

# Weak Bernoulli eq.

$$\frac{\partial \mathbf{u}}{\partial t} - \mathbf{u} \times \boldsymbol{\omega} = -\nabla(gz) - \frac{1}{\rho} \nabla p - \nabla \left( \frac{1}{2} u^2 \right) = -\nabla \left[ gz + \int \frac{dp}{\rho(p)} + \frac{1}{2} u^2 \right]$$

$$\begin{aligned} \Rightarrow \quad \nabla B &= \mathbf{u} \times \boldsymbol{\omega} \quad \Rightarrow \quad \begin{cases} D_{\mathbf{u}} B = 0 \\ D_{\boldsymbol{\omega}} B = 0 \end{cases} \end{aligned}$$