VIRGINIA SPACE GRANT CONSORTIUM
Old Dominion University Peninsula Center, 600 Butler Farm Road, Suite 2200, Hampton, VA 23666, (757) 766-5210

Three Virginia University Satellites Get Closer to Launch

For Release: February 27, 2019

Contact: Primary -- Mary Sandy, Director
Virginia Space Grant Consortium, msandy@odu.edu, 757-218-4496

Student University Leads:
Erin Puckette, Student Mission Manager, University of Virginia, ep2hk@virginia.edu, 843-729-7082
Madison Broadnax, Virginia Tech Team Lead, bmadi17@vt.edu, 410-903-9607
Kim Wright, Old Dominion University Team Lead, kwrig051@odu.edu, 757-620-5015

A giant leap towards space for Virginia university students took place on February 26 when students from three Virginia universities delivered their small satellites to NanoRacks in Houston to be integrated into the Company's commercially developed CubeSat deployer (NRCSD) and then launched on Northrop Grumman's Antares to the International Space Station.

The satellites are part of the Virginia CubeSat Constellation mission, a collaborative project of the Virginia Space Grant Consortium and four of its member universities: Old Dominion University (ODU), Virginia Tech (VT), University of Virginia (UVA), and Hampton University (HU). Three nano-satellites, each about 4 inches cubed and weighing approximately 3 pounds, have been developed and instrumented (one each at ODU, VT and UVA) to obtain measurements of the properties of the Earth's atmosphere. As the orbits of the satellites decay due to atmospheric drag, satellite instruments will quantify atmospheric density.

The three CubeSats will be deployed via the NRCSD by astronauts aboard the International Space Station into orbit near-simultaneously so they can orbit together and function as a constellation. The ODU satellite, which has a drag brake to intentionally cause orbital decay, is expected to remain in orbit for up to four months. The other two satellites should orbit for up to two years at an altitude of 250 miles before burning up when they re-enter Earth's atmosphere. The satellites will communicate data to ground stations at Virginia Tech, University of Virginia and Old Dominion University for subsequent analysis using an analytical tool being developed by Hampton University students from the Atmospheric and Planetary Science Department.

The students have named their satellites after the Roman goddesses on the back of the Virginia State Seal who represent the blessings of freedom and peace. UVA has chosen Libertas, the goddess of individual liberties; Virginia Tech selected Ceres, the goddess of agriculture; and Old Dominion University chose Aeternitas, the goddess representing eternity.

More than 140 undergraduate students have been hard at work on the mission since June 2016 as a cross-institutional team. Undergraduate student leaders and team members from physics, electrical engineering, aerospace engineering, mechanical engineering and chemical engineering disciplines have worked together to make the mission a reality. The handover brings the team in sight of seeing their satellites readied for launch. The students have been coached by faculty

advisors and have benefitted greatly from advice from NASA, industry and academic advisors. Students have also received excellent guidance from NanoRacks, the world's leading commercial space station company.

The Virginia Space Grant Consortium based in Hampton, Va. is administering the project. Consortium Director Mary Sandy notes, "Engaging students in real-world space missions offers them exciting educational opportunities that provide critical workplace skills. By taking on actual mission roles and going through NASA design and flight readiness reviews, students are learning how space missions are done and how to deal with the unique challenges of the space environment." She adds, "Doing technology demonstration and research in space is a great thing for students to have on their resumes."

Student Mission Manager Erin Puckett at UVA is thrilled to see the project reach this critical milestone. "For all the students who have worked on this project for the past three years, it is exciting to be one step closer to launch," she notes. "It has been a long time coming and we can't wait to see the satellites in space."

The project is part of NASA's CubeSat Launch Initiative which provides opportunities for small satellite payloads built by universities, high schools and non-profit organizations to fly on upcoming launches. It is funded by the NASA Undergraduate Student Instrument Program and the Virginia Space Grant Consortium. The Undergraduate Student Instrument Program is managed by NASA's Wallops Flight Facility on Virginia's Eastern Shore.

Students, faculty members and Virginia Space Grant Consortium staff will be on hand to cheer as their satellites are launched from the Mid Atlantic Regional Spaceport at Wallops Island. The launch is currently scheduled for April 17.

-end-

See captions below for photographs included in the attached zipped file (VirginiaCubeSatConstellation.zip):

Photographs courtesy of Keith Pierce, Batten College of Engineering and Technology, Old Dominion University.

VACubeSatConstellation_1: Virginia CubeSat Constellation Mission Patch.

VACubeSatConstellation_2: Virginia CubeSat Constellation team members give a "happy thumbs up" at the successful integration of their satellites in the Nanoracks deployer. Pictured left to right: Conor Brown, Nanoracks; Madison Brodnax, Virginia Tech; Kim Wright, ODU; Erin Puckette, UVA; and Tristan Prejean, Nanoracks.

VACubeSatConstellation_3: Several members of the Virginia CubeSat Constellation team from UVA, ODU and Virginia Tech in their mission shirts at Nanoracks to integrate their satellites into the Nanoracks commercially-developed deployer.

VACubeSatConstellation_4: Mission leads from UVA (Erin Puckette), ODU (Kim Wright) and Virginia Tech (Madison Brodnax) happily pose with their teams' satellites prior to integration.

VACubeSatConstellation_5: Two members of the Virginia Tech team, Madison Brodnax (left) and Kevin Angle (right) do final inspection of the Ceres satellite prior to integration.

VACubeSatConstellation_6: ODU Virginia CubeSat Constellation Team Members Westin Messer and Kim Wright prepare their Aeternitas satellite for integration into the Nanoracks deployer.

VACubeSatConstellation_7: Members of the Virginia CubeSat Constellation Team pose with the deployer containing their satellites which will be placed into orbit by astronauts aboard the International Space Station.

VACubeSatConstellation_8: ODU University Team Lead Kim Wright integrating the ODU Aeternitas satellite into the Nanoracks deployer.

VACubeSatConstellation_9: Several members of the ODU Virginia CubeSat Constellation mission team at Nanoracks for integration of their Aeternitas satellite into the deployer that will be taken to the International Space Station where astronauts will place the satellite into orbit. Show left to right: Dr. Dimitrie Popescu, Faculty Advisor; Kim Wright, ODU Student Team Lead; Westin Messer; and Anthony Cappiello.

VACubeSatConstellation_10: Erin Puckette, UVA Team Lead and Virginia CubeSat Constellation Mission Manager poses with team member, Ken Dunne, while at Nanoracks for integration of the UVA Libertas satellite.

VACubeSatConstellation_11: Three members of the Virginia CubeSat Constellation Team from Virginia Tech wear their mission shirts while at Nanoracks for integration of their satellite, Ceres in to the Nanoracks deployer. (Left to right: Anthony Hitefield, Madison Brodnax and Nick Angle)