Understanding Avalanches: A Theoretical Framework and Practical Approach

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Avalanches are significant natural hazards that affect people living in and traveling through most mountainous regions of the world. In Colorado, avalanches kill more people annually that any other natural hazard. Avalanches also have a significant impact on the state's economy as they affect winter recreation, close roads, and limit the movement of goods and services. Each winter the seasonal snowpack develops as a layered structure. Under the right conditions, fractures can propagate along the layer interfaces producing large and destructive avalanches. The processes that control these conditions range from the sub-millimeter to kilometer spatial scales, and hour to month temporal scales. The Colorado Avalanche Information Center (CAIC) is a state agency tasked with reducing the impact of avalanches on the people in, and economy of Colorado through education, forecasting, and research. The Center provides information on current avalanche conditions from the slope to the regional scale, and training on how people can reduce their exposure to these dangerous and destructive events.