

For week number ten in the VARA series, Holmenkol will discuss snow grain and structure.

Looking at the snow you are trying to wax for is as important as taking it's temperature.

Snow is as diverse as the all the areas around the world where it falls, yet we can group its shape & structure into a few main categories.

New snow has the sharp edged, crystalline form that is familiar to all. The size of the crystal can vary widely, though all are very delicate. The shape begins to transform almost immediately due to skiers, wind, and being compacted under its own weight. The crystal is harder at low temperatures and softer at warmer snow temperatures. Crystal size can be from 1mm to over 10mm. Generally, there is little friction in new snow, unless it has been compacted (from wind), which will increase its suction effect to the ski base.

New snow "transforms" into fine corn snow as a result of environmental

factors, such as skiers, grooming equipment, wind, air temperature change, etc. When this happens, the fine crystal structure breaks off and the crystal becomes more rounded. This is the most common type of snow we encounter mid season here in VT. This type of snow produces less suction (due to lack of sharp crystals to break off) but does increase friction on the skis base (due to its more dense nature and rounded form). Size usually ranges from .5mm to 3mm. This type of crystal has H₂O (water) bonded to its outer structure, and the thickness of this water is dependent on the snow temperature and/or air humidity. This is important to understand when considering fluoro overlays, which react well with greater amounts of H₂O that may be present in the air and on the snow.

Coarse corn snow happens when the original form is completely gone, and the snow becomes a round structure with some sharp edges. This can occur as a result of repeated freezing and thawing (the H₂O layer

around the original crystal becomes very thick) or as a result of extensive snow grooming. You can see coarse corn snow throughout most of the season wherever the grooming machines make several passes each day. The friction of the spinning blades from the groomer accelerates the formation of coarse corn snow. This type of snow has virtually no suction, as there is a great deal of space between each snow crystal. However, it is extremely abrasive (high friction) on the skis base, and you must wax accordingly. Often times, due to the repeated freezing and thawing that has occurred to this type of snow, it contains a great deal of dirt, too. Grains here can range from 3mm to over 10mm.

Artificial snow may be the most difficult to understand completely, due to the incredible variety of machinery, air to water ratios, nozzle sizes, and outside weather. As a generalization, man made snow is very dense, has a dull (not fully formed) new snow

crystal shape, and can be very wet. It exhibits the properties of high suction (due to its dense pack & sharp crystals) and high friction (due to its high water content that freezes around the sharp crystal. You will need a wax that is very abrasion & water resistant here.

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