

FEB - 3 1976
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Report - RSF
(Jickles)

2 February 1976

MEMO TO: Cliff Murino

FROM : Dave Bargaen *DB*

SUBJECT: RSF Status Report - January 1976

HIGHLIGHTS

A series of intensive planning sessions and meetings were held to discuss the possible impact and alternatives if FGGE should decide to use the NCAR Dropwindsonde rather than the Carrier Balloon System. It was decided that we could not undertake a major development program without upsetting other priorities. However, we can, and I think should, undertake a small development program to solve the most critical problems, and then act as consultant to NOAA in the procurement of more sondes and systems.

A flight test of the Dropwindsonde system was conducted on the Electra 1-27-76, to check the real-time processing software, the Electra installation, and our solution to the temperature lag and parachute problems. The test was successful, though more tests of the sondes will be needed. P.K. Govind went to Alaska with the Electra to assist in training the RAF staff in Dropwindsonde operations.

Progress continues on the PAM system. We expect to have a complete remote station operating by 5 Feb. Our only significant delay is in the procurement of "Humicap" humidity sensors, but this is not critical, since it is a back-up to the psychrometer.

We delivered the EDMS Cross-Bar Switch to RAF in January. We have heard of no problems with the CP-4 Antenna System and Controller, so we presume everything is working well in Gary.

DISCUSSION

PAM - Fred Brock (022)

Vaisala responded to our telegram to announce that production of humicaps has been temporarily suspended. They promised to ship when production is resumed but could give no delivery date. We will go ahead with the wet-bulb psychrometer as our primary humidity sensor. If the humicaps come in time, we will install them uncalibrated and calibrate after the NHRE experiment.

The Base Station power amplifier was finished. It has 24 watts output, more than 16 dB gain and an efficiency of 43%. The exhaustive examination of each component in the communication system has been finished, and the system optimized. As a result, performance should be much more predictable, and less sensitive to drifts due to time and temperature.

At the last PAM meeting, the NHRE people shifted some of our remote station sites. This will reduce our communication range and does not seem to create any new problems. They have approved our site for the base station tower. They want PAM to be operational by 18 May for a shakedown period before the experiment period of June and July.

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RDSS - George Saum (029)

Most of the video recorder signal electronics have been successfully breadboarded, except for the chroma subcarrier circuit. It appears likely that we can complete the breadboard tests in February, and then start design of the final units.

A preliminary Video Recorder Operation and Maintenance manual was written to more fully describe the radar data recording system. When Norris becomes available, the manual can be completed and at that time I hope a design review meeting with FOF can be held so that the circuit design can be finalized.

The final layout for equipment in the RDSS racks was drawn up and present equipment will begin to move the 2nd of February. The PC board layout for the NOVA general purpose wire wrap boards will go to Ed Aden this week. PC layout for the general purpose wire wrap board to be used with the PAGING system from Standard Logic is designed and checked out. The hardware multiple/divide board, floating point boards, general purpose boards and Hazeltine 1200 were ordered.

Viking - Hal Cole (030)

January was a busy month on Viking. Hal wrote four procedures, plotted all the KSC VL-2 temperature sensor data to try and understand the VL-2 temp. sensor offset problem, and brought the prime version of the met analysis program up to date with the JPL 1108 version.

Lyman-Alpha Hygrometer - Arden Buck (032)

The hygrometer was installed by RAF in a QueenAir and flown several times during the month. Glass Technologists are now ready to fabricate 6 UH₃ sources. Arden is going there in early February to take supplies and check out their set-up and procedure.

Field Data Recorder - Mike Duncan (033)

All hardware for the project is assembled, and we are preparing for a field test of the recorders at Marshall in March. The cassette reader is being installed in the RDSS, and software will be written to do the conversion to 9-track tapes and summary data output.

FGGE Buoy Barometer - Julian Pike (043)

Things moved very well this month after the delays in December and early January. Bryan did an excellent job in setting up the CEC Pressure Standard, and pressure chamber for temperature testing. We have completed temperature

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and repeatability tests of all ten sensors, and started data analysis. The first set of data, on sensor 11, showed a 37 $\mu\text{b}/\text{C}$ temperature coefficient and 0.1 mb repeatability, which is encouraging.

ARIS IV - Mike Duncan (047)

Two design review meetings were held last month with RAF - a number of major changes were requested and agreed upon:

- computer, power supply, and formatter in rear.
- remote control and display panel, and tape transport in center of cabin.
- analog signal breakout moved external to computer.
- core memory rejected in favor of a lot of MOS.
This has many software implications for the aircraft, and possible hardware implications for the ground based equipment.
- revision of display locations and configurations.

It now appears that our goal of having the equipment mostly built by April will likely slip. We will reassess the schedule situation during February.

EDMS X-Bar Switch - Jacques Brun (048)

The equipment and manual were delivered to RAF, completing the project. Due to the aircraft schedules, it has not been installed in the Electra.

Air Motion Sensing Development - Karl Danninger (056)

A design review meeting was held with the project team and Don Lenschow, to discuss the design of a new fixed vane. Agreement was reached, and fabrication has been started. Other work included graphical analysis of the K-probe wind tunnel test, and fabrication of a new rotary vane.

Mechanical Design Group - Paul Johnson

Cannon T-28 Camera Test Fixture - Camera is back, pictures were excellent.

Elk Mt. Camera - Design work finished, parts 30% complete.

C-130 Pod (Hinkelman) - Jim Guenther has started drawings of the pod shell. We hope to be complete by February 10.

AFT Electra Scoops (Delany/AQM) - The system is complete and installed on the Electra.

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Aerosol Pressurizer (Langer/NHRE) - Design work is complete and most purchased parts are in. Shop work will start shortly.

Mesa-Marshall Antenna (FOF/Boyajian) - This is an antenna system between the Marshall site and the Mesa rooftop. Our task is to mount the two antenna.

Machine Shop - Bud Hewett

During the four week period ending 1/24/76, 1350 hours of shop labor were charged out on project work, 279 hours of vacation and holiday time, and 38 hours of sick leave. The major effort went into PAM, and equipment and installation requirements for the Electra aircraft. Numerous small and urgent jobs were turned out.

Instrument Shop - Dale McKay

Twenty-six calibrations and eleven repairs were completed on RSF equipment during January. Nine repairs and two calibrations were completed on equipment from other groups. The current backlog is three calibrations, and seven repairs.

Nine applications for frequency authorizations were submitted to NSF/IRAC. We are also in the process of compiling data for our annual VHF usage report.

Documentation - Lynn Post

The Gust Probe and EDMS X-Bar Switch manuals were delivered to RAF. The GATE Dropwindsonde report was received from the Print Shop. The final CP-4 manuals are nearly complete, and will be sent to the Print Shop shortly.

- END OF MEMO -

DWB/cen