Several students asked about making go/no go decisions with respect to avalanche conditions. I tossed the question out to the club's Avy 2 folks who helped with the ICS Avy module. Everyone agreed Jeremy Buck's answer was over the top:

From Jeremy:

I am not to sure if the "go, no go" or "green yellow red system" really works all that well, especially in our area. I keep telling our students while in the snow pit that if they feel confused right about now, then they're doing excellent.

For our area, avalanche evaluation really is just multiple levels of assessment followed by uncertainty. Uncertainty is fun! However, engineers are never convinced of this, and that is why we have trouble teaching avalanche stuff to Mazamas! Really, one snow pit is not an assessment for go no go. Here's a couple of ideas other avy folks could add or subtract to.

Step I. At home decision making
Weather- you already make go, no go decisions based on weather whenever you travel on an outing, why stop now? In addition to your normal weather red flags, there are certain weather red flags that need to be learned, like amount of snow falling over a certain period. We could list others, but, mostly, sudden changes to the snowpack = higher probability of slides (snow, rain, lotsof wind, etc) which is likely the best thing to learn.
NWAC report - this is the fundamental basis for go no go snow travel. "Extreme" = no go, unless you want to go up and visit safe areas so you can look at what extreme conditions look and feel like and so you can tell when you are in it for the times that you don't have a nice little report to refer to.
"High"= go only depending on your level of comfort and knowledge to make assessments when you travel. There is always safe terrain to be had, whether for skiing and climbing or just for evaluation, but you better know how to identify the flags or conditions in the weather and snowpack. Usually a no go for Mazama trips.
"Considerable" = go if you can watch out for terrain and weather effects on the snowpack that can cause slides, especially at certain elevations, and snowpits might help you gather more information.
"Moderate" = go and keep an eye out, don't do silly things.
"Low" = probably not very fun skiing.
"Wim"= Wim is very good at sensing avy danger. Nobody knows how he does this. He may have developed this from years of experience, flirting on the edge of danger during his youthful abandon years, or maybe he just makes it up. Regardless, everyone trusts him so you can always just call him and get your info that way. You can call this the "Wim" scale, and is measured in "Wim" units (although if you say it you have to use the German pronunciation as it sounds more metric that way). By the way, Jay is very good with weather in a similar manner, so you can just call him regarding weather and avoid having to interpret it yourself. This is the "Jay" scale, pronounced any way you like.

Step 2. Travel to the site decision making
Look for signs along, how is the snow behaving on rooftops? Is there a warming trend as you head up the mtn? Changing trend? Any of these could be no go decisions depending on your ability.
The best sign of possible avalanches is natural avalanche activity (natural slab releases). This could be considered a no go if spotted (when it is "recent", like the morning of, or last night if no changes settled the snow pack).

Step 3. At the site and start of trip.
Look for recent avalanche activity AGAIN, and always.
Cracking and whoomphing can be considered red flags or no gos.
Use some Transit or Active tests to gather further into.

Step 4. Snowpack
This TYPICALLY is what people look at to determine go, no go or red flags. However, most people do not dig one or do not spend much time in one, or they only dig ONE. The snow is very heterogeneous and typically one pit does not tell you a lot, but they have developed red flags for certain things in snowpit.

SNOWPIT:
The 3 key things needed for a slab avalanche are a Consolidated layer, Weak bond or interface, and a Bed surface (i.e., a surface such as a crust where , if the weak bond/interface breaks, then the consolidated layer can easily slide on). This is what is needed to be looked for in a snow pit. HOWEVER, a weak interface or bond is too small to see (you can identify a weak *layer* (e.g., a layer of soft, faceted snow), but just having a weak layer doesn't necessarily mean you have a weak bond although there may be a higher probability of it being there). A weak layer cannot be seen so it has to be tested with stability tests.

The other things to understanding a snowpack using a snowpit to assess stability are **Strength, Energy, and Structure**. Strength is measured with stability tests and evaluates **Initiation.** Energy is measured by shear quality or shear failures and evaluates **Propagation**. Structure is measured by number of "lemons" and evaluates **Propagation.** Studies have found that energy and structure are more closely tied to avalanches compared to how we measure Strength (our routine dependence on only stability tests) as described in the most recent version of Bruce Trempers "Staying Alive in Avalanche Terrain".

STABILITY TESTS:
Compression test= fails during one through 10 hits could be considered a red flag, but did it just break or pop out smoothly? Hi energy popping out of the block on a smooth surface is a red flag.
Extended column test= failure at 1 through 10 could be considered a red flag, but did it pop our to propagate? High energy propagation would be a red flag.
Rutchblock test results from 1-3 (fails when cutting, stepping onto, or just dropping knees) typically considered a red flag, but definitely a red flag if it popped out with high energy.

To truly understand Structure in a snowpack, one must evaluate lemons. These are the true red flags for the snowpit. this is what folks rarely do because you need equipment and a wee-bit more time, so we don't teach it much. But, if people want a true go, no go decision result from pits, then they need to do this:

Identify the layers with the hardness scale, which is **(F**)ist, (**4F)**inger, (**1F**)inger, (**P**)encil, (**K**)nife, (**I)**ce
Draw out the layers as graph or in the snow.
Identify weak layers and their thickness.
Identify snow grain type and size in weak layers.
Structural interpretation: Ask yourself these questions-
1) Weak layer depth within 1 meter of surface?
2)Weak layer thickness $\leq$ 10 cm?
3) Hardness difference > 1 step above or below the weak layer?
4) Grain size difference $\geq$ 1 mm?
5)Persistent weak layer grain type? (Depth Hoar, Surface Hoar, Faceting, Graupel, etc)

If you answer yes to at least 4 of these 5 lemons in the snow pack, then you have an unstable snowpack or a red flag. This is really the only way you would get a red flag from the snow pit that is truly consistent with avalanche data. Basing results just on stability tests is likely overly conservative (and in some cases, not conservative enough).

If you want to really really understand your snowpack, then you could fill out this little chart and understand it. Note: In the chart below, you can have a bomber rutchblock score of 6, which means someone jumped on this thing a bunch of times, but when it broke it had high energy (and lemons in the

snowpit), and it still is considered a weak snowpack structure. This is one reason why stability results alone may not give good results.

INTEGRATING STRENGTH, ENERGY & STRUCTURE INTO STABILITY DECISIONS

Test Result	Strength	Energy	Structure
RB3 Q3 L2	Weak	Low	Strong
RB4 Q2 L3	Moderate	Medium	Weak
RB6 Q1 L4	Strong	High	Weak

Strength of weak layer - overcome by stress. Strength is measured by stability tests (CT, ECT, or RB score) & evaluates **Initiation**
Energy - released by shear failure (Q score). Energy is measured by shear failures & evaluates **Propagation**
Structure – provides a "path of least resistance" for a fracture to propagate (# lemons) and evaluates **Propagation**

With this info you would have the bigger full picture of the snowpack, and a true decision making framework. But, it really only relates to the snowpit area where you are taking the measurements, and possibly represents slopes of the same angle and aspect, but in our area, that is even just a guess. BUT, this is how you really do an evaluation for go, no go, without being overly conservative.

This is why we teach a primary emphasis on steps 1 through 3 in our area.