What’s Inside...

2 Features
3 Integration and Testing
4 Holiday Message
5 Picture Place
6 Schedules, Events & Miscellanea

In Brief...

The second testflight for the Terrier-Improved Malemute is scheduled for launch from Wallops Island, VA in January 2012.

A new high performance vehicle stack, Talos-Terrier-Oriole, is under evaluation with a possible test flight as early as summer 2012.

The Sounding Rockets Annual Report is available for download at: http://sites.wff.nasa.gov/code810/

Congratulations to the NSROC II team for a well deserved Wallops Peer Award!

36.225 Chakrabarti – PICTURE launched October 8, 2011

The Planet Imaging Concept Testbed Using Sounding Rocket (PICTURE) was designed to take the first step towards direct imaging of exoplanets using nulling interferometers. It is a collaboration between Boston University (BU), Jet Propulsion Laboratory (JPL), NASA Goddard Space Flight Center (GSFC) and Charles Stark Draper Laboratory (Draper). PICTURE’s original goal was to directly image in visible spectral region Epsilon Erdani b, a Jupiter–like planet in a highly elliptical orbit around a Sun–like star. However, due to programmatic difficulties, some of the key components could not be

Continued page 2

41.093 & 41.094 Robertson – CHAMPS launched November 11 & 13

The Charge and mass of Meteoritic Smoke Particles (CHAMPS) rockets were launched from Andoya Rocket Range in Norway on November 11 and 13th.

The scientific objectives of the two rockets were to detect and measure the meteoritic smoke particles (MPS) in the mesosphere that have

Continued page 2
36.225 Chakrabarti cont.

developed in a timely fashion, which made it impossible to attain the original goal. Nonetheless, PICTURE can image the debris disk around Epsilon Eridani which are similar to the asteroid belt of our Sun. Such information will tell us about the process of planet formation around stars. PICTURE attempted to flight qualify several key technologies necessary for exoplanet exploration such as, extremely lightweight mirror, visible nulling coronograph, deformable mirror and 0.5 milli arc-sec pointing.

36.264 McCammon launched from White Sands, November 6, 2011.

The purpose of this mission is to measure the spectrum of the diffuse X-ray emission from the interstellar medium over the energy range 0.07 to 1 keV. The Soft X-ray Background (SXRB) has been studied for about twenty years, primarily with proportional counters. The source of the SXRB has long been modeled as a hot, low-density interstellar plasma (T ~ 106 K). However, recent models suggest that some component of the 0.07 to 1 keV emission may be originating from the interaction of our solar wind with interplanetary neutral gas. The mechanism for such heliospheric emission is called Solar Wind Charge Exchange (SWCX). This mechanism is thought to be responsible to X-ray emission observed from comets and the earth’s extreme outer atmosphere. Using a large-area array of microcalorimeter detectors with a 60 field of view operating at a temperature of 0.05 K, this experiment should be able to capture a spectrum of the SXRB with enough resolution and statistics to place limits of the amount of SWCX contribution to the SXRB. The previous flight, 36.223, was targeted at a high galactic latitude position (l,b = 90°,+60°) where interstellar emission from million-degree gas should dominate by at least a factor of two.

41.093 & 41.094 Robertson cont.

long been thought to be the condensation nuclei for noctilucent clouds. The rockets were designed to gather data on the number density and mass distribution of MSPs as a function of altitude and their sign of charge, with and without solar illumination. The launches were conducted from the Andoya Rocket Range in Norway in order to benefit from simultaneous meteor radar and lidar observations that will give a more comprehensive view of the state of the mesosphere.
Integration and Testing

36.273 Powell – Magnetosphere–Ionosphere Coupling in the Alfvén resonator (MICA)

The MICA (Magnetosphere–Ionosphere Coupling in the Alfvén resonator) sounding rocket will measure 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. 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.

Valerie Gsell and Tim Wilson preparing for a sequence test.

36.268 McCandliss – Far–ultraviolet Off Rowland–circle Telescope for Imaging and Spectroscopy (FORTIS)

The FORTIS team from Johns Hopkins, lead by PI Dr. Stephen McCandliss visited Wallops to conduct vibration testing of the Micro Shutter Array part of the FORTIS payload.

The primary purpose of the FORTIS mission is to be the first to investigate Lyman alpha escape from nearby star–forming galaxies and to quantify its relationship to the local gas–to–dust ratio using multi–object farultraviolet (FUV) spectroscopy. FUV observations will be conducted using the FORTIS; a multi–object spectro/telescope with a Micro Shutter Array (MSA) designed to observe extended bright HII regions of low red–shift star–forming galaxies. It is envisioned this mission will serve as a pathfinder for future orbital spacecraft.
Holiday Greetings!

From Phil Eberspeaker/Chief Sounding Rockets Program Office:

The first full year of the new NSROC II contract ended in October and we have seen outstanding support throughout the entire period from NSROC. We have also had great support from AETD, and as always, the SRPO staff has made my life a lot easier! While we have been battling significant technical issues on several fronts, we have been able to continue flying missions, with the last flight, Cash 36.274, successfully flown in December from White Sands Missile Range. The two CHAMPS payloads success—fully flown from Norway were the culmination of Dr. Robertson’s long career in sounding rockets. It was great we could end his career in spectacular fashion! Work has progressed on new launch vehicles with the second test flight of the Terrier—Improved Malemute coming up early in the new year. We have also really impressed folks at HQ with our exciting and unique educational flight projects.

It is quite apparent that these kinds of accomplishments cannot be achieved without a dedicated team. I am proud to lead a diverse team of people who poses unique skills, an unstoppable “can do” attitude, and exceptional enthusiasm for conducting the world’s premiere suborbital research rocket program. I’m sure that everyone shares this pride, and hope that everyone will remain inspired to keep us successful long into the future.

As always, make sure you spend time with family and friends, not only during the holiday season, but throughout the entire year! Thank you very much for you dedication and have a happy and safe holiday season.

Sincerely,
Phil

From Joe Schafer, NSROC Program Manager

Season’s greetings,

On behalf of the Orbital Sciences and the NSROC management, we thank our customers, colleagues and peers for the opportunity to contribute to your program. Together we have a) overcome issues with the Flight Termination System allowing us to re—start missions at the White Sands Missile Range, b) improved the safety of our work—space and c) been successful with eleven of our last twelve missions. We have thoroughly enjoyed the different opportunities to excite our nation’s youth with science and technology, from simple hardware tours to supporting educational rocket launches. It’s been exciting, and we expect next year will be no different.

God Bless You All,

/Joe/
Roy Tolbert wearing an appropriate hat when Miguel Larsen and his team from Clemson (picture 2) conduct a lithium burn on Wallops Island.

Team inspecting lithium canister after burn.

Lithium burn on Wallops Island.

Andrew Muesler and Walt Suplick preparing ALVS for vibration testing.

Clay Merscham and Shane Thompson working on 36.273 Powell.
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!

Contact:
Chuck Brodell
Phone: #1827
Email: Charles.L.Brodell@nasa.gov
or
Berit Bland
Phone: #2246
Email: Berit.H.Bland@nasa.gov

Congratulations
NSROC II Team for the Wallops Peer Award!

Launch Schedule 2012

36.268 UG MCCANDLISS/JHU WS JAN
36.277 UG BOCK/CAL TECH WS FEB
36.273 UE POWELL/CORNELL UNIVERSITY FB FEB
36.255 US KRUCKER/UNIV OF CA @ BERKELEY WS MAR
36.271 UG BEASLEY/UNIVERSITY OF COLORADO WS MAR
36.261 UG CLARKE/BOSTON UNIVERSITY WS MAR
46.002 UE LARSEN/CLEMSON UNIVERSITY WI MAR
45.004 UE LARSEN/CLEMSON UNIVERSITY WI MAR
41.097 UE LARSEN/CLEMSON UNIVERSITY WI MAR
41.098 UE LARSEN/CLEMSON UNIVERSITY WI MAR
46.003 UE LARSEN/CLEMSON UNIVERSITY WI MAR
36.260 UG COOK/BOSTON UNIVERSITY WS MAR
36.235 US HARRIS/UNIV. OF CALIFORNIA, DAVIS WS APR
36.269 GS RABIN/NASA--GSFC WS APR
39.011 NR CHEATWOOD/NASA--LARC WI APR
36.239 DS KORENDYKE/NRL WS MAY
36.253 US HASSLER/SWRI WS JUN
39.011 UE WOODS/UNIV. OF COLORADO WS JUN
41.101 UO KOEHLER/UNIVERSITY OF COLORADO WI JUN
36.272 NSCIRTAIN/MSFC WS JUN
36.284 NS CIRTAIN/MSFC WS JUN
12.075 GT BRODELL/NASA--WFF WI JUN
36.263 USJUDGE/USC WS JUL
46.004 GO ROSANOVA/NASA--WFF WI AUG
46.001 UE KUDEKI/UNIVERSITY OF ILLINOIS KWAJ SEP
45.005 UE KUDEKI/UNIVERSITY OF ILLINOIS KWAJ SEP
41.100 DR CATON/USAF KWAJ SEP
41.102 DR CATON/USAF KWAJ SEP
36.262 UG KAISER/JHU WS OCT
36.245 UH FIGUEROA/MIT WS NOV
36.259 GH GENDREAU/NASA--GSFC WS DEC
36.283 UH GALEAZZI/UNIVERSITY OF MIAMI WS DEC
36.173 UG NORDSIECK/UNIV. OF WISCONSIN WS TBD
41.089 GP HALL/NASA--WFF WI TBD

On the web at: http://sites.wff.nasa.gov/code810