Working group title: Quantifying Uncertainty in Ecosystem Studies (QUEST)

Investigator: John Campbell

Award Year: 2011

**Publications**

Parmen, J 2011, Quantifying Uncertainty in Ecosystem Studies (QUEST), LTER [Network News, Fall 2011, Vol. 24 No. 1](http://news.lternet.edu/fall-2011). (http://news.lternet.edu/Article2321.html)

Campbell, J.L., Yanai, R.D., and Green, M.B. 2011. Estimating uncertainties in watershed studies. EOS 92(26), doi:10.1029/2011EO260004.

Yanai, R. Levine, C., Green, M. and Campbell, J. 2012. Ecosystem budgets have no error: a progress report on Quantifying Uncertainty in Ecosystem Studies (QUEST). Journal of Forestry 110(8): 448-456 (Refereed).

Yanai et al. A comparison of uncertainty in stream export of solutes from headwater catchments at Wakayama, Hubbard Brook and Coweeta Experimental Forests. (In prep.)

Campbell et al. Quantifying uncertainty in ecology: Examples from small watershed studies. (In prep.)

**Additional Funding Obtained**

“Quantifying Uncertainty in Atmospheric Deposition”, Ruth Yanai, Kathleen Weathers, John Campbell $24,000; 1 year; Long Term Ecological Network Office.

“RCN: Quantifying Uncertainty in Ecosystem Studies” Ruth D. Yanai, $500,000; 5 years; National Science Foundation

**Workshops**

Organized a workshop titled “Quantifying Uncertainty in Ecological Studies” at the 96th Annual Meeting, Ecological Society of America, Aug. 7-12, 2011, Austin, TX. This tutorial was designed to educate people about how to conduct uncertainty analyses with their data.

Organized a three day workshop on “Methods for Calculating Stream Solute Loads” in Jaffrey, New Hampshire, September 2011. Ten scientists representing small watershed studies convened to compare and evaluate methods for calculating stream chemical fluxes. A follow-up workshop was held with the same participants in Averill, NY in March 2012.

Organized a workshop titled “Quantifying Uncertainty in Wet Atmospheric Deposition" held at the H.J. Andrews Experimental Forest in Blue River, OR during May 21-22, 2012. Ten scientists representing diverse LTER sites attended the workshop to establish methods for quantifying uncertainty in precipitation and solute fluxes.

Organized a two-hour workshop titled “Quantifying Uncertainty in Ecosystem Studies” at the 2012 LTER All Scientists Meeting on 11 September 2012. 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 goal of this workshop is to invite LTER researchers to contribute to uncertainty analyses in ecosystem studies.

Will hold an Organized Oral Session called “Uncertainty Analysis: A Critical Step in Ecological Synthesis” at the 98th annual meeting of the Ecological Society of America”. Minneapolis, MN August 4-9, 2013.

**Website**

http://quantifyinguncertainty.org/

**Presentations**

Yanai, R.D., Tokuchi, N. Green, M.B., Campbell, J.L., Levine, C.R., and Matsuzaki, E. 2011. Nutrient cycling in forest ecosystems: Uncertainty in nutrient budgets. Oral presentation by Yanai University of Tokyo, Tokyo, Japan, June 29, 2011

Quantifying uncertainty in ecosystem studies. 2011. Levine, C.R., Yanai, R.D., Campbell, J.L., Green, M.B., Buso, D.C., and Likens, G.E. Oral presentation by Levine at the 48th Annual Hubbard Brook Cooperators’ Meeting, July 6-7, 2011, North Woodstock, NH.

Yanai, R.D., Tokuchi, N. Green, M.B., Campbell, J.L., Levine, C.R., and Matsuzaki, E., Likens, G.E. and Buso, D.C. 2011. Hubbard Brook, Coweeta, and Wakayama (Japan): Sources of uncertainty in stream export of nutrients. Oral presentation by Yanai at the 48th Annual Hubbard Brook Cooperators’ Meeting, July 6-7, 2011, North Woodstock, NH.

Levine, C.R., Campbell, J.L., Yanai, R.D., Green, M.B., Adams, M.B., Buso, D.C., Harmon, M.E., LaDeau, S.L., Likens, G.E., McDowell, W.H., Sebestyen, S.D., Vose, J.M., and Williams, M.W. 2011. Quantifying Uncertainty in Ecosystem Studies (QUEST): A cross-site comparison of watershed input-output budgets. Oral presentation by Levine at the 96th Annual Meeting, Ecological Society of America, Aug. 7-12, 2011, Austin, TX.

Campbell, J., Yanai, R., Green, M., Burns, D., LeDeau, S., Adams, M.B., Buso, D., Harmon, M., Keenan, T., Levine, C.R., McDowell, W., Parman, J., Richardson, A., Sebestyen, S., Shanley, J., Vose, J. and Williams, M. 2011. Quantifying Uncertainty in Ecosystem Studies (QUEST). Oral presentation by Mary Beth Adams at the 4th Interagency Conference on Research in the Watersheds, Sep. 26-30, 2011, Fairbanks, AK. Adams also presented this as a poster at the North American Forest Ecology Workshop, Jun. 19-23, 2011, Roanoke, VA.

Yanai, R. Levine, C., Green, M. and Campbell, J. Ecosystem budgets have no error: a progress report on Quantifying Uncertainty in Ecosystem Studies (QUEST) 2011. Poster presentation by Yanai at the Annual Meeting of the American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America October 16-19; San Antonio, TX (Abstract published in proceedings). Also presented at Rochester Academy of Science Meeting, October 29, Rochester, NY

Yanai, R.D., Campbell, J.L., LaDeau, S. Weathers, K., See, C. Green, M.B. 2012. Quantifying uncertainty in precipitation estimates. Oral presentation by Yanai at the at the 97th Annual Meeting, Ecological Society of America, Aug. 5-10, 2012, Portland, OR (Abstract published in proceedings).

Yanai, R.D., Levine, C.R., Green, M.B., and Campbell, J.L. 2012. Is the missing nitrogen source (or sink) at Hubbard Brook statistically significant? Presented by Yanai as a poster at the Long-Term Ecological Research (LTER) All Scientists Meeting, Sept. 10-13, 2012, Estes Park, CO.

[See](http://asm2012.lternet.edu/users/csee), C., Yanai, R., Campbell, J., Moore, D., Likens, G., Matsuzaki, E. 2012 [A proposed cross-site comparison of missing data in long-term hydrologic datasets](http://asm2012.lternet.edu/content/proposed-cross-site-comparison-missing-data-long-term-hydrologic-datasets) Presented by See as a poster at the Long-Term Ecological Research (LTER) All Scientists Meeting, Sept. 10-13, 2012, Estes Park, CO