

The SLAB test – The missing link in stability testing?

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An avalanche is released when both the weak layer and the slab fails, still standard stability tests (e.g. CT, ECT) focus on the weak layer only. The SLAB test gives information on both the weak layer and the slab, hence brings additional information when evaluating slope stability. The SLAB test is performed on a 60x30 cm column that is NOT cut at the back. Load is applied by stepping onto the block in load steps similar to a Rutschblock test (but without skis). The SLAB test is easy and quick, especially when performed as the last test in the pit.

Experience and theory show that stability tests (CT, ECT) can overestimate danger when the slab is hard, hence indicate unstable conditions when slope stability is fair. The main reason is that a hard slab adds strength to a slope by edge effects and by spreading out the load (bridging). These stabilizing effects are invisible in tests on isolated columns (e.g. CT, ECT).

Examples are days when CT and ECT indicate instability correlating with danger level 3, while the SLAB test and overall stability evaluation indicate fair stability that correlates with danger level 2. Testing winter 2009/2010 indicated good agreement between SLAB test and evaluated slope stability for conditions with a hard slab (pencil or harder). Then standard stability tests (ECT, CT) indicated unstable conditions, while the SLAB test and our conclusions indicated “fair” stability. The SLAB test brought an extra tool when evaluating slope stability particularly for hard slabs (pencil or harder).