MOST LIKELY SOURCE OF ENERGETIC EVENTS, BUT IT IS SIMPLIFYING AND IS NOT EXPECTED TO PRODUCE FURTHER MAJOR ACTIVITY. OLD MCMATH REGION 851 NEAR N06 L 023 IS RETURNING TO THE EAST LIMB BUT SO FAR LOOKS UNIMPRESSIVE. THIS REGION PRODUCED FIVE M EVENTS ON ITS LAST TRANSIT. NO OTHER RETURNING REGIONS ARE EXPECTED. DISTURBED GEOMAGNETIC CONDITIONS ARE EXPECTED TO CONTINUE THROUGH 23 AUGUST.

28-DAY FORECAST FOR THE PERIOD 20 AUGUST-17 SEPTEMBER 1970:

A PERIOD OF ENHANCED ACTIVITY IS POSSIBLE BEGINNING 29 AUGUST AS REGION 865 RETURNS TO THE VISIBLE DISK. WEST LIMB ACTIVITY ON 17-18 AUGUST INDICATED THAT A NEW ACTIVE CENTER WAS DEVELOPING AT A LATITUDE OF ABOUT N20 AND ONE OR TWO DAYS BEHIND REGION 865.