Physical Properties

In geophysics, materials are differentiated based on their physical properties. Physical properties characterize how materials respond to various physical inputs. For example, if I send sound waves through this material, how quickly does the signal propagate? How effective is this material at conducting electricity? Can I magnetize this material by applying a magnetic field? Sufficient understanding of material physical properties is ultimately paramount, as this information can be used to choose the optimum survey method for a given geophysical/geotechnical/geological problem.

As part of the GPG, we will focus on the following physical properties: density<physical\_properties\_density>, magnetic susceptibility and permeability<physprop\_mag\_susc>, seismic velocity<seismic\_velocity\_duplicate>, dielectric permittivity<physical\_properties\_dielectric\_permittivity>, electrical conductivity/resistivity<physical\_properties\_conductivity> and chargeability<induced\_polarization\_physical\_properties\_duplicate>. For each physical property:

* Relevant quantities are defined.
* We explain how the physical property can be measured.
* Physics associated with the physical property are explained.
* A common range of values for rocks and materials is provided.
* Factors impacting the physical property are explained.

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