



CONNECTIONS

Linking EEO, Diversity and Science

Issue #32

EEO/Diversity Newsletter for NOAA Research

JULY 2016

Tribal youth leverage traditional knowledge to combat climate change

Contributed by Peg Steffan and Bob Rabin

The second annual Inter-Tribal Youth Climate Leadership Congress was a partnership between the U.S. Fish and Wildlife Service, Bureau of Indian Affairs, NOAA and other federal agencies. The Congress was held at the U.S. Fish and Wildlife Service's National Conservation Training Center in Shepherdstown, West Virginia, July 5 - 10, 2016. Eighty-seven Native American, Alaska Native and Native Hawaiian students between the ages of 15 to 18, participated in a week-long youth congress to learn about climate change issues in indigenous communities, federal agency efforts, and most importantly, how the students can help their communities become more resilient in the face of these challenges.

Students attended a career fair and workshops to learn about climate change from the National Climate Assessment and how a changing climate is impacting native environmental health and ways of life across the country. Several workshops were provided by Peg Steffen (NOAA/NOS), Frank Niepold (NOAA/OAR), Bob Rabin (NOAA/OAR) and Emily Cloyd (USGCRP). Peg provided the keynote address, Climate Futures, to the Congress.

Bob Rabin served as a faculty member. During group sessions, he helped facilitate discussions on how the youth can use the leadership skills and technical climate knowledge they develop to address issues of climate change through engaging tribal leaders, school officials and their peers in their home communities. In collaboration with members of the USGS South Central Climate Center, Bob conducted a "hands-

on" workshop on fire climatology which explored how satellites are used to detect wild fires and thunderstorms, and to observe the impact of land use on temperature.

All students delivered group presentations with innovative ideas aimed to promote ecological and cultural resilience in their communities. Many of the students stated they now feel more confident discussing climate issues with their tribal leaders, peers and communities and hope to make a difference advancing climate change initiatives back home.



Bob Rabin assists students with measuring the temperature of the fires using the infrared thermometers. A blow dryer was used to demonstrate the effect of winds in fire intensity. There were four different fire scenarios illustrating the effects of different tree density and proximity of trees to homes! Photo by Alejandro Morales/USFWS.



The Inter-Tribal Youth Climate Leadership Congress and the Sampson Brothers join for a group photo to celebrate their climate change research. Photo by Alejandro Morales/USFWS

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

GFDL

Alyssa Stansfield is from Wall, NJ and attends Rutgers University in New Brunswick, NJ. She will be a senior in the fall and is a double major in Meteorology and Marine Science. She enjoys playing volleyball, going to the beach, reading, and hanging out with friends and family.

I am working with Dr. Xiaosong Yang on a project that looks at ENSO's effects on extra-tropical storms and weather extremes in the Northern Hemisphere. I am also exploring how climate change may affect extra-tropical storms and weather extremes in the future. The most exciting part of my internship is being able to interact and collaborate with so many accomplished scientists at GFDL and learn what their everyday lives are like at work. I heard about this internship through the Cooperative Institute for Climate Science (CICS) website.

I want to attend graduate school for atmospheric science, and then get a job as a research scientist either in the private or government sector.

I have always considered working for a Federal agency as a serious career option. My experiences at GFDL have been amazing, and this internship has really motivated me to research graduate schools so that I can obtain an advanced degree in atmospheric science and possibly work for the government in the future.

Working at GFDL has not only given me a glimpse into the work that is being done by the scientists, but it has also given me the opportunity to utilize GFDL's advanced climate models and further my computer programming skills. This internship is a great opportunity for undergraduate students who think that they may want to pursue a career in scientific research.

Ariek Norford is from Philadelphia and currently attends Franklin and Marshall College. She is an Environmental Science major.



GFDL Interns included four NOAA Hollings Scholars and nine interns through the CICS Research Internship Program. Alyssa: front row, third from left; Eliza: front row, 4th from left, Ariek: front row, sixth from left, Miguel: back row, first from left.

I heard about the internship through my college's Department of Earth and Environmental Sciences. I am working on comparing satellite data to the results of GFDL's ESM2M. I am part of the Ocean Biogeochemistry research group. I have gained a much better understanding of ocean biogeochemistry and learned how to use programs such as ferret and python, both of which I did not have the opportunity to do at my college.

I intend to go into conservation ecology. After graduating college, I intend to go to graduate school and then work as an ecologist for an international NGO. I would like to work more on the community level where I can be more involved in the application process of ecological research.

I would recommend this internship to mostly students majoring in oceanography or atmospheric science and who are interested in working for the federal government.

Eliza Dawson is from Port Townsend WA, a small town on the Olympic Peninsula. She attends the University of Washington majoring in Atmospheric Science, with minors in Oceanography and Applied Math. Outside of

academics, she is an avid rower on the University of Washington Crew Team. She loves anything outdoors including hiking, camping, backpacking, climbing, sailing, and skiing.

As a NOAA Hollings scholar, I was very excited to come to GFDL to learn more about climate modeling at a top-notch scientific research laboratory. I am studying the impact of dust on climate with an emphasis on the Intertropical Convergence Zone (ITCZ). Dust is a key forcing agent in climate and records have shown that dust concentrations vary a lot over time and between hemispheres. I have found that dust load asymmetries can generate an interhemispheric transfer of energy through the atmosphere and ocean and an associated shift in precipitation along the ITCZ. The modulation of the ITCZ due to dust variability can result in a positive feedback, amplifying or damping dust load. Such a feedback may have amplified the Sahel drought during the 70s and 80s. Similar implications could occur in the future due to climate change induced droughts. This internship has allowed me to gain hands on experience doing climate research and learn about future career paths in climate science. I would like to pursue a graduate degree in climate science. I am also

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

GFDL Interns (Continued)

very interested in the climate science-policy interface and would like to gain experience in communicating and helping people understand the pertinent scientific issues we face as a society.

Interning at NOAA has been a great opportunity and I would definitely consider a career with a Federal Agency in the future.

This internship has allowed me to gain first-hand experience working in climate science which has been a great way to learn more about the field.

Miguel Moravec grew up sailing in the bay town of Annapolis, MD. His nautical upbringing led him to enroll in the local US Naval Academy, where he studied English Literature and Naval Science for two years before deciding to pursue a direct commission into the US Coast Guard via Vanderbilt University in Nashville. He now studies Earth Science and Communication of Science and Technology. Regardless of his residence

in land-locked Tennessee, he continues to sail avidly with his college club team and otherwise find ways aboard sea-going vessels. He just completed the Annapolis Bermuda Ocean Race before arriving at GFDL in June, and will be returning to sea on an ice breaker in August.

At Vanderbilt, I really enjoyed a climate physics class in which we generated our own climate models using a program called The Educational Global Climate Model or EdGCM. When my academic advisor sent out an email detailing an opportunity to work with NOAA on actual climate models, I couldn't pass up the chance and I was fortunate enough to be accepted to CICS. I have been working with Seth Underwood and his team to automate data analysis and figure generation for parts of the North-American Multi-Model Ensemble, specifically focusing on subsurface temperature anomalies and atmospheric variations around the Pacific Ocean. The scripts I'm writing utilize python/pyferret to assimilate many key functions of data analysis into one convenient program. The

scripts will be integrated into the standard post-processing for the NMME, and will be executed automatically even after I've left GFDL for school in the fall.

I intend to start my career as an Ensign in the US Coast Guard, although after my experience at OAR, I would also be interested in applying to NOAA Officer Corps for the sake of getting out in the field and collecting some of the data that gets returned to the lab here. Either way, both professions maintain an environmental protection mission and I could see myself doing satisfying work in either service.

Aside from affording me real world experience in coding and data analysis, working side by side with professional scientists has left me with a much more confident perspective on what it means to lead a career in climate-related fields. Also, working with actual observation data/extremely high-resolution GCM data is really cool.

NATIONAL SEA GRANT PROGRAM

Kammie Tavares is from Mākaaha, O'ahu in the state of Hawai'i. She attends the University of Hawai'i at Mānoa, working to earn a BS in Global Environmental Science. A few of her hobbies are hiking, drawing, and learning new things.

I am an Educational Partnership Program with Minority Serving Institutions (EPP/MSI) Undergraduate Scholar, working in the National Sea Grant office with my mentor Rebecca Briggs. My work involves learning about the anchialine pools (or loko 'ōpae 'ula) in West Hawai'i and creating outreach material for the local and general community. What excites me most about my project is the opportunity to tell a story that is not told enough. From this internship, I will not only leave smarter about anchialine pools but also wiser as a student preparing for my career.

I have been afforded many opportunities in my internships, volunteer, and life experiences to know that my heart is in work that benefits the environment. Prior to my internship with NOAA, I was primarily out in the field with my hands in the earth. NOAA has given me the opportunity to see the work from a different perspective, and I think that I could enjoy doing both.

Although I was not able to work in a laboratory, I did have my own cubicle. Sitting at a desk for an extended period of time was very new to me but with the right type of motivation I could do it again.

NOAA is an eye-opening experience with a wonderful agency, and there are many great opportunities of which to take advantage.

If you'd like to learn about anchialine pools, feel free to email me kammiedominique.tavares@noaa.gov

and I can share the materials that I made this summer. I promise that they're interesting!



Kammie Tavares, Global Environmental Science major

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

GLERL



Alexandre Assuncao is from Brazil and attends the Federal University of Minas Gerais. He studied for one year at Wayne State University in Detroit where he majored in Environmental Engineering. His hobbies include volleyball, soccer, hiking and camping.

The project I was hired for is called Great Lakes ice data ArcGIS scripting. It involved writing Python scripts to automate a process for making daily ice concentration maps. Those maps are created to provide information to a broad audience of users and decision makers. I heard about the internship from my advisor at Wayne State. I will take all the knowledge I acquired from my mentors, meetings, workshops and other coworkers.

Alexandre Assuncao,
Environmental Engineer

My short future plan is to pursue a Master's degree in some field related to water, such as, hydrology. My long future is to work in a Federal agency or public agency with something related to my expertise area. Because of the GLERL experience, I love the idea of doing research to provide information to the population. The people at GLERL were nice and they integrate everyone into their community. I would totally recommend opportunities at NOAA, because the work is challenging in a Federal Agency and there are so many things that you can experience in the facility. GLERL is busy with a broad range of research topics, and I could learn a little bit from all of them by attending meetings, workshops and conferences.

I would like to mention that before this opportunity people would ask me if I would like to come back to the U.S. My prior answer was no, probably because of the hard times in the university, the struggle with the language, the cultural shock and some adaptation issues. However, I have changed my answer. I am still not sure why, but I feel more comfortable talking with people, experiencing new things and learning more about the culture. Therefore, I would like to thank everyone involved, my mentors, my coworkers and the friends I made here in the laboratory. I really appreciate the GLERL environment.

Etienne Herrick has been a resident of Michigan for 13 years. She is entering her third year as an environmental studies major at the University of Michigan with a



food systems minor. Her primary interests lie in sustainable systems, environmental health, and conservation ecology. She enjoys venturing out into the daylight for some mountain biking, hiking, and other vitamin D-rich activities. She also manages a produce stand – Student Food Co – on campus during the academic year to help reduce food insecurities among students and promote sustainable, healthful living.

Etienne Herrick, University of Michigan

I have been working under the mentorship of Kim Kulpanowski – GLERL's Environmental Health and Safety Officer – to create and implement an updated universal waste management program for the Ann Arbor, MI laboratory and the Lake Michigan Field Station in Muskegon, MI. I learned of the opportunity to complete a fellowship at GLERL through U of M's Green Career Fair, hosted by the School of Natural Resources and Environment (SNRE),

where one of GLERL's cooperative institute partners, CILER, is housed. The experience has served me well in more ways than one; not only have I gained invaluable experience working in a professional setting on a project that involves collaborative efforts on many fronts, but I have also been able to fulfill an important academic requirement for nearing graduation. In an effort to better prepare students for life beyond college, environmental studies students must complete a "Practical Experience" course, which I am currently fulfilling under the guidance of Tom Johengen, U of M CILER Research Scientist and Director of Academic Programs. I will ultimately be completing a research paper examining the progress and results of my universal waste project at GLERL to earn academic credit for the experience, and with Tom's knowledge of research processes and experience in academia. I am confident that I will be able to translate this meaningful experience into a detailed piece of scientific literature.

While creating a universal waste program for GLERL, I have been exposed to important areas like recycling, toxicology, and other human-environment health interactions, further sparking my interest in environmental health. I also have great interest in pursuing more education in sustainability and related ecological issues, a well-established field of study at U of M's SNRE. My goal is to pursue a dual-master's degree at U of M through the School of Public Health's Environmental Health program and SNRE's interdisciplinary degree framework. Together, those programs will hopefully allow me to build a career around exploring the interrelated health of humans, other creatures, and the environments they live in.

Despite the challenges that often arise when attempting to navigate governmental procedures, my experience at GLERL has been one of great value. It has fostered much personal growth and expanded my understanding of what it is to work in a truly welcoming, helpful, and supportive environment. With a team driven to conquer whatever new challenges may arise and motivated by the benefits to society and the planet that many projects have to offer, there is always a fulfilling

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

GLERL Interns (continued)

sense of purpose surrounding the work at GLERL, and NOAA at large. However, I must say that the presence of CILER affiliates adds another layer of strength and complexity to GLERL; combining NOAA's governmental authority to thoroughly implement projects and CILER's academic orientation that allows for executing sound research that serves as the backbone of those projects creates a reliable, holistic approach to science at GLERL. I would be happy to continue on with a career in such a positive, forward-thinking atmosphere.

It was clear that everyone at GLERL sought to make the experiences of the summer fellows as rich and meaningful as possible; we were all encouraged to attend seminars, converse with and learn from our colleagues, and participate in whatever other activities might be going on in the building. Understanding that transitioning from college to career is a complicated journey with many paths to choose from, many people at GLERL were happy to share their own experiences and offer helpful guidance to my peers and me. Their willingness to engage and share with us made it clear that it is not only the content of the work that makes for a satisfying job, but also the quality of the people surrounding and supporting you.

PMEL

Gabby Kalbach is from Stockton, CA. She is a rising junior at Cal State Monterey Bay with a major in Marine Science. She loves the Monterey Bay area and spends a lot of time exploring on hikes and scuba dives.



Gabby Kalbach, Marine Science Major

This summer I have an internship at the Hatfield Marine Science Center in Newport, OR working in the NOAA/PMEL Acoustics lab. I want to pursue a career in ocean engineering, and this internship is perfect for me because I am spending time around gliders, hydrophones, and the engineers who build them. My work this summer is to analyze acoustic data collected by a glider off the continental shelf of the Eastern Pacific. I found this internship thanks to an undergraduate research advisor at my university, who suggested I look through the NSF website. This internship has given me meaningful relationships with my mentors and peers, and the knowledge I've gained thus far will set me apart as a researcher and a student. I have also gained insight into what it is like to work in a federal facility, and I see firsthand how

inter-connected the staff is. There is a very strong sense of community here and I am grateful to be a part of it, so I would absolutely recommend a NOAA internship to other students. I have been given tremendous amounts of support from everyone I have worked with this summer, while also having the tools to work independently and truly feel like a working part of the team. I am incredibly appreciative to NOAA and Oregon State University for granting me such a unique opportunity.

Meghan Shea was born and raised in West Chester, PA. She is studying Environmental Systems Engineering at Stanford University with a focus on coastal systems. When not studying or working on research projects, you can find her playing steel pan with Cardinal Calypso, planning environmental events with Students for a Sustainable Stanford, taking photos, or searching for opportunities to go diving.

I am working with Drs. Simone Alin and Richard Feely to analyze several years of carbonate chemistry from a shellfish hatchery on Puget Sound, an internship I found through the NOAA Hollings program. This project is particularly exciting to me for a lot of different reasons—from travel opportunities to applying skills I've learned in my classes. I was able to participate in the 2016 West Coast Ocean Acidification Cruise, joining for the second leg from San Francisco up to Seattle. I also got to visit the



Meghan Shea, NOAA Hollings Scholar

Hakai Institute in Campbell River, BC to work with a collaborator on the project. But even more exciting than the travel, I've been able to use skills from my computer science classes on my first big, real dataset. It's been incredibly rewarding to focus on the processing and analysis of data, as most of my previous work has focused on laboratory and field experiments. I will take away a newfound appreciation for MATLAB, a growing love of coding, and a deep appreciation for the time and effort required to process the enormous data sets that NOAA and other organizations are collecting.

I plan to complete a PhD in biological oceanography with the hope of finding a career that allows me to strike a balance between conducting ocean research, communicating my results, and integrating those results into policy.

It has been really exciting for me to see the focus on interdisciplinary work and collaboration at NOAA, as well as the deep ties between the research being

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

PMEL Interns (continued)

done around the country and the policies being created in Washington, D.C. I have noticed many differences and similarities between research at PMEL and research at academic institutions, and I think that my new understanding of how research functions in both spheres has really influenced how I am thinking about future careers. Plus, opportunities like the NOAA Hollings Program make internships at NOAA really accessible and valuable.

Lea Chomiak is from Frederick, MD, and a senior at the University of Miami studying Marine Science, Chemistry, and Meteorology. She enjoys playing tennis, scuba diving, road-trips, sailing, biking, and hiking!

I am working with the Arctic group focusing on the source and fate of excess oceanic heat in the Chukchi Sea, north of Alaska. Through use of new technology an autonomous profiling float that collects temperature profiles as it travels through the water column, we are able to observe the thermal structure of the Chukchi region through the 2016 summer ice melt season. This year has already set the record for the lowest winter ice extent, and is on track to break the 2012 record of the summer ice minimum in September.



Lea Chomiak, University of Miami

The depletion of multiyear ice is causing a delay in the autumn ice formation, ultimately affecting climate and weather patterns both locally and throughout North America. The data observed over the course of my internship has been very interesting. We have observed new features in the region previously undocumented, and it has been a blast learning about the Arctic region as a whole and its key role in climate. Being a 2015 Hollings Scholar, I chose to pursue my NOAA internship at PMEL because of the fitting research to my interests of ocean circulation and

atmospheric interaction. Having focused primarily on the biogeochemistry and ocean circulation in regions of the South Pacific, I came here wanting to try something new, and it has been a rewarding, learning experience. I have been introduced to new data processing systems, met a plethora of wonderful scientists, and am excited to be a part of this Arctic study during such a crucial time.

I would love to explore options of educational science through use of hands-on applicable research with the programs that deeply solidified my interest in oceanography, so that I can be of influence to someone else just as they were to me. Other routes include going to graduate school, of course, to pursue a masters in physical oceanography. Furthermore, I would jump at the chance to work with NOAA or with the Navy on-board oceanographic research vessels. Many options - we will see where life takes me!

Despite the constant crunch to write proposals and receive funding, I believe work does not go unseen in Federal agencies, and scientists are greatly needed to work alongside the government in these modern times. NOAA is the leader in all ocean and atmospheric research, and it has been a great opportunity working with them this summer! The colleagues I've met will last throughout my career, and will definitely help me to open doors in my near future. It is very satisfying to see the work you've done incorporated in great studies, and to see your contribution shared with the rest of the

world. My experience with NOAA thus far has definitely challenged my interests and opened doors to new things. I'm very thankful to have received this opportunity to partake in awesome research and experience the Arctic region in person!

Allison Hogikyan is from Ann Arbor, Michigan, and goes to University of Michigan majoring in Climate Science. Her hobbies include swimming, running, biking, just being outside, and going to plays and concerts.

I am learning about the albedo of the ocean surface. This is used to provide calculated net insolation into the surface layer of the ocean. The old net shortwave



Allison Hogikyan, Climate Science major

data product used albedo from the ISCCP satellite project, and I am switching over to use data from the CERES satellite project. Then, I'm comparing the albedos from ISCCP and CERES, and comparing albedos at the locations of buoys KEO and PAPA. What excites me most is seeing how such a minute piece of the puzzle can inform our understanding of air-sea interactions on a larger scale. I heard about the Hollings Scholarship from a professor at my school, when I asked to learn more about her research. This is my first office job, and my first research project that will have a defined ending. I will take away a better understanding of the variety of opportunities that are available in ocean research, and a lot of confidence in my ability to do research!

I want to do something that gets me talking to a variety of different people, and hopefully teaching some. I am not

STUDENT INTERNS SHARE MEANINGFUL EXPERIENCES AT OAR

PMEL Interns (continued)

attached to any particular job, but am excited to see what happens! I enjoyed working at PMEL because all the people here were very nice and curious. I would certainly consider a job with a Federal agency, but there are a lot of things I'm considering doing and I cannot yet say whether the government will have the best opportunity. I would recommend an internship to other students. It is a wonderful way to get connected with other students with similar interests, as well as learn about career opportunities. Talking to people and learning what everyone else is doing and why is probably the best way to feel confident deciding what to do after graduation. In addition, the scholarship can send you anywhere in the country, and the research experience gained is invaluable if you decide to apply to graduate school (or at least something science-based). I'm very grateful to NOAA for the opportunity to have a real internship in science. My friends in traditional Engineering fields had an easy time finding paid internships, and it is very hard to find the equivalent for science.

ESRL

Tony Hurt was born and raised in Milledgeville, GA. He is currently an undergraduate student at Jackson State University in Jackson, MS, majoring in Meteorology. His hobbies include fishing, watching and playing sports (particularly football, tennis, and table tennis). He spends quite a bit of his free time perusing through weather and other science-related material wherever he can find it.



Tony Hurt, Jackson State University

I am a first-year protégé in the SOARS program, and lucky enough to have been assigned NOAA. I am in PSD under Dr. George Kiladis and Dr. Naoko Sakaeda, studying the relationship of El Niño & La Niña to the diurnal cycle of rainfall over the equatorial region of the central and eastern Pacific Ocean. I'd probably have to say that the most exciting aspect of the internship is the opportunity to work one-on-one with great scientists who

are also great people, and to learn from the top professionals in the field. These are people whose research and publications I've read and studied over the years, so personally getting to know and work with them represents a remarkable experience. I was introduced to Dr. Rebecca Batchelor, of the SOARS program, at the AMS meeting this past January in New Orleans by a professor of mine at Jackson State University. I was encouraged to apply following that, and the rest is (awesome) history. Perhaps the main thing that I will take away from the internship is the experience it's given me on the structure and procedure of research. It goes a long way in providing valuable tools that will be a great asset for future research and career development. The relationships that I have built while here have also been wonderful, and I look forward to continuing to build on them.

Originally, I always aspired to be an operational forecaster, particularly for the National Weather Service. The majority of my time in the Navy involved operational forecasting. However, following this summer's experience, taking a deeper look into research seems warranted. A career with a Federal agency has long been a desirable choice for me, and my experience here further supports that notion. I really have an appreciation for the work environment and people, and its atmosphere supporting the continual quest for answers to the earth and universe is one that I find incredibly inspiring.

Any students within this field owe it to themselves, that if given an opportunity such as this, to take full advantage of it. It has been an unimaginable experience, and has enlightened me more on what I want out of my career, but even more about what I want out of myself as a future atmospheric scientist.

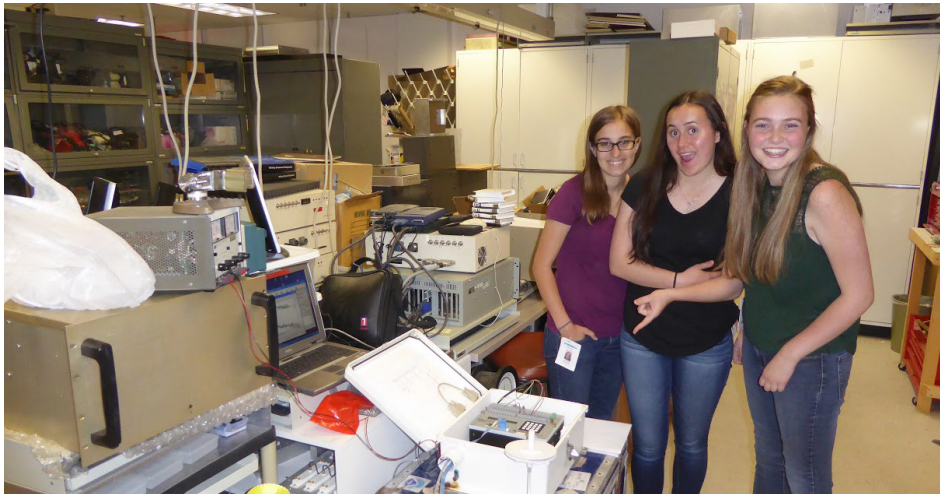
My interest in weather began after I witnessed a waterspout from a cruise ship when I was six years old. The fear from the waterspout sparked an investigation to learn more about them, which then led to an interest, which leads to now...I spent nearly eight years in the Navy as an Aerographer's mate, which primarily focuses on meteorology and oceanography. My most interesting duty stations were Greece and Hawaii, and most interesting weather phenomenon experienced (haboob) was while deployed to Kuwait. I have also worked for NWS WFOs in Jackson, MS (September 2015 - current), Peachtree City, GA (December 2015), and Shreveport, LA (June - July 2015). The experience gave me a tremendous positive influence to work for NOAA.

Elizabeth (Elly) Bonnie is from Denver, CO and attends East High School. She will be a junior. The STEM field has always been her main focus. Conducting experiments and learning about science is exciting to her. She loves to hike, bike, and follow and play sports. She also enjoys playing the guitar.

I am working with Paul Johnston, a radar engineer, in PSD. I have learned to re-calibrate barometers and take different pressure readings at a variety of altitudes. I love going out into the field and being outside. I have learned how to use new tools and new methods of efficiency. I heard about this internship from my DPS school in their Engineering Career Connect program. There are many benefits that I will take away from this internship, including a greater understanding of the work experience and a more in

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

ESRL interns (continued)



ESRL interns Maggie, Elly and Riley, Denver Public Schools (DPS) high school students.

depth synopsis of the environmental engineering field.

It has always been a dream of mine to help people in any way that I possibly can. The STEM track is a strong candidate for my career path. I would love to go into biomedical engineering and make a difference.

I would consider a career with a Federal agency. I enjoy the structure and organization that the company conducts. Also, I think the manner in which they handle their employees is superb, and everyone seems ecstatic about their place within NOAA. I would also recommend students to consider an internship at NOAA. They treat you with respect and trust you enough to do exciting activities. Students will learn an enormous amount of new information and experiments. Overall, I am extremely appreciative of this opportunity as a high school student. NOAA is a unique place and I believe that I am better off in the work environment because of it.

Maggie Stewart is from Denver, CO. She attends East High School and will be a junior next year. She loves to play soccer and hike. In addition, she is the audio engineer for the theater department at her school.

I have recalibrated barometers at various altitudes, worked assisting a scientist with a new instrument, and assisted in the building of a radar throughout the course of the summer. I am always excited to learn new things and work with my hands and this internship has provided that opportunity. This internship has shown me what it is like to work in engineering and has broadened my horizons on career options.

In the future, I would like to do Aerospace engineering for NASA or Lockheed Martin. My dream is to help with the Mars Missions. I have always been interested in space and planes, and excel at math. Therefore, aerospace engineering has always been a possible career. Also, since getting involved in sound, I have considered pursuing that as a career.

I would consider a Federal career, especially one similar to NOAA. NOAA is pleasantly casual and the people foster a great community of hard work and intrigue. NOAA is a great place to work over the summer and fosters exploration and questioning.

Riley Jacobs is from Denver, CO and attends East High School. She will be a junior and is very interested in math and engineering. She likes tennis, hiking and baking.

I am an intern in the ITS department of GSD. I am beginning to understand what is needed to properly run and operate data centers in order to help the employees using the information. Specifically, I am redesigning and updating the informational poster for the data center. This internship has opened my eyes to the inter-workings of the IT department, and I will take away the importance of every single job working to better NOAA.

My future career plans are to pursue my love of math and problem solving through engineering. I am very excited about the fields of environmental and biomedical engineering and may further learn and explore jobs in either of these fields.

I would consider a career with a Federal agency especially at NOAA in Boulder. The spectacular work environment and the people here are unique. It promotes creativity and hard work that I have not seen anywhere else. Everyone is supportive and encourages learning, being creative, and asking questions.

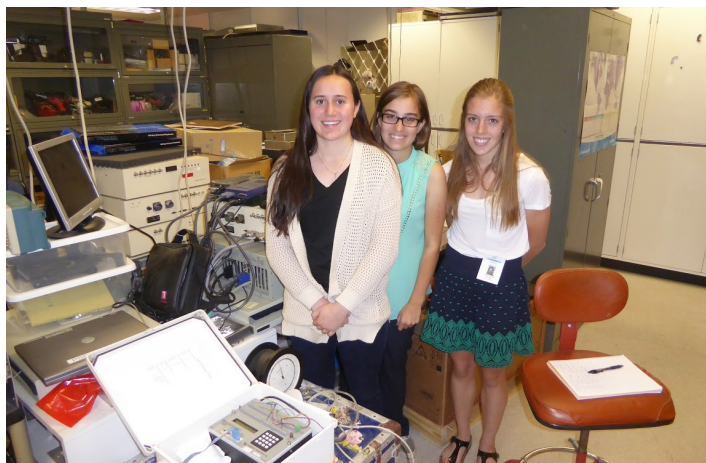
Lindsay Young is from Denver, CO. She is a rising junior at East High School. She is currently taking many engineering and science related classes. Outside of school she plays competitive soccer, plays the piano, and enjoys hiking and skiing.

I learned about this internship opportunity through a Career Connect program at my high school and specifically through my engineering class. This summer I helped David Parrish analyze ozone trends in the California air basins by creating many figures including maps and graphs that demonstrate these trends. The most exciting part is that he is currently working on writing a paper about the trends that we have analyzed together.

In the future, I hope to pursue a career in STEM because I am very passionate

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

ESRL Interns (continued)



Elly, Maggie and Lindsay, ESRL interns

about math and technology and my strengths are in these areas. I am especially interested in environmental engineering and climate change. I also have an interest in foreign relations.

I would consider a career in a Federal agency, especially one similar to NOAA. I had a great experience and I enjoyed being surrounded by highly motivated and unbelievably talented scientists. I would highly recommend opportunities at NOAA to other students, because there are so many interesting things happening in the building and you

my career interests, I would consider a career with a Federal agency. At this point, I'm not sure what that would be.

NOAA is a great place to work, and it's been a great experience to learn about the projects here and the various career options. Every summer there's a great group of other students working at NOAA and weekly student seminars. I've had the chance to talk to so many scientists and administrators throughout the building.

Jenn Kincade is from Longmont, CO and graduated from Colorado State University in December 2015 with a major in Sociology – Criminology and a minor in Political Science. She enjoys outdoor activities, like hiking, swimming, camping, fishing. She also likes weightlifting. She likes to read, see live music, and attend community sponsored events or professional sports events (like Rockies/ Avalanche games).



Jenn Kincade and Annie Davis, CSD Interns

can learn so much just by asking people about what they are working on.

Annie Davis is a Boulder, CO native. She will be a junior at the University of Colorado majoring in Spanish and Psychology. Last semester, she had the opportunity to study abroad in Granada, Spain. She plays ultimate frisbee and loves to go hiking.

This will be my third summer at NOAA. I found out about the opportunity at the Boulder County Career and Job Fair. My first summer I volunteered doing all sorts of projects, including graphic design. My second summer I did programming in Igor to process large quantities of atmospheric chemistry data. I am currently working on graphic design and administrative work and helping Ken Aikin from the Tropospheric Chemistry group develop a flight-planning software. I like the variety in my job. I am always doing something new and learning a new computer program, whether it be Illustrator or Igor. In this role, there are lots of opportunities to find out about the different projects at NOAA and talk to the scientists involved.

After college, I see myself pursuing a Master's in Public Health or in Psychology. In terms of an actual job, I'm not entirely sure. I want to do something meaningful and work with people, perhaps in an NGO. If I could find an opportunity that aligned with

I work in the CSD Administration division. I assist with internal projects, property award documentation, and creative projects that showcase the scientists' work. I am most excited about the internship when I have autonomy on projects while still participating in group or team efforts. I gained valuable office experience during my internship. My mentor, Debe Dailey-Fisher, introduced me to multiple computer programs that I had never worked with before.

I am attending law school in the fall and hope to become a practicing attorney one day. I am not sure about the field of law I would like to practice in, yet. While there are more "rules" or guidelines in a government position, the work that NOAA employees do is especially valuable. Because of my interest in law I might consider working with policymakers in the future in order to preserve the mission of agencies like this one. I would recommend opportunities to STEM students more than students like myself because of the NOAA mission. However, the exposure to science and technology was very meaningful, and I was able to learn a lot in my position.

STUDENT INTERNS SHARE MEANINGFUL WORK EXPERIENCES AT OAR

AOML

AOML welcomed 14 students, each leveraging their summer break from the academic year to learn from NOAA experts and experience a federal research laboratory workplace. The students this year range from high school to graduate students. They came from universities all over the country as well as the local Miami community.

At AOML, students have partnered with professionals in engineering, physical oceanography, coastal ecosystems, tropical meteorology, and science communications. Their experiences range from learning new software to performing data analysis, to perfecting technical laboratory skills, to collecting observations in the field. In fact, providing students with an opportunity to work in the field is one of our program's strengths, allowing students to experience the entire process of research, from designing a study, to collecting observations, to performing analysis.

A recent survey of student interns revealed a common gratefulness for the opportunity to work side by side with NOAA employees, and an appreciation for the work that NOAA does. The best measure of these sentiments is in the students' own words:

"As a teacher at MAST, I have, and will continue recommending NOAA to my students as a means of internship. MAST stands for Maritime and Science Technology and the AOML facility is the best local source of maritime focused research." - *Alycia Ciresi, MAST Academy high school teacher*

"I think that NOAA provides great opportunities for students of all educational levels, and that they are accommodating to different interests and levels of experience." - *Hanna Payne, Stanford University*

"Even though I am only halfway through this internship, it has taught me a lot about myself. It has really shown me that

I can accomplish amazing things. Learning MATLAB was a significant challenge, but getting through it has been gratifying and has given me confidence in my own abilities." *Dylan Gates, SUNY Oswego*

"I believe the main lesson I will take away from this internship is understanding that experiments don't always run smoothly no matter how meticulous you are and that's just a part of science." - *Madison Jackson, University of Miami*

"The internship at NOAA has been fantastic in helping me pinpoint exactly which facets of engineering I particularly enjoy." *Eduardo Garcia-Montes, MIT*

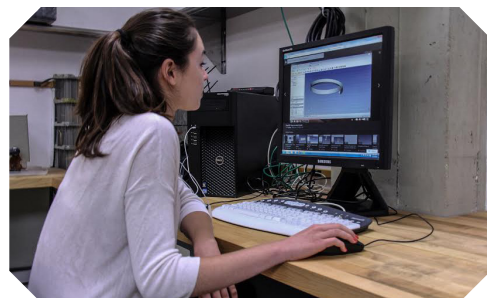
"I would definitely consider pursuing a career with a federal agency, most likely NOAA, because I have enjoyed my experience here as an intern and I have felt that the things that I have learned here are skills that I can use for a lifetime." *Daniel Gutierrez, Florida State University*

"Being at AOML's Hurricane Research Division working alongside hurricane experts is an incredible opportunity and will provide me with some new insights into my research." - *Erin Dougherty, University at Albany*

"Working here at NOAA/AOML is an incredible experience. I get to meet and talk with top-class oceanographers and enthusiastic students as well." - *Daniel Valla, University of Buenos Aires, Argentina*

"I would most definitely recommend opportunities at NOAA as they are a great way to receive experience in a laboratory, work with world renowned researchers, and be able to perform important research." *Gabriella Garcia, MAST Academy high school*

"Being able to increase my communications skills as well as learning about the science that is going on here makes my internship very exciting." - *Nicholas Komisarjevsky, University of Miami*



Isadora Smith

"I am interning in the physical oceanography division and help engineer underwater instruments. Creating something that is effective and pushes the boundaries is the most exciting thing about my internship." - *Isadora Smith, MAST Academy high school*

"My internship has shown me the real world application of what I have learned in school. I will take away very relevant professional experiences and techniques from this amazing opportunity, as well as an appreciation for the individuals who have devoted years to this agency, as I have formed valuable professional relationships that will further

enhance my career for years to come." - *Ian Smith, University of Washington*



Ian Smith



(L to R) Interns Alycia Ciresi, Hanna Payne and Dylan Gates on a research cruise

Pacific Islander Heritage Month: Go Forth and Educate

By Annie Reiser

In the film, “Ahupua’a, Fishponds and Lo’i,” the late historian and anthropologist Marion Kelly introduced the people who now maintain these traditional ways of managing and caring for the land and sea throughout the Hawaiian Islands.

After the screening, special guests from the Kumulau Foundation (a Hawaiian-led philanthropic, educational, non-profit entity committed to perpetuating traditional Hawaiian culture through community engagement) led a panel discussion and Q&A session. Marley Puanani Smith, undergraduate in the Warner College of Natural Resources at Colorado State University, brought a unique perspective to the panel, as a native Hawaiian (Maui) and student of “Western” science. She shared some of her experiences as a student traveling throughout the Islands with indigenous cultural experts learning how to maintain, conserve, preserve and bring life to the ‘āina (land). This experience gave Marely insight into contrasting views of natural resource usage.

Through the film and discussion, the audience learned that food production in the Ahupua’a also feeds the community’s sense of well being and cooperative spirit. For native Hawaiians, sites, sounds, and smells bind them to the land and motivate them to care for it. They have a relationship to location: an identification with place through the rhythm of rivers, streams, and ocean waves, as well as through their daily repetitive tasks such as weaving or making poi (a traditional porridge-like dish). Similar to other indigenous folk, the Hawaiian lifestyle is community-oriented and closely connected to their environment. They eat what their region gives them, including taro, sweet potatoes, coconut, sugar cane, mountain apples, fish, and medicinal plants. Their song and dance also honor, respect, and incorporate that same environment and landscape.

This concept of “identification with place” is one that the Kumulau Foundation wishes to educate others to consider when thinking, for example, about how to feed the world in the 21st century. We learn from the Ahupua’a that science and culture can be symbiotic, rather than opposing, in nature. For example, there is a science and technology behind the Hawaiians’ division of fields to conserve moisture and provide habitat for the diversity not found in a mono-agricultural system. Their field managers are some of the finest botanists who understand that diversity is key to the success of their food production, health, and well being. The Foundation aims to encourage organizations like NOAA and NASA, as well as other agencies and universities to consider the Ahupua’a message as they steward our planet and develop policies and programs to protect it.

Lynette Asperin, co-founder of the Kumulau Foundation, presented panelists and NOAA organizers with “kukui” leis made from the nuts of the candlenut tree (*Aleurites molucana*). Jennifer Casani, panel moderator and co-founder of the Kumulau Foundation, explained that these large shiny black or dark brown nuts resembling polished gemstones are used in traditional adornment. But more importantly, they have special symbolic meaning for the Foundation: enlightenment and education. That’s because the nuts had another use in the Hawaiian culture; because of their high oil content, they were traditionally burned like candles as a light source. By gifting these beautiful necklaces, the Foundation asked the wearers to take and integrate enlightenment and education into their respective missions into the global community. This was their departing message to the audience as well: go forth, enlighten and educate!

This event was part of the NOAA OAR EEO/Diversity Program Office and the DOC Boulder Labs Diversity Council’s 2016 Cultural Diversity and Tribal Relations Series.



Diane Stanitski, Georgia Madrid, panelist Merv Tano, Lynette Asperin (co-founder of the Kumulau Foundation), panelist Marley Puanani Smith, Jennifer Casani (panel moderator and co-founder of the Kumulau Foundation), and panelist Anthony Kahalekulu.



Panelists Merv Tano, Anthony Kahalekulu, and Marley Puanani Smith



Lynette Asperin, Marley Puanani Smith, and Jennifer Casani.

NOAA Research EEO/Diversity Program Office

CONNECTIONS NEWSLETTER

Connections is published quarterly by the OAR EEO Office. The purpose is to share accomplishments and to link Diversity, EEO and Science within all of OAR laboratories and programs.

If you have any newsletter ideas, suggestions and stories, please email to Georgia Madrid
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ABOUT US

VISION OF EEO OFFICE: To assist the Agency in creating a diverse workforce that is inclusive and free of discriminatory and retaliatory actions.

EEO MISSION: To bring awareness to employees, applicants for employment and management about EEO through the following:

Empowerment: Consultation services to employees, managers and applicants for employment.

Exposure: Recruitment and outreach activities for short and long-term recruitment.

Education: Federal EEO Mandated training, Special Emphasis programs and *Connections* newsletter.

Evaluation: Monitor employment statistics to prepare reports for NOAA, DOC, EEOC and OPM.

Website:
www.eeo.oar.noaa.gov

KNOW YOUR RIGHTS

EEO COUNSELING:

Federal law prohibits discrimination based on race, color, religion, national origin, sex (including sexual harassment and pregnancy discrimination), age (40 years and over), physical or mental disability, including the provision of reasonable accommodations for qualified applicants and employees with disabilities or genetic information (GINA), gender identity, and retaliation for participating in activities protected by the civil rights statutes. In addition, NOAA prohibits discrimination based on sexual orientation.

Employees, NOAA Corps Officers, or applicants for employment with NOAA who believe that they have been discriminated or retaliated against may contact an EEO Counselor. The Counselor will attempt to resolve the matter and furnish information about filing a complaint of discrimination. To preserve your rights under the law, you must contact an EEO Counselor within 45 CALENDAR DAYS of the date of alleged discrimination.

To initiate EEO Counseling or for more information, contact:
Civil Rights Office, NOAA

Phone: (301) 713-0500 or 1-800-452-6728

Fax: 301-713-0983

Website: www.eeo.noaa.gov

ALTERNATIVE DISPUTE RESOLUTION:

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