Φυσική Ωκεανογραφία
ΤΥΠΟΛΟΓΙΟ

$$N = \sqrt{-\frac{g}{\rho_0}\frac{\partial \rho}{\partial z}}$$

$$\vec{\tau} = c_D \rho_a |u_{10}| \vec{u}_{10}$$

$$u = u_g + \frac{\tau^x/\rho_0}{\sqrt{f A_V}}\, e^{z/\delta} \cos\left(-\frac{z}{\delta} + \frac{\pi}{4}\right) \quad \upsilon = \upsilon_g - \frac{\tau^x/\rho_0}{\sqrt{f A_V}}\, e^{z/\delta} \sin\left(-\frac{z}{\delta} + \frac{\pi}{4}\right)$$

$$U_E = \int_{-\infty}^{0} (u - u_g)\, dz = \frac{1}{\rho_0 f}\tau^y \qquad w_{Ek} = \frac{1}{\rho_0 f}\left(\frac{\partial \tau^y}{\partial x} - \frac{\partial \tau^x}{\partial y}\right)$$

$$V_E = \int_{-\infty}^{0} (\upsilon - \upsilon_g)\, dz = -\frac{1}{\rho_0 f}\tau^x \qquad w_{Ek} = \frac{U_E}{L} = \frac{\tau^{x,y}}{L \rho_0 f}$$

$$\beta M_y = \frac{\partial \tau^y}{\partial x} - \frac{\partial \tau^x}{\partial y} \qquad M_x = -\frac{1}{\beta}\frac{\partial^2 \tau^x}{\partial y^2}(x_{east} - x)$$

$$\beta U - A_H \nabla_H^2 \zeta = 0$$

$$d = \frac{\sqrt{2Bt}}{N},\; B = \frac{g\alpha H}{\rho_0 c_p}$$

$$\beta \upsilon = f\left(\frac{\partial w}{\partial z}\right) \qquad T_w = 2S_0 \sin\theta$$

$$\omega^2 = gk\tanh(kH) \qquad \omega^2 = gk \qquad \omega^2 = gk^2 H$$

$$\omega = \sqrt{gk\left(\frac{\rho_2 - \rho_1}{\rho_2 + \rho_1}\right)} \qquad \omega^2 = \frac{gk^2 h(\rho_2 - \rho_1)}{\rho_2}$$

$$\omega = \sqrt{f^2 + gHK^2} \qquad \omega = \sqrt{f^2 + g' h K^2}$$

$$\omega = \sqrt{gH}k \qquad \omega = \sqrt{g'h}k$$

$$\omega = -\beta_0 R^2 \frac{k}{1 + R^2(k^2 + l^2)} \qquad \omega \simeq -\frac{\beta_0}{k} \qquad \omega \simeq -\beta_0 k R^2$$

Seawater Properties

$$\alpha = -\frac{1}{\rho}\frac{\partial \rho}{\partial T} \simeq 2 \times 10^{-4}\ {}^{o}\mathrm{C}^{-1} \quad \beta = \frac{1}{\rho}\frac{\partial \rho}{\partial S} \simeq 8 \times 10^{-4}\ \mathrm{ppt}^{-1} \quad c_p = 4 \times 10^3 \mathrm{kg}^{-1}\mathrm{J}^{o}\mathrm{C}^{-1}$$