

Objective: Laboratory estimation of δ at different stress level for various mixture of sand-clay.

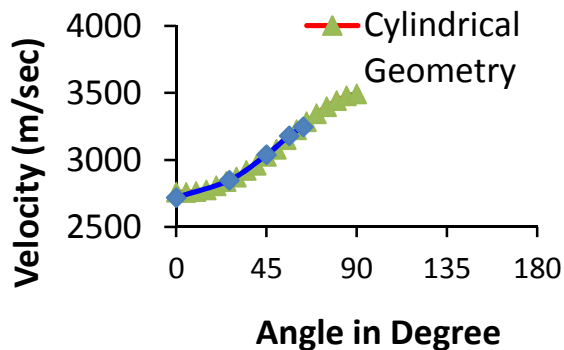
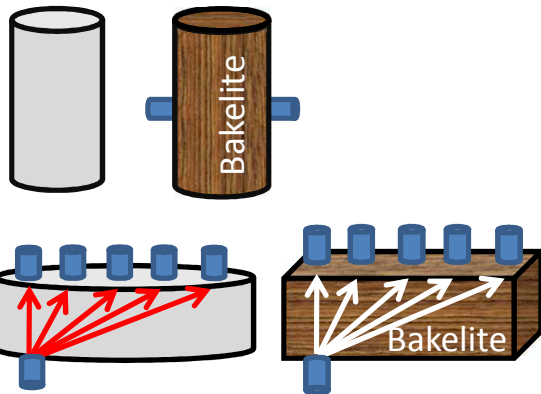
Delta is a move-out parameter which determine the change of seismic velocity /amplitude at an angular wave path compared to the wave velocity /amplitude at a vertical wave path in anisotropic media

$$\delta = \frac{(C_{13} + C_{44})^2 - (C_{33} - C_{44})^2}{2C_{33}(C_{33} - C_{44})}$$

Laboratory Techniques

Transmission Wave Technique

$$v_p(\theta) = v_p(0) \left[1 + \delta \sin^2 \theta \cos^2 \theta + \varepsilon \sin^4 \theta \right]$$



Reflection Wave Technique

$$R_p(\theta_w) \cong R_0 + R_2 \sin^2 \theta_w + R_4 \sin^2 \theta_w \tan^2 \theta_w$$

Where,

$$R_0 = \frac{\Delta Z_{p0}}{2Z_{p0}}$$

weak contrast approx.

$$R_2 = \frac{1}{2} \left[\frac{\Delta V_{p0}}{V_{p0}} - \left(\frac{2V_{sc}}{V_{p0}} \right)^2 \frac{\Delta \mu_0}{\mu_0} + \Delta \delta \right]$$

$$R_4 = \frac{1}{2} \left[\frac{\Delta V_{p0}}{V_{p0}} + \Delta \varepsilon \right]$$

