Critical Zone Science

“Critical Zone Observatories (CZOs) are natural watershed laboratories for investigating Earth surface processes mediated by fresh water. Research at the CZO scale seeks to understand these little known coupled processes through monitoring of streams, climate/weather and geomorphology. CZOs are instrumented for hydrochemical measurements and are sampled for soil, canopy and bedrock materials. CZOs involve teams of cross-disciplinary scientists whose research is motivated and implemented by both field and theoretical approaches, and include substantial education and outreach.”

The research presented here has been years in the making. Built from the undergraduate senior thesis work done by Kimberly Schmidt and collaboration with REU mentor Dr. White.

What is a......

Vernal Pool?

Vernal Pools are temporary wetlands that range in size from a small puddle to several square meters. These areas are ecologically sensitive due to their role in the reproduction and habitat needs for many amphibians, insects, and other organisms. Due to their size and seasonality the effects of temperature and precipitation changes can greatly impact the array of processes that these areas support.

Pingo?

During the last periglacial period in central Pennsylvania ground water coming in contact with the permafrost surface lead to the development of ice-cored hills referred to as pingo. These areas changed as the cycle of permafrost changed. Over time these solidified and formed the landscape we see today. There are many reasons for wetlands to develop, but with the periglacial and soil permafrost legacy in the region there has been research showing the correlation between the presence of pingos and wetlands. (Marsh, Ben. 1987: 945-947. Print.)

Hydrologic Importance

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The Periglacial Legacy and Future of Vernal Pools in the Ridge and Valley Province Of Pennsylvania

Taylor Hawkett, College of Agriculture, The Pennsylvania State University State College, PA

Dr. Timothy White, REU Mentor

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