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Rocket report



Sounding Rockets Program Office

In Brief...

Orbital Sciences Corporation (OSC) was awarded the NSROC II contract. NSROC II will commence on October 16, 2010.

The Wallops Rocket Academy for Teachers and Students (WRATS) pilot program was conducted with NSROC interns. Six Arcas model rockets were successfully flown on August 2nd, 2010.

The Decadal Survey for Astronomy and Astrophysics is available for download at: http://www.nap.edu/catalog.php?record_id=12951

The Mission Initiation Conference (MIC) was held for the RockSat-X payload. RockSat-X an advanced student flight opportunity providing full space environment exposure to experiments.

Planning is underway for a second Terrier-Improved Malemute testflight.

The Poker Flat annual meeting was held in July 2010.



Bock team with rocket at White Sands.

36.213 NS Davis was launched from White Sands Missile Range, NM on July 30, 2010. The primary objective of the Solar Ultraviolet Magnetograph Investigation (SUMI) experiment is to test the technologies that have been developed for making magnetic field measurements in the upper chromosphere/ lower transition region. Transition region magnetic field measurements are very important, but the most important Zeeman sensitive lines are in the ultraviolet which are impossible to observe from the Earth. SUMI plans to make exploratory polarization measurements in this region to develop the scientific tools to analyze and convert our polarization data into vector magnetic field measurements and to use this data in determining the sensitivity requirements for space-based missions like the Magnetic TRANSition Probe (MTRAP).

Five successful launches end Fiscal Year 2010.

36.265 UG Bock was launched from White Sands Missile Range, NM on July 11, 2010. The Cosmic Infrared Background Experiment (CIBER), probed the absolute spectrum and spatial anisotropy of the extragalactic Infrared Background (IRB) in a search for signatures from first-light galaxies. CIBER conducted a pioneering search for 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. Data from CIBER will be able to either confirm or refute the recent detection of IRB anisotropies in Spitzer IRAC bands, ascribed as infrared emission from clustered first-light galaxies.

Photos by Visual Information Branch/WSMR



Davis team with rocket.

Photos by Visual Information Branch/WSMR

Rocket Report

Five successful... cont.

12.073 GT Hall was launched from Wallops Island, VA on August 4, 2010. This flight was a demonstration of the new production Nihka motor and ignition system in a dynamic environment representative of a nominal altitude. Secondary objectives included flight demonstration of a White Sands Missile Range Black Brant IX ignition system, a rocket propelled ampule system, and an Aft Looking Video System.



12.073 (Terrier-Black Brant-Nihka) ready to launch on Wallops Island.



12.073 payload during integration and testing.

Photo by Jacob Owen/Wallops Imaging Lab

Photo by Berit Bland

36.219 US Hassler was launched from White Sands Missile Range, NM on August 23, 2010. The purpose of this mission is to observe and analyze dynamics and heating of the solar chromosphere and corona. The Rapid Acquisition Imaging Spectrograph



36.219 team with rocket at White Sands Missile Range.

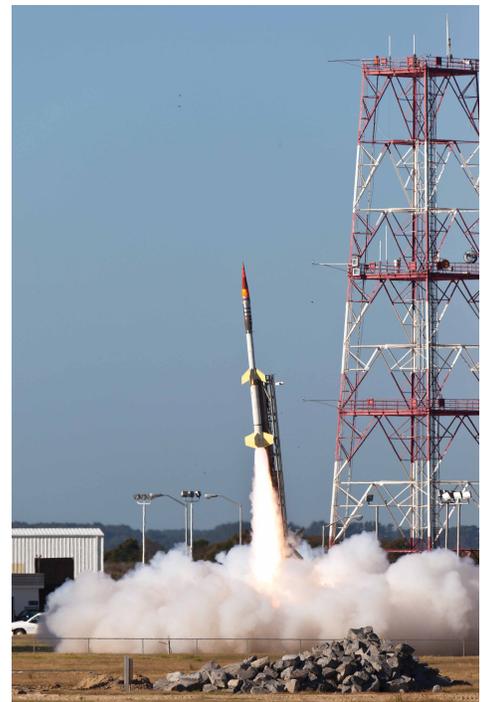
Experiment (RAISE) sounding rocket payload is an extremely high speed scanning-slit imaging spectrograph designed to observe and analyze dynamics and heating of the solar chromosphere and corona on time scales as short as 100 ms, with TRACE-like spatial resolution and a velocity sensitivity of 1–2 km/s. RAISE will address three general topics that are accessible only with our instrument's unique capabilities: 1) Small-scale multithermal dynamics in active-region loops; 2) the strength, spectrum, and location of high frequency waves in the solar atmosphere; and 3) the nature of transient brightenings in the chromospheric network.

Photos by Visual Information Branch/White Sands

41.082 NT Bull was launched from Wallops Island, VA on September 21, 2010. The mission, Suborbital Technology Experiment Carrier (SubTEC) III, was designed to demonstrate multiple technologies, improve sounding rocket capabilities, and support range development initiatives.



41.082 payload on the vibration table.



41.082 launches from Wallops Island.

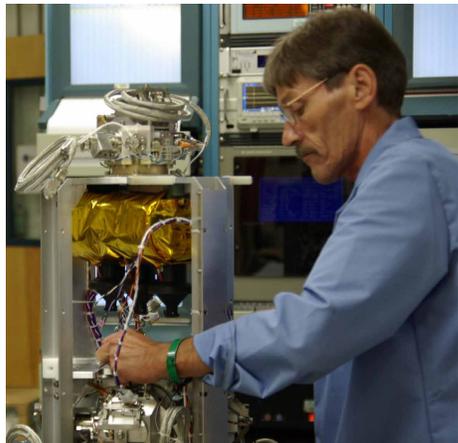
Photo by Berit Bland

Photo by Jacob Owen/Wallops Imaging Lab

Integration and Testing

Lessard 40.026 UE – Rocket Experiment for Neutral Upwelling (RENU)

RENU has been designed to investigate further the phenomena associated with thermospheric upwelling in the cusp. This mission will launch the experiment to an apogee of about 600 km into the cusp from Andøya Rocket Range in Norway. RENU will transit the cusp region during a neutral upwelling event, equipped with a suite of instruments that will build on previous observations of this phenomenon, as well as acquire new types of data to provide a fresh perspective on this problem. The payload includes instruments to measure neutral gas, electric and magnetic fields, and precipitating particles.



Clay Merscham working on payload.



Wayne Taylor and Jim Diehl conducting TM checks.



Tom Malaby with the experiment.

McCannon 36.264 UH – X-ray Quantum Calorimeter

The object of this experiment 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 (SXR) has been studied for about twenty years, primarily with proportional counters. The source of the SXR has long been modeled as a hot, low-density interstellar plasma ($T \sim 10^6$ K). However, recent models (i.e. Spatial Maps of Heliospheric and Geocoronal X-Ray Intensities due to the Charge Exchange of the Solar Wind with Neutrals, I. P. Robertson and T. E. Cravens, Journal of Geophysical Research, 108 (A10), 8031, 2003) 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 new larger area array of microcalorimeter detectors, this experiment should be able to capture a spectrum of the SXR with enough resolution and statistics to place limits of the amount of SWCX contribution to the SXR. Even if any SWCX emission cannot be detected, a high-quality spectrum, such as expected from this experiment will improve the understanding of the source of the SXR.

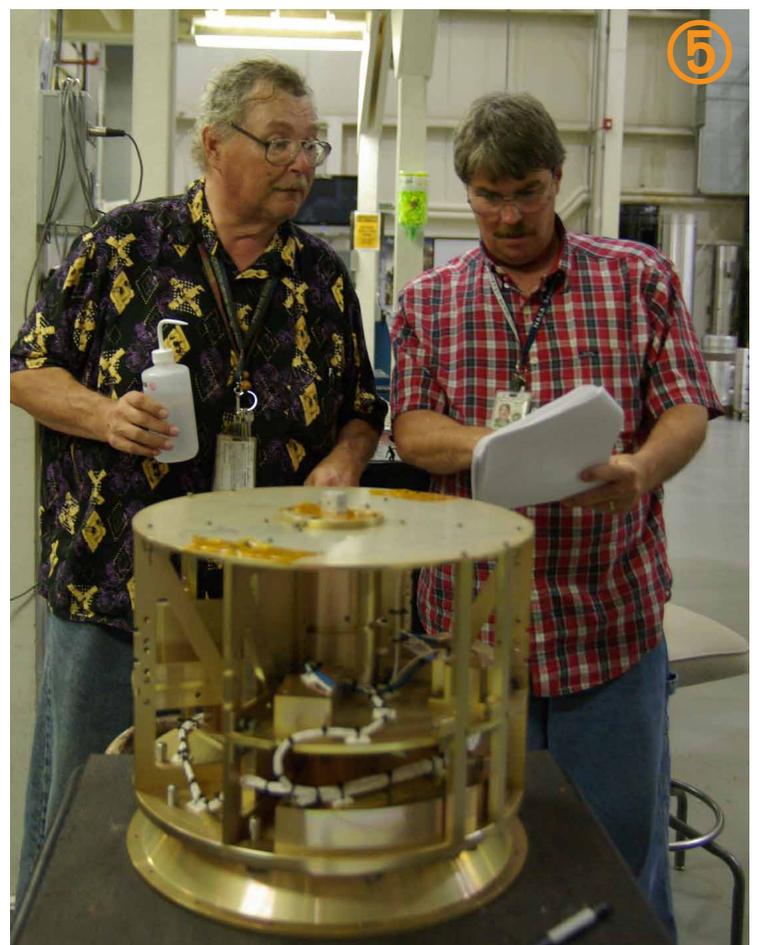
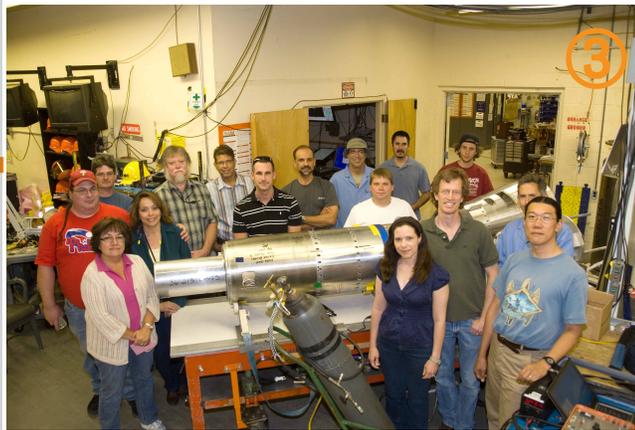


John Smith and Chris Gabbard working on 36.264.

Picture Place...

- ① Mark Frese with 41.082 Bull after recovery.
- ② Inspection of Brant nozzle work.
- ③ 36.213 Davis team (photo by Visual Information Branch/WSMR)
- ④ Bernita Justis and Tom Malaby working on 40.026 Lessard.

Dan Hudson and Tom Russel preparing the SMART payload structure for vibration testing.
- ⑤ Steve Powell working on instruments on 40.026 Lessard.

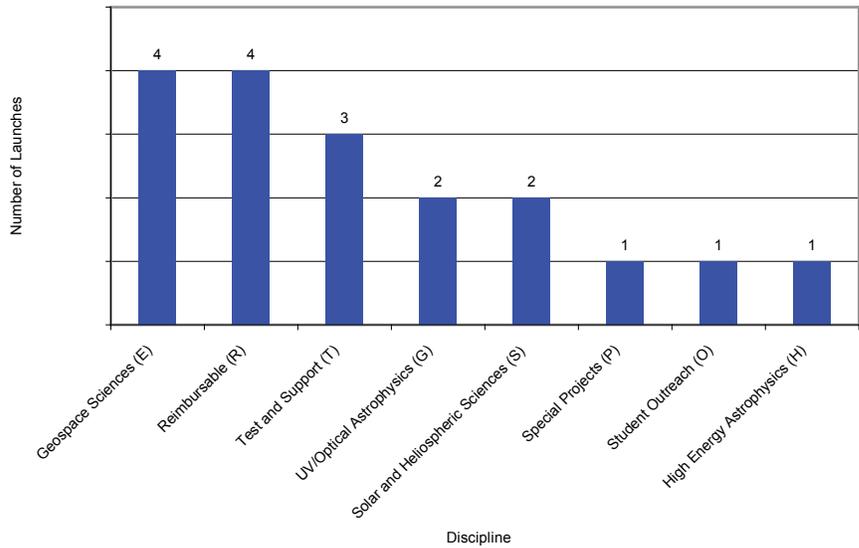


FY 2010 Launches by Discipline Total No. of Launches: 18

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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From the Archives...

Recovery of Kellogg 36.004. This mission was launched from Poker Flat, Alaska on January 31, 1987.

