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Rocket report



Sounding Rockets Program Office

In Brief...

Plans are underway for the 2012 WRATS High School teacher workshop. The workshop is held at Wallops, June 18 – 22, 2012. Contact Miranda Martin (miranda.martin@nasa.gov) for more information.



Planning and preparation is ongoing for the fall Kwajalein campaign. Four missions will be flown from Roi Namur in September 2012.

The annual Wallops Inspire Day will be held April 26. Employees can sponsor middle school aged children to visit Wallops and participate in various educational activities throughout the day.

Congratulations to Joe Schafer and Cathy Hesh for Orbital Excellence Awards. More on page 5.



Photo by Lee Wingfield/NASA

MICA launches from Poker Flat.

36.273 UE – MICA successfully launched from Poker on February 19, 2012

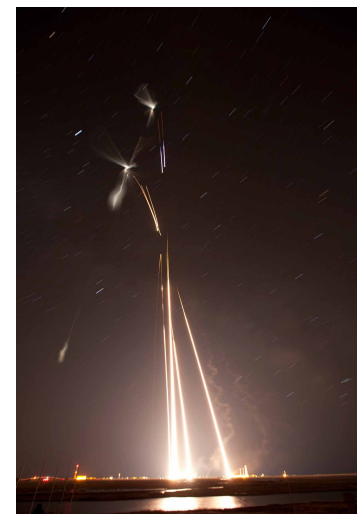
The Magnetosphere Ionosphere Coupling in the Alfvén Resonator (MICA) mission launched successfully from Poker Flat Research Range, AK, on February 19, 2012. The Principal Investigator was Mr. Stephen Powell/Cornell University. The MICA (Magnetosphere–Ionosphere Coupling in the Alfvén resonator) sounding rocket measured ion temperature and density, electron temperature and density, electron precipitation, ion upflow, convection and ULF electric fields, magnetic fields from which field–aligned current (FAC) can be inferred, and plasma waves.

Continued on page 2.

Anomalous TRansport EXperiment (ATREX) successfully launched from Wallops,

Two Terrier–Improved Orions (41.097&41.098), two Terrier–Improved Malemutes (46.002&46.003) and one Terrier–Oriole (45.004) were launched from Wallops Island, VA on March 27, 2012. The scientific objective of the Anomalous TRansport EXperiment (ATREX) was to obtain measurements of the turbulent fluctuations over an extended horizontal range of 550 km. Specifically, it measured the structure function for the velocity fluctuations over a range of horizontal spatial lags that covers a decade or more.

Continued on page 2.



Five ATREX rockets in the air.

Photo by Wallops Imaging Lab

36.273 cont.

The objectives of the experiment are to investigate the role of active ionospheric feedback in the development of large amplitude and small scale electromagnetic waves and density depletions in the low altitude (< 400 km), downward current, auroral ionosphere. Understanding how the ionosphere participates in providing the downward current is a critical component of understanding magnetosphere-ionosphere coupling. The payload included both mature technology with heritage on multiple sounding rocket experiments and new technology developments to conduct experiments in the low altitude ionosphere, including auroral electron detectors with low voltage delta-doped CCD sensors and GPS TEC receivers.

12.074 Terrier – Improved Malemute testflight successfully launched on January 11, 2012



Photo by Jamie Adkins/Wallops Imaging Lab

Terrier-Improved Malemute ready to launch

This mission was the second test flight of the Terrier Improved Malemute vehicle configuration.

The primary objective is to characterize the performance of this vehicle configuration, to determine the suitability of the Improved Malemute to be used in the Sounding Rockets Program.

Cosmic Infrared Background Experiment (CIBER) successfully launched March 22, 2012

The Cosmic Infrared Background Experiment (CIBER) is a rocket-borne absolute photometry imaging and spectroscopy experiment optimized to detect signatures of first-light galaxies present during reionization in the unresolved IR background. It investigated the spatial properties of the extragalactic near-infrared background, and required acquisition of multiple targets with minimal contamination from terrestrial sources of infrared emission. This was the third flight of the CIBER instrument. Previous flights occurred in 2009 and 2010.



Bock Team at White Sands.

ATREX cont.

The structure function parameters, including the Hurst or fractal exponent, are critical in distinguishing the different types of turbulent processes. The relative separation velocities as a function of horizontal separation are also an important diagnostic of the dynamics responsible for the anomalous transport. Dr. Miguel Larsen/Clemson University is the Principal Investigator.

ATREX clouds over the east coast on March 27, 2012.

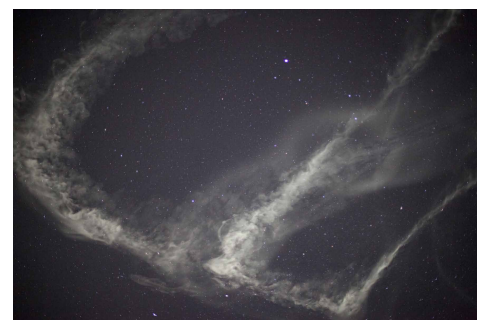
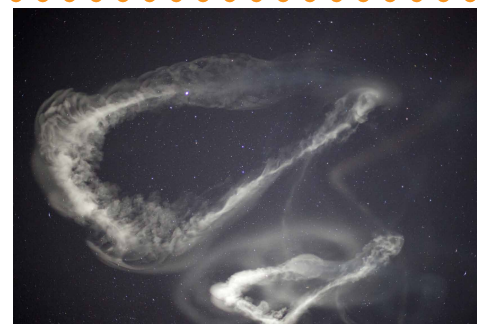


Photo by Wallops Imaging Lab



Photo by Donald Hampton

MICA launches from Poker Flat, AK.

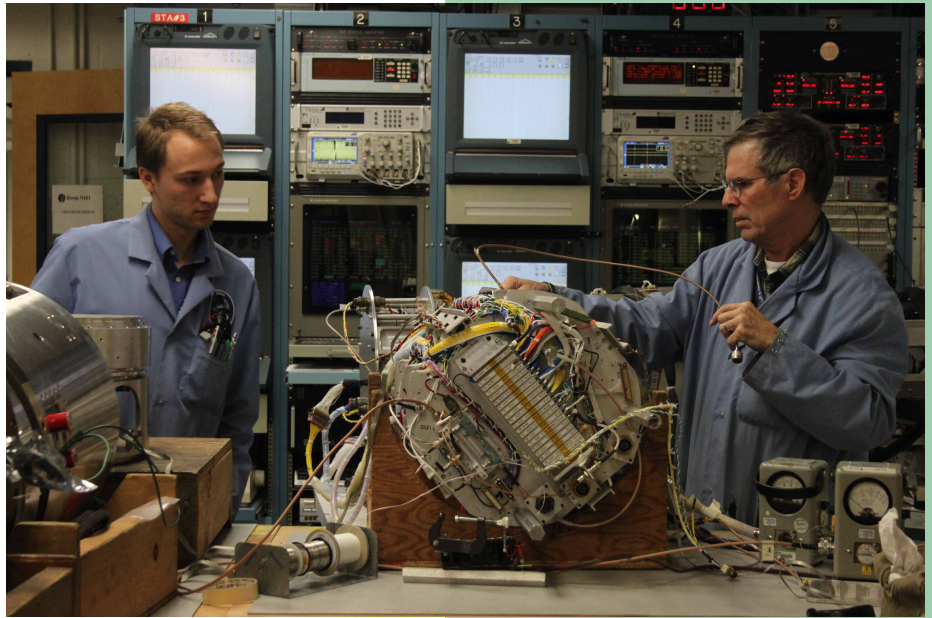
Integration and Testing

36.261 UG Clarke – Venus Spectral Rocket Project (VeSpR)

The twin goals of this flight are 1) to obtain a high resolution spectrum of the H and D Ly alpha emissions from the Venus atmosphere, and thereby determine the D/H ratio at the top of Venus' atmosphere, and 2) to obtain an H Ly alpha image of the extended emissions from the Venus corona. Both the present D/H ratio and the extent of the emission from the coronal atmosphere are related to the present-day escape of water from the atmosphere of Venus into space. The end goal is to learn about the history of water on Venus.

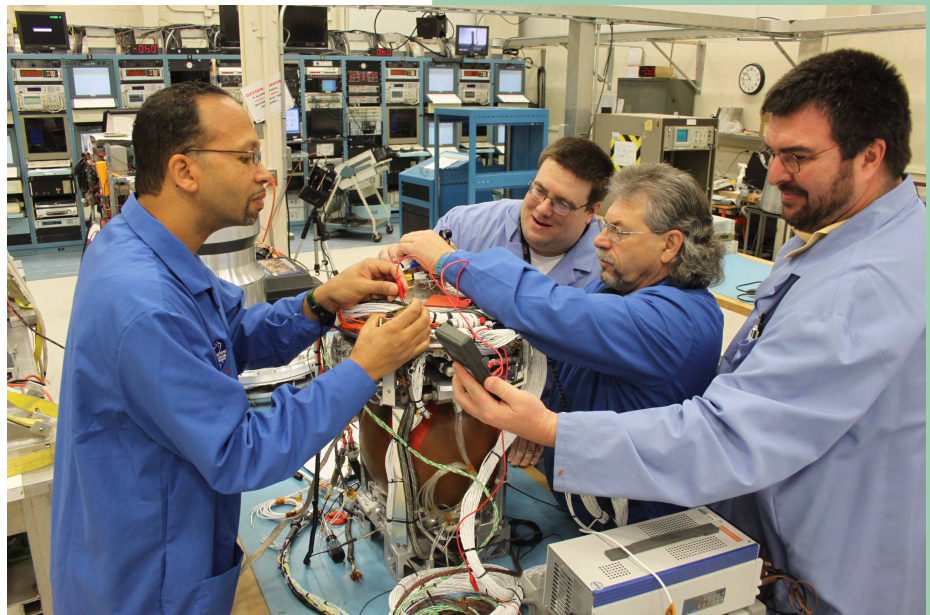


Nate Wroblewski, Mark Freese and Randy Persaud preparing the Clarke payload for vibration.



Robby Rennolet and Larry Mannel working on the Clarke payload.

39.011 NR Cheatwood – Inflatable Reentry Vehicle Experiment (IRVE III)

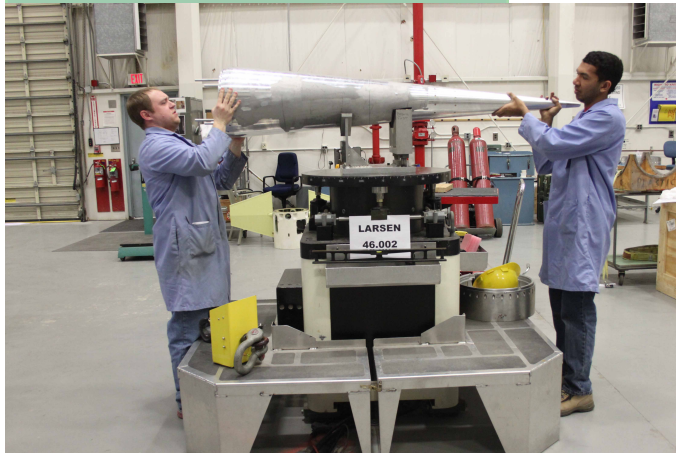


Teamwork!

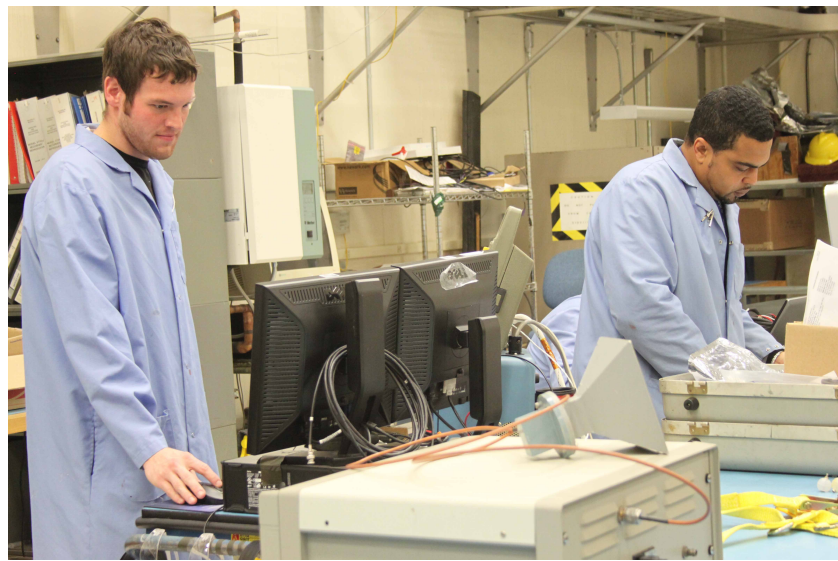
The mission objectives for the third Inflatable Reentry Vehicle Experiment (IRVEIII) are to 1) execute a flight-test that demonstrates inflation and survivability at a relevant dynamic pressure, 2) assess the performance of the vehicle from a thermal, and structural dynamics perspective, and 3) validate the analysis and design techniques used in the development of the Reentry Vehicle (RV); all at higher heating loads than previous IRVE missions. IRVE III is currently scheduled to launch on a Black Brant XI vehicle from Wallops Island, VA in June 2012.

Rocket report

Picture Place



Nate and Randy with a Larsen nosecone.



Jared and Tim working on the Larsen payloads.



Lindsey drop testing FTS batteries.



The Thinker – Tommy Russell



NSROC interns Ryan, Randy, Lindsey, Carol and Jared working on WRATS model rockets.

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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Orbital Sciences Corporation Chief Executive Officer and President Dave Thompson met with Orbital's NSROC employees to provide a summary of corporate performance and to announce achievement awards. Cathy Hesh, the Launch Vehicle Engineering Supervisor, was cited as a 'Rising Star'. Dave recognized Cathy's organizational skills and technical contributions developing a NASA and WFF Safety office approved Flight Termination System and as the Bristol subcontract monitor ensuring their solutions were technically adequate and offered the best possible schedule responsiveness. Developing solutions to both issues was required to permit continued flights at the WSMR, representing approximately one half of the NSROC mission manifest. Please stop by or call Cathy to congratulate her for being recognized for her contributions.

NSROC Program Manager Joe Schafer was recognized by Dave Thompson for Outstanding Management. Joe noted that this recognition truly represents Orbital's acknowledgment of the overall NSROC program accomplishments; the success rate and on-schedule missions are the result of a high level of performance throughout the organization.

Launch Schedule

April

36.261 UG CLARKE/BOSTON UNIVERSITY WS

June

36.268 UG MCCANDLISS/JHU WS

36.286 UE WOODS/UNIV. OF COLORADO WS

41.101 UO KOEHLER/UNIVERSITY OF COLORADO WI

36.260 UG COOK/BOSTON UNIVERSITY WS

39.011 NR CHEATWOOD/NASA-LARC WI

July

36.272 NS CIRTAIN/MSFC WS

36.284 NS CIRTAIN/MSFC WS

36.263 US JUDGE/USC WS

August

36.269 GS RABIN/NASA-GSFC WS

36.239 DS KORENDYKE/NRL WS

12.075 GT BRODELL/NASA-WFF WI

46.004 GOROSANOVA/NASA-WFF WI

36.255 US KRUCKER/UNIV OF CA @ BERKELEY WS

September

46.001 UE KUDEKI/UNIVERSITY OF ILLINOIS KWAJ

45.005 UE KUDEKI/UNIVERSITY OF ILLINOIS KWAJ

41.100 DR CATON/USAF KWAJ

41.102 DR CATON/USAF KWAJ

October

36.253 US HASSLER/SWRI WS

36.271 UG BEASLEY/UNIVERSITY OF COLORADO WS

36.262 UG KAISER/JHU WS

November

36.245 UH FIGUEROA/MIT WS

December

36.259 GH GENDREAU/NASA-GSFC WS

36.283 UH GALEAZZI/UNIVERSITY OF MIAMI WS

36.173 UG NORDSIECK/UNIV. OF WISCONSIN WSTBD

41.089 GP HALL/NASA-WFF WI TBD

WS – White Sands

WI – Wallops Island

KWAJ – Kwajalein Atoll, Marshall Islands

Congratulations Joe Schafer and Cathy Hesh!

