Rounded Polycrystals, Wind Crusts, and Melt-Freeze Crusts

To distinguish between rounded polycrystals (MFpc) and a melt-freeze crust (MFcr), consider the structural units. If a crust layer is broken apart, the result is lumps of variable size since the crust (of indeterminate length and width) is the structural unit. If a portion of a layer of frozen rounded polycrystals is broken apart, the result is quite consistently sized particles (the individual polycrystals).

When formed by freezing rain, rain crusts (IRrc) are often thin, fragile transparent layers that form on the surface. Rain more commonly forms melt-freeze crust (MFcr), which can vary from thin (several mm to 1 cm) to thick (>5 cm) layers.

Sun crusts (IFsc) are thin, fragile transparent layers that form on the surface. More commonly, direct sun causes a melting of the snow that results in a melt-freeze crust (MFcr).

Wind crusts (RGwp) are thin irregular layers of small, broken or abraded, closely packed and well-sintered particles (usually found on windward slopes). The particles in these layers may be similar in appearance to those in wind slabs (usually found on lee slopes); however, some authors report that particle size is more variable in wind crusts than wind slabs.

Surface Hoar

Sub-classes listed in Table F.1 can be used to record different types of surface hoar (SH).

Table F.1 Sub-classes of surface hoar (based on Jamieson and Schweizer, 2000)

Sub-class	Description	Formation Temperature
i. Needle	Primarily one dimensional, sometimes spike- or sheath-like	Below -21°C
ii. Plate	Two-dimensional sector plate; usually wedge shaped and narrow at base. Usually striated when formed; however, the striations may disappear while buried in	-10°C to -21°C
iii. Dendrite	Two-dimensional form with numerous branches; often feather-like in appearance; narrow at base	-10°C to -21°C
iv. Cup or scrolls	Three-dimensional; these form with narrow base on surface of the snowpack; once separated from the snowpack, these forms can be indistinguishable from depth hoar-cup crystals	
v. Composite forms	Combinations of shapes associated with subclasses i to iv	

Refer to Fierz and others (2009) for further explanation of shapes, place of formation, classifications, physical processes and common effects on strength. The document is online at:

http://www.cryosphericsciences.org/snow_class.html