From: "Huning, James R." <jhuning@nsf.gov>
Date: Wed, 27 Oct 2004 08:35:49 -0400
To: "'bane@unc.edu'" <bane@unc.edu>
Subject: FW: HIAPER status

John,

UPDATE to below:

HIAPER was ferried to SAV on October 22nd. 3+ hour flight (lots of testing), to 51,000 feet and checked out systems. There were a total of 32 squaks that have to be worked off, none are significant. Pilots reported thatt the plane flew extremely well; they were somewhat surprized considering the magnitude of structural mods that were made.

PAT = Project Advisory Team; internal to NSF

HIAPER PAT Members:

It has been quite a while since I have sent a HIAPER status report. Attached to this email is a recent MREFC status report, modified and updated, that I hope you will find of interest. I am extremely pleased to report that HIAPER has now been removed from the hangar at Lockheed, Greenville SC and a few final nits are being taken care before its ferry flight back to Savannah (SAV), GA where it will be painted and the interior work completed. It will then be flown to JEFFCO airport in Colorado where the ICS and SATCOM will be installed as well as the research system infrastructure.

HIAPER was to have been ferried to SAV on Monday but it had several delays and was rescheduled for today. However, some paperwork (certification issue) has yet to be finalized and so the ferry fight has been rescheduled for tomorrow. That flight will also include several flight hours to insure system and aircraft performance.

I want to congratulate the UCAR/NCAR, GAC, LMAC and NSF teams for a job well done.

Jim

ps I have included some pictures, including the basic paint job, riveting for a nadir port, and pictures of HIAPER being prepared for and exiting the hangar at Lockheed Martin. The last two pictures are of the hangar, taken in August. One is from the tarmac and the other inside. The hangar is almost completed as of today. The hangar was not part of the MREFC project but still a rather important piece of the overall activity.

If you have any questions please feel free to call, x4703. Thanks for your help in the past.

HIAPER STATUS

Schedule

HIAPER will be ferried back to Savannah for painting and final interior installation on Thursday, October 21. 2004. It has been removed from the hangar and some final (and minor) loose ends had to be completed before the ferry flight, which will also include system and aircraft performance verification.

Modifications and Wing Pod Design

Structural modifications are completed at Lockheed Martin (LMAC), Greenville, S.C., and HIAPER recently passed a major milestone: the high blow test (*photo*). The fuselage was pressurized to 17.5 PSI and the pressure held the full 60 seconds required by the FAA for certification. GAC and LMAC officials will conduct a full review of the data collected to insure the integrity of the aircraft and to prepare paperwork for submission to the FAA.

HIAPER undergoing High Blow Test (17.5 PSI)
Note nadir ports with plate covers.

GAC engineering has also determined that the NCAR wing pod design (diameter, size and position) falls within the aerodynamic envelope of the GV. The successful design of a wing pod also is a major milestone because a number of instruments under development and planned for future development require use of a wing pod. There are some issues that require additional study (the fairing and pylon design), but the major hurdle has been passed. In addition, the wing may require some beefing up. The engineering loads IPT has not completed its study.

The electrical systems are complete and aircraft power has been re-established. The LCS is effectively completed.

In June it was reported that due to vendor supply problems that the ferry date to JEFFCO from SAV will be December. There was a slip in the original ferry date back to SAV and it was, in part, due to some very critical testing for FAA certification and, understandably, some issues had to be worked. For example, prior to the official High Blow Test, initial pressurization indicated leaks. These had to be corrected prior to continuing any testing. I do want to emphasize that this is not uncommon. There were 2 large nadir ports and one large zenith port installed in the airframe, in addition to many aperture plates. Each of these had to be tested separately for leaks, and, as expected, some did leak. This then required additional re-enforcement.

The critical point is the start up period for our progressive science missions has not been compromised. Sufficient work arounds have been implemented.

While there will be a HIAPER reception ceremony at NCAR when the plane arrives, the main reception will occur after the progressive science missions begin. The location and timing of that reception is still under discussion between UCAR/NCAR and NSF.

Infrastructure

The infrastructure for the GV continues to be designed and fabricated by NCAR, primarily the Design and Fabrication Services group within ATD.

Instrumentation Solicitation

Fifteen instruments were selected for the initial suite of instrumentation for HIAPER, and UCAR Contracts Office has almost concluded the contracts with the winning institutions. The instruments selected are:

Small Ice Detector (SID);
HIAPER Atmospheric Radiation Package;
Fast Ozone Instrument;
Trace Organic Gas Analyzer;
HIAPER Advanced Whole Air Sampler;
Quantum Cascade Laser Spectrometer;
Autonomous Airborne Ozone Photometer;
High Spectral Resolution Lidar;
GPS Multistatic and Occultation Instrument;
Vertical Cavity Surface Emitting Laser Hygrometer;
Time of Flight Aerosol Mass Spectrometer;
Microwave Temperature Profiler;
HIAPER Cloud Radar;
Chemical Ionization Mass Spectrometer;

2D-S (stereo) and Cloud Particle Imager Probe

As previously reported, these instruments cut across all the major scientific thrusts identified during the instrumentation workshop and reviewed by the HIAPER Advisory Committee.

New Hangar

Although its not part of the HIAPER MREFC project, a new hangar was required to house the GV and our other aircraft, especially the interagency aircraft. The new hangar is basically completed – the physical structure, fire suppression and fire alarm system are all completed. Paving for vehicle parking and aircraft ramps are finished.

Landscaping and HVAC work is in progress.

Meetings

The next meeting of the HIAPER Advisory Committee is 8 November 2004. I will participate in that meeting.

Budget

All funds have been sent to UCAR.

Schedule

Program has recommended, and the Large Facilities Manager has concurred, that the HIAPER MREFC should be concluded after the first successful progressive science flight in summer FY2005.

Issues

None

Jim Huning
ATM/ULAFOS


National Center for Atmospheric Research
N677GA
EXTERIOR RENDERING


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