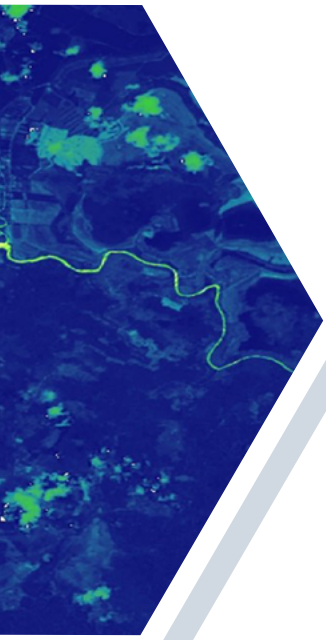
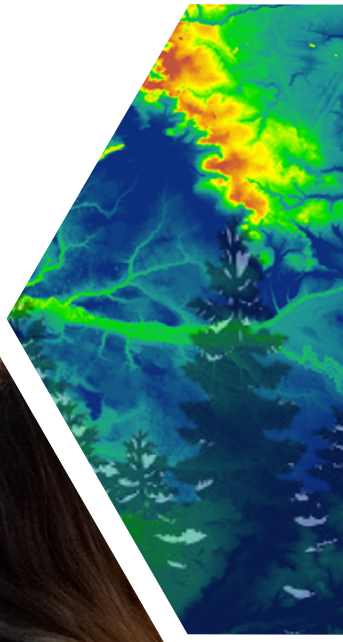
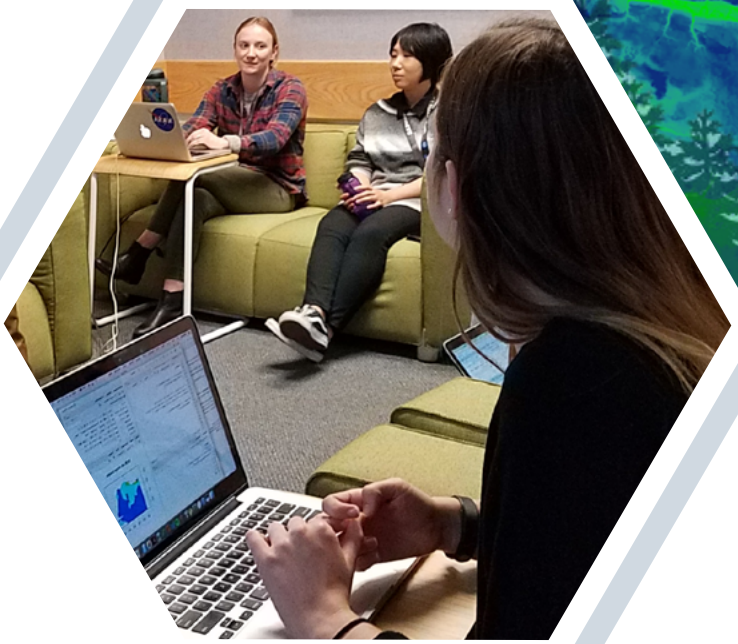
National Aeronautics and
Space Administration

SPRING 2018
DEVELOPER NEWSLETTER







INSIDE THIS ISSUE

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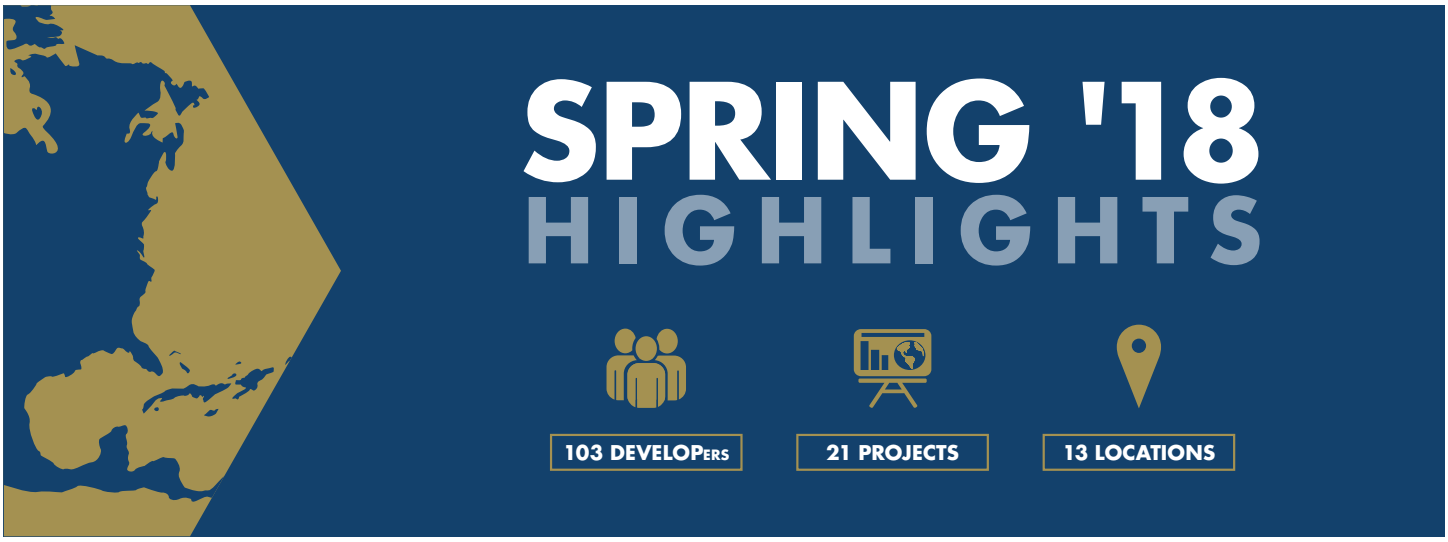


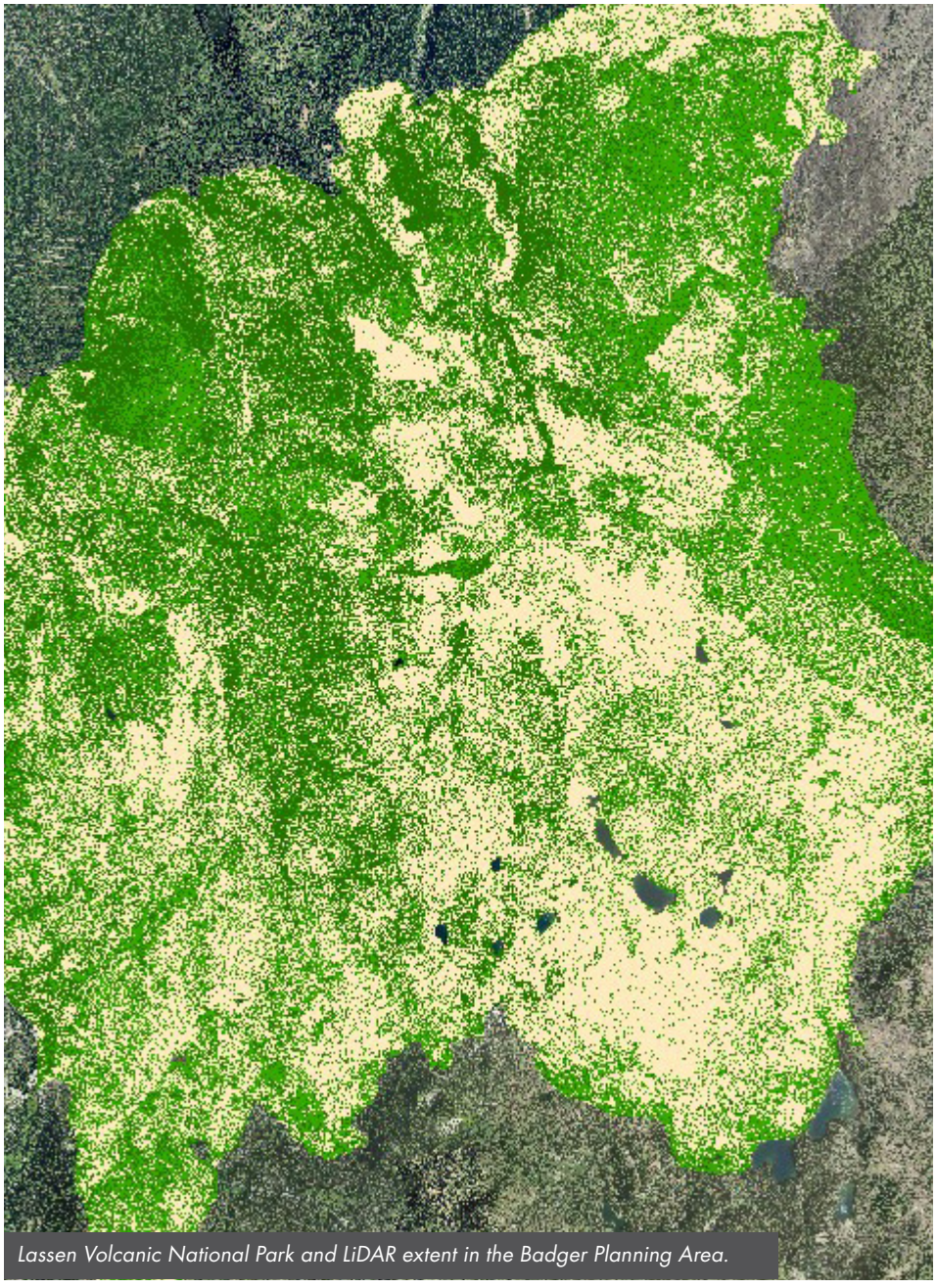
DEVELOP's 20th anniversary, recognizing the creation of "The Practical Applications of Remote Sensing" paper which kick-started the national program, began this spring. The celebration will continue throughout the year—highlighting alumni, past projects, and the DEVELOP family along the way. Stay tuned for a calendar of events happening across the country and other ways to get involved with anniversary activities.

The 2018 spring term marked the beginning of the newest DEVELOP node in Boston, Massachusetts. Led by acting Center Lead Kim Johnson and Lead Science Advisor Dr. Cedric Fichot, the MA node finished its first term in partnership with the USGS Woods Hole Coastal and Marine Science Center tackling the Plum Island Water Resources project.

Dr. Kenton Ross, DEVELOP's National Science Advisor, met with National Park Service Intermountain Region on March 7th in Lakewood, Colorado, at the Intermountain Region headquarters. During the meeting, they discussed the ongoing partnership of the National Park Service and DEVELOP.

LASSEN VOLCANIC NATIONAL PARK DISASTERS

Evaluating Landscape-Scale Fuel Loading in High-Elevation Alpine Forests

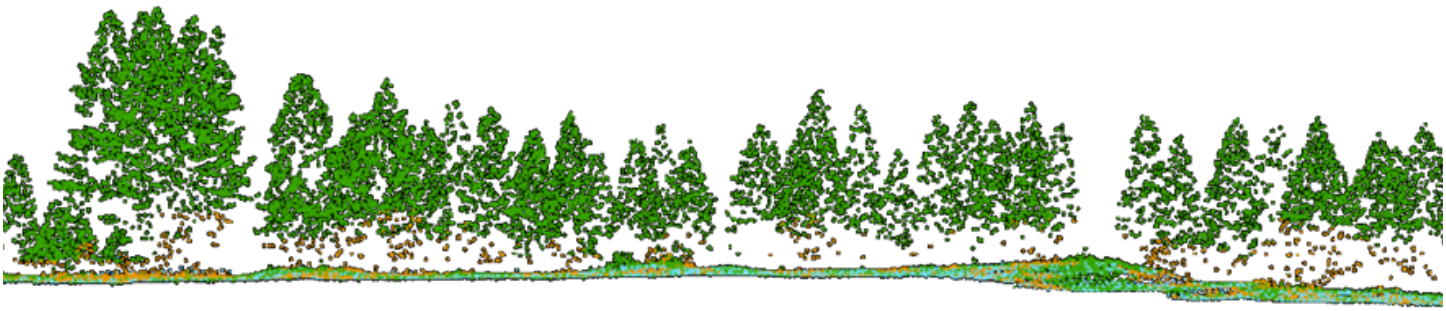


Lassen Volcanic National Park and LiDAR extent in the Badger Planning Area.

By Austin Counts

The western United States experiences severe and frequent wildfires, burning millions of acres each year. In 2017, NOAA's National Centers of Environmental Information (NCEI) reported that over 39,000 fire events burned through the U.S., engulfing nearly 5,500,000 acres from January to July. This startling statistic is significantly larger than the previous national average of 3,505,217 acres burned during a fire year, which had been determined from the years 2000 to 2010. This indicates that the rapidly increasing prevalence of these disasters, affecting approximately 77 million people in the western region of the U.S., is certainly a topic of national concern.

During the fall of 2017, the NASA DEVELOP Lassen Volcanic National Park Disasters II team at Ames Research Center partnered with the USDA and National Park Service at Lassen to continue the work of the previous term to study wildfire mitigation within park boundaries. Established in 1916, Lassen Volcanic National Park is among the oldest national parks in the nation. Coming in at the nation's 12th oldest national park, Lassen was the park created before the official formation of the U.S. National Park Service. However, Lassen was not always a single protected entity. In fact, Lassen got its start as Cinder Cone National Monument and Lassen Peak National Monument, two separately protected monuments during the Roosevelt administration.



Now covering nearly 161,000 square kilometers in northern California, the park protects conifer-dominated forests, its iconic volcanic geology, and one of the world's largest lava domes, Lassen Peak. However, one hundred years of fire suppression has resulted in an overgrowth of fire susceptible foliage, or fuel load, in the 4,400 square kilometers of forests within the park boundaries. This fire suppression, along with intense drought events and changing climate conditions, has heightened wildfire susceptibility. Sparked by the 2012 Reading Fire, the need for additional information on habitat recovery and fire risk detection made its way to DEVELOP.

The Lassen Volcanic National Park Disasters team utilized NASA Earth observations from the Landsat mission, USDA National Agricultural Imagery Program (NAIP), and LiDAR data provided from the US Forest Service to identify fire-susceptible foliage in a 300-square mile portion of the park. LiDAR data were used to detect canopy cover and height across the study area, as lower canopies present a significant risk of surface fires transitioning to forest fires due to lower proximity to the ground. Surface reflectance imagery from the Landsat 5 Thematic Mapper and Landsat 8 Operational Land Imager satellites was used to produce recovery maps, allowing the team and their partners to analyze the ecosystem's growth after the Reading Fire.

"Working with DEVELOP was really essential to Lassen Volcanic NP because it gave us remote sensing capacity to ask some really enormous questions that on-the-ground data collection does not have the resolution to answer."

- Steven Buckley, Ecologist and Botanist at Lassen Volcanic National Park

When asked to comment on the Lassen project, Steven Buckley, the Ecologist and Botanist at Lassen Volcanic National Park, had plenty to say. "We've been able to raise the visibility and importance of remote sensing among our partners, and have provided justification for getting access to additional resources to continue and expand this work. DEVELOP staff are some of the most wonderful people, we're always excited to have a new crop of such talented people working on problems that have vexed previous managers for years."

Members of the project team at NASA Ames Research Center in Mountain View, California

DEVELOP PROJECT LEAD SPOTLIGHT

Anna McGarrigle

"I want to emphasize that it was not only the skills that each member previously had that made the project successful, but the attitude each member brought with them. My team members were enthusiastic about learning new things and creative in the solutions to problems they had never encountered before. My teammates are what made this project successful because they worked hard to use the skills they had to further the project and even harder to develop new skills for the benefit of the project."

ID

Idaho – Pocatello

Center Lead: Brandon Crawford; Assistant Center Lead & Communications Fellow: Leah Kucera

Spring 2018 Participants: Dane Coats, Theresa Condo, Zachary Sforzo

This spring, the Idaho node forged new partnerships with Colorado State University and the National Park Service team at Navajo National Monument to investigate precipitation and erosion within the park bounds. The node bonded early in the term by working through Google Earth Engine (GEE) tutorials, but the hard work paid off as all were able to keep up during an advanced GEE user workshop in Salt Lake City. The project team used these skills to create user-friendly Earth Engine applications for examining TRMM and GPM data over user-determined time frames.

This will allow for future research into yearly monsoonal precipitation trends and erosion at the monument site. Outside of the office, the node bonded through a variety of social activities and weekly colloquium talks with the ISU Geology Department.

MSFC

Alabama – Marshall

Center Lead: Helen Baldwin; Project Coordination Fellow: Mercedes Bartkovich

Spring 2018 Participants: Christine Evans, Emily Kinkle, Nicholas McVey, Yu Han, Man Giri, Olivia Buchanan

The NASA Marshall node had a great spring term. The New Jersey Urban Development team utilized Landsat 8 Operational Land Imager (OLI) and Sentinel-2 MultiSpectral Instrument (MSI), along with a variety of ancillary datasets to assess fire risk in the Pinelands. Through in-depth meetings, the NJ Urban team created a strong working relationship with project partners at the NJ Pinelands Commission. The Puget Sound Water Resources team partnered with the Pacific States Marine Fisheries Commission Habitat Program to assess methods for identifying signs of eutrophication via remote sensing. The Puget Sound team utilized Landsat 8 OLI and Sentinel-2 MSI as well as available buoy data. The teams' hard work culminated in a presentation of their research during the spring 2018 closeout event. The Alabama – Mobile Southeastern US Disasters team joined Marshall for the closeout event, a unique opportunity for both nodes. Collectively, all three teams presented their research findings to the NASA MSFC and University of Alabama in Huntsville communities. Outside of the office, the spring term was full of team building and social activities to help build relationships at the node.

JPL

California – JPL

Center Lead: Erika Higa; Assistant Center Lead & Geoinformatics Fellow: Kate Cavanaugh; Project Coordination Fellow: Nick Rousseau

Spring 2018 Participants: Eleanor Hunts, Neda Kasraee, Dara Laczniak, Maya O'Brien, Marcella Rose, Lael Wakamatsu

The Jet Propulsion Laboratory node started fresh this spring term with five new DEVELOP participants and one returner. Both project teams continued to lead the way in demonstrating the feasibility of using a combination of NASA Earth observations and Synthetic Aperture Radar (SAR) to create informative end products to their project partners. Everyone came in the term with no knowledge of SAR, but the teams benefitted greatly by having access to great radar scientists at JPL who were willing to share their time and resources and by utilizing the ARSET SAR tutorial. DEVELOP participants at JPL worked tirelessly to process the complicated radar imagery but each have gained exceptional skills in using the SNAP software. The Black Rock Playa Urban Development team was able to meet their partner and conduct a site visit to the study area. The North Dakota & Georgia Agriculture & Food Security team worked on crop classification methods using optical and radar data. The node also attended the 3rd Annual Citizen Science for Conservation in Southern California Symposium to present one of the past term's project highlighting the use of citizen science data. DEVELOP participants joined other JPL employees during the International Women's Day photo opportunity. This term, the node focused professional development areas of open communication and ways to promote positive morale. Throughout the term, DEVELOPers were also able to build relationships outside of the office with team lunches and a variety of social activities.

NC

North Carolina – Asheville

Center Lead: Aaron Mackey; Assistant Center Lead & Communications Fellow: Jonathan O'Brien

Spring 2018 Participants: Andrew Shannon, Shelby Ingram, Michael VonHegel, Caroline Jahn, Daniel Lucas, Laurel Mahoney, Jeshua Pott

The North Carolina node at the National Centers for Environmental Information (NCEI) brought the collaboration of NASA Earth observations and NOAA Climate Data Records to exciting new applications. The Alaska Disasters project created a fire-risk tool utilizing VIIRS data to map snowmelt and fire season management for the Alaska Interagency Coordination Center. The Carolinas Disasters project created a regional analysis of satellite and in situ measurement suitability for extreme precipitation events across the region for distribution by their partner, The Office for Coastal Management, and future application in NOAA's Climate Resilience Toolkit.

The project work was punctuated with various tutorials in python and science communication to expand the participants' technical and professional skills as well as brownbag talks with climate professionals such as paleoclimatologist Eugene Wahl.

Ten weeks of focused work culminated in the Southeast Regional Closeout at The Collider when the two teams demonstrated the value of their work and its immediate applications to both Alaska and Carolina regional decision-makers. The Alaska Fire Risk tool will be used daily by partners to determine when to open the fire season. The Carolina analysis of extreme precipitation across sensors will help partners across the state determine which NASA dataset to incorporate into their models.

These teams benefitted greatly by having access to world-class weather scientists and NOAA NCEI's in-house communications team, who generously offered their time and resources. DEVELOPers at NCEI also participated in team building and social activities outside of work to help foster relationships among team members.

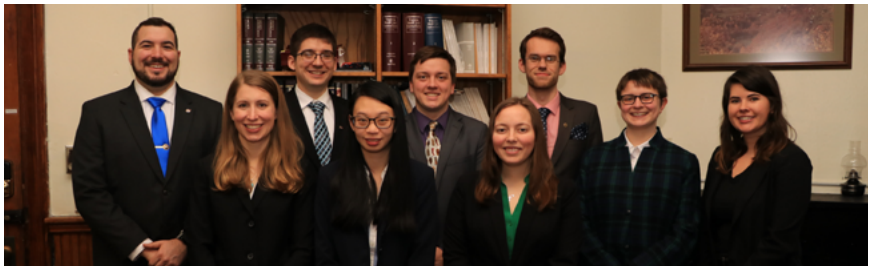
VA

Virginia – Wise

Center Lead: Eric White; ACL & Impact Analysis Fellow: Brooke Colley; ACL & Communications Fellow: Austin Counts

Spring 2018 Participants: Margaret Mulhurn, Manda Au, Nolan Barrette, Jake Ramthun, Mariah Heck, and Devon Burks

This term, the Virginia node hosted an excellent group of DEVELOPers. Supported by three experienced participants and three first-timers, the node was full of creativity, comradery, and dedication. The node conducted two water resources projects centered around drought-prone western states.



The Fremont River Basin team partnered with the National Park Service at Capitol Reef National Park and the Southern Colorado Plateau Network to quantify snow melt inputs to the Fremont River in southern Utah. The team tackled the Python and MATLAB code originally created by the Chile Water Resources team four years prior by adapting and updating the tool for use in their study area. With the up-to-date code, the team hopes that a second term will continue their work in creating a more user-friendly tool that will utilize VIIRS and PERSIANN data sets.

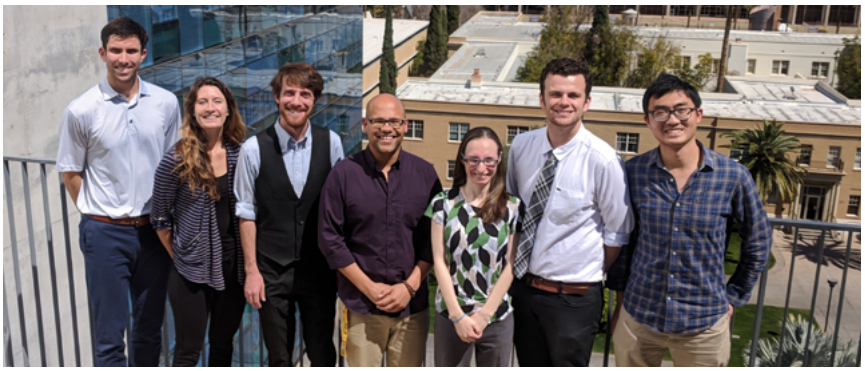
The Mojave Desert Water Resources team set out to correlate precipitation in the Mojave Desert and NDVI values to the movement of bighorn sheep populations. The team partnered with the Mojave National Preserve, the California Department of Fish and Wildlife, Oregon State University, and the Sierra Nevada Bighorn Sheep Foundation to help indicate where bighorn sheep populations graze throughout the year.

AZ

Arizona – Phoenix

Center Lead: Lance Watkins; Assistant Center Lead & Impact Analysis Fellow: Liz Dyer

Spring 2018 Participants: Huntington Keith, Eleanor Dhuyvetter, Dean Blumenfeld



The Arizona node continued to grow their presence and recruitment efforts through classroom visits and attendance at the 2018 Geospatial Career Festival. The Geospatial Career Festival is an event that brings together current and recent students with GIS employers throughout Arizona. The career festival allows student to network and gain a better understanding of the career opportunities in GIS. The AZ Center Lead, Lance Watkins, was also invited to speak on the GIS podcast "Speaking of GIS" with Kurt Towler. Kurt and Lance discussed the DEVELOP Program and some of the recent projects conducted at the AZ node, including Phoenix Health & Air Quality. The Ajax Urban Development team had their poster accepted into the 1st Annual Poster Competition through the Urban Climate Research Center at Arizona State University. The team also plans to submit their work for publication in the journal Urban Forestry and Urban Greening. The Ajax project and AZ node will also be represented at the Great Lakes and St. Lawrence Cities Initiative (GLSLCI) 2018 Annual Meeting and Conference in Ajax, ON.

GSFC

Maryland – Goddard

Center Lead: Victor Lenske; Assistant Center Lead & Project Coordination Fellow: Sara Lubkin

Spring 2018 Participants: Brendan McAndrew, Katherine Hess, Megan Maloney, Gia Mancini, Julia Heslin, Luisa Silva

The Maryland node had a rewarding term filled with technical and professional development. DEVELOP participants had the chance to tour both Goddard Space Flight Center and Wallops Flight Facility to learn about the Spacecraft Systems Development and Integration Facility, Range Control Center, Balloon Program Office, Space Environment Simulator, and mission control for the Earth Observing System (EOS).

The Western Europe Health & Air Quality team successfully concluded their two-term project with another webcast hand-off at the Woodrow Wilson International Center for Scholars. The team was able to incorporate the results from the first

term of the project into Google Earth Engine to demonstrate the feasibility of evaluating mosquito presence in correlation with environmental variables on an open-source platform.

The Kenai Peninsula Ecological Forecasting team leveraged the support of Kenai National Wildlife Refuge and their science advisors at NASA to effectively display areas of treeline rise and wetland conversion. Their results will help guide management efforts on the Refuge as landscape ecologists implement this research into more informed decision-making practices.

Participants attended many exciting presentations in the DC area, including the Esri Federal GIS Conference and a hands-on Google Earth Engine Workshop at Google's D.C. office. The culmination of the node's hard work was presented alongside DEVELOP participants from Langley Research Center at a joint closeout presentation in conjunction with GSFC's DEVELOP Day event, featuring DEVELOP alumni, supporters, family and friends.

CO

Colorado – Fort Collins

Center Lead: Tim Mayer; Assistant Center Lead & Geoinformatics Fellow: Daniel Carver

Spring 2018 Participants: Katie Walker, Kristen Dennis, Anson Call, Gary Olds, Jillian LaRoe, Charles Whittemore

The Colorado node excelled this spring term in multiple avenues. The node took the initiative to strive for stronger NASA connections by virtually connecting with more DEVELOP nodes on a regular basis as well as attending the presentation by Astronaut Dr. Mae Jemison at the University of Colorado Boulder.

The node expanded their technical background by attending several in-depth training opportunities. These included a week-long ARSET training at USGS, technical writing seminars, weekly chalk talks on modeling techniques with advisors, and an intense Google Earth Engine training at the Google's Boulder headquarters.

The node also placed great effort to establish lasting connections and expand the participant's network of scientific professionals. This included conference presentations at the Riparian Restoration Conference, where the Colorado node presented on an entire year's worth of projects. The node's networking opportunities were broadened with several meetings with the USDA, USGS, Minnesota DNR, and ARSET, as well as two close-out events at the Geospatial Centroid and Natural Resource Ecology Laboratory.

In accordance with the effort to expand the participants network and recognize 20 years of DEVELOP, the Colorado node was the first location to host a DEVELOP Day, where the node hosted Dr. Kenton Ross from the DEVELOP National Program Office. The event included a presentation series at the Natural Resource Ecology Laboratory highlighting alumni and the history of the Fort Collins DEVELOP node, a USDA partner seed lab tour, and a joint USGS and ARSET poster session focusing on Fort Collins SAHM modeling projects.

ARC

California – Ames

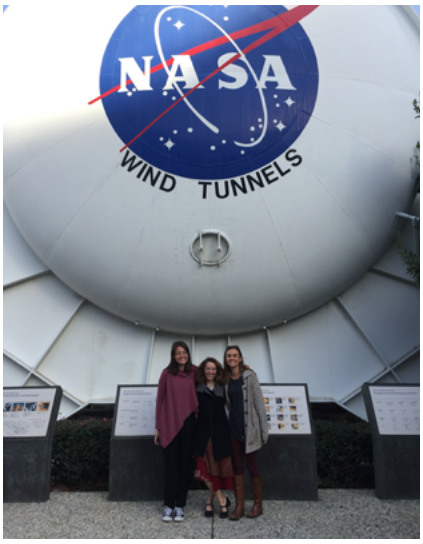
Center Lead: Jenna Williams; Assistant Center Lead & Geoinformatics Fellow: John Dilger

Spring 2018 Participants: Casey Mais, Megan Seeley, Jerrold Acdan, Fadwa Bouhedda, Araina Nickmeyer, Amanda Wasserman

The Richmond Urban Development team were able to meet with project partners from Groundwork Richmond, an environmental and youth serving organization, at Unity Park in Richmond, California. The park is located along the Richmond Greenway, which runs along an old railroad corridor. This corridor has since been removed, but once split the city in half—hence the name Unity Park. The team interviewed Sarah Calderon, the Executive Directior of Groundwork Richmond, and other enthusiastic Groundwork personnel while getting a tour of a beautiful park that wouldn't exist without the hard work done by this organization. These successful urban greening initiatives by Groundwork Richmond are at the heart of what this project worked to assess using satellite imagery. In return, the Groundwork Richmond team

visited the Ames Research Center for the spring term closeout, allowing the DEVELOP team to share the outcomes of the project and more about how NASA Earth Science has an impact on society.

The Ames cohort attended numerous professional and personal development events this term. Ames Research Center hosted a variety of talks ranging from ethics of artificial intelligence and big data to busting stereotypes. Additionally, networking and social



events were held both on and off campus. This allowed participants to converse with other Ames personnel as well as the greater scientific community in the Bay Area.

AL

Alabama – Mobile

Center Lead: Farnaz Bayat; Assistant Center Lead & Impact Analysis Fellow: Danielle Quick

Spring 2018 Participants: Haley Ritger, Larissa Robinov, Dionne Blanks, Madison Murphy, Jacob Armistead

The Mobile node had a team of five incredible, enthusiastic, and hardworking participants who worked diligently on the Southeastern US Disasters project to generate end-products beneficial to the partners from the US Forest Service, Eastern Forest Environmental Threat Assessment Center. The team worked on developing a methodology to detect the early outbreaks of bark beetle in Oconee National Forest, GA using Earth observation data.

The team utilized Landsat 8 OLI and Sentinel-2 MSI to create Forest Disturbance Map Products and assess the feasibility of using these observations to aid more timely deployment of forest management intervention practices.

The team dedicated additional efforts to publish the project outcomes in Remote Sensing of Environment, an interdisciplinary journal, to further share the project's accomplishments to the public. During the term, the team participated in the Balmoral Group Remote Sensing and Ecosystem Services workshop supported by the NASA Applied Sciences Program and The Nature Conservancy in Spanish Fort, AL, and communicated their project with different local and government

organizations . Additionally, the team joined the DEVELOP MSFC node for the closeout on March 30th to present the project's results at the Marshall Space Flight Center.

LaRC

Virginia – Langley

Acting Center Leads: Amanda Clayton & Lauren Childs-Gleason

Spring 2018 Participants: Kaitlyn Carter, William Frier, Jared Ehmer, Michaela Britt, Joseph Ladd, Sarah Phillips

The NASA Langley node hosted six participants this term. The Amistad Ecological Forecasting project benefited from the knowledge of two DEVELOPers' previous work experience with the National Park Service (NPS) when it came to mapping invasive giant cane within Texas's Amistad National Recreation Area.

We had a strong partnership with the NPS, and the team was able to provide classified and persistence maps of giant cane over the past two decades to aid park representatives with invasive species management strategies. For the second time since spring 2017, Langley partnered with JPL on a joint node project. The methodology using SAR and multispectral data to identify crop fields will be passed along to the North Dakota and Georgia Agriculture II team, as the project continues at Langley during the summer term.

The teams had the opportunity to tour facilities at three NASA centers: the Wallops Flight Facility, Goddard Space Flight Center, and our own Langley Research Center. During week 10, DEVELOPers presented their work locally to Terry Brown, Superintendent of the NPS's Fort Monroe National Monument, Langley scientists at a poster session on center, and at the first-ever Goddard & Langley joint close-out in Greenbelt, Maryland.

GA

Georgia – Athens

Center Lead: Caren Remillard; Assistant Center Lead: Suravi Shrestha; Communications Fellow: Austin Stone

Spring 2018 Participants: Emad Ahmed, Matthew Becton, Marie Bouffard, Shannon Duffy, John Langstaff, Candice Lee, Charles Lu, Emily Pauline, Sam Tingle

The Georgia node completed its 15th term this spring and initiated activities in recognition of DEVELOP's 20th anniversary! This included participating in the North Carolina node's DEVELOP Day and Southeast Regional Closeout presentation, attended by Georgia and Wise County participants. Several DEVELOP alumni and participants attended the annual ASPRS conference held in Denver, Colorado. Georgia's Lead Science Advisor, Dr. Marguerite Madden, was recognized by Esri for Best Paper in GIS alongside her colleagues at the ASPRS 2018 Awards Ceremony. The Georgia Energy II project will be presented at the upcoming AAG and Esri Southeast User Conference this spring.

The Miami Beach Urban Development team's project partner is interested in how deep learning can be applied to assess water quality patterns in Biscayne Bay in South Florida. In response, the team created a code training a neural network model to predict future water quality measurements based on available data. This was the first time a DEVELOP team at the Georgia node incorporated deep learning into a project. Finally, the Georgia node participated in several inter-node activities this spring, joining a virtual meet-up with the Wise County and NCEI nodes.

MA

Massachusetts – Boston

Center Lead: Kimberly Johnson

Spring 2018 Participants: Zachary Bengtsson, Bogumila Backiel, Ruizhe Guo, Sydney Neugebauer

The Massachusetts node had an excellent first term at Boston University, with four new DEVELOPers. The team participated in several tutorials at the beginning of the term to ensure everyone had the same understanding of the software required for the project.

The Plum Island Water Resources team used Landsat 8 OLI and Sentinel-2 MSI Earth observations to determine sediment concentration and distribution in the Plum Island Estuary, located just 45 miles north of the node office. The team also attended the Plum Island Estuary LTER Annual Meeting in March, hosted in Woods Hole, MA. At the meeting, the team was able to meet with project partners and learn about research being conducted around Plum Island and other salt marshes.

A visit from DEVELOP National Science Advisor Dr. Kenton Ross was another highlight. The team also virtually participated in inter-nodal activities with Georgia to further build relationships with DEVELOP at-large.

Despite significant weather events in the northeast, the team successfully completed their project and presented final outcomes to a remote sensing class taught by the node's science advisor.

VIRTUAL POSTER SESSION | COMPETITION SPRING 2018 WINNER

Congratulations to the Kenai Peninsula Eco Forecasting team at Maryland – GSFC for their winning video, "Alaskan Afforestation: Mapping Wetland Loss & Treeline Rise."

TEAM MEMBERS: Brendan McAndrew, Megan Maloney, Katherine Hess, Helen Plattner

Watch all the spring 2018 project videos online on the NASA DEVELOP YouTube channel, linked here!

DEVELOPer OF THE TERM

BRENDAN McANDREW was a standout leader throughout the spring term at Goddard. Passionate and committed from the start, Brendan embraced the role of Project Lead and dedicated himself to all aspects of his project and the entire DEVELOP Program. He went above and beyond in maintaining clear communication with his project partner and science advisors as he worked tirelessly with his teammates to deliver exceptional results. A natural leader, Brendan exemplified DEVELOP's core values, seeking innovative methods to solve problems with an infectious determination. He fostered collaboration not only within his team but throughout the entire office, providing essential support in all capacities. Brendan's enthusiasm was relentless, as displayed through his drive to be the first to volunteer no matter the task. He was always eager to provide feedback and assistance in support of his fellow DEVELOPers while always seeking means of improving upon his own work and skillset. Overall, Brendan embodies the spirit of DEVELOP and will certainly continue to be an asset as both a leader and motivator.

SPRING 2018 NOMINEES

Jerrold Adcan
California – Ames

Patrick Frier
Virginia – Langley

Larissa Robinov
Alabama – Mobile

Huntington Keith
Arizona – Phoenix

Dane Coats
Idaho – Pocatello

Andrew Shannon
North Carolina – Asheville

Christine Evans
Alabama – Marshall

Neda Kasraee
California – JPL

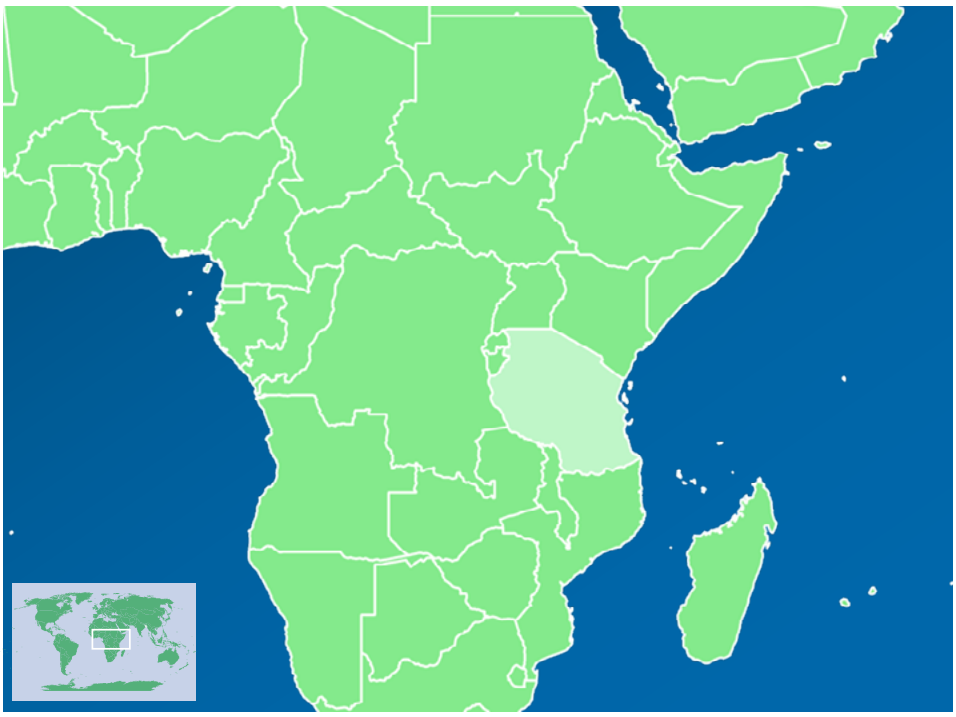
Jake Ramthun
Virginia – Wise

Katie Walker
Colorado – Fort Collins

Zach Bengtsson
Massachusetts – Boston

Emad Ahmed
Georgia – Athens

DEVELOP Alumni ENGAGEMENT



SPRING MAPATHON

WHO: DEVELOPers and alumni from multiple nodes volunteered remotely across the United States.

WHEN: February 1, 2018

WHAT: Mapathon participants used OpenStreetMap to trace and record buildings, roads, and footpaths in Tanzania for humanitarian outreach.

ALUMNI SPOTLIGHTS

Matthew Little

Matthew Little spent summer 2011 as a participant at Ames Research Center. Post-DEVELOP, Matthew became the District Hydrologist at the Hiawatha National Forest in Michigan. Using his GIS skillset, he was in charge of mapping sensitive soils, maintaining trail structures, and researching effects of timber harvesting. This summer, Matthew will begin a masters program at East Carolina University. "The DEVELOP program prepared me for graduate studies by building my self-confidence, instilling discipline in my work habits, and providing experience in a fast-paced research setting," Matthew said.

Alec Courtright started at the DEVELOP node in Asheville, North Carolina in fall 2015 after graduating from the University of South Carolina. After his final term serving as Center Lead last fall, Alec began working with Global Science & Technology Inc. at NOAA's National Centers for Environmental Information. "My advice to current DEVELOPers or DEVELOP alums is to establish and utilize the connections available to you through DEVELOP. Whether you simply find new friends or a career through the program, know that the DEVELOP family is large, diverse, knowledgeable, and unbelievably supportive,"Alec said.

Alec Courtright

RECOGNIZING 20 YEARS OF THE NASA DEVELOP NATIONAL PROGRAM

Throughout 2018, each node is hosting a "DEVELOP Day" featuring visits from the National Program Office, alumni, and special guests. This spring, GSFC, CO, and NC held DEVELOP Day events. Stay tuned for the full summer DEVELOP Day schedule!

Fort Collins was the first location to launch DEVELOP Day, where the node was visited by Dr. Kenton Ross, DEVELOP's Lead Science Advisor. The node hosted multiple events, including a joint USGS and ARSET poster session focusing on NASA DEVELOP SAHM modeling projects, a tour of the USDA National Genetics Seed Laboratory, and a presentation series within the Natural Resource Ecology Laboratory on the Colorado State University campus. Following the program was a social event with members of the National Program Office, partners, participants, and alumni.

The DEVELOP node at GSFC joined with alumni, the National Program Office, and science advisors in recognizing 20 years of DEVELOP during their joint closeout with LaRC. The spring 2018 teams presented their projects, providing opportunities for discussion amongst peers and mentors alike. After the presentations, participants, alumni, and science advisors participated in a social event. DEVELOP Day provided the opportunity to reconnect with many local alumni and share past and current successes as well as recommendations for moving forward.

The Southeast Regional Closeout and DEVELOP Day brought together participants from the Georgia and Virginia nodes to North Carolina to share their work in applied earth science at the Collider in Asheville. Dr. Kenton Ross, Lauren Childs-Gleason, and Amanda Clayton from Langley joined in to recognize contributions to the continued success of DEVELOP at NCEI and throughout the southeast. The day allowed teams to share DEVELOP experiences and expand their professional networks.

ORDERING GEAR? The DEVELOP webstore provides embroidered gear year-round. Order individually or as a node at tinyurl.com/gs6oq8h. Orders processed monthly.

INTERESTED IN RECRUITMENT? 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? Contact the DEVELOP Communications team.

HAVE A JOB OPENING? Contact DEVELOP.Communications@gmail.com to get the word out! Or, post the opportunity to DEVELOP's LinkedIn group and the Once a DEVELOPer, Always a DEVELOPer Facebook page. Both are private groups just for alumni—if you're not yet a member, join today!

SUMMER EVENT CALENDAR

May 21	Fall application window opens
June 4	Summer term begins
June 19	DEVELOP Day @ Mobile, AL DEVELOP Day @ NASA Ames, CA
June 20	DEVELOP Day @ Athens, GA
June 21	DEVELOP Day @ NASA Marshall, AL
June 29	Fall applications due
August 1-2	AESAS, NASA Headquarters
August 8	DEVELOP Day @ Wise, VA
August 10	Summer term ends
September 10	Fall term begins

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2018 marks DEVELOP's 20th anniversary. Multiple events will be held to recognize this milestone, so be sure to watch DEVELOP's social media pages throughout the year!

Team photos, project imagery, & more!

DEVELOP National Program: Public outreach; **Once a DEVELOPer, Always a DEVELOPer**: job posts (anyone can post!)

VPS and Promotional Videos

Articles & events: tweet to @NASA_DEVELOP or #NASADEVELOP (we'll tweet back!)

Job posts, skills & tips, important events.

Email us! We love to hear from you.