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MONTHLY REPORT

for

DECEMBER 1977

VISSR Atmospheric Sounder (VAS)
Development and Performance Evaluation

Contract No.: NAS5-21965

Prepared by

Space Science and Engineering Center
University of Wisconsin
Madison, WI

for

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

I. General

Much of the VAS effort at SSEC for the past month has been focussed on preparation of the VAS System Design Review scheduled for January 10, 1978. The hardware has been configured to satisfy the performance requirements of the three basic tasks (a) data base management, (b) applications processing, and (c) terminal communications. In addition, work has continued on the TIROS-N receiving unit and the development of man interactive processing techniques.

II. Data Processing System Development

The ordered preamplifier and downconverter of the RF feed arrived, but installation at the antenna focus was hindered by inclement weather and holiday vacations. Installation and testing should be completed in January.

Work continued on the equalization of the record and playback processes on the video cassette archive. Indications are that the flakes in the IR and visible VISSR displays will be removed by this effort.

The TIROS-N microprocessor data handling software for unpacking, quality control, and integer conversion was completed and tested with simulated TIP data. A reliable read/write format was developed that is compatible with other development hardware systems. Hardware design of the antenna and receiver based on testing with a prototype antenna is underway.

The system requirements on the applications processor were updated to reflect the lessons learned from incorporating the polar orbiter sounding software into McIDAS. Using a scenerio for CPU timing estimates where

VAS was used for sounding at 50 km and 100 km resolution with and without the 4μ channels in equal portions of the time, where VISSR winds were evaluated continuously, and where all the available polar orbiter data was also processed, it was found that the CPU requirements for a 12 hour period were roughly 50% of the duty cycle for an applications processor ten times faster than McIDAS. This would leave the remaining 50% of the capability for data assimilation and simple extrapolation modelling. A hardware configuration for the applications processor is upcoming.

III. Development of VAS Data Processing Techniques

The SSEC/NESS work on McIDAS established a capability to stage DST data sets other than that of August 25, 1975, to retrieve moisture profiles, and to evaluate quickly and accurately the atmospheric transmission function.

SPACE SCIENCE AND ENGINEERING CENTER

UNIVERSITY of WISCONSIN - MADISON
1225 West Dayton Street
Madison, Wisconsin 53706
TWX (910) 286-2771

10 January 1978

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 1977.

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

Sincerely,

Paul Menzel

Paul Menzel
Program Manager

WPM/rmk

Enclosure

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