Temporal Variability in the Water Chemistry of a First-Order Stream
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Objectives
1. Observe if any major cations (Al, Ca, K, Mg, P, Si, Sr) exhibit regular diurnal variability in Garner Run
2. Compare major cation concentrations in Garner Run during a wet summer and a dry summer
3. Hypothesize about what could cause temporal variability in stream chemistry

Background
Samples were collected from the Garner Run Outlet field site. Garner Run is a first order stream in the Shavers Creek Watershed. The site is part of the Shale Hills Critical Zone Observatory. Located in a deciduous forest overlying Tuscarrora Quartzite bedrock, this site, along with the surrounding Critical Zone Observatory sites advance the interdisciplinary study of the earth.

Observations:
Some variation is visible in all cations present in Garner Run. Water temperature appears lower during the day, peaking in the later afternoon/early evening. Silicon seems to peak in the evenings, ranging in time from 19:00 to 2:00. Magnesium, Aluminium and Discharge also have peaks, although they don't appear to correspond with a diurnal signal.

All cations present in Garner Run appear in much higher concentrations in July of 2016 than in July of 2015. The water temperature of the stream is consistently warmer in July 2016. Discharge appears significantly lower.