

New Technology Committee

**2010 Northeast Regional
National Cooperative Soil Survey
Conference**

2008 Themes:

- Theme 1: Explore data collection tools for improving the quality of existing soil survey data
- Theme 2: Explore new ways of visualizing and delivering soil survey data
- Theme 3: Explore data analysis tools and effects of data quality on the analysis
- Theme 4: Explore strategies for information sharing and technology transfer

2008 Recommendations - Theme 1

- Support continued acquisition of high resolution elevation data and high spatial and spectral resolution imagery.
- Develop a resource base that describes how DEM or RS data are used, what kinds (NED vs. LIDAR, CIR, satellite, leaf-on vs. leaf-off), choice of resolution, choice of software to use, available methodologies (and their pros and cons), examples, etc.
- Promote further development of data collection tools, particularly improvements to PedonPC
- Finger-driven navigation and data entry
- Interactive data entry (voice-driven)
- Usability Matrix –Pros, Cons, Uses of field tools

Progress to Date

- All elevation data must meet the FGDC-STD-007.3-1998 National Standard for Spatial Data Accuracy. Therefore, the base data should meet the standards that we need for soil survey work. However, each dataset is processed differently through a series of steps, all of which have pros and cons to usefulness of the final product.
- U.S. Geological Survey National Geospatial Program Lidar Guidelines and Base Specification, Version 13 – ILMF 2010 is the standard that is currently being used for LiDAR. ([http://lidar.cr.usgs.gov/USGS-NGP%20Lidar%20Guidelines%20and%20Base%20Specification%20v13\(ILMF\).pdf](http://lidar.cr.usgs.gov/USGS-NGP%20Lidar%20Guidelines%20and%20Base%20Specification%20v13(ILMF).pdf))
- Currently, there are no post-processing procedures for the manipulation of the elevation data. Therefore, multiple soil survey and GIS scientists are using multiple post-processing techniques to achieve usable products such as slope maps, landforms, profile and planform calculations, resampling, and reprojection. Each user is spending time determining the best post-processing procedure for each application.
- A new version of PedonPC is being released shortly. A list of improvements is forthcoming.
- NASIS 6.0 can now directly import PedonPC data.

2010 Theme

- There are standards for spatial accuracy, but not an explanation of the different processing procedures and their pros and cons to the usefulness of the DEM or LiDAR that the field receives.
- There should be post-processing procedures developed from the current knowledge base to provide shortcuts and a level of caution for each final product using DEM and LiDAR.
- Continue looking at usability matrix for field tools such as tablets, GPS units, etc.
- Review the new Pen Tablet for field use.

2008 Recommendations - Theme 2

- Develop realistic, three-dimensional block diagrams that illustrate relationship between soil map unit boundaries and what is happening below the surface.
- Deliver soil survey data draped over a DEM (as well as imagery) Web Soil Survey.

Progress to Date

- Block diagrams can be constructed within ARCScene. However, the processing power required to provide clear 3D surfaces is quite high. Overlay of soil delineations often do not work well. It is suggested that a base block diagram surface is generated using only one layer draped over the DEM within ARCScene, then saved as a PDF. Import the PDF into Adobe Illustrator to finish the diagram using the drawing tools, swatches, and textures that can be downloaded free from the web.

2010 Theme

- Discuss the need for a Block Diagram developers guide like what was generated in the 70's.
- Increase the use of drawings, diagrams, and charts in soil survey delivery.
- Discuss the development of MLRA project derived papers that can be served via the web. Separate papers of projects will support the technical transfer of knowledge to soil survey users in addition to the base maps generated by Web Soil Survey.

2008 Recommendations - Theme 3

- Provide more explicit guidance on pros and cons of imagery, elevation data sources, and digital mapping methods

Progress to Date

- See Theme 1

2010 Theme

- There are standards for spatial accuracy, but not an explanation of the different processing procedures and their pros and cons to the usefulness of the Imagery, DEM or LiDAR that the field receives.
- Provide a standard layer for non-federal and federal lands so that acres for specific projects can be accurately documented within the new NASIS 6.0

2008 Recommendations - Theme 4

- Investigate how NRCS (e.g., the corporate soils database) can exchange data (in addition to laboratory data) from non-NRCS or non-NCSS partner sources.
- Similarly, work with non-NRCS and non-NCSS partners to ensure that data collection methods and data recording protocols are commensurate with current NRCS standards

Progress to Date

- An effort is underway to take Land Grant Universities sampling data and input it into the national laboratory database. Progress to date is unknown.
- NRCS is working with several Land Grant Universities in various information serving capacities. More can be done, such as helping states with specific soil data for state mandated soil, water, and resource conservation projects.

2010 Theme

- Discuss the basic needs that most all states will require for implementation of spatial and interpretive soils data.

Bylaws Update:

- The New Technology Committee proposed to establish a Chair and Chair-elect for 2010 conference. At the end of each conference the Chair rotates off the committee, the
- Chair-elect becomes the Chair, and a new Chair-elect is elected

2010 New Technology Chair and Chair-elect

- Chair: Tim Prescott → Tim Craul, vice chair Amanda Moore
- Chair-elect: Darcy Boellstorff, Assistant Professor, Bridgewater State College

Recommendations

- Technology Committee recommends that there is a permanent liaison member committee/person for Technology Development for the NE Region. Ideal person is the MO GIS Specialist, or NCGC person (ie. Someone with more than passing knowledge in GIS and new technology, SBAAG Leader or Equiv.)
- Pass on to National Committee the need for standardized national layer of federal and non-federal lands for determining acreage within MLRA wide projects.
- Recommend that the Guidelines for Block Diagram development is updated to include computer generated procedures as well as retaining the historic concepts.

Suggestions

- Suggest that all state work planning conferences query state needs for cooperation on soil survey information transfer. Pass this information onto the SBAAG committee or Equiv.
- Continue to review of new technology in data acquisition, visualization, and information transfer for soil survey. Fort Worth and Lincoln need to continue to have field evaluations in different climates of new data gathering tech.