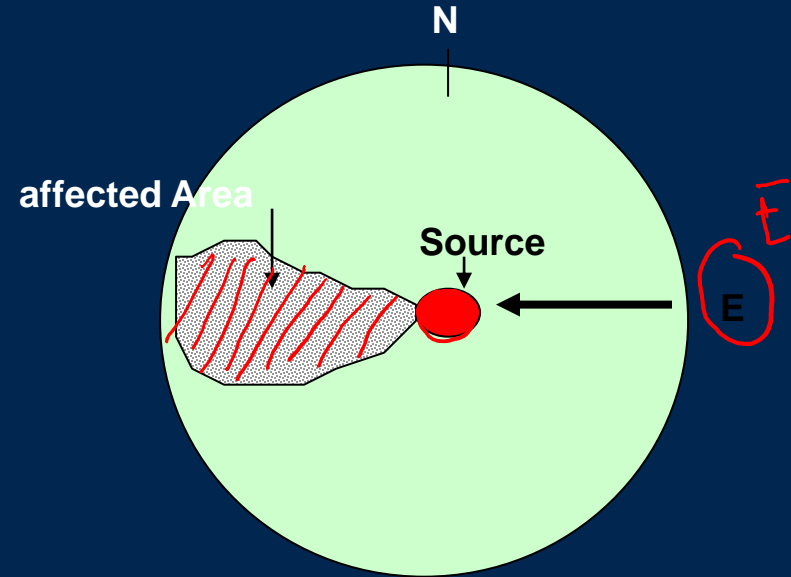


Measurement of Micrometeorological parameters

Wind Direction



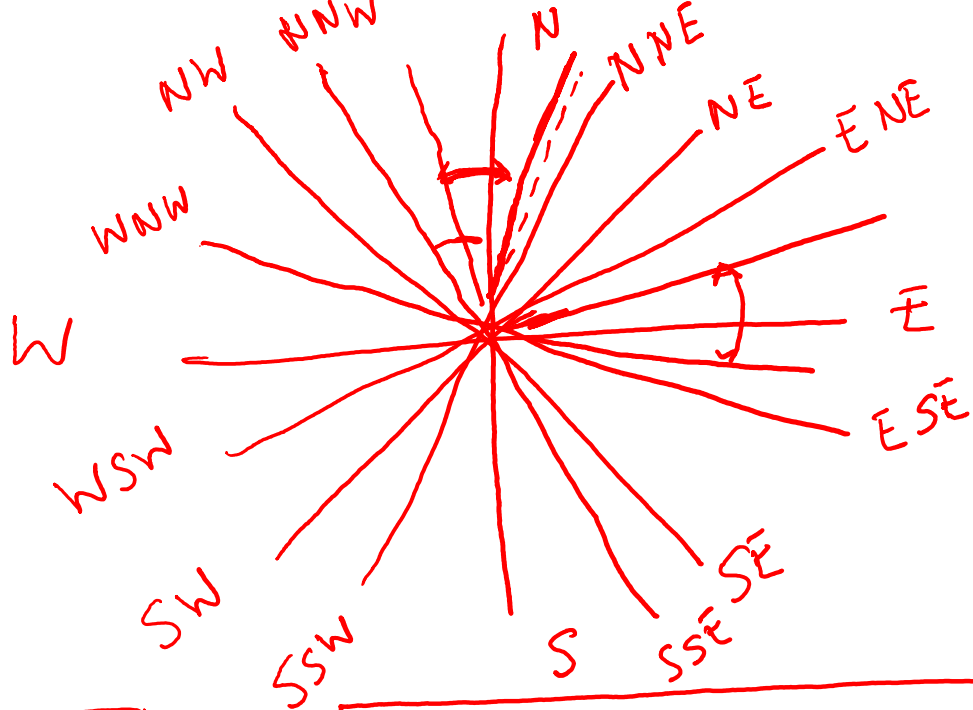
Wind vane set



Wind Blowing from 'E' (90°)

Based on the wind direction the receptors in the down wind direction are identified





degrees

N → 0°

E → 90°

S → 180°

W → 270°

NNE → 22.5° x

N → 358.75° - 11.25°

358.75° to 11.25°

↓
N

Windrose - Summary of Wind speed & dir.

(Joint frequency Probability that is plotted.)

Speed, m/s

Dir	0-5	0.5-1.5	1.5-3	3-5	>5
N	1				
NNE		###			
NE					
ENE	###1				

ENE 0-.5 $\frac{2}{6/24}$

$\frac{5}{24} \times 100$

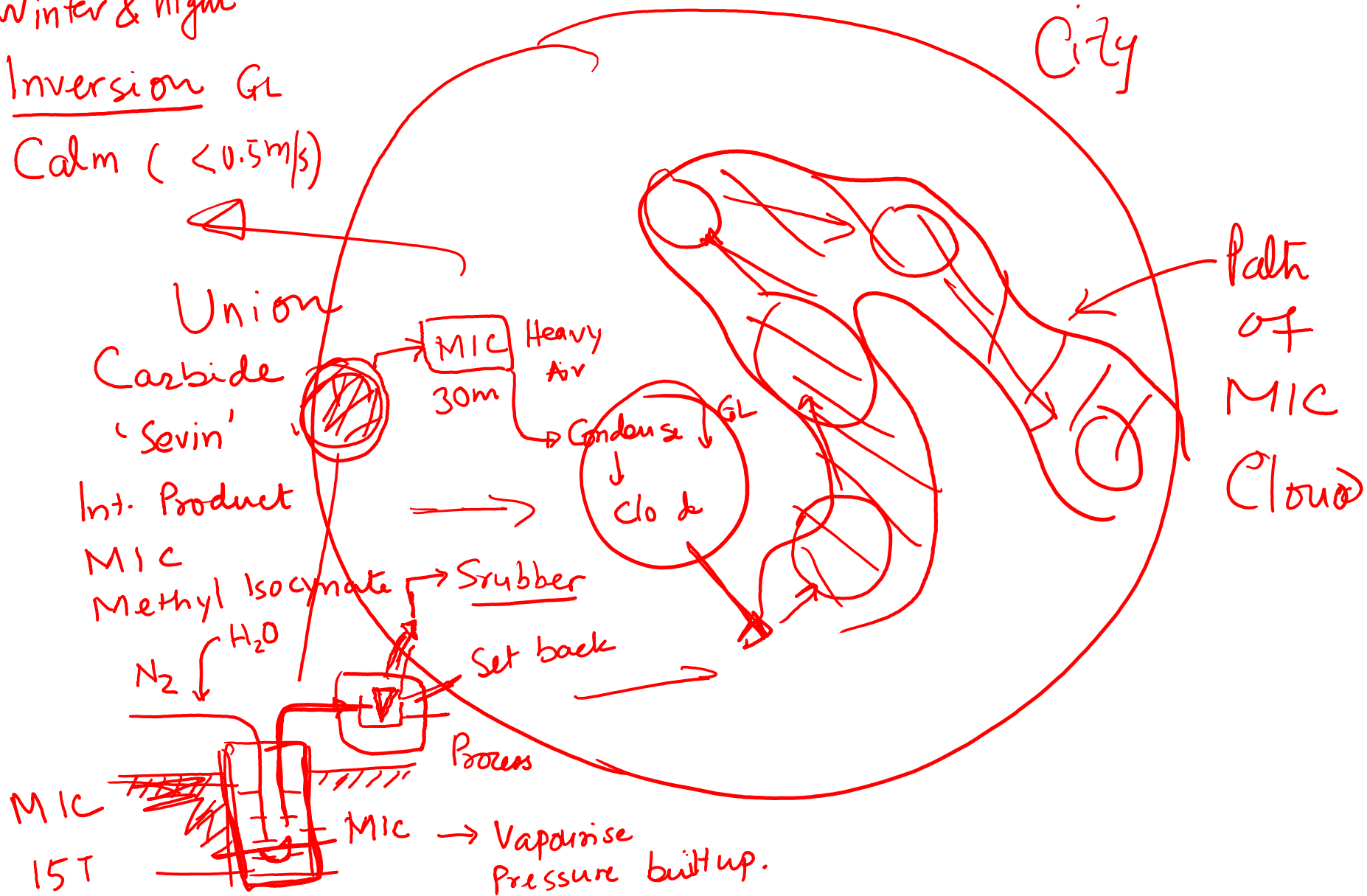
N = 24

Bhopal Gas Tragedy Dec 2/3, 1984

Winter & night

Inversion GL

Calm ($< 0.5 \text{ m/s}$)



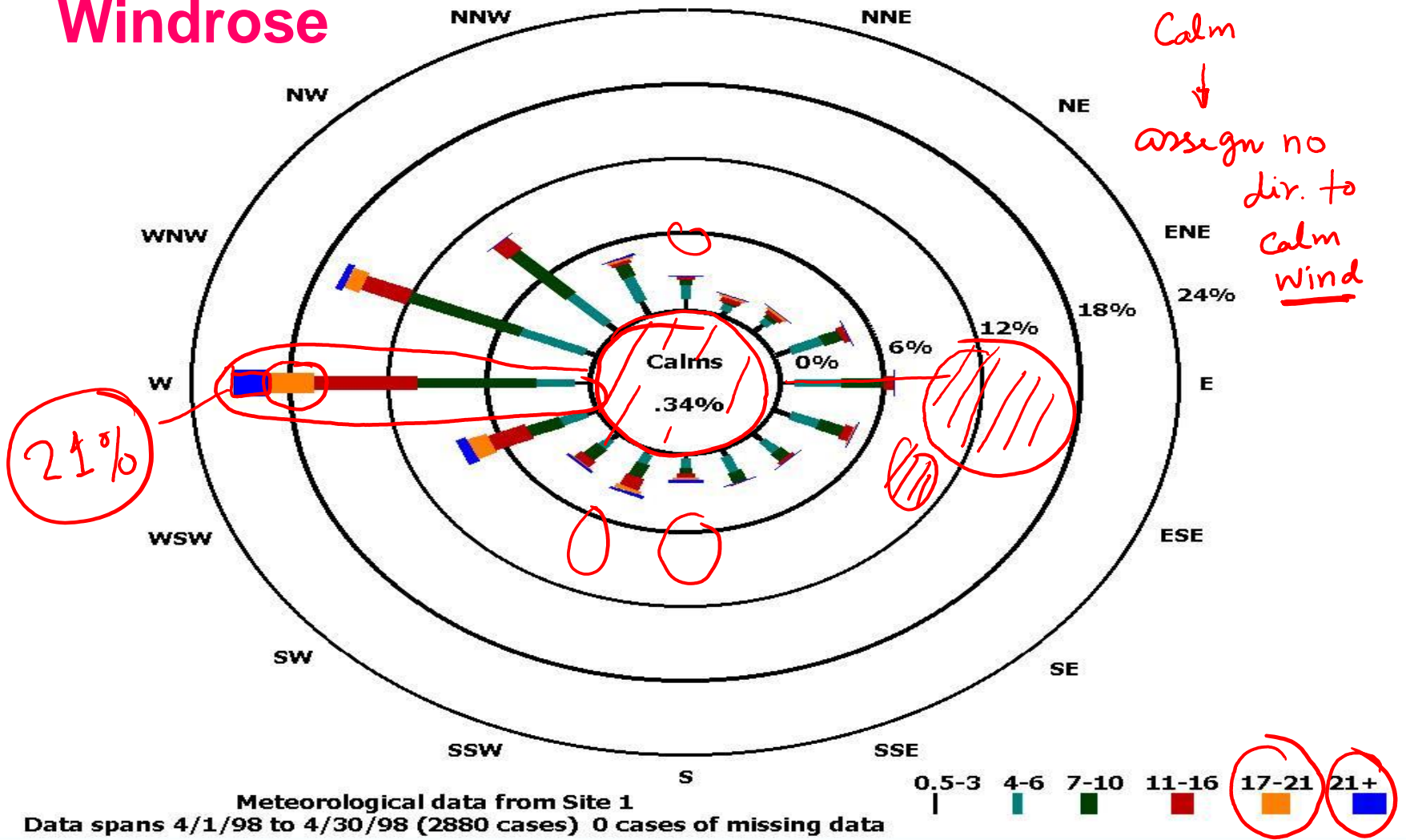
Frequency of Wind Speed and Direction

Windrose

All data used
N

0 - 0.5 m/s
Calm

↓
assign no dir. to calm wind



Pollution Rose

TPS

LEGEND

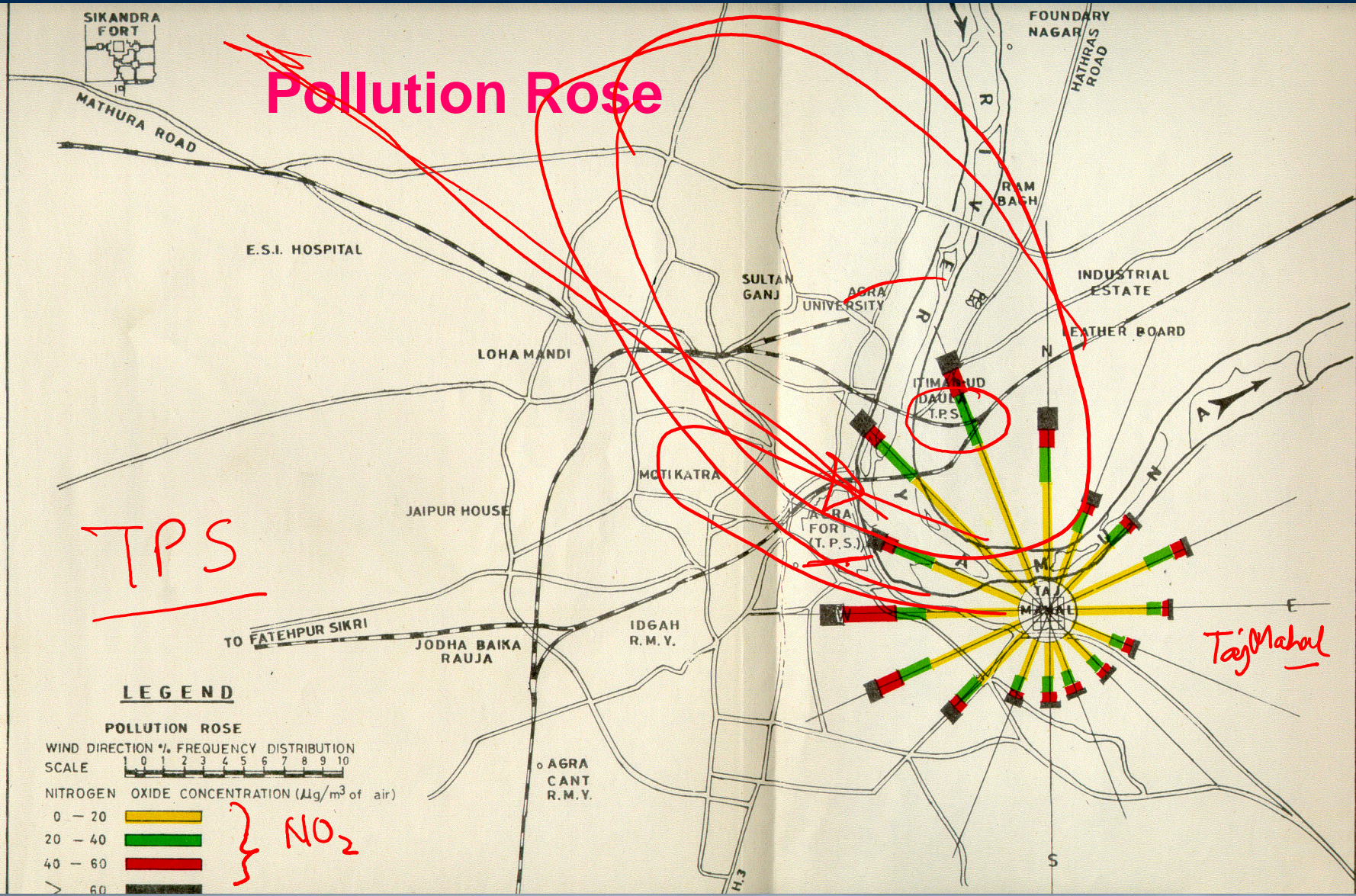
POLLUTION ROSE

WIND DIRECTION % FREQUENCY DISTRIBUTION SCALE

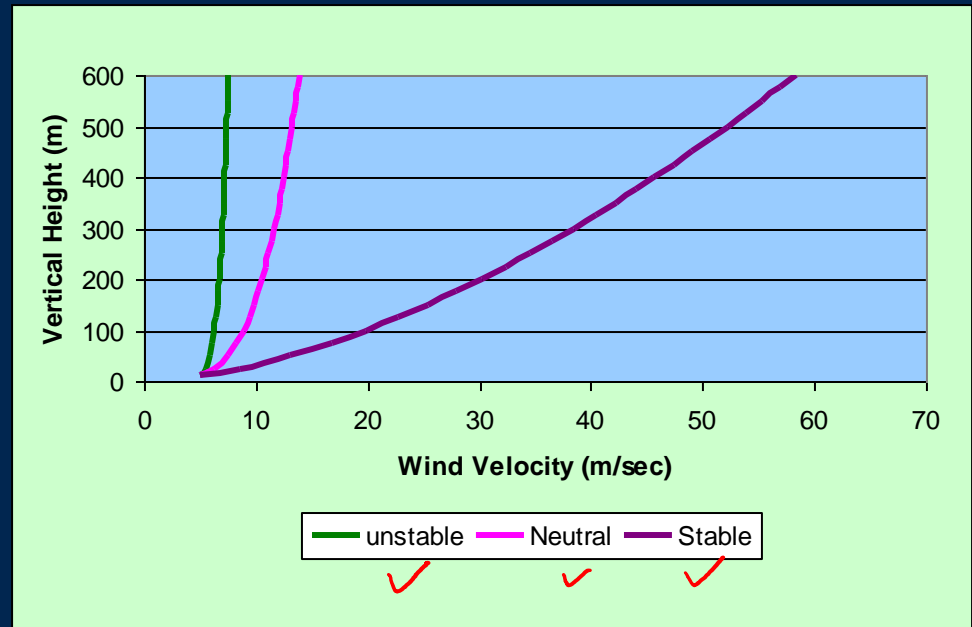
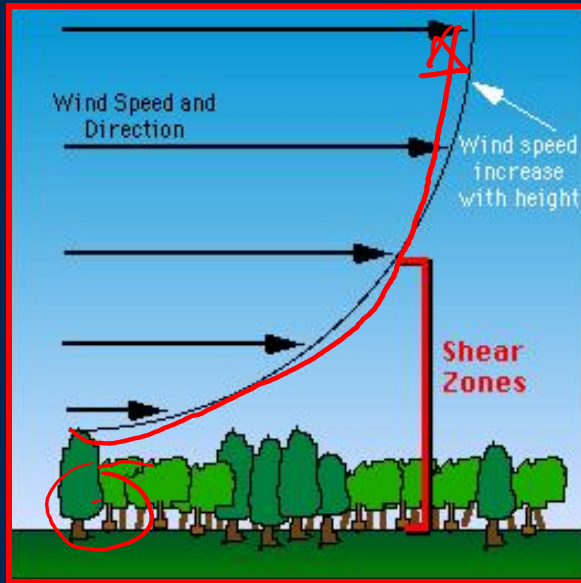


NITROGEN OXIDE CONCENTRATION ($\mu\text{g}/\text{m}^3$ of air)

0 - 20		} NO ₂
20 - 40		
40 - 60		
> 60		



Wind Velocity Profile



$$\frac{V_{h1}}{V_{h2}} = \left(\frac{h_2}{h_1} \right)^n$$

'n' depends on stability

Unstable
Neutral
Stable

0.1
0.25
0.4

Power law
during the modelling -

$$V_{h2} = V_{h1} / \left(h_2/h_1 \right)^n$$

