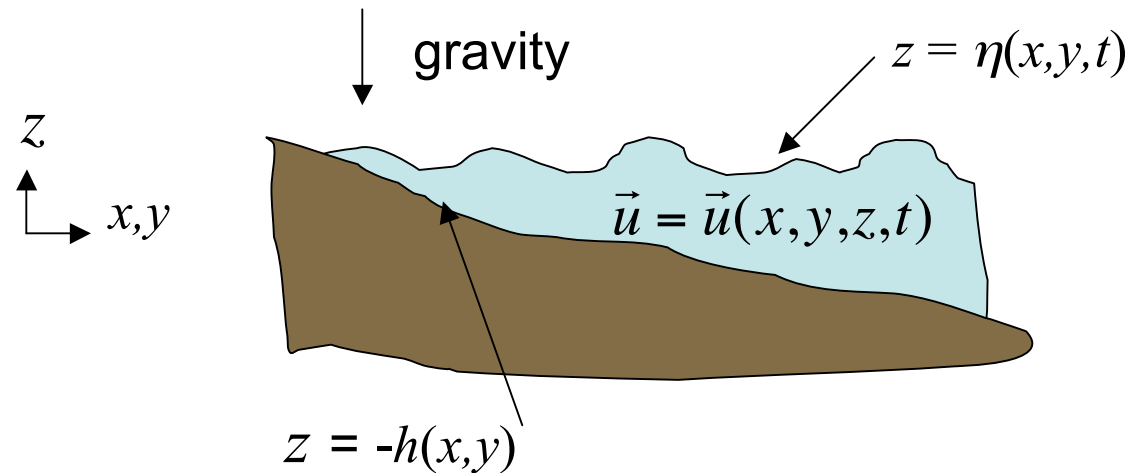


# Derive the governing equations (following Stokes, 1847)



Find:  $\eta(x, y, t)$  — position of free surface, and  
 $\vec{u}(x, y, z, t)$  — fluid velocity, for  
 $-h(x, y) < z < \eta(x, y, t)$ , for  $t > 0$   
and for all  $\{x, y\}$  with  $\eta + h > 0$