



AFFILIATES

Bethany College
Bluefield State College
Community and Technical
College System of WV
Fairmont State University
Glenville State College
Marshall University
NASA Katherine Johnson
IV&V Facility
Green Bank Observatory
Polyhedron Learning
Media, Inc.
Shepherd University
TechConnectWV
The Clay Center for the
Arts and Sciences of WV
West Liberty University
West Virginia State
University
West Virginia University
West Virginia University
Institute of Technology
West Virginia Wesleyan
College
Wheeling Jesuit
University
WV High Technology
Consortium Foundation

Message from the Director

Dear Friends,

The NASA West Virginia Space Grant Consortium (WVSGC) and NASA Established Program Stimulate Competitive Research (EPSCoR) have many programs that focus on faculty research, student fellowships, collaboration with k-12 entities, higher education, and industry. In this issue, we aim to highlight current as well as new programs that we have recently launched. This year is especially cause for celebration as we enter the 60th anniversary of NASA, the 50th anniversary of the Apollo 11 program, and the 30th anniversary of Space Grant. We are pleased to welcome Dr. Stacey Jones of Fairmont State University and Dr. Karen Kettler of West Liberty University to our Board of Directors. We look forward to their contributions in shaping the future of the consortium. I would like to personally thank their predecessors, Dr. Donald Trisel and Dr. Robert Kriesberg for their dedication and commitment throughout the years.

Majid Jaridi

ThinSat Program

Mr. Marcus Fisher, of the NASA Katherine Johnson IV&V Facility and a Professor at Fairmont State University, has been working with a group of elementary students in Monongalia County on an exciting new STEM-related project. Known as the Monongalia Meteors, the team has built a payload that will study UV radiation while orbiting the Earth. This opportunity is part of a new initiative called the ThinSat program, a smaller version of the CubeSat, that teaches young students how to develop payloads and learn about building hardware for space flights and how to conduct data analysis. The Monongalia Meteors will launch their payload with the resupply rocket to the International Space Station in April 2019. They will be the **first elementary school ever to launch a spacecraft**.



The Monongalia Meteors team at various meetings for the ThinSat program.

Rocket Girls

People have heard of the "Rocket Boys," but what about the "Rocket Girls?" Mrs. Hannah Payne, of West Virginia State University, presented at the fall meeting of WVSGC board of directors in October of 2018 about Rocket Girls. It was a summer camp where 23 girls came to West Virginia State University's campus to learn about rocketry from a curriculum made by MIT. Payne indicated, "By getting them involved in [these programs] early, they start to see that



not only do they have a community of women that support them, but also that emotional support that says you have this capability."

At the end of the week, the girls launched their rockets. Afterward, they discussed what worked and what didn't. The difference in pre- and post-surveys showed a significant increase in confidence for the girls. Mrs. Payne is currently trying to turn the summer camp into a rocketry club for the Charleston area.

FIRST Robotics Competition at Fairmont State University



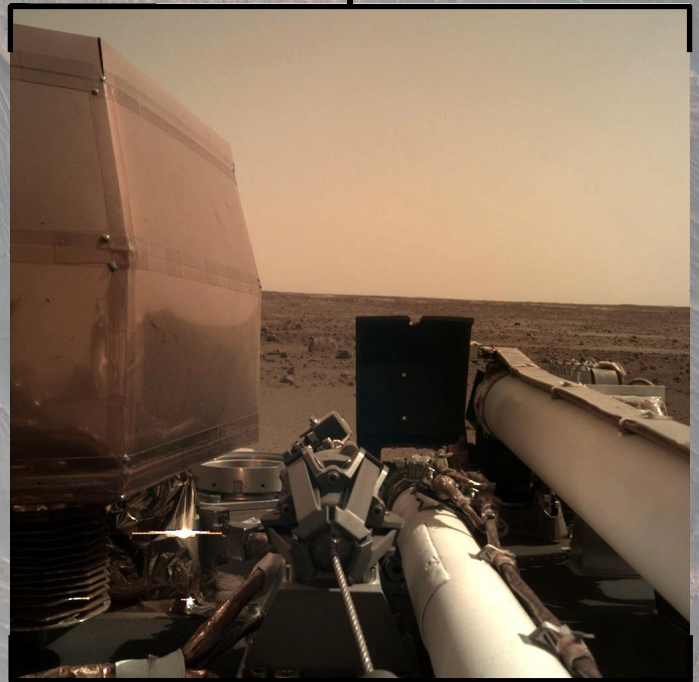
Support to the West Virginia Robotics Alliance in West Virginia did not go unnoticed as volunteers and educators gave many thanks to the NASA West Virginia Space Grant Consortium. The alliance recently held their annual state championship tournament at Fairmont State University in the Falcon Center on December 1, 2018. "What I love about these robotics competitions and the fact that we have people coming from all over to learn about and compete in robotics and STEM, is that it puts West Virginia's best foot forward. There is literally no way to thank the Space Grant for being the longest sponsor of Robotics Competitions in West Virginia," said Todd Ensign, program manager of the NASA Katherine Johnson IV&V Facility's Educator Resource Center.

Many thanks to the West Virginia Robotics Alliance staff and the volunteers across the state who have made this state-wide program a huge success.

Green Bank Observatory and NASA'S InSight Mars Lander

Green Bank Observatory was one of the two radio telescopes around the world to be listening for tones from the InSight Mars Lander to confirm its successful landing on the surface of the planet that is 91 million miles away from Earth.

Radio engineers can interpret the tones to track critical events during InSight's descent such as its speed, direction, parachute deployment, and landing point. The observatory held a watch party and invited the public to participate in commemorating the landing.

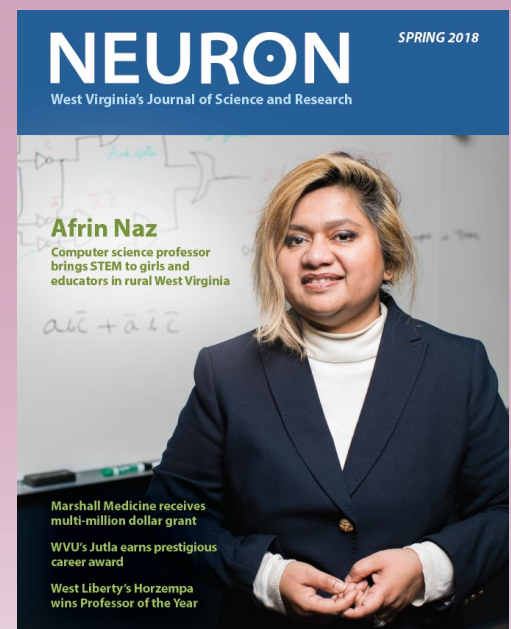


The first picture of Mars from InSight.

EMPOWERS

Establishing Mentoring Pipeline Of Women through Education and Research in STEM

EMPOWERS (Establishing Mentoring Pipeline Of Women through Education and Research in STEM) is a new organization for mentoring young girls and women throughout West Virginia. The goals of EMPOWERS is to create programs in education, research, and community activities to support and enrich student participation in STEM disciplines in West Virginia. It is led by Chairperson Dr. Afrin Naz of West Virginia University Institute of Technology. To learn more about the program, please visit the website at <https://empowersusa.org>



TechConnectWV hosts Women in Technology Conference

TechConnectWV held their Women & Technology Conference on September 10, 2018, in Charleston, WV. The goal of the event was to attract women working in technology fields, those interested in pursuing or migrating to a tech-focused career, education leaders, industry professionals, agency officials, non-profit leaders, students and more. Anyone interested in exploring ways to bridge the technology gender gap and inspire future generations of girls to pursue STEM fields.



It had record-breaking attendance with a diverse group of presenters. “The word is starting to spread,” Anne Barth, executive director of TechConnectWV, said of the 25 percent growth in attendance this year. “I also think we are reaching some critical mass from the private sector.” The keynote speaker for the event was Dr. Carroll Thomas from the U.S. Department of Commerce, and Senator Capito made a brief appearance, speaking about her initiatives to expand broadband throughout the state.

Shady Springs High School: Learners Today, Leaders Tomorrow!



The International Space Station in orbit around Earth.

NASA WWSGC in partnership with the National Center for Earth and Space Science Education (NCESSSE) and the Arthur C. Clarke Institute for Space Education is sponsoring the Shady Spring High School (SSHS) students in Raleigh County, WV for the Student Spaceflight Experiments Program (SSEP) Mission 13 to the International Space Station.

Dr. Jeff Goldstein, NCESSSE Director, stated “we share a common vision - to inspire and engage the next generation of scientists and engineers by immersing them in a real and formal research competition.” The launch of the Mission 13 payload of microgravity experiments will be from Cape Canaveral Air Force Station, adjoining NASA's Kennedy Space Center, in late Spring 2019, likely aboard SpaceX-19.

This opportunity to participate in the Student Spaceflight Experiments Program will provide authentic immersion in a multi-faceted research experience, with students being encouraged to be part of America's Space Program!

ISS Downlink at the Clay Center

The Clay Center for the Arts & Sciences in Charleston, WV hosted the West Virginia viewing of an ISS Downlink on July 10, 2018. It was a regionally collaborated effort with the NASA Langley Research Center in Hampton, Virginia. The states included were West Virginia, Virginia, Kentucky, North Carolina, and South Carolina. All five states submitted questions to ask astronauts, and each state held a viewing of the event. West Virginia's event was open to the public where youth and parents were encouraged to spend the day learning about the International Space Station!



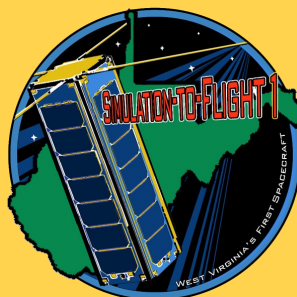
Alexander Gerst from the European Space Agency on the International Space Station.

STF-1: West Virginia's First Spacecraft Launches!



Above: The rocket, Electron, that launched STF-1.

Simulation to Flight, or STF-1, is West Virginia's first spacecraft. It is a CubeSat that launched from New Zealand on December 16, 2018. The small research satellite was made possible through collaboration with NASA WV Space Grant Consortium, Katherine Johnson IV&V Facility, ATK Orbital, TCM Technologies, and West Virginia University. The STF-1 team made successful contact with the CubeSat on December 19, 2018, showing all systems were performing well and intact.



Above: STF-1 built and ready to go.

West Virginia Science Teacher's Association Conference



The West Virginia Science Teacher's Association Conference (WVSTA) was held at Stonewall Jackson Resort in Roanoke, WV October 26-27, 2018. WVSTA is a statewide organization that provides professional development opportunities to teachers in West Virginia. Many of the teachers who attended the conference shared their appreciation of the scholarships provided by the NASA West Virginia Space Grant Consortium that enabled them to participate in the conference. Below are a few of those comments by them.

“Thank you so much for allowing us to attend the Forensics workshops at the WVSTA conference this fall! There were so many valuable things that I learned and plan to bring back to my classroom. I have a dedicated forensics class for middle school students and have had no formal training, so everything I learned is of value!” - *Angie McDaniel, Philippi Middle School*



Davina Dixon at the NASA WVSGC booth.



Samantha Blair and Davita Melander at the NASA WVSGC booth.

“Thank you so much for the opportunity to attend the Forensic Science sessions through the grant awarded me. This was such a great opportunity to expand my knowledge in Forensic Science along with the other great offerings at the conference. My students have already benefited from what I gained! I really do appreciate what Fairmont State and NASA does for the STEM teachers of West Virginia.” - *Pam Heaster, Lewis County High School*

“Please accept this letter as a sincere thank you for the opportunity to attend and participate in the Nx Gen Standards professional development at the WVSTA meeting on October 26-27, 2018 at Stonewall Resort. I made a great number of contacts within the state and within the organization. The training from the educators at Fairmont State had an immediate impact upon my Forensic Science class. I have been able to implement ideas learned at the conference within the very first days back in the classroom. The training and the ability to meet with educators that teach the same course has been invaluable to myself and my students. Thank you again for this opportunity.” - *Sherri L. McManaway, Parkersburg High School*

2018-2019 Research Affiliate Scholarship Winners

Bethany College Rachel Gantzer Marcus Kozloff Joseph Makowski Austin Paul-Orecchio Joseph Sawyer Brooklyn Wilson	Ally Brown Scott Wentz	Makaila Emery Paul Flamand Emily Foote Finn Lees Michelle Morey Elisha Pidcock Amanda Rau Heidi Reichert Aaron Robinson	Ryan Culp Mark Czerner Jason Gibson Brenden Glover Brenden Guthrie Chad Hite Tucker Johnson Daniel Bennett Erica Chwalik Dillion Cottrill Ryan Culp Janna Kleinsasser Nathan Owen Jayden Page Maxwell Reese Derek Roesch Karan Sah Simon Wirth Alexandra Wolfe Olivia Young
Bluefield State College Robert Brown Raelen Crenshaw Shawn Duhon Teyon Henry Adrienne Montgomery Maya Patterson Tanner Sims	Marshall University Rodney Adams Katherine Allen Hanna Armstrong Jacob Bennett Samantha Carter Allison Cook Jessica Crislip Sean Doyle McKenzie Granata Bryan Groves KC Hoard Erica Kessell Chloe Marcum Joshua Mason Kelsey Miller Bradley Muncy Ethan Napier Emily Sutherland Ian Waddell	West Liberty University Kayla Hancher Emily Huff MacKenzie Jacobs Jennifer Myers Isaiah Selmon-Miller Dicey Stewart Gage Pyles	
Fairmont State University Ronald Butts Allison Carvelli Eamonn Cronin Megan Haller Emily Jordan Lindsey LaNeve Jessica Moore Ariel Quesenberry Rebecca Rutherford Ashley Ruza Christian Smith Sarah Starcovic	Shepherd University Thomas Aitken Parker Anthony Jacob Boone Melvin Bowers Katey Burner Morgan Crow Brian Crutchley Luisely Doza	West Virginia State University Tatana Dillard-Sims Sarah Greenberg Taylor Jones-Martin Jonathan Musselwhite Joshua Ricket Heather Rzewuski Shaka Wilker	West Virginia Wesleyan Justin Bibey Richard Calo Luke Feldhake Carson Fox Justin Knotts Dominic Lough Virginia Martin Spencer Rodgers Baylee Senator Joshua Tenney Michael Winston
Glenville State College Preston Allison Quincy Band		West Virginia University Abednego Abdi William Arnold Daniel Bennett Erica Chwalik Dillion Cottrill	

2018-2019 Research Fellowship Award Winners

Undergraduate

Graduate

Marshall University Hibba Chaudhry Rachel McGuffey Sarah Nickel Annabella Pauley Ian Perry Nicole Perry Patrick Shinn	West Virginia Wesleyan College Ethan Randolph Victoria Stinson	Marshall University Lexie Blalock Molly Butts Jenna Palmer Margaret Smith Dakota Ward Amanda White	West Virginia University Brittany Casey Kaylynn Coates Jacob Hikes Jennifer Nguyen Lee Nolan Aaron Sutton
West Liberty University Emma McClelland	West Virginia University Nathan Bonham Nila Manivannan Andrew McGrady Garrett Riggelman Kevin Tennant	West Liberty University Samuel Canfield	

Upcoming Events

National Space Grant Meeting, Washington DC
Introduce a Girl to Engineering Day, Bridge Valley CTC
NASA Space Day, Clay Center
WV State Math Field Day
Project Iron Falcon

February 28– March 2, 2019

March 19, 2019

April 23, 2019

April 26 - 27, 2019

Fall 2019

Project Iron Falcon

A new program is taking off from Fairmont State University. High school teams across the state of West Virginia are building spacecraft that will launch into Earth orbit in fall 2019. Simultaneously, student teams throughout the state will be building a ground station to communicate with the Earth-orbiting spacecraft. The goal of this program is to enhance programming and cybersecurity skills as ground teams will attempt to hack the spacecraft. It will be the **first-ever** hackathon where students try to hack an orbiting spacecraft.

Where are they now?

Ian Mathews, a Pierpont Community and Technical College graduate, is now working for Kalitta Airlines as an International Flight Engineer. He received an internship from the NASA West Virginia Space Grant Consortium at Bombardier that led him to work at Kalitta. He travels the world on Boeing 747 planes, the same type of aircraft that NASA used to bring space shuttles home. His job is to maintain and repair the various systems on this aircraft.

Share your Story!

Contact NASA WVSGC to share your story and keep us updated on ongoing events.

We would love to feature you in our next issue!



NASA WVSGC

Majid Jaridi, Ph.D., Director
Candy Cordwell, M.Sc., Program Manager
Kati Baker, B.S., Outreach Coordinator
West Virginia University
P.O. Box 6070
Morgantown, WV 26506-6070
(304) 293-4099
www.wvspacegrant.org



Be sure to like, follow and add us!

[Facebook.com/WVSGC](https://www.facebook.com/WVSGC)



[Twitter.com/NASAWVSGC](https://twitter.com/NASAWVSGC)



[LinkedIn.com/company/nasa-wv-space-grant-consortium](https://www.linkedin.com/company/nasa-wv-space-grant-consortium)

