

SIO 217B Atmospheric and Climate Sciences II

Exercise A

1. a) Derive an expression for geopotential height, Z , as a function of geometric height, z . Ignore the contribution of centrifugal acceleration to gravity.
b) Let $d = Z - z$. Derive an expression for d as a function of z .

2. a) Plot d as a function of z from the surface to the mesopause (80 km).
b) What is the value of d at $z = 10$ km and $z = 80$ km? Is there much difference between Z and z in the troposphere?