QUEST workshop at LTER All Scientists Meeting
Organizers: Ruth Yanai, John Campbell, Carrie Rose Levine

Organizers of QUEST held a two-hour workshop titled "Quantifying Uncertainty in Ecosystem Studies" at the 2012 LTER All Scientists Meeting on 11 September 2012. The discussion-based workshop started with a round of introductions in which attendees identified their system of study and the biggest source of uncertainty they face in their research. The 36 attendees represented 12 LTER sites (HBR, HJA, KBS, KNZ, CWT, NTL, PIE, HFR, BES, SEV, CAP, and PAL) as well as organizations such as NEON and the US Forest Service. The first portion of the workshop was devoted to ten "lightening round" presentations on uncertainty in different ecosystem components (see presenters below). These talks identified some of the challenges encountered in quantifying uncertainty and potential solutions that have been used successfully to address the issue of uncertainty. Each of these short talks was followed up by a group discussion. We received positive feedback from many of the workshop participants, and an immediate outcome was a proposal that was submitted for an organized oral session at the 2013 ESA conference in Minneapolis. Further information can be found on the QUEST website (http://quantifyinguncertainty.org).

List of presenters:

John Campbell: Intro to QUEST, Participant introductions (what's your biggest uncertainty?)
Harmon: Intro to sources of uncertainty
Adam Skibbe: Precipitation Uncertainty
Xuesong Zhang: Precipitation Uncertainty
John Battles: Biomass Uncertainty
Mark Green: Streamflow Uncertainty
Ruth Yanai: Uncertainty in Soils
Jeff Taylor: NEON products and their uncertainty
Craig See: Uncertainty in Data Gaps
Carrie Rose Levine: Monitoring Uncertainty

Attendee list, LTER site or other affiliation: Greatest source of uncertainty

Ruth Yanai, HBR: Soils are the worst. If possible, design your budget to exclude them
John Campbell, HBR: DOC export in streams
Carrie Rose Levine, HBR: Biomass, propagating uncertainty in allometric equations
Craig See, HBR: Tree-to-tree foliar chemistry
Mark Harmon, HJA: carbon budgets, biomass equations
Xuesong Zhang, KBS: earth system modeling, precipitation
John Battles, HBR: forest growth between experimental watersheds
Mark Green, HBR: stream export fluxes, serial correlation of concern
Adam Skibbe, KNZ: modeling precipitation
Stephanie Laseter, CWT: every project has a whole new realm, streamflow and chemistry
Jeff Taylor, NEON: carbon fluxes using eddy covariance techniques, summing

Josh Roberti, NEON: uncertainty budgets for all the sensors over the next two years
Kikang Bae, HBR: soil respiration
Brian Charlton: uncertainty with change in staff, extrapolation
Yuwei Chen, director of a field station in China: phytoplankton, wetland plants, nutrient balance in river and lake ecosystems
Colin Fuss, HBR: soil solution chemistry is incredibly variable spatially, water flux with depth
Afshin Pourmokhtarian, HBR: climate change modeling, model uncertainty
Jake Walsh, NTL: biomass of phytoplankton, zooplankton, and fish
Marshall McDaniel, KBS: labeled litter study in ag systems, small-scale budgets
Inke Forbrich, PIE: carbon budget for a salt marsh, input-output DOC
Marybeth Adams, USFS, Fenow Experimental Forst: soils are the biggest uncertainty
Eric Morrison, HFR: fungal communities in soils and sequence data, noisy data
Jesse Sadaowsky, HFR: extracellular enzyme production by mycorrhizal fungi, partitioning variability, extrapolation in space
Charles Driscoll, HBR: biogeochemistry, soils are a real challenge, and fluxes of materials that are spatially and temporally patchy (trace gases)
Jon Duncan, BES: trying to close the N budget, denitrification flux
John Crawford, NTL: trace gas fluxes from streams. Spatial is worse than temporal variability
Lucas Beversdorf, NTL: toxic cyanobacteria, getting the right temporal scale for drivers
Matt Petrie, SEV: The moisture budget across space
Doug Moore, SEV: monitoring inputs of nutrients in precipitation, through plant biomass and into soils
Elizabeth Cook, CAP: air quality and N deposition, extrapolating from point
Nicole Couto, Rutgers, PAL: how much heat is contained in water masses, how big are they
Palmer: zooplankton, fecal pellets and C flux, from a single sediment trap
John Walker, NTL: parameter uncertainty and downscaling of GCMs
Noah Lottig, NTL: regional aquatic C cycles, landscape controls on
Dan Bain, BES: in the city, the biggest source of uncertainty is us
Dan Liptzin: dry deposition