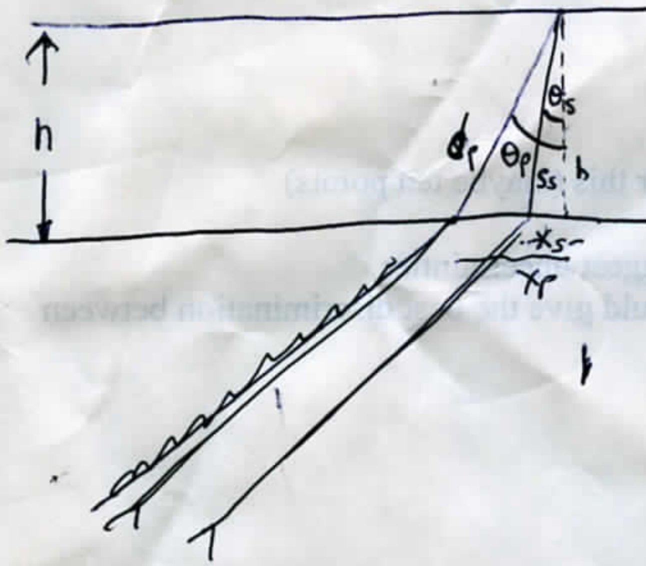
Estimating Moho Depth from $T_{P_{ms}} - T_p$ 4/28/02



$$\tan\theta_p = \frac{x_p}{h}$$

$$\cos\theta_p = \frac{h}{\phi_p} \qquad \phi_p = \frac{h}{\cos\theta_p}$$

$$\cos\theta_s = \frac{h}{\phi_s} \qquad \phi_s = \frac{h}{\cos\theta_s}$$

$$X_p = h\tan\theta_p$$

$$X_s = h\tan\theta_2$$

$$X_p - X_s = (\tan\theta_p - \tan\theta_s)$$

$$T_p = \frac{\phi_p}{v_p} = \frac{1}{V_p\cos\theta_p}h$$

$$T_s = \left[\left(\frac{\tan\theta_p - \tan\theta_s}{V_{app}}\right) + \frac{1}{V_s\cos\theta_s}\right]h = \frac{d_s}{V_s} + \frac{X_p - X_s}{V_{app}}$$

$$(T_s - T_p) = \left[\frac{1}{v_s\cos\theta_s} - \frac{1}{v_p\cos\theta_p} + \frac{(\tan\theta_p - \tan\theta_s)}{V_{app}}\right]h$$

$$h = \frac{T_s - T_p}{\frac{1}{v_s\cos\theta_2} - \frac{1}{v_p\cos\theta_p} + \frac{(\tan\theta_p - \tan\theta_s)}{V_{app}}}$$