Challenges of an Automated and Integrated Hydrologic Monitoring and Water Quality Sample Collection System for Research in Non-point Source Pollution. (S01-endale153838-Oral)

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Abstract:

Water quantity and quality monitoring serve to evaluate impact of natural and anthropogenic factors on the environment, and to support sound decision making for avoiding and/or amelioration of negative impacts in a direct and defensible way. Spatial and temporal variations of factors, scale considerations, and availability of resources dictate that monitoring be tailored to specific goals under specific site conditions. We describe and discuss monitoring and sampling capabilities of an automated system designed to measure rainfall, runoff and drainage, and collect water samples for chemical and biological analysis from cropping systems with contrasting tillage and fertilizer treatments spread over twelve 10 by 30 m plots. The set up has proven it could successfully accomplish the design goals. However, sensor and equipment maintenance needs, and consequently disruption of the design functions, arising out of adverse environmental conditions and sensor malfunction have been challenging. Our experience so far shows that a dedicated and knowledgeable full time field person should be responsible for running and maintaining such a system.

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