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. Caroll 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!

NASA WVSGC in partnership with the National Center for Earth and Space Science Education (NCESSE) 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, NCESSE 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!

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

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: The rocket, Electron, that launched STF-1.
Above: STF-1 built and ready to go.
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

“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

**Bluefield State College**  
Robert Brown  
Raenel Crenshaw  
Shawn Duhon  
Teyon Henry  
Adrienne Montgomery  
Maya Patterson  
Tanner Sims

**Fairmont State University**  
Ronald Butts  
Allison Carvelli  
Eamonn Cronin  
Megan Haller  
Emily Jordan  
Lindsay LaNeve  
Jessica Moore  
Ariel Quesenberry  
Rebecca Rutherford  
Ashley Ruza  
Christian Smith  
Sarah Starcovic

**Glennville State College**  
Preston Allison  
Quincy Band

**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

**West Virginia State University**  
Tatiana Dillard-Sims  
Sarah Greenberg  
Taylor Jones-Martin  
Jonathan Musselwhite  
Joshua Ricket  
Heather Rzewuski  
Shaka Wilker

**Shepherd University**  
Thomas Aitken  
Parker Anthony  
Jacob Boone  
Melvin Bowers  
Katey Burner  
Morgan Crow  
Brian Crutchley  
Luisey Doza

**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

**West Virginia Wesleyan**  
Ethan Randolph  
Victoria Stinson

**West Virginia Wesleyan**  
Nate Bonham  
Nila Manivannan  
Andrew McGrady  
Garrett Riggleman  
Kevin Tennant

**West Virginia 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

**Marshall University**  
Abednego Abdi  
William Arnold  
Daniel Bennett  
Erica Chwalik  
Dillion Cottrill

**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!