

Geological Antarctic Field Notebooks

This list contains commonly used abbreviations and geological terms found in Antarctic geological field notebooks.

Australian Antarctic Gazetteer - <https://data.aad.gov.au/aadc/gaz/> Can be used to search for Australian Antarctic place names used in the notebook.

ABBREVIATIONS

F.g = fine grain

Gr. = grain(ed)

Leuco = leucocratic

M.g = medium grain

Med.= medium

Ntk. = Nunatak

Pk. = Peak

Prob. = probably

Pt. = point

Str. = strike, striking

V. C. Gr = very coarse grain(ed)

w. = with

Xtl = crystal

COMMONLY USED TERMS

Bands/ banding/ banded

Clearly discernible 'layers' in a rock, typically used to describe 'darker' layers within a light coloured rock. Typically applied when describing metamorphic rocks (those altered by heat and pressure)

Biotite

A dark brown to black flaky *mineral* that easily breaks apart like pages of a book.

Dyke(s)

A sheet-like injection of molten rock (dolerite typically) into the earth's crust that solidifies to form a 'stripes' across the landscape. A dyke is the plumbing system that brings molten rock from deep in the earth to the surface. See picture for dolerite dyke swarms in the Vestfold Hills, Antarctica



Feldspar

A very common *mineral*, comprised of calcium, sodium and potassium (commonly used as an abrasive component in toothpaste!!)

Foliation/ foliated

Many rocks, particularly metamorphic rocks (those altered by heat, pressure and deformation), develop a *foliation* in that all the minerals in rock become aligned along a common plane. A *foliated* rock has a strongly layered appearance, a good example of a foliated rock is shale or slate that separates along planes to form roofing tiles!

Folding

Garnet/ garnetiferous

Garnet is typically (but not always) a dark red mineral (can be green or pink), commonly found in metamorphic rocks (those altered by heat, pressure). If the quality of the garnet is good (no internal fractures or contamination) garnet can be cut into gemstones, but more typically used as the 'sand' in sandpaper (garnet is very hard)!

Gneiss

A coarsely-layered metamorphic rock, with layering often defined by *banding* or discontinuous layering.

Granite

A common typically light-coloured medium to coarse-grained (2-10mm) rock that crystallised from magma (molten rock) deep in the earth's crust. Much of the earth's crust is comprised of granite and rocks derived from the weathering of granites.

Inclusion

A general term to describe something (rock or a *mineral*) that is enclosed within another rock or *mineral*. For example a *mineral* inclusion might be flakes of *biotite* included or enclosed within a *garnet* crystal, or a chunk of a one *rocktype* enclosed by another *rocktype*, such as a *quartzite* included within a larger *granite* body.

Lenses

Leucocratic

Mafic

Migmatite/ migmatitic/ migmatised

A migmatite is a rock that has, in its past, been heated to such a degree that it began to melt but not to the point where it became completely melted. Migmatites are typically layered with alternating light and dark bands (*migmatitic* texture), with the light *bands* representing the accumulated 'melt' (now crystallised) and the residue (dark layers).

Mineral

A mineral is a naturally-occurring inorganic material with a crystalline structure (= well-ordered atomic framework) and characteristic chemical composition. For example, garnet is $(\text{Fe, Mg, Ca, Mn})_3\text{Si}_3\text{O}_{12}$. All rocks are made up of aggregates of various minerals, (e.g. the rocktype *granite* is comprised of *feldspar*, *quartz*, *biotite* and maybe *garnet* in different amounts).

Moraine

Mylonite

A rock that has enjoyed a very high degree of deformation, so much so it has developed a very strong *foliation*

Outcrops

Pegmatite

A pegmatite is a very coarse-grained *granite* (grain size as much as 100mm or greater), often made up of rare *minerals* (but not always). Pegmatites can be irregular masses, or sheet-like intrusions (like a *dyke*)

Phenocryst

A phenocryst is a coarse-grained well-formed (having good crystal shape) mineral within a much finer grained rock. An example might be a large *feldspar* crystal the size and shape of a matchbox within fine-grained *granite*...the *feldspar* crystal, in this case, is a phenocryst

Porphyritic

A *rock type* that has numerous *phenocrysts* is porphyritic!

Rock types

Simply, different types of rocks! *Granite* is a rock type, *Quartzite* is a rock type (BUT *quartz* is a *mineral*)

Scree

Strike/ striking

Stringer(s)

Stringers are a very thin discontinuous 'string' of *mineral(s)* hosted within a rock. A stringer might consist of a thin 'trail' of *biotite* grains or *garnet* grains in a rock.

Quartz/ quartzites

Quartz is a *mineral* (silicon dioxide, SiO_2) and quartzite is a rock made up entirely of quartz (though a true quartzite has been metamorphosed)

WYSSA Codes

What are the strange codes Dave sometimes uses in his notebooks?

These are WYSSA codes, a special Antarctic code used by the Australian expeditioners with ANARE (Australian National Antarctic Research Expedition) to communicate with loved ones back in Australia. Based on Bentleigh's Telegraphic Codes, a phrase was reduced to a 5 letter code. Fondly

named WYSSAs or whizzers after the code for “All my love darling” (WYSSA). A list of WYSSA codes is available [online](#).