

STREAMCHEMDB AND CROSS SITE SYNTHESIS

FINAL WORKING GROUP REPORT 2012 LTER ASM

Organizer: Alba Argerich, H.J. Andrews LTER, alba.argerich@oregonstate.edu

Co-organizers: Sherri Johnson, H.J. Andrews LTER, sherrijohnson@fs.fed.us
Stephen Sebestyen, Marcell Experimental Forest, ssebestyen@fs.fed.us

SUMMARY

This working group is the result of a series of discussions that happened at previous ASM meetings that identified the need for a cross-site analysis of stream chemistry data. The result of those previous discussions has been the Stream Chemistry Synthesis Project, which started 2 years ago and has compiled stream chemistry data from 11 LTER and Experimental Forest sites on StreamChemDB, a publicly accessible database, and has been conducting analyses for papers.

In our work group meeting on Thursday, September 13, 2012, we reported the progress done in the StreamChemDB prototype, which is currently populated with nitrate and ammonium data from 72 catchments across 11 forested sites. We also talked about the unique characteristics of StreamChemDB: the extensive documentation of metadata, and the standardization of vocabulary with other existing projects through the implementation of controlled vocabularies for analytical and sampling methods, detection limits, analytes, and units. We discussed the best way to proceed to create a template to upload data and the effort done to facilitate workflows with other existing databases, such as Climate and Hydrology Database Project (ClimDB/HydroDB) and SiteDB, to obtain derived measurements such as annual and monthly fluxes for selected analytes. Alba Argerich gave an overview of the main results of the first paper of the Stream Chemistry Synthesis Project submitted ("*Trends in Stream Nitrogen Concentrations for Forested Reference Catchments across the USA*") analysis"). Chuck Rhoades reported the progress on the second of the papers planned ("*Characterizing Variability of Stream Chemistry at Forested Catchments-Applicability to Development of Numeric Nutrient Criteria*").

The second part of the working group was focused on the discussion of the objectives for the next papers: "*Biogeochemical Responses to Disturbances in Long-Term Watersheds*" and "*Best Approaches for Calculating Stream Solute Fluxes across a Suite of Hydrological Regimes*". We agreed in starting to analyze the effects of different types of forest management practices on stream nitrate concentrations and fluxes. Eventually, we will expand these analyses to include other types of disturbances such as fire, insect infestation, hurricanes, floods... We discussed the use of C:N ratio as indicator of perturbation and agreed in using the magnitude and duration of the response to compare disturbances. Because we are planning to study the effect of disturbances on stream nitrate concentrations and fluxes, we discussed the different methods used in each of the sites to do the fluxes calculations and the need to study and report the implications of the use of different methods when comparing flux numbers from different sites. We agreed in studying those implications for different types of hydrologic regimes.

Finally, we agreed in presenting a proposal for the "LTER synthesis projects –Individual Post-docs" to work on the analysis of the best approaches for calculating stream solute fluxes across a suite of hydrological regimes.

PARTICIPANTS: The working group had a total of 19 participants representing 8 LTERs, 2 Experimental Forests, the USFS Washington Office, and the LTER Network Office.

AND - Sherri Johnson, Don Henshaw, Steve Wondzell

SBC - John Melack, Margaret O'Brien
HBR -John Campbell
CWT – Stephanie Laseter, Richard Cary
KBS – Sven Bohm, Leila Desotelle
BES – Jon Duncan, Neil Bettez
CAP - Nancy Grimm
SEV - Cliff Dahm
Fraser Exp Forest - Chuck Rhoades
Marcell Exp Forest- Stephen Sebestyen
ILTER -Shen Yu
USFS Washington office –Deb Hayes

Related links: Stream Chemistry Synthesis Project (<http://web.fsl.orst.edu/streamchem/>)