View from ATG rooftop. Photo courtesy of Steven Domonkos and David Warren

Winter Storm Chasing in the Northeast U.S.

By Victoria McDonald, graduate student in Atmospheric Sciences

Every year snowstorms cause millions of dollars in property damage, economic loss, and personal injury via major traffic accidents, shutting down cities, grounding air traffic, and causing power outages. Improving forecasts of both the location and intensity of snowfall is critical for communities to be able to adequately prepare for and mitigate the effects of major snowstorms. And we have the technology to help. The Investigation of Microphysics of Precipitation for Atlantic Coast-Threatening Snowstorms (IMPACTS) is a five-year Earth Venture Suborbital (EVS-3) NASA project led by UW Research Associate Professor Lynn McMurdie. Over the course of three deployments, two aircraft and a host of mobile ground crews go storm chasing to collect critical new observations that will elucidate how and why snowfall organizes into narrow bands of heavy precipitation. Understanding the processes that contribute to snow band formation and life cycle is the first

goal, but equally important is applying what we learn to improve both forecasting in numerical models, and detection of snowfall from space.

Victoria McDonald in front of the NASA P-3 at Wallops Flight Facility in Virginia. (Photo courtesy of Victoria McDonald, taken by Joe Finlon)

Our first deployment was held in January and February 2020. Over the course of 6 weeks, we collected observations in 10 storms. During each event the high-altitude NASA ER-2 aircraft flew above the storm in the stratosphere. Equipped with three active radars, two passive radars, and one LiDAR, it essentially acted as a satellite whose movement we could control.

Simultaneously, the NASA P-3 aircraft flew at different altitudes inside the clouds and took measurements of liquid and frozen water content in clouds, and images of snow and ice particles with various microphysics probes. The P-3 also used dropsondes and turbulence sensors to collect information

about the broader environment. Mobile ground units drove to where the storms were forecasted to hit hardest, and deployed additional radars and rawinsondes to complete the picture.

I travelled to Wallops Flight Facility in Virginia, where the P-3 and the operations center were based, to help with storm forecasting. Winter cyclones can occur at any time of day or night, so multiple people were needed to constantly watch the weather models and airport conditions so that we could optimize flight time without getting snowed in and having our own aircraft grounded.

UW Postdoctoral Researcher Dr. Joe Finlon led the forecasting effort. From coordinating the forecasting process to designing an automated weather briefing template, he led a team of forecasters from NASA Goddard and several Universities, including students working with UW Alum Professors Brian Colle (SUNY Stony Brook) and Sandra Yuter (North Carolina State University), and fellow UW graduate student Andrew DeLaFrance.

With rapidly changing weather conditions and occasional back to back storms over multiple days, the operations center could get quite hectic at times while we tried to determine

which models to trust and plan flight routes that would give us the changing weather conditions and occasional back to back storms over multiple days, the operations center could get quite hectic at times while we tried to determine which models to trust and plan flight routes that would give us the best chance of being in the right position to intercept snowbands.

I came to UW with no background in meteorology, so being thrown into the deep end of an active high stakes forecasting mission was an invaluable experience that I am grateful to have been part of.

Three of the microphysics probes mounted on the wing of the NASA P-3. Photo courtesy of Victoria McDonald

IMPACTS is set to continue in 2021 and 2022, although with COVID-19 still posing a significant threat to in-person work, we are adjusting plans to ensure safe working conditions and minimal threats of exposure for everyone. Plans are still being finalized to allow the mission to go forward this year, and analysis has already begun on the initial observations from this past year.

With the help of UW's Stacy Brodzik, who is the IMPACTS Data Manager, datasets from the 2020 storms are now [available publicly](#).

Learn more about IMPACTS at: https://espo.nasa.gov/impacts/content/IMPACTS, and http://catalog.eol.ucar.edu/impacts_2020.

Follow us on Twitter (@snowIMPACTS) and Facebook (Snow_IMPACTS) as we go forward with our next deployments in 2021 and 2022.

UW Weather Challenge Team Has Another Successful Year in the 2020 National Contest

By Professor Lynn McMurdie

The UW forecasting team has done it again. Over 30 enthusiastic and talented forecasters joined the UW forecasting team for the National WxChallenge forecast contest 2019-2020 and together came in **second** out of 37 schools after being barely nudged out by CSU. The team included undergraduate students (from freshmen to seniors), graduate students, faculty and staff, and alumni. For 10 weeks in the fall and again for 10 weeks in the winter and spring, the team entered forecasts for maximum temperature, minimum temperature, maximum sustained wind speed and quantitative precipitation for 10 different cities. Twenty-four of the 30 team members competed for the full year and several individuals did extremely well. In addition to earning his PhD in spring quarter 2020, graduate student Jonathan Weyn took first place overall for the second year in a row, a feat that has **NEVER** been done before. Calen Randall and Christine Neumaier took **first** and **second** place in the competition for upper division undergraduates (out of ~750 students in this category). Post-doctoral researcher, Joe Zagrodnik tied for **first** in the end-of-year bracket contest. Twenty-one members of the UW team qualified to enter this contest, the most of any school. Fourteen members of the team finished in the top 100 out of ~1500 total contestants. Several team members earned individual trophies, including Jonathan Weyn (first overall, second place category 2 for Lake Charles, LA, and first place category 2 for Cold Bay AK), Calen Randall (first place category 3 overall, first place category 3 for Boston, MA, and second place category 3 for Astoria, OR), Christine Neumaier (second place category 3 overall, first place overall for Minneapolis, MN, first place category 3 Lake Charles, LA), Mason Friedman (first place overall for Cold Bay, AK, first place overall for Astoria, OR), Patrick Foster (second place category 0 for Lake Charles, LA), Raphael Bakin (first place category 4 for Lake Charles, LA), and Joe Zagrodnik (first place overall, Kansas City, MO).

The team benefits from custom software originally designed by former graduate student Luke Madaus and updated and

modified by team members Weyn, Zagrodnik, and Lloveras. This software is a dashboard that brings together information from more than a dozen forecast models in one place making it easy for forecasters to assess any model biases for particular cities or in particular weather situations. In addition, Weyn developed a machine-learning tool that compares historical forecasts for a given city with the actual weather to learn the models' biases in different scenarios and correct for them. This machine-learning tool

also entered the contest in the "model" category along with many other operational center models and was the best performing model. The 2020-2021 forecast contest is currently underway, and the UW team is looking forward to another challenging forecast year. If you're interested in joining the team, please email me at lynnm@uw.edu, or team managers, Daniel Lloveras lloveras@uw.edu, and Andrew DeLaFrance, adelaf@uw.edu.
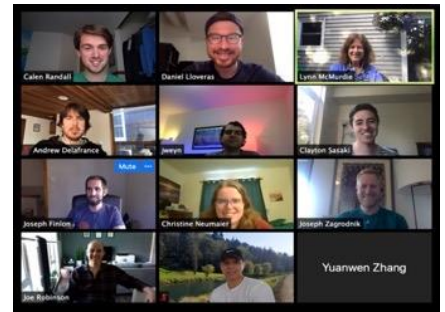
Members of the successful 2019-2020 UW WxChallenge team from a screenshot of our Zoom end-of-season party. (Photo courtesy of Lynn McMurdie)

Active Learning Workshop: Promoting Student Engagement

By Kat Huybers (Lecturer), Sam Pennypacker (graduate student), Robb Jnglin Wills (post-doc)

At the end of August and in early September, a total of 38 faculty, post-docs and graduate students enthusiastically participated in a two-part workshop on active learning facilitated by UW experts. Active learning strives to put students at the center of the classroom experience, whether in person or online. Some strategies are relatively simple, like asking students to pause and write a reflection or to brainstorm ideas with other students. Others are more involved, like "jigsaw exercises" which divide a general topic into smaller, interrelated pieces, and ask students to share their expertise to put the whole concept together. Our goal was to introduce these strategies, and to

give participants an opportunity to apply them.

Dr. Elli Theobald, an assistant teaching professor in the UW Biology Department, led the first day of the workshop. In March 2020, Dr. Theobald and her collaborators published a paper in PNAS[1] showing that while active learning benefits all students, it offers disproportionate benefits for individuals from underrepresented groups. Implementing active learning strategies narrowed gaps in passing rates by 45%. Active learning can therefore be a strategy for broader inclusivity.

Under Dr. Theobald's guidance, we practiced *activating* slides that were provided from our community of instructors. Faculty, post-docs and graduate students worked together to make these sample lectures an opportunity for students to participate, to make inferences, and to connect ideas together, rather than just passively receiving information.

Dr. Wei Zuo from UW's Center for Teaching and Learning and Dave

Coffey, from the Learning Technologies department, led us through the second day. Dr. Zuo demonstrated additional active learning strategies. Dave Coffey went through the best practices for using Classroom Response Technologies in our classes, whether meeting in person or virtually.

Workshop participants provided positive feedback, and were grateful for the time and space to consider applying these strategies. We meet again at the end of the Autumn quarter to see how active learning was applied in our online classrooms, and where further support would be helpful.

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[1]Theobald, Elli J., et al. "Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math." *Proceedings of the National Academy of Sciences* 117.12 (2020): 6476-6483.

2020 Fire Season an Anomaly, but Provides a Glimpse into the Future

By Anthony Edwards (Undergraduate student)

Wildfires are not a new weather phenomenon.

For as long as humans have existed on this planet, there have been stories of fires burning through the forests.

But only recently have we seen the fire season take a turn for the worst, and it is no coincidence that these fires can be attributed to global warming.

The two biggest fire seasons in the United States since 1983 both occurred within the past five years, as more than 10 million acres burned in both 2015 and 2017. This coincides with the five hottest years in earth's recorded history, which have all occurred since 2015.

Warmer temperatures lead to more evaporation from the ground and vegetation, meaning that as temperatures continue to rise with climate change, wildfires are also expected to become more common.

Perhaps this summer provided a glimpse into the future.

In California, this year's wildfires have burned more than four million acres, more than doubling the previous record.

In Washington and Oregon, a record-breaking heat wave and unusually strong winds created critical fire conditions in early September. The hot and dry weather ultimately had severe consequences. On Sept. 7, strong winds and hot temperatures prompted the Storm Prediction Center to issue an extreme fire weather warning to the Oregon Cascades.

Smoke over Seattle (Photo courtesy of Anthony Edwards)

This was only the second time the warning has been issued in Oregon or Washington and the first time it has been issued on the west side of the Cascades. A day later, the warning was extended into more regions of Oregon.

A fast-moving fire burned 80 percent of an eastern Washington town; a rare urban fire sparked west of the Cascades, closing parts of state route 410 near Sumner; and more than 496,000 acres burned in Washington state this year alone.

Oregon experienced troubles too. More than one million acres have been scorched in Oregon, the second most in the state's history, behind 1.2 million acres in 2020. 600 million dollars in damages have been reported.

Not only do these fires have direct impacts on the land they burn, there are also many troubles caused by the smoke from these fires.

Due to their size — smaller than human hair — wildfire smoke particles travel much further than typical hazardous air pollutants, such as car emissions. The smoke that socked in Seattle last month mainly originated from central Oregon and California, traveling hundreds of miles into Washington state.

Over six million Washingtonians have been exposed to "very unhealthy" or worse air quality for at least two days this year, according to the state Department of Ecology. Over five-and-a-half million have been exposed for at least five days — more than the previous five years combined.

An extreme year, certainly, but not surprising considering current climate trends.

As fire events become more common in the future, improving forecasts and adapting to more frequent fire weather conditions will be key in saving land, saving properties, and saving lives.

Reach Anthony Edwards at abe1@uw.edu. Twitter: @edwardsanthonyb

See his UW Daily stories at http://www.dailyuw.com/search/?q=purple+rain

An Interview with the Interviewer

By Shannon Millican (Assistant to the Chair)

I had the unique pleasure of being able to learn more about Anthony when asking if he would write an article for this year's newsletter. Many of you may already know of Anthony as our rogue reporter, an Undergrad in our department, or

perhaps by his column [Purple Rain](#) in The Daily.

Anthony's weekly blog is the result of his vision to combining journalism and atmospheric science and relaying it back to the wider U.W. community; something The DAILY has never covered before. Anthony elaborates, "I like being able to take scientific material and make it relatable to the public." Anthony's dedicated reporting has also given our department a unique platform to engage campus with the research that we do. Many of his articles have referenced our department, and he's very eager to collaborate with both students and faculty for future articles.

A true son of the Pacific Northwest, Anthony states that he has always been inspired by the uniqueness and unpredictability that our region's climate brings.

Anthony goes on to mention that his childhood fascination with cloud formations was a clear indication of where he was headed to in the future. Every morning Anthony would look curiously out of his window to report back to his parents about the current state of the weather, and predictions for the day's future forecast.

Anthony Edwards wondering how the waterfall behind him was formed so that he can report back to you about it (Photo courtesy of Anthony Edwards)

This curiosity led him to Atmospheric Sciences where he

has been able to take classes that inspire him like ATM S 360: Media & Meteorology with Shannon O'Donnell.

When I asked Anthony about where he sees his path, he mentions that he really liked the studio experience he had with the Dawgcast. Whether he is reporting on meteorology or the reciprocity between climate and human interaction, Anthony's goal is one and the same; to communicate what he's learned to others.

As we feel about many of our students, I get the feeling that we're witnessing something great happening here. I look forward to a time in my eighties when I'll see Anthony reporting on some catastrophic weather event or climate change anomaly, and I will brag to others "I know him, he was reporting it was going to rain the day after he learned how to talk".

A Message from the Chair Cecilia Bitz

Professor Cecilia Bitz

2020 has been quite a year for the department. It began with the excitement of interviewing candidates for a new tenure-track professor. I am pleased to share that we successfully hired Dr. Alexander Turner, see below. Alex started in January 2021. We finished interviews a week before the UW moved all classes online. It was a chaotic time, and I'm proud of our efforts to tie up the quarter and move operations to our homes.

Students, instructors and TAs have proven to be resilient with online learning these past 10 months. We've had to overcome camera

shyness and cope with only seeing each other through what feels like a periscope. I taught atmospheric motions to our seniors this fall. In spite of the limitations, I was grateful to see the dozen students in class on a regular schedule, which helped stem my feeling of isolation. Despite the awkwardness of Zoom, I felt a stronger sense of community with this class than ever before. I'm touched by the efforts of all in the department who created support teams to help each other through this disruptive time.

I'm excited to share that we added a new undergraduate track and

PhD option in data science this year. Students have already signed up for both. Skills in programming and data analysis are increasingly important for both applied atmospheric sciences and basic research. We also taught the first ever seminar class on racial justice and equity in the environmental sciences. The class was packed with participants eager to learn about the history of our field, to better understand our current state, and to plan ways that we can increase diversity, equity and inclusion in our community.

We held a virtual graduation and virtual holiday party this year. Our graduates' faces transitioned from looking anxious to all smiles as we projected photographs and Professor Becky Alexander spoke about each of their qualities and announced the awards. Associate Professor Dargan Frierson entertained us by performing his song "Science Rules". The holiday party was also a big success. Students and staff read poems that they wrote about their experiences this year. Postdocs shared photographs and music.

Assistant Professor Alexander Anderson-Frey shared her experience transitioning to online teaching and advising after joining the faculty only six months earlier. Then department members performed songs that they wrote, some live and others a mix of pre-recorded tracks to blend their music, voices, and dancing. Many listeners had to dry their eyes, including me.

Atmospheric Sciences Welcomes New Advisor

Courtesy of UW Photography

Hello, I'm Jennifer Siembor, the new Academic Advisor for the Department of Atmospheric Sciences. I joined the department in March 2020, and prior to that I advised undergraduate and graduate students at the University of Washington in other programs for the past 15 years. It's an honor to be part of Atmospheric Sciences and the

College of the Environment, where I can combine my passion for supporting students as well as my deep interest in the environment.

What does the Atmospheric Sciences academic adviser do? I work holistically with our ~140 undergraduate and graduate students on all facets of the academic experience from admission to graduation and everything in between. This includes helping students choose between our 4 undergraduate options and 4 graduate options to find the path that's best for them, ensure they meet benchmarks to make progress towards their degree, and help them interpret UW policies. I provide individualized support based on student needs, from connecting students with scholarship opportunities to recommending wellness resources on campus. This personalized

attention is crucial for academic success and retention, especially in these extraordinary times. I also work closely with faculty to update department policies, review graduate applications, submit course proposals, and implement new curricula, such as our new Data Science options.

The personalized, supportive community in Atmospheric Sciences is what makes the department so special. I'm impressed with how the students have pulled together to get through these unprecedented times, and have confidence that these current and future scientists will help create a better tomorrow. I'm proud to do my part to support them towards those goals.

You can reach Jennifer at atmosadv@uw.edu. She looks forward to connecting with you!

Welcomes to our new Faculty Member Alexander Turner

We are excited to welcome Alexander Turner, who joins our faculty as an Assistant Professor. Alex received his doctorate from Harvard University and was a postdoc at the University of California Berkeley. Dr. Turner's research bridges atmospheric chemistry and the carbon cycle. He uses remote sensing and inverse modeling for his work.

Welcome New Graduate Students in Autumn 2020

Vince Cooper, from Harvard University (Armour, Bitz)

Nathaniel Cresswell-Clay, from Tufts University (Durran)

Rohan Jain, from Rutgers State University(Anderson-Frey)

Randall Jones, from Ohio State University (Chen)

Ellen Koukel, from Portland State University (Blanchard-Wrigglesworth)

Congratulations to our Faculty

Professor David Battisti was awarded the 2021 Carl-Gustaf Rossby Medal, the top medal from the American Meteorological Society

Associate Professor Kyle Amour was awarded the 2020 James B. Macelwane Medal, an early career award across all fields in the American Geophysical Union.

Associate Professors Daehyun Kim and Kyle Armour were promoted to Associate Professor in autumn 2020.

In Memorium

We were sorry to learn of the passing this year of friends, colleagues, and alumni of this department. Professors Dave Dempsey and Tim Liu, and Margaret Holton.

Professor Dave Dempsey got his PhD from our department in 1985. His research specialty was mesoscale numerical modeling of topographically-forced circulations. After graduating from UW, he went on to a post-doctoral fellowship at NCAR, then in 1989 he joined the Department of Earth & Climate Sciences (then Geosciences) at San Francisco State University. There, he devoted himself to improving science instruction and training

future science instructors. He developed technology-aided learning tools and active-learning methods and enabled his department to build a state-of-the-art computer facility for student instruction and research. He served as chair of his department from 2014-2017, then became emeritus in 2018. He was also an outdoor enthusiast and maintained a very active lifestyle.

Many of us remember that he and Professor Jim Holton often ran together during lunchtimes, out-pacing everyone else jogging on the Burke Gilman trail. He traveled nationally and internationally on trips frequently focused on hiking, backpacking or other mountaineering treks. He was an avid photographer and wrote detailed descriptions of his trips that were supplemented with his extraordinary photography. Dave will be missed by the students he mentored, his colleagues and friends, and most of all by his family. He is survived by his wife Rebecca Douglass, sons Kylan and Griffen, parents Wes and Phyllis Dempsey, and brothers Tom, Paul and Jim and their families. More information about Dave is available at these websites:

Dr. Tim Liu was a highly valued member of the ocean-atmosphere interaction and climate research communities. He received his M.S. and Ph.D. degrees from University of Washington in 1974 and 1978, respectively, under Professor Kristina Katsaros.

As a UW student, he developed an innovative method to parameterize air-sea turbulent fluxes. His pioneering paper (published in the Journal of Atmospheric Sciences in 1979) has been cited close to 800 times and remains the most widely used methods today to estimate air-sea turbulent fluxes. Tim joined NASA Jet Propulsion Laboratory (JPL) in 1979 where he continued his pioneering work and served as the lead of NASA's Ocean Vector Wind Science Team for 17 years and a Project Scientist for NASA's NSCAT and QuikSCAT scatterometers missions. His accomplishments

have been recognized by numerous prestigious awards, including being elected Fellow of the American Meteorology Society (AMS) and American Geophysical Union and the Verner E. Suomi Award of AMS in 2010.

Throughout his career at JPL, Tim continued strong ties with UW and remained close friends with many of us here at the department, especially his thesis advisor, Kristina Katsaros whom he called regularly.

He had a warm and generous spirit and was a cheerful collaborator. He married his lovely wife Chia Ling Wang, in Seattle in 1974 and together they created a beautiful family. Sadly, Tim lost her to cancer in 2003.

Tim's cheerful attitude, genuine interest in everyone's research, and enthusiasm for the underlying science of remote sensing will be missed by all. He is survived by a daughter, grandson, two sisters and brothers.

Margaret Holton was the wife of Professor James Holton and a strong supporter of the department when Jim was alive and in the years since. She was part of the glue that held the department together the last half century.

Dinner parties at the Holton house were famous for their elegance and stimulating conversation. Margaret took great care to make department members and our visitors feel welcome. She was also a skilled and intrepid gardener and dispensed gardening advice to many of us.

Margaret was a devoted mother to her sons Dennis and Eric. She is survived by Eric.

Our thanks to Kristina Kastsaros, Cecilia Bitz, and Lynn McMurdie for their heartfelt submissions.

Congratulations to our Alumna

Jennifer Francis (1994, Ph.D.) won the AGU 2020's Climate Communication's Award. Jennifer is currently a Senior Scientist at the Woodwell Climate Research Center in Falmouth, MA, after 25 years as a research professor in the Department of Marine and Coastal Sciences at Rutgers University.

Alumni Updates

Scott Braun (1995, B.A.) became the Project Scientist for the Global Precipitation Measurement (GPM) mission in June 2018 and a Fellow of the AMS that same year. I've also been heavily involved in a study of a new observing system related to aerosols, clouds, convection, and precipitation in response to the 2017 NASA

Decadal Survey and am the Project Scientist of the TROPICS Cubesat constellation mission (to launch ~2022) focused on rapid revisit-rate observations of tropical cyclones.

Bonnie Brown (2014 Ph.D., 2011 M.S., 2008 B.S.) is planning a move to Norfolk, VA, with her husband who is a Lieutenant in the US Navy JAG corps and their dog Banana Bread. She will continue to work remotely for NOAA Research's Weather

Program Office (formerly the Office of Weather and Air Quality) and was promoted to direct line manager with her contracting company TriVector Services. She will start a three-year term on the AMS Board of Early Career Professionals in January 2021.

Melvin Clarke (1974, B.S.) Immediately after graduation in 1974, I assisted as a student observer during the GATE project (Global Atmospheric Research Program, Atlantic Tropical Experiment) for the Summer of 1974. In the Fall of 1974 I worked as a remote-control boat operator on the US Geological Survey field program near the terminus of the Columbia Glacier in Alaska. I joined the UW Polar Science Center's field work in the Arctic as a Meteorological Observer and technician for the weather research work at the Ice stations in 1975/1976 (AIDJEX, Arctic Ice Dynamics Joint Experiment). I later (1978) moved to Santa Barbara, CA to work for the Polar Research Laboratory assisting with design and development and deployment of the Arctic Buoys used for a number of years. By 1989 I had moved to the

Washington, DC area and continued work with various Arctic and Open Ocean buoy projects. My last few years have been involved with the design and development of various portable computer and network related projects with DTECH LABS. I retired in 2016. My wonderful wife and I are enjoying our lake side home in the beautiful area of South Central Virginia.

Peter Dodge is currently at NOAA AOML's Hurricane Research Division working with ground-based and airborne radars in tropical cyclones. Peter is looking forward to possibly retiring in the next year.

Jason Phelps (2013, B.S.) I went on to Graduate School and graduated with my Master's Degree in Watershed/Climate Science from Utah State University Spring 2019. I'm now trying to start a climate forecasting company of my own named Climate Forecasts for the Future. I analyze 60-70 years of past climate data for cities around the western United States and do statistical analysis of this past climate data versus 20-30 different climate patterns to

construct probabilistic seasonal climate forecasts one to two seasons in advance. My climate forecasting company can be found at https://www.climate4casts4future.com/.

Stephen Po-Chedley (2016 Ph.D.) Research Scientist at Lawrence Livermore National Laboratory, working remotely from Seattle.

David Reidmiller (2010 PhD, 2005 MS) In August, I left the U.S. government after 10 years of federal service (in the Senate, State Department, White House, and U.S. Geological Survey) to launch a new Climate Center at the Gulf of Maine Research Institute in Portland, Maine. More info can be found here: https://gmri.org/our-approach/press-room/press-releases/nationally-recognized-climate-scientist-lead-new-climate-center/.

Virginia Rux (2016, B.S.) Following graduation became a Research Aide with JISAO for the EcoFOCI group from 2016-2018. And since April 2019, I started my career as a Meteorologist for the National Weather Service in Glasgow, MT

Undergraduate Research

We are proud of our undergraduates engaged in research in the department. August Mikkelsen, Ian Hsiao, and Jeremy Lu are working with Rob Wood. Christine Neumaier is working with Joel Thornton.

Haley Staudmyer is working with Dargan Frierson. Calen Randall and Jesus Gallegos are working with Cliff Mass. Surabhi Biyani is working with Cecilia Bitz and Sarah Kapnick at GFDL.

The following students presented posters at our 2020 **Undergraduate Research Symposium** in spring

Noah Asch and Lukas Naehrig (Dargan Frierson) Poster:

"Global Mean Precipitation and Energy Budgets in CMIP6 Models"

Matthew Charchenko (Shannon O'Donnell) Poster: "The Dawgcast: Communicating the weather story to the UW population"

Ian Hsaio and Jeremy Lu (Rob Wood, Hans Mohrmann, Joe Finlon and Rachel Atlas) Poster: "Identifying cloud phase from SOCRATES data using a random forest classification model"

August Mikkelsen (Rob Wood) Poster: "Understanding the balance of ice and liquid in supercooled clouds"

Christine Neumaier (Joel Thornton) Poster: "Evaluating Anthropogenic Enhancements to Lightning"

Calen Randall (Cliff Mass) Poster: "High-Resolution Climate Modeling for the Pacific Northwest: A Regional and Global Model Comparison"

Jordan Rendon (Lynn McMurdie and Joseph Finlon) Poster: "Lightning In Cold Air Outbreaks Over the Northeastern Pacific"

Sara Salimi (Becky Alexander and Ed Blanchard-Wrigglesworth) Poster: "Relationship between sulfur aerosol concentrations from a Summit, Greenland ice-core and sea ice area over the last 40 years"

Rose Schoenfeld (Thomas Ackerman and Lauren Schmeisser) Poster: "Analysis of the Atmospheric Response to the 2019 Northeast Pacific Marine Heatwave"

Mika Vogt (Rob Wood and Isabel McCoy) Poster: "Exploring How Precipitation Changes in a Warmed Climate"

Undergraduate Awards & Scholarships

Rikki Parent - Phil Church Award

Surabhi Biyani - Cliff Mass Weather Research award

Christine Neumaier - Richard and Joan Reed Undergraduate Endowed Scholarship

Calen Randall - Cliff Mass Weather Research award

Rose Schoenfeld - Mindlin Endowed scholarship

Haley Staudmyer - Bruce Caldwell Memorial Scholarship

Raphael Babkin - Nancy Wilcox Endowed Scholarship

Congratulations to Our Graduates!

Bachelor of Science 2020
Michael Babko
Namie Costa
Emily Culbertson
Brandon Gabor
Justin Kong
James Lee
Colby Lindgren
Dylan Logan
Joseph Paranzino
Rivkah (Rikki) Parent
Shane Peterson
Jordan Rendon
Anthony Tran

Master of Science Thesis & UW Faculty Advisor

Claire Buysse O3 photochemistry in the western US: mixing wildfire smoke with urban emissions (Jaffe)

Yakelyn Ramos Jauregui MJO-induced Warm Pool Eastward Extension Prior to the Onset of El Nino: An Observational study (Chen)

Edoardo Mazza Subsidence-induced warming in the genesis of Tropical Storm Cindy (2017) (Chen)

Litai Kang Using In Situ Observations from the SOCRATES Field Campaign to Evaluate Satellite Retrievals of Low Clouds over the Southern Ocean (Marchand)

Brittany Dygert Interaction between Convection and SST in Tropical RCE (Durran)

Andrew Pauling Linearity of the Climate System Response to Antarctic Topography Change (Bitz)

Claire Zarakas Plant Physiology Increases the Magnitude and Spread of the Transient Climate Response to CO2 in CMIP6 Earth System Models (Swann)

Emily Tansey Southern Ocean precipitation observed from satellite and ground instrumentation at Macquarie Island (Marchand)

Doctor of Philosophy Thesis & UW faculty advisor

Andrew Vincent Geiss, Observed and Modeled Cloud Responses to Climate Variability (Marchand)

Jessica Haskins, Observational Constraints on Tropospheric Chlorine Cycling (Thornton)

Fiona Ai-Ming Lo, Understanding and Forecasting Allergenic Pollen in the United States (Hess)

Isabel McCoy, A synthesis of observations of aerosol-cloud interactions over the pristine, biologically active Southern Ocean

and the implications for global climate model predictions (Wood)

Johannes Mohrmann, Marine Boundary Layer Cloud Mesoscale Organization: Identification, Influencing Factors, and Lagrangian Evolution (Wood)

Pornampai Narenpitak, A Study of Multiscale Processes in Near-Global Aquaplanet Cloud-Resolving Models: From Shallow Cumulus Cloud Feedbacks to Tropial Cyclogenesis Predictability (Bretherton)

Stephanie Rushley, The Effect of Orbital Forcing on the MJO's Amplitude and Phase Speed (Kim)

Lauren Schmeisser, The Role of the Atmosphere in Marine Heatwaves (Ackerman)

Jonathan Weyn-Vanhentenryck, Sub-seasonal forecasting using large ensembles of data-driven global weather prediction models (Durran)

Nicholas Weber, Tropical Convection and Subseasonal Weather Prediction in a Global Convection-Permitting Model (Mass)

Wei Zhao, Retrievals of Drizzle and Cloud Liquid Water Contents in Stratocumulus and Implications for Subgrid-scale Impacts on Model Autoconversion and Accretion Rates (Fu & Marchand)

Graduate Fellowships & Awards

Benjamin Barr, Adam Sokol, Carley Fredrickson, and **Yuk-Chun Chan** - NASA FINESST Awards

Randall Jones - GO-MAP Graduate Excellence Award

Carley Fredrickson and Aodhan Sweeney - ARCS fellowships

Ellen Koukel - Provost's Fellowship Award

Katie Brennan and Lily Hahn - NSF Graduate Research Fellowship Program (GRFP):

Yakelyn Ramos Jauregui - UCAR Next Generation Fellowship

Our Gratutude to our Donors & How to Make a Gift

We thank all who have generously supported us throughout the year. Your gifts strengthen the core of the UW through recruitment and retention of world-class students and faculty. Your support of undergraduate and graduate students helps to create the next generation of scientific leaders.

Please consider supporting the activities of the Department of Atmospheric Sciences next year to help ensure that the department continues to be a leader in weather, climate, and air quality.

Your support can be directed to the department and students in specific areas of studies both for undergraduate or graduate students at https://atmos.uw.edu/alumni-and-community/giving

To make your gift by phone, please call 1-877-UW-GIFTS (1-877-894-4387) or send a check to the address on the last page. Please indicate the fund you'd like to support:

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