



MISSILE, SPACE AND RANGE PIONEERS

PAST, PRESENT AND FUTURE

Today's Explorers Tomorrow's Pioneers

MSRP PRESIDENT'S MESSAGE

Dear MSRP Members,

Our annual meeting on November 18th marks the completion of my two year term and I will turn over the control of the Pioneers to the new President. These two years have been challenging.

Earlier this year, we surveyed the membership on their vision for MSRP. Receiving a strong response, most members surveyed enjoy attending functions from time to time but would like someone else to run the club and plan and organize events. One idea put forward was to develop a closer relationship with the Florida Institute of Technology. At last year's Fall Banquet, we had nearly twenty students from the Florida Tech Rocket Club attend to learn about SpaceX, our keynote speaker. So, we formed a committee

to see how we could strengthen our relationship FIT. The result is an agreement for the club to fund two student projects and to hold our fall event at the Florida Tech campus in Melbourne.

I believe a worthwhile purpose like this will give Pioneers everywhere another reason to become new members and participate in MSRP. Our renewed relationship with Florida Tech promises many opportunities for our Pioneers to engage with students and help cultivate America's future pioneers. If you like what you see I hope you will help us get the word out. I am excited about this renewed direction and purpose for the Pioneers. Please come out to our Fall Event and meet the students, learn about their projects



and what is going on Florida Tech.

Finally, I would like to thank our hard-working officers and board of directors. John Hesterman and Bill Bancroft are retiring from the board this year, after serving for many years. Both have worked tirelessly for the Pioneers along with the rest of the directors and all of them seldom miss a meeting. So, many thanks to John and Bill, as well as Frank, Don, Doug, Hank, Chuck and Lee for the strong support and leadership you have given the club.

Jim Lewis, President



FALL KEYNOTE SPEAKER: KEVIN CLINTON, SIERRA NEVADA SPACE SYSTEMS

The Pioneers Fall Gathering will be held on November 18, 2011 at 7:00 p.m. in the Hartley Room at Florida Tech's Denius Student Center in Melbourne, Florida. Our Keynote speaker is Mr. Kevin Clinton, Sierra Nevada Corporation's Launch Vehicle Integration Lead for the Dream Chaser® Program. The Dream Chaser is a reusable, composite lifting body spacecraft based on a former NASA design - the HL-20 crew vehicle. The spacecraft will launch vertically and land horizontally on a conventional runway with flights starting in 2015. Mr. Clinton is responsible for integrating the Dream Chaser commercial crew vehicle with the Atlas V launch vehicle and ground

systems. His keynote address will give us an overview of the groundbreaking Dream Chaser spacecraft and it's mission profile.

Prior to joining Sierra Nevada, Mr. Clinton served NASA's Kennedy Space Center (KSC) as Program Lead for Nuclear Launch Approval, a liaison to the Department of Energy for missions using nuclear power sources; a member of the executive staff in the Center Director's Office; and as the prime electromagnetic engineer for several robotic exploration missions. Mr. Clinton holds an undergraduate degree in Electrical Engineering from the University of Detroit Mercy and a M.S. in Electrical Engineering from Stanford University.

The Missile, Range and Space Pioneers, Inc. were incorporated on 2 November 1966 "To provide an opportunity for the people who were involved in the early missile, range, and space activities at Cape Canaveral socialize and renew old acquaintances". The faces may change but the social nature of the Pioneer remains the same. There are approximately 1,000 missile, range and space workers, former workers, and advocates on the rolls of the Pioneers.

SIERRA NEVADA'S DREAM CHASER

Sierra Nevada's Dream Chaser Space System is designed as a low-cost, safe commercial crew and cargo transportation to and from low Earth orbit, including the International Space Station. The Dream Chaser vehicle is a reusable, composite lifting body spacecraft based on a former NASA design - the HL-20 crew vehicle. The spacecraft will launch vertically and land horizontally on a conventional runway. The system, capable of carrying seven crew and critical cargo is planned to enter operational service by 2015.

The Dream Chaser, which is now under full production, is designed as a piloted or autonomous spacecraft traveling to and from low earth orbit and returning safely to the Earth without excessive deceleration or landing forces. The spacecraft design includes a built-in pusher launch escape system. Additionally, the reaction control system thrusters are designed to use ethanol as fuel. As such, the vehicle uses no hazardous materials, so it can be approached immediately after landing. The vehicle experiences less than 1.5 g on re-entry and can fly autonomously if needed to. Its thermal protection system (TPS) is a tile with an ablative coating that is being worked on with NASA's Ames center. This approach reduces risk to deconditioned crew and delicate science experiment return samples through a low G landing on a runway.

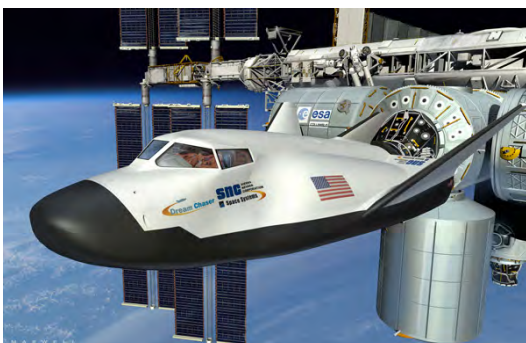
SNC plans to launch Dream Chaser on a man-rated United Launch Alliance Atlas V 402 launch vehicle. The spacecraft will use on-board propulsion utilizing SNC's proprietary hybrid rocket motor technology.

In June 2011, Sierra Nevada announced completion of two significant milestones as part of the Commercial Crew Development Round 2 (CCDev2) Program. Under the CCDev2 program, SNC will conduct multiple spacecraft hardware milestones and other development activities

over the next year, culminating in a system-level Preliminary Design Review (PDR) and preparation for atmospheric flight test of the Dream Chaser.

The first milestone completed under the CCDev2 program was a Systems Requirement Review (SRR) that validated requirements based on NASA's draft Commercial Crew Program Requirements. All the requirements were approved and are being used to guide the design of the Dream Chaser to ensure it meets the pending NASA certification requirements. The second milestone was completed two weeks after Milestone 1. This milestone was a review of the selection of the improved airfoil fin shape to be used on the Dream Chaser. This new fin will improve the handling qualities of the spacecraft as it flies in the atmosphere on return from space to a gentle runway landing. Wind tunnel testing and computational fluid dynamics analyses were used to complete the fin selection milestone work."

Sierra Nevada Corporation's Space Systems business is headquartered in Louisville, Colorado and designs and manufactures advanced spacecraft, space vehicles, and spacecraft subsystems for commercial and government customers. In addition to Dream Chaser, the company's ORB-COMM Generation 2 program includes production of 18-48 small satellites for a commercial asset tracking company. For the SpaceShip2 program, SNC is developing a non-toxic "green" rocket engine for Virgin Galactic's suborbital space vehicle to carry tourists to space. The company is also developing the Modular Space Vehicle program for the DoD's Operationally Responsive Space Office.



NETWORKING EVENT - DECEMBER 7, 2011

On December 7th at 4 p.m., the Missile Space and Range Pioneers are co-sponsoring an afternoon social at Fish Lips at Port Canaveral with the National Space Club of Florida. Come join us for this networking event that will bring the next generation of Space Leaders together. The cost is \$5 and you get food, drinks and surprises! See you there!

SUPPORTING FUTURE ROCKET AND ENGINEERING PIONEERS

Those of you who attended the Missile, Space and Range Pioneers (MSRP) 2010 Fall Rocket Reunion may remember that our attendance was increased by some 18 or so FIT students who attended this banquet event. They were there for two reasons – first, they were interested in rocketry like all our Pioneers’ members, and second, they were there to hear our featured speaker Scott Henderson’s presentation on Space X’s activities at the Cape and for potential job opportunities with this company. Their presence was important since the Pioneers event attendance has declined over the past three years.

The FIT students’ presence at this event caused your Pioneers Board members to consider some type of interaction with FIT. A special committee of Board members initially met with the FIT’s Dr. Dan Kirk, the head of FIT’s Department of Mechanical and Aerospace Engineering to inves-

tigate how MSRP might best support the FIT engineering students. In the last three Pioneers Board Meetings, discussions with FIT representatives refined our support initiative. MSRP will support two student aerospace engineering projects with total funding of \$5000 for the current student year. First, the Pioneers will provide \$4000 to the FIT student engineering team Lunabotics Project. This team is entering NASA’s Lunabotics mining competition whose purpose is to design and build a remote controlled or autonomous lunabot. The lunabot or lunar robot must be capable of collecting a minimum of 10 kilograms of lunar stimulant and depositing it in a raised bin within a 15 min. time limit while navigating around obstacles including craters, rocks and small hills.



MSRP Board of Directors meet with Ms. Gretchen Sauerman, Florida Tech’s Director of Corporate Giving

Second the Pioneers will provide \$1000 to two student teams to help support their design and launch of two Hybrid Rocket and Motor Systems – one to achieve a precise altitude of 2000 feet and the other to achieve the maximum altitude with a specific hybrid motor thrust. The purpose of these two projects is to increase the interest of lower division students in rocketry and research. These teams of 13 and 15 students will compete in the FL Space Grant Consortium/NE FL Association of Rocketry Hybrid Motor High Power Rocket Competition. In the past five years, the FIT student teams have taken 1st place in at least on or both of the completion objectives.

The student teams will give a brief status report on their projects at our 2011 Fall Rocket Reunion which will be held on the FIT campus. So come and hear how the future Pioneers in rocketry and aerospace research are doing. Both the student teams and the MSRP need your support.



MISSILE, SPACE AND RANGE PIONEERS FALL GATHERING - 2011

SIERRA NEVADA'S DREAM CHASER PROGRAM

Reservations Required! Invite your friends!
- Reservation form inside -

Friday, 18 November 2011, 6:00 P.M. Social 7:00 P.M. Dinner

Florida Institute of Technology
Denius Student Center - **Hartley Room (Second Floor)**
150 W. University Blvd.
Melbourne, FL 32901-6975
Address questions to: fwatkins@cfl.rr.com
or call Frank Watkins at (321) 242-6932

Missile, Space and Range Pioneers, Inc.
P.O. Box 254034
Patrick AFB, FL 32925-0034

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MISSILE, SPACE AND RANGE PIONEERS

FALL BANQUET 2011

SPOT LIGHTING

SIERRA NEVADA'S DREAM CHASER PROGRAM


RESERVATIONS REQUIRED! INVITE YOUR FRIENDS!

- Reservation Form below -

Friday, 18 November 2011, 6:00 PM Social 7:00 PM Dinner

Florida Institute of Technology, Melbourne, Florida
Hartley Room (Second Floor of the The Homer Denius Student Center)
Map of FIT is located on the back of this form.

Address Questions to: fwatkins@cfl.rr.com
or call Frank Watkins at (321) 242-6932

Make reservations and pay online now at www.missileers.org with 
or mail us your check with the form below

Banquet Reservation Form

Sign In/Social 6:00PM – Dinner 7:00PM, Friday November 18, Florida Tech, Melbourne

_____ Reservations at \$35.00 each Check enclosed for \$_____

Full Name of Attendees: _____

Telephone _____ Email _____

Clip and mail check to:

Missile, Space & Range Pioneers, P.O. Box 254034
Patrick AFB, FL 32925-0034



- 1 Columbia Village
- 2 Edgewood House
- 3 Alumni House
- 4 Roberts Hall
- 5 WFIT Radio (bottom floor Roberts Hall)
- 6 Wood Hall
- 7 Campbell Hall
- 8 Evans Hall and Rathskeller (bottom floor)
- 9 Grisson Hall
- 10 Shaw Hall
- 11 Security and Safety (first floor Shaw Hall)
- 12 Brownie Hall
- 13 Keuper Administration Building
- 14 Pantheon
- 15 Dennis Student Center and Panther Plaza**
- 16 Botanical Garden
- 17 Southgate Apartments
- 18 Intramural Sports Field
- 19 Frueauff Building
- 20 Shephard Building
- 21 Evans Library
- 22 Ruth Funk Center for Textile Arts
- 23 Link Building
- 24 Academic Quad
- 25 John E. Miller Building
- 26 Ray Work Jr. Building
- 27 Gleason Performing Arts Center
- 28 Crawford Building
- 29 Skurja Hall (College of Aeronautics)
- 30 Holzer Health Center
- 31 Counseling and Psychological Services
- 32 Institutional Research Center
- 33 F.W. Olin Life Sciences Building
- 34 F.W. Olin Engineering Complex
- 35 Charles and Ruth Clemente Center for Sports and Recreation
- 36 University Plaza at Florida Tech
- 37 Aquatics Center
- 38 Parking Decks
- 39 Panther Dining Hall
- 40 F.W. Olin Physical Sciences Center
- 41 Harris Center for Science and Engineering
- 42 Allen S. Henry Building
- 43 Nathan M. Bisk College of Business
- 44 Scott Center for Autism Treatment
- 45 College of Psychology and Liberal Arts
- 46 Machine Shop
- 47 All Fatits Center
- 48 F.W. Olin Sports Complex
- 49 Facilities Grounds Office
- 50 Aquaculture Facility
- 51 Intramural Practice Field
- 52 Nancy Bottge Varsity Softball Field
- 53 Andy Seminick—Les Hall Baseball Field
- 54 Rick Stottler Soccer Field
- 55 Harris Village


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