

10. From the Figure, we see that the minimum pressure for diamond to form at 1000°C is $p_{\text{min}} = 4.0 \text{ GPa}$. This pressure occurs at a minimum depth of h_{min} given by $p_{\text{min}} = \rho g h_{\text{min}}$. Thus,

$$h_{\text{min}} = \frac{p_{\text{min}}}{\rho g} = \frac{4.0 \times 10^9 \text{ Pa}}{\left(3.1 \times 10^3 \text{ kg/m}^3\right) \left(9.8 \text{ m/s}^2\right)} = 1.3 \times 10^5 \text{ m} .$$