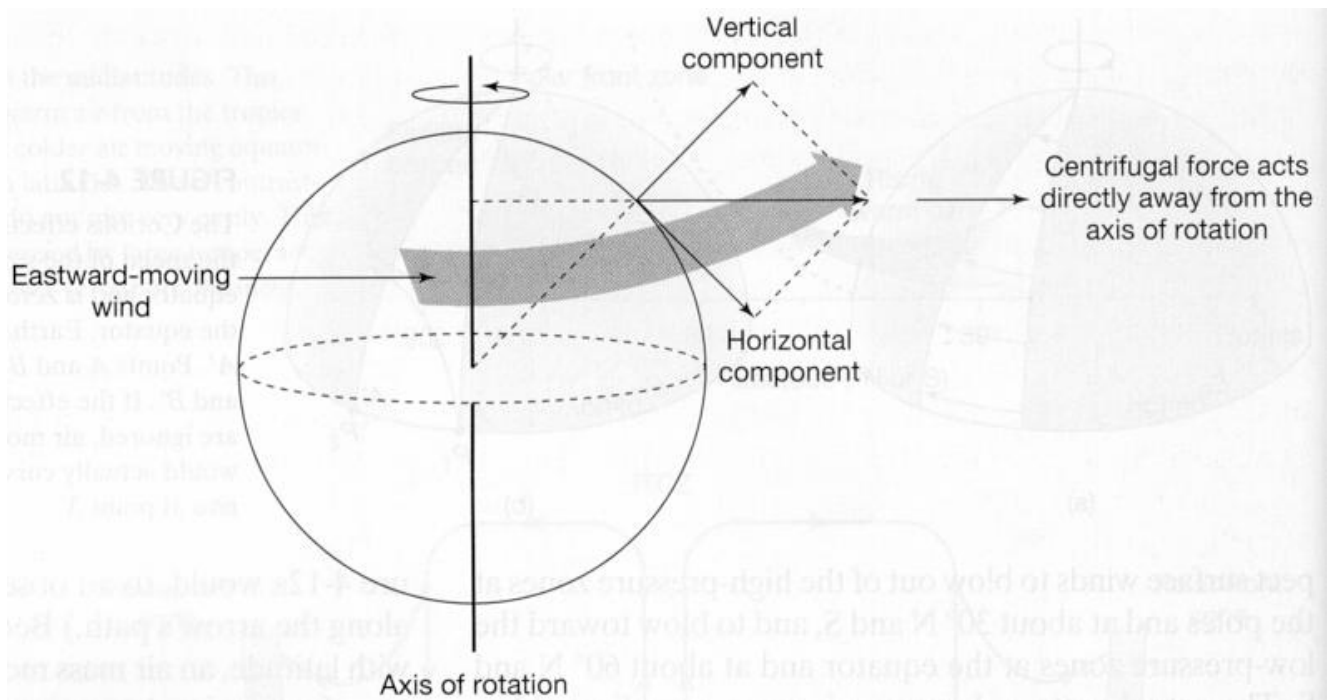


DESCRIPTION OF CORIOLIS EFFECT FOR WESTBOUND FLOW



The figure above (taken from the 1st edition of your textbook) describes how the effect of Coriolis arises for eastward-moving wind. When an air parcel moves purely eastward (along a parallel of latitude) with respect to the surface of the Earth, it feels a **centrifugal force**. This force, acting on the air parcel, points directly away from, and perpendicular to, the axis of rotation of the Earth. This is shown in the figure above. This **centrifugal force** is what we call the **force of Coriolis**. Its **horizontal component** points toward the south (see figure) and forces the wind (flowing eastward) to deviate toward the right.

Now, what happens if the wind blows toward the west? In this case, the wind flows exactly in the opposite direction to the wind in the figure above. Taking the wind value as positive when it flows eastward, we now assume that the wind has a negative value if it blows directly west. Since the **centrifugal force** is directly proportional to the intensity of the wind and a westward-moving wind is negative, the **centrifugal force** acting on the wind now acts directly toward the axis of rotation of the Earth (in the opposite direction to the **centrifugal force** for the eastward-moving wind). To help you picture this situation, draw a similar figure as the one above, but for a westward-moving wind with a **centrifugal force** pointing toward the axis of rotation. Now, if you draw the **horizontal** and **vertical components** of this **centrifugal force**, you will find that the **vertical component** points toward the center of the Earth while the **horizontal** one points toward the north. This northward-directed horizontal force component acts on the wind (flowing westward) to deviate toward the right.

In summary, whether the wind blows north, south, east, west or any combination of those directions, the effect of the force of Coriolis is to deflect the wind toward the right of its motion in the Northern Hemisphere (toward the left in the Southern Hemisphere).