**The 2018 MOISST Workshop: From Soil Moisture Observations to Actionable Decisions**
**Monday-Thursday, June 4-7, 2018**
**University of Nebraska-Lincoln, Lincoln, Nebraska**
**Hardin Hall Auditorium, 3310 Holdrege St.**
**East Campus**
**Updated: 6/1/2018**

**Planning Committee:** Mike Cosh (USDA-ARS Hydrology and Remote Laboratory), Trenton Franz (Univ. of Nebraska-Lincoln), Tyson Ochsner (Oklahoma State Univ.), Andres Patrignani (Kansas State University), and Steven Quiring (Ohio State University).

**Workshop Audience:**
This workshop provides a unique opportunity for leaders in soil moisture research and development to come together in an interactive workshop format to exchange ideas and develop collaborations. This will be the eighth consecutive year for the workshop, which is an initiative of the community of researchers that has developed from the Marena, Oklahoma, In Situ Sensor Testbed (MOISST). This year's workshop will be hosted by the University of Nebraska-Lincoln and will include a special session on the National Drought Mitigation Center (NDMC) and the National Soil Moisture Network (NSMN), an ongoing initiative to develop a national system that integrates diverse sources of soil moisture observations including federal and state in-situ monitoring networks, satellite remote sensing missions, and numerical models.

**Workshop Goals:**
1. Provide a highly focused venue for presenting cutting-edge research and new concepts related to soil moisture monitoring.
2. Highlight new applications of soil moisture data and identify application-oriented research needs.
3. Stimulate progress towards realizing the vision of the National Soil Moisture Network.

**Registration Fee:** None, but advance registration is required; email tfranz2@unl.edu for questions.

**Location:** Oral and poster presentations will be in Hardin Hall on East Campus. 3310 Holdrege Street.

**Parking:** Parking permits will be provided free of charge during registration. Permits also available at the SNR help desk in the main lobby.

**Bus:** http://www.lincoln.ne.gov/city/pworks/startran/. Star Tran bus 24/25 is available between east campus and downtown.

**UBER:** Available in Lincoln.

**Posters:** Poster roll away boards will be provided. Recommended size is 36" height x 48" width. Poster session is sponsored by **Stevens Water Monitoring Systems, Inc**. Prizes will be awarded to top 3 student presenters.
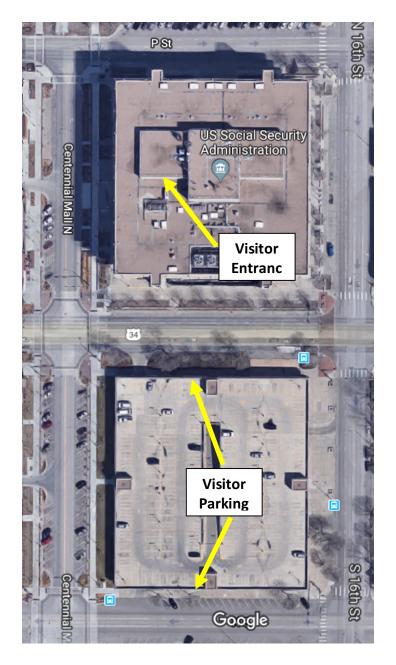
**Meals:** Lunches are available free of charge if you preregistered and signed up. Otherwise several restaurants are located within walking distance from Hardin Hall. Breakfast and dinner are on your own.

**Coffee Breaks:** Free coffee, water, and light snacks will be available as indicated by the agenda. Vending machines are available onsite.

**Monday, June 4, 2018**
**3:00 p.m. - 5:00 p.m.**
**Tour of the National Soil Survey Center**
**Host:  David Hoover, Director**
**USDA-NRCS NSSC Lab Tour and Discussion**

The USDA-NRCS National Soil Survey Center (NSSC) will host a tour of the Kellogg Soil Survey Laboratory (KSSL) followed by a discussion on the most useful soil physical and chemical analyses to augment present and future soil moisture observations.  The KSSL is the most comprehensive soil characterization laboratory in the world with a large database developed as a component of the National Cooperative Soil Survey. The KSSL analytical ability and database serves other federal agencies, as well as, international research, and soil analysis laboratories.

The National Soil Survey Center is located at 100 Centennial Mall North which is on the north side of "O" street between 16th and Centennial Mall.  A visitor parking area is in the parking garage across "O" Street with access from "O" Street or "N" Street.  You will need to register your vehicle at the guard desk inside the building.  Visitor entrances to the Federal Building are on the east and west side of the building.  Elevators are just off the center of the lobby.  Go up to the 3rd floor and turn north and you will see signs for the National Soil Survey Center.  We will gather just inside where there is lots to look at if you arrive a little early.

Visitor
Entranc

Visitor
Parking

**Security Information**
**for entering the**
**Denny Federal Building in Lincoln, Nebraska**



MOST IMPORTANT:  YOU MUST HAVE A PHOTO ID, WITH YOUR NAME ON IT TO ENTER THE BUILDING, NO EXCEPTIONS!

**Steel-toed shoes**:  Please carry them in by hand or put them in a bag.

**Pocket contents**:  Put all change, money clips, keys, phones, pagers **in your bag** before entering the building to facilitate your entry. Otherwise, you will be required to place all these items in a basket to be scanned before entering the building.

**Cameras**:  cameras **will not be allowed** to enter the building.

**Camera phones**: Cell phones with cameras generally are **not allowed** in the building. However, if you provide a government picture ID, you will be allowed to bring it into the building. Otherwise, you will be asked to leave it at the security desk until your exit.

**Belt buckles**:  Try not to wear big buckles, or put them into your bag; if they are worn, you will be required to remove them.

**Knives**: knives **will not be allowed** to enter the building.

The bottom line is that to make things go smoothly, have everything out of your pockets and put into your bags before entering the building.

Thank you.
Have a nice stay in Lincoln.

**If there are any problems give David Hoover a call at 402-470-7600
or call Linda Bouc at 402-437-4000.**

| Tuesday June 5th 2018, Hardin Hall Auditorium, East Campus | | | | |
|---|---|---|---|---|
| Start Time | Total Time | Speaker | Affliation | Topic/Title |
| 730 | | Registration, Hardin Hall atrium | | |
| 830 | 20 | Trenton Franz | UNL | Welcome, orientation, introductions |
| 850 | 10 | Archie Clutter | UNL | UNL, IANR, ARD Overview |
| **Soil Moisture Stakeholders (Moderator: Trenton Franz)** | | | | |
| 900 | 25 | John Bolten | NASA | Soil moisture perspectives and advances |
| 925 | 25 | Mimi Hughes | NOAA | Development of Prototype National Water Model Soil Moisture Products for Drought Monitoring |
| 950 | 25 | Dave Hoover | USDA | NRCS resources, SSURGO |
| **1015** | **35** | **Coffee break** | | |
| **Drought (Moderator: Andres Patrignani)** | | | | |
| 1050 | 25 | Trent Ford | SIU | Developing Integrative Soil Moisture Products to Improve Drought Monitoring in the United States |
| 1115 | 25 | Christopher Philips | UAH | Low-Cost Crowdsourcing Sensor Package for Drought-Related Decision Making |
| 1140 | 25 | Tyson Ochsner | OSU | Development and evaluation of soil moisture-based indices for agricultural drought monitoring |
| **1205** | **15** | **Group photo, SNR greenspace** | | |
| **1220** | **70** | **Lunch provided at SNR, poster viewing interaction** | | |
| **Network Discussions (Moderator: Michael Cosh)** | | | | |
| 1330 | 25 | Martha Shulski | UNL | NE Mesonet |
| 1355 | 25 | Andres Patrignani | KSU | Kansas Mesonet |
| 1420 | 25 | Ronald Leeper and Michael Palecki | NOAA | Standardizing USCRN Soil Moisture Observations for Near-Real Time Applications |
| **1445** | **30** | **Coffe Break** | | |
| **Remote Sensing (Moderator: Tyson Ochsner)** | | | | |
| 1515 | 25 | Rajat Bindlish | NASA | Passive Microwave Products |
| 1540 | 25 | Christopher Neale | NU/WFI | ET and remote sensing |
| 1605 | 25 | Michael Cosh | USDA | NASA ISRO Synthetic Aperature Radar (NISAR) Mission |
| 1630 | 25 | Steven Quiring | OSU | Investigating Soil Moisture–Convective Precipitation Feedbacks Using Satellite and In Situ Soil Moisture in the Central United States. |
| 1655 | 5 | Michael Cosh, Adjourn, Dinner on your own | USDA | Daily wrap-up and plans for Wed. |
| 1800 | | No-host dinner: Screamers, 803 'Q' St. | | Contact Eric Hunt (ehunt@aer.com) |

| | | Wednesday June 6th 2018, Hardin Hall Auditorium, East Campus | | |
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| | | **Modeling (Moderator: Steven Quiring)** | | |
| 830 | 10 | Trenton Franz | UNL | Welcome and orientation for day |
| 840 | 25 | Nathan Chaney | PU | Hydroblocks, Polaris |
| 905 | 25 | Kaiyu Guan | UIUC | hyper-resolution daily crop monitoring and sub-daily water demand modeling |
| 930 | 25 | Patricia Lawston | NASA | LSM and irrigation |
| 955 | 25 | Yihua Wu | NOAA | Simulating Soil Moisture Dynamics in NCEP Numerical Weather/Climate Prediction Models |
| **1020** | **30** | **Coffee break** | | |
| | | **Applications (Moderator: Trenton Franz)** | | |
| 1050 | 25 | Burdette Barker | UNL | VRI irrigation scheduling |
| 1115 | 25 | Daran Rudnik | UNL | UNLTAPS Project |
| 1140 | 25 | Taro Mieno | NU/WFI | Economics of soil moisture probes |
| **1205** | **145** | **Lunch at SNR and poster viewing time/ Coffee at 1400** | | |
| | | **Technology and Irrigation (Moderator: Trenton Franz)** | | |
| 1430 | 25 | John Heaston | AquaMart | AquaMart, NE water challenges and perspective |
| 1455 | 25 | Jessica Bollinger | Arable Labs | Arable, Agtech business perspective |
| 1520 | 25 | Hannah Birge | TNC | Central Nebraska Irrigation Project |
| 1555 | 25 | Todd Caldwell | UT | Quantifying Diffuse Recharge to the Edwards Aquifer using Micrometeorology and Remote Sensing |
| 1620 | 25 | Xufeng Zhang | Argonne Nat. Lab. | Distributed soil moisture sensors |
| 1645 | 20 | Tyson Ochsner | OSU | Daily wrap-up, poster winner and plans for Thursday. |
| | | Dinner on your own | | |

| | | Thursday June 7th 2018, Hardin Hall Auditorium, East Campus | | |
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| | | **NSMN Planning Workshop, Break out sessions** | | |
| 830 | 30 | Mike Strobel | NRCS | Status of NSMN to this point |
| 900 | 30 | Veva Deheza | NOAA | What will NSMN be? Deliverable |
| 930 | 15 | Mark Svoboda/Brian Fuchs | UNL | Drought Monitor |
| 945 | 15 | Temple Lee and Michael Buban | NOAA | Gridded soil moisture product from CRN |
| **1000** | **30** | **Coffee break** | | |
| 1030 | 15 | Tyson Ochsner | OSU | Open Science Framework |
| 1045 | 15 | Steven Quiring | OSU | National Soil Moisture Map |
| 1100 | 15 | Trent Ford | SIU | GitHub Lessons |
| 1115 | 15 | Wade Crow | USDA | Data Assimilation |
| 1130 | 15 | Peter Colohan | NOAA | National Water Model |
| 1145 | 15 | Mike Cosh | USDA | LPV Network Design |
| **1200** | **30** | **Lunch at SNR** | | |
| 1230 | 60 | Breakout Sessions | | Selected from: Mapping, QC, Framework, Standards … |
| 1330 | 30 | Report Back | | |
| 1400 | 30 | Discussion | | Defining deliverables for NSMN |
| 1430 | 30 | Path Forward | | Establishing a framework |
| 1500 | | Adjourn | | |

## Poster Presentations:

| First Name | Last Name | Organization | Poster Title/Topic |
|---|---|---|---|
| Keith | Bellingham | Stevens Water Monitoring Systems | TBD |
| Clay | Blankenship | NASA SPoRT | Impacts on numerical weather prediction from SMAP soil moisture assimilation |
| Jordan | Christian | OU | NA |
| Jingnuo | Dong | Oklahoma State University | TBD |
| Justin | Gibson | University of Nebraska-Lincoln | Spatial prediction of near surface soil water retention functions using hydrogeophysics and empirical orthogonal functions |
| Peter | Goble | CSU | TBD |
| Christopher | Hain | NASA | TBD |
| Eric | Hunt | Atmospheric and Environmental Research | TBD |
| Destiny | Kerr | Oklahoma State University | TBD |
| Zachary | Leasor | The Ohio State University | Improved Seasonal Forecasts Utilizing Antecedent Soil Moisture: A Comparison of Observational and Modeled Monthly Soil Moisture Products |
| JINGJING | LI | University of Nebraska-Lincoln | Comparison of methods for calculating deep percolation |
| Narmadha | Mohankumar | Kansas State University | TBD |
| Michael | Palecki | NOAA NCEI | USCRN Soil Moisture Products |
| Ryan | Sullivan | Argonne National Laboratory | TBD |
| ameneh | Tavakol | Kansas State University | Remote sensing soil moisture |
| Elwynn | Taylor | Iowa State University | Three Score and Eight Years of Field Moisture Record |
| Kati | Togliatti | Iowa State University | TBD |
| Ryann | Wakefield | OU | NA |
| Briana | Wyatt | Oklahoma State University | TBD |
| Yaping | Xu | LSU | Downscaling SMAP Soil Moisture Using Random Forest and Regression Kriging |
| Shanshui | Yuan | Ohio State University | TBD |
| Robert | Zamora | NOAA/ESRL Physical Sciences Division | Evaluating National Water Model Soil Moisture Simulations with Observations |
| Ning | Zhang | Ohio State University, Department of | TBD |
| Yongyong | Zhang | Oklahoma State University | TBD |
| Chen | Zhao | Ohio State University | National Soil Moisture Maps: Development and Application |
| As of 6/1/2018 | | | |

## Meeting Participants:

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