

SEARCH and RESCUE DOGS TECHNICAL NOTE

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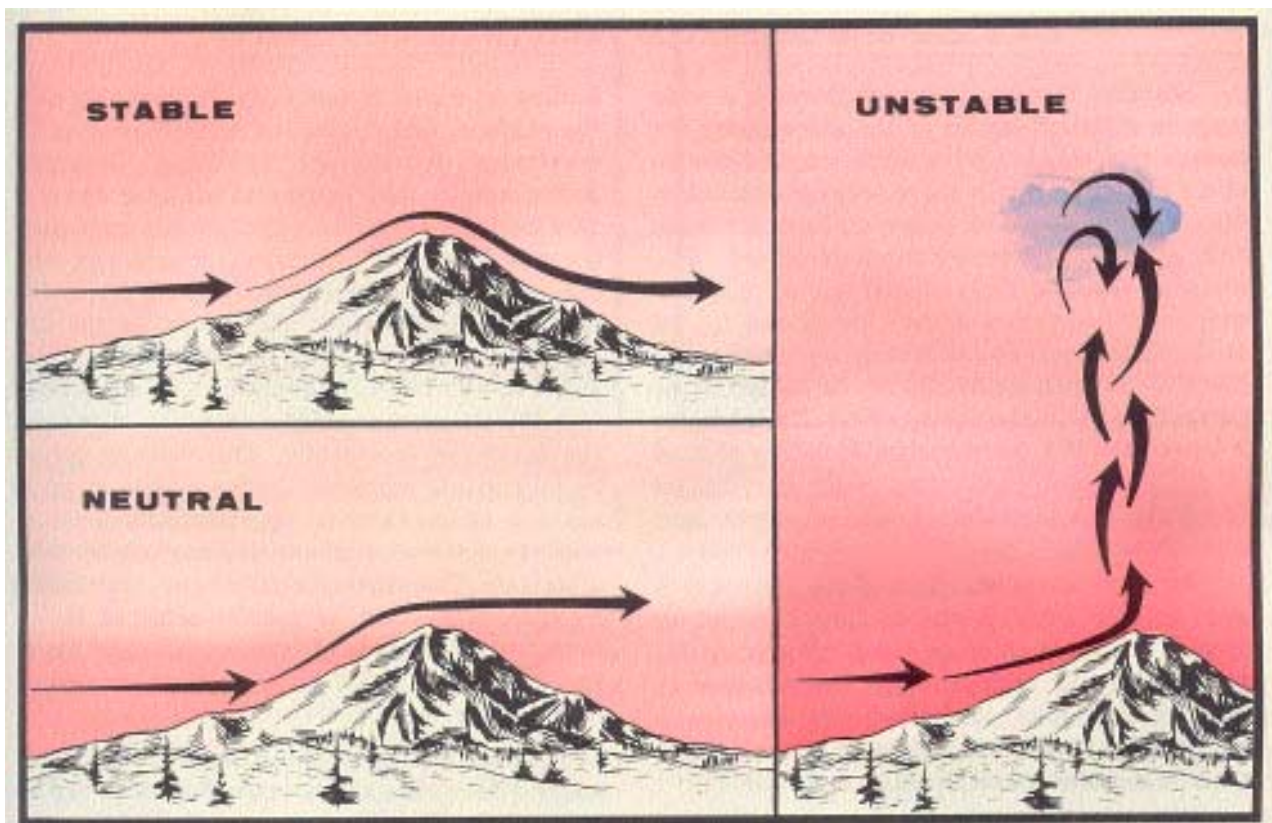
Handlers of airscenting dogs are aware of the importance of wind direction and its irregularities. Good basic information is in Syrotuck's *Scent and the Scenting Dog* and Bryson's *Search and Rescue Dog Training*.

Forest firefighters also must be constantly vigilant to changes in weather. Changes in wind direction, stability, and turbulence, the effects of frontal systems, and many other vagaries of the weather can produce life-threatening situations on fires. As a result, research in fire weather conditions has been conducted for years by the Forest Service and National Weather Service meteorologists and fire behavior specialists. Decades of observations on forest fires throughout the Nation have yielded comprehensive information about weather and how it affects local conditions, particularly in mountainous terrain and forested areas.

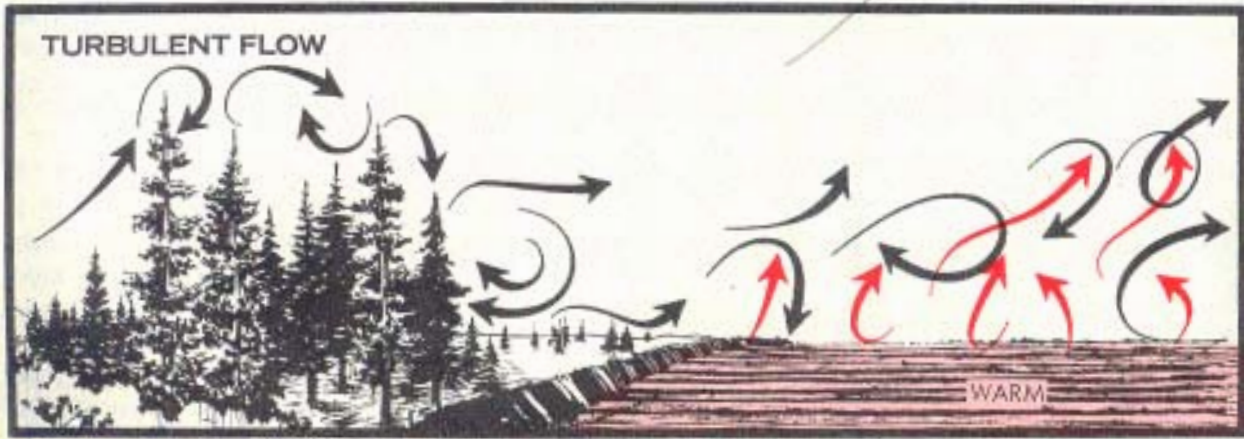
Fire Weather, Agriculture Handbook 360, May 1970, by Mark Schroeder and Charles C. Buck, is undoubtedly the most complete manual on the subject.

Of particular interest to handlers of airscenting dogs are the chapters on basic principles, temperature, atmospheric stability, general winds, convective winds, and thunderstorms. All of the book will help in understanding weather conditions. It takes little imagination to apply this information to the effect the weather will have on airscenting conditions. The illustrations alone provide a great deal of valuable insight into airscenting problems. A number of them are reproduced here.

The handbook has been out-of-print for a number of years. However, Vaudois Handley of Search Gear was able to obtain some. I believe you can get a copy from him for \$14.95 over the internet.



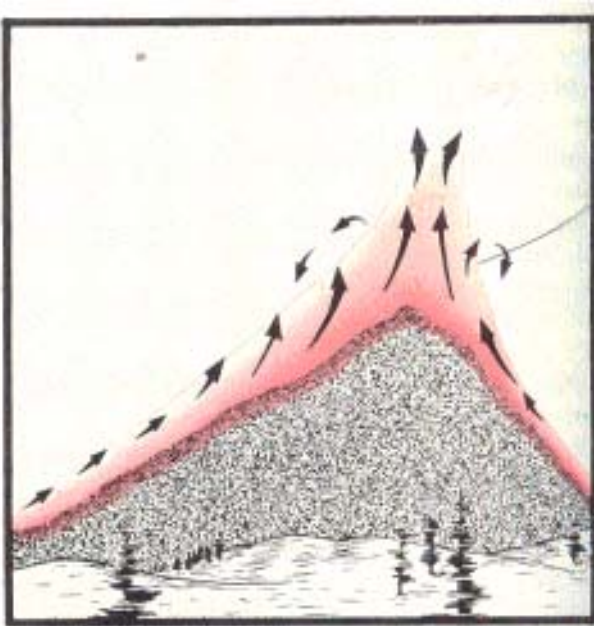
As air is lifted over mountains, the resulting airflow depends to some extent upon the stability of the air. These simple airflows may be complicated considerably by daytime heating and, in some cases, by wave motion.



Roughness creates mechanical turbulence, while surface heating causes thermal turbulence in the air flow.



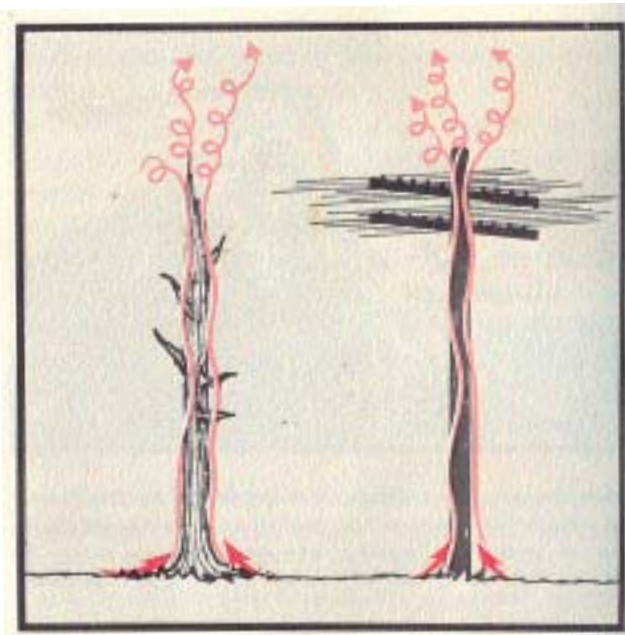
Eddies form as air flows over and around obstacles. They vary with the size and shape of the obstacle, the speed and direction of the wind, and the stability of the lower atmosphere.



Upslope winds are shallow near the base of slopes but increase in depth and speed as more heated air is funneled along the slope. Warm air bubbles forced upward cause turbulence which increases the depth of the warmed layer.



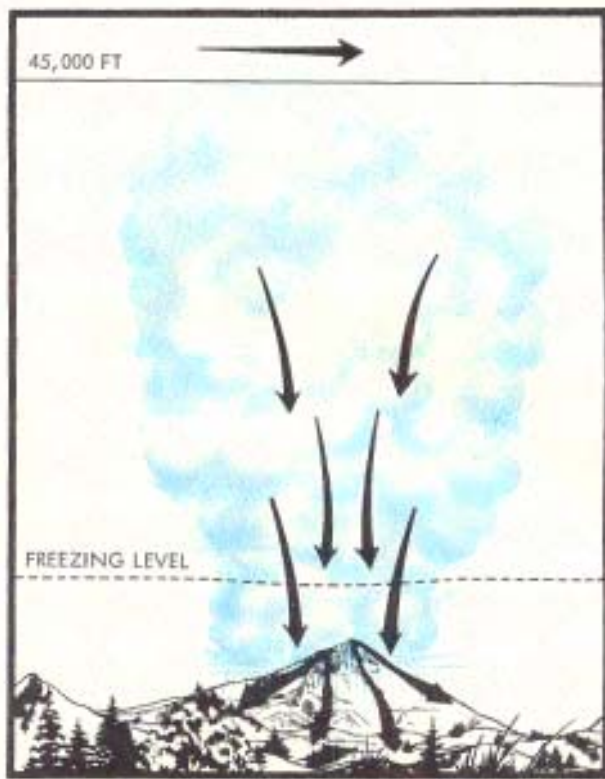
Downslope winds are shallow, and the flow tends to be laminar. The cold air may be dammed by obstructions such as dense brush or timber.



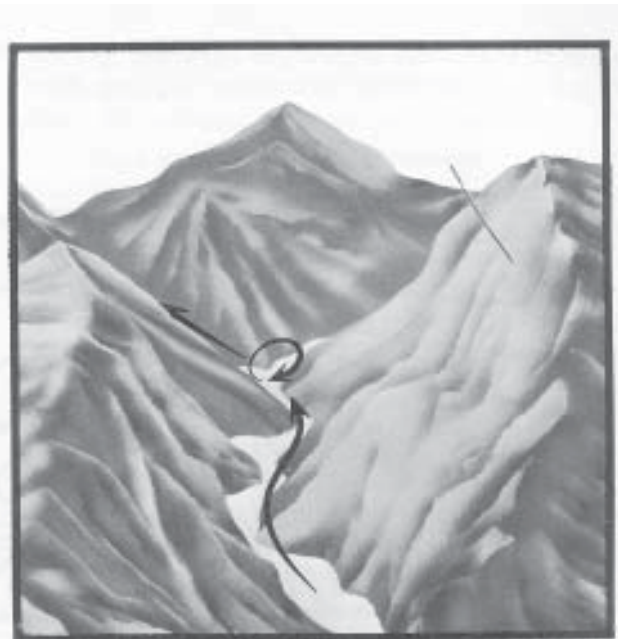
Air heated by contact with vertical or sloping surfaces is forced upward and establishes natural chimneys through which warm air flows up from the surface.



Downslope winds begin as soon as slopes go into shadow. Late afternoon upvalley winds are turned in the direction at the first downslope flow.



The downdraft in a mature thunderstorm continues out of the base of the colud to the ground and, being composed of cold air, follows the topography. It strikes suddenly and violently, but lasts only a short time.



Eddies form where strong winds flow through canyons. Favorite places are bends in the canyon and mouths of tributaries.