

**Office of the Chief  
Weekly Report**

**Soil Science and Resource Assessment  
Soil Science Division**

**March 27, 2013**

**Deadline Reminders –**

- Mid-Year Performance Appraisals due on April 30, 2013, our internal date is March 31, 2013.

**Upcoming Meetings/Conferences –**

- Soil Survey Regional Directors Meeting, April 2-4, 2013, Lincoln, NE

**Soil Science Division Update –**

**Training in Digital Soil Mapping with ArcSIE**

A Digital Soil Mapping with ArcSIE training session was presented March 19-21, 2013 at the University of Massachusetts in Amherst, MA. A class of 13 participants representing 10 states learned how to utilize raster data, fuzzy classification and knowledge based mapping techniques with the ArcGIS extension, ArcSIE. Partnership with Dr. Xun Shi, Dartmouth College, along with NRCS employees Bob Long, Jessica Philippe, Tom D’Avello and Zamir Libohova provided instruction on using the tool to develop inferential soil maps. These techniques and tools will be important for current and future soil survey efforts, including the Soil data join recorrelation effort.



NRCS employees participating in the Digital Soil Mapping with ArcSIE (soil science division training).

**National Cooperative Soil Survey Exhibit for Girl Scouts Career Day**

NRCS Soil Survey Division staff exhibited at the Girl Scouts Day event held at the Udvar-Hazy National Air & Space Museum, Dulles, VA, Saturday, March 23, 2013. The event was part of the “Linking Girls to the Land” initiative that encourages girls to consider science careers.

The exhibit included hands-on activities using stereoscopes and 3-D anaglyphs. Handouts included 3-D glasses with anaglyph, 2013 Soils Planner, Challenging Careers, Earth Team and Web Soil Survey brochures. Over 1,000 Girl Scouts and troop leaders from the local area attended the event. The exhibit was staffed by Maxine Levin, Paul Reich and Thomas Reinsch, with friends and family assisting too.



### **The Soil Health Initiative in Wisconsin**

University of Wisconsin Extension and Wisconsin NRCS staffs began a Soil Health Initiative in their state. On Wednesday, March 20<sup>th</sup>, a soil health training session was conducted for NRCS and partners in Wisconsin. Mike Kucera, Agronomist, Soil Quality and Ecosystems Branch, NSSC, kicked off the training with an overview of the soil health initiative, an overview of key components of soil health management systems, and details about the importance of soil health. The Extension Service has received funding to provide soil health assistance and training in four Midwest states, including Wisconsin, Michigan, Minnesota and Nebraska. On Friday, March 22, Wisconsin Extension Service and NRCS also hosted a multi-state teleconference to collaborate with surrounding states on putting together soil quality bucket kits for use in simple soil health assessments and demonstrations. They plan to begin to order and assemble soil quality bucket kits in the next few weeks and desire to keep costs and duplication of efforts at a minimum by collaborating with other states. For more information contact: Kevin Erb, University of Wisconsin Extension Service at [kevin.erb@ces.uwex.edu](mailto:kevin.erb@ces.uwex.edu); Pat Murphy, State Resource Conservationist, at [pat.murphy@wi.usda.gov](mailto:pat.murphy@wi.usda.gov); or Mike Kucera at [michael.kucera@lin.usda.gov](mailto:michael.kucera@lin.usda.gov).

### **Soil Science on YouTube**

The Soil Science Division has its very own YouTube channel at <http://www.youtube.com/user/nrcsnssc>. With very little promotion, our YouTube channel videos have 5,703 views so far this calendar year and lifetime views of 18,758 (since June 2011). The National Soil Survey Center is in the process of transcribing and closed captioning all of its videos and webinars.

#### **Videos**

- Video for Students of Soil Technology - Measurement and Data Evaluation (3/13)
- How to Use the Field Book for Describing and Sampling Soils (2/13)
- Virtual Tour of the Kellogg Laboratory (8/12)
- 1991 Newhall Simulation Model Run (7/12)
- Water Movement in Soil (12/11)
- Particle-Size Analysis by Hydrometer (7/11)
- Soil Science Institute (6/11)

#### **Webinars**

- Soil Organic Matter Response to Soil Management Practices (3/13)
- Evaluation of Conservation Performance in Cropland Regions Using Process-Based Models (3/13)
- Spatial Disaggregation (2/13)
- IRIS Tube Technology (1/13)
- Vesicular Soil Horizon (12/12)
- Technical Soil Services Activity Reporting (11/12)
- New Data Collection Apps for Mobile Devices (11/12)
- National Geospatial Management Center Web Services (9/12)
- Soil Quality and Soil Health (9/12)
- Java Newhall Simulation Model (7/12)
- NASIS 6.2 and Pedon PC 5.0 Release and the soilDB Package for R
- Soil Data Join Recorrelation Initiative (4/12)
- Hydric Soils and the Farm Bill (3/12)
- Soil Property Maps from STATSGO (2/12)
- Soil Survey Laboratory Data (1/12)
- Ecological Sites and the MLRA SSO Leader (12/11)
- Update on the National Commodity Crop Productivity Index (10/11)
- Land Evaluation (LE) Part of FPPA Forms (9/11)
- Site Assessment (SA) Part of FPPA Forms (9/11)
- Training Plans and On-the-Job Training for Soil Survey Offices and Field Offices (8/11)
- NASIS and WSS Updates (4/11)
- Role of MLRA SSO in Ecological Site Inventory (3/11)
- The Interpretations Group (2/11)
- SC-OSD Database (2/11)

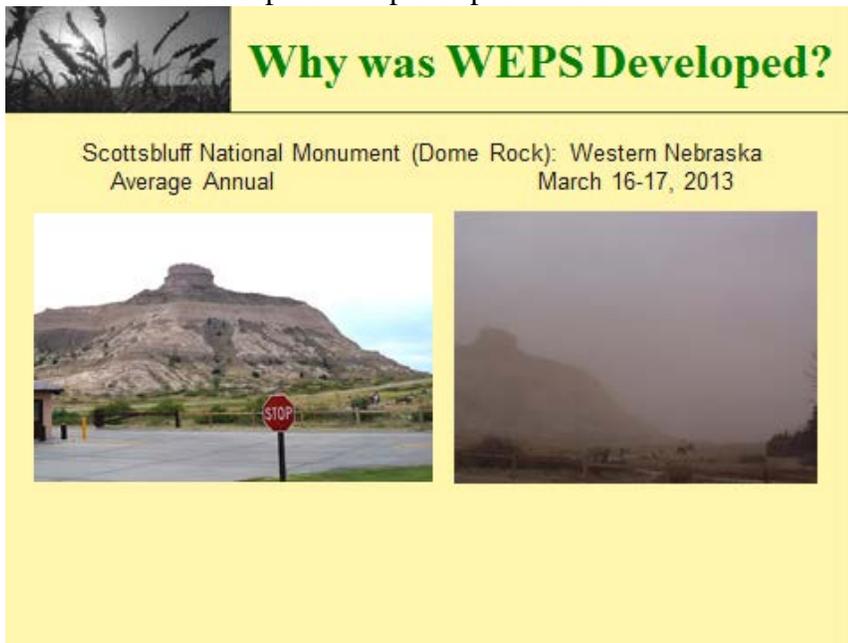
### **Cooperative Hydropedological Research with Penn State University**

Jim Doolittle, Research Soil Scientist at the NSSC, is collaborating with Dr Henry Lin and the Department of Ecosystem Science and Management at Pennsylvania State University in hydropedologic studies within the Shale Hills Critical Zone Observatory (CZO) and the Klepler Research Farm in central Pennsylvania. Hydropedology is an emerging interdisciplinary science that studies soil-water-landscape dynamics and relationships across different spatial and temporal scales to assess soil and landscape impacts on ecosystems, contaminant fate, and land-use. The NSSC has provided non-invasive, continuous profiling geophysical tools (e.g., ground-penetrating radar and electromagnetic induction) and expertise that have helped reveal the complexity of soil architectures and their impact on flow and transport across different spatiotemporal scales. A fundamental goal of this research is to partition landscapes into functional units that have similar soil and hydrologic processes and properties, and to improve the accuracy and utility of second-order soil maps. Results from these geophysical studies have been recently reported in several chapters of a book (Lin, H., 2012. *Hydropedology: Synergistic Integration of Soil Science and Hydrology*. Academic Press, Elsevier) and an article (Zhu, Q., H.S. Lin, and J.A. Doolittle, 2013. Functional soil mapping for site-specific soil moisture and crop yield management. *Geoderma* 200-201: 43-54).

### **Wind Erosion Training for Western NE**

In response to erosion and soil condition observations in the field, erosion specialists/ agronomists Joel Poore, CNTSC, Linda Scheffe, NSSC, and Corey Brubaker, Nebraska SO, provided wind erosion and Wind Erosion Prediction System (WEPS) training at two locations in Western NE during the week of March 18th. Wind erosion science, conservation planning, and the importance of developing integrated

sustainable systems with farmers and ranchers were emphasized. The interface, directory/folder structure, building management records, using soils data, designing projects, and interpreting results of the current NRCS wind erosion model, WEPS, were discussed. Integrated databases as well as conservation practices for addressing wind and water erosion, soil quality, air quality, and other resource concerns were exemplified in participant exercises.



### **Technical Review of Ecological Site Work in NM**

NSSC staff recently assisted with a review of ecological site descriptions (ESDs) that were completed in conjunction with the soil survey of Carlsbad Caverns National Park. Scott Woodall, rangeland management specialist assigned to the project, led a very successful effort in developing ESDs that are useful to the National Park Service, as the primary customer, as well as to private landowners, Bureau of Land Management, and US Forest Service, as the concepts are correlated and extrapolated to the area surrounding the park. These new ESDs will also serve to broaden the business requirements for ESD data storage.