AGRON 590

Fall 2014

Homework 1: The governing system of equations

Due Tuesday, September 2

1. Derive the Boussinesq continuity equation

$$\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} + \frac{\partial w}{\partial z} = 0$$

from equation (2.5) in your textbook. Explain your steps and any assumptions you make.

2. Apply Reynolds averaging to the conservation of heat relation, i.e., equation (2.4) in your textbook. Explain your steps and any assumptions you make.