Reflect upon and be grateful for the past year while looking forward to joy and peace in the new year
DIRECTOR’S MESSAGE

We celebrate the end of a successful fall semester 2022. At times it felt accelerated, but it is always a blink from when classes start until graduation. We have a lot to be proud of and even more to strive for. We remain a strong university community with our faculty, staff, students, alumni, and stakeholders keeping us on course. We have been able to manage everything that has been asked of us and more and we will do the same in the new year.

CELEBRATION

Joe Dillard (BS ’63, MA ’65) was honored at CAFNR’s December Commencement Ceremony with a university honorary degree. These degrees are given on a selective basis to distinguished individuals who merit special recognition for outstanding achievement or leadership in a field or activity consistent with the ideals and purposes of the University.
RESEARCH/PUBLICATIONS/UPDATES/COLLABORATIONS/NEW INITIATIVES

A feasibility cost-share agreement was signed between the Missouri Department of Natural Resources and the US Army Corps of Engineers (MDNR-USACE) to conduct a feasibility study to look for solutions to manage flood risks in the Jefferson City area. The signing ceremony included Lt. Governor Mike Kehoe (center in photo), MDNR Director Dru Buntin (left in photo), USACE Kansas City District Commander Colonel Travis J. Rayfield (right in photo) and witnessed by local elected officials and community members. Funded under this cost-share agreement, Damon Hall (SNR and Biomedical, Biological & Chemical Engineering (BBCE) and PhD students Angela Catalano and Gerardo Gentil are conducting interviews with farmers, community members, business owners, elected officials, and other stakeholders to catalog best management practices and ideas for collaborations that address long-term flooding and drought. During his speech, MDNR Director Dru Buntin acknowledged the work of MU and shared some preliminary findings from the research and encouraged citizens to continue working with MU researchers. The lab’s research was also recognized by Lt. Governor Mike Kehoe in his remarks. A final report of locals’ preferences will guide the state and the US Army Corps of Engineers in managing floods in the area and throughout the Lower Missouri River. (Submitted by Damon Hall.)

For more information:

KOMU (MO) “Army Corps of Engineers signs off on flood resiliency study in Jefferson City” 28 Nov 2022

News Tribune (MO), “State, Corps of Engineers to study Missouri River flooding around Jefferson City” Ryan Pivoney 29 Nov 2022
In June, Mizzou Meteorology upgraded the Weather Analysis and Visualization Laboratory (WAV Lab), courtesy of the Provost’s Student Success Grant Award. The new lab (on the first floor of the teaching/laboratory hallway in ABNR) now gives SNR meteorology students access to 12 Linux workstations used for atmospheric modeling, computer programming and research, as well as advanced weather visualization and modeling software (AWIPS and SHARPpy) that is used by the National Weather Service (NWS). This software is used by current meteorology students to produce the Campus Weather Forecast (soon to be redesigned and disseminated easily on a new website), plus gives them an opportunity to collaborate with meteorologists at the NWS. The new WAV Lab also allows for broadcast meteorology students to work with TV weather graphics software in a laboratory space and produce daily video campus weather forecasts that are recorded and broadcast on various platforms across the Mizzou campus, while providing the students with valuable skills and experience to learn the art of television meteorology. Also, Mizzou Meteorology continues to release weather balloons for educational and operational purposes (at the request of the NWS and the Storm Prediction Center (SPC)) to help aid in the forecast for severe and hazardous weather. The Synoptic Meteorology (ATM_SC 4710) class values their partnership with the National Weather Service Forecast Office in St. Louis (NWS WFO). Several times a semester, NWS meteorologists come to Mizzou to highlight difficult and interesting meteorological concepts and lead in real-time discussions and experiments pertaining to course content and current meteorological trends. In addition, students in Synoptic Meteorology participated in a field trip to the NWS WFO for a tour and a panel discussion on academics, research, and networking opportunities in the field of operational meteorology. (Submitted by Eric Aldrich.)
Bob Kremer delivered an invited presentation, “Biological Products and Soil Health,” at the 67th Annual Montana Grain Growers Association Tradeshow and Convention held in Great Falls, MT. The Montana Grain Growers Association is a commodity specific organization representing the interests of Montana wheat, barley, pulse crop (peas, chickpea, lentil), canola, and hemp growers.


At the link below is a story in Newsweek where SNR Cooperative Associate Professor Lisa Webb was quoted based on her expertise in waterfowl ecology: https://www.newsweek.com/migrating-birds-affected-drying-wetlands-kansas-drought-1761001

A new book entitled Soil Hydrology in a Changing Climate has been published by the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO). The book is edited by Stephen H. Anderson, Albrecht Distinguished Professor of Soil and Environmental Sciences along with two CAFNR alumni — Humberto Blanco, Professor of Soil Management and Applied Soil Physics at the University of Nebraska (MS, 1995; PhD, 2003) and Sandeep Kumar, Professor of Soil Biophysics and Hydrology at South Dakota State University (PhD 2009).
Below are research and conference updates from Assistant Professor Noel Aloysius.

Agricultural conservation practices could help offset climate change impacts on cyanobacterial harmful algal blooms in Lake Erie:

Harmful algal blooms (HABs) are a recurring problem in various aquatic ecosystems. Agricultural conservation practices (ACPs) help mitigate HABs. This study uses integrated biophysical modeling to predict how Lake Erie’s bloom biomass may change in different climate and conservation scenarios. Interdisciplinary, biophysical modeling approaches can help identify strategies to mitigate HABs in the face of anthropogenic stressors. In the absence of changing ACPs, the frequency of severe HABs is projected to grow. Anticipated nutrient increases are due to greater total precipitation and more frequent higher-magnitude rainfall events. Widespread implementation of ACPs would be necessary to reduce HAB severity.

The ERA5’s diurnal cycle of low-level clouds over Western Central Africa during June–September: Dynamic and thermodynamic processes:

This paper analyzes the diurnal cycle of low-level cloud cover and its atmospheric drivers over Western Central Africa during the cloudiest season (June–September). Low cloud formation is related to horizontal moisture flux, strong convergence, and turbulent upward mixing of moisture. The reinforcement of the radiative cooling at the cloud top helps to maintain the cloud deck once it has formed. Surface latent and sensible heat flux due to downward shortwave radiation contribute to increase the vertical turbulence.

Moussa Theodore Yatta (pictured below during his poster presentation @ Advancing Earth and Space Science (AGU) Conference — Improving water management in small scale subsurface drip irrigation:

Plants require a certain amount of water to survive and thrive. The goal of this study is to assess three water application rates and their response to vegetation health and productivity. This study shows how farmers can reduce the amount of water they apply to crop irrigation while still maintaining sufficient crop yield. These findings provide valuable insight into planning small-scale irrigation facilities to increase water use efficiency and reduce input costs, produce food for local trade and consumption, and enhance income generation potential.
Dr. Noel Aloysius AGU presentation — Assessment of Accessible Water Resources to Enhance Food Security in the Transboundary Congo River Basin:

Congo River Basin countries fall short of meeting the UN’s Sustainable Development Goals. This article assesses hydrologic flux changes across time and space. It explores how greater water availability to smallholder farms could increase stable food production. Combined with systematic interventions, farmers can use precipitation and available surface water resources to improve land productivity, ultimately improving rural livelihoods.

Dr. Noel Aloysius and Dr. Neil Fox visited Malawi for meetings and to explore collaborative research opportunities related to water and natural resources management. They were hosted by the USDA Borlaug Fellow alumna Ms. Annie Mapulanga, who Noel mentored during her visit to SNR in Fall 2019. During the visit, they met with several government officials at the Departments of Disaster Management Affairs, Water Resources, and Climate Change and Meteorological Services. The team explored potential research and training opportunities for personnel from Malawi. The visit was facilitated by the CAFNR International Programs Office.

L-R: Fyawupi Mwafongo- Deputy Director of Response; Madalitso Mwale - Principal Relief and Rehabilitation Officer; Annie Mapulanga- Principal Economist; Ephod Kachigwada - Relief and Rehabilitation Officer; Neil Fox; and Noel Aloysius.
The SNR Monthly Reader will be distributed electronically the last working day of the month (except during breaks). Please send announcements (or if you would like to unsubscribe) to Cindy Greenwood, Editor (greenwoodci@missouri.edu).