

DUG Rock is an interactive tool for depth dependent end-member lithology trend interpretation. The trends form a statistical rock physics model which can then be used for stochastic forward modelling. Features of DUG Rock include:

Easy point, click, and drag interpretation for picking end-member lithologies

Rapid QC is enabled by interactive updates and synchronised navigation between logs, cross plots, and tabulated pick data for multiple wells

Generation of depth-dependent, end-member trends which capture the inherent scatter in elastic rock properties

Create and import reference and composite lithology trends for comparative displays

Gassmann fluid substitution to correct trends (of porous lithologies) back to a common reference fluid

Seismic amplitude and rock property forward modelling is performed stochastically (Monte Carlo simulation) to capture the expected range of responses for all candidate lithology and fluid combinations over the depth range of interest.

Fundamental outputs of the stochastic modelling are multivariate probability density functions (PDFs) for each lithology fluid combination - quantifying the inherent scatter in rock properties and range of seismic responses at every depth.

