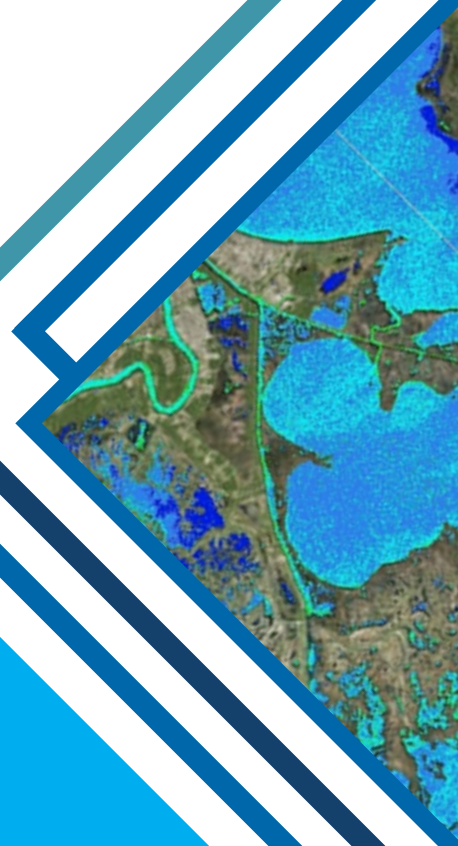




SPRING 2017 **DEVELOPer** NEWSLETTER



INSIDE THIS ISSUE

2

Program
Highlights

3

Restructuring
Atlanta

6

Node
Highlights

12

DEVELOPer
of the Term

13

Alumni
Engagement

14

Updates &
Events

PROGRAM HIGHLIGHTS



101 DEVELOPers



22 Projects



12 Locations



▶ This year, the American Society of Photogrammetry and Remote Sensing (ASPRS) had their annual Imaging & Geospatial Technology Forum (IGTF) in Baltimore, Maryland. One of the technical sessions highlighted the NASA DEVELOP National Program. DEVELOPers presented their applied science projects focused on water resources, urban stormwater runoff, archaeological exploration, and harmful algal blooms. This session was a great opportunity for attendees to learn how NASA Earth observations can help address environmental issues.



▼ Alison Thieme, Sara Lubkin, and Jessica Fayne, DEVELOPers from the Goddard Space Flight Center node, represented DEVELOP at the Girl's In Technology (GIT) Mentor-Protégé Program, designed to demonstrate and explain Science, Technology, Engineering, and Math (STEM) career paths to high school-aged girls.



▲ DEVELOPers learned about the James Webb Space Telescope, High Bay Clean Room, Acoustic Test Chamber, High-Capacity Centrifuge, Space Environment Simulator, and mission control for the Earth Observing System (EOS). Goddard participants joined Langley participants for a tour of Wallops Flight Facility where they learned about sounding rockets, scientific balloons, and research aircraft, capping the eventful day with a visit to Chincoteague National Wildlife Refuge.

RESTRUCTURING ATLANTA

Bringing NASA Earth observation data into the conversation of water quality and forest restoration



By: Christine Stevens

(Acknowledgements: Christopher Cameron and Jenna Williams)



Caren Remillard at the Atlanta Water Resources Lunch & Learn/Partner Hand-off Event hosted by The Nature Conservancy.
Photo credit: Natalia Bhattacharjee

Atlanta, Georgia is quite familiar with the concept of rebuilding. The city and its rich history have been a part of the American civil rights movement, held the 1996 Olympics, and presently hosts one of the world's busiest airports.¹ Although the official city population is now a steady 420,000, the Atlanta metro area has seen a nearly 40 percent increase in population from 2.9 million to 4.1 million over the past decade.¹ As a result, this rapidly developing city is faced with many infrastructure demands that greatly impact the surrounding environment and its inhabitants. One major challenge is the increasing area of impervious surface cover due to the urbanization across the city and its suburbs, compounding stormwater management problems.

Municipal water management costs in the metro Atlanta region have quickly increased and are among the highest in the nation. Due to a greater need for infrastructure that can better deal with stormwater runoff, one watershed management strategy the city is working to employ is the use of green infrastructure. Atlanta's urban forest can be seen throughout the metro area helping to capture stormwater runoff and aid in the natural hydrological cycle. "Atlanta, like every other city, is some combination of old, new, and yet to come," says Myriam Dormer, Urban Conservation Director for The Nature Conservancy in Atlanta, Georgia. Speaking about the primary concern surrounding the city's natural and

urban infrastructure, Dormer notes, “as this county works to match the economic development boom of the City of Atlanta, this aging infrastructure will limit growth unless much is done. In a parallel effort, forests and greenspaces that provide a buffer to creeks and streams should be protected through a careful eye to how zoning and ordinances govern how we live together in our communities,” says Dormer.



Members of the Atlanta Water Resources III team (Doori Ob, Alys Hannum, Christopher Cameron, and Amanda Aragon, left to right) along with project partners Sara Gottlieb and Myriam Dormer. The team was invited to attend a presentation by the Green Infrastructure Center that utilized the preliminary results of their DEVELOP project.

This is where a partnership between NASA DEVELOP and The Nature Conservancy was opportune. TNC in Atlanta, Georgia and the NASA DEVELOP node at the University of Georgia (UGA) collaborated to identify, prioritize, and protect the natural, living infrastructure throughout the city.

What was the TNC’s primary need for the Atlanta Water Resources DEVELOP project?

“In such a large potential project area, the TNC needed to narrow down the area where we will focus our on-the-ground work, and we needed to know where our work could have the greatest potential impact. We had utilized satellite imagery for visualization purposes only, but lacked the internal capacity to conduct a more detailed analyses,” according to Sara Gottlieb, Director of Freshwater Science and Strategy, The Nature Conservancy’s Georgia Chapter.

DEVELOP’s Atlanta Water Resources team at UGA tackled this problem with enthusiasm and innovation. For three arduous terms of work from Spring to Fall 2016, the teams overcame roster changes, obstacles with data acquisition, and the brevity of 10-week terms. In partnership with the TNC, the NASA DEVELOP team set out to find solutions to Atlanta’s

“TNC needed to narrow down the area where we will focus our on-the-ground work, and we needed to know where our work could have the greatest potential impact.”

-Sara Gottlieb, Director of Freshwater Science and Strategy, The Nature Conservancy’s Georgia Chapter

planning and restoration efforts to harness green infrastructure across this region.

Beginning in the Spring 2016 term, the Atlanta Water Resources team utilized Terra ASTER and Landsat 8 OLI data to create stormwater runoff, greenspace suitability, and water quality models. Project Lead Christopher Cameron recalls, “at the end of each term, I worked with The [Nature] Conservancy to update and improve our products with new data for analysis in the upcoming term.” Throughout the project’s three terms, the DEVELOP teams produced a 2015 land cover classification, as well as greenspace suitability, stormwater flow, and water quality products for their partners at The Nature Conservancy. Each term, the teams refined these products by incorporating additional data into their SWAT (Soil and Water Assessment Tool) and LUCIS (Land Use Conflict Identification Strategy) analyses. In the project’s last term, the team finalized the work by integrating all of their analyses into a land use prioritization model. The final product identified key areas across the region for TNC to focus their efforts and can be adjusted in the future to account for changing watershed conditions.

After watching a mix of participants apply themselves to the Atlanta Water Resources projects, Science Advisor Dr.

Rosanna G. Rivero considered the skills learned and sharpened during each term. “One of the most important skills that participants learned in this project, besides the invaluable technical skills that they acquired (use of GIS modeling, remote sensing, and watershed models), are those related to project management, including organization of deliverables, teamwork, and real-world experience with a client.”

This project epitomized the role of DEVELOP as a dual-capacity building program. “TNC was an amazing project partner who was also an advocate for this work and the DEVELOP program. [They] connected our project with on-going work from the Atlanta Regional Commission, Trees Atlanta, and the city’s Green Infrastructure Task Force - just to name a few!” says Cameron. The Atlanta Water Resources project has since gained traction outside of DEVELOP, receiving publicity in a total of twelve publications and events, such as The Nature Conservancy’s Cities Retreat (March 2016), NASA HQ Earth Science Applications Showcase highlight talk (August 2016), Georgia Geospatial Conference (October 2016), and American Society for Photogrammetry & Remote Sensing (March 2017).

How will the experience with DEVELOP benefit the TNC in the future? “As far as the future goes, I would like to explore



View of downtown Atlanta from The Nature Conservancy office displaying both the development and green spaces within the city. Photo credit: Natalia Bhattacharjee

the possibility to downscale this analysis to identify low lying areas within the South River watershed that are most likely going to be the recipients of all the local stormwater from the surrounding areas. I think it would be easiest to use this information to help [local] developers and the county to understand the impacts of their projects beyond the local sub watershed they are in. This idea came about during a conversation with a community partner about a community for which this reality is true," said Myriam Dormer, of TNC.

In its concluding term in Fall 2016, The Nature Conservancy arranged for the DEVELOP team to participate in Atlanta's Department of Watershed speaker series and present project results to an audience representing numerous local and city

organizations. Cameron notes that, "throughout all of these experiences, my team was able to connect our project with the larger body of on-going work in Atlanta on this issue and see the impact our project would have long after our DEVELOP term ended."

What is the most important part of the issue at hand?

"People who live in cities are dependent on nature and environmental quality, even if it sometimes seems distant or invisible to them. If we take care of the nature all around us, then nature will help take care of us. All the ways that we can help people who live in Atlanta to touch and see and feel nature will help ensure that we don't continue to neglect our natural resources," states Sara Gottlieb, of TNC.



Christopher Cameron (project lead) and Myriam Dormer (project partner) reviewing model results of the Atlanta Water Resources project at partner hand-off event hosted by The Nature Conservancy. Photo credit: Caren Remillard

1 City of Atlanta, History. (2017). Retrieved from <http://atlantaga.gov/index.aspx?page=1064>



"Throughout all of these experiences, my team was able to connect our project with the larger body of on-going work in Atlanta on this issue and see the impact our project would have long after our DEVELOP term ended."

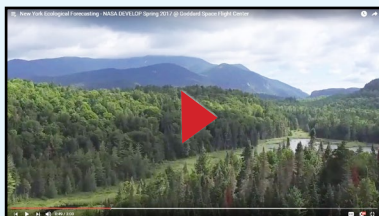
-Christopher Cameron, Assistant Center Lead, Project Coordination Fellow, and Team Lead at DEVELOP's UGA node

VIRTUAL POSTER SESSION

COMPETITION WINNERS ANNOUNCED

GRAND PRIZE WINNER

New York Ecological Forecasting



Received the highest points through a rubric based on creativity, quality, and communication of science, judged by a collection of DEVELOP alumni and science advisors.

PEOPLE'S CHOICE AWARD

Southeastern Idaho Water Resources



Selected by the public through receipt of the most online shares, likes, and #NASADEVELOP tags on social media.

NEW DEVELOP VPS! Project videos are now shorter to increase public engagement. Videos seek to uniquely tell the story of each DEVELOP project within a short, engaging, three-minute timeline.

Watch all of the spring 2017 project videos online on the NASA DEVELOP YouTube channel, [here](#).

ID

BLM at Idaho State University GIS TReC

Center Lead: Courtney Ohr; Assistant Center Lead & Communications Fellow: Caitlin Toner

Spring 2017 Participants: Paul Bushman, Claire Haupt, Arina Mardoukhi, Cody O'dale



The Idaho node has accomplished many things this term, including professional development, commendable research, and project management. The node increased their project capacity for the spring term to include two projects. Idaho included Wise County participants in the Southeastern Idaho Water Resources II project with little difficulty and all participants learned communication and project management skills when working with remote teams. This aspect of the project was a huge success

and has added to the participants' professional development. The node experimented with different meeting styles and formats to increase productivity and team comprehension. This created an open atmosphere that contributed to unique solutions, and allowed participants to break down the barriers separating their different technical backgrounds.

Jenna Williams represented the Idaho node at the American Geophysical Union conference and also presented the Southeast Idaho Disasters project (Summer 2016) at the American Association of Geographers conference. The Spring term's Southeastern Idaho Water Resources II project was presented by Cody O'dale at the American Society for Photogrammetry

& Remote Sensing and by Caitlin Toner at the Intermountain GIS Conference in West Yellowstone, MT.



MSFC

NASA Marshall Space Flight Center at NSSTC

Center Lead: Maggi Klug; Assistant Center Lead & Impact Analysis Fellow: Dashiell Cruz

Spring 2017 Participants: Helen Baldwin, Mercedes Bartkovich, Olivia Callaway, Nicholas McVey, Chris Ploetz, Emilene Sivagnanam

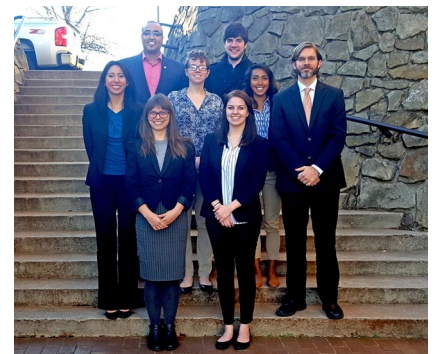


It has been another great term at Marshall Space Flight Center. Both teams worked hard this term to create amazing products for their end users. The Mississippi River Basin Disasters II team automated a flood exposure and human impact map for their end users at the USGS and FEMA to help with flood aid. Meanwhile, the Alabama Agriculture team tested methods to monitor drought. These methods were shared with the Alabama State Climatologist to aid in the creation of the Drought Monitor. Both of

these projects wrote publications to be featured in *Earthzine*. Participants also had the opportunity throughout the term to attend seminars and participate in Python, Worldview, and cartography trainings to develop their skills.

Furthermore, the participants had fun this term with game nights, birthday parties, and tours of the National Space Science Technology Center and the United States Space and Rocket Center. The node also had the opportunity to attend a brown bag talk with DEVELOP alumnus and former MSFC Center Lead Kel Markert. Kel currently works at NASA SERVIR for the Mekong Hub as a research associate. Additionally, the teams attended a virtual all-hands meeting with Robert Lightfoot, the acting Administrator of

NASA, and the acting chief financial officer, Andrew Hunter, to discuss the future plans of NASA. Finally, several DEVELOP projects were showcased at UAH's Research Horizons Day and at the annual American Association of Geographers conference in Boston. Overall, it has been an exciting term for DEVELOPERS at Marshall!



ID

MSFC

JPL

NCEI

WC

AZ

GSFC

FC

ARC

MCHD

LaRC

UGA

JPL

NASA Jet Propulsion Laboratory

Center Lead: Nick Rousseau; Assistant Center Lead & Geoinformatics Fellow: Erika Higa; Geoinformatics & Mission Applications Fellow: Sol Kim
Spring 2017 Participants: Kate Cavanaugh, Emil Chang, Leah Kucera, Natalie Queally, Molly Spater



The Santa Monica Mountains Climate team met with their partner, Rosi Dagit, from the Resource Conservation District of the Santa Monica Mountains. The team was given a tour around the Oak Woodlands of the Santa Monica Mountains and were able to capture video footage of the varieties of trees and acquire interviews with Rosi for the VPS.

JPL participants were invited to the tidepools of Little Corona Del Mar, Newport Beach by DEVELOP JPL Mentor Benjamin Holt. DEVELOP participants saw many varieties of fish, sea anemones, crabs and an octopus.

Women of the Jet Propulsion Laboratory participated in International Women's Day on Wednesday, March 8th, 2017. There, women of DEVELOP JPL joined other female employees at the Flight Projects Operations Facility.



NCEI

NOAA National Centers for Environmental Information

Center Lead: Alec Courtright; Assistant Center Lead & Geoinformatics Fellow: Kelly Meehan
Spring 2017 Participants: Kimberly Berry, Allison Daniel, Katherine Dooley, Ben House III, Daniel Martin, Jessica Vermillion

The collaborative NOAA and NASA DEVELOP node, housed within NOAA's National Centers for Environmental Information (NCEI), had an exciting and rewarding Spring 2017 term! The node hosted several brown bag seminars with NCEI scientists and academic researchers to discuss their work and offer career advice.

Throughout the term, DEVELOPers engaged in outreach activities and were honored to be recognized by employees at NCEI. The node is partnering with local school systems to teach students about satellites, remote sensing, NASA, and NOAA. Projects from NCEI were presented at the Association of American Geographers and the American Meteorological Society

conferences, following the Spring term's end. DEVELOP at NCEI was also nominated for an NCEI Employee's Choice Award for the second year in a row.



The Philippines Disasters I project worked closely with NOAA tropical cyclone experts and their partners at the UN's Office for the Coordination of Humanitarian Affairs in the Philippines. The team utilized satellite-derived tropical cyclone data in

conjunction with Filipino demographic data to analyze spatial vulnerability of women and children to cyclones. The Missouri River Climate II team worked with NCEI's Regional Climate Services Director, Doug Kluck, and utilized Google Earth Engine to develop a tool that calculates the near-real time risk of large and complex wildfires in the Great Plains. This tool will allow their partners, regional wildland fire managers, to quickly discern spatial differences in wildland fire potential and distribute resources accordingly.



WC

Wise County Clerk of Circuit Court's Office

Center Lead: Michael Brooke; Assistant Center Lead & Project Coordination Fellow: Aubrey Hilde; Assistant Center Lead & Communications Fellow: Christine Stevens

Spring 2017 Participants: Brooke Colley, Austin Counts, Benjamin Marcovitz, Veronica Warda, Eric White

The Wise County Clerk of Circuit Court's node focused the bulk of its energy on a single project this term - Wyoming Cross-Cutting. The team, science advisors, and partners quickly realized that it would be best to spread the project over two terms due to the need to address the complex atmospheric physics involved in the propagation of light through the atmosphere. The team continued forward with basic methodology, data acquisition, and Python scripting to set the stage for a successful completion of the project during the Summer 2017 term.

In addition, two Wise County participants worked on a joint project with participants at the BLM at Idaho

State University's GIS TReC node in Pocatello, Idaho. Remote projects often present a unique challenge with regards to communication, but the team members at both nodes utilized messaging and video conference platforms to their fullest, allowing for a successful collaboration.



Throughout the term, Wise County participants took part in various events including presentations at UVA-Wise



and an International Women's Day forum with Capacity Building Program Manager Dr. Nancy Searby. A warmer than average winter allowed numerous opportunities for out of office team-building activities such as hiking and mountain biking.

AZ

Maricopa County Department of Public Health and Arizona State University

Center Lead: Lance Watkins; Assistant Center Lead: Tamara Dunbarr

Spring 2017 Participant: McKenzie Murphree



The Spring 2017 term was excellent for building new partnerships for the Arizona node. The Center Lead, Lance Watkins, was invited to participate in the 2017 Geospatial Career Festival at Arizona State University. The festival brought together about 80 current students and recent graduates from ASU and surrounding community colleges with geospatial

professionals. Students and graduates were encouraged to interact with professionals at booths and during open panel discussions to learn about career opportunities in GIScience. DEVELOP was one of the few organizations representing Earth science. The event was great for recruitment and expanding DEVELOP's presence in Arizona.

This term the Phoenix Health & Air Quality team processed ASTER and Landsat 5 & 8 data to estimate vegetation prevalence and land surface temperature for the nearly 4,000 bus stops in Phoenix, Arizona. Working closely with our end users at the Phoenix Public Transit Department, the team combined these data

with ridership data to enhance the department's current criteria for prioritizing the installment of shade structures and enhancements at bus stops. This project was the first partnership between the Phoenix Public Transit Department and NASA DEVELOP. The term's closeout event provided an excellent opportunity for our partners to explore the end products and set the stage for a continued partnership in future terms.





NASA Goddard Space Flight Center

Center Lead: Sean McCartney; Assistant Center Lead & Geoinformatics Fellow: Alison Thieme

Spring 2017 Participants: John Fitz, Dr. Sara Lubkin, Perry Oddo, Madeline Ruid, Rachel Soobitsky, Ariel Walcutt, Sunita Yadav-Pauletti, PhD

The Goddard node had another rewarding term full of discovery and professional development. The Goddard Kenya Ecological Forecasting team (Fall 2016) had the incredible opportunity to travel to Kenya and conduct field work in national parks with their project partner from the Global Environment Facility – Independent Evaluation Office (GEF-IEO), funded by their partner! They also presented their results to the SERVIR-Eastern and Southern Africa hub. Sara Lubkin presented at the Imaging & Geospatial Technology Forum (IGTF); Rachel Soobitsky and Alison Thieme presented at the Esri Fed GIS conference; Alison Thieme presented at the International Association for Landscape Ecology (US-IALE) annual meeting; and Sean

McCartney presented at the Association of American Geographers (AAG) annual meeting.



The Chesapeake Bay Agriculture team traveled to Maryland's Eastern Shore with their project partner from the USGS, Dean Hively, PhD, where they spoke with farmers and staff from Maryland's Soil Conservation District to learn how Maryland Department of

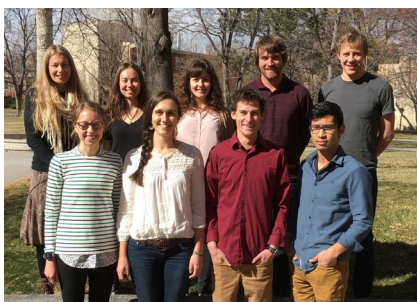
Agriculture's winter crop program is implemented. The New York Ecological Forecasting team used AVIRIS and Sentinel-2 data to map eastern hemlock stands in New York's Adirondack Park and Tug Hill State Forest. They also forecast a suitability map for hemlock wooly adelgid, an invasive species decimating hemlock trees in the eastern states. Results will aid project partners in managing this pest.



USGS at Colorado State University

Center Lead: Brian Woodward; Assistant Center Lead & Impact Analysis Fellow: Sarah Carroll

Spring 2017 Participants: Emily Campbell, Evan Gohring, Emma Zink Hatcher, Leana Schwartz, Chanin Tilakamonkul, Amandeep Vashisht



The Fort Collins node had a fast-paced and exciting spring term! The teams started their 10-week experience with an introduction to Earth observations, new remote sensing data libraries, and cutting-edge data analytics software through a hands-on workshop with Center staff. The Nez-Perce Clearwater Energy team applied 34 years of Landsat imagery to model

and map dead aboveground biomass resulting from bark beetle outbreaks in central Idaho. Results provide the distribution and timing of dead aboveground biomass resulting from insect disturbance, which partners can apply to their impact analyses to potentially harvest beetle-killed wood for bioenergy feedstock.

The Arizona Water Resources team successfully implemented a newly developed tool that extracts valley-bottom area or the total area that can support riparian corridors in the Verde Watershed in central Arizona. This method can likely be used to map riparian corridors across a larger hydrologic system such as the Colorado River Basin. Additionally, the team created a land cover classification

model by visually sampling over 750 random points across the study area and classifying percent vegetation cover within riparian corridors using high-resolution National Agriculture Imagery Program imagery.

The Arizona Water Resources team had the opportunity to attend the Tamarisk Coalition Conference held locally in Fort Collins this February. The team gained valuable insight from invasive species experts and learned what conservation groups are doing to manage invasive species and conserve riparian habitats in the Southwest United States. This event also allowed the team to visit with partners at the Walton Family Foundation to discuss the goals of the project and end user needs. What a great term!



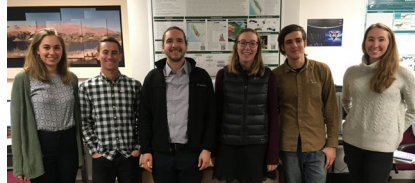
NASA Ames Research Center

Center Lead: Brittany Zajic; Assistant Center Lead & Communications Fellow: Jenna Williams

Spring 2017 Participants: Billy Babis, John Dilger, Rachel Green, Rachel Johnson, Garrett McGurk, Mariana Webb

From chatting with astronauts to visiting our next-door neighbors in the heart of Silicon Valley, it has been another successful and fulfilling research term at the Ames node! The node completed two ARSET trainings throughout the term, and attended several talks through the Earth Science Seminar Series at Ames. Additionally, participants listened to talks across the Bay Area, spanning topics from the Cassini mission at the SETI Institute, to harmful algal blooms at Stanford, and 3D mapping at tech startups in San Francisco.

The node had the opportunity to meet with the Google Earth Engine team at Google, which proved extremely beneficial for the Chile Water Resources team. The team used Google



Earth Engine to conduct a case study for the Chilean Ministry of Agriculture and host NASA Earth observation derived soil moisture, snow cover, and snow water equivalent in the platform to expand the Ministry's utilization of NASA EO for drought monitoring across the country.

The Lake Erie Water Resources team welcomed their collaborators from NASA Glenn Research Center (GRC) to the Spring 2017 Closeout! The team spent the term working alongside

NASA GRC and NOAA Great Lakes Environmental Research Laboratory to conduct a comparative analysis of GRC's hyperspectral imagery, Landsat 8 OLI, and Aqua MODIS data to enhance continued monitoring of harmful algal blooms (HABs) in the Western basin of Lake Erie.



Mobile County Health Department

Center Lead: Tyler Lynn; Assistant Center Lead & Impact Analysis Fellow: Elaina Gonsorski

Spring 2017 Participants: Charles Barrow, Saranee Dutta

During the spring term, participants at the Mobile County Health Department node in Mobile, AL continued a project started in Fall 2016 and worked to improve both their technical and professional skills. The team attended various trainings and webinars to improve their skills with JavaScript and Google Earth Engine, including a webinar hosted by the Center for Geospatial Research located at the University of Georgia. Participants also wrote about the project in articles for *The Forestry Source* and *Earthzine*.



Additionally, participants attended talks and meetings held by local scientists from Mobile and the surrounding area. The Mobile node attended the first remote Alumni Brown Bag event and were visited by a previous DEVELOPer from Stennis Space Flight Center. Participants had the opportunity to engage with and learn from these alumni's personal and professional experiences. The node mentor, Dr. Bernard Eichold, treated participants to lunch where they were able to learn from his experiences. DEVELOPer participant Dr. Saranee Dutta was also featured in DEVELOPer's Women in STEM social media campaign during Women's History Month in March.

Node leadership participated in career fairs at the University of South



Alabama and Spring Hill College, introducing students from different backgrounds to the DEVELOPer Program. Additionally, node leadership connected with the Geography Club at the University of South Alabama through a past participant. They were able to meet in a small setting and speak to students about the DEVELOPer Program.



NASA Langley Research Center

Center Lead: Emily Gotschalk; Assistant Center Lead & Project Coordination Fellow: Amanda Clayton; Project Coordination & Geoinformatics Fellow: Ryan Avery

Spring 2017 Participants: Antonio Alvarado, Cole Cowher, Jessica Gregory, Jemiris Gonzalez-de Jesus, Collin Henson, Gregory Hoobchaak, Charlotte Mays, Brigitte Moneyemaker, Danielle Quick, Suzannah Richards, Sarah Rindone, Catherine Stolfi



This term, the Langley DEVELOP teams were engaged in many activities across the center. They had an awesome time exploring the Transonic Dynamics Tunnel and the famous Langley Hangar, in addition to joining the Goddard DEVELOP team for a tour of Wallops Flight Facility. Beyond touring some of LaRC's facilities, the teams attended many talks

and seminars, including Hampton University's seminar on High Spatial Resolution Lidar, LP-DAAC's demo of AppEEARS, ASDC's Earthdata Search presentation, and *Hidden Figures* author Margot Lee Shetterly's talk about her book and the movie it inspired, *Hidden Figures*. Langley DEVELOPers were also actively engaged in community activities, contributing their time and efforts to support local science fairs, Black History month outreach, local robotics competitions, and other events on Center.

Langley participants were treated to a two-day programming workshop, coined Software Carpentry, at the beginning of the Spring term. Through

individual and team-based problem-solving and challenges, Dr. Katie Moore and Kunal Marwaha, the leaders of the workshop, were able to assist participants via in-person technical support. This workshop significantly enhanced the teams' abilities to incorporate programming into their projects, which streamlined their methodologies and enhanced each team member's skillset.



University of Georgia

Center Lead: Caren Remillard; Assistant Center Lead & Project Coordination Fellow: Christopher Cameron

Spring 2017 Participants: Amanda Aragon, Natalia Bhattacharjee, Roger Bledsoe, Subash Dahal, Matthew Hevert, Stephen Jordan, María José Rivera Araya, Abhishek Kumar, Austin Stone, Joshua Willis

The UGA node hosted a Google Earth Engine Workshop this term, offering participants a hands-on introduction to Google Earth Engine, a free planetary-scale platform for Earth science data and analysis. Participants from the Mobile County Health Department joined the workshop virtually and UGA hopes to include even more nodes in future terms.



Several UGA DEVELOP projects were showcased this term through oral presentations at the American Society for Photogrammetry and Remote Sensing (ASPRS) Annual Conference in Baltimore, the Georgia Water Resources Conference in Athens, and the UGA/NCEI/WC Joint Closeout event. Additionally, the Atlanta Water Resources project is being highlighted in this year's NASA Applied Sciences Annual Report.



Austin Counts

Wise County Clerk of Circuit Court's Office & BLM at Idaho State University GIS TReC



DEVELOPer OF THE TERM

SPRING 2017

Antonio Alvarado
NASA Langley Research Center



Rachel Johnson
NASA Ames Research Center



McKenzie Murphree
Maricopa County Department of Public Health and Arizona State University



Charles Barrow
Mobile County Health Department



Katherine Dooley
NOAA National Centers for Environmental Science



Natalia Bhattacharjee
University of Georgia



Katherine Cavanaugh
NASA Jet Propulsion Laboratory



Mercedes Bartko
NASA Marshall Space Flight Center



Emma Hatcher
USGS at Colorado State University



Madeline Ruid
NASA Goddard Space Flight Center



HERE ARE THE NOMINEES



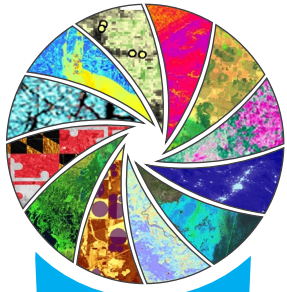
DEVELOP Wise County is pleased to nominate Austin Drake Counts as DEVELOPer of the Term for Spring 2017. Austin is in his senior year at The University of Virginia's College at Wise where he is majoring in Environmental Science with an emphasis in Biology. This term, Austin has worked remotely with the BLM at Idaho State University's GIS TReC node in Pocatello, Idaho on the Idaho Water Resources project. He mastered the use of multiple communication platforms to remain engaged with participants in Idaho as well as project partners and science advisors. Austin's communication and collaboration skills helped to ensure a successful project even though participants were separated by two time zones and nearly 2,000 miles.

Austin brings a considerable amount of technical skills to any project. He is knowledgeable in ArcGIS, and has learned JavaScript to allow him to be a primary contributor to the team's work in Google Earth Engine. Throughout this term, Austin led the efforts in Wise County and kept his team member here focused and productive. Additionally, Austin is a huge asset to the office environment. His professional, yet easygoing demeanor is an example that the rest of the node naturally follows. In addition to his role as a team member, Austin has conducted numerous events on the UVA-Wise campus in his role as DEVELOP Ambassador.

Austin Counts was also nominated by the Idaho node. Although he was not physically located in Idaho, he worked with the node to accomplish one of their projects for the term. He made such an impression that node leadership agreed he should receive the Idaho nomination for DEVELOPer of the Term. Austin was an irreplaceable participant because he had the foresight to see potential issues and was able to circumvent the problems before they were seeded. He not only pre-emptively found problems and solutions, but his hard work ethic was contagious and motivated other team members to accomplish project goals with little direction from project or node leadership. This was exemplified when Austin took the initiative to create two weekly meeting times, helping to combat the difficulty of team members working in two different locations. This allowed project participants to maintain communication not only when problems arose, but also ensured that all participants were fully aware of project progress and goals. In essence, he embodied a leader's personality while still maintaining personable team relations. This enabled project participants to reach DEVELOP's full capacity mission.

Click on the photos to read more about the nominees!





INAUGURAL ALUMNI BROWN BAG EVENT

Who: DEVELOP Alumni Kel Markert began his time with DEVELOP at MSFC in Fall 2012 and became the node's Center Lead in 2013.

When: March 2nd, 2017

Where: Huntsville, Alabama

What: Kel presented to current participants, alumni, and node leadership at the MSFC node about his professional experience, advice for current DEVELOPers, and current work as the Mekong Regional Associate with NASA-SERVIR.

This spring, Marshall Space Flight Center (MSFC) hosted DEVELOP's Inaugural Alumni Brown Bag Event, the first in a series of proposed Brown Bags for the year! This idea was brought forth by a unique collaboration between DEVELOP's Fellow Class Impact Analysis and Communications Teams.

During his presentation, Kel provided the audience insight into his success and offered that "you will always continue to DEVELOP!" He encouraged DEVELOPers to ask questions, keep learning, stay motivated and enjoy their work. Kel has continued to support the program as a project partner, serving as a POC

for the NASA SERVIR Coordination Office at MSFC for the Mekong River Basin Agriculture project conducted during the Summer of 2016.



DEVELOP ALUMNI SPOTLIGHT

TIMMERA WHALEY

"Consistency, passion, collaboration, and pushing through even when things get hard!"

Timmera Whaley, Summer 2016 DEVELOP participant and current DEVELOP Ambassador, reflects upon the experiences gained during her time at NASA Langley Research Center. Wrapping up her Master's degree at Tuskegee University in Environmental Science, Whaley hopes to finish strongly in her academic career by pursuing a PhD in Geoscience. When thinking about how her involvement at DEVELOP will benefit her in the future, she is excited about the use of NASA Earth observations, which is a big part of her current research studies at Tuskegee. Want to hear more about Timmera Whaley's experience with DEVELOP and advice for DEVELOPers once they leave the program? Check out the full article [here!](#)

UPCOMING EVENTS

- April 18 - April 21** Intermountain GIS 2017
- April 19 - April 20** Georgia Water Resources Conference
- May 22 - June 30** Fall 2017 Term Application Window
- May 23 - May 25** American Ecological Engineering Society Conference
- June 5** Summer Term Begins
- June 14 - June 16** 2017 Great Lakes & St. Lawrence Cities Initiative Annual Meeting
- August 6** Annual Earth Science Application Showcase
- August 11** Summer Term Ends
- September 11** Fall 2017 Term Begins

ADDITIONAL UPDATES

The DEVELOP gear webstore is now available online. Order individually or as a node @ <http://tinyurl.com/gS6oq8h> anytime from anywhere. Orders will be processed during Week 2 of each term.

Our Ambassadors work hard to create innovative methods for expanding DEVELOP's reach to a diverse audience. Ambassadors are renewable, semester-long volunteer positions for enthusiastic, creative former participants who want to play an integral role in recruitment. Interested in joining our summer recruiting efforts? Contact the DEVELOP [Communications team](#) for more information.

Have a job opening? Contact DEVELOP. Communications@gmail.com to get the word out! Or, post the opportunity to DEVELOP's LinkedIn group.

FOLLOW US

#NASADEVELOP



Articles & Important Events:
Tweet @NASA_DEVELOP or #NASADEVELOP (we'll tweet back!)



DEVELOP National Program: features projects, node highlights & accomplishments, VPS announcements
Once a DEVELOPer, Always a DEVELOPer: job posts (Anyone can post!)



VPS and Promotional Videos



Email us! We love to hear from you.



Job Posts, Job skills & Tips, and Important Events (Private group for DEVELOP current participants and alumni, only. Log in to view)



Features Projects, Node Highlights & Accomplishments, and VPS Announcements

