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Bethany College
Bluefield State College
Community and Technical College System of WV
Fairmont State University
Glenville State College
Marshall University
NASA IV&V Facility
Green Bank Observatory
Polyhedron Learning Media, Inc.
Shepherd University
TechConnectWV
The Clay Center for the Arts and Sciences of WV
TMC Technologies
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 both current and new programs as well as share student experiences. Thanks to the dedication and hard work of our faculty, affiliates, Board members, and colleagues, the WVSGC and NASA EPSCoR continue to expand their coverage and services in West Virginia. We are pleased to welcome Dr. Charles Wood of Wheeling Jesuit University, Dr. Gary Morris of Glenville State College, and Dr. Melanie Page of West Virginia 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, Ms. Margie Cooke, Dr. Milan Vavrek, and Dr. Fred King for their dedication and commitment throughout the years. Finally, on behalf of our team, we would like to welcome Ms. Kati Baker to the Space Grant family as our Outreach Coordinator.

Majid Jaridi

Marshall University students travel to NASA Langley Research Center

NASA Langley Research Center celebrated their centennial anniversary by hosting an open house on October 21, 2017. Over 20,000 people came through the center that day. Two students from Marshall University, Matt Cardwell and Jacob Staggs, along with their faculty advisor, Dr. Jon Saken, participated in the event and set up a NASA WVSGC exhibit. They estimate that roughly 5,000 visitors stopped by their display to learn about the solar eclipse experiment that Marshall University students conducted in August 2017.



Matt Cardwell alongside Dr. Jon Saken behind their exhibit in the NASA Langley Research Center.

West Virginia Science Teachers Association Conference

The West Virginia Science Teachers Association Conference (WVSTA) ran from November 2-4, 2017, at the Oglebay Resort in Wheeling, WV. The conference allowed educators and professionals from across the state to share best practices in science education to promote scientific literacy to k-12 students and to better prepare them for STEM jobs of the future.

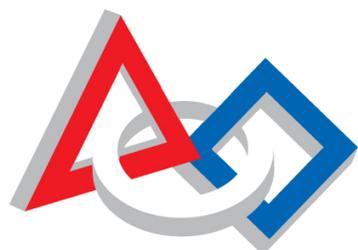
The NASA WV Space Grant Consortium provided forty scholarships for teachers to attend the conference. “My job is challenging, but attending the Science Teachers conference (when I can) renews my hope, renews my enthusiasm and gives me the courage to keep trying to do my best to teach...” said Vaia Meador, a scholarship recipient.



West Virginia Science Teacher’s Association Scholarship Recipients

Brooke High School Melissa Garrett	Fairmont Senior Kathy Jacquez	Morgantown High School Stacey Yuhase	Joanna McKown
Charles Town Middle School Denis Gipson	Geary Elementary/Middle School Daphne Smith	Parkersburg South Steve Grasser Jaime Kupfner Susan Lynch Heather Mercer	South Middle School Cheryl Deaner
Clay Battelle High School Suzanne McDonald	Harpers Ferry Middle Francine DeRonda	Philippi Middle School Angela McDaniel	St. Marys High School Diane Corrigan
Davis and Elkins College Kelsey Arbogast Lauren Cain Hannah Evans Zandra Kelly Victoria Kyle Charity Lower	Jefferson High School Laura Carter Dayna Juraschek	PikeView High School Teresa Barton	Trinity Christian School Lois Campbell
Elkins High School Mollie Ferguson	Kenneth Honey Rubenstein-Center Vaia Meador	Princeton Middle School Will Horton	Washington High School Sara Slatcoff
	Lewis County High School Pamela Heaster	Ripley High School Barbara Heckert	Wayne Middle Pam Smith
			Wheeling Park High School Elaine Peace
			West Virginia University John Tudek

West Virginia Robotics Alliance sponsors championship tournament



FLL

FIRST® LEGO® League

On December 2, 2017, Fairmont State University hosted the WV FIRST Lego League (FLL) Championship Tournament on their campus. Over 60 teams participated in what was one of the largest tournaments held this year. The tournament drew in over 1,500 students, coaches, and parents. Todd Ensign, the Program Manager for NASA IV&V Educator Resource Center, directed the tournament with the help of dozens of volunteers. These volunteers served as judges and coordinators for the event.

The NASA IV&V Educator Resource Center (ERC), under the supervision of Fairmont State University’s College of Science and Technology, makes these programs accessible to students all over WV by providing competition and expo opportunities through partnerships with post-secondary institutions in every region of the state.

Green Bank Observatory Celebrates 60th Anniversary



On October 17, 1957, the National Radio Astronomy Observatory came into existence. Over the past 60 years, the scientific discoveries and milestones achieved at the site have been extremely noteworthy. Some of these accomplishments were announced in the Green Bank Observatory's newsletter, *The Observer* and are listed below:

- ◆ The first search for extraterrestrial intelligence
- ◆ creation of the Drake equation
- ◆ first pulsar discovered in a supernova remnant
- ◆ black hole detected at the center of the Milky Way
- ◆ measurement of the most massive neutron star known



“In the coming year we expect to see the first scientific results from our three new instruments, ARGUS, MUSTANG-2 and FLAG, and VEGAS, our GPU/FPGA backend, should begin pulsar observations. The legacy of our Observatory is great, but as the past year has proven, the potential for our scientific future is also fantastic,” said Dr. Karen O’Neil, Director of Green Bank Observatory.

Seeding Your Future Conference

Shepherd University registered seventy-six fifth through eighth-grade girls for a full day of hands-on workshops held on October 14, 2017. They provided a panel of fourteen female STEM professionals in the hopes of increasing interest in the STEM fields. Volunteers for the event came from both ROTC cadets and Shepherd University students. This was the fourth annual Seeding Your Future conference.



Top: A group of girls learn about lab procedures and conduct experiments, learning about chemical reactions.

Left: A young girl is learning about molecules and the way they are structured.

TechConnectWV hosts Coding & Cyber Summit

TechConnectWV co-hosted, along with senators Joe Manchin and Shelley Moore Capito, a summit to inform both private and public sectors of the technical opportunities available in the State. The summit focused on steps being taken to train a new high-tech workforce, discuss employment opportunities for computer coding and cybersecurity, and the benefits of working in the new virtual tech economy and workplace.



Anne Barth, executive director of TechConnectWV, discussed how these jobs often don't require a two- or four-year degree, saying, "One of the primary take-aways from the event is that many coding and cyber jobs don't require a four-year degree or even a two-year degree. Many students can get certifications needed to enter these jobs through short-term training, including multi-month boot camps."

The event was held at the BridgeValley Technology Center in South Charleston, WV.

Grand Vue Park holds Clarke Park Dedication

For Arthur C. Clarke's 100th birthday, Grand Vue Park held a dedication ceremony on December 16, 2017, for the Clarke Park Project. The project has set up outdoor interactive exhibits for the public to participate.

The goal of Clarke Park is to serve as a local source of informal space-science education and promote family-friendly eco-tourism for the State. Already, they have held multiple stargazing events and watched the winter solstice at the SMART Centre Market. More events are expected to be held throughout the next year.



Above are GoTo telescopes being used outside as part of one of the interactive exhibits.

PAAC Lego team attends Engineering Discovery Day

The NASA WVSGC continues to support the Partnership of African-American Churches (PAAC) through internships and travel to events. Some members of PAAC attended Engineering Discovery Day at the Clay Center. They sent their FLL team, the B.L.U.E. crew, along with their mentor Walter Clark, who also mentors the Girls Who Code group in Institute, WV. Using the drag and drop programming language known as Scratch, Girls Who Code club members complete projects and learn to program.



Top: PAAC members participate in an activity learning about electricity and renewable energy such as wind.



Left: PAAC members make slime, choosing their own dye and learning about chemical reactions.

NASA IV&V hosts Day in the Park

Over 600 local seventh-graders were invited to the Education Resource Center at NASA IV&V in Fairmont, WV on October 11 and 12, 2017. The students learned about types of technology, such as circuits, rocketry, and robotics that are used to make NASA missions possible. The goal of the event was to expose students to “...technology careers that are available right here in their state of West Virginia.” said NASA education specialist Pam Casto. Emily Calandrelli was the featured guest speaker at this event.



Michael Lyden, Robotics Education Specialist, demos a robot used in FIRST Lego League (FLL) and discusses the programming components involved.

2017-2018 Research Affiliate Scholarship Winners

Bethany College Isaa Castillo Rachel Gantzer Marcus Kozloff Megan Nally Jenna Nuth Austin Paul-Orecchio Joseph Sawyer Jacob Stemmerich	Patrick Stump Thomas Whitlow	Elliot Collins	Emma Sherfinski Brandon Slicklein Nicholas Strogen Claire Strueberg Robert Wilson
Bluefield State College Michael Bennett Edward Cox Avery Holliday Maya Patterson Tanner Sims Brianna Vinyard	Shepherd University Parker Anthony Savannah Blades Christian Burns Brian Crutchley Paul Flamand Dallas Gianni Chad Hite Amaris Jalil Finn Lees Kimberly Lukasik Theadora Lutton Michelle Morey Liliana Nuss Shaylin Post Amanda Raus Sheha Reddy Heidi Reichert Macie Sigler William Singley Del Underwood Yitian Yao Calvin Young	West Liberty University Riley Aulick Skylar Carrington Elliot Collins Destinee Davis Emmy Delekta Emily DeTemple Katelyn Yauch	West Virginia Wesleyan Richard Calo Randy Corathers Rebecca Davis Emily Kearney Mark Leadingham Angela Meye Bobbi Mitchell Jericho Norris Ethan Randolph Nathan Swalley Joshua Tenney
Glenville State College Chere Davis Colton Ring	West Virginia State University Chelsie Chapman Jonathan Musselwhite Victoria Ramey Joshua Rocket Heather Rzewuski Jordan Thompson	West Virginia University Amanda Cathreno Ryan Culp Zachary Fahey Jason Gibson Ben Gregg Tucker Johnson Andrew McGrady William Moon Carmine Parascandola Holly Pettus Karan Sah	Wheeling Jesuit University Stephen Hansknecht Lucy Hritzo Sabrina Soriano Aleasha Yoho
Marshall University Marth Ellis Evan Kelley Zach McCormick Justin Merritt Kayleigh Nerhood Kira Owsley Aaron Roberts Steven Rollins	West Liberty University Riley Aulick Skylar Carrington		WVU Tech Corbin Adkins Michael Blessent Thomas Carter

2017-2018 Research Fellowship Award Winners

Undergraduate

Graduate

Marshall University Paris Adkins Kristen Brown Samantha Carretson Mckenzie Granata Noah Ichite Chad Meadows Ian Perry Rowan Robinson Abbagael Seidler Dana Sharma Patrick Shinn Deben Shoup	Jacob Spry Kayleigh Terrell	Marshall University Deborah Amos Katelyn Amspacher Rachel Arrick Nickolas Bacon Grayce Behnke Austin Carpenter Robert Fuller Lexie Keding Alexander Murray Jacaline Parkman	West Virginia University Shannen Daly Scott Harper Sean Lantto Rachel Walker Joseph Wickline Sean Wineland
West Liberty University Elliot Collins Rhiannon Macom Caleb Martin Isaiah Selmon-Miller	West Virginia University Jaya Karlapati Claire McDonald Megan Schmitz		

Student Testimonials

Question: How did participation in the fellowship programs sponsored by WVSGC impact your education and life?



Incredible. Without funding from a reliable source I may not be pursuing a degree at this institution. Scientific research has continued to be one of my passions.

—Mark Leadingham, 2014 West Virginia Space Grant Affiliate Scholarship, West Virginia Wesleyan College

It enabled me to complete research instead of trying to financially sustain myself. It enabled me to complete research which could be presented at state and regional conferences. This experience led to networking opportunities which still help me today and likely will continue to do so far into the future.

—Zachary Dillard, 2015 West Virginia Space Grant Scholar, West Liberty University



Very positively! I have been blessed to meet the members of NASA Space Grant Consortium. I have learned a great deal from their perspectives and I have been encouraged by them on numerous occasions to maintain my unique perspective on engineering and to stay passionate.

—Allison Arnold, 2015 West Virginia Space Grant Graduate Fellow, West Virginia University

I gained a greater understanding of the benefits that result from having practical experiences and hands on work in the laboratory, along with the responsibilities and fulfillment that results from having such a project. Overall, I found the participation to be a very important part of my education.

—Cayman Jarrell, 2016 West Virginia Space Grant Affiliate Scholarship, Marshall University



Upcoming Events

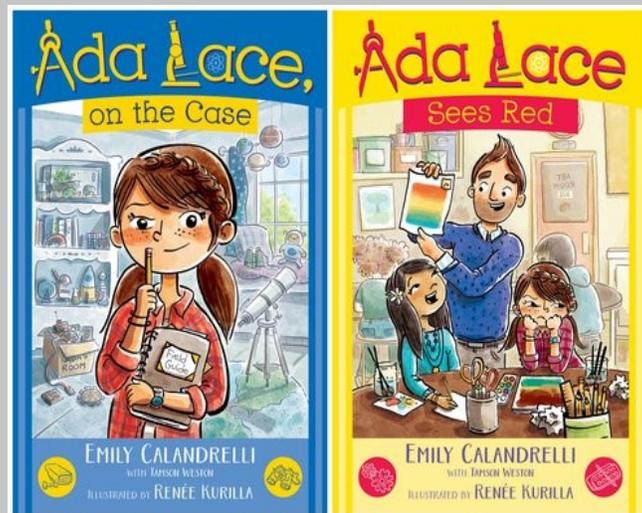
State Science Bowl, West Virginia University
National Space Grant Meeting, Washington DC
Board of Directors Meeting, Marriot, Charleston
WV State and Engineering Fair, FSU Falcon Center
WV Science Symposium, Fairmont State University
STF-1 Celebration, Clay Center

February 9-10, 2018
March 2-3, 2018
April 6-7, 2018
April 7, 2018
April 13, 2018
April 15, 2018

Where are they now?

Former NASA WV Space Grant Scholar Emily Calandrelli recently released a children's series about a young girl from West Virginia who loves science and problem-solving. The books have been a huge success, making it on the top list of STEM books for children by the National Science Teacher's Association.

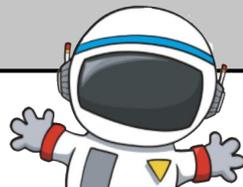
Pictured right are the first two books in the series with Ada Lace on the Case being the first one.



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

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