

Issued: 10 February 1979

MONTHLY REPORT

for

JANUARY 1979

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

Data processing of TIROS-N and VISSR data is proceeding well on the DBM-AP-UT (Data Base Manager-Applications Processor-User Terminal) configuration. Software modifications are being implemented to gradually tune the system to optimum performance. Preparations are ongoing for SSEC participation in the Symposium on the Early Assessment of the Impact of VAS Data on Meteorological Problems scheduled for February 20, 1979.

II. Data Processing System Development

The DBM-AP-UT configuration has become the DBM-VAP-FAP-3UT configuration with the addition of the FGGE (First GARP Global Experiment) hardware. Now both the VAS Applications Processor (VAP) and the FGGE Applications Processor (FAP) hook into the DBM on wide band width channels and service their respective user terminals. This successful expansion to several applications processors and more user terminals was an important test of the concept for the overall VAS processing system architecture. The modular VAS system architecture emphasizes hardware components optimized to perform one class of functions and allows easy expansion to many users.

Problems with the DBM ingest software for VISSR data have cropped up. Data is being rejected occasionally because of noise in the IR documentation. Corrective measures are underway. Also the system software is being rewritten to optimize disc storage on the 300MB disc on the DBM. Past problems with disc overflow seem to be under control.

Efforts have begun to size the VAS preprocessing task and to design the hardware configuration. It is expected that the preprocessor will be ready in time for the total system checkout scheduled for May 1980.

Hardware design work is underway to support the data exchange between GSFC and SSEC via a computer to computer interface. Further discussions with GSFC representatives are planned for February. Linkup is scheduled for October 1979.

The VAS user terminal has been modified to incorporate multiple graphics and dual frame resolution. There are now three levels of WRRRMS which allow one to loop graphics images and to erase each level individually. The dual frame resolution enables the user to access more frames: some full resolution for VISSR images, some quarter resolution for TIROS-N images. The utility of these improvements for interactive processing will now be assessed.

The microprocessors in the TIROS-N receiving system have been reconfigured to allow inter microprocessor communications. This will enable the antenna control μ p and the main μ p to share the GMT clock time which goes into the data stream, and also to coordinate the data ingest start and stop. In addition the main μ p has been wired so that output can be called directly to the VAP, thus facilitating near real time data processing.

III. Development of VAS Data Processing Techniques

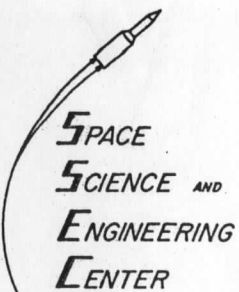
Simultaneous processing of soundings and winds has just begun with the goal of achieving internally consistent data sets. Operating techniques for combining VISSR and TIROS-N data are still being developed. Software has been written to enable geostationary images to be mapped into polar orbiter coordinates.

IV. VAS Instrument Support

Upon request, SSEC reviewed the VAS calibration situation and advised

that the present spacecraft thermal specification be retained. The feeling was that successful testing of the radiative model has not been accomplished yet, and that smaller thermal gradients help make the accuracy of the VAS calibration more secure. After some additional conversations, a compromise specification was agreed upon - "the optical and telescope elements..., as defined by nodes in the thermal model, shall not exceed a temperature gradient of 15°C and no temperature gradient greater than 10°C shall exist between these elements and the internal black body." Although this loosens the thermal gradient specification, it is hoped that it won't degrade the VAS calibration accuracy.

In addition SSEC recommended that the Band #8 characteristics, although nonconforming to the specifications (effective band width is 1% low for detector channel 4), did not represent a threat to the VAS system performance and thus should be accepted.



1225 West Dayton Street
Madison, Wisconsin 53706

THE UNIVERSITY OF WISCONSIN

10 February 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 January 1979.

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

Sincerely,

Paul Menzel
Program Manager

WPM/jal

Enclosure

cc: H. Montgomery Code 942 (10 copies)