Feb 15th, 2:50 PM

Multiple Storm Event Impacts on Epikarst Storage and Transport of Organic Soil Amendments in South-central Kentucky

Jason Polk
Hoffman Environmental Research Institute, Western Kentucky University

Sean Vanderhoff
Hoffman Environmental Research Institute, Western Kentucky University

Chris Groves
Hoffman Environmental Research Institute, Western Kentucky University

Benjamin Miller
Hoffman Environmental Research Institute, Western Kentucky University

Carl Bolster
USDA

Follow this and additional works at: http://digitalcommons.wku.edu/mc_research_symposium

Part of the Animal Sciences Commons, Forest Sciences Commons, Geology Commons, Hydrology Commons, Other Earth Sciences Commons, and the Plant Sciences Commons

Recommended Citation

This is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Mammoth Cave Research Symposium by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.
Multiple Storm Event Impacts on Epikarst Storage and Transport of Organic Soil Amendments in South-central Kentucky

Jason Polk\textsuperscript{1}, Sean Vanderhoff\textsuperscript{1}, Chris Groves\textsuperscript{1}, Benjamin Miller\textsuperscript{1}, Carl Bolster\textsuperscript{2}

\textsuperscript{1}Hoffman Environmental Research Institute, Western Kentucky University
\textsuperscript{2}USDA

Abstract
The groundwater in agricultural karst areas, such as Kentucky’s Pennyroyal Plateau, is susceptible to contamination from organic soil amendments and pesticides. During 2011, water samples and geochemical data were collected every four hours before, during, and between storm events from a waterfall in Crumps Cave from January to September to track the transport and residence time of epikarst water and organic soil amendments during variable flow conditions. Geochemical data consisting of pH, specific conductivity, temperature, and discharge were collected continuously at 10-minute intervals, along with rainfall amounts. The changes in geochemistry indicate simultaneous storage and transport of meteoric water through epikarst pathways into the cave, with rapid transport of bacteria occurring through the conduits that bypass storage. Results indicate current best management practices in agricultural karst areas need to be revisited to incorporate areas that do not have surface runoff but where contaminants are transported by seepage into local aquifers.