

Summary for 01/26/09

- Based on the equation of density for the ocean we know that density goes down when the temperature is warmer and saltier fluids are more dense fluids.
- For $R_0 \ll 1$, $R_{0T} \ll 1$, $E_k \ll 1$, homogeneous flows:
 - If $w = 0$ at the top then $w = 0$ everywhere and the fluid flows along isobaths.
- For $E_k \ll 1$ and for a homogeneous flow, the dynamic pressure is constant in the vertical and therefore if there is no vertical shear in the fluid at time $t = 0$ (or $t = \text{negative infinity}$) there will never be any shear.
- $H \ll L$ for a shallow fluid.
- By integrating vertically the mass continuity equation, we found an equation that related the change in depth of a fluid (h) to the divergence of a fluid:

$$\frac{Dh}{Dt} = -h\left(\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y}\right)$$