Descriptive names for coherent lavas and intrusions

Ideal combination: ④ + ③ + ② + ①

alteration **texture** **lithofacies term** **composition**

e.g. sericitic, highly quartz-phyric, coarse, flow-banded rhyolite
moderately vesicular, poorly olivine-phyric, fine, columnar jointed basalt

Minimum:
② + ① e.g. blocky jointed rhyolite; massive basalt
③ + ① e.g. hornblende-phyric andesite; aphanitic dacite(?)
④ + ① e.g. sericite-silica rhyolite(?); chlorite-epidote andesite(?)

① COMPOSITION

a. estimate based on phenocryst assemblage:

- *rhyolite*: K-feldspar ± quartz (± Ca-poor plagioclase ± ferromagnesian phase: biotite, amphibole, pyroxene, fayalite)
- *dacite*: plagioclase ± ferromagnesian phase: biotite, amphibole, pyroxene ± quartz (± K-feldspar)
- *andesite*: plagioclase + ferromagnesian phase: biotite, amphibole, pyroxene (± olivine)
- *basalt*: pyroxene + Ca-rich plagioclase ± olivine

b. for aphanitic samples, estimate based on colour:

- *rhyolite(?), dacite(?)* : pale grey, pink, cream, pale green
- *andesite(?), basalt(?)* : dark grey, dark blue, dark green, dark purple

② LITHOFACIES

- massive or flow-foliated, flow-banded, flow-laminated
- jointing: columnar, radial columnar, concentric, tortoise shell, blocky, prismatic, platy
- pillows or pseudo-pillows

③ TEXTURE

- porphyritic: a. phenocrysts – type *(quartz-phyric …, pyroxene-phyric …, etc.)*
  – abundance *(poorly …, moderately …, highly …)*
  – size *(fine ≤1 mm, medium 1–5 mm, coarse ≥5 mm)*
  b. groundmass – glassy, cryptocrystalline, microcrystalline, very fine grained
- aphanitic: uniformly microcrystalline
- aphyric: no phenocrysts present
- glassy: composed of volcanic glass
- non-vesicular or vesicular (or amygdaloidal): sparsely …, moderately …, highly …, pumiceous …, scoriaceous …
- spherulitic, microspherulitic, lithophysae-bearing

④ ALTERATION

- mineralogy: chlorite, sericite, silica, pyrite, carbonate, feldspar, hematite …
- distribution: disseminated, nodular, spotted, pervasive, patchy …

Descriptive names for volcaniclastic deposits

Ideal combination: ④ + ③ + ② + ①

alteration **lithofacies term** **components** **grain size**

e.g. chloritic-pyritic, very thickly bedded, volcanic lithic breccia
thinly interbedded, shard-rich mudstone and crystal-rich sandstone

Minimum:
② + ① e.g. crystal-rich sandstone; pumice granule breccia
③ + ① e.g. laminated mudstone; poorly sorted, massive breccia
④ + ① e.g. pyritic sandstone; chloritic breccia

① GRAIN SIZE

mud/mudstone		< 1/16 mm
sand/sandstone		1/16–2 mm
gravel/conglomerate or breccia:	granule	2–4 mm
	pebble	4–64 mm
	cobble	64–256 mm
	boulder	>256 mm

② COMPONENTS

- crystals, crystal fragments: *crystal-rich* ...
- lithic fragments: *lithic-rich* ...
  - volcanic or non-volcanic, polymict or monomict
- pumice or scoria: *pumiceous ..., scoriaceous* ...
- shards: *shard-rich* ...
- accretionary lapilli: *accretionary lapilli-rich*
- vitriclasts: *vitriclast-bearing* ...
- fiamme: *fiamme-bearing* ...
- cement: *siliceous ..., carbonate ..., zeolite* ...

③ LITHOFACIES

- massive (non-bedded) or stratified (bedded)
- bedding:

laminated	< 1 cm
very thinly bedded	1–3 cm
thinly bedded	3–10 cm
medium bedded	10–30 cm
thickly bedded	30–100 cm
very thickly bedded	> 100 cm

- equal or unequal thickness
- laterally even or uneven thickness
- laterally continuous or discontinuous
- cross-bedded, cross-laminated

- massive (non-graded) or graded: normal ↑, reverse ↓
  normal–reverse ↕, reverse–normal ↕
- fabric: clast-supported or matrix-supported
  poorly sorted, moderately sorted, well sorted
- jointing: blocky, prismatic, columnar, platy

④ ALTERATION

- mineralogy: chlorite, sericite, silica, pyrite, carbonate, feldspar, hematite ...
- distribution: disseminated, nodular, spotted, pervasive, patchy ...