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Rocket report

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Sounding Rockets Program Office

Spanning half the Globe with launches

In Brief...

The Hy-Bolt payload, to be flown on the ATK ALV X-1 vehicle in 2008, is in the T&E lab for integration and testing.

Two organizations have approached the Sounding Rockets Program Office about partnering on proposals to create affordable small satellites.

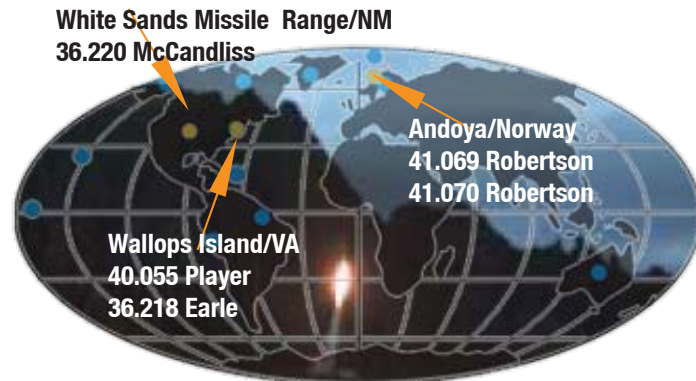
Several Sounding Rocket grants were awarded through the NASA Shared Services Center.

The Aegis East Coast Study group visited Wallops to gather data on flying Terrier-Orion and Terrier-Oriole targets from Wallops to validate East coast fleet readiness.

Funding for Fiscal Year 2008 is anticipated to support approximately 15 missions total.

Over \$4M in reimbursable work, including ARAV flights, launcher work and gyro fabrication, has been captured recently.

As the fiscal year came to an end, the launch schedule was packed with both science and technology missions. Two successful science missions, Robertson 41.069 and 41.070 from Andoya, Norway led the pack off the pad on August 6th and 7th. McCandliss, 36.220 followed close behind on August 13 from White Sands Missile Range (WSMR). The Inflatable Reentry Vehicle Experiment, IRVE, was launched on September 6 from Wallops Island. As of this writing, Earle 36.218 is staged and ready to launch, also on Wallops Island.



Science in the Cusp! Three launches from Norway scheduled for this winter.



Ed "Peanut" White with 40.022

The Kletzing, 40.018 and 40.022 and Kintner, 40.021, payloads are scheduled for launch from Andoya Rocket Range in Norway this winter. All three are instrumented to take measurements in the polar cusp; the Kletzing payloads will study magnetic reconnection and the Kintner payload measures ion outflows.

Kletzing 40.018 & 40.022

- Science in the Cusp

Sounding rockets are the only means of fulfilling the requirements of the Twin Rockets to Investigate Cusp Electrodynamics (TRICE) mission, scheduled for launch from Norway in December 2007. To study reconnection of magnetic fields, this unique mission requires two identically instrumented rockets to fly near the same magnetic field line, separated in time by four minutes, and in altitude by 750 km.



Bernita Justis and Shane Thompson with Kletzing 41.018.

Magnetic reconnection is of interest in varying science topics; from nuclear fusion studies on Earth to astrophysics. Reconnection in the Earth's near space environment occurs when Earth's magnetic field lines, normally stretched from the Northern to the Southern hemisphere, are broken and reconnect to the Interplanetary Magnetic Field (IMF). The cusp is the region where the Earth's magnetic field lines are most recently connected to the

solar wind and plasma can directly enter the magnetosphere.

By flying two rockets at various separations in both space and time through the cusp region, the signatures of a spatially varying vs temporally varying reconnection event can be distinguished.

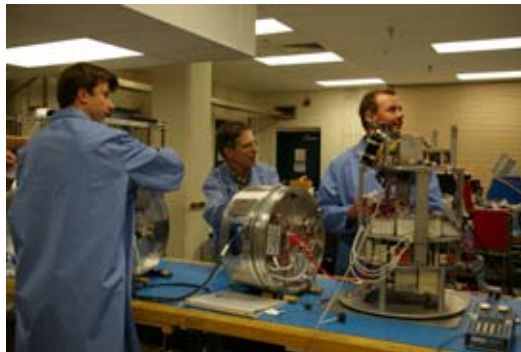
The TRICE Science team includes: Principal Investigator Dr. Craig Kletzing/Univ of Iowa Co-Investigators: Dr. Scott Bounds/Univ of Iowa, Dr. Jim LaBelle/Dartmouth College, Dr. James Clemmons/Aerospace Corporation, Dr. Rob Pfaff/NASA Goddard, Dr. Manfred Boehm/West Virginia University

References: University of Iowa, TRICE Science Requirements Document

Kintner 40.021 - SCIFER-2

Sounding of the Cusp Ion Fountain Energization Region-2 (SCIFER-2) is scheduled for launch from Andoya Rocket Range in Norway in January 2008.

The SCIFER-2 mission will study ion outflows between 200 and 1400 km in the polar cusp. In addition to the rocket, two EISCAT radars (Svalbard and Tromsø) will be used to monitor ion flows under the rocket apogee for comparison with the sounding rocket data and to determine the launch conditions.



Scott Hesh, Larry Mannel and Wayne Taylor with 40.021.

The SCIFER-2 science team includes: Principal Investigator Dr. Paul Kintner/Cornell Univ Co-Investigators: Dr. Kristina Lynch/Dartmouth College, Dr. Marc Lessard/UNH, Dr. Jøren Moen/U. of Oslo, Dr. P.E. Sandholt /U. of Oslo, Dr. Mark Lester/ U. of Leicester, Dr. Fred Sigernes/U. Courses on Svalbard

References: Experimenter's Data Package/ SCIFER-2, May 22, 2007

Robertson 41.069 & 41.070 - successfully launched!



Nick Cranor and Brian Rose with one of the Robertson payloads during T&E.

The Robertson missions gathered data on Noctilucent Clouds and Polar Mesospheric Summer Echos. Two identical payloads were flown on August 6 and 7 respectively. Dr. Robertson and his co-investigators received good data from both payloads.

Consensus: Once it stopped raining, Norway was beautiful.

Hy-Bolt



Hy-Bolt in the F-10 groundstation with ATK employee Greg Wurst.

The ATK Hy-Bolt payload, to be flown on the ATK ALV-X1, will go through vibration testing in the Testing and Evaluation Lab at Wallops. Testing is scheduled to start in October 2007.

Photos this page by Berit Bland.

The Aegis East Coast Study group was at Wallops to gather data on flying Terrier–Orion and Terrier–Oriole targets from Wallops to validate East coast fleet readiness. Unified NAVY/Range/SRPO/NSROC pitch was made.

SRPO (along with Balloons) participated in VA Space Grant and Colorado Space Grant discussion on a possible hands–on space flight workshop for university–level instructors.

An assessment of the FY 08 mission set, mission phasing, and hardware requirements is in progress. It appears the anticipated funding profile will support approximately 15 (refly & new) missions.

Kathe Rich and Greg Walker from Poker came to Wallops for the annual operations meeting.

NASA Ames proposes to conduct plume acoustics tests, using microphones near the exhaust plume, during motor disposal burns at Wallops.



Phil Eberspaker, Chuck Brodell and Andy Owens inspect a Patriot motor at Wallops..

Photo by Nick Wroblewski

The Celestial ACS system is performing above expectations and achieved sub–arcsecond pointing accuracy.

The Athena launcher, installed at Andoya Rocket Range in Norway in June, was outfitted with a new jack screw and ball nut. Additionally, the launcher was loadtested for the Kletzing Black Brant XII vehicles.



Andy Owens and Lee Miles inspect a Mesquito interstage.

Multiple Launch Rocket System (MLRS) –Dart fabrication is underway. First launch of this new Mesospheric Dart will take place later this year.



Scott Blake with the Mesquito PCM encoder.

The Mesquito PCM encoder is undergoing testing. It's small size and programmable logic makes this Wallops developed encoder unique.

Rocket Report

In the Works...

A new sounding rocket, Terrier–Patriot, is under development. Payloads between 600 and 1200 lbm can be launched to altitudes of 150 to 300 km. In addition to this broad payload carrying capability, advantages include reduced wind sensitivity and smaller impact dispersions. First test flight is anticipated in the spring of 2008.

(in. tnt)

0.00

52.43

83.43

93.31

121.31

136.31

195.81

204.71

304.71

311.01

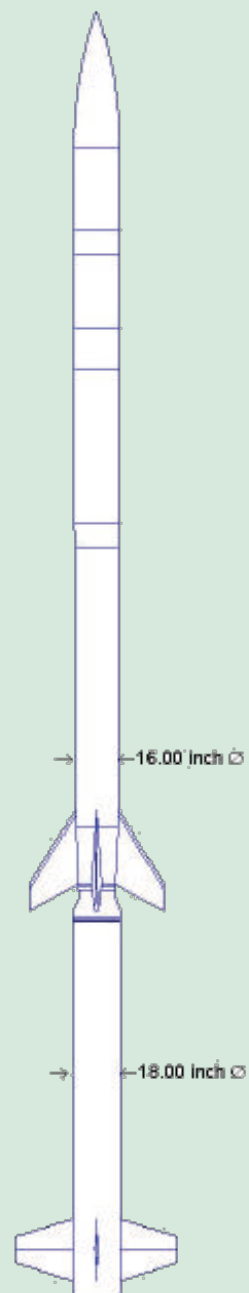
334.51

337.51

343.61

346.41

489.71



Terrier–Patriot configuration shown with representative payload, Larsen 21.131

Rocket Report

On Assignment: Scott Hesh in Norway

Scott Hesh visited the beautiful country of Norway in August with the Robertson missions. Scott is an avid photographer and the Rocket Report is pleased to show some of his fabulous pictures.

- ① Scott
- ② Andoya Rocket Range
- ③ Robertson team with vehicle on launcher.
- ④ Robertson launch!



Upcoming Launches – FY '08

October

36.218 UE EARLE/UNIVERSITY OF TEXAS–DALLAS WI
36.241 GS RABIN/GSFC WS

November

41.075 NP SMITH/NASA WI
36.225 UG CHAKRABARTI/BOSTON UNIVERSITY WS

December

36.221 DS MOSES/NRL WS
40.022 UE KLETZING/UNIVERSITY OF IOWA NOR
40.018 UE KLETZING/UNIVERSITY OF IOWA NOR

January

40.021 UE KINTNER/CORNELL UNIVERSITY NOR

February

39.008 DR LECLAIR/MDS WI

April

36.240 UE WOODS/UNIVERSITY OF COLORADO WS

May

36.226 UG BOCK/CAL TECH WS

June

36.213 NS DAVIS/MSFC WS
36.219 US HASSLER/SWRI WS

July

36.235 HARRIS/UNIVERSITY OF WASHINGTON WS

September

36.239 DS KORENDYKE/NRL WS

TBD

30.068 DR WINSTEAD/NAWC WS

Your Space...

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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Your Thoughts...

Question: "What is the best part of your job at Wallops?"

"I enjoy working in the Testing & Evaluation Lab. I love the great people, the challenges and opportunities and of course the rockets. It's all good!" – Tom Russell/NSROC



We are looking for contributors!

Please let us know if you'd like to contribute an article, photographs, drawings, comics, stories anything that pertains to your work with Sounding Rockets.

Call or email:

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or

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We look forward to hearing from YOU!