NAG8-888

FNAS Short Term Solar Flare Prediction Algorithm

SEMI - ANNUAL REPORT

February 1, 1993 -August 1, 1993

Submitted to

National Aeronautics and Space Administration
George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812

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Progress Report

February 1993 - August 1993

Development, Refinement, and Testing of a Short Term Solar Flare PRediction Algorithm
NAG8-888

Submitted to:

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During the period included in this report, the expenditure of time and effort, and progress toward performance of the tasks and accomplishing the goals set forth in the two year Research Grant Proposal consisted primarily of calibration and analysis of selected data sets. The heliographic limits of 30 degrees from central meridian were continued. As previously reported, all analyses are interactive and are performed by the Principal Investigator. It should also be noted that the analysis time involved by the Principal Investigator during this reporting period was limited, partially due to illness and partially resulting from other uncontrollable factors.

The calibration technique (as developed by MSFC Solar scientists), incorporates sets of constants which vary according to the wave length of the observation data set. One input constant is then varied interactively to correct for observing conditions, etc., to result in a maximum magnetic field strength (in the calibrated data), based on a separate analysis. There is some insecurity in the methodology and the selection of variables to yield the most self-consistent results for variable maximum field strengths and for variable observing/atmospheric conditions. Several data sets were analyzed using differing constant sets, and separate analyses to differing maximum field strength - toward standardizing methodology and technique for the most self-consistent results for the large number of cases. It may be necessary to recalibrate some of the analyses, but the sc analyses are retained on the optical disks and will, with recalibration where necessary, can still be used. Only the extracted parameters will be changed.

PLANS: The primary tasks during the next six months are the continuation of the analyses, the resolution of the calibration methodology, the refining of the predictive parameter algorithm for selected parameters, and preparing the initial data set for statistical analysis.

Attachments: Comparative analyses for differing calibration constant sets.

LONGITUDINAL PLOT
AZIMUTH PLOT

30-JUL-93 19:28:58

MARSHALL SPACE FLIGHT CENTER MAGNETOGRAMS

TELEPHONE : 205-544-7632 FTS:824-7632

REGION NUMBER: 7150

DATE: 29-APR-92

DAY:120 HR:18 MIN:26 SEC:42

X(20, 90) Y(20, 90)

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ENHANCEMENTS: 128
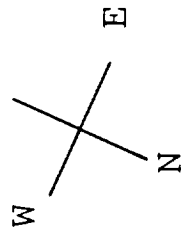
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XPOS: -0.33 YPOS: 1.45

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C2=	0.000000E+00

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C	500	J	-500
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F	2000	M	-2000
G	2500	N	-2500

AMIN= 200
AMAX= 500

OFFSET ANGLE= 0.00

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FILENAME: B23221F.02

LONGITUDINAL NEUTRAL LINE PLOT

MARSHALL SPACE FLIGHT CENTER MAGNETOGRAMS
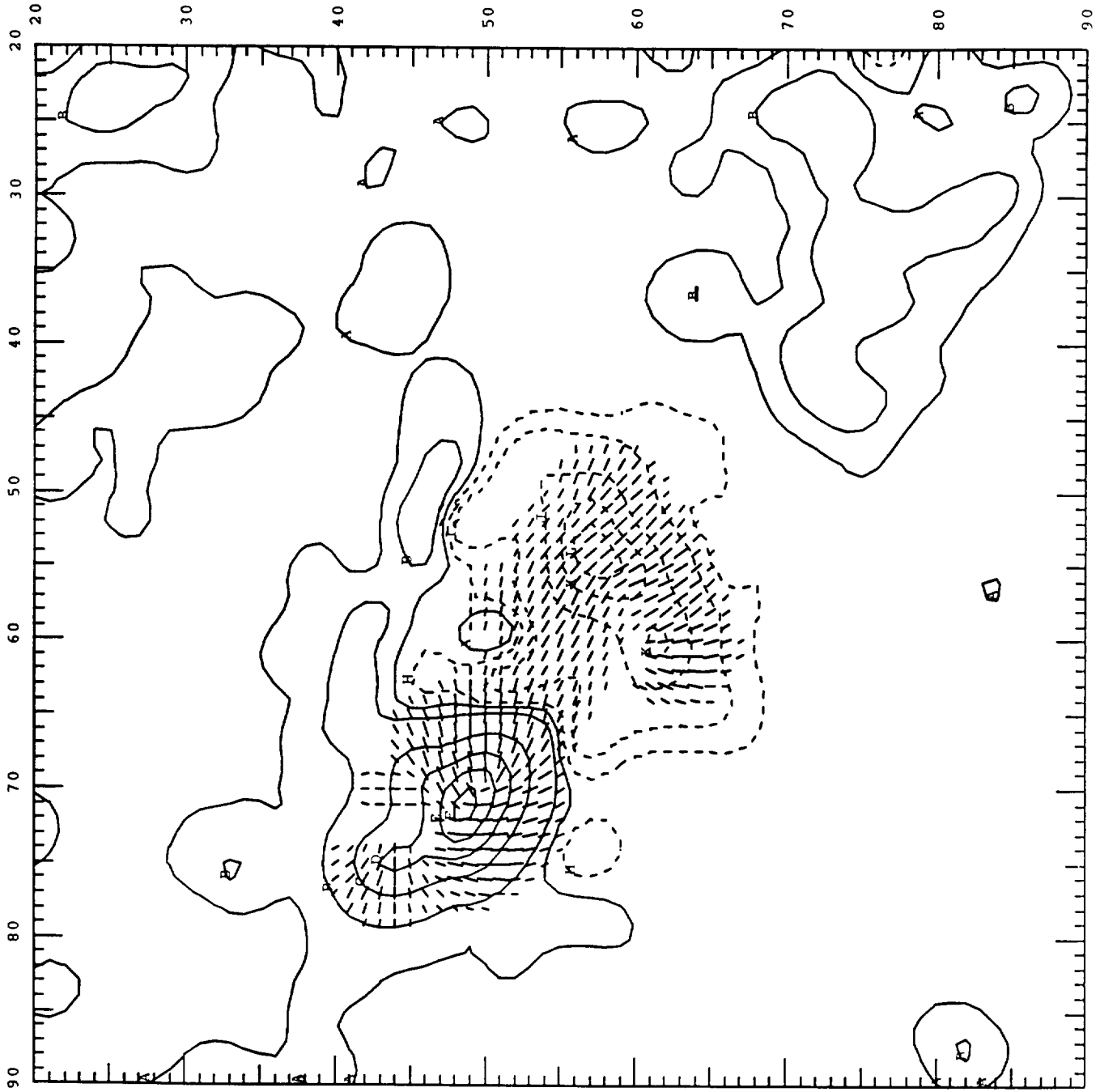
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30-JUL-93   19:15:49

REGION NUMBER: 7150

DATE: 29-APR-92

DAY:120 HR:18 MIN:26 SEC:42

X(20, 90) Y(20, 90)

ZEISS FILTER:1519

ENHANCEMENTS: 128

EXPOSURE: 35

XPOS: -0.33   YPOS: 1.45
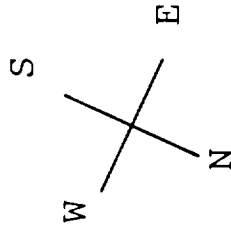
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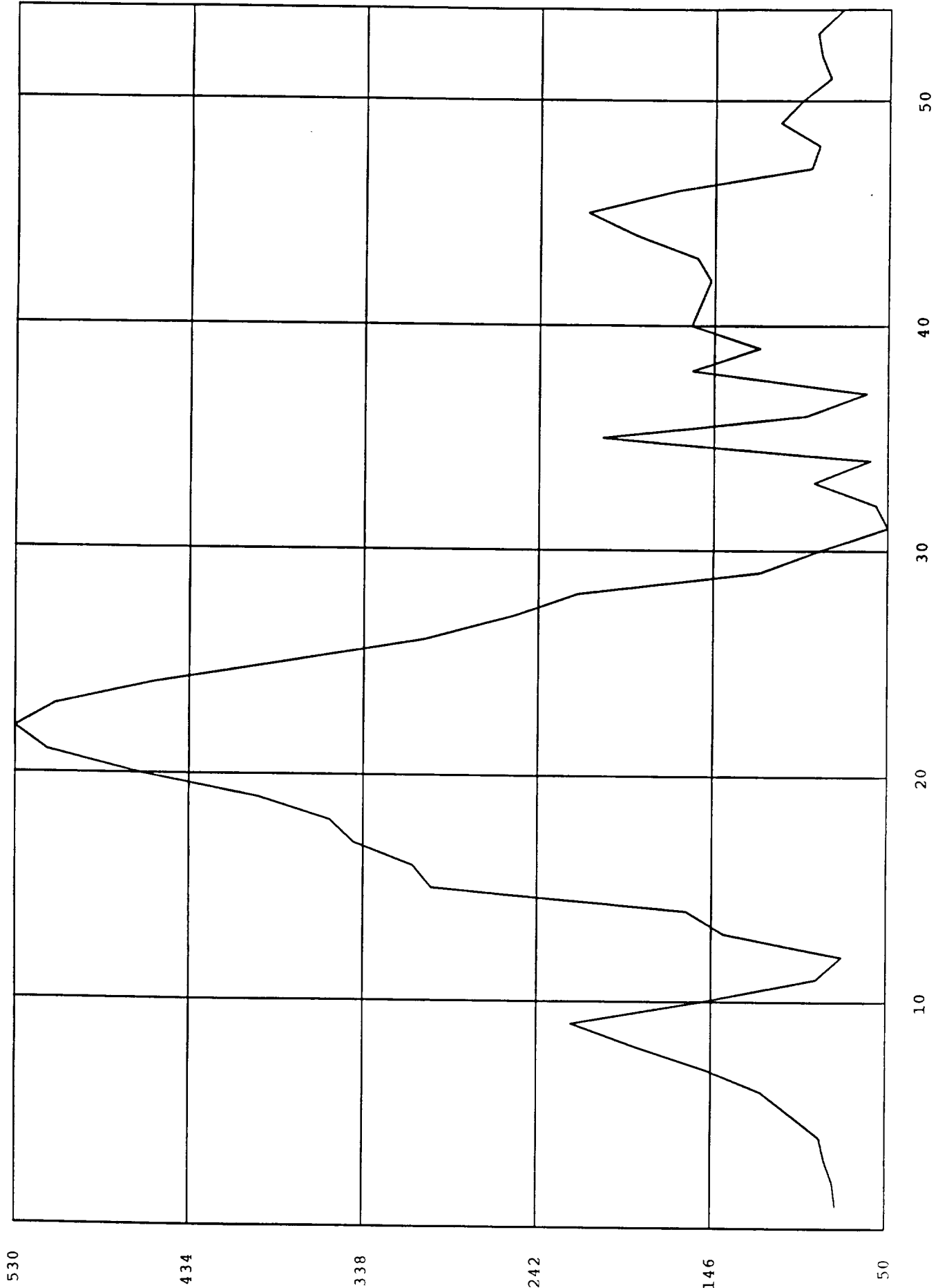C2=   0.000000E+00

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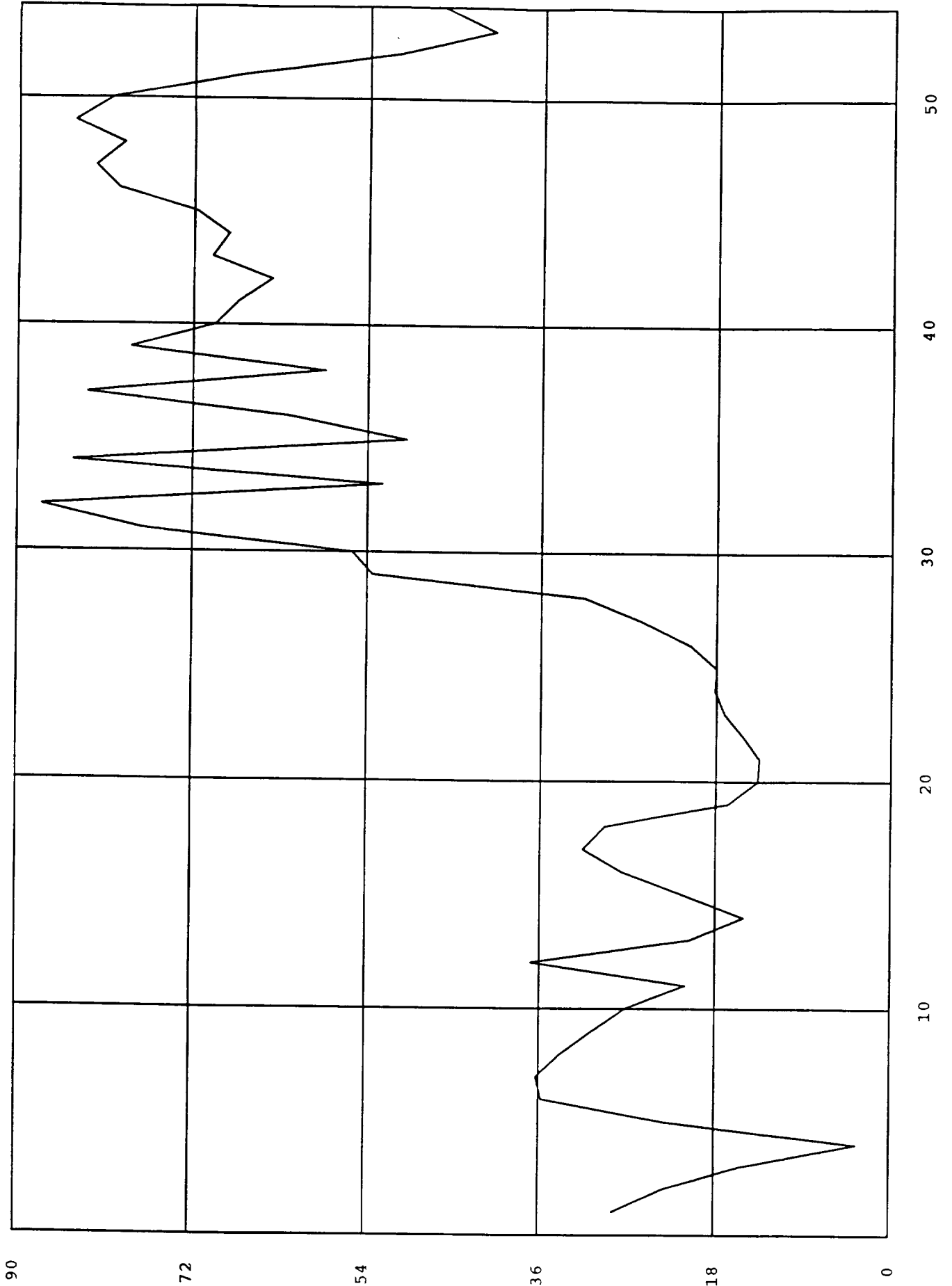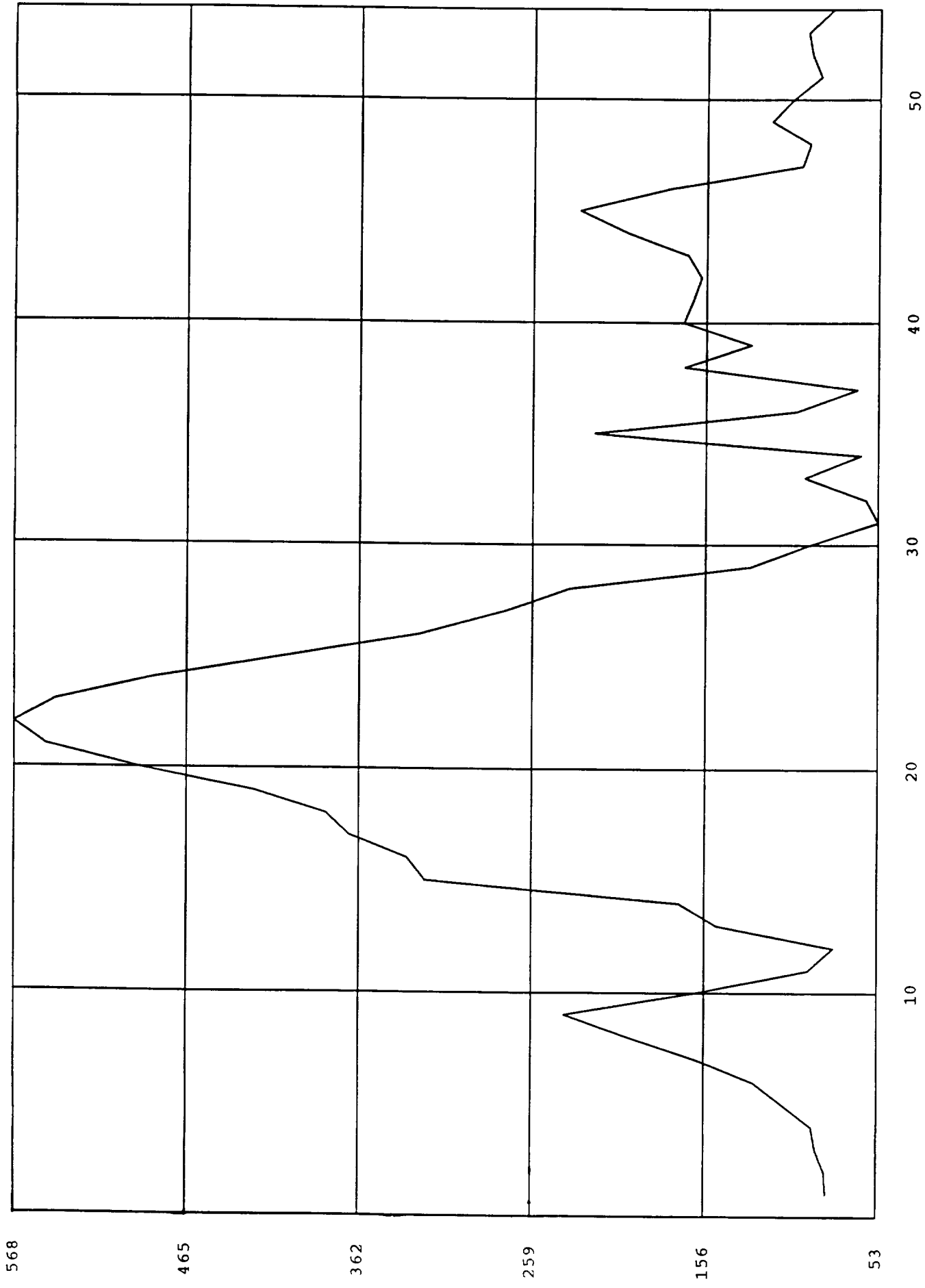B 100   D   -100
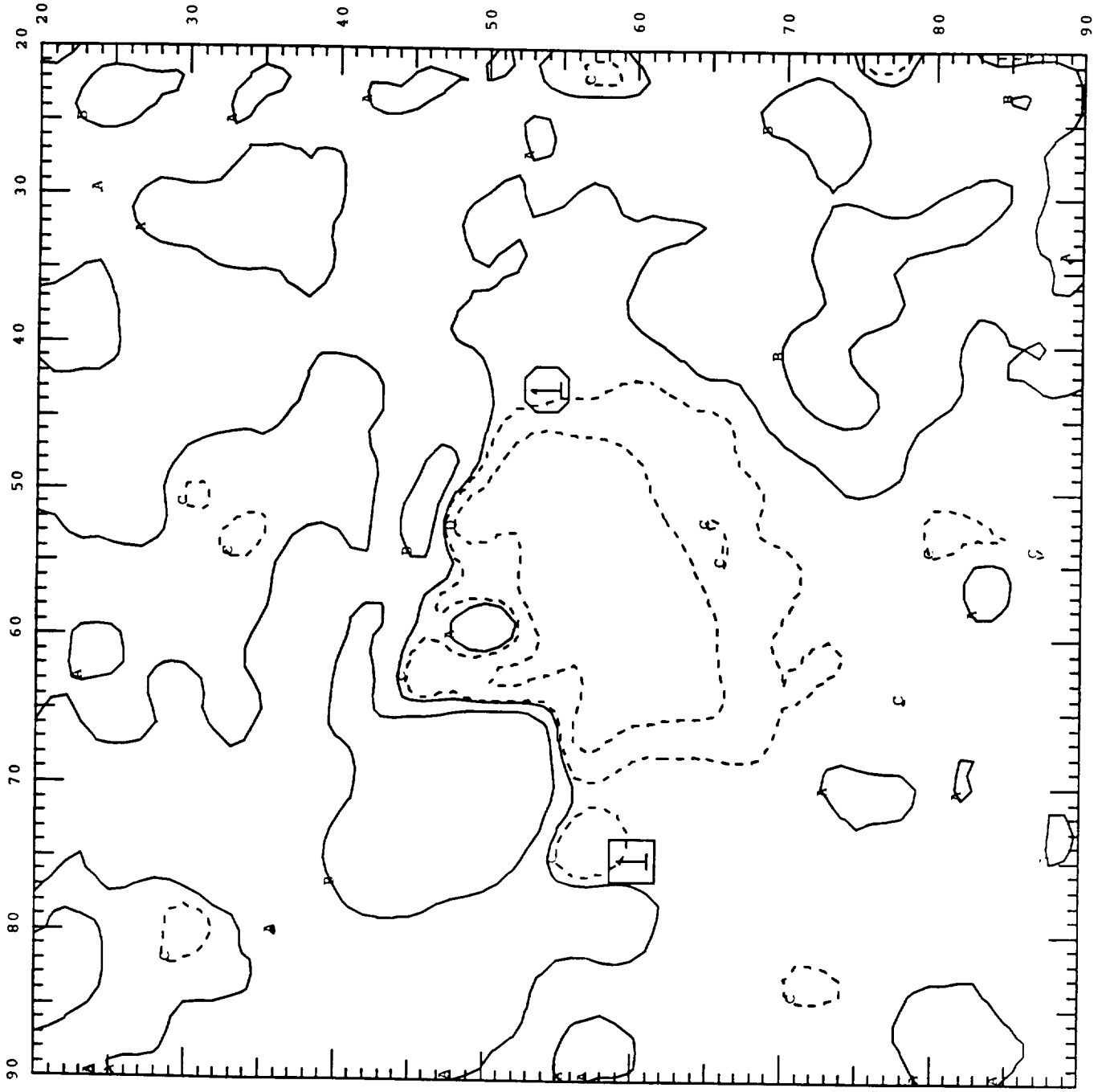
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Using 90 mÅ Constants

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Using 120 mÅ Constants

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Using 120 mÅ Constants