Definitions of Lunar Terms

Agglutinates - Agglutinates consist of comminuted rock, mineral, and glass fragments bonded together with glass. The glass is black in bulk but pale to dark brown in thin section, and is characteristically heterogeneous with dark-brown flow banding or "schlieren." The glass contains many vesicles ranging in size from less than 1micron to 1cm and many minute, submicroscopic metallic Fe grains. The morphologies of agglutinates are delicate and complex. They are a common particle type in mature lunar soils.

Breccia - Clastic rock composed of angular clasts cemented together in a finer grained matrix.

Cataclysm - Describing the numerous large cratering events that occurred 3900 to 4000 million years ago.

Cataclastic - A metamorphic texture produced by mechanical crushing, characterized by granular, fragmentary, or strained crystals.

Chadacrysts - Crystals enclosed by an oikocryst in a rock with poikilitic texture. Chadacrysts are generally equant in size and smaller than the oikocryst. This term is not to be used for simple inclusions of scarce minute accessory phases.

Coarse-fines - The larger particles in the lunar soil. Generally 1 to 2 or 2 to 4 mm.

Diaplectic – Glass made from mineral by shock. Not melted.

Exotic - Foreign. Used for fragments of rock or glass that are not local to the collection site. Presumably they travelled from distant sites on the Moon to the collection site as by rays.

Felsite - Exotic lunar granite! Generally, a micrographic intergrowth of silica and K-feldspar. Some fragments contain pyroxene and zircon!

Fra Mauro Formation - Radial deposits of Imbrium ejecta.

Gardening - The reworking of the lunar regolith by small craters.

Glomerophyric - Monomineralic clusters within matrix.

Granulitic - A metamorphic texture in which minerals have triple point junctions so as to minimize surface energy of grain boundaries.

Highlands - The light-colored, heavily cratered, nonmare regions of the Moon.

lntrafasciculate - Hollow, columnar plagioclase filled with pyroxene; like a bundle of straws.

lntersertal - A goundmass texture in a porphyritic rock in which unoriented feldspar laths enclose glassy or partly crystalline material other than pyroxene.

KREEP - Potassium (K), rare earth elements (REE), and phosphorus (P). A trace-element-rich lunar rock type found in the highlands.

Mare - Latin for sea. Dark, flat regions generally in large circular basins.

Maskelynite - Plagioclase that has been transformed by shock in the solid state to a glass. Diaplectic plagioclase glass.

Matrix - Fine-grain portion of rock. Usually defined to be material finer than 20 microns in seriate texture. (Thin sections are 30 microns thick; therefore, matrix is difficult to study in transmitted light.)

Maturity - The maturity of a lunar soil refers to the degree of reworking by micrornteorites, as evidenced by grain size, proportions of agglutinates, proportions of grains with high solar flare track densities, solar wind gas content, or minute metallic Fe content as determined by Is/FeO ferromagnetic resonance measurement (Morris 1978).

Mesostasis - The last liquid to crystallize in an igneous rock. It is located in the interstices between the major minerals. In lunar samples, it is often too viscous to crystallize and remains as glass.

Microcrater - Crater produced by impact of interplanetary particle with mass less than 10^{-3} g; sometimes referred to as a "zap pit."

Monomict - A fragmented mixture of material from a single source without an admixture of unrelated or foreign material as in polymict.

Oikocryst - The large crystal that encloses the chadacrysts in a poikilitic texture rock.

Ophitic - Basaltic texture characterized by laths of plagioclase partially enclosed by anhedral grains of pyroxene. Believed to represent contemporaneous crystallization of the two minerals, rather than sequential, as in poikilitic texture.

Patina - The thin outer skin on the surface of a lunar rock caused by solar wind and rnicrometeorite erosion. Microscopically, it is composed of "zap pits" and many splashes of minute glass fragments.

Poikilitic - Relatively large crystals of one mineral enclosing numerous smaller crystals of one or more other minerals which are randomly oriented and generally, but not necessarily, uniformly distributed. The host crystal is called an oikocryst, and the included crystals are called chadacrysts.

Polymict - A mechanical mixture of genetically unrelated fragments of material.

Primitive - Unfractionated. For igneous rocks, it refers to the initial material in a sequence of fractionation.

Pristine - Rocks with primary lunar compositions produced by lunar endogenous igneous processes; melt rocks and crystalline matrix breccias are excluded. A synonym for pristine would be "unmelted, monomict". Low Ir and Au contents are required because these elements indicate meteorite contamination.

REE - Rare earth elements.

Radiated - Describing texture in which numerous elongate crystals diverge from a common nucleus.

Regolith - Layer of fragmental debris produced by impact processes on the surface of an airless planetary body. Collection of ejecta from large and small craters, primary and secondary, close by and far away. The lunar regolith has a density of about 1.5 g/cm^3.

Schlieren - Flow banding in glass.

Seriate - A rock texture in which there is a continuous range in grain size from the smallest (submicroscopic) to the largest.

Soil – The fine-grained outermost layer of the lunar regolith which was exposed to solar wind and micrometeorite bombardment. (Organic matter is not applicable to the lunar case.)

Subophitic - Common texture of basaltic rock wherein feldspar-crystals are about the same size as pyroxene and only partly enclosed by them (see ophitic).

Symplectite - An intimate intergrowth of two minerals in which one mineral has a vermicular (wormlike) habit.

Trace Elements – Generally below 0.1 weight percent. The REE are most useful. Ir and Au also are frequently termed trace elements.

Troctolite - Coarse-grain plutonic rock containing olivine and plagioclase with little or no pyroxene.

Variolitic - Radiate aggregates of elongate crystals.

Vitrophyric - Megascopically glassy. Can be recrystallized microscopically.

Zap pit - Microcrater caused by micrometeorite. Range in size from millimeters to micrometers. Commonly lined with glass and surrounded by spall zone.

Note: for a glossary of terms commonly used in planetary science see:

http://www.psrd.hawaii.edu/PSRDglossary.html