

# Here Are Some Tips On Keeping An Eye On Weather Formations

Professional weather forecasters arrive at their predictions with the assistance of such instruments as barometers, hygrometers and thermometers, each of which measures some aspect of the ever-changing atmosphere: air pressure, humidity and temperature, respectively. The wilderness is filled with indicators every bit as accurate, if not so nicely calibrated. Knowing how to read them is one of the skills of outdoorsmanship.

Masses of cold and warm air move across the earth from west to east at a rate of about 600 miles a day, propelled into and around pools and eddies of high and low pressure. Air blows clockwise away from the center of a high pressure area, where it escapes upward, cooling as it rises and leaving behind the moisture it contains. Thus a drop in air pressure (a falling barometer) generally indicates the ar-

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*Migrating geese maintain their altitude by sensing air pressure; the more the pressure, the higher they fly. Low-flying geese mean a falling barometer, an omen of bad weather.*

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rival of a pocket of humid air, clouds and often rain or snow, particularly when the low pressure area is at the front of an air mass. There are many signs of an approaching low pressure area; smoke hovers and turns downward; birds tend to roost; swallows and bats swoop low; ground odors arise from ditches and marshes; clouds form at low altitudes; the rising humidity makes hair limp, causes distant objects to appear closer (because the usual evaporation haze is missing) and precludes the formation of morning dew. These signs are all prominent among folklore's favorite foul weather warnings.

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*Sound travels a mile in about five seconds; light arrives almost instantaneously. To find out how many miles away a thunderstorm is, count the seconds between a lightning flash and the thunderclap that follows it, and divide by five.*

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Other bits of weather lore are also firmly based in fact. Take, for example, the expression "Red sky at night, sailors' delight. Red sky in the morning, sailors take warning." (The setting sun shines through tomorrow's air, 500 to 600 miles westward; the laws of light refraction are such that if the air is dry and cloudless, the sky will be red just after sunset. The same laws decree that a red sky before sunrise means the air that has passed to the east is clearer and drier than where you are.)

There are three basic cloud types: cirrus (wispy), stratus (layered) and cumulus (puffy). Each is produced by a specific air pattern, and each may presage a particular kind of storm. Learn to read the early steps of these developments.

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*Cirrus clouds form wispy mares' tails before warm air front hits. Next comes cirrostratus, the "mackerel sky", then rain.*

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Fluffy white cumulus clouds, for example, are formed by warm updrafts called thermals. They are common on clear days and generally foreshadow more of the same, but they are also the stuff of which thunderstorms are made. When a thermal is intensified by the moist updraft of a low pressure area, the result is a huge, billowing thunderhead (cumulonimbus), bringing strong winds, thunder, lightning and a downpour of rain. The telltale step in this pattern is when fair weather cumulus clouds begin to puff upward like the turrets of a castle. Such towering cumulus clouds are not always followed by thunderheads but, when they occur in the west or northwest sky, a little darker and lower than other cumulus clouds, the wise camper begins to make preparations for a sudden storm.

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*Cumulus clouds, fed by warm updraft of cold front, develop towering form, warning of approaching thunderstorms or snow.*

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Cirrus clouds are made of ice crystals, formed when warm air suddenly meets cooler air (the way your breath forms vapor on a cold day). Often they signify nothing more than a high altitude wind pattern, but when they begin to form a thin, icy layer (cirrostratus)—causing the appearance of a halo around the sun or moon—it is probably the first warning of an approaching warm air front, with a long, steady siege of rain or snow.

## Learn to Read the Language of the Clouds

Cold air is heavier than warm, so the front of a cold air mass hugs the ground as it moves eastward, pushing warm air like wood shavings before the blade of a chisel. Cold fronts give little warning; winds may change to easterly or northeasterly, often creating a squall line (a band of high winds and shortlived thundershowers) a few minutes before their arrival. Layers of cumulus clouds (cumulostratus) or thunderheads may accompany the front itself. Warm fronts move more slowly and give 10 to 15 hours warning. Wispy cirrus clouds accumulate and grow steadily lower, and winds often shift to easterly or southeasterly; long, steady rain from low stratus clouds presage and accompany the front itself. When a cold front overtakes a warm front, the result is called an occluded front; the sky grows dark, and heavy weather, snow or violent winds often result.

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*To find temperature in Fahrenheit, count a cricket chirps for 14 seconds and add 40. Other insects indicate readings as shown above.*

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—The Bull Sheet