Take time to practice predicting the weather

WildernessSurvival

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FIRST OF A TWO-PART SERIES

Anyone venturing into wilderness areas for recreation or professional purposes should have some rudimentary knowledge of weather forecasting.

Several disasters resulting in deaths have illustrated that basic knowledge of weather prediction could have saved lives. Especially vulnerable are mountain climbers, canoeists, sailors, anglers, hunters and professional outdoorspeople such as forestry and mining technicians. Sudden weather changes can turn a routine outing into a desperate survival situation.

My recommendation is to learn enough about weather forecasting so that "sudden" storms don't creep up on you. Precautions can be taken if one can predict an approaching squall or when a drop in temperature will occur. This skill offers a canoeist time to make for shore and set up camp safely, or enable a hunter the opportunity to shorten an afternoon hunt and head for shelter. An unfortunate soul lost in the bush can complete a waterproof shelter, get a fire going and gather plenty of extra firewood.

BASICS OF CLIMATOLOGY

There are some basic principles which must be understood. These explain why bad or good weather occurs. First, a parcel of cold air is "heavier" than a similar-sized parcel of warm air. Since warm air is "lighter", it will rise above a mass of cold air. Cold air saturates much faster than warm air. An example is when one opens a freezer door. Cold air rushes out and a mist forms immediately, since moisture found in the outside air is too much for the freezer air to hold.

Wind is a phenomenon caused by air displacement, similar to the slight breeze created when opening the freezer door. Wind is caused by the flow of warm air to colder regions, or vice-versa.

Normally, when going up in altitude, the temperature drops. This is known as the adiabatic lapse rate, and is necessary for unstable weather to occur. In some cases, when there is warmer air aloft, you'll have stable weather, or an inversion.

The world's weather is caused mainly by uneven heating at the poles, compared to the equator, and by the tilting of the earth at different angles to the sun at various times of the year. As a result, warm air masses at the tropics travel north or south where colder air masses reside. When warm air formed in the equator regions travels towards North America, it experiences the Coriolis effect, caused by of the Earth's rotation and gravity.

Tropical air passing over warm oceans picks up a great deal of moisture. Eventually, these moisture-laden, saturated air masses, or low pressure systems, travel towards, let's say, Ontario, where, eventually, they'll dump much of their precipitation. The initial winds which warn us that a storm is approaching blow from the east to southeast. When these storms approach our region, they draw in northwest winds, which are cold and dry. The clash between wet, warm air and cold, dry air is known as the cold front. This cold front is similar to the sudden rush of frosty air when opening the freezer door.

When a violent storm passes, expect a drop in temperature. This is a direct result of the soon-to-follow northwest winds. Following a major storm, the next few days should remain relatively dry, but cooler, since the cold air drawn here is the beginning of a high pressure system. Eventually, the wind will shift from the north-northwest to east-southeast, bringing in another round of storms and another low-pressure system.

If a cold front moves into any given area, it's usually a short-lived, but sometimes violent occurrence. However, approaching warm fronts tend to be long, persistent and drawn out events.

During the winter months, strong nor'westers slam into the shores of Lake Erie and Lake Huron. These winds, initially cold and dry, pick up vast amounts of moisture while travelling over the relatively warmer waters of the Great Lakes. As they approach the cooler landscape, they rise, and precipitation occurs, hence a great deal of snow is dumped on the lee of these lakes. People residing in the regions near Buffalo, NY, and Kincardine, Ont., can readily attest to this fact.

Meanwhile, during daylight hours on a typical summer day, there is a constant flow of cold air from large bodies of water towards land. This is an onshore breeze. The reverse occurs at night. During the daytime, local convection storms occur over a small area, which have nothing to do with large macro-weather storms. As shortwave heating occurs during the day, warm air gathers at the ground level. This air begins to rise and a current is formed, since colder air aloft sinks to the ground to fill the void. This circular flow causes clouds to form, since the warm air rising eventually cools, condenses and forms water vapor. Soon, localized thunderstorms form in the late afternoon or evening, but disappear very quickly. They can be severe at times, especially when combined with an approaching cold front.

In valleys, unique weather patterns occur, since winds are channeled, much like a river. Also, low areas become very cold and damp at night as a result of a reverse convection current and lack of direct sunlight. At night, cold air sinks to the lowest levels, usually the lake, swamp, or river plain. This is one reason I discourage the practice of building shelters at the valley basin because you'll be residing in a coldsink.

One way to predict weather besides using wind direction is wind speed or velocity. Usually, if an east wind blows for several hours, and gusts, the storm will be worse. A calm before the storm is well known. A large low pressure system will draw in a gusty northwest wind, creating severe wind-chill problems.

When combining east, southeast winds with several layers of clouds, rest assured that a storm is approaching. Cirrus or wispy-like clouds are the frontrunners of a storm. Dark Cumulus clouds, especially with anvil tops, are sure signs of major storms. On the contrary, high, puffy clouds are a sign that good weather is approaching.

I suggest all outdoorspeople to practice predicting the weather; do so often and really learn this art. Keep an eye out for bad weather when on wilderness outings and take all necessary precautions if a major storm is imminent. Have an attitude that bad things can happen to you, and always be prepared for the worst. So what if your predictions are occasionally wrong, and you've pitched camp for nothing. What would have happened if the storm had hit hard? Ask a few campers who experienced the sudden, furious onslaught of Hurricane Andrew, some of whom did not have time to set up camp in a sheltered area, what it's like to be caught flat footed in a major storm. That's something to think about.

Part 2 of this series will explore and summarize, in point form, a number weather forecasting tips. I'll also offer two weather-related stories that happened during my wilderness journeys. One is light-hearted and funny (tall tale?), the other, somber and brooding.