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MONTHLY REPORT

for

SEPTEMBER 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

On September 16, 1979, H. Revercomb and P. Menzel of SSEC travelled to El Segundo, CA to attend the Calibration and Acceptance Test of the GOES-D VAS instrument. On site determination of the calibration coefficients was made for spectral band 8; the results were within the specifications.

## II. Data Processing System Development

Preparations for reconfiguration of the VAS processing system are nearly complete. The physical moving and recabling of the processors will be completed in October. Software reconfiguration and testing will continue into next year. Upon completion, the processing system

- will have two Data Base Mangers; DBM1 handles VAS inputs and video cassette playback while DBM2 handles the input from both VISSRS, (data from TIROS, conventional weather network, radar, etc. will be divided up between the two);
- will have more disc space (160 MB for each AP, 600 MB for each DBM);
- will be capable of wideband communications between any two CPUs that is an order of magnitude faster;
- will allow any local user terminal to attach to any AP through the terminal communications switch (which is already installed);
- will have communications links to several other facilities (NMC, NCAR, GSFC, ...).

The problems with the protocol interfacing the wideband communications link with the CPU have been resolved. All scheduled single CPU tests have been successfully completed. Testing in a DBM-2AP configuration is awaiting cable construction.

The Weather Bureau Remote Radar images are trickling in. Many problems still remain: spurious line starts, variation in line lengths, occasional spurious frame starts, and noise in pictures. Hardware and software fixes are being tried.

The parts necessary for the VAS user terminal modifications that will allow

access to more image frame space still have not arrived. Hopefully an October arrival will enable a November completion. Software has been written that will speed up considerably the graphics capabilities of these terminals. Testing will begin upon completion of the hardware modifications.

### III. VAS Instrument Support

The Calibration and Acceptance Test of the GOES-D VAS instrument started September 5, 1979. With some minor delays, the inflight radiometric calibration portions of the test were successfully run. Early analysis of the data has yielded the following conclusions

- correlation of the test temperature gradients of the baffle forward (BF) and the secondary mirror shield (SMS) was reduced sufficiently to allow determination of both coefficients;
- test scanner temperature gradients more closely resemble those expected in-flight than the previous test gradients did; they are actually more severe than the expected inflight gradients;
- early determination of the coefficients indicates that

$$C_{BF} = .11 \pm .12,$$

$$C_{SMS} = .19 \pm .04,$$

that the specifications for all spectral bands can be met with these coefficients, and that the uncertainty bounds of these values overlap with the most recent ray trace analysis;

- calibration coefficient determination depends on careful evaluation of the 5 position mirror (5PM) and calibrator mirror (CM) contributions to the background radiation.

### IV. VAS Data Processing Technique Development

The sounding retrieval software has been automated so that a uniform grid of soundings is generated without manual positioning of the cursor; man interaction

is required only for editing.

Case studies of March 14, April 19, and May 2, 1979 data are continuing; different techniques of data preparation for model initialization are being tested.



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10 October 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 September, 1979.

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

Sincerely,

Paul Menzel  
Program Manager

WPM/klv

Enclosure

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