

## Temperature Inversion (part of Vertical Patterns of Temp)

- Temperature Inversion is a phenomenon where Rate of cooling with height inverts & atmosphere warm with height. i.e. reversal of Lapse Rate (These are high level Inversion)
- Importance of Inversion - Inversion of Temp in atmosphere is responsible for slowing down & stopping vertical rise of air. Inversion leads to atmospheric stability because of which-

a) Pollutants can be trapped

b) No clouds formation  $\therefore$  no rain followed  
by intense heavy rains called as cloud  
burst

c) Some times lower air near earth surface  
may be chilling cold, where water vapour  
in lower atmosphere can't condensed into  
smog & fog & cause damage to agriculture

## Types of Inversion -

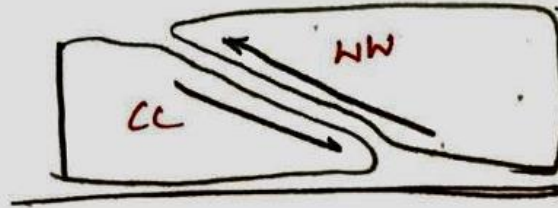
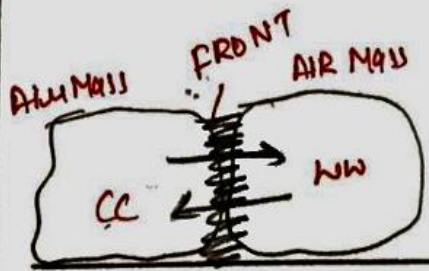
1] High Level Inversion - like stratosphere  
△ Thermosphere

2] Radiation Inversion - where land can lose heat very rapidly & lower air can become extremely cold

3] Surface Inversions at high latitude in winters can cause sleet & glaze called as  
Freezing rain  
(Black ice)

• This type of Inversion also occurs in high altitudes

3] Frontal Inversion - At the Fronts, cold air pushes from below causing frontal inversion.



#### 4] Advection Inversion

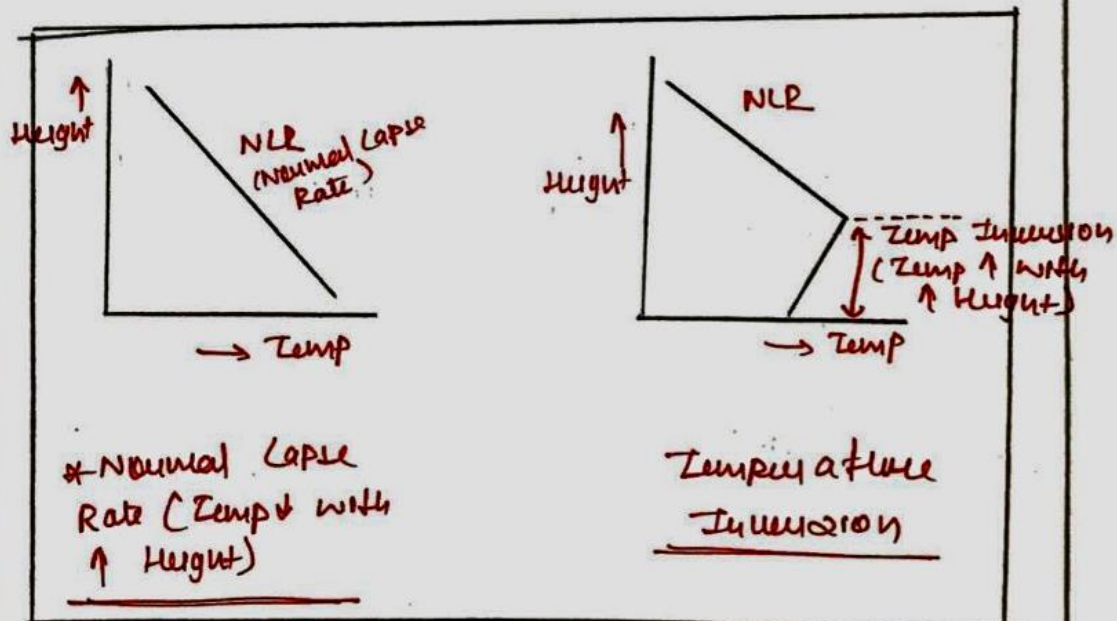
(Advection = Horizontal movements like wind)

• It happens when cold air invades into warmer air

EX Arctic air invading into Atlantic Ocean

EX Canadian air in winters invading into parts of the USA

5) In the night time, mountain breeze can force accumulation of cold dense air along the valley floor, causing valley inversions. This can impact Agriculture along valleys



P401 (Previous Years Questions)

Q1 Write a short note : Inversion of Temperature  
- June (1995) (20M)

Q2 Write short note on Inversion of Temperature  
- June (2010) (20M)