

HFUS 1 BOU 051300

FROM SPACE ENVIRONMENT SERVICES CENTER, BOULDER, COLORADO

SDF NUMBER 036A

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY.

ISSUED 1300Z 05 FEB 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 04/1200Z TO 05/1200Z: SOLAR ACTIVITY HAS BEEN MODERATE TO HIGH WITH SIX M-CLASS X-RAY EVENTS DURING THE PAST 24 HOURS. THE LARGEST EVENT, AN M4 WITH SIGNIFICANT SHORT WAVE FADES OUT TO 22 MHZ BUT ONLY MINOR RADIO NOISE, OCCURRED 04 FEB AT 1337Z (MAX). THE EVENT WAS UNOBSERVED OPTICALLY. THE OTHER FIVE M-CLASS EVENTS ALL ORIGINATED IN REGION 3576 (S14W54) WITH THE MOST SIGNIFICANT BEING AN M4/1B FLARE WHICH MAXED AT 0910Z. THIS FLARE HAD GOOD RADIO NOISE INCLUDING 5000 FLUX UNITS AT 15400 MHZ, 220 FU AT 2695 MHZ (10 CM), AND 1600 FU AT 15400 MHZ FOR A U-SHAPED SPECTRUM. TYPE II AND III RADIO SWEEPS WERE ALSO OBSERVED. REGION 3576 HAS BEGUN TO SHOW DECAY IN WHITE LIGHT AND H ALPHA. ITS MAGNETIC CLASS HAS APPARENTLY DECLINED TO A SIMPLE BETA WITH NO DELTA COMPLEXITIES. DESPITE ITS RECENT PENCHANT FOR SIGNIFICANT FLARES, MAJOR EVENTS ARE MUCH LESS LIKELY. REGION 3594 (S10E61) IS NOW CLEARLY THE MOST IMPRESSIVE REGION VISIBLE ON THE DISK. WHILE IT IS STILL TOO CLOSE TO THE EAST LIMB FOR DETAILED ANALYSIS, IT IS SEEN TO BE AN F-TYPE GROUP WITH A PROBABLE MAGNETIC DELTA IN THE SOUTHEAST CORNER OF THE LARGE ASYMMETRIC LEADER SPOT. THE MAIN FOLLOWER SPOT IS REPORTED TO BE GIGANTIC, THE PENUMBRA STRETCHING OVER SIX DEGREES OF LATITUDE. IT HAS PRODUCED NUMEROUS SUBFLARES AND A C7/1N FLARE AT 1825 Z DURING THE PAST 24 HOURS. SURGING AND LOOPS ON THE EAST LIMB NEAR SE07 INDICATE THAT 3594 MAY BE INTERACTING WITH YET ANOTHER REGION BEYOND THE LIMB. REGION 3583 (S19W21) HAS BEEN STABLE BUT THAT GENERAL VICINITY OF THE SUN REMAINS INTERESTING. NEW REGION 3595 (S06W22) LIES NEAR 3583 AND 3584 (S13W17) AND FURTHER DEVELOPMENT COULD OCCUR HERE. REGIONS 3573 (N11W60) AND 3589 (S06E12) HAVE DECAYED AND ARE NO LONGER EXPECTED TO PRODUCE SIGNIFICANT FLARES.

IB. SOLAR ACTIVITY FORECAST: SOLAR ACTIVITY IS EXPECTED TO REMAIN MODERATE TO HIGH. THE BEST PROBABILITY FOR MAJOR EVENTS HAS SHIFTED FROM 3576 TO 3594.

II. GEOPHYSICAL SUMMARY AND FORECAST: THE GEOMAGNETIC FIELD HAS VARIED FROM UNSETTLED TO STORM LEVELS OVER THE PAST 24 HOURS. THE FIELD IS EXPECTED TO REMAIN MOSTLY ACTIVE OVER THE NEXT THREE DAYS, WITH AN INCREASE ON THE THIRD DAY Owing TO POSSIBLE EFFECTS FROM TODAY'S M4/1B FLARE. THAT FLARE MAY CAUSE THE SATELLITE PROTON EVENT, WHICH BEGAN ON 31 JAN AND ENDED AT 1430 Z ON 04 FEB, TO RESUME. IF HIGH ENERGY PARTICLES ARRIVE, FLUXES AT GREATER THAN 10 MEV ENERGIES COULD RISE SLIGHTLY ABOVE THE EVENT THRESHOLD OF 10 PROTONS/CM<sup>2</sup>/SEC/STER DURING THE NEXT THREE HOURS. THE EVENT WOULD BE EXPECTED TO SUBSIDE WITHIN 24 HOURS.

III. EVENT PROBABILITIES 06 FEB-08 FEB

CLASS M 95/95/95

CLASS X 40/30/20

PROTON 20/10/10

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 04 FEB 262

ESTIMATED 05 FEB 250

PREDICTED 06 FEB-08 FEB 240/230/230

90 DAY MEAN 04 FEB 198

V. GEOMAGNETIC A INDICES

OBSERVED AFR 03 FEB 029 AP 04 FEB 044

ESTIMATED AFR 04 FEB 036 AFR/AP 05 FEB 028/030

PREDICTED AFR/AP 06 FEB-08 FEB 025/020-015/015-020/020

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HFUS 3 BOU 052200

FROM SPACE ENVIRONMENT SERVICES CENTER BOULDER COLO

SDF NUMBER 036B

JOINT USAF/NOAA REPORT OF SOLAR AND GEOPHYSICAL ACTIVITY

ISSUED 2200Z 5 FEB 1982

IA. ANALYSIS OF SOLAR ACTIVE REGIONS AND ACTIVITY FROM 05/1200Z TO 05/2100Z; SOLAR ACTIVITY HAS BEEN MODERATE THIS PERIOD.

REGION 3594 (S10E58) HAS PROVIDED MOST OF THE ACTIVITY. AN UNASSOCIATED M1 EVENT OCCURRED AT 1238Z MAX. REGION 3594 GAVE A C7/1N AT 05/1801Z MAX WITH TRACES OF DISCRETE CENTIMETRIC ACROSS THE SPECTRUM. TOTAL ACTIVITY SEEMS TO BE DECLINING BUT

REGIONS 3594, 3576 (S14W61) APPEAR CAPABLE OF MAJOR ACTIVITY. NEW REGIONS TODAY ARE 3596 (N20E20) 3597 (S13E76), AND 3598 (N02E77).

IB. SOLAR ACTIVITY FORECAST; SOLAR ACTIVITY SHOULD BE MODERATE WITH HIGH LEVELS POSSIBLE. THE FREQUENCY OF EVENTS IS DECLINING BUT MAJOR FLARES MAY YET OCCUR IN REGIONS 3594 AND 3576.

II. GEOPHYSICAL SUMMARY AND FORECAST; THE GEOMAGNETIC FIELD HAS BEEN ACTIVE WITH ISOLATED PERIODS AT STORM LEVEL. ACTIVE TO MINOR STORM LEVELS SHOULD BE INDUCED BY RECENT M CLASS FLARE ACTIVITY. SATELLITE PARTICLE EVENTS ARE NO LONGER EXPECTED FROM FLARES OCCURRING UP TO TIME OF THIS FORECAST.

III. EVENT PROBABILITIES 06-08 FEB

CLASS M 95/90/90

CLASS X 40/30/20

PROTON 20/10/10

PCAF YELLOW

IV. OTTAWA 10.7 CM FLUX

OBSERVED 5 FEB 252

PREDICTED 06-08 FEB 240/235/235

90-DAY MEAN 5 FEB 199

V. GEOMAGNETIC A INDICES

OBSERVED AFR/AP 04 FEB 38/44

ESTIMATED AFR/AP 5 FEB 30/35

PREDICTED AFR/AP 6-8 FEB 30/30 - 15/15 - 20/25

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