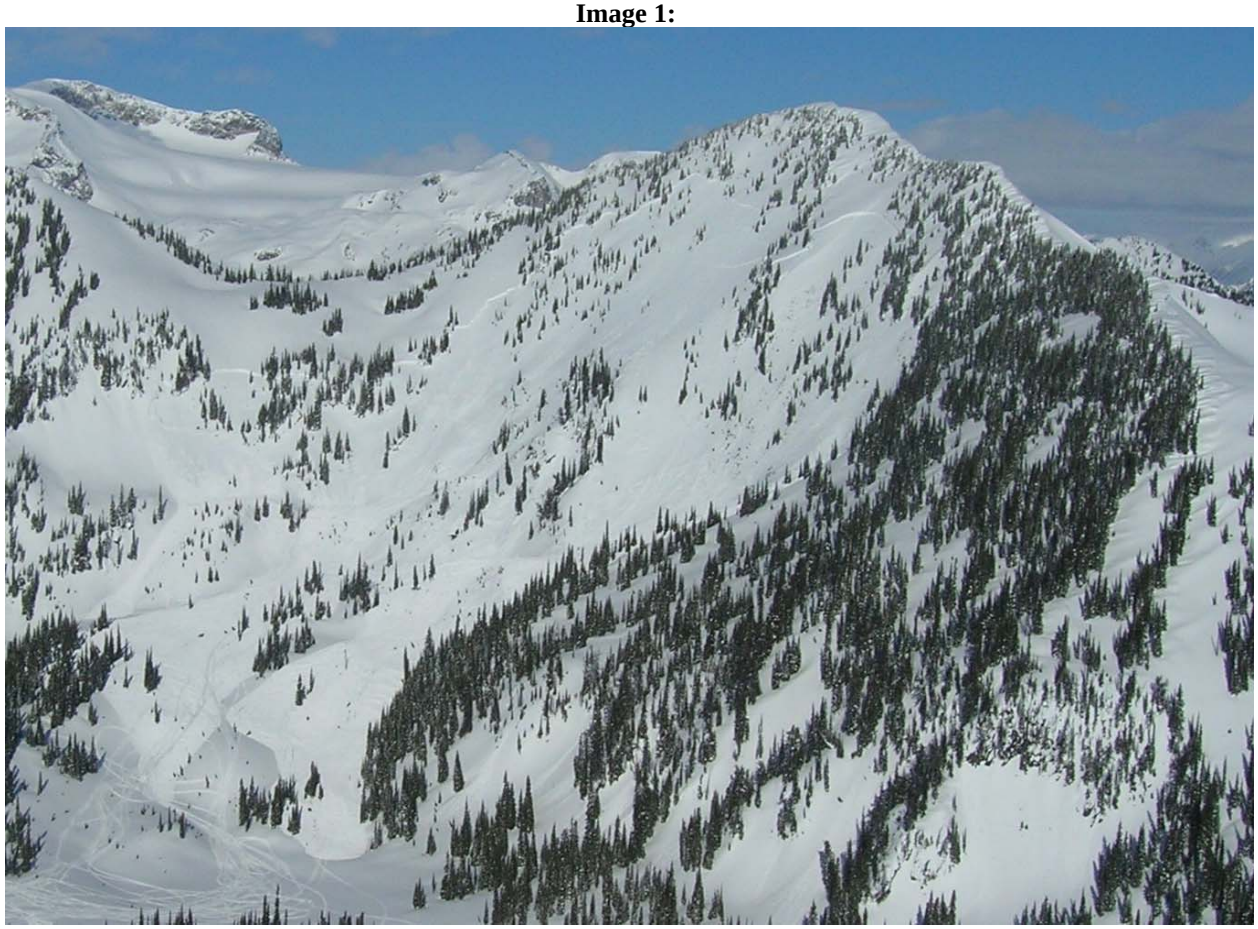
All of us at the Canadian Avalanche Centre extend our sympathies and support to the families and friends of those who have perished in avalanches this winter. We are continually striving to provide the best possible information, advice, education, and tools to all backcountry users. In an effort to prevent further tragedies, we have compiled this photo analysis from a few recent incidents. We hope this information will help all backcountry users with future decision making in avalanche terrain. Address comments or questions to Karl Klassen: kklassen@avalanche.ca. If you have photos or information, please consider posting a report: http://www.avalanche.ca/IncidentReport. Reports are anonymous and contribute to the accuracy of our forecasts and help other backcountry users better understand the current conditions. Sharing our experience leads to more informed decisions and increased safety for us all.

Image 1:



Terrain: This crossloaded, southeast facing, broad, open basin is at treeline, around 2100m. It is sparsely treed and very steep (incline about 45 degrees) with an estimated rating of "Complex."

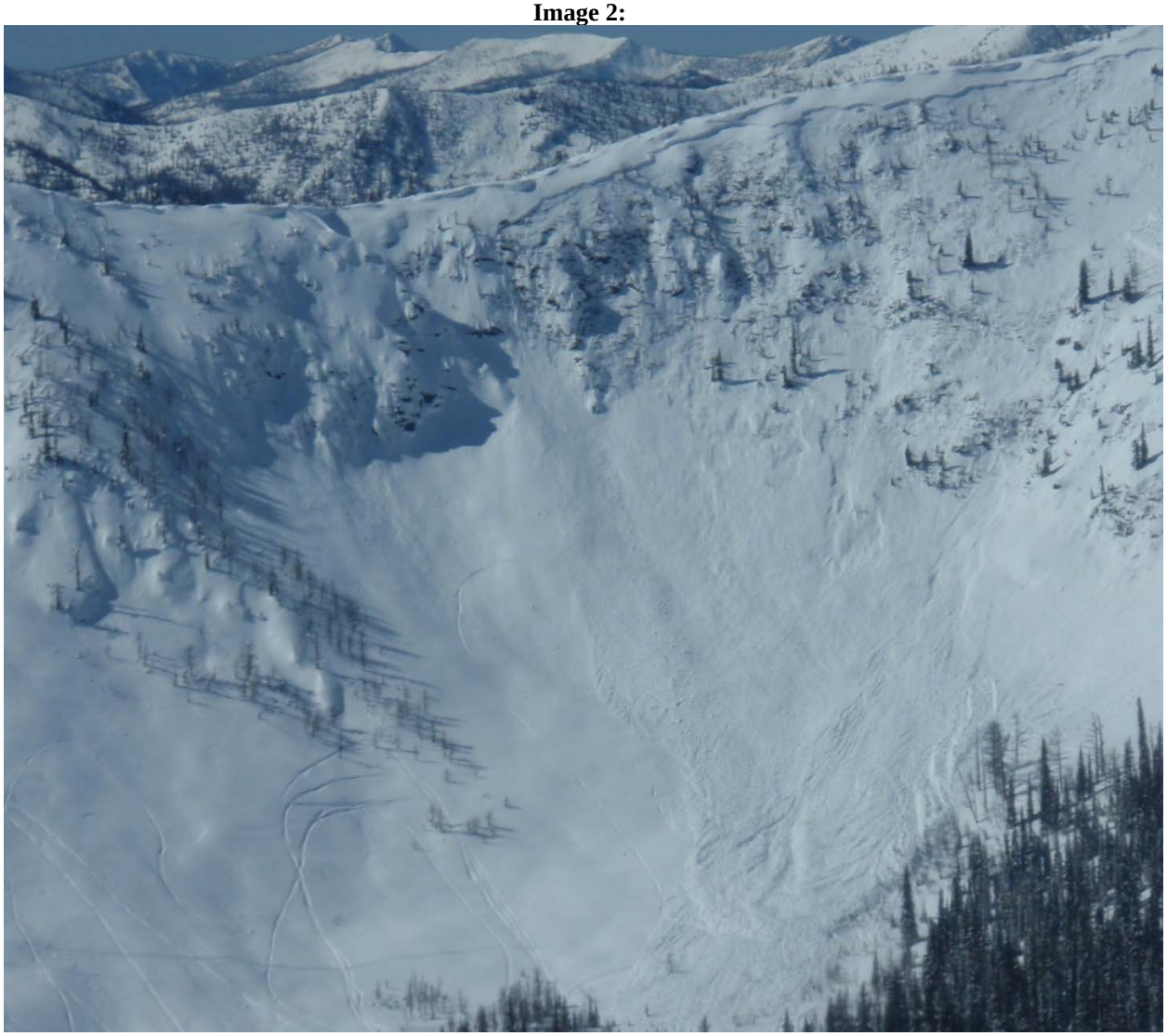
Weather: There was 40cm of new snow in past 48 hours, with strong southerly winds. Temperatures unknown, but observations from the area indicate -8.0 to -1.0. Moderate solar radiation was noted around the time of the slide.

Snowpack: Significant loading from snowfall and wind occurred the previous week. Signs of thaw instability were observed in the area on the day of the avalanche.

Avalanches: A widespread natural avalanche cycle to size 4 (large enough to destroy a building) was reported in the previous 24 hours. This avalanche was a size 3 slab. Width was 400m, length 300m, and the average depth at the fracture line 110 cm.

Comment/Analysis: Crossloaded slopes generally have significant variation in snowpack depth. Sparse trees often act as trigger points from which failure propagates to slopes around and above. Trees in the track and runout create a terrain trap. Note how the fracture line runs from tree to tree across the top of the slope. The solar radiation on a steep SE slope may have been a factor in triggering the avalanche on this slope.

Image 2:



Terrain: This northeast, lee slope is in the alpine (~ 2100m) and very steep (45 – 50 degrees). It's a big bowl with gullies above, some exposed rock, and sparse isolated trees. The estimated overall rating is "complex."

Weather: Snow squalls were reported around the time of this incident with moderate south-westerly winds. Temperature and solar radiation are unknown.

Snowpack: Unknown.

Avalanches: No significant recent avalanches were reported in this area. This avalanche is a size 3 slab, width 250m, length 400m, average depth of fracture line 150cm.

Comment/Analysis: The gully features in the upper reaches of the slope produce a snowpack with variable depths. Sparse trees and rocky areas often act as trigger points from which failure propagates to slopes around and above. The trees in the lower right side of the photo are a potential terrain trap. The way the debris has piled up there suggests a terrain trap, such as a gully, may also exist. Northeast aspects are commonly loaded by prevailing SW winds as indicated by the corniced ridge at the top of the image. Note the variation in the avalanche bed surface; this suggests multiple failure layers, including ground or near-ground in the upper part of the path. This is typical of a variable snowpack with several persistent weak layers as well as weak base layers.

Image 3:

Terrain: This northeast, lee slope is at the boundary of treeline and alpine (~ 1900m) and very steep (45 degrees). At the fracture line there is a convex roll and a crossloaded gully. The ground cover is rocky with sparse, isolated trees. The estimated overall rating is “complex.”

Weather: Unknown.

Snowpack: Unknown.

Avalanches: No significant recent avalanches were observed in this area. This avalanche is a size 2 slab. Its width is 25m, length 200 - 300m, and the average depth at the fracture line is 50cm.

Comment/Analysis: While being lee to prevailing SW winds, localized winds often create variable snowpack depth over the length of the slope at lower elevations. Sparse trees and rocky areas often act as trigger points from which failure propagates to slopes around and above. On this slope, the wind has crossloaded the gullies, leading to pockets of unstable snow mid-slope, one of which here has slid into a gully feature that creates a terrain trap.

Image 4:

Terrain: This southwest (likely windward) slope in the alpine (~ 2300m) is steep (40 degrees) and smooth or "planar." There are some exposed rocks, a few sparse/isolated trees, and the estimated overall rating is "Challenging."

Weather: Unknown. Nearby areas reported up to 10cm of snowfall in the previous 24 hours, temperatures ranging from -9.0 to -2.0, strong southerly winds, and overcast skies.

Snowpack: Unknown. Nearby areas reported a suncrust under the new snow which was showing signs of instability on steep south and southwest slopes.

Avalanches: Unknown. Areas nearby reported only a few significant recent avalanches. This avalanche is a size 2 slab with a width of 80m, length 80m and an average fracture-line depth of 80cm.

Comment/Analysis: The snowpack depth in windward areas is often variable, generally deeper snow at the bottom of the slope and shallower near the top. You can see the outline of this small slab that popped out where the snow appears shallower but it did not propagate into what looks like deeper, stronger snow below. Sparse trees and rocky areas often act as trigger points from which failure propagates to slopes around and above. Note the tree in the fracture line (upper right) and what looks like rocky areas in the bed surface where failure appears to have occurred at or near the ground. These are common trigger points for avalanches in shallow snowpacks with weak layers at the base. This avalanche occurred late in the day. On a SW aspect, solar radiation can weaken the snowpack even on a cloudy day, especially if the pack is shallow and near rocks and trees which absorb heat and radiate it into the surrounding snow.