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Rocket report

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Sounding Rockets Program Office

In Brief...

The Sounding Rocket Working Group met at Wallops on January 23, 2008.

Please visit:

<http://rscience.gsfc.nasa.gov/srwg.html> to download documents from this and previous meetings.

36.224 Cash - CyXESS mission results published. More on page 2.

The Woods 36.240 team is at White Sands Missile Range preparing for an April launch.

The Multiple Launch Rocket System (MLRS) based Mesospheric Dart development is nearing completion. More on page 3.

36.243 McCandliss LIDOS experiment was launched from White Sands Missile Range on January 11, 2008.

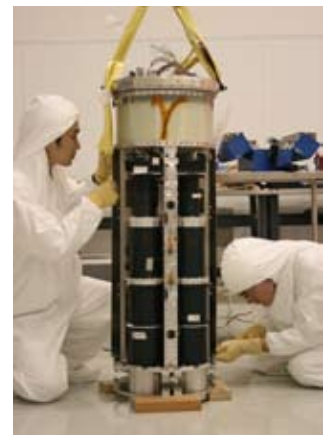
A new experiment from the Harvard-Smithsonian Center for Astrophysics, Sounding Rocket - Principle of Equivalence Measurement (SR-POEM) has been selected for flight. The experiment will increase the measurement accuracy of Newton's Weak Equivalence Principle. More info: <http://www.cfa.harvard.edu/poem/>

36.226 Bock –

Searching for first light galaxies

A new telescope, Cosmic Infrared Background Experiment (CIBER) from Caltech is being prepared for its maiden flight scheduled for June 2008 from White Sands Missile Range. Dr. Jamie Bock and his Caltech science team have spent several weeks at Wallops integrating and testing their instrument.

CIBER will conduct a pioneering search for InfraRed Background (IRB) anisotropies, and is specifically designed to measure fluctuations at wavelengths and spatial scales where a putative first-light galaxy signal can be best detected and discriminated from foregrounds. Continued on page 2.



CIBER with Kohji Tsumura/JAXA and Ian Sullivan/ Caltech in the F-7 clean room. Photo by Bert Bland

SCIFER-2 successfully launched from Norway

Sounding of the Cusp Ion Fountain Energization Region-2 (SCIFER-2) was successfully launched from Andoya Rocket Range in Norway on January 18, 2008.

In addition to perfect science conditions, SCIFER-2, flown on a Black Brant XII vehicle, set a new altitude record for Andoya – 1,460 km. The previous record, 1,453 km was held by SCIFER-1. More excitement was generated by two satellites; the Japanese scientific satellite REIMEI appeared to pass directly under SCIFER 2 at apogee and the ESA satellite CHAMP passed overhead about 20 minutes later.

Read more about SCIFER-2 at Dr. Kintners site: http://www.dartmouth.edu/~aurora/scifer/pk_update19.pdf and Dr. Marc Lessards blog at: <http://scifer2.blogspot.com/>



Photo by Roy Samuelse/Andoya Rocjket Range

36.226 Bock cont.

CIBER consists of a two-color wide-field imager to probe first-light galaxy IRB anisotropies; a high-resolution narrow-band spectrometer to determine the absolute zodiacal foreground brightness using the reflected intensity of the 854.2 nm Ca II Fraunhofer line; and a low-resolution absolute near-infrared spectrometer to search for a redshifted Lyman-limit feature in the spectral region between 0.7 – 1.8 μm .



Photo by Berit Bland

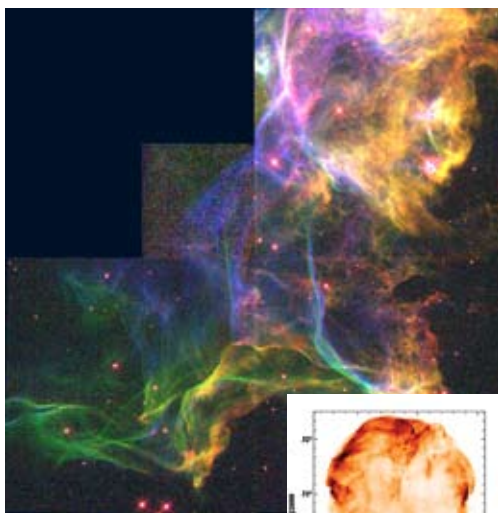
36.226 in the spin/deployment facility at Wallops. Bonnie Maxfield/OSS & Nick Cranor working on payload.

CIBER can conduct high sensitivity observations in a short sounding rocket flight, eliminating the atmospheric airglow emission that makes absolute spectroscopy and high-fidelity degree-scale imaging virtually impossible from a ground-based or balloon-borne platform. Unlike existing or planned space-borne facilities, only CIBER incorporates the highly specialized instrumentation needed to carry out these measurements. CIBER will field a 1024 x 1024 InGaAs array being developed and tested at JPL for the Joint Dark Energy Mission (JDEM), representing the first scientific demonstration of this array technology.

References: 36.226 Bock Design Review Data Package

CyXESS cont.

Results from the Cygnus X-ray Emission Spectroscopic Survey (CyXESS) mission, flown on November 21, 2006 were published in January 2008. Dr. Webster Cash/University of Colorado LASP is the Principal Investigator. Download complete report at: <http://arxiv.org/abs/0801.4552>



Above: Cygnus Loop, HST, Jeff Hester Arizona State Univ & NASA. Right: Cygnus Loop, ROSAT, Levenson et al.

36.243 McCandliss - LIDOS

A second successful flight in six months of the Long-Slit Imaging Dual Order Spectrograph (LIDOS) payload took place on January 11, 2008. This time the mission imaged the Orion Nebula. The Celestial Attitude Control System (CACs) again performed flawlessly with sub-arcsecond pointing and increased time on target.



Recovery of the LIDOS payload in the desert.

Sub-TEC 2

The Sub-TEC 2 technology development mission is under way. Instruments on this two-stage Terrier-Orion vehicle, mission 41.075 include: Beamformer Antenna (JEM Engineering) Iridium GPS Command and Telemetry Processor (KSC) RF Health Node (KSC) NSROC GNC Real Time Attitude Determination: Sun Sensors, Digital Magnetometer, Horizon Crossing Indicator(s), Miniature Inertial Measurement Unit NSROC Electrical Engineering: Miniature PCM Encoder, Miniature Pyro Control System, Next generation GPS, Monitor/Capow Pack, TM Power Control Board, Lithium Batteries



Photo by Berit Bland

41.075 Principal Investigator, Greg Smith, with the Sub-TEC 2 payload during a leak test.

Additionally new Range support technologies, Aerosonde Recovery Assistance and a Real time Attitude Display will be tested on this mission.

Sub-TEC missions are designed to provide opportunities for multiple experiments and organizations to share a ride. Seven different organizations, internal as well as external are participating in Sub-TEC 2. Launch is scheduled for May 2008.

Photo by Visual Information Branch, WSMR

Mesquito update...

The first test flights for the new MLRS Dart system a.k.a. Mesquito are scheduled for mid-April. Two flights without avionics will be conducted, followed later by a complete system test flight.



Dave Krause and Andy Owens with the Mesquito Dart on the spin/balance table.



MLRS fin bend test with Mark McGuire, Ed White and Andy Owens.

The USAF Academy student built rocket and payload is scheduled for launch from Wallops Island in April 2008.

A Mission Initiation Conference (MIC) was held for 36.245 Figueroa/MIT. This novel instrument combines an X-ray micro-calorimeter with an imaging mirror. See <http://space.mit.edu/micro-x/> for more info. Launch is scheduled for February 2011.



Colorado University students Shawn Carroll and Riley Pack with their experiment on the vibe table.



Photo by Tom Russell

Hy-Bolt bend tests were completed in January and vibration testing in March 2008. Hy-Bolt is the heaviest payload to date, 2,605 lbs, to be vibration tested at the Wallops environmental testing facility.

Several new proposals and grants are being reviewed.

The University Student Experiment Ride Share (USERS) program is under way with a University integrator. The first launch is targeted for November 2008.

The Colorado Space Grant Workshop is scheduled for the week of June 23, 2008, culminating in a single stage Orion launch on June 26th. Upto 45 participants are expected.

Inflatable Reentry Vehicle Experiment (IRVE) II proposal development support was provided to LaRC.

Langley Research Center has also shown interest in using Sounding Rockets to conduct aero and Constellation program technology test flights.

SRPO Reports

The Mesquito avionics package will be flown on Sub-TEC II scheduled for launch in May 2008.

Bock 36.226 integration and testing is complete. Launch is scheduled for June 2008 from White Sands Missile Range.

The USAF Academy/Department of Astronautics student team took their payload through environmental testing at Wallops.



USAF Cadet Danielle Paya with the student built payload in the T&E lab at Wallops.

NSROC Reports

Rocket Report

Picture Place...

- ① Josh Yaccobucci and Rob Marshall inspect the Mesquito Dart test fixture threads.
- ② Charlie Kupellian testing the star tacker for 36.226.
- ③ Bruce Scott with the Bock 36.226 shutter door.
- ④ Cathy Hesh inspects parachute reefing line after a pull test in the F-7 materials lab. Bruce Scott in the background.



Photo 2 Star Tracker test by Bruce Scott, other photos by Berit Bland

Want to contribute?

Working on something interesting, or have an idea for a story? Please let us know, we'd love to put it in print!

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Your thoughts...

Question: "What is the most interesting part of your job at Wallops?"

"I enjoy machining and the unique parts that we fabricate at Wallops makes the work interesting. Machining is like a hobby. It's also interesting to learn about the results from the missions that we work on.

– Gary Harlan/NSROC



Gary Harlan machining with the Anyak CNC milling machine.

April

- 36.223 UH MCCAMMON/UNIV OF WISCONSIN WS
- 36.240 UE WOODS/UNIVERSITY OF COLORADO WS
- 12.065 NP SMITH/NASA WI
- 12.066 NP SMITH/NASA WI
- 41.075 NP SMITH/NASA WI

June

- 36.213 NS DAVIS/MSFC WS
- 30.074 NO EBERSPEAKER WI
- 39.008 DR LECLAIR/MDA WI
- 36.226 UG BOCK/CAL TECH WS

July

- 36.225 UG CHAKRABARTI/BOSTON UNIVERSITY WS

August

- 36.221 DS MOSES/NRL WS

September

- 36.219 US HASSLER/SWRI WS

TBD

- 30.068 DR WINSTEAD/NAWC WS
- 30.069 DR WINSTEAD/NAWC WS



Greetings from Norway!

Scott Hesh/NSROC Telemetry was in Norway for the SCIFER launch in January, and as always he willingly shares his beautiful photographs. The two Kletzing rockets can be seen in the distance in the picture on the right.

