

ERTH 465
Inclass Exercise 6: Thermal Wind
Due Tuesday 10 October 2017 (50 pts)

What is the 500 mb wind vector if the surface winds at 40°N are calm and temperatures decrease northward (along n-axis for natural coordinate system with zonal wind) at 5° C per 500 km?

Given:

$$V_{500} = V_{1000} + V_t$$

$$V_t = -\left(\frac{R}{f}\right) \ln 2 \left(\frac{\partial T}{\partial n}\right)$$

$$f = 10 \times 10^{-5} \text{ s}^{-1}$$