

HYDROGEOLOGICAL HETEROGENEITY BY MEAN OF SRT, ERT AND DRILLING LOGS, AT CEER, SUSQUEHANNA UNIVERSITY, PA

Ahmed Lachhab, Susquehanna University, Selinsgrove, PA, USA
Benjamin Nicolson, Susquehanna University, Selinsgrove, PA, USA
Skylar A. Brion, Susquehanna University, Selinsgrove, PA, USA

Seismic Refraction, Electrical resistivity surveys in addition to four drilling logs were combined to investigate the hydrogeology of an aquifer at the Center for Environmental Education and Research (CEER) in Susquehanna University. The equipment setup used in this study encompassed two Geode Exploration Seismograph (by Geometrics) with 48 geophones and a SuperSting R8, (by AGI) with 56 electrodes. The surveys conducted used different arrays of geophones and electrodes with different spacing both as a gride and as individuals transects in specific places. This was done to reach different depths going from shallower to deeper levels into the subsurface and explain in-depth certain questionable areas. SRT showed better results of the nature of the geology to the bedrock formation beneath CEER while ERT provided better information of the hydrology of the site and clearly identified the preferential flow present in this area instead. The stratigraphy at CEER as was eventually confirmed by the drilling logs and was found to represent an alluvial deposit with sand, gravel, silt loam, and cobbles at the bottom of this formation. These layers were not uniformed, throughout the site as the graded aspect was not respected in certain areas. This variability of the geology was also found to be responsible in generating multiple preferential flow and this was visible in combining all three methods used in this study.