

Module 2. Basic Geology I
b. Relative and absolute dating

Instructor: Jim Lehane

Time: 50 minutes

Relative Dating

Helpful website: <http://www.dinojim.com/stratigraphy.htm>

Stratigraphy - The study of stratified (layered) rocks.

Rules of Stratigraphy

1. Oldest layers are on the bottom (*Principle of Superposition*)
2. Rocks originally formed in horizontal layers (*Principle of Original Horizontality*)
3. Anything that crosses another formation must be younger (*Principle of Cross-cutting Relationships*)
4. Anything located within another formation is do to erosion of an existing layer

Unconformities

Unconformity – A buried erosional surface that indicates a gap in time (or a break in sedimentation)

Types of unconformities:

Angular unconformity – Unconformity between strata that are not parallel

Disconformity – Unconformity between parallel sedimentary rocks

Nonconformity – Unconformity between underlying igneous/metamorphic rocks and sedimentary rocks

Absolute Dating

Types of Radiometric Dating used in Paleontology

- a. U-Pb
- b. K-Ar (Ar-Ar)
- c. Rb-Sr

Using Radiometric Dating

- a. Dating volcanic deposits
- b. Use minerals that retain their radiogenic elements and do not gain any (closed system)
- c. Not usually useful for direct dating of sedimentary rocks

Other types of dating

- a. Biostratigraphy
- b. Astrochronology (cyclostratigraphy)
- c. Magnetostratigraphy

Any questions? Please feel free to email me at Jazinator@hotmail.com or visit my website www.dinojim.com for some helpful information.