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MONTHLY REPORT

for

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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 July 30, 1979, R. Daly, R. Dedecker, and P. Menzel of SSEC travelled to Greenbelt, MD to confer with P. Gary and P. Yu of GSFC and H. Ausfresser of Westinghouse about the VAS ground system communications between Wallops, UW, and GSFC. A modification in the header format was discussed.

## II. Data Processing System Development

Initial testing of the improved wideband communications link from the Data Base Manager (DBM) and the Applications Processors (AP) has begun. The circuitry is being checked out. Faster communications are being realized under test conditions. Installation into the VAS processing system is scheduled for late September.

Preparations for reconfiguring one of the Applications Processors (AP) into the Assistant Data Base Manager (ADBAM) are underway. The slow communications (Service A and C, TIROS-N,...) will feed directly into the ADBAM. This activity will follow the installation of the wideband communications link.

The modifications to the VAS user terminal that will allow access to more image frames have been delayed; parts delivery are running well behind schedule. The dial up link to the Weather Bureau Remote Radar is almost complete; the hardware is configured, the auto dialer has been successfully tested, the radar interface awaits testing, and software for navigation and display is being written.

With a relatively simple modification to the videocassette archive recorder, it has become possible to transcribe an archived cassette to another cassette. All existing units can be retrofitted by wire wrap changes.

## III. Development of VAS Data Processing Techniques

Research is being conducted to form estimates of true surface or skin temperatures from clear or partly cloudy data using TIROS-N water vapor corrected window

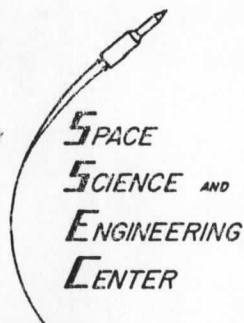
brightness temperatures. Consistency with sea surface temperatures from ships is being examined. The information obtained from the relatively low horizontal resolution data fields of TIROS-N is used to correct geostationary IR images in an effort to form a high horizontal resolution IR image with good absolute surface temperature accuracy.

Statistical comparisons of an analysed field of ship temperatures ( $T_S$ ) with discrete TIROS-N surface temperatures ( $T_T$ ), uncorrected geostationary temperatures ( $T_G$ ), and corrected geostationary temperatures, ( $T_C$ ) has shown little or no bias ( $\leq 1^\circ\text{C}$ ) for  $T_T$ , high bias ( $\sim 3^\circ\text{C}$ ) for  $T_G$ , and a moderate bias ( $\sim 1^\circ\text{C}$  to  $2^\circ\text{C}$ ) for  $T_C$ . RMS error in this case was  $\sim 1.5^\circ\text{C}$  for  $T_T$ ,  $\sim 2.0^\circ\text{C}$  for  $T_C$ , and  $\sim 5^\circ\text{C}$  for  $T_G$ .

Case studies will compare discrete ship temperatures with the satellite temperatures.

#### IV. VAS Instrument Support

After some delays, the VAS Calibration and Acceptance Test is now scheduled to begin August 20, 1979. UW will be in attendance to evaluate calibration coefficients.



1225 West Dayton Street  
Madison, Wisconsin 53706

THE UNIVERSITY OF WISCONSIN

10 August 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 July, 1979.

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

Sincerely,

Paul Menzel  
Program Manager

WPM/kv

Enclosure

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