National Central University
Department of Atmospheric Sciences
Radar Meteorology
Homework V
(2021/11/09 - 2021/11/22)

1. 下表為某探空量測到的大氣資料(a data set from a sounding)

P(hpa)	h(m)height	T(℃)	Td(℃)	Pw (hpa)	N
970	450	26	20		
900	1000	26	11		

(a) (10 pts)求出此兩個高度的水氣分壓 Pw。
(Compute the partial pressure from vapor, P_w, at these two heights)

(b) (10 pts)求出此兩個高度的 refractivity N。
(Compute the refractivity N at these two heights)

(c) (30 pts)當雷達天線的仰角為 0.4^o，距離 60 公里處的電磁波高度為何?請用 4/3 地球半徑模型及公式(2.30)分別求之。
(When the radar elevation angle is 0.4^o, what will be the height of the EM wave at a distance of 60 km from the radar site? Use 4/3 earth radius model and equation (2.30) for your computation).

2. (20 pts)把課本中的公式(4.34)經單位的轉換推導出(4.35) 。
(課本中的公式在分子有一參數 g_s，令其值等於 1) 。
Transform equation (4.34) to equation (4.35). The major difference between these two equations is that the latter uses proper unit for each parameter. (In the equations shown in the text book, there is a parameter called g_s. Its value can be 1)