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MONTHLY REPORT

for

DECEMBER 1978

VISSR Atmospheric Sounder (VAS)
Development and Performance Evaluation

Contract No: NAS5-21965

Prepared by

Space Science and Engineering Center
The University of Wisconsin
Madison, WI

for

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, MD

I. General

On December 7, 1978 the VAS Activities and Status Review was held in Madison, Wisconsin. The rationale and approach for the VAS Demonstration were discussed by M. Tepper, H. Plotkin, H. Montgomery, F. Hasler of GSFC V. Suomi, D. Johnson, P. Menzel of UW, and W. Smith of NESS. It was reaffirmed that the VAS goal is to better understand and forecast short-lived weather phenomena. It was further agreed that more attention must now be given to the assessment of scientific applications of the VAS instrument.

Also on December 7, 1978, S. Kay of Westinghouse, D. Howell and P. Gary of GSFC, and R. Dedecker and R. Daly of UW met in Madison, Wisconsin to exchange information relating to the telecommunications link between the S/DB at Wallops and the research facilities at UW and GSFC. Adjustments in the message format to achieve AFOS compatibility were discussed. It was also agreed that the data exchange between UW and GSFC would be supported through subprocesses in their respective data base management systems.

Documentation submitted to NASA during the month consisted of UW/SSEC VAS Activities and Status Review.

II. Data Processing System Development

The Data Base Manager - Applications Processor - User Terminal (DBM-AP-UT) configuration is now in its third month of operation -- hardware problems are nearly all resolved and software problems are shrinking as user familiarity increases. The DBM-AP communications link is now working at its rated capacity; a hardware fix with some software improvement has increased the throughput by an order of magnitude. The VAS UT still exhibits some flakiness in the

video display due to solid state refresh problems, however tuning the power supplies has decreased flakiness somewhat. In addition, noise reducing ground straps are being designed into the circuitry between the refresh memories and the microprocessor terminal controller.

Design work is underway to determine what hardware expansion will be necessary in the DBM, AP, and UT to satisfy the needs of the VAS Demonstration. Appropriate procurements will be initiated shortly.

The TIROS-N receiving system is daily acquiring data from four or five sounder overpasses. Automatic tracking of the satellite, reception of the signal, and processing of the data has been proceeding well with minimal hardware problems. The eastern VHF antenna is almost ready. When functioning, it will provide better eastern US coverage and act as a backup for the western VHF antenna. The gain in the receiver has dropped off somewhat and potential causes are being checked out. The preprocessing software in the main microprocessor has been gradually optimized. A communications link between the antenna controller microprocessor and the main microprocessor is now pending so that everyday operations will be less complicated.

III. Development of VAS Data Processing Techniques

The statistics for TIROS-N data processing have been separated into day and night categories. This has cleaned up the short wave channel problems with reflected sunlight. In addition, it has been found that manual editing of the microwave data has improved the sounding retrievals. A library of processed retrievals has been started.

In the next months a study will be conducted to determine the impact that TIROS-N data has on subjective weather forecasts. In coordination with

personnel from the UW meteorology department we hope to determine how the polar orbiter information is best utilized.

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10 January 1979

Mr. J.B. Connor
Contracting Officer, Code 289
NASA--Goddard Space Flight Center
Greenbelt, MD 20771

Dear Mr. Connor,

In accordance with Article III of contract NAS5-21965, I am submitting the required Progress Report for the month of December 1978.

If you have any questions or desire further information, please contact me at (608) 262-0118.

Sincerely,

Paul Menzel
Program Manager

WPM: as
Enclosure
cc: H. Montgomery, Code 942 (10 copies)