Hydrofracture

Nye (1957) made the argument that fractures will extend to a depth where

$$\underbrace{\rho_i g d}_{\text{Glaciostatic pressure closing fracture}} = \underbrace{\tau_{xx}}_{\text{Tensile stress opening fracture}}$$

If there is water in the fracture, the hydrostatic pressure of the water will also tend to open the fracture

$$\rho_i g d = \tau_{xx} + \underbrace{\rho_w g h_w}_{\text{hydrostatic pressure}}$$

$$d = \frac{\tau_{xx}}{\rho_i g} + \frac{\rho_w}{\rho_i} h_w$$

Since $\frac{\rho_w}{\rho_i} > 1$ the fracture will always be slightly deeper than the water depth. So, if water is always available to fill the fracture, then the fracture should continue to get deeper - even with small or zero τ_{xy}.