National Aeronautics and Space Administration

Rocket Report

Sounding Rockets Program Office

4 1 3 2 2012

What's inside...

In Brief...

NSROC collected and dispersed monies to several of our employees who were 'hard hit' by Hurricane Sandy. Says Program Manager Joe Schafer, "it's nice to work local, without any overhead expenses, so every dollar contributed went to persons who needed it."

The Sounding Rocket Working Group (SRWG) meeting was held at Wallops, December 13–14, 2012.

The first operational flight of a Talos–Terrier–Oriole–Nihka, Rowland 49.001 GE is coming up from Poker Flat, Alaska in February 2013.

Happy Holidays!

Photo by Berit Bland

IMAGER team at Wallops for payload testing.

36.260 UG Cook – IMAGER successfully launched November 21, 2012

36.260 UG Black Brant IX was launched from White Sands Missile Range, NM on November 21, 2012. The primary goal of this project is to image the unique galaxy M101 in three medium ultraviolet bands to probe the dependence of the UV dust extinction features on formation and processing mechanisms. The galaxy M101 provides a unique laboratory due to its strong metallicity gradient and many HII regions (Kennicutt etal.,2003). This allows the study of the properties of dust as a function of formation (i.e.,metallicity) and processing (i.e., radiation field hardness) mechanisms in a single observation. The Principal Investigator is Dr. Timothy Cook/University of Massachusetts Lowell.

For more information, see:
http://www.uml.edu/News/stories/2011–12/Cook–rocket–experiment.aspx

36.255 US Krucker – FOXSI successfully launched on November 2, 2012

36.255 US Black Brant IX was launched from White Sands Missile Range, NM on November 2, 2012. The Focusing Optics X–ray Solar Imager (FOXSI) sounding rocket tests the fabrication and function of focusing optics for solar hard X–ray observations in the 5—15 keV energy range. The Principal Investigator is Dr. Sam Krucker/ University of California @ Berkeley. For more information, see:
http://www.nasa.gov/mission_pages/sounding–rockets/news/xray–scope.html

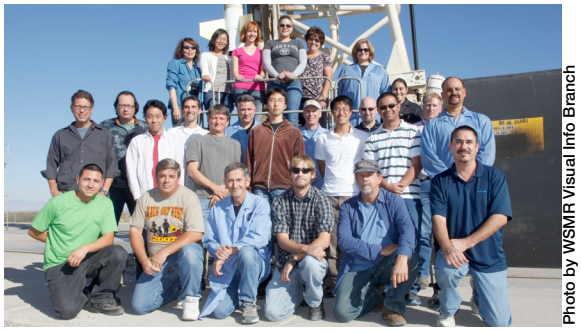

Photo by WSMR Visual Info Branch

The FOXSI at White Sands prior to launch.

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36.283 UH Galeazzi – Diffuse X–ray emission from the Local Galaxy (DXL) launched December 13, 2012

The goal of this flight is to identify how much of the diffuse x–ray emission comes from our solar system from the solar wind charge exchange (SWCX) process, and how much comes from out–side our solar system from hot interstellar plasmas located in interstellar space. The signal that DXL will measure is the sum of the SWCX emission due to the solar wind interactions with He and H, and the cosmic background emission. By observing in the downstream direction of the interstellar neutral flow DXL minimizes both the total contribution and the spatial variation of the hydrogen SWCX.
The payload incorporates an upgraded University of Wisconsin Aerobee IV instrument (flown on several Aerobee IV rockets from 1973 through 1980) and a prototype wide field–of–view soft x–ray camera.
The secondary payload STORM is the first wide field–of–view, solar wind charge exchange, soft X–ray imager for heliophysics applications. The instrument uses a new soft X–ray focusing technology called micropore reflectors (lobster–eye optics) which will fly for the first time on the sounding rocket instrument. Storm was built at Goddard Space Flight Center through the IRAD program.

36.283 payload integration.

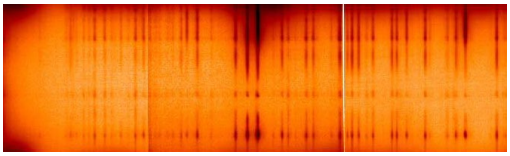
Heliophysics and Astrophysics launches coming up.

36.269 GS Rabin – Extreme Ultraviolet Normal Incidence Spectrograph (EUNIS)

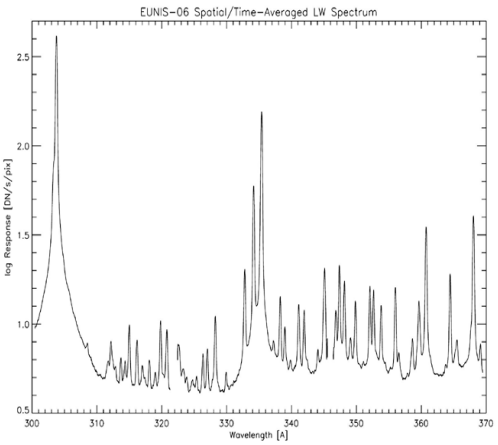
The Extreme Ultraviolet Normal Incidence Spectro–graph (EUNIS) payload will fly for the 3rd time from White Sands Missile Range, NM.

The purpose of this EUNIS mission is to:
–Probe the structure and dynamics of the inner solar corona
– Study the evolving and transient structures by obtaining spectra with a high cadence
– Study diagnostics of wave heating and recon–nection in the solar wind acceleration region
– Provide absolute intensity calibration of orbit–ing instruments including Hinode/EIS, Stereo/EIS, SOHO/CDE&EIS, and TRACE

The Solar Pointing Attitude Control System (SPARCS) will align the telescope to the solar features of interest to allow video style viewing with unprecedented quantities of views depicting the solar corona structure. SPARCS has incor–porated separate raster scan techniques to allow more detailed views.



Spectral data from the EUNIS–06 mission, 36.203 NS, flown April 12, 2006.



36.271 UG Beasley/France – Suborbital Local Interstellar Cloud Experiment (SLICE)

The interstellar medium (ISM) is the matter that exists in the space between the star systems in a galaxy. The interstellar medium begins where the interplanetary medium of the Solar System ends. The Suborbital Local Interstellar Cloud Experiment (SLICE), a reflight of the 36.270 DICE mission, will continue the examinations of hot gas inside the local bubble and the interface between the local bubble and the ambient interstellar medium (ISM). The immediate interstellar environment determines the structure of the heliosphere. The heliosphere controls the cosmic ray flux seen in the inner solar system which has a profound effect on the Earth, influencing cloud cover, lightning frequency, upper atmosphere chemistry (e.g. ozone), and even mu–tation rates of surface, deep–earth, and deep–sea organisms. The interaction of stellar winds and ISM is a general phenomenon, and thus all stars and planetary systems will have astrospheric inter–faces. Understanding the structure of the LISM is important in evaluating the cosmic ray environment and the potential habitability of nearby exoplanets.

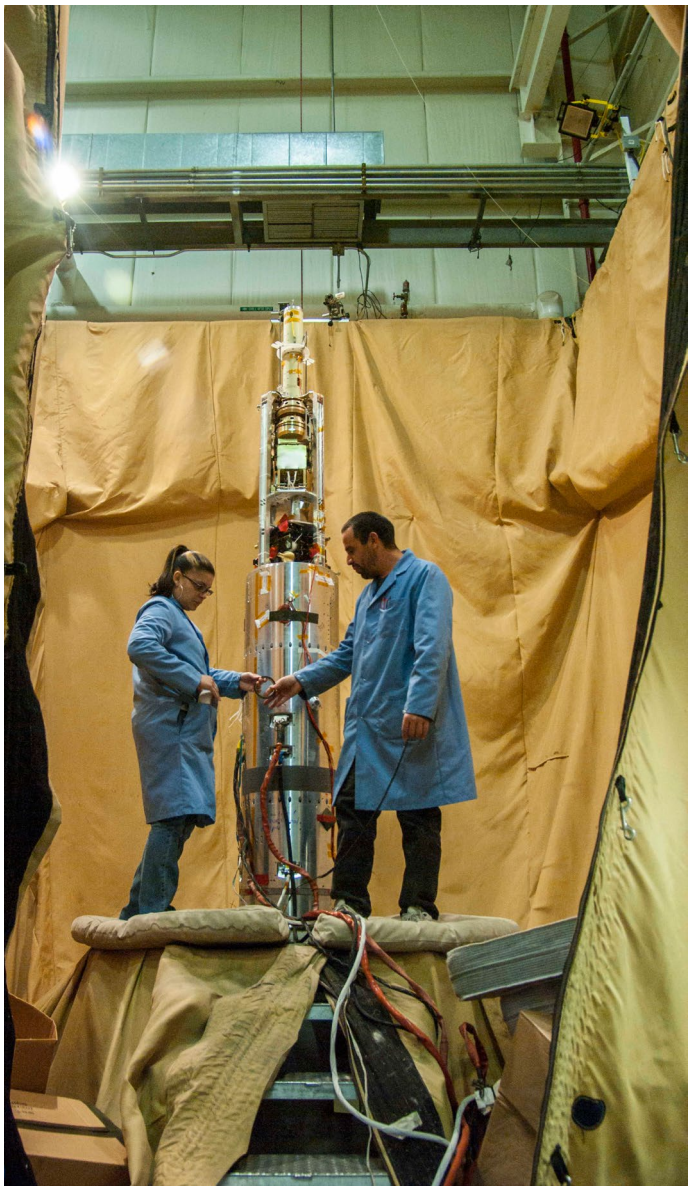
Preparing SLICE for vibration testing at Wallops.

Integration and Testing

49.001GE Rowland– VISualizing Ion Outflow via Neutral atom imaging during a Substorm (VISIONS)

The VISIONS sounding rocket mission will provide the first combined remote sensing and in situ measurements of the regions where ion acceleration to above 5 eV is occurring, and of the sources of free energy and acceleration mechanisms that accelerate the ions. Specifically, VISIONS will answer the following science question:.
How, when, and where, are ions accelerated to escape velocities in the auroral zone below 1000 km, following substorm onset?

VISIONS will make the first measurements that can separate spatial from temporal variations in ion outflows and determine their relation to sources of free energy in the nightside auroral zone following substorm onset.



Venus and Jorge with the payload in the deployment bay.

Paul, Brian and Nate investigating the boom latching mechanism.

Nick, Walt and Eric during payload build–up.

Photos by Berit Bland

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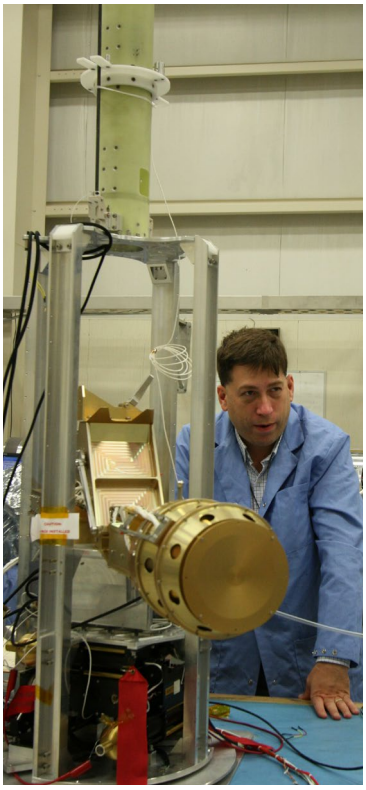
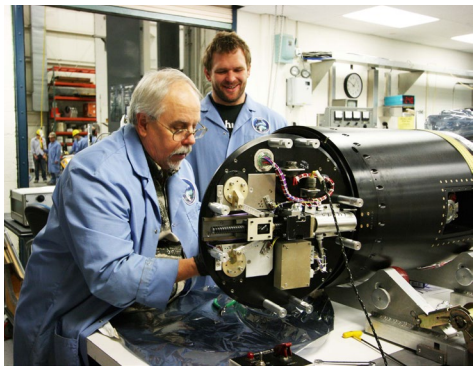
Picture Place

Christian, Jason (BU) and Frank preparing IMAGER for ACS testing.

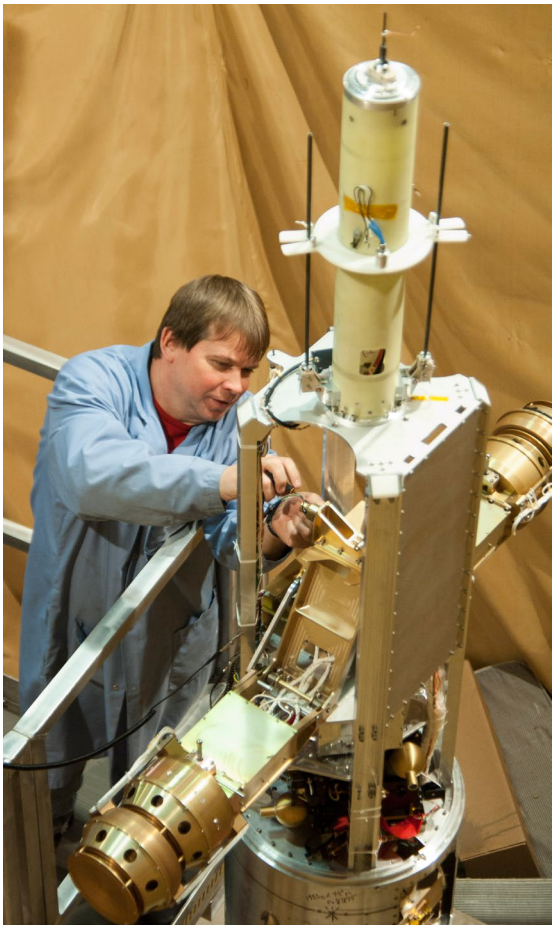


PI Dr. Doug Rowland at Wallops for integration of 49.001.

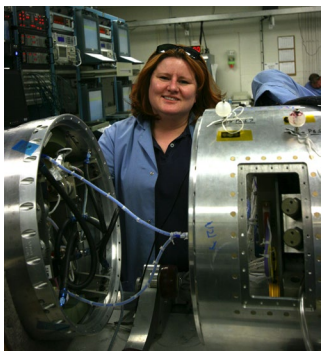


Tom and Nick (GSFC) working on Galeazzi.

PI Dr. Galeazzi and Kyle during integration of 36.283.



Walt with 49.001 Rowland



Belinda with Galeazzi.

Bill and Andrew in the groundstation.

Galeazzi sequence testing – Bernita, Kyle, Christine and Brian.

Holiday Greetings!

The SRPO staff and I would like to thank everyone for their hard work and dedication over the past year. I continue to be amazed at the great things we accomplish and the way we are able to conquer problems to keep the rockets flying and the science flowing. While we occasionally have minor injuries, we continue to travel to remote locations and conduct countless hazardous operations without major incidents. What we do can be dangerous to NASA and NSROC personnel and the general public, but it is your dedication and attention to detail that allows us to do things safely. We can look forward to another busy year, so I encourage everyone to take some time off and relax, not only during this holiday season, but as much as possible throughout the year. You all make this program successful, and we need everyone to strike the right balance between family and work so that we can accomplish more great things in the safest possible way. Thanks again to every one of you!
Phil

On behalf of the NSROC Management Team, we truly feel blessed with the Sounding Rocket Program achievements over the last year. We've worked hard, met the expectations of our customers and collected some fantastic science. Though we've had some people out due to injury or medical related issues, everyone healed to the point where they could return to work, for which we are grateful. We pray that all will have a safe and relaxing end of year holiday.
Joe

New Sounding Rocket exhibits at the NASA Visitor Center

In partnership with NASA, Orbital Sciences Corporation is donating funds to install a Terrier–Black Brant and Nike–Orion full scale rocket models at the Wallops Flight Facility Visitor Center. Shown are project managers Harold Cherrix, Bill Payne and Mark Hylbert (left to right,) who are breaking ground for the Black Brant pedestal.

In addition to the outdoor rocket exhibits, SRPO sponsored a new indoor display about sounding rockets.