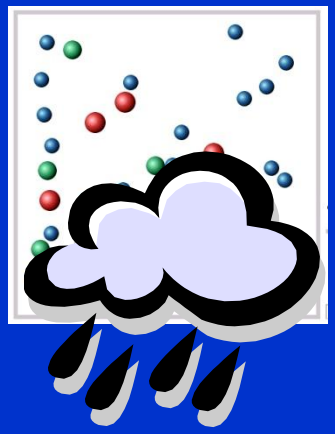
The following “Mini-Zombie Break” slides were in the lecture for Sec 51+52, but were omitted from Sec 53+54 to stay on schedule . . . .

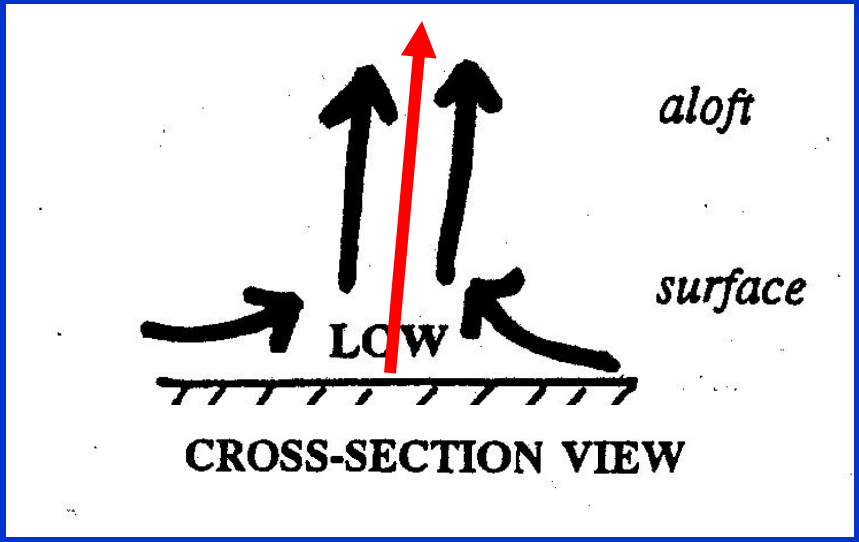
LOW PRESSURE AREAS:

Hot surface ➔ Rising air ➔ expansion and cooling of air, and condensation of water vapor

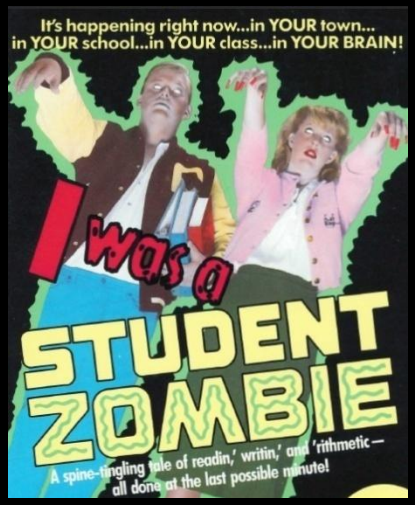


➔ clouds, and possibly precipitation . . .

HUMID REGIONS



How do H_2O droplets in warm, tropical clouds coalesce and grow so that they become heavy enough to fall as rain in the ITCZ?



Mini-Zombie Break !

DANCE YOUR PH.D!

"Precipitation Initiation in Warm Clouds"

This dances shows how a rain drop can form when one SLIGHTLY LARGER RAIN DROP is present among a population of smaller drops.

In the tropics, really large drops (heavy enough to fall as rain) only form after mixing occurs.

Men are Condensation nuclei

Women are H_2O droplets

In the "mixing process" the H_2O droplets connect with "condensation nuclei partners"

. . . but eventually some H_2O's abandon their original nuclei for a larger one!

Through "coalescence" a single nucleus attracts all the other water droplets !

When the H_2O droplet grows large enough . . .

. . . RAIN FALLS!

http://www.youtube.com/watch?v=4O7G7F_e7I0