

Anatomy of a post-control release: the Liberty Bowl event at Big Sky Resort

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An impressive early season avalanche cycle occurred during the 2007/2008 winter season at Big Sky Resort in southwestern Montana, culminating in a significant in-bounds post control release on 26-December in Liberty Bowl. This remotely ski triggered avalanche involved a heavily compacted snowpack on a 32-34 degree slope with soft moguls on the snow surface. The deposition covered approximately 1.6 hectares (four acres) with one to over four meters of debris, but fortunately no one was caught or injured. This paper discusses the weather and snowpack conditions that produced the persistent instability and associated avalanche cycle, the avalanche hazard forecasting and mitigation efforts and techniques used in Liberty Bowl and surrounding paths, and observations and accounts of the post-control release. Additionally, I discuss what I feel the forecasting team and ski patrol did "right" and what I would consider doing differently in the future; this discussion includes sizing explosive charges, charge placement, stability and propagation test interpretation, evaluating the effects of ski compaction on stability, and other topics. This paper does not aim to answer complex snow and avalanche questions. Rather, it poses questions to stimulate discussion and possible future research within the avalanche community