[3D Scientific Visualization (Terrain Mapping)
for ecological and environmental research and outreach.](http://asm2015.lternet.edu/working-groups/3d-scientific-visualization-terrain-mapping-ecological-and-environmental-research-and)
Session 5, Tuesday, September 1, 4-6pm, Longs Peak Diamond West
*From Long-Term Data to Understanding: Towards a Predictive Ecology*

**4-4:05 Welcome and Agenda Review** – Susan Stafford, University of Minnesota

 **Goals & Working Group** **Motivation**: bring together this diverse group to:

1. Articulate the potential of 3-D VIZ with topography
2. Identify the Pro’s and Con’s of the software available:
	1. Of the software available, what is the power and what are the limitations?
	2. Where are the “gaps” in the software currently available? ( NOTE: we (VISTAS) feel it’s in area of not providing adequate analytics and of being difficult to learn and use.)

 **Outcomes**:

1. Practical advice for participants:

	1. For those who already do 3D visualizations,  ideas for improving the visualizations they are already creating, either via improvements to the visual design or other software
	2. For those who do not do 3D visualizations, but think they might like to, practical advice on how getting started with creating 3D visualizations, including how to download or acquire and learn how to use the software presented
2. An updated list of *visualization resources* for ecologists
3. A community of researchers and informatics professionals interested in sharing information about visualization and maintaining a *visualization resources* list
4. A jointly-authored paper comparing current approaches to 3D scientific visualization for ecology

**4:05 – 4:15 Why 3D Visualization (Terrain Mapping)?** Ned Gardiner, Visualization Manager for NOAA’s Climate Project Office will start us off as we think about why a scientist might choose to use 3D visualization.

**4:15 – 4:50 Mini presentations on visualization** – Judith B. Cushing, The Evergreen State College. The following colleagues have been invited and plan to attend, but (given the caveat of travel budget uncertainties) the list of final presenters may differ.

1. Theresa Valentine, USFS PNW Research Station. Demo of ArcMap LiDAR and Fusion visualization software
2. Nik Stevenson-Molnar, Conservation Biology Institute, presents Bob McKane, EPA - VELMA bio-geo-hydrology (video) *Visualizing Terrestrial and Aquatic Systems* (VISTAS)
3. Allison Inouye, for herself and John Bolte, Oregon State University.
Big Wood Basin, Idaho, Land Use Study with ENVISION and VISTAS
4. Judy Cushing for Christoph Thomas, University of Bayreuth.
Valley Circulation Experiment (VALCEX), Micrometeorology in the HJA LTER
5. Ed Rastetter, Ecosystems Center, Woods Hole Marine Biological Laboratory Extemporaneous observations about 3D vis & the above presentations.
6. Short Q&A about the presentations….

**4:50 – 5:20** **SMALL GROUP DISCUSSION**

* Members of each small group will self-introduce and share responses to the questionnaire
* Each group is led by a person who did a mini-presentation
* Each group appoints a scribe (notes to be given to the organizer after the report back) and reporter (reporter’s notes handed in at end of session); Ideally, reporter would be someone different from the presenter of a mini-presentation.
* The scribe in each group will compile 3 lists:
1. software used by the small group participants
2. tools and resources that participants know about
3. data sources participants use (NASA, DEMs, etc.)
* Questions for discussion (used to organize the group report):
1. What are the best aspects of the visualizations shown by presenters and by Ned in his keynote talk this morning?
2. What are the limitations?
3. How could those visualizations be improved, e.g., with new features?
4. What other software might be used to do the same thing?
5. What kind of data do you use and is it appropriate for visualization?
6. If you use 3D visualization, how did you get started?
7. Can you think of OTHER applications for visualization? How might you use 3D visualization in your work?

**5:20 – 5:50 Report back and discussion:**  (5 minutes/group) –Each group presents highlights of their discussion. Session recorder/scribe to send notes to: Stafford@umn.edu.

**5:50 – 6:00 Thanks and Summarize next steps:**  Judy Cushing