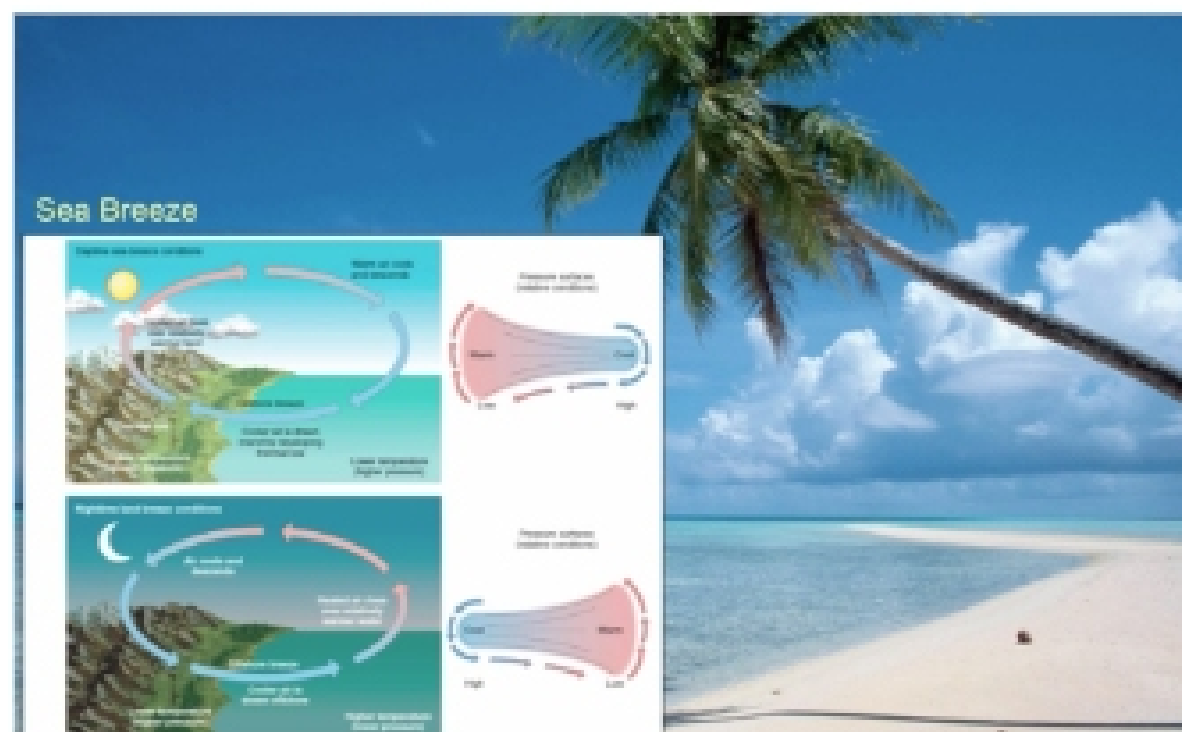


Local Winds

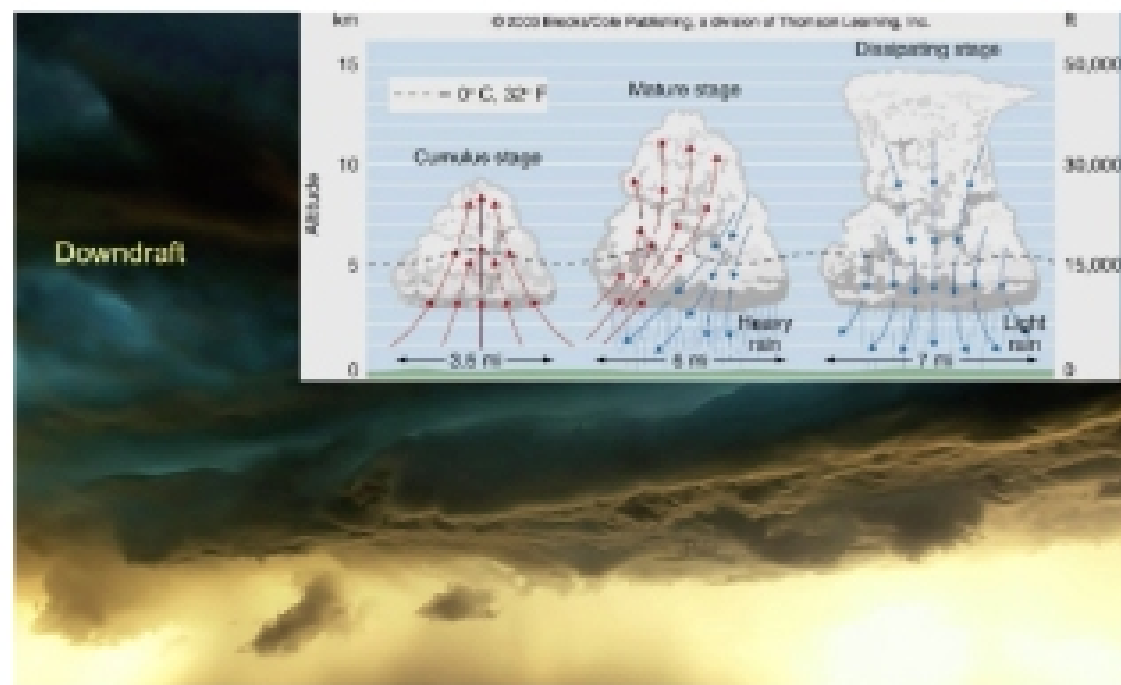


- Local winds are superimposed on the regional winds which are superimposed on teleconnections and global distributions of winds
- Our weather reflects a higher archery of winds

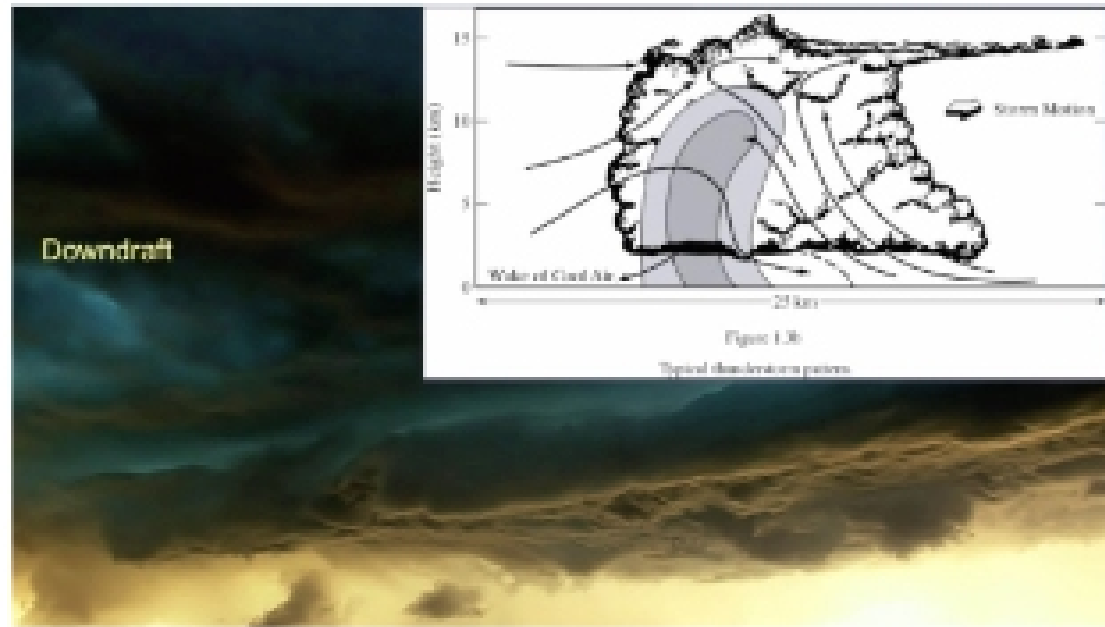


- Most common of local winds is a sea breeze
- Land heats up and cools down faster than water, which means the land is hotter during the day and colder at night compared to the surrounding water
- As a result, during the day, a low pressure system develops over the land because the air is warmer compared to the water

- A high pressure system then develops over the relatively cold water
- Since air moves from high to low pressure, the wind blows from the sea to the land to create a sea breeze and is strongest in the late afternoon
- At night the land cools down fast than the water and becomes cold
- This creates a high pressure system over the land and low pressure system over the water
- What you have is a land breeze in which wind blows from land to sea
- Same mechanism controls the Indian monsoon
- During the summer a strong sea breeze is formed due to the migration of the ITCZ and thus created the Indian Monsoon



- Thunderstorms also create local winds
- The initial development of a thunderstorm, a relatively low pressure system, starts with air rising
- As air rises and the clouds build vertically, rain begins
- As the rain starts, it drags some of the air with it, creating a down draft that ultimately slows the thunderstorm down because it is moving in the opposite direction of the storm
- The downdraft causes the storm to dissipate
- Example of a negative feedback system
- Development of the storm and rain stops the storm from forming further



- The down draft can be quite intense
- And you can feel it as the storm approaches as a very cool breeze



- Intense heating over a surface, such a flat plateau or parking lot, can lead to an intense convection of a dust devil
- These start from the ground up and are not like tornados