Beat the Heat

It's hot! Summer sunshine brings hot temperatures to many places. Some people love the heat. It can be a great time for people who love to go boating or swimming or for those who just love to sit in the shade with some cold lemonade.

For many people, however, hot weather causes a lot of problems. In the last several years, many weather-related records have been set for hot temperatures. In places like northern Europe and Russia, hot weather is rare, so people who live there are often not ready to deal with the heat when it happens.

It's Cooler in the Shade

How hot it gets outside depends on a wide variety of factors.

Two key factors to a location's heat are latitude and altitude.

Latitude describes how far north or south a place is. The equator – the line around the middle of the Earth – get the most direct sunlight, so temperatures in those areas tend to be higher. Temperatures tend to decrease as you move north toward the North Pole or south toward the South Pole because these places get much less direct sunlight and therefore less heat.

Altitude describes how high a location is compared to sea level. Temperatures tend to be hottest closest to sea level and cooler further up onto hills and mountains. In many places it is possible to have summer temperatures in the 80's and 90's in a valley and to still have snow on the mountain tops nearby. In Ecuador, a country in South America which the equator runs right through, there are mountains so tall that they have glaciers on top all year long, even though the lower areas of the country are hot tropical forest.

Large cities tend to have higher temperatures than more rural areas. This is because the concrete and asphalt in the city absorb the sun's heat throughout the day and hold on to it, making it harder for the area to cool down during the night. Large desert cities like Phoenix will often have temperatures in the summer that don't drop below 90^{o} even at night.

Areas with a lot of trees and green plants can be as much as 5-14 degrees cooler than their concrete neighbors. Shade makes a big difference. Researchers are looking for ways to add more shade to city streets. One way to increase shade is to plant more trees. In places where there's not room for a tree, a canopy on the side of the building or over the sidewalk can provide some relief from the heat.

Weather Extremes

The hottest temperature ever recorded on Earth was 136^{o} on September 13, 1922 in Libya, a desert country in northern Africa. In the United States, Death Valley in California holds several records for heat. The hottest recorded temperature there was 134^{o} on July 10, 1913. Death Valley has the hottest summer temperatures in the Western Hemisphere. It is the only place in the U.S. where night time temperatures in the summer can be over 100^{o}.

The average summer temperature in Death Valley is also the highest in the nation at 92.8°. The highest average temperature in the winter, however, is in Honolulu, Hawaii, averaging 72.8°. Hawaii is the most southern state and is warm year-round. Ocean breezes keep it from being too hot, however. The highest record temperature in Hawaii is 100° - the same as the highest recorded temperature in Alaska.

Research indicates that most humans are most comfortable in temperatures between 68° and 80°. As the temperature gets higher, the heart has to work harder. People begin to feel fatigue and irritability. It becomes harder to concentrate. The body begins to attempt to cool itself down by sweating.

Temperatures between 95° and 104° are considered the limit of high temperature tolerance. Loss of the body's water due to sweating can lead to heat exhaustion and muscle cramping. Dizziness and fainting may also occur. Heat rash and swelling are also common, especially for people who are not used to being around high temperatures.

Heat stroke is the most serious heat-related illness. The body temperature rises above 105° and the person stops sweating. The victim may lose consciousness. Immediate medical help is required. Without medical intervention, the victim may suffer damage to the brain, kidneys and heart. Heat stroke can be fatal. Those most at risk include young children, those who have chronic illness, and the elderly.

Between 1999-2003 in the United States, 3,442 people died of heat-related illnesses. The rate of death was highest in Arizona and Nevada. 40% of those who died from the heat were over the age of 65. 7%, just over 200 people, were under the age of 15.

How to Beat the Heat

Much of the American southwest was not populated until technology such as air conditioners made it more comfortable to live in the desert heat. Electric fans and air conditioning are great ways to stay cool and healthy in the hottest times of the year. Here are some other ways to keep your cool:

- Spend time outside in the mornings. If you have outside chores to do, such as mowing the lawn or weeding the garden, get them done during the coolest part of the day.

- Use the shade. Plant trees around your house to keep the walls and roof from heating up. Keep window shades and curtains closed to reduce the amount of heat that comes into your house.

- Drink water or energy drinks containing electrolytes throughout the day to keep your body hydrated. Limit sugary drinks and those with caffeine.

- At night, turn the fan around so that it blows air out the window. This will force out the heated air that is trapped in your house during the day.

- Limit use of electrical devices. Items such as computers, TVs, and stereos create heat. Keeping them turned off can reduce the temperature in a room by a degree or two.