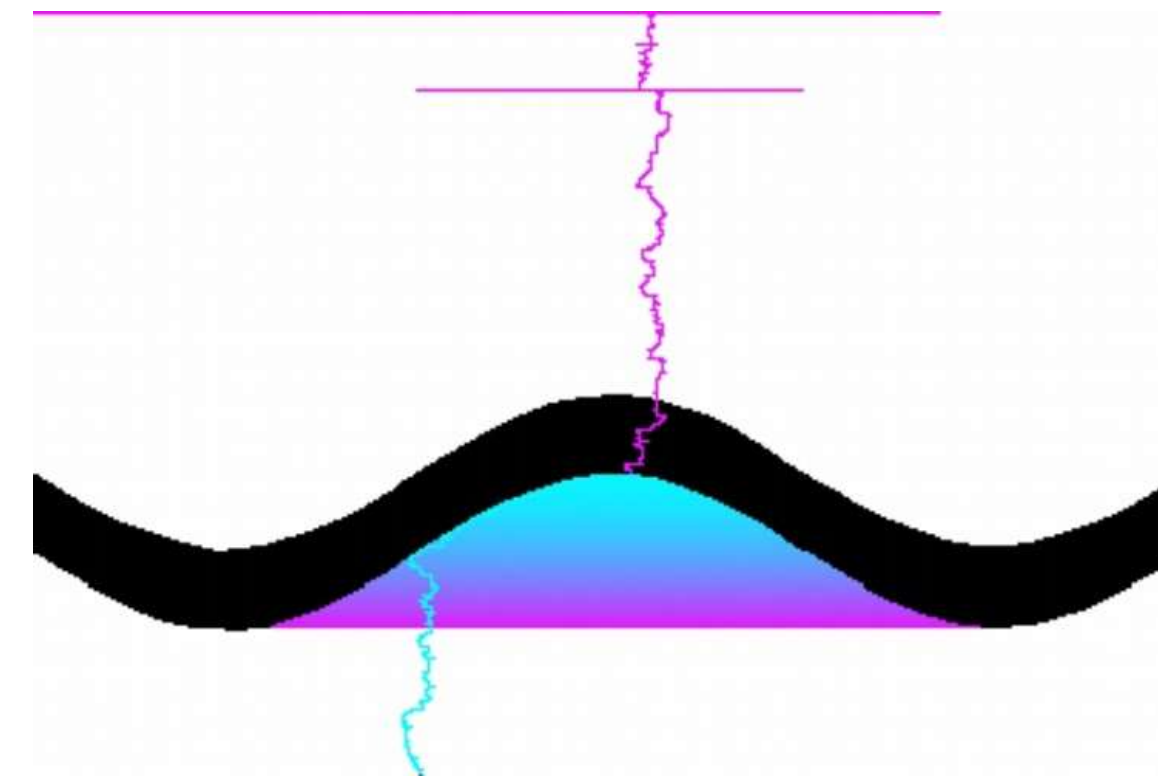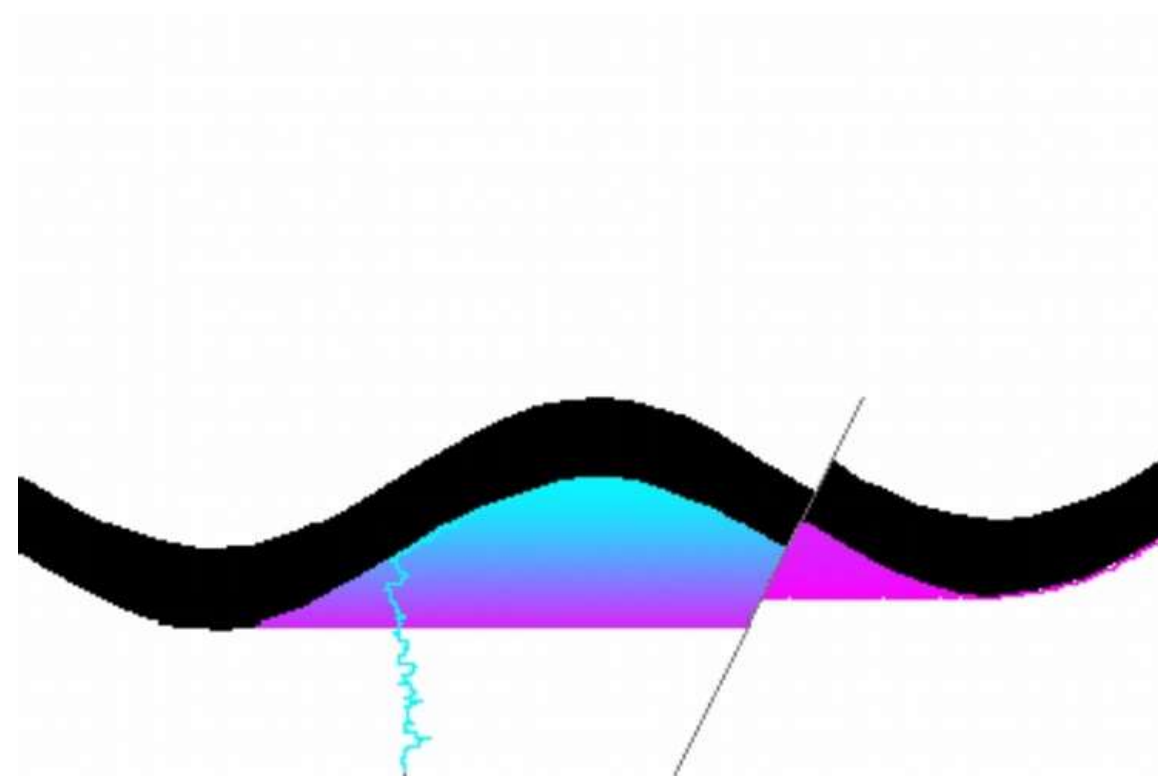# Basic Trap behaviour

The thickness of a gas or oil column, Z_g, that can be retained against gravity by the capillary entry pressure of the sealing rock is given by:

$$z_g = \frac{2\gamma\cos\theta(1/r_{cap} - 1/r_{res})}{g(\rho_w - \rho_g)}$$

r_{cap} and r_{res} are the pore throat radii in the cap rock and reservoir

γ is the interfacial tension, θ is the fluid contact angle

ρ_w and ρ_g are the densities of water and gas.

Analytical petroleum trap models (from Ringrose et al. 2000):
A.   Filled petroleum trap with leaky fault and tight caprock (leaking via spill point);
B.   Filled petroleum trap leaking through caprock (P > $P_{critical}$)

Flow in porous media