National Aeronautics and Space Administration

Rocket Report

2012

Sounding Rockets Program Office

What's inside...

In Brief...

Congratulations to Bristol Aerospace for 50 years of Black Brant flights!

NSROC launcher group is preparing for the upcoming campaign in Kwajalein, Marshall Islands. A total of four rockets are currently scheduled to be launched in September 2012.

Inflatable Re–entry Vehicle Experiment–3 (IRVE) is undergoing testing and integration at Wallops. IRVE III is currently scheduled for launch in July 2012.

RockSat–X, an advanced student flight opportunity, is on schedule for flight from Wallops Island, VA in August 2012. This will be the second RockSat–X mission.

Photo by White Sands Visual Information Branch

EVE launches from White Sands.

36.286 UE – EUV Variability Experiment (EVE) successfully launched from White Sands, June 23, 2012

The primary purpose for this Woods 36.286 flight is to provide a third under–flight calibration for the EUV Variability Experiment (EVE) that is onboard the NASA satellite Solar Dynamics Observatory (SDO). The EVE program provides solar EUV irradiance data for NASA's Living With the Star (LWS) program, plus include near real–time data products for use in operational atmospheric models that specify the space environment as well as assist in forecasting space weather operations.

41.101 RockOn! – Fifth successful mission launched on June 21, 2012

For the 5th consecutive year, the RockOn! student mission launched successfully from Wallops Island on June 21, 2012.

About 80 college students and educators spent a week at NASA's Wallops Flight Facility building, testing and integrating their experiments to fly on a sub–orbital Terrier–Improved Orion sounding rocket.

Continued on page 2.

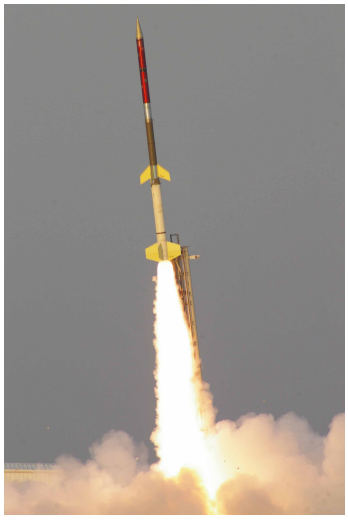


Photo by Berit Bland

RockOn! launches June 21, 2012.

RockOn! cont.

The RockOn! workshop is arranged by the Colorado and Virginia Space Consortia and provides flight opportunities for Colleges and Universities.

The mission was comprised of nine RockOn! workshop experiments and eight RockSat–C experiments. RockSat–C experiments are completely designed by the student teams while the RockOn! workshop experiments are built from kits created by the Colorado Space Grant. Attending the workshop is the first step toward more elaborate future experiments.

Working in groups of three or four, each RockOn! team receives an experiment kit consisting of an AVR microprocessor, various sensors, mounting hardware and programming software. Chris Koehler, Director of the Colorado Space Grant Consortium, is the instructor for the RockOn! workshop. By mid–week all RockOn! teams completed their experiment construction, programming and integration. Their experiments were installed in the payload structure and transported to Wallops Island for mating with the rocket motors. The launch window opened at 6 a.m. on June 21st and the countdown started a few hours before that. The launch of the 2012 payload occurred at approximately 06:40 a.m.

Final connector installation for the RockSat–C tem from Temple University.

RockOn! team working on their workshop experiment.

At T –0 the Terrier booster ignited and some very happy experimenters cheared it on as it lifted their instruments toward space. The Terrier burns out after about five seconds, and the Orion sustainer takes over after a short coast phase. The rocket carried the experiments to an altitude of 73 miles. On the downleg a parachute deployed to soften the impact of the payload. The payload is sealed and remains floating in the water until it is picked up by the recovey boat. Once the payload is back at Wallops Flight Facility the the experiments are returned to the students and postflight checks and data analysis can begin.

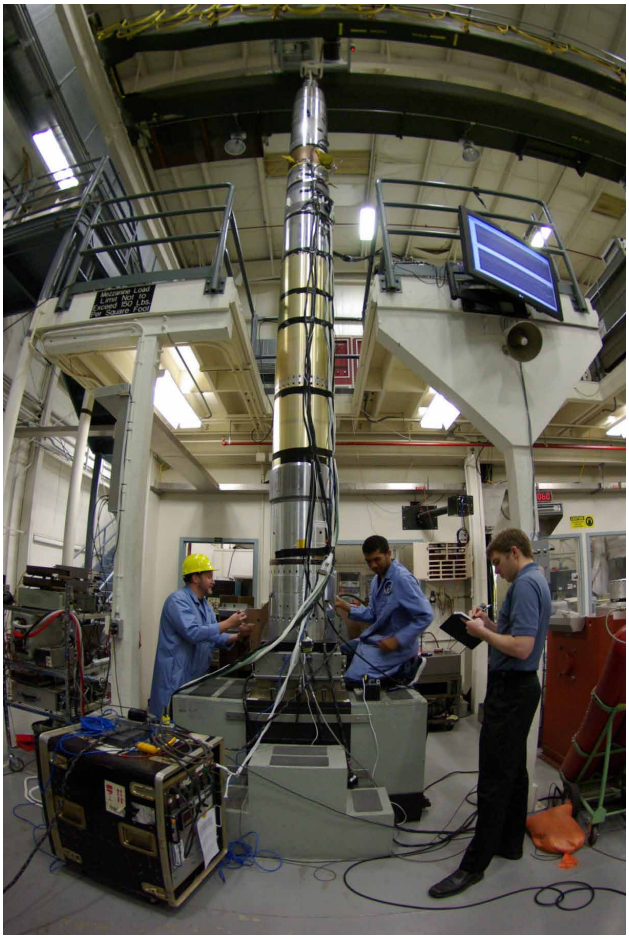
For more information about RockOn! and RockSat, please visit:

http://spacegrant.colorado.edu/rockon

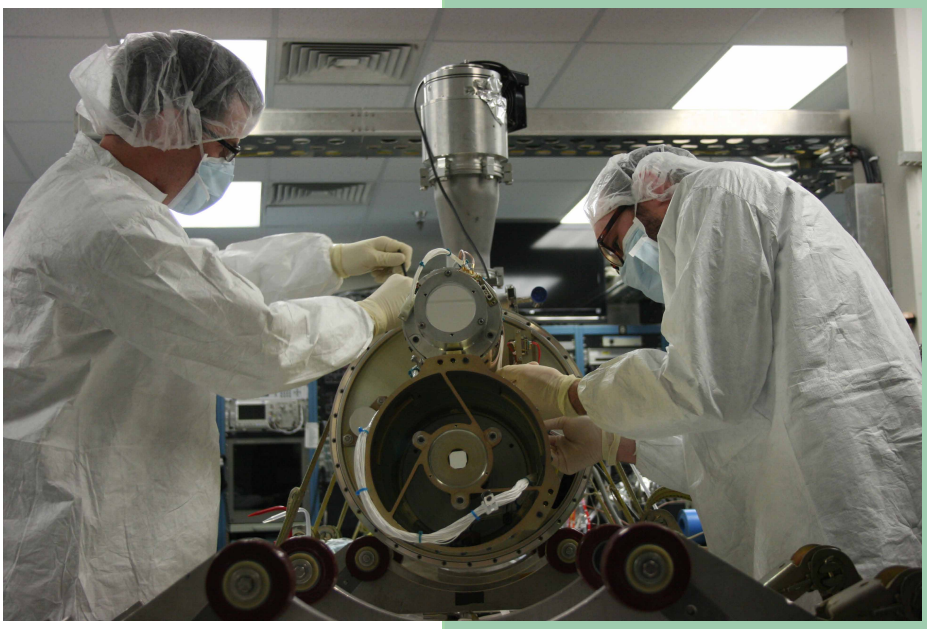
Photo byChris Koehler

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

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 mutation 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 interfaces. Since almost all known exoplanets are within ~200 pc, understanding the structure of the LISM is important in evaluating the cosmic ray environment and the potential habitability of nearby exoplanets.



Brian Brittingham, Randy Persaud, and Matt Spaulding with 36.271 on the vibration table.



University of Colorado science team working on the SLICE instrument.

45.005 & 46.001 UE Kudeki – Equatorial Vortex Experiment (EVEX)

The scientific objective of the EVEX mission involves a study of space weather in a layer of Earth's atmosphere referred to as the ionosphere. More specifically, this experiment will study the circulation of ionospheric plasma (ionized gas) just after sunset. The intensity of circulation in the equatorial ionosphere is assumed to be related to postsunsetionospheric storms that affect satellite communication and navigation systems and signals. The EVEX mission is currently scheduled for flight from Kwajalein, Marshall Islands, in September 2012.

Andrew Mandigo and Mark Freese with one of the Kudeki payloads.

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Picture Place

T&E during RockOn! integration.

Christian and Tom with a Kudeki payload.

Valerie and Walt getting acquainted with IRVE–3.

Clay and RockOn!

Wallops Rocket Academy for Teachers and Students (WRATS)

The second WRATS High School teacher workshop was held in the education lab in building F–7 at Wallops Flight Facility. Twenty–two educators from around the nation attended the workshop and spent June 18 – 22 learning about sounding rockets, model rockets, electronics, rocket physics and aerodynamics. The participants also attended the RockOn! Terrier–Orion launch on June 21st.

Teachers built and flew model rockets and payloads measuring acceleration, temperature and pressure. Pre–flight testing of the rocket included measurement of Cg, stability and moments of inertia. The rockets were successfully flown on the Wallops airfield on June 21. Additional activities during the week included an overview of windtunnels and several interactive presentations about rocket physics by SRPO chief Phil Eberspeaker.

Orbital Sciences provided the stipends giving the teachers the financial means to participate in the workshop.

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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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Launch Schedule

July
36.272 NS CIRTAIN/MSFC WS
36.284 NS CIRTAIN/MSFC WS
36.263 US JUDGE/USC WS
39.011 NR CHEATWOOD/NASA-LARC WI

August
36.269 GS RABIN/NASA-GSFC WS
12.075 GT BRODELL/NASA-WFF WI
46.004 GO ROSANOVA/NASA-WFF WI

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
36.268 UG MCCANDLISS/JHU WS
36.255 US KRUCKER/UNIV OF CA @ BERKELEY WS
36.271 UG BEASLEY/UNIVERSITY OF COLORADO WS
36.239 DS KORENDYKE/NRL WS

November
36.253 US HASSLER/SWRI WS
36.260 UG COOK/BOSTON UNIVERSITY WS

December
36.259 GH GENDREAU/NASA-GSFC WS
36.283 UH GALEAZZI/UNIVERSITY OF MIAMI WS

WI – Wallops Island
WS – White Sands
Kwaj – Kwajalein, Marshall Islands

Congratulations Launch Vehicle Team!

Prime Contractor Orbital Sciences Corporation presented the Launch Vehicle Technicians with the first annual NASA Sounding Rocket Operations Contract (NSROC) Safety Award. These technicians have not had a lost time injury since the NSROC II contract was awarded. They demonstrate a safety culture and set a high expectation for their peers.

NSROC provided the recipients with plaques and treated the team to lunch at Bill's Seafood on Chincoteague. As you come across these individuals, please take a moment to compliment them on their achievement.

Shown left to right are: Russell Laman, Jeff Cain, Reggie Justice, Sean Stabler, Bill Payne, Harley Lewis, John Smith, Jack Mason and Harold Cherrix, NSROC Production Manager.