

Metamorphic Facies

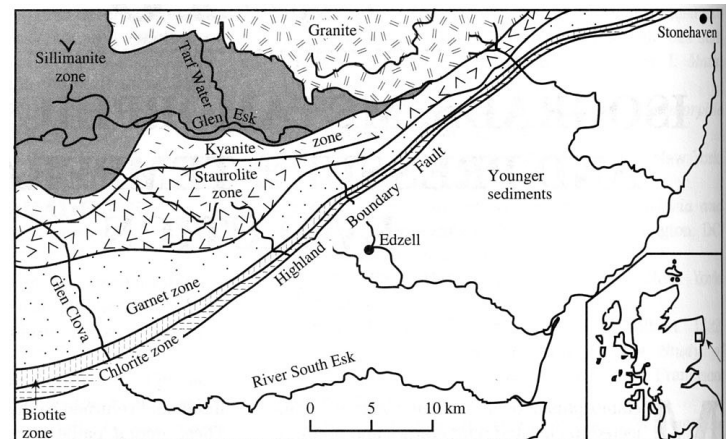
Best, Chapter 10

Metamorphic Grade

- Controlled by the temperature of metamorphism
- Low-grade rocks contain hydrated and carbonated phases
- High-grade rocks are dehydrated and decarbonized

Metamorphic Zones

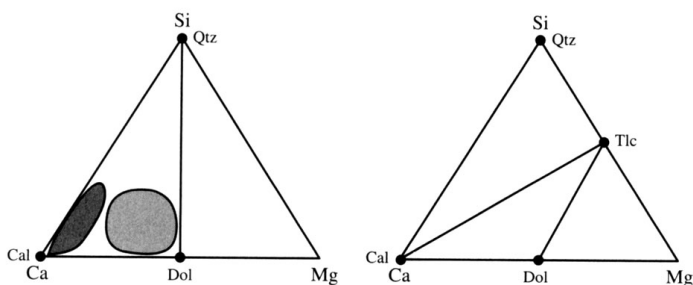
- Mappable metamorphic units of similar grade in a rock of distinct composition
- Isograds are lines marking the first appearance of key minerals
- Zones of Barrow
 - Biotite, garnet, staurolite, kyanite, sillimanite



Metamorphic Reactions

- Formation of talc in a siliceous dolomite

$$\text{Dol} + \text{Qtz} + \text{H}_2\text{O} = \text{Tlc} + \text{Cal} + \text{CO}_2$$
- Controlled by the ratio of $\text{H}_2\text{O} / \text{CO}_2$

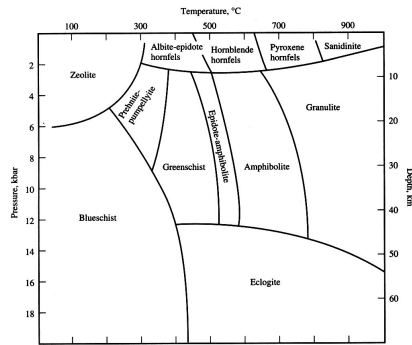


Metamorphic Facies

- The set of mineral assemblages occurring in rocks of diverse composition
- Facies develop under restricted P,T conditions
- Mineral assemblages may be plotted on ACF diagrams

Main Facies

- Zeolite
- Prehnite-pumpellyite
- Blueschist
- Greenschist
- Amphibolite
- Granulite
- Eclogite



Review of Facies

- Mineral assemblages in metamorphosed mafic rocks
- Correlation of Barrow's zones with facies from different protoliths
- P, T diagram for various facies

