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MONTHLY REPORT

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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 15, 1980, Paul Menzel traveled to Greenbelt, Maryland to attend the VAS Sounding Workshop.

II. Data Processing System Development

The Data Processing System is being checked out with the data from the link tests. The phone modem link to Wallops has been completed and tested. It is possible to input processor data loads (PDL) into the SDB remotely from Wisconsin, modify PDLs, and interrogate the SDB's status. Work continues on the VAS ingest software. The preprocessor has been checked out as has the ingest interrupt handler. The VAS sounding and image files have been defined. The file handler for the MSI mode has been completed, and the file handler for the dwell sounding mode is nearing completion. Software to transfer data from sounding files to image files has been written but not checked out. The scheduler has been defined and work has started on the software. The VAS ingest scheduler will be satellite, as opposed to operator driven. The operator will define space, time and disk windows. The scheduler will monitor the satellite transmissions and bring in all the data which falls within the specified windows and then tell the operator what has been ingested and where it is.

III. VAS Instrument Support

The VAS Synchronizer Data Buffer parameters for calibration, detector geometry, and processor data load were updated. Upon conversations with H. Ausfresser, source changes were made in the VAS SDB parameter specifications documented by Westinghouse.

The calculation of the spatial weighting functions for the 12 VAS-D spectral bands is almost completed. Misregistrations from one band to another are being investigated.

IV. VAS Data Processing Techniques

Work to transfer direct readout TIROS-N data to Suitland via the McIDAS link was completed. One example of an ingest run from these data has been completed successfully. Transmission times and the availability of the Suitland computer remain the largest problems.

Algorithms for processing the VAS retrievals were discussed in a number of meetings. Decisions which have been reached follow. The algorithm will deal with deviations from a first guess profile. The guess will be provided initially by the LFM analysis to 100 mb and the upper air analysis in the stratosphere. File definition, handling, and first guess profile software is nearing completion. The algorithm will not be straight statistics (as with operational TIROS at NESS), but will incorporate transmittance function calculations and will be highly flexible with respect to instrument channel combinations and expected noise estimates. Current candidates are the iterative method of W. Smith or a modified eigenvector approach. A third element of the VAS processing will be routine updating of analyzed fields to provide future first guess information as well as user output. The algorithm developed by F. Nagle is being prepared to perform this function.