# Monitoring Forest Soil Moisture for a Changing World

## Workshop Agenda, May 15-17, 2018

Kiva Conference Room, 3600 Green Court, Suite 100, Ann Arbor, MI 48105
**Michigan Tech Research Institute**

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**Day 1, May 15th**

**8:00 a.m.**      **Registration and Coffee**

**9:00 a.m.**      **Session I: Setting the Stage**
*Presenting: **Robert Shuchman**, MTRI, **Evan Kane**, Michigan Technological University, **Liza Jenkins**, MTRI, **Cynthia West**, USDA Forest Service*
- Welcome
- Introductions
- Setting the Stage:  Objectives, Goals
- Charge to Workshop Participants

**9:45 a.m.**      **Plenary: Opening Presentation**
*Presenting: **Steve McNulty**, USDA Forest Service*
- Questions and Answers

**10:45 a.m.**     **Break**

**11:00 a.m.**     **Session II: Overview of Ground-Based Soil Moisture Data Collected in Forests/National Forest Lands**
- National Soil Moisture Monitoring Network
  *Presenting: **Steven Quiring**, The Ohio State University (30 mins)*
- Other Existing/Getting Started Networks (15 mins each)
  - RAWS/Fire Weather
    *Presenting: **Mary Ellen Miller,** MTRI, Michigan Technological University*
  - CoCoRaHS
    *Presenting: **Peter Goble**, Colorado State University*
  - SCAN, SNOTEL
    *Presenting: **Mike Strobel**, USDA NRCS*

**12:15 p.m.**     **Lunch**

**1:15 p.m.**      **Session II, Continued**
  - Experimental Forest Contributions (20 mins)
    *Presenting: **David Hollinger**, USDA Forest Service*
  - Forest Hydrology and Soil Moisture Connections (25 mins)
    *Presenting: **Chelcy Miniat**, USDA Forest Service*
- Questions & Facilitated Discussion (15 mins)

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| **2:15 p.m.** | **Session III: <u>Overview of Remotely-Sensed Soil Moisture Data Collected and Modelling Approaches on Forests/National Forest Lands</u>** |

- Active and Passive Microwave (45 mins)
  *Presenting: **Laura Bourgeau-Chavez**, MTRI, Michigan Technological University*

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| **3:00 p.m.** | **Break** |
| **3:15 p.m.** | **Session III, continued**: |

- *NISAR (15 mins)*
  *Presenting: **Paul Rosen** (remote presentation), NASA JPL*
- Estimation of Vegetation Canopy Water Content from Optical Remote Sensing (30 mins)
  *Presenting: **David Riano**, University of California, Davis*
- ECOSTRESS: NASA's next mission to the International Space Station focused on ecosystem water use and stress (30 mins)
  *Presenting: **Josh Fisher** (remote presentation), NASA JPL*
- Fluorescence and Hyperspectral Remote Sensing and Physiology (30 mins)
  *Presenting: **Phil Townsend** (remote presentation), University of Wisconsin*
- Questions & Facilitated Discussion (30 mins)

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| **5:30 p.m.** | **Evening Social and Informal Poster Session (adjourns 7:00 p.m.)** |

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**Day 2, May 16ᵗʰ**

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| **8:00 a.m.** | **Registration and Coffee** |
| **8:30 a.m.** | **Welcome and Updates – Liza Jenkins***, MTRI* |
| **8:45 a.m.** | **Session IV: <u>Soil Moisture Applications Panels</u>** |
| | **Panel: <u>Data Producers and Users (20 mins each)</u>** |

- Integrated Modeling
  *Presenting: **Larry Band**, University of Virginia*
- Managing for drought and climatic extremes in Californians forests - examples from the Sierra Nevada
  *Presenting: **Steve Ostoja** (remote presentation), USDA ARS*
- National Drought Resilience Partnership (NDRP), National Drought Mitigation Center (NDMC), & National Integrated Drought Information System (NIDIS)
  *Presenting: **Mark Brusberg**, USDA*
- A topographically resolved soil moisture, drought and wildfire danger monitoring system for the continental U.S.
  *Presenting: **Zack Holden** (remote presentation)**, USDA Forest Service***
- Questions & Facilitated Discussion (30 mins)

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| **10:45 a.m.** | **Break** |
| **11:00 a.m.** | **Panel: <u>Data Integration and Product Development (20 mins each)</u>** |

- Challenges and Strategies for Collection and Integration of Diverse Sources of Soil Moisture Information
  *Presenting: **Trent Ford** (Remote Presentation), S. Illinois University*

- Indicators of Forest Drought
  *Presenting: **Erik Johnson & Steve McNulty**, USDA Forest Service*
- Forest Drought Indicator (ForDRI) Model
  *Presenting: **Tsegaye Tadesse**, National Drought Mitigation Center, University of Nebraska*
- Questions & Facilitated Discussion (30 mins)

**12:30 p.m.** **Lunch – Food Truck**

**1:30 p.m.** **Session V: <u>Breakout Sessions</u>**
  1. Indicators, Inventory Assessment, and Monitoring for Forest Soil Moisture Trends
  2. Knowledge, Gaps, and Future Technology
  3. Data Management and Reporting Systems

**4:30 p.m.** **Breakout Report Out and Synthesis**

**5:30 p.m.** **Workshop Adjourns for the Day** (Organizing Committee Dinner 6 p.m.)

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**Day 3, May 17<sup>th</sup>**

**8:00 a.m.** **Registration and Coffee**

**8:30 a.m.** **Welcome and Breakout Charge – *Liza Jenkins*,** *MTRI*

**8:45 a.m.** **Session VI:  <u>Breakout Sessions</u>**
Same Groups from Previous Day and/or Recombine into New Groups

**10:45 a.m.** **Break**

**11:00 a.m.** **Summation of Workshop**
*Presenting: **Steve McNulty**, USDA Forest Service*
- Discussion

**11:30 a.m.** **Session VII: <u>Next Steps</u>**
- Workshop Products and Communication Strategy
  *Presenting: **Liza Jenkins & Nancy French**, MTRI*
- Discussion of Roles and Next Steps to Implementing National Forest Soil Monitoring Network/Blueprint and Timeline for Next Steps
  *Presenting: **Cynthia West**, USDA Forest Service*

**12:30 p.m.** **Workshop Adjourns**
Organizing Committee Stays for Afternoon Session to Draft Reports

**Optional Afternoon Session: NASA SMAP Data Tutorial**
The Soil Moisture Active Passive (SMAP) mission provides high quality global soil moisture, brightness temperature and freeze/thaw state valuable to a wide range of government agencies, researchers, and private sector. Thematic applications of SMAP data products include droughts and wildfires, floods and landslides, agricultural productivity, weather and climate forecasting, etc. The SMAP tutorial provides a classroom, hands-on environment where participants will learn how to work with the data and apply it to their thematic area of interest. Participants will learn how to access, apply, and overcome challenges of working with SMAP data.