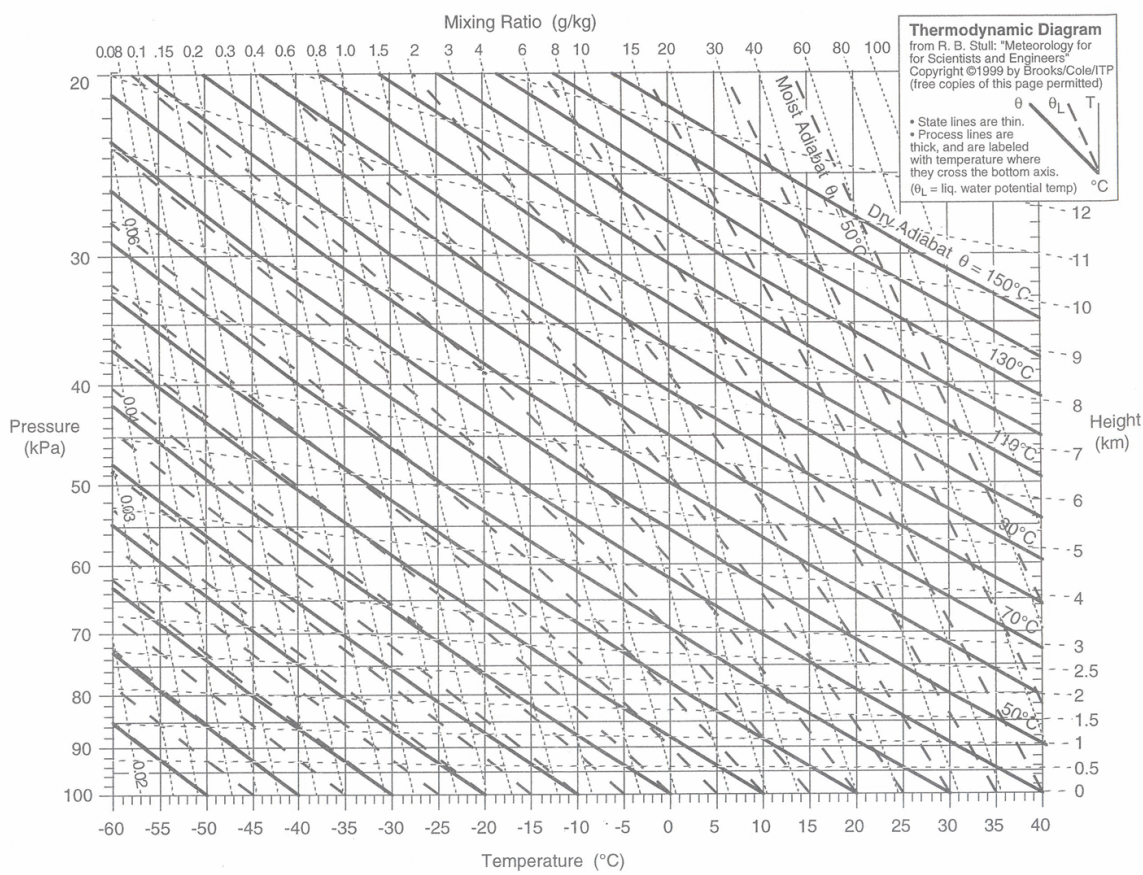


$T_1 = 5^\circ\text{C}$
 $r_1 = 10 \text{ g/kg}$
 Ο αέρας σε P_1 κ' T_1
 μπορεί να έχει $r_1 = 10 \text{ g/kg}$
 υγρασίας (max)

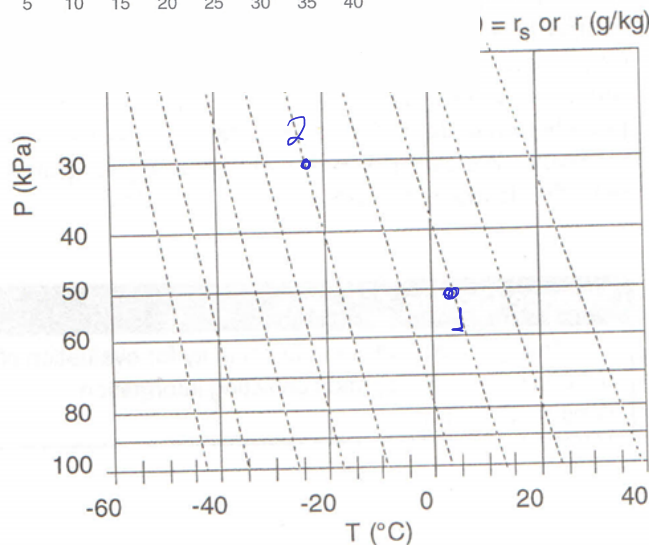


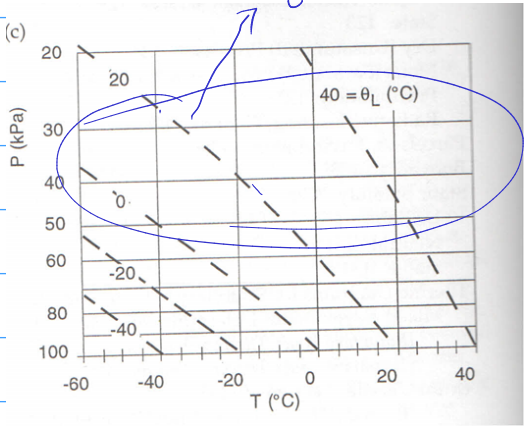
Figure 6.1

$r = 5 \text{ g/kg}$
 $RH = \frac{r}{r_s} = \frac{5}{10} = 0.5 = 50\%$ υγρασία

$P_2 = 30 \text{ kPa}$ $T_2 = -24^\circ\text{C}$ $r_{s2} = 2 \text{ g/kg}$

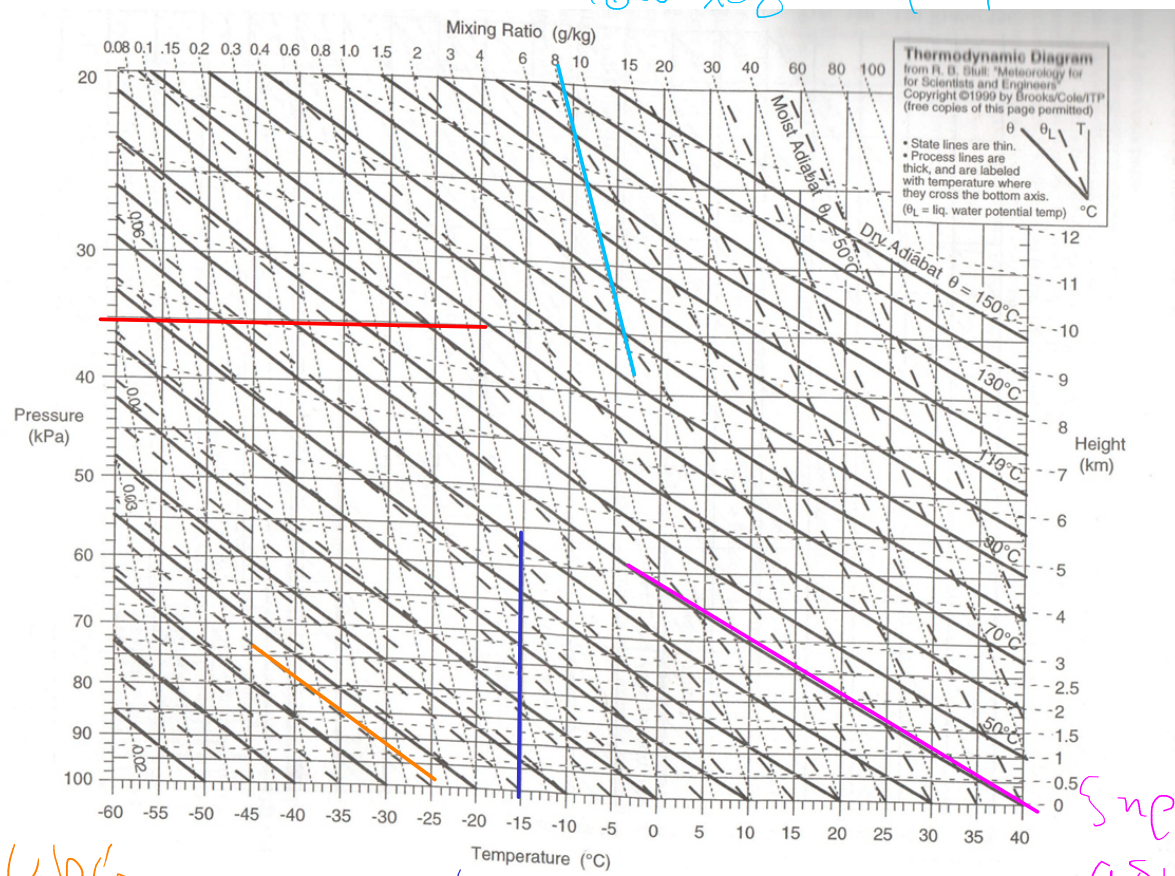
Γ_g : υγρή αδιαβατική 6°C/km

υγρή αδιαβατική
 σίφραση



1600 2080 usparakis

1600 usparakis



usparakis
usparakis

1600 usparakis

usparakis /
usparakis

Thermodynamic Diagram

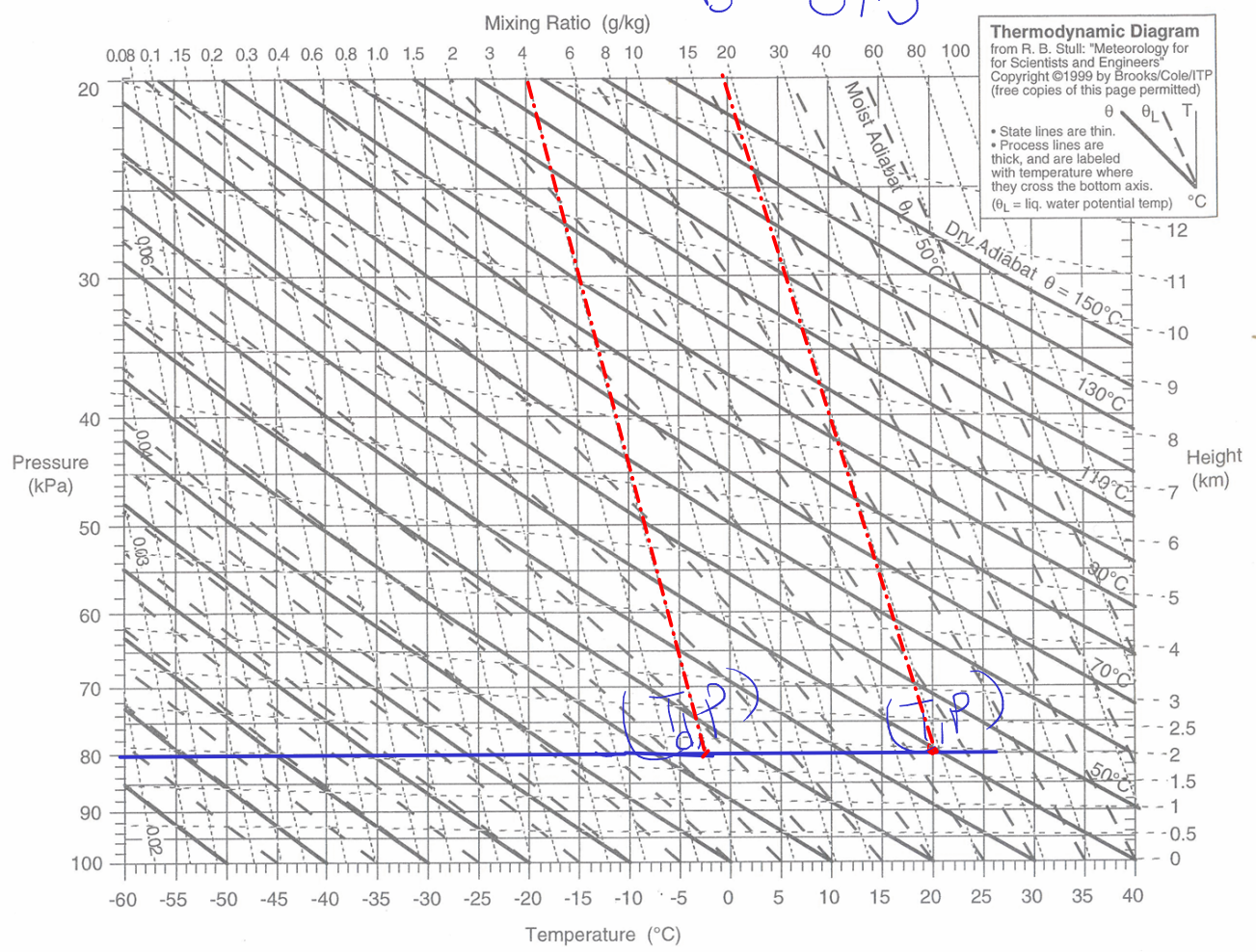
$r = 4 \text{ g/kg}$

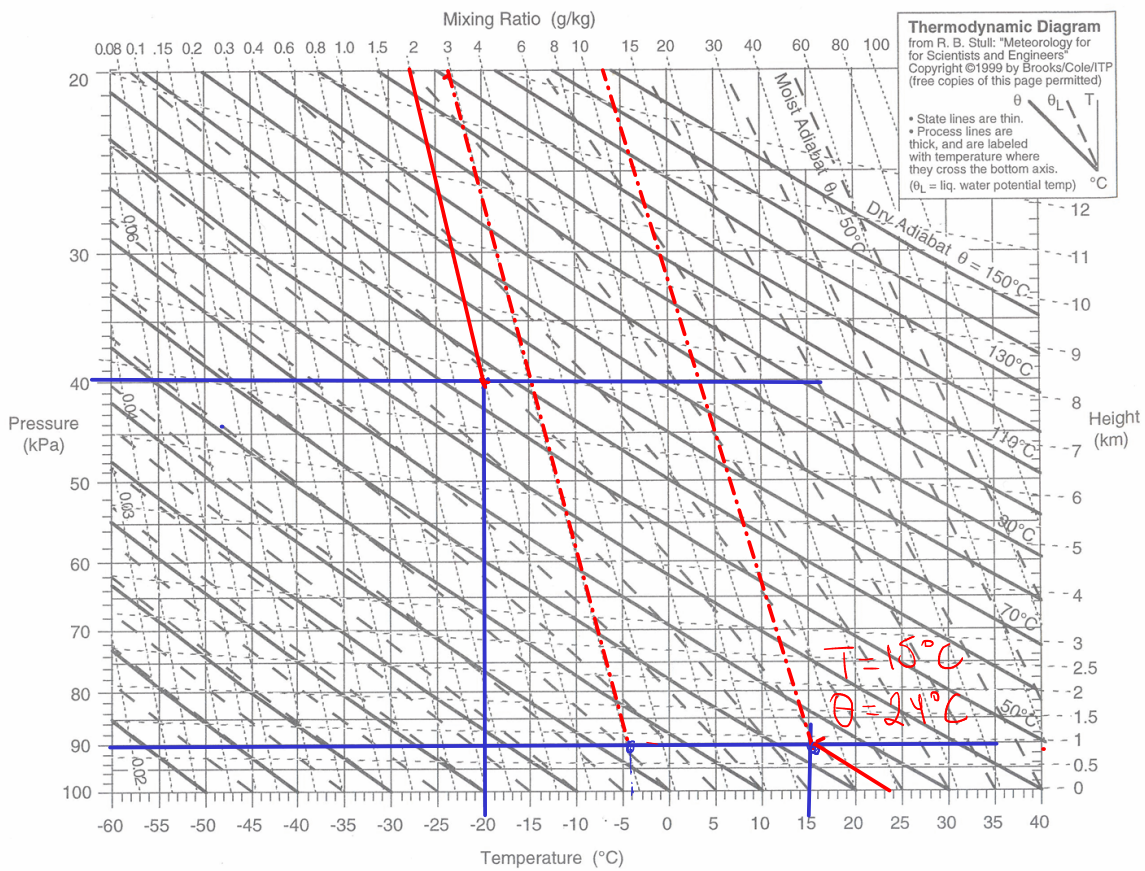
$r_s = 19 \text{ g/kg}$

$$\frac{2H}{r} = \frac{r_s}{r}$$

$$= \frac{4}{19} = 0.21$$

$P = 800 \text{ kPa}$
 $T = 20^\circ \text{C}$
 $T_d = -25^\circ \text{C}$
 $R_H =$





7.2

$P = 90 \text{ kPa}$
 $T = 15^\circ \text{C}$
 $RH = 25\%$

$r = ?$
 $r_s = ?$
 $T_d = ?$

$r_s = 12 \text{ g/kg}$

$$RH = \frac{25}{100} = \frac{r}{r_s} \Rightarrow r = \frac{25}{100} \cdot 12 = 3 \text{ g/kg}$$

$$T_d = -4^\circ \text{C}$$

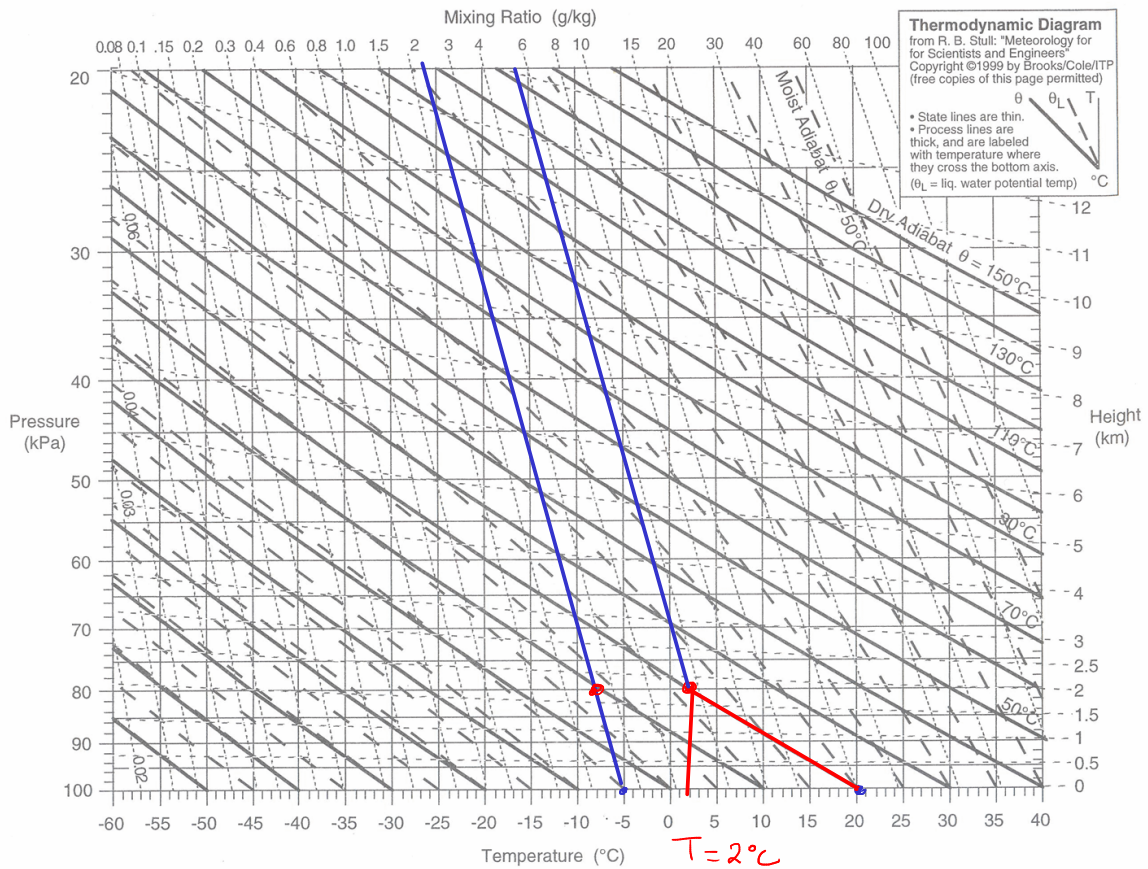
7.3

$P = 40 \text{ kPa}$
 $T = -20^\circ \text{C}$
 $RH = 100\%$

$T = T_d = -20^\circ \text{C}$

$r = r_s = 2 \text{ g/kg}$

Ξηρη αδιαβατική Στεφάνος



Θ.1 $P = 100\text{ kPa}$
 $T = 20^\circ\text{C}$
 $T_s = -5^\circ\text{C}$

Θ αλφας ανεπαρκής αδιαβατική
 στα 80 kPa Θ2.

$T = ;$
 $T_d = ;$
 $RH = ;$

$r = ;$
 $r_s = ;$

Θ1: $r = 15\text{ g/kg}$ $r = 2,6\text{ g/kg}$

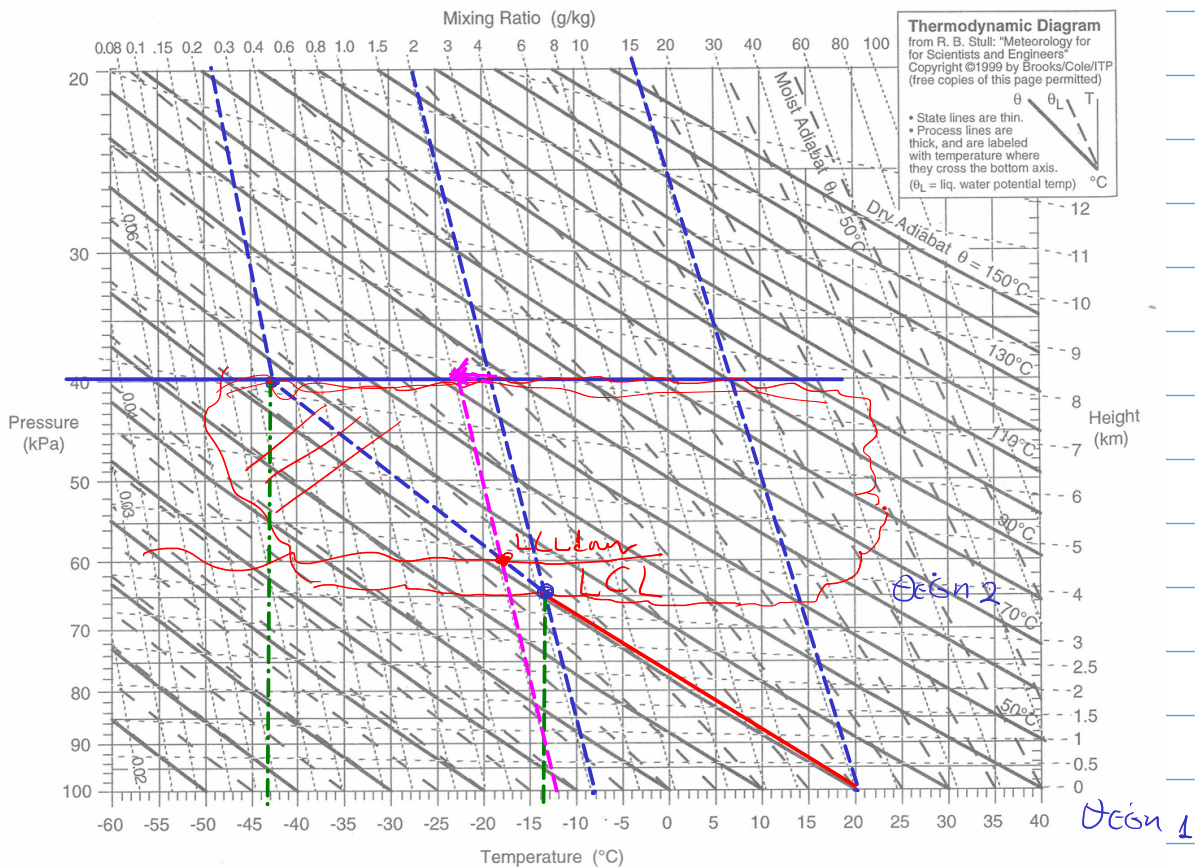
$RH = \frac{2,6}{15} = 17,3\%$

Θ2: $r = 2,6\text{ g/kg}$ $\theta = 20^\circ\text{C}$ $T = 2^\circ\text{C}$ $r_s = 5,5\text{ g/kg}$

$RH = \frac{2,6}{5,5} = 47,3\%$

Αδριανακίς Στεργιάδης:

Δεν υπάρχει ανεπαρκής θέρμανση ή υγρασία
με το ΑΠΙ ΒΑΛΑΝ



LCL: Lift Condensation Level
Εννείσο συμπύκνωσης

$P = 100 \text{ kPa}$ $T = 20^\circ\text{C}$ $T_d = -8^\circ\text{C}$ ο αέρας ανεβαίνει αδιαπρόσωτα
Να φτάσει το LCL

Design 1: $r_s = 15 \text{ g/kg}$ $r = 2 \text{ g/kg}$ $RH = \frac{2}{15} = 13,3\%$

Design 2: LCL up $P = 65 \text{ kPa}$ $T = -14^\circ\text{C}$ $T_d = -14^\circ\text{C}$
 $RH = \frac{r = 2}{r_s = 2} = 100\%$
 $\theta = 20^\circ\text{C}$

Θέση 3: $P = 40 \text{ kPa}$

ανεβαίνουμε με υγρή αδιαβατική

$$r_T = r_s + r_L = 2 \text{ g/kg}$$

$$\phi_H = 100\%$$

$$T = T_d = -43^\circ \text{C}$$

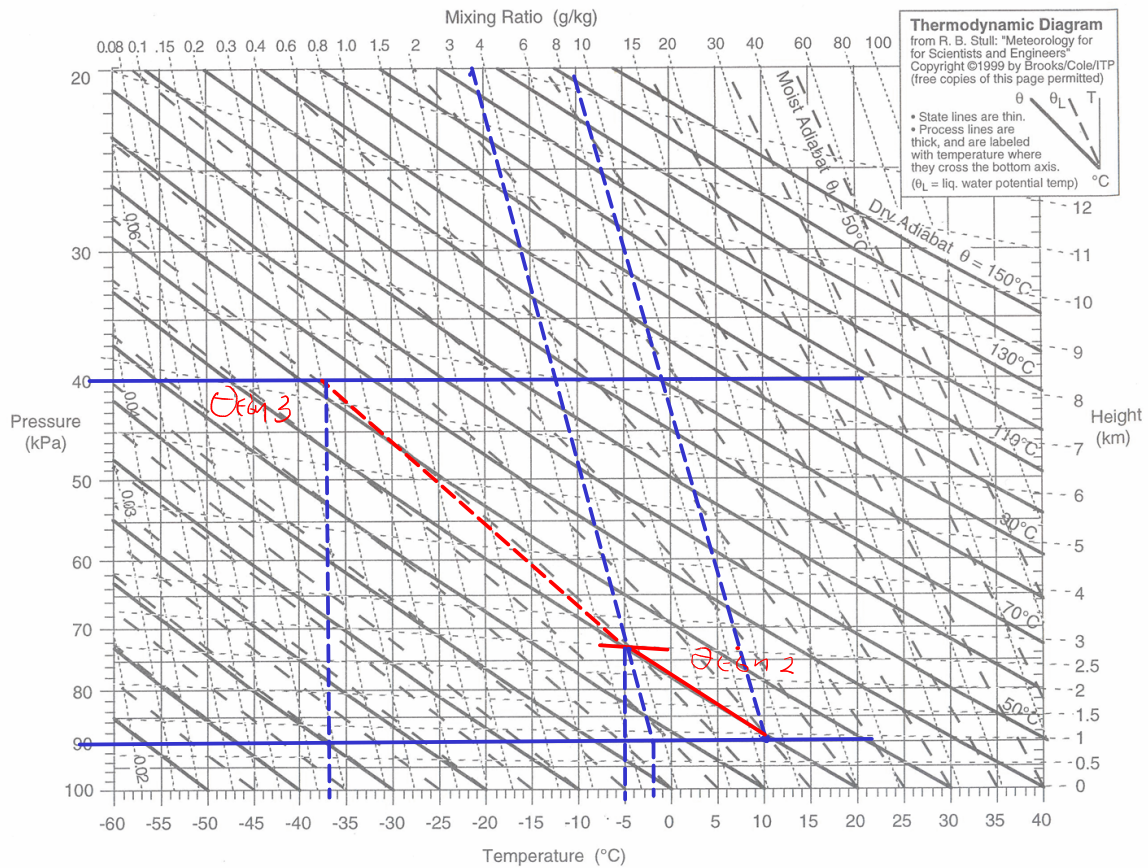
$$r_s = 0,25 \text{ g/kg}$$

$$r_L = 2 - 0,25 = 1,75 \text{ g/kg}$$

$$\theta = 20^\circ \text{C}$$

Ψυχρότητα: $0,5 \text{ g/kg}$

$$r_T = 1,5 \text{ g/kg}$$



θeqn 1: $P = 90 \text{ kPa}$ $T = 10^\circ\text{C}$ $RH = 40\%$
 $r_s = 9 \text{ g/kg}$

$$RH = \frac{r}{r_s} \Rightarrow r = 40\% \cdot 9 = 3,6 \text{ g/kg}$$

$$T_d = -2^\circ\text{C}$$

θeqn 2: LCL_{up} · → $P = 74 \text{ kPa}$ $T = -5^\circ\text{C}$
 $T_d = -5^\circ\text{C}$

$$RH = 100\% \quad r = r_s = r_T = 3,6 \text{ g/kg}$$

θeqn 3: $P = 40 \text{ kPa}$ $T = T_d = -37^\circ\text{C}$

$$r_T = 3,6 \text{ g/kg}$$