

# Special Forecaster For Apollo Moon Landing

Period: 19 Nov - 0200Z to 2200Z

There is a strong ( $>80\%$ ) probability for at least two major solar flares during this period. These flares will originate in the intense and complex solar regions now located near N15 E35.

These flares will produce major enhancements in solar X-rays and these flares will be accompanied by major enhancements in solar X-ray and by strong radio bursts at ~~at~~ many frequencies; but not necessarily by solar proton emission. The probability of ~~of~~ <sup>a</sup> significant proton event ~~occurring~~ in this period is 25%.

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KMSC

HAUS BOU 190430Z

FROM SPACE DISTURBANCE FORECAST CENTER ESSA BOULDER COLO

SDF NUMBER 450A ISSUED 0400Z 19 NOV 1969

CLASS M AND X FLARES ARE EXPECTED DURING THE NEXT 24 HOURS  
ESPECIALLY DURING THE 1200-2400Z PERIOD.

A. OF THE 2 NE COMPLEX CENTERS THE REGION NEAR N14E34 REMAINS THE MORE ACTIVE. THREE SIGNIFICANT FLARES HAVE OCCURRED THERE SINCE THE LAST MESSAGE NAMELY CLASS X'S AT 18/1636(2B) AND 2117(SB) AND A POSSIBLE M AT APPROXIMATELY 0121(1N) TODAY. CONCERNING THE 1636Z FLARE NO INDICATION OF SOLAR PROTONS HAS BEEN DETECTED AS OF THE TIME OF WRITING. THIS FLARE OF GREATER THAN 1 1/2 HOUR DURATION OCCURRED NEAR THE CENTER OF THE LARGE HORSESHOE-SHAPED PENUMBRAL STRUCTURE PRESENTLY NEAR N14E34. RADIO NOISE EMISSION AT 10CM WAS OF THE ORDER OF 1000 FLUX UNITS WHILE THE SPECTRUM OF RADIO WAVE-LENGTH OBSERVATIONS DISPLAYED A CLASSIC V-BURST PROFILE.

B. IT APPEARS VERY LIKELY THAT SOLAR WIND GEOMETRY PRECLUDES ENERGETIC PROTONS FROM BEING DETECTED IN THE VICINITY OF EARTH AS A RESULT OF THE 18/1636Z FLARE. CONTINUED CLASS M AND X ACTIVITY IS DEFINITELY EXPECTED FROM THE N14E35 REGION DURING THE NEXT 2 DAYS. APPROXIMATELY 15 TO 20 HOUR INTERVALS OF TIME SHOULD SEPARATE THE PERIODS OF ACTIVITY.

C. FLARE AND PROTON EVENT PROBABILITIES FOR THE NEXT THREE 24 HOUR PERIODS BEGINNING 19 NOV/0400Z ENDING 23 NOV/0400Z.

CLASS M OR GREATER 90/90/90

CLASS X 50/50/50

PROTON EVENTS 25/35/50

D. OTTAWA 10.7 CM FLUXES FOR 18/1700 AND 2000Z WERE BOTH 181.

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HAUS BOU 191700Z

FROM SPACE DISTURBANCE FORECAST CENTER ESSA BOULDER COLO

SDF NUMBER 450B ISSUED 1700Z 19 NOVEMBER 1969

CLASS M AND X FLARES ARE EXPECTED DURING THE NEXT 11 HOURS

A. HIGHLIGHTS FOR THE PERIOD 12-19 NOVEMBER 1969--

PRIOR TO NOVEMBER 16 SOLAR ACTIVITY WAS SIMILAR TO THAT OF SUNSPOT MINIMUM. ON 16 NOVEMBER TWO REGIONS CLOSELY SPACED ROTATED ONTO THE DISK. CURRENTLY THESE ACTIVE CENTERS HAVE CLASS/AREAS APPROXIMATING E/1390 /N13E27/ AND E/560 /N07E21/ RESPECTIVELY. FOR THE STRUCTURES AS A WHOLE THE 9.1 CM BRIGHTNESS TEMBERATURE IS QUITE HIGH - ABOUT 960 000 DEGREES KELVIN. CLASS M FLARES HAVE BEEN DETECTED EACH DAY SINCE 16 NOVEMBER WITH THE MOST ENERGETIC OCCURRING AT 18/1636Z AND 18/2117Z. THE 18/1636Z EVENT WAS APPROXIMATELY 1 1/2 HOURS IN DURATION WITH AN ACCOMPANYING 1 000 PLUS 10 CM NOISE BURST AND EXTREMELY HARD X-RAY BURST. ANALYSES OF THESE DATA INDICATE PROTONS WERE VERY PROBABLY EMITTED DURING THE FLARES BUT NONE HAVE BEEN DETECTED IN THE NEAR EARTH ENVIRONMENT. FIELD STRENGTHS WITHIN THE TWO NE REGIONS COMPARE WITH THOSE OF THE 02 NOVEMBER COMPLEX. DELTA CONFIGURATIONS EXIST PRESENTLY ONLY IN THE CENTRAL PORTION OF THE N14 GROUP. OTHER DELTA REGIONS ARE LIKELY TO APPEAR DUE TO THE SUPERPOSITION OF THE PRESENT SPOTS UPON THE EARLIER ACTIVITY SOURCES.

B. FORECAST FOR THE PERIOD 20-26 NOVEMBER 1969--

THE OVERALL COMPLEXITY OF THE N14 GROUP COUPLED WITH ITS RAPID DEVELOPMENT FOLLOWING THE ACTIVITY EARLIER THIS MONTH INDICATE CONTINUED ENERGETIC FLARE PRODUCTION FOR AT LEAST THE NEXT TWO DAYS AND PROBABLY THROUGHOUT THE ENTIRE PERIOD.

28-DAY FORECAST FOR 20 NOVEMBER-17 DECEMBER 1969--

SOLAR ACTIVITY SHOULD REMAIN ENHANCED THROUGHOUT THE PERIOD.

PREVIOUSLY ACTIVE CENTERS WILL RETURN ON 30 NOVEMBER /CARRINGTON LONGITUDE 235/ AND 13 DECEMBER /CARRINGTON LONGITUDE 070/.

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

CLASS M OR GREATER 100/100/100

CLASS X 70/70/70

PROTON EVENTS 30/40/50

D. OTTAWA 10.7 CM FLUX AT 1400Z WAS 187. PREDICTED 190/195/198.

E. MAGNETIC A-FREDERICKSBURG FOR 18 NOV WAS 04. FOR 19 NOV ABOUT 04. PREDICTED AP FOR 20-22 NOV 20/15/10.

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