

## EXTENDED COLUMN TEST (ECT) - 2008

- Column is 90 cm cross slope and 30 cm upslope.
- Isolate the column along the front wall by digging and along the back and sides by cord or saw cut. All walls should be vertical.
- Place a shovel blade at one end of the column and apply the same loading steps as in the compression test: 10 from the wrist, 10 from the elbow, 10 from the shoulder. When a fracture is *initiated*, note the number of taps (#) and the layer depth.
- Four results are possible:
  - ECTV:** a fracture propagates across the full column during isolation
  - ECTP #:** a fracture propagates across the full column on the *same (#)* or *one additional (#+1)* tap as initiation. # is the tap that *initiated* fracture.
  - ECTN #:** a fracture initiates but *does not* propagate across the full column on the #<sup>th</sup> or (#+1)<sup>th</sup> tap.
  - ECTX:** no fractures are initiated in the 30 standard loading steps.
- Propagation is predicted to be likely *only* when the fracture propagates to the end of the column on the *same or one additional tap* as initiation (Simenhois & Birkeland 2007). For example **ECTP 13** fully propagated on the 13<sup>th</sup> or 14<sup>th</sup> tap.

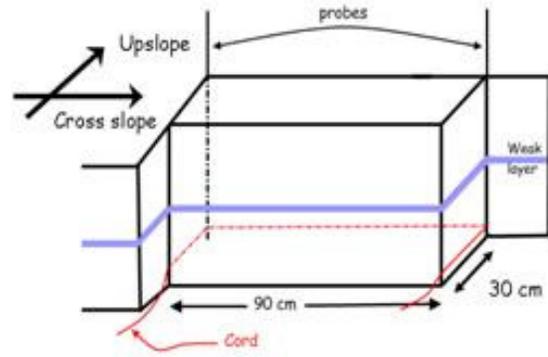


Fig. 1: ECT column schematic (from Ron Simenhois, 2008).



Fig. 2: Isolating an ECT column (left) and loading the column in the same manner as the compression test (right).

## PROPAGATION SAW TEST (PST) - 2008

- 30 cm cross slope and 100 cm upslope. If the weak layer is deeper than 100 cm, the length should be equal to the layer depth.
- Isolate the column at the front and one side by digging and on the remaining two sides by cord cut or saw cut. All walls should be vertical.
- Identify weak layer along column with aid of glove or brush, then drag the blunt edge of saw upslope along through the weak layer at 10-20 cm/s being careful to stay within layer until the fracture jumps ahead of the saw. Stop cutting and mark the spot in the layer where the fracture began to propagate ahead of the saw. Repeat the test if you suspect the saw left the weak layer.
- The propagating fracture will either reach the end of column (End), stop at a slab fracture (SF), or self-arrest within the layer (Arr).
- Record results as **PST x/y (Arr, SF or End) down z on yymmdd** where x is cut length, y is col. length, z and yymmdd are layer depth and ID.
- Propagation is predicted to be likely *only* when the fracture propagates to the end and less than half the column has been cut (Gauthier and others, 2008).

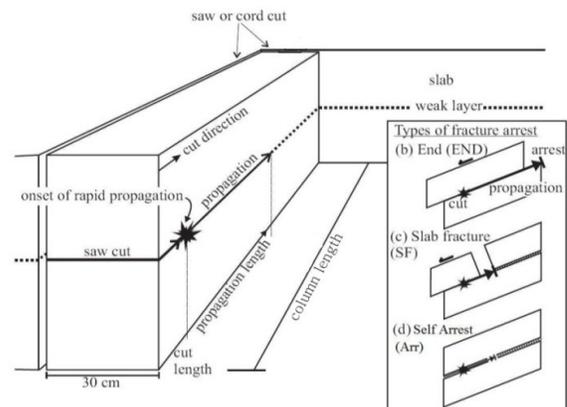


Fig. 1: PST column schematic with observable result types.

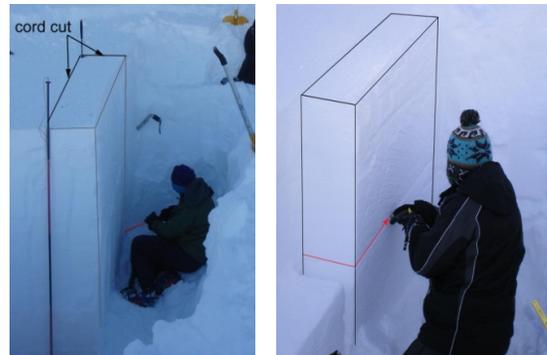


Fig. 2: Isolating a PST column (left) and saw-cutting upslope along the weak layer with the blunt edge (right).

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