

VIPER Neutron Spectrometer Calibration

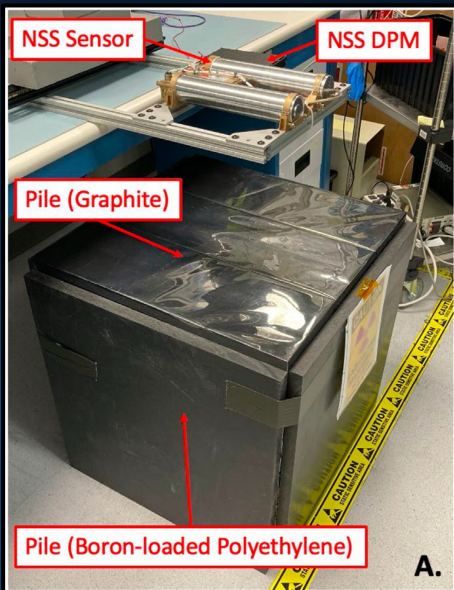


Figure 1 (Left). Flight-model VIPER NSS undergoing calibration with APL's neutron moderating graphite pile

NASA's VIPER rover will explore permanently shadowed regions on the Moon to search for evidence of buried water ice and other volatiles.

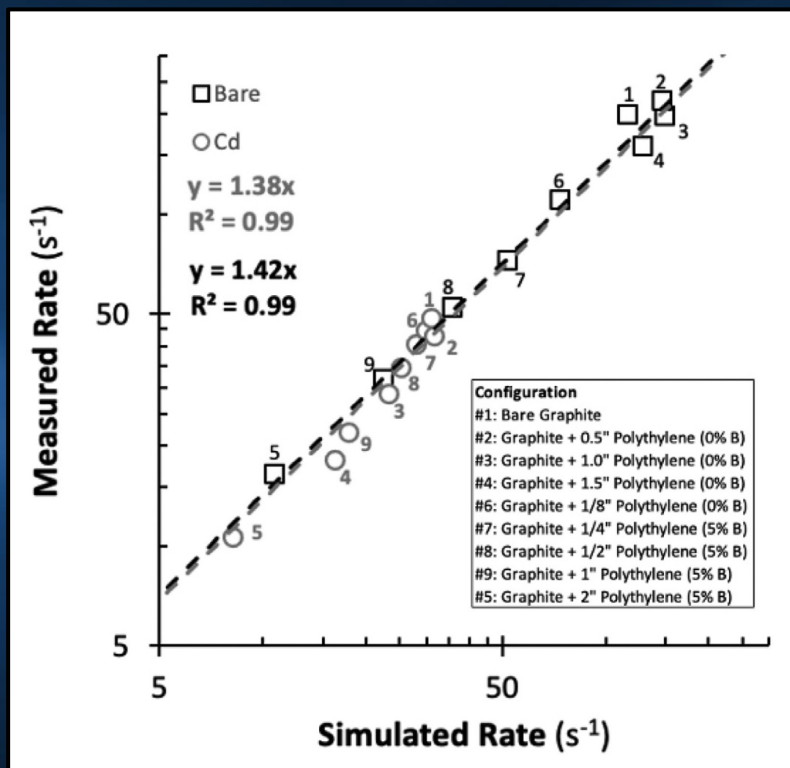


Figure 2 (Right). A comparison of measured and simulated NSS count rates, for lunar-like neutron spectra from the pile, provides the basis for using simulations to convert NSS measurements to water-ice concentrations.

- The Neutron Spectrometer Subsystem (NSS) is uniquely suited to finding buried deposits of H₂O.
- APL's Neutron Moderating Graphite Pile (Figure 1) is a unique tool for producing lunar-like neutron environments on Earth.
- The APL calibration of NSS validated simulations of instrument performance (Figure 2) will be used to convert NSS measurements (neutron counting rates) to water ice concentrations. This calibration ensures VIPER NSS will meet all mission requirements.