Improving water quality management using new water quality modeling and observation strategies

Conveners: Michael Rode (UFZ, Germany), Theresa Blume (Germany, GFZ) and Rick Hooper (CUAHSI)

Invited speaker:
Andrew Wade, University of Reading, UK;
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Session description:

Matter fluxes at the catchment scale are critical to pressing societal issues such as agricultural sustainability, drinking water quality, ecosystem health, and global climate change. Cutting edge studies are improving the understanding of biogeochemical and anthropogenic factors affecting diffuse mass fluxes of nutrients, pesticides, emerging contaminants, trace elements, greenhouse gases and other chemicals. Predictions are needed for changing land use and climate conditions which fulfill the increasing needs for sustainable decision making. Recent advances in in situ water quality monitoring technologies have improved monitoring programs and provided new insights into watershed hydrology and biogeochemical processes. Water quality assessment covers the chemical and ecological status and links hydrology and aquatic ecology.

As water quality assessment is affected by errors in input data, model errors, inappropriate model complexity and process knowledge, new strategies combining monitoring and modeling are needed to improve the prediction capabilities of hydrological water quality models at the management scale. Contributions are welcome dealing with new monitoring and modeling techniques ranging from deterministic process based water quality models to simple GIS based approaches. Also of interest are contributions focusing on the use of water quality data for hydrological process analyses. We furthermore welcome submissions that describe novel approaches for the interpretation of continuous water quality data in support of monitoring and research.