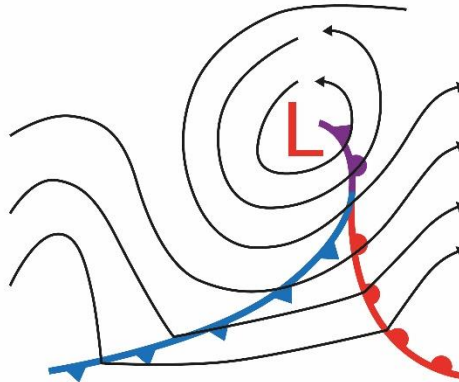


Solutions

1. The atmosphere obeys the gas law. Therefore, warmer air will expand while cold air compress. This expansion/compression of the air can be seen by looking at the distance between the isobars above each of the cities. Then, air over city B is colder.
2. The distance between the isobars in the cold region is bigger, therefore the pressure will change more gradually, and calm winds will be expected.
3. Cold fronts tend to move faster than warmer fronts. In some scenarios, the faster cold front overtakes the warm one forming an occluded front (right picture). Occluded fronts are often seen in mid latitudes cyclones (low-pressure systems).



4. Water can be present in the atmosphere in three different forms: as ice, liquid water, and water vapor. Its amount and form will depend on different factors, mainly temperature and pressure. Antarctica, besides being covered in ice, is considered a polar desert (temperatures are so low that the water content in the air is extremely low). Therefore, the humidity will be higher in Miami.