Wind, It?s So Much More Essay, Research Paper

I did my report on wind. As you may or may not know wind moves horizontally, and the wind that doesn?t move horizontally moves vertically. That kind of wind is called a current. Many things may cause these rushes of moving air, one thing would be atmospheric pressure differences. The differences in the distribution of pressure and temperature is caused by the unequal distribution of heat. There are also the differences in the thermal properties of land and the ocean surfaces. When the temperatures of different regions become unequal, the warmer air will normally rise and move over the cold air because the cold air is heavier. That will sometimes cause things like tornadoes. Another way that winds move are by the usually great rotation of the earth. Isn?t that enough as it is? Really though?..how fast are we rotating and flying through space? Winds are classified into four major types believe it or not. The four major groups are, the local winds, the seasonal winds, the cyclonic and anticyclonic winds, and th

e prevailing winds. That?s kind of impressive if you ask me! Most people think of wind as a slight breeze on a summer?s day when it could be so much more. There are actually many, many more kinds of wind. You must remember that those are just the four main kinds.

Now back to our "summer?s breeze," the strongest wind ever reliably measured on the surface of the earth was 362 km per hour or 225 miles per hour, recorded on Mount Washington, New Hampshire, on April 12, 1934. Considerably stronger winds, however, occur near the centers of tornadoes. I also thought that that was pretty neat. I got that fact out the Encarta ?95 encyclopedia, a very reliable source. That?s where I got a lot of the information in this report.

Now we get the chance to talk about the local winds. These winds are determined by the seasonal changes in temperature and pressure over the land as well as water. During the day changes occur, which will exercise a similar but more of a local effect on places. These changes that will only occur during the day are diurnal. These diurnal occurrences happen mostly in the summer, because the land is warmer than the surrounding water during the day and is colder than the water by night. Isn?t it strange? O?well. The variations of pressure therefore lead or move a called forth system of breezes directed toward the land during the daytime and back towards the sea at night. These land and sea breezes penetrate to a distance of about 50 km or about 30 miles on and off the shore. Similar daily changes in temperature occur over an irregular terrain and cause mountain and valley breezes. Other winds are brought forth by local phenomena including whirlwinds and winds associated or caused by thunderstorms.

The second kind that we?re going to talk about is the seasonal winds. The air over the land is warmer in summer and colder in winter than the air over or next to the ocean during the same seasons. During the summer time, the continents consequently becomes the target of low pressure, with winds blowing in from the colder oceans. In the winter, all of the continents are the targets of high pressure, with winds directed toward the warmer oceans. These seasonal winds are typified by the monsoons of the China Sea and the Indian Ocean.

This part?s about cyclonic and anticyclonic winds. Cyclonic and anticyclonic winds are like hurricanes, tornadoes, and cyclones. Within each of those things, hurricanes, tornadoes, and cyclones, the wind is spinning or winding in a specific direction. Most tornadoes spin counterclockwise in the northern hemisphere and clockwise in the southern, but occasional tornadoes reverse this behavior. It?s unknown why this happens but maybe one day someone will be able to explain why. The speeds of some tornadoes have often placed themselves at more than 480 km per hour or more than 300 miles per hour, although speeds of more than 800 km per hour or 500 miles per hour have been estimated for extremely strong storms. That?s extremely fast and I wouldn?t want to be caught in a storm like that. Would you? Cyclones are similar to storms but not quite the same. In the northern hemisphere cyclones move in counterclockwise direction. A corresponding high-pressure area with clockwise winds is known as an anticyclone. In the

southern hemisphere these wind directions are reversed. Cyclones are commonly called lows and anticyclones highs. The term cyclone has often been more loosely applied to a storm and disturbance attending such pressure systems, particularly the violent tropical hurricane and the typhoon, which center on areas of unusually low pressure. If someone want?s to use the wrong term, let them, you will be the one that knows that they?re ignorant. "Shhhhhh, don?t tell ?em!" Hurricanes consist of high-velocity winds blowing circularly around a low-pressure center, known as the eye of the storm. From the edge of the storm toward its center, the atmospheric pressure drops sharply and the wind velocity rises. The strength of a hurricane is rated from 1 to 5, much like the tornadoes and cyclones. The mildest, Category 1, has winds of at least 120 km per hour or 74 miles per hour. The strongest and rarest, Category 5, has winds that exceed 250 km per hour or 155 miles per hour. Within the eye of the storm, which averages 24

kilometers or 15 miles in diameter, the winds stop and the clouds lift, but the seas remain very violent. I think that most cyclonic and anticyclonic winds are frightening. I wouldn?t want to be caught in one of their paths, although, being on the coast we can?t miss the hurricanes.

Well, last but not least, we get to talk about the prevailing winds. Near the equator is a low-pressure belt, known as the doldrums, that lies roughly between latitudes 10° South and 10° North. Within this belt, sometimes called the equatorial belt of calms. In this "equatorial belt of calms" the air is very hot and sultry, not the place to go fishing! (HaHa) At about 30° from the equator in both hemispheres are the horse latitudes, which are high-pressure belts of calms, or light variable winds. Surface air, moving from the horse latitudes toward the low-pressure equatorial belt, designates the trade winds, which are the prevailing winds of the lower latitudes. In the northern hemisphere, the northerly wind blowing toward the equator is deflected by the rotation of the earth to become northeasterly and is known as the northeast trade wind. Very confusing and hard to understand, but it?s all true! In the southern hemisphere, the southerly wind, which is similarly deflected, becomes southeasterly and is known

as the southeast trade wind. On the polar side of the horse latitudes in either hemisphere, the atmospheric pressure diminishes toward low-pressure centers in middle and high latitudes. The winds set in motion poleward by these pressure systems are deflected toward the east by the earth’s rotation. Because winds are known by the direction from which they blew, the winds in middle latitudes are known as the prevailing westerlies. These westerlies are greatly affected by traveling cyclonic and anticyclonic disturbances that cause their actual direction to change from day to day. The change isn?t really a small change either, it?s usually I fairly a large change. Also at those colder regions near the poles tend to be high-pressure centers, particularly in the southern hemisphere, and winds spreading out from these areas are deflected to become the polar easterlies. I though that it was also fascinating, because of the fact that the will spread out that far, only to be deflected and return to become the polar e

asterlies.

With increasing elevation above the surface of the earth, the prevailing westerlies increase in speed, and their range of latitudes expands toward the equator and the pole. The trade winds and polar easterlies are therefore relatively shallow, and are generally replaced by westerlies above a few thousand meters. The strongest westerlies occur at heights of about 10 to 20 km or about 6 to 12 miles, and tend to be concentrated in a rather narrow belt called the jet stream, where wind speeds as high as 550 km per hour or about 340 mph have been measured. So more or less, the higher you go the stronger the winds get and in my opinion those are some pretty strong winds.

This is something interesting, so I decided to add it. This is about the Beaufort wind scale. The Beaufort wind scale was and is used by mariners and meteorologists to indicate wind velocity or speed. It was devised in 1805 by the Irish hydrographer Francis Beaufort. Smart man! His original designations were modified subsequently. The scale in present-day use at sea is given in the accompanying table. I think that it was good that Francis Beaufort made this invention. It has probably helped many in many ways, and probably even more ways than we can think of.

Well, that was my report on wind. I hope you enjoyed reading it as much as I enjoyed writing it. My opinion is that wind is a strong force and shouldn?t be taken lightly. Wind has injured many but I also realize that wind is also helpful. In some places it supplies power, and no matter where you are at it is always a renewable resource. No one should regret the wind effecting them, the wind brings them power, changes the weather, etc. Wind has always ruled the world and will continue to long after we are gone. Remember that wind has the power and that wind is so much more.