

INTERMOUNTAIN WEST CLIMATE SUMMARY



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The Colorado Avalanche Information Center

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Due to typically shallow and weak early-season snowpacks, Colorado and the other Rocky Mountain states are particularly prone to avalanches. Over the 10-year period ending in 2007, Colorado had the dubious distinction of leading the nation in avalanche fatalities, with 60 (Utah was 4th with 41, and Wyoming was 6th with 27). Avalanches threaten the safety of outdoor recreationists (who comprised nearly all of the fatalities), travelers on mountain highways, and even residents in some mountain towns. Avalanches also impose significant economic costs when highways such as I-70 are closed for extended periods.

Given the widespread exposure to risk, timely and accurate information about avalanche danger is critical. The Colorado Avalanche Information Center (CAIC; <http://avalanche.state.co.us/index.php>) issues avalanche forecasts covering mountain zones statewide from the main office in Boulder, co-located with the National Weather Service, and field offices in Breckenridge, Aspen, and the Northern San Juans. The CAIC offices provide these forecasts twice daily during the winter season (typically late October through April). In May, forecast frequency is reduced to 3 times per week.

The avalanche forecasts contain several text and graphical elements which assess current weather and snowpack conditions, based upon instrument data and backcountry observations by volunteers and staff, and the forecasted weather conditions, for each of 10 mountain zones in Colorado. The fundamental element of the forecast is the rating of avalanche danger on a five-level scale from “Low” to “Extreme”, as shown on the statewide forecast map (Figure 1). A graphical element developed by the CAIC, the “Danger Rose”, schematically represents how the avalanche danger varies with aspect and elevation. A series of Danger Rose graphics for the previous five days provides a quick visual assessment of the trend in avalanche danger (Figure 2). The avalanche forecasts are available on the CAIC web page and via their hotline. CAIC supporters, receive daily forecasts via email (see the website for hotline numbers and to sign up for daily forecasts).

The CAIC was created in 1973 in order to “minimize the economic and human impact of snow avalanches on recreation, tourism, commerce, industry, and the citizens of Colorado,” according to the CAIC webpage. Since 1987, the CAIC has been part of the Colorado Geological Survey and since 1993 it has also contracted with the Colorado Department of Transportation to forecast for mountain roads. Currently, 15 full-time and seasonal staff support CAIC’s forecasting and other activities. You can find more details about the history of the CAIC on their website.

Along with issuing forecasts, the CAIC offers a wide variety of outreach and educational opportunities to the public including classes in

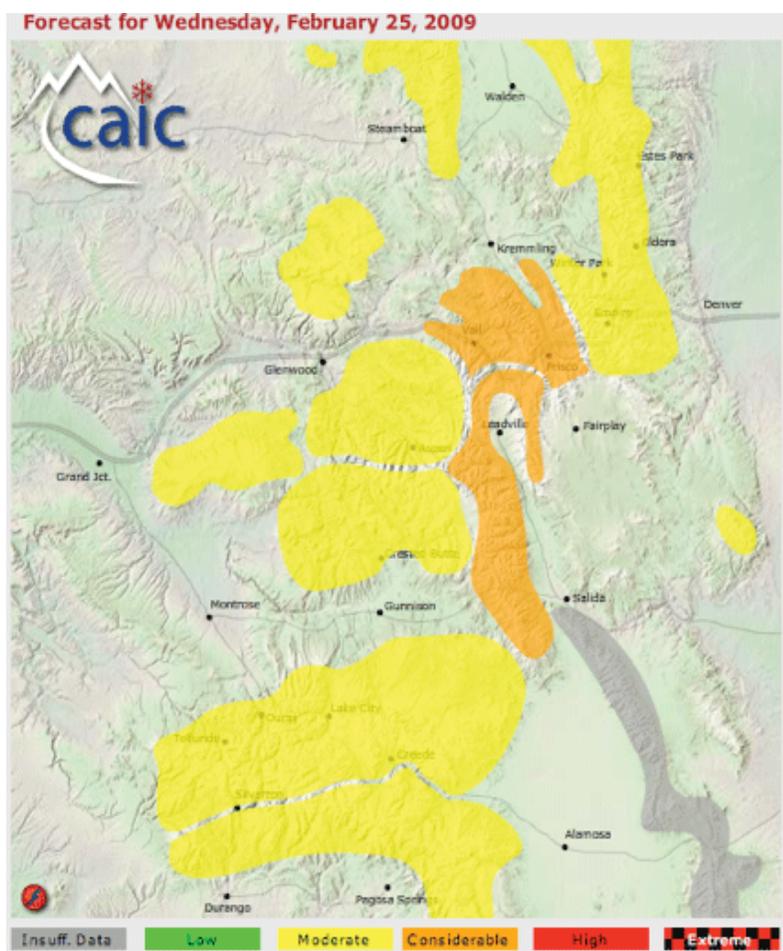


Figure 1: The CAIC Avalanche Forecast Map for February 25, 2009, showing the avalanche danger rating for Colorado’s mountain zones. When viewed on the CAIC web page, more detailed information is provided when a zone is moused-over, and clicking on a zone leads to the full avalanche forecast.



basic avalanche safety, winter sports, and rescue techniques. For a full list of classes, visit the CAIC calendar at: http://avalanche.state.co.us/pub/edu_class.php.

The CAIC staff also conducts research on snowpack stabil-

ity and avalanche conditions. A recent study examined the impact of dust-on-snow events on avalanche conditions; dust layers in the snowpack may promote avalanches (see the July 2008 IWCS feature article).

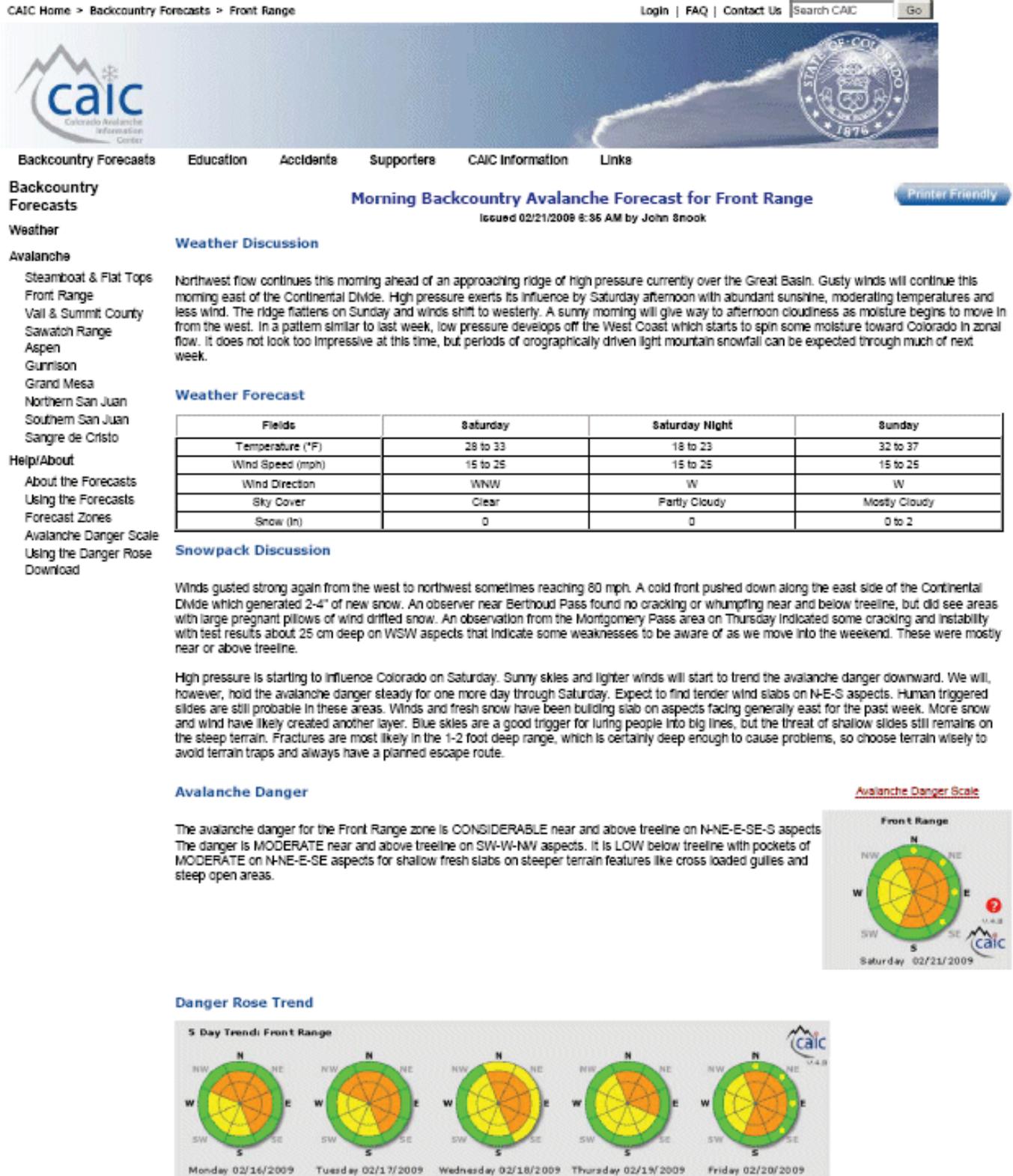


Figure 2: Full CAIC avalanche forecast for the Front Range zone for February 21, 2009. The colored circular graphics towards the bottom are the avalanche "Danger Rose". The color scheme for danger levels is the same as on the Forecast Map.

