Sigma notation, σ

- $\sigma \equiv (\rho - 1000)$ in mks units, or $(\rho - 1) \times 1000$ in cgs

  Now,

- $\sigma_t \equiv \sigma_{T,S,0}$ while $\sigma_\theta \equiv \sigma_{\theta,S,0}$

  Lastly, $\sigma_P \equiv \sigma_{T,S,P}$ or $\sigma_P \equiv \sigma_{\theta,S,P}$

  Ranges: σ_t, 20 - 28, and σ_P, 20 - 60.

The 'standard' σ_t at p = 0, S = 35.00, and T = 10.00, is $\sigma_t = 26.95$

Scales for the ocean

Temperature (°C)	Salinity (o/oo)	Pressure (dbar)
-2 to 30 $\mu \sim 4$	30 to 38 $\mu = 34.7$	0 to 10^4, $\mu_{\text{bottom}} \sim 3850$

The SI unit for pressure is the Pascal.
1 Pa = 1 kg / ms^2 1 dbar = 10^4 Pa.
Why use dbar? 1 dbar $\sim$ 1 meter depth in the ocean.

Hydrostatic Relationship:

$$\frac{\Delta P}{\Delta z} = g\rho$$

CGS
$g = 10^3$ cm/sec^2
$\rho = 1$ gm/cm^3
$\Delta z = 1$m $= 10^2$ cm
1 bar $= 10^6$ dynes/cm^2
$\Delta P = 1$ deci-bar Cdb

MKS
$g = 10$ m/sec^2
$\rho = 10^3$ Kg/m^3
$\Delta z = 1$ m
1 bar $= 10^5$ Newton/m^2
$\Delta P = 1$ db