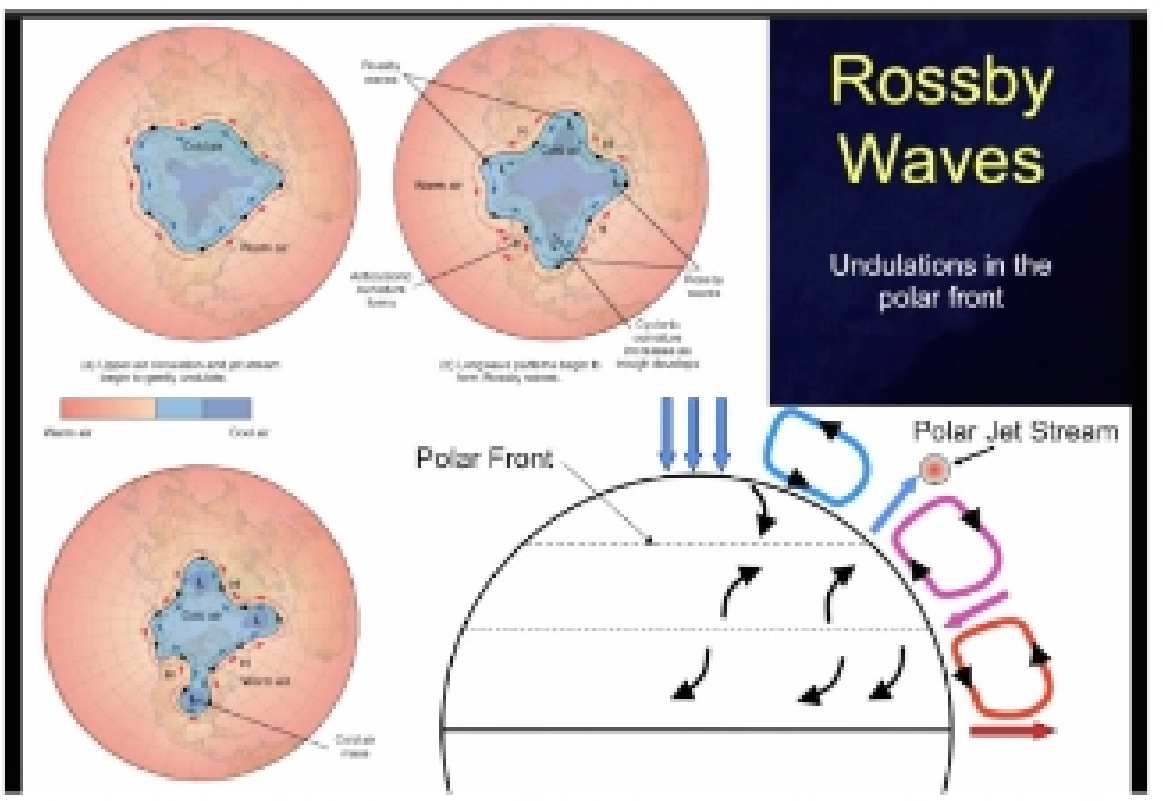
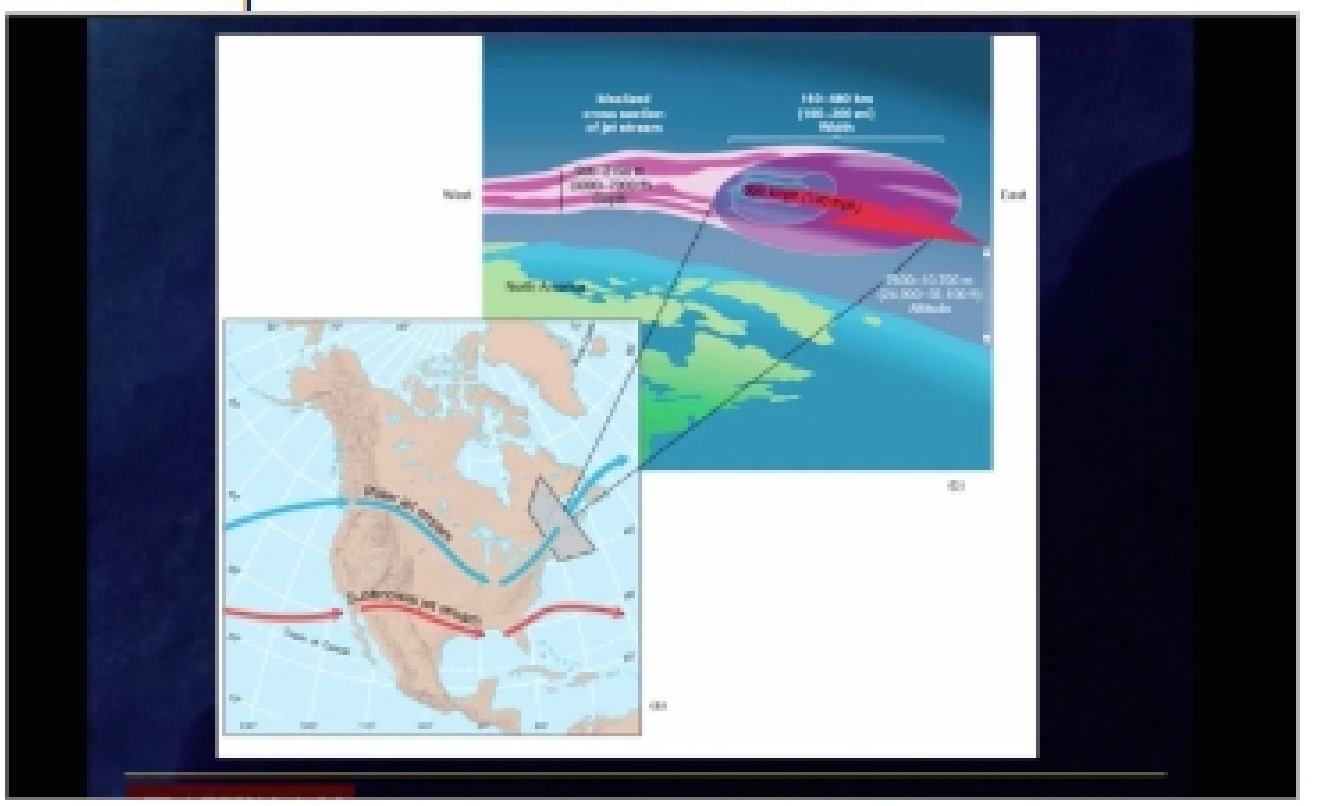
Regional Winds

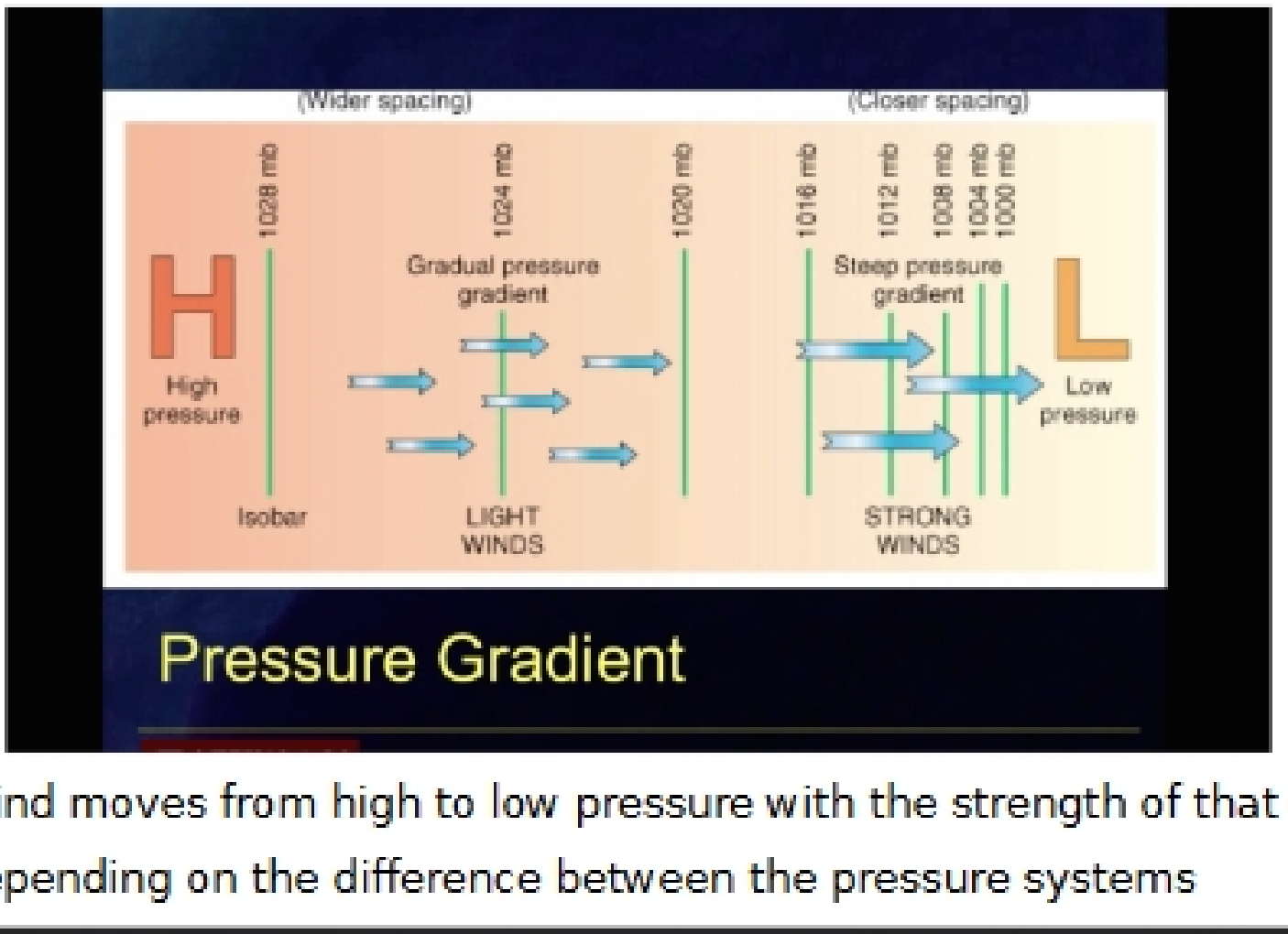


- Regional winds are ultimately controlled by the global variation in winds
- The global pattern of wind is driven by an equal distribution of solar radiation
- As a result of the Coriolis force, there are three bands of wind in the northern and southern hemisphere
- Easterly wind along the equator, a westerly wind through the mid-latitude, and another easterly wind closest to the poles
- At the boundary of the easterly polar winds and mid-latitude westerly winds, we have a polar jet stream caused by the shier of the easterly winds and the westerly winds moving passed each other in opposite directions
- The polar jet stream is very much like a meandering river, examined in module 3
- The shier causes the polar jet stream to meander and this pattern is called a Rossby Wave
- Where it meanders to the North, you get a relatively small high pressure system in which the air is sinking
- A low pressure system develops where the jet stream meanders to the south
- Theses pressure systems are different than the semi-permeant high and low pressure systems in module 5

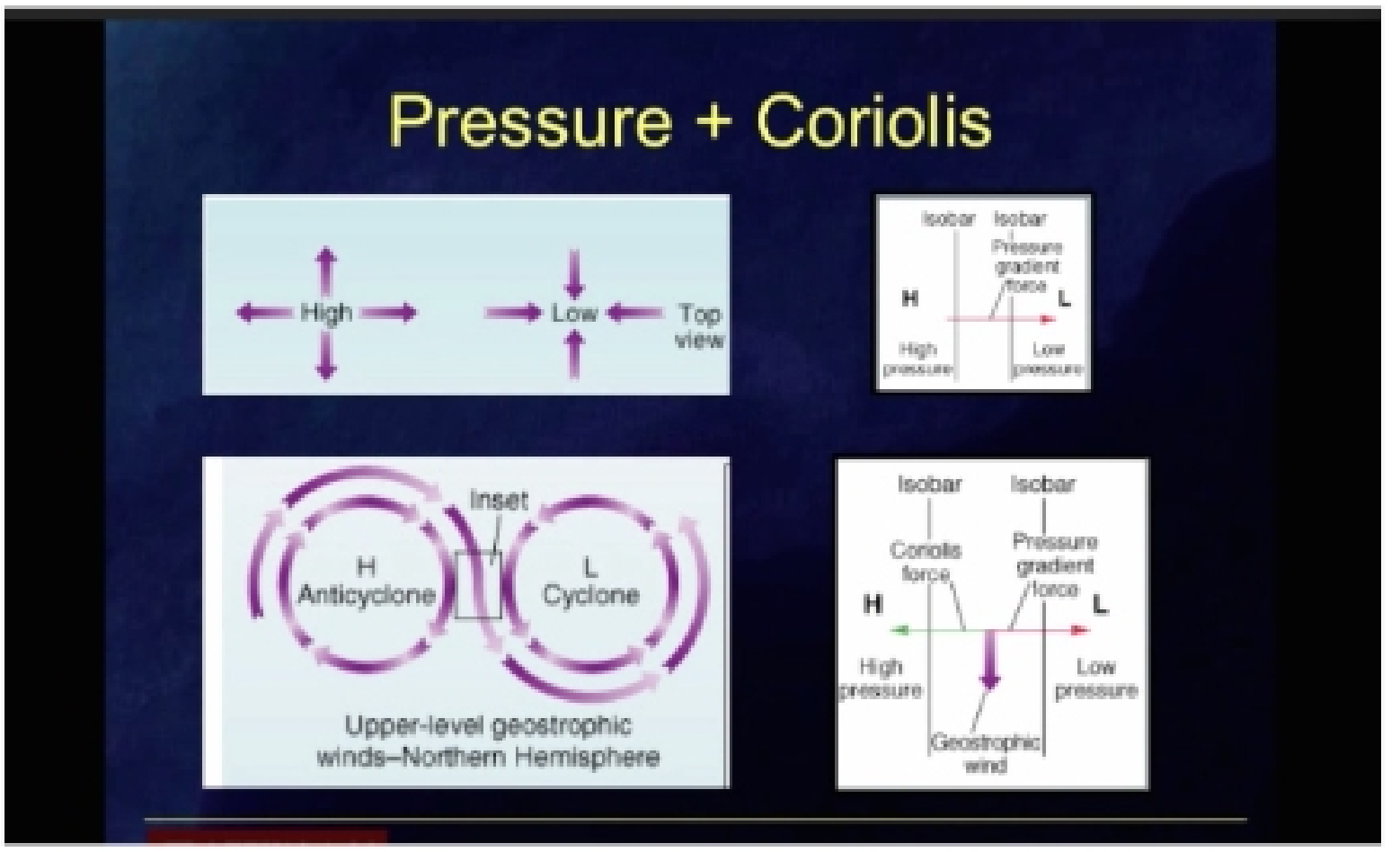
- They are relatively small and superimposed on those larger systems
- They are also not permeant features like in module 5



- The meandering of the jet stream across North America is responsible for our day to day weather
- When the polar jet stream is to the north in the summer, the semi-permeant high pressure develops over Texas
- The jet stream moves south during the winter and bring us alternating storms and calm clear weather as low pressure systems through the area
- The jet stream moves west to east and can reach speeds up to 100 mph in the center
- It helps airplanes move west to east and makes the same flight east to west much slower



- Wind moves from high to low pressure with the strength of that wind depending on the difference between the pressure systems



- If the wind moved only in the response to pressure it would directly from high to low following the pressure gradient force
- However, due to Coriolis effect, it turns to the right in the northern hemisphere and left in the southern hemisphere
- In the northern hemisphere, the turn to the right causes the wind to move at a right angle to the pressure gradient force and simply circles the high and low pressure systems