ND EPSCoR
Established Program to Stimulate Competitive Research

News & Notes

April 2019

Successful conferences

Creativity, resourcefulness, ingenuity, and perseverance: all were on display at the March 27th ND EPSCoR Annual Conference. After five years of research, activity and outreach, it was an impressive snapshot of the work done by students and faculty at two research universities, one master's college university, three primarily undergraduate institutions, and five tribal colleges.

The annual conference was a showcase for many EPSCoR-funded participants to talk about their work over the past year, and provided opportunities for collaborative conversations and insights. Students from the region, outside of EPSCoR roles, also joined in presenting posters on their research efforts.

Each faculty member and student participating in the Center for Regional Climate Studies (CRCS, top photo below) or the Center for Sustainable Materials Science (CSMS, bottom photo below) helped contribute toward the goals set for each center.

When looking at the ND EPSCoR impact from the Track-1 cooperative agreement, it has touched over 1000 participants at 11 institutions, including 246 faculty, 25 post-docs, 328 graduate students, and 270 undergraduate students. In addition, K-12 students have been recipients of outreach efforts, including over 2500 participants involved in Nurturing American Tribal Undergraduates in Research and Education (NATURE). Across the state, ND EPSCoR has been an important resource for engaging students, faculty, and individuals in important STEM research, education, and outreach.

Stakeholder's workshop

CRCS hosted the *Northern Plains Weather/Climate Product, Service and User Engagement Workshop* on March 28, 2019. The event, organized by two CRCS researchers, **Adnan Akyüz**, state climatologist and NDSU professor of Climatological Practice, and **Aaron Kennedy**, assistant professor in Atmospheric Science at UND, became an interactive opportunity for students, researchers, and end users to discuss needs and available resources.

Although the Stakeholder group was a later addition to the CRCS efforts, these industry/climate partners and collaborators have become an important component to developing future research emphases for the CRCS researchers. We deeply appreciate their efforts on behalf of ND EPSCoR and the state of North Dakota.

Regards,
Kelly A. Rusch,
Ph.D., P.E., BCEE
ND EPSCoR Executive Director

ND EPSCoR conference highlights:

The ND EPSCoR Annual Conference was a whirlwind of presentations, information, and official reports regarding the ND EPSCoR-sponsored research and outreach for the past year throughout North Dakota. Although much of the emphasis of the conference was devoted to the Track-1 award, STEM students who were not funded by the Track-1 were also invited to present their research.

Since the 2019 conference was the fifth year of the Track-1 award, it was a time for CRCS and CSMS researchers to summarize their years of effort and results. Students who had been funded through those ND EPSCoR centers were also given opportunities to present their research, giving a glimpse into the breadth of research inquiry.

External Advisory Board (EAB)

One of the behind the scene resources involved in the Track-1 award is the input of the External Advisory Board, a group of experienced professionals in key fields who understand and support the research being conducted in ND. The EAB consists of seven individuals who provide useful direction and keen insights about research and outreach efforts. The EAB gathered on March 26 at NDSU to hear presentations on all aspects of the project.

Above, EAB members seated in front, waiting for presentations to begin. (left to right) **Lynn Russell**, professor in Atmospheric Chemistry at University of California-San Diego; **James Kenar**, research chemist, USDA Agriculture Research Service; **Kathryn Uhrich**, EAB board chair and dean of College of Natural and Agricultural Sciences at University of California-Riverside; and **Dianna Dalbotten**, program director for REU on Sustainable Land and Water Resources and director of Diversity and Broader Impacts at the University of Minnesota.

As a CRCS co-lead, **Aaron Kennedy**, assistant professor in UND's Atmospheric Sciences, presented an overview of the CRCS effort. His highlights included an emphasis on the increased collaborative efforts between UND and NDSU as well as other academic and industry/climate partners across the state.

Mukund Sibi, CSMS co-lead and university distinguished professor in Chemistry and Biochemistry at NDSU, discussed the center's cradle to cradle approach in creating sustainable materials from ND agricultural products and the many new polymers and composites that have been developed.

Chad Ulven, professor in Mechanical Engineering at NDSU and **Scott Hanson**, ND EPSCoR tribal colleges liaison manager, discussed the diversity efforts. Ulven said there has been an ongoing effort to nurture and retain diverse faculty, and there has been an increase in the number of women faculty involved in the research efforts. Hanson reviewed the updated *A Partnership to Build STEM Capacity White Paper* from EMPOWERED-ND, which now includes information on the Tribal Colleges (TCs), Primarily Undergraduate Institutions (PUIs) and Master's College University (MCU), to encourage greater collaborations between researchers from different institutions across the state. (See link) https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/EMPOWERED-ND/STEM_capacity_white_paper_-_Dec_2018_edited.pdf

For education and outreach, **Rachel Navarro**, associate dean for Research and Faculty Development and professor in Human Development at UND and **James Nyachwaya**, associate professor in Education and in Chemistry and Biochemistry at NDSU presented the K-12 efforts that build STEM awareness and engagement. As research has shown in the past, one of the keys to engagement is ongoing communication about STEM "early and often," Navarro said.

Communication efforts were presented by **Zoltan Majdik**, CSMS communication co-lead and associate professor in Communication at NDSU, and **Brad Rundquist**, CRCS communication co-lead and dean of Arts and Sciences at UND, who talked about informing the public regarding research. In addition to the newsletter, there have been presentations through Science Cafes at both UND and NDSU, more use of social media, and increased information and traffic on the CRCS and CSMS websites.

The EAB finished the day, asking the leads for details on their efforts and preparing a final report.

Conference presentations

The ND EPSCoR annual conference was Wednesday, March 27, 2019. Registration at the FargoDome was lively as colleagues from across the state got to once again interact face-to-face. A warm welcome and update on the Track-1 impacts was given by **Kelly A. Rusch**. Greetings from ND's three Congressional members, **Senator John Hoeven**, **Senator Kevin Cramer**, and **Representative Kelly Armstrong** were given by their representatives.

The morning keynote was given by **Jose Colom-Ustariz** (left) from the National Science Foundation (NSF). As the new program director for North Dakota, he outlined the current emphasis areas within NSF, and provided an overview of some of the EPSCoR-specific programs. In addition, he encouraged attendees to pursue other funding avenues, available through NSF, as they build collaborations across institutions and jurisdictions. For further information, please see https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/News/ND_Annual_Meeting_NSF_J_Colom.pdf

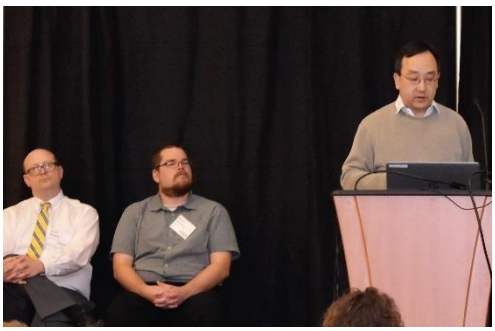
The remaining agenda for the day was a mix of presentations from CRCS and CSMS faculty and student researchers, as well as a report from the education and workforce development outreach group. By making both centers' efforts available to all attendees, it provided an opportunity, as one attendee described, "to talk with potential new collaborators."

Keynote presentation

Dane Skow (left), executive director of the Center for Computationally Assisted Science and Technology at NDSU, provided the luncheon address. His presentation on the *Data Tsunami*, offered insights on the rapidly expanding speed of computation and the need for added software that can more effectively use the hardware available. He encouraged attendees to consider exploring new software applications, noting that software "needs the imagination." The exponential growth in speed, Skow said, "helps us gain knowledge about what to do. With ever-increasing computational speeds available, having a good understanding of the impact that high performance computing can make to research (i.e.: processing times) is critical," he said.

CRCS and CSMS summaries

As a CRCS co-lead, **Jianglong Zhang**, professor in UND's Atmospheric Sciences, presented an overview of the CRCS effort. His highlights included an emphasis on the increased collaborative efforts between UND and NDSU as well as reaching out to other academic and climate partners across the state in developing multiple models that are useful for the agricultural community and others. The CRCS Stakeholder group includes nine partners from weather, agriculture, and industry who would have an interest in the products available from the CRCS research.



***Zhang** (right) presenting with co-leads **David Roberts** (far left) and **Aaron Kennedy** (center)*

For the remaining time on this Track-1 award, CRCS is continuing to expand the Stakeholder group, and to find better ways to engage them. Zhang noted that the CRCS group is also seeking other funding avenues to continue the partnerships with the primarily undergraduate institutions (PUIs) and tribal colleges (TCs) that have been an integral part of this effort.

Dean Webster (left), CSMS lead, chair and professor in Coatings and Polymeric Materials at NDSU, presented the CSMS perspective. He said the "cradle to cradle" approach for this sustainable research effort has resulted in novel monomers and polymers being created for use in various composites that are generating some industry interest. He noted that the team has a positive history working with industry leaders (AkzoNobel and Zymergen), as well as the Department of the Army. In addition to working with CSMS partners across North Dakota, the research team

has established international connections in Japan, France, and the Czech Republic.

For the future, CSMS is focused on developing additional collaborations, including a proposal to join a cooperative effort involving other industry and university partners. The CSMS group is also looking at submitting a proposal for a Grow ND initiative which would help ND farmers grow crops that have industrial uses. Webster noted one of the ongoing challenges of industrial crops is developing the full supply chain from farm to market. Several of the CSMS investigators have submitted proposals for additional grants and other funding opportunities to continue their research efforts.

Conference presentation notes:

Aaron Kennedy *(right) discussed his work with extreme weather, noting the work is on the "frontier of science" in this emerging area.*

Qianli "Rick" Chu *(left), associate professor in Chemistry at UND, provided insights on the impact of photoenergy on the synthesis of novel ag-based monomers.*

CRCS graduate student, ***Bayarbat Badarch*** *(right), from Natural Resources Management at NDSU, provided a three-minute review of soil and climate impacts on five different ND crops. (Advisor:* ***David Roberts****, CRCS co-lead and associate professor, Agricultural Experiment Station Agribusiness and Applied Economics.)*

Undergraduate student, ***Tess Skinner*** *(left), a chemistry major from Minot State University, presented a new method of component synthesis that reduces reaction time and waste products. (Advisor:* ***Mikhail Bobylev****, professor, Chemistry)*

Raul Setien *(right), graduate student in Coatings and Polymeric Materials at NDSU, gave a three-minute overview of a process that creates a feedstock material for sustainable materials, using soybean oil. (Advisor:* ***Dean Webster****, CSMS lead, professor and chair, Coatings and Polymeric Materials.)*

Erin Gillam *(right), associate professor in Biological Sciences at NDSU, was the spokesperson for a collaborative tribal college, primarily undergraduate institution, and research university effort with* ***Mandy Guinn*** *(left), chair and instructor in Environmental Science and Research at United Tribes Technical College, and* ***Paul Barnhart*** *(center), associate professor in Biology at Dickinson State University. Their work focuses on the regional threats to 11 species of bats that reside in ND, which can be impacted by habitat loss, disease, and changing environments such as construction of wind towers.*

Aaron Scott *(right), graduate student in Atmospheric Sciences at UND, shared his research findings on the impact of different crop choices on local weather and climate. (Advisor:* ***Aaron Kennedy****, CRCS co-lead and assistant professor, Atmospheric Sciences.)*

Ghasideh Pourhashem *(right), assistant professor in Coatings and Polymeric Materials at NDSU, discussed the life cycle assessment processes, and the need to consider environmental impacts of sustainable materials.*

Joshua Steffan *(left), assistant professor of Agriculture and of Biology at Dickinson State University, presented information about the soil health when various land uses are implemented, including CRP and no-till variations.*

Jon Starr *(left), graduate student in Atmospheric Sciences at UND, presented a three-minute thesis on the impact to North Dakota agriculture due to market and policy changes. (Advisor:* ***Jianglong Zhang****, professor, Atmospheric Sciences.)*

Creating sustainable plastic materials from plants was the core of a 3-minute thesis presentation given by ***Srikanth Vijjamarri*** *(right), Chemistry graduate student at UND. (Advisor:* ***Guodong Du****, CSMS researcher and associate professor, Chemistry.)*

Catherine Sutton *(left), Chemistry graduate student at NDSU, talked about creating synthetic bio-mass derived monomers in her three-minute thesis presentation. (Advisor:* ***Mukund Sibi****, CSMS co-lead and university distinguished professor, Chemistry/Biochemistry.)*

Xuefeng "Michael" Chu *(right), professor in Civil and Environmental Engineering at NDSU, discussed new hydrology models that incorporate the geology of a region as well as snowpack and plant canopy.*

Education and Workforce Development collaborative efforts were reported by ***Rachel Navarro*** *(left), collaborator with* ***James Nyachwaya*** *and* ***Ryan Summers****, assistant professor, and middle and secondary program area coordinator in Teaching and Learning at UND. Navarro said it is important to translate research for K-12 students to help them consider transitioning into STEM careers.*

Another collaborative effort between a tribal college and research university in an emerging area was presented by ***Dilpreet Bajwa*** *(left), professor in Mechanical Engineering at NDSU. The collaborative research effort with* ***Kerry Hartman*** *(left), academic dean and Environmental Sciences instructor at Nueta Hidatsa Sahnish College, highlights the improved performance characteristics of cellulose nanocrystals when used in poly(lactic acid) composites.*

CRCS Stakeholder workshop

The first CRCS Stakeholder Workshop, titled the *Northern Plains Weather/Climate Product, Service and User Engagement Workshop,* was held on March 28 at NDSU, to bring together regional partners that disseminate weather and climate information, researchers who are working on various models, and end users who depend on weather and climate data.

The day-long event gave attendees an opportunity to interact with researchers and industry experts to discuss their needs and potential uses of the CRCS research results. **Aaron Kennedy** (right), co-organizer, noted that there are 18 faculty

researchers across various disciplines from seven ND institutions involved in CRCS research with over 100 publications. He said the group's current focus is on communicating their results to ND's citizens.

During discussions on the challenges faced by industry/climate partners and other end users when trying to find useful weather or related information, several suggestions were made:

- create a more accurate snowfall map for people who engage in winter activities and want to know where new snow has fallen
- generate more accurate rain analysis, useful for both agricultural users and event planners
- develop more integrated models to help farmers build resilience into planning, plan crop rotations for disease management, assess the economics of various crop choices, and access information regarding the impact of climate variations

Presentation insights

Greg Gust (right), CRCS Stakeholder and National Weather Service (NWS) warning coordination meteorologist, noted that research from other parts of the country does not apply well to North Dakota. The NWS provides data on past events and has expert knowledge, but ND's weather is often difficult to predict. For example, the NWS can confidently say the state will experience a major storm during a certain period of time, but it is difficult to specify exactly when and where the storm will occur. The current research is so important, because it's helping make storm forecasting more accurate.

Adnan Akyüz (left), workshop co-organizer, presented information about the data available through the State Climatologist's office. He said that North Dakota has the most extreme weather in the United States, as well experiencing the greatest increase in temperature. These changes impact residents, from determining which longer growing season varieties of crops should be planted to planning for warmer winter weather.

Darin Langerud, another CRCS Stakeholder member and Atmospheric Resources division director, discussed some of the weather modification programs used by the state. Cloud seeding is a global enterprise in over 37 countries. He noted that areas that had been seeded saw a 45% reduction in crop loss during a 10-year period, with increased wheat yields. Langerud (right) did stress that cloud seeding is not an answer to drought conditions because there often are no clouds to seed.

One of the many services available to North Dakotans is from the High Plains Regional Climate Center, hosted at the University of Nebraska. Regional climatologist **Natalie Umphlett** (right), discussed the mission of the center, which is to increase the use and availability of climate data and information for this region. The Center tracks climate data and uses that information to help solve real-world challenges.

The presentations concluded with **Dannele Peck** (left) from the USDA Climate Hub, talking about ways to make weather information more usable for the ag community. She noted that it's great to talk about a 40% increase in precipitation for the year, but what does that mean for a rancher using range grass to feed his livestock?

The USDA started a pilot program called *GrassCast* to help better interpret how predicted wet or dry conditions might impact the grassland productivity in a selected county. She said the goal is to expand the program to other crops such as wheat and corn.

Practical, needed, and accurate information is the goal for researchers, industry/climate partners, and end users. As Kennedy and Akyüz noted, CRCS is happy to answer questions with regard to weather and climate, or to tackle new research projects.

Presentations from the workshop will be available soon on the CRCS website at https://und-crcs.org/.

Recruiting for Sunday Academy

The ND EPSCoR NATURE Sunday Academy Program is soliciting applications from faculty members for the 2019-2020 academic year, according to Sunday Academy faculty coordinators, **Julia Bowsher**, associate professor and **Britt Heidinger**, assistant professor, both in NDSU's Biological Sciences department. NATURE Sunday Academy engages tribal middle-to-high school students in half-day long active-learning STEM modules. Selected faculty will refine their lessons during a summer workshop (June 11 to 13, 2019) and then travel to each of the five Tribal Colleges in North Dakota on five Sundays during the academic year (between September to March) to present their lessons.

Please consider proposing a NATURE Sunday Academy half-day long, active-learning STEM module. Proposals should consist of the following:

1) Name of faculty member(s) and department
2) Description of the topic
3) Learning goals or outcomes
4) Description of the hands-on activities

Proposals should be approximately 250 words (around a half a page) and should be submitted to Julia Bowsher (julia.bowsher@ndsu.edu) by **Friday April 26.**

Preference will be given to proposals that are well developed and include hands on activities. Collaborative proposals are encouraged. The team will select 5-7 lesson proposals to refine during the summer workshop with participating High School and Tribal College instructors from around the state.

If you have any questions, please e-mail the Sunday Academy faculty coordinators, Britt Heidinger at britt.heidinger@ndsu.edu, or Julia Bowsher at julia.bowsher@ndsu.edu.

Thank you for your consideration and we look forward to hearing from you!

Know before you go

Tyson Jeannotte, Native American Success in Science and Engineering (NASSE) mentor at UND and graduate student in Geological Engineering, was the keynote speaker at a Turtle Mountain Community College (TMCC) college prep event. As an enrolled member of the Turtle Mountain Band of Chippewa, and a graduate of Turtle Mountain Community High School and TMCC, he understands both the challenges that individuals face and the choices they must make to be successful in a STEM career.

Summer research internship

On April 2, **Scott Hanson**, ND EPSCoR tribal colleges liaison manager and **Paula Comeau**, ND EPSCoR STEM manager, attended the 7th annual Tribal Research Symposium at Cankdeska Cikana Community College (CCCC) in Fort Totten, ND. The symposium featured talks from Daniel Wildcat, dean of Natural and Social Sciences at Haskell Indian Nations University in Lawrence, KS, and Stanley Atcitty, Power Electronics and Energy Storage director, from Sandia Energy in Albuquerque, NM.

During Atcitty's presentation, it was announced that **Isnala Roan Eagle**, former NATURE participant and current CCCC student, will participate in a summer internship at Sandia before continuing his education in Engineering at NDSU.

Graduate student survey

Part of the mission of ND EPSCoR is to ensure that graduate students in the current NSF Track-1 INSPIRE-ND award have access to professional development opportunities. ND EPSCoR has developed a *Graduate Student Professional Development Survey* to learn more about graduate students' research and professional development experiences.

To better serve future graduate students supported by the Track-1, ND EPSCoR has developed a short three-minute survey to assess graduate student access to professional development programs and to gather suggestions for programs that could be developed.

The following link will take you to the survey: https://ndstate.co1.qualtrics.com/jfe/form/SV_0ugGyngFs87lTDL or use the QR code (below) to access the survey.

All graduate students who have been involved in EPSCoR programs or funded by ND EPSCoR are invited to participate in the survey.

STEM's hidden resources: K-12

The ND EPSCoR State Office works to facilitate STEM activities at all levels of education across the state. To better understand STEM education needs at the K-12 level, we are actively seeking information from ND's K-12 educators and administrators.

To facilitate the integration of STEM strategies into already existing curriculum in K-12 schools, we need to know what our educators are currently doing and what their priorities are for future development. Our goal is not to replace established curriculum, but rather support current, and integrate new, complementary strategies and/or STEM activity modules.

To facilitate a stronger dialogue between our state, undergraduate and research institutions, and our local school districts, ND EPSCoR is creating a *K-12 STEM Needs White Paper*. This project follows up on a prior survey of K-12 administrators. This anonymous survey will collect information about current activities and needs. The White Paper will provide faculty researchers in the ND University System and ND Association of Tribal Colleges with needed information to support the broader impact components of their research proposals. The survey can be found at: https://ndstate.co1.qualtrics.com/jfe/form/SV_8dXbYIwSYIP6pg1 or by using the QR code below:

For more information, please contact **Jean Ostrom-Blonigen** at jean.ostrom@ndus.edu.

Posters on the Hill

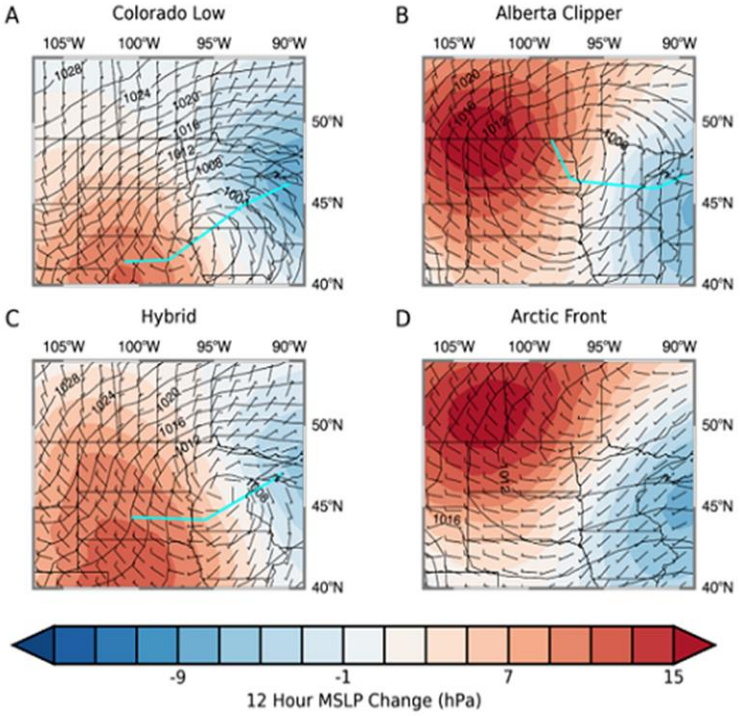
Mikhail Bobylev, CSMS researcher and professor in Chemistry at Minot State University, reported that again this year, one of his Chemistry students, **Tess Skinner**, was chosen as a winner for the Posters on the Hill event, a very selective national competition sponsored by the Council on Undergraduate Research (CUR).

Bobylev (left) and Skinner (right) will be visiting Washington, DC, to participate in a Capitol Hill poster session April 29 - 30, 2019. The two-day event will celebrate research conducted by undergraduate students nationwide. The event features an evening reception on April 30 during which their poster will be displayed in the Rayburn House Office Building.

Northern Great Plains blizzards

North Dakota is the reported blizzard capital of the United States. With global temperatures on the rise, what does this mean for the future of potential blizzards in the Northern Great Plains?

Aaron Kennedy answered this question on January 9, 2019 in his *Identifying Northern Great Plains Blizzards in the Past, Present, and Future* presentation at the 99th American Meteorological Society Annual Meeting in Phoenix, AZ. He addressed how warming climate will impact blizzard conditions in the Northern Great Plains.



Pictured above: Colorado Low pressure system, top right: Alberta Clipper pressure system, bottom left: hybrid pressure system, bottom right: arctic front pressure system, taken from Kennedy's presentation.

"Unlike the storms out east, our storms don't get hashtags, the weather channel doesn't acknowledge them, but they're important for us," Kennedy said in his presentation. "There's a good reason why we get a lot of blizzards; there's a combination of factors that provide the perfect environment to get blowing snow."

Kennedy attributed blizzards to the combination of four main factors: topography, land cover, meteorological forcing, and snowpack conditions.

"When these factors combine, we end up with not only with high snowfall rates and strong winds, but also ground blizzards," Kennedy said during his presentation. "When the snow has fallen in advance of strong winds and an artic front, it makes our life hectic."

In addition to these factors, there are various pressure systems that contribute to blizzards in the Northern Great Plains. The "most notable" according to Kennedy, is the Colorado Lows, a low pressure system with a high level of moisture, strong winds, and reduced visibility. Similar to the Colorado Low is the Alberta Clipper, which has weaker snowfall, but strong winds. Other hybrid systems and arctic fronts may be responsible for ground blizzards.

In order to conduct his research, Kennedy and his graduate students utilized Self-Organizing Maps (SOMs), coupled with North American Regional Reanalysis (NARR) composites, and Community Earth System Model (CESM) to simulate the Earth's climate system.

The results showed a predicted reduction of at least one blizzard every two years through the 21st century. Kennedy notes these are preliminary results, so they are a conservative estimate of what might be expected for ND's future blizzard conditions. One thing is for certain, a warmer climate will reduce the amount of blowing snow.

For the recorded version of Dr. Kennedy's presentation, please visit https://ams.confex.com/.

*(Article submitted by **Jenna Peneueta-Snyder**, a Communication major at UND.)*

Activities of note

Surojit Gupta, Emerging Seed Area awardee and assistant professor in Mechanical Engineering at UND, was recognized by the Minerals, Metals & Materials Society (TMS) with the 2019 FMD Young Leaders Professional Development award. Gupta noted, "It is an honor to receive the 2019 TMS FMD Young Leaders Professional Development Award. TMS membership helps me to connect with my fellow scientists. More particularly, this award will help me to network and be a part of an esteemed materials society for solving challenging engineering problems."

Chad Ulven, CSMS researcher and professor in Mechanical Engineering at NDSU, was selected to present the 2019 Faculty Lectureship, one of the oldest and most prestigious of NDSU's awards.

Ulven presented *Societal Crossroads: Materials that do not kill us will make us stronger* on Tuesday, April 2, in the Memorial Union's Century Theater.

Ulven has been involved in the research of polymer matrix composites for various commercial and defense applications for the past 18 years. He has co-written six book chapters, as well as 70 journal articles, and more than 100 conference papers related to polymer matrix composites. He has co-authored five patent applications that led to two patents and formed two spin-off companies.

Students in action

In early April, **Mikhail Bobylev** and several of his students attended the Spring National Meeting of the American Chemical Society (ACS) in Orlando. At the meeting, six of his students presented posters with their research results, while **Tess Skinner** delivered an oral presentation.

While at the meeting they met **Kathryn Uhrich**, ND EPSCoR's Track-1 EAB Chair. The photo above is a picture of Uhrich (bottom center) with Bobylev's students.

The students also met with the ACS President, **Bonnie Charpentier** (above, fourth from left) and the photo shows her with Bobylev (left to right) and students, **Stephanie Sundhagen**, **Alexandria Hamm**, **Kaytlyn Heick**, **Tess Skinner**, **Amelia Hamman**, **Erin Winterton**, and **Benjamin Wilson**.

Upcoming events

- **NATURE camps at NDSU and UND**: June 3-14, 2019.
- **CRCS and CSMS monthly meetings:** Hosted via IVN to all campuses. Dates are posted for each on their respective websites.

Funding and RFPs

ND EPSCoR will showcase EPSCoR-related funding opportunities when they become available. ***Please work with your own campus-sponsored program staff to ensure that you're meeting internal deadlines and crafting appropriate budgets.***

Travel Awards for ND EPSCoR RII Track-1 CRCS and CSMS Participants

Issued: February 4, 2019
Deadline: Until funding is exhausted
Who can apply: ND EPSCoR RII Track-1 Faculty
From: ND EPSCoR State Office
To underscore the importance of industry collaborations in the sustainability of ND EPSCoR's current RII Track-1 centers for regional climate studies (CRCS) and sustainable materials science (CSMS), NSF has approved the funding for two travel seed awards of up to $4,500 to travel to an industry partner's domestic (now excludes Canada and Mexico) location or to a national laboratory for the purpose of pursuing research collaborations in climate studies or sustainable materials. Please see https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/TravelAwards/EPSCoRIndustryTravelAwardsRFP_February_2019.pdf

Stay in touch

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- To submit a story or idea by the end of the month to joyce.eisenbraun@ndus.edu, please complete: https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/documents/NewsTemplateFillable_2018-10.pdf
- To be added to the newsletter mailing list, please email ndepscor@ndus.edu, subject line: newsletter.