

**Minutes of the 2012 Annual Meeting of the W-2188 Multi-State Research Project
“Characterizing Mass and Energy Transport at Different Vadose Zone Scales”**

January 3, 2012 – University of Hawaii, Honolulu, HI

The annual meeting of W-2188 was called to order by Thijs Kelleners (Chair) at 8:55 a.m. on Tuesday, Jan. 3, 2012. The project members and visitors in attendance were:

Members:

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| 1. Heinse, Robert | University of Idaho |
| 2. Jacobsen, Jeff (W-2188 AA) | Montana State University |
| 3. Jin, Yan | University of Delaware |
| 4. Jones, Scott | Utah State University |
| 5. Kamai, Tamir | University of California, Davis |
| 6. Kelleners, Thijs (Chair) | University of Wyoming |
| 7. Knighton, Ray | USDA-NIFA |
| 8. Nieber, John | University of Minnesota |
| 9. Ochsner, Tyson (Secretary) | Oklahoma State University |
| 10. Wendroth, Ole | University of Kentucky |
| 11. Wu, Joan | Washington State University |
| 12. Zhang, Fred | Pacific Northwest National Laboratory |

Guests:

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| 13. Fares, Ali | University of Hawaii at Manoa |
| 14. Hartsough, Peter | University of California, Davis |
| 15. Palecki, Michael | NOAA-CRN |
| 16. Robock, Alan | Rutgers University |
| 17. Shuai, Xiufu | University of Hawaii at Manoa |
| 18. Zreda, Marek | University of Arizona |

Order of Business:

1. Kelleners called the meeting to order. Participants introduced themselves.
2. Nieber reported on activities at the University of Minnesota with an emphasis on new modeling work on the soil freezing process that allows for non-zero pressures in the ice phase, a significant improvement over prior models.
3. Jin reported on activities at the University of Delaware with an emphasis on experiments designed to discover how infiltration and drainage fronts mobilize colloids in soil.
4. Wendroth reported on activities at the University of Kentucky and showed examples of how solute transport experiments and fertilizer response experiments can be best conducted in the unavoidable presence of soil spatial variability. Wendroth also distributed a copy of a personal letter from Don Nielsen to Goro Uehara dated July 8, 2011. Dr. Uehara was an internationally recognized soil scientist at the University of Hawaii for fifty years. He passed away at his home in Honolulu on Jan. 2, 2012.

5. Heinse reported on activities at the University of Idaho, focusing on efforts to characterize soil “pipes” using electrical resistance tomography.
6. Zreda gave an invited presentation on the cosmic-ray soil moisture observing system (COSMOS) and explained the theory, instrumentation, current applications, and methodological challenges of this technology.

Lunch Break

7. Zhang described ongoing efforts to evaluate the effectiveness of a surface barrier designed to limit downward water flow at the Hanford site.
8. Wu described current research on the Water Erosion Prediction Project (WEPP) including the development of a new WEPP Online GIS 2011 interface.
9. Robock gave an invited presentation on using soil moisture observations to study climate variations and evaluate climate models.
10. Kelleners gave an overview of current activities at University of Wyoming including efforts to improve snowmelt runoff modeling and to use measured soil moisture data to predict rangeland productivity.
11. Kamai described work at UC-Davis to develop and apply semi-analytical and numerical models to analyze measurements from large diameter heat pulse probes for more accurate thermal property determinations.
12. Hartsough gave an update on research activities in the Sierra Nevada Critical Zone Observatory focusing on efforts to clarify the contribution of deep soil moisture to tree transpiration during summer.
13. Jones reported on research using the penta-needle heat pulse probe to measure soil heat flux in order to overcome known inaccuracies with the flux plate method.
14. Ochsner reported on the development and operation of the Marena, Oklahoma In Situ Sensor Testbed (MOISST) which evaluates current and emerging soil moisture sensing technologies.
15. Kelleners led the business meeting:
 - a. The annual report for activities in 2010 was approved. (Wendroth motion, Jones second)
 - b. The minutes of the January 3-5, 2011 annual meeting were approved. (Wendroth motion, Heinse second)
 - c. Xiufu Shuai, University of Hawaii at Manoa, was nominated and approved as a new member of W-2188. (Wendroth nomination, Jones second)
 - d. Toby Ewing, Iowa State University, was nominated and approved as a new member of W-2188. (Jones nomination, Nieber second)
 - e. Heinse and Nieber were nominated for the position of W-2188 secretary. Nieber was elected.
 - f. Las Vegas was chosen as the location for the 2013 meeting by consensus. Oklahoma was discussed as a potential meeting location for 2014. Wu suggested Puyallup, WA as potential future meeting place.
 - g. Date for the next meeting was set as Jan. 2-4, 2013.
 - h. Participants suggested including some discussion sessions around targeted themes during the next meeting.

- i. Jacobson reported on the outcome of the W-2188 research award application. The project was nominated by the Western Region directors but did not win at the national level. The main weakness in the application was the lack of quantified impacts. He suggested we consider reapplying at the end of the current 5-yr project.
- j. Knighton reported on funding cuts within NIFA. He also noted that AFRI staff are now having more opportunities to influence research priorities than in recent years where the priorities were handed down from above.

16. Meeting adjourned at 5:45 p.m.

Minutes recorded by:

Tyson Ochsner
2011 W-2188 Secretary