

Spring 2024 Newsletter

Department of Plant and Environmental Sciences | <https://aces.nmsu.edu/academics/pes/>



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May, 2024

Introduction

On May 10th, 2024, the Department of Plant and Environmental Sciences recognized and celebrated the graduation of 25 undergraduate and six graduate students (4 MS and 2 PhD). This number is significantly higher than the last semester graduation. We all know it was a long journey for them, they had to go through some challenging situations at times, especially during the covid. Many of the students started during the covid pandemic but they made it! We must acknowledge their great accomplishments and help them on their way to their next experience. There are many recognitions and awards including faculty and staff activities that are highlighted in this newsletter. Notably, Sophia Fuentes who received NMSU Alumni Outstanding Senior award, Tianna Peterson who received Dean's Award of Excellence for Undergraduates, Ehtisham Khokhar who received Outstanding Graduate Student Paper and Outstanding Graduate Student Teaching Assistant awards, and Sundar Sapkota who received Outstanding Graduate Student Paper award and Dean's Award of Excellence for Graduate Students. Our Outstanding Departmental Students for this year include Ashley Riggs and Suman Sharma.

We know that our graduates will do very well in their respective career plans and desires. As usual, our faculty and staff are highly engaged in academic, research, training and workshop, outreach, and collaboration including international activities. The Pedometrics2024 conference organized and hosted at NMSU by Dr. Brungard was a great success. The conference welcomed 74 in-person and 20 remote participants from 22 countries. There are other excellent stories in the newsletter, and I encourage you all to read them. I sincerely thank our faculty and staff who spent significant hours mentoring and coaching our students and participating in all the excellent activities. Also, I thank our alumni, friends, and supporters of the department who provide financial and other resources in support of our student activities and academic and research programs.

Department Head



Dr. Anowar Islam



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10th Annual Children's Water Festival

The NM Climate Center's staff and students participated in the 10th annual Children's Water Festival on May 1. This was a great opportunity to help educate about climate and promote water awareness to about 1,300 fourth grade students from Las Cruces schools. Our team gave talks on the water cycle and monitoring precipitation and ran a game involving CoCoRaHS rain gauges. In attendance from the Center was Colton Burns, Shihab Uddin, Natalie Franco, Nathalia Linval, Stan Engle, Dewi Gandara, Melissa Rivero, Brittany Byford, and myself.

- Dr. Dave DuBois



Plant and Environmental Sciences Recruiting at EPCC

Plant and Environmental Sciences attended a recruiting fair at the El Paso Community College on Friday, April 26th during the TERRA week career fair. In attendance was Colton Burns, Angel Navarro-Cruz, Dr. Stringham, and Dr. DuBois. They had many chats with students interested in academic programs in PES as well as with other academic programs outside of our department. They also made connections with some of the faculty at EPCC and will be following up with them.



NMSU Participates in National Soil Judging Competition

NMSU's soil judging team participated in the National Soil Judging Competition hosted by Iowa State University from April 22 – April 26th 2024. Seven NMSU students including Ashley Riggs, Tiana Peterson, Beatriz Salazar-Archuleta, Estella Gomez, Lucas Trujillo, and Brooke White competed against 24 soil judging teams from around the nation. Although NMSU's team did not place in the top 10, the team gained extensive practice and experience, particularly for our new members, as we prepare for next year's competitions.

The contest consisted of four days of practice and one long day of competition. In total, the students had the opportunity to describe and classify twenty soils (more than double what it is possible to do in a semester-length class). Soil judging requires individual students and school teams to describe, classify, and interpret soils in under 1 hour. The opportunity for students to apply classroom learning in new landscapes is a fundamental part of the soil judging experience. In this year's competition, students described soils formed in glacial till and loess (wind-blown silt) with significant evidence of reduction and oxidation reactions; soils that we can not see in New Mexico. The team also learned how the climate and soil drive agricultural practices such as the need for tile drainage to produce corn and soybeans for feeding 30 million pigs in Iowa. The team also had the opportunity to visit two botanical centers during our drive, see the world's largest concrete garden gnome, and took precautions to avoid a tornado!

Overall, this was a great experience to translate classroom skills to a new location and build team experience in a positive environment.



Figure 1. NMSU Soil Judging Team members in front of a soil developed in an alluvial terrace.



Figure 2. Team member Tiana Peterson competes against a student from Fresno State University.



Figure 3. NMSU (left) and Texas A&M (right) practice soil morphology description in soils formed in loess over a 130,000-year-old paleosol. These soils are nothing like those in southern NM!



Figure 4. Team members in front of the world's largest concrete garden gnome on a wet and windy spring day in Ames, IA.

NMSU Participates in National Soil Judging Competition



Team members describing soils. From top left clockwise: Brooke White, Beatriz Salazar-Archuleta, Tianna Peterson, Serena Thomas, Lucas Trujillo, Ashley Riggs (left), Estella Gomez (right).

2023 Western Society of Crop Science Meeting Recap

The Western Society of Crop Science (WSCS) is a CCSA branch that comprises western states, territories, and provinces in Canada, Mexico, and the US. The WSCS 2023 meeting was held in Honolulu, HI from June 26-28. The theme of the meeting was the same as that of the 2023 ASA, CCSA, and SSSA Annual Meeting : "Open Science Inspires." The meeting was hosted by Michael Kantar from the department of Tropical Plant and Soil Sciences, University of Hawaii at Manoa, HI.

The WSCS meeting provides a great opportunity to network with colleagues and students from around the West and exchange scientific information. The meeting was attended by more than 60 participants from numerous universities. Student participation increased significantly since the students received travel grants of \$800. This year, participants arrived on Monday, June 26th. Activities started the next day with a welcome from meeting hosts Drs. Michael Kantar and Anowar Islam, WSCS president. Islam discussed his fundraising efforts to provide student stipends to participate in the meeting in Hawaii.

Waimanalo Research Station Tour

The agricultural tour at Waimanalo Research Station was one of the highlights of the conference. The first stop was the Go Farm Program, originally known as the Agribusiness Incubator Program formed at the University of Hawaii College of Tropical Agriculture and Human Resources (CTAHR). The program is designed to support the business needs of new and existing agribusinesses and provide hands on training for local farmers.



Student Awards:

**NMSU Alumni
Outstanding
Senior:**
Sophia Fuentes
*B.S. in
Environmental
Science*



**Deans Award
of Excellence
for Graduates:**
Sundar Sapoka
*Ph.D. in Plant and
Environmental Science*



Pedometrics Conference 2024

The Pedometrics 2024 conference welcomed 74 in-person and 20 remote participants from 22 countries to the campus of New Mexico State University from Feb 5 – 9th, 2024 to discuss recent advances and progress on long-standing challenges in the field of Pedometrics (Fig. 1). Pedometrics is a commission of the International Union of Soil Sciences (IUSS) Division 1 “Soil in Space and Time” which convenes soil and environmental scientists who apply the use of statistical and mathematical tools to analyze and interpret soil data. Conference attendees consisted of a wide range of individuals from experienced Pedometricians involved in the field for decades to 24 graduate students beginning their own research.

The conference was structured around the “Ten challenges for the future of Pedometrics” (Wadoux et al, 2021). Individual sessions were held for each challenge except for challenge 8 which did not receive enough submissions to justify an individual session and challenge 6 for which presenters could not attend. A separate session about the application of “Pedometrics in governmental, scientific, and commercial organizations” was also held. Challenge 4 received the greatest number of accepted abstracts and was split into three separate sessions on spectroscopy, proximal sensing, and digital soil mapping.

The final conference session was a discussion of the overall conference and a reflection on future directions needed in the field. While the discussion was wide ranging and covered many topics, Gerard Heuvelink (Wageningen University, NL and ISRIC - World Soil Information) suggested that a Pedometrics textbook was needed to teach Pedometrics methods to teach accepted and advanced methods, and there was general agreement that such a resource

would be highly beneficial. Also discussed with the unique focus of Pedometricians on the users of our data products and there was a lively discussion about applied vs basic pedometrics research.

Three four-hour intensive training workshops were held the day before the meeting that covered “Containers for reproducible Digital Soil Mapping at different scales”, “Assessment of spatial patterns of soil properties predictions”, and “Deep learning for soil spectroscopy”.

A significant benefit of international conference participation is to network with colleagues and potential collaborators. This was facilitated through two ½ day field trips and four social events. The 1st field trip highlighted soils developing in modern floodplain alluvium, ancestral Rio Grande alluvium (figure 2), and piedmont slope alluvium derived from Organ Mountain Rhyolite. The second field trip demonstrated piedmont slope alluvium derived from Organ Mountain Monzonite (figure 3) followed by a field trip to White Sands National Park where participants discussed the influence of ground water chemistry on dune formation and soil formation, as well as participated in sand sledding (Figure 4). Additionally, participants enjoyed a welcoming-social, were taught American-style football and played a friendly game of both football and soccer, participated in an early morning run near the Organ mountains, and enjoyed a museum tour and dancing during the conference dinner held at the New Mexico Farm and Ranch Heritage Museum.

Overall, participants enjoyed presentations on cutting-edge Pedometrics research, in-depth topical discussion, arid-land soils, and extensive collaborative opportunities among peers.



Figure 1.



Figure 2.



Figure 3.

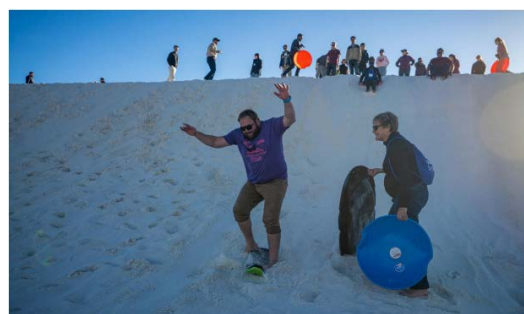


Figure 4.



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Agricultural Experiment Station

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Outstanding Departmental Students:

Ashley Riggs:

*B.S. in
Agriculture*



Suman Sharma:

*Ph.D. in
Plant and
Environmental
Sciences*



PES Graduating Class:

B.S. (Agriculture) - Michael Diaz, Brendan Glenn, Alejandro Gonzalez, Jade Gonzalez, Raul Gonzalez, Matias Lujan, Tyrita McCottry, Tyra Murrill, Roman Padilla, Tianna Peterson, Ashley Riggs, Elora Roberts, Riley Robertson, Maximo Smith, Lilly Stuart. **B.S. (Environmental Science)** - John Begay, Brittany Byford, Erica Caldwell, Sophia Fuentes, Jessica Novak, Marisa-Mia Quezada, Beatriz Salazar-Archuleta, Brissa Terrazas. **B.S. (Genetics and Biotechnology)** - Vincent Love, Madison Marcus. **M.S. (Plant and Environmental Sciences)** - Seth Burrus, Claudia Galvan, Anthony Shaefer. **M.S. (Water Science & Management)** - Rachael Apodaca. **Ph.D. (Plant and Environmental Sciences)** - Sundar Sapkota, Suman Sharma

PES Spring 2024 Graduation Ceremony

The Department of Plant and Environmental Sciences hosted a graduation on Friday, May 10th, in the Skeen Hall Rotunda for our 2024 spring graduates. Graduating students invited friends and family to attend the event, witness their achievements, and enjoy each other's company. Dr. Anowar Islam led the room in congratulating our graduates. Faculty members and student advisors were present for this event as well.



The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs. New Mexico State University is an equal opportunity/affirmative action employer and educator. NMSU and the U.S. Department of Agriculture cooperating.