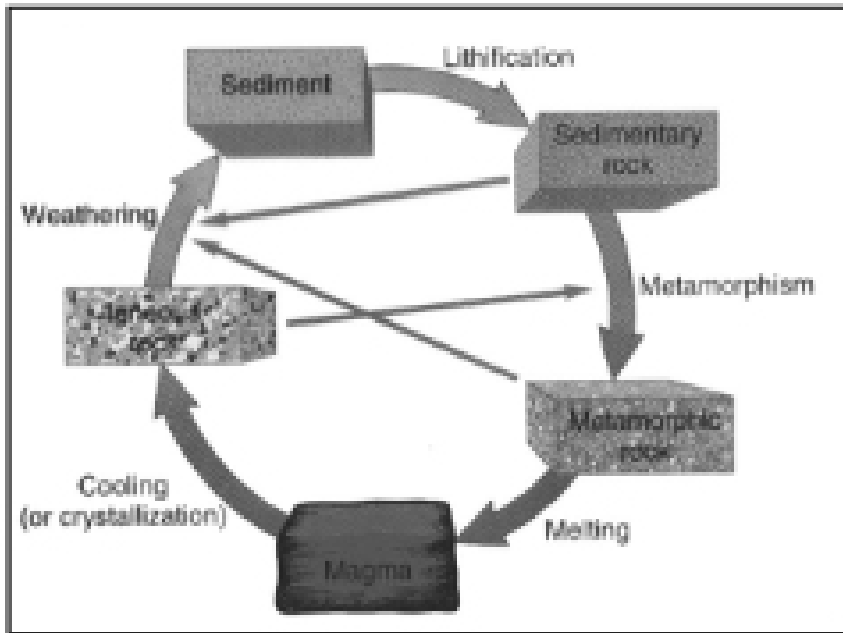
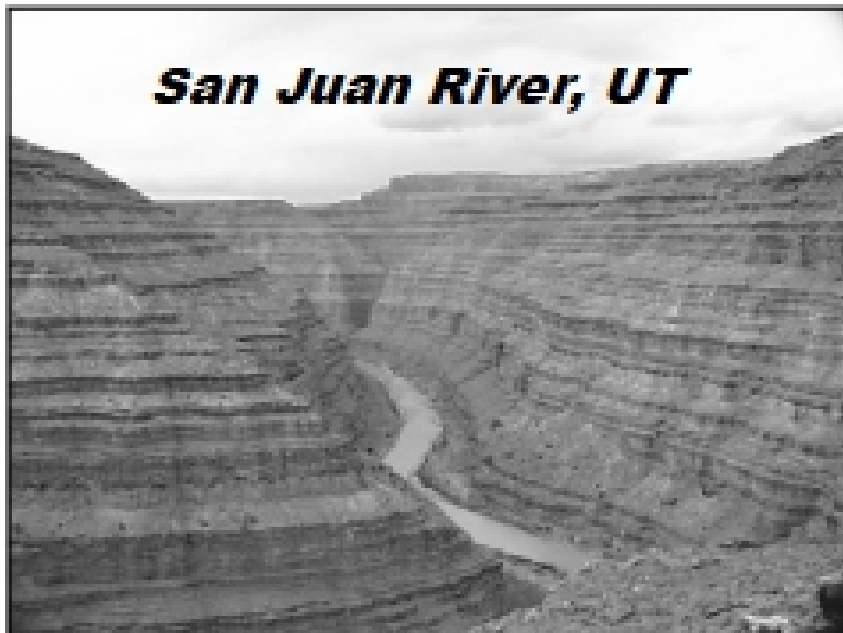


Sediments and Sedimentary Rocks
Solidified Weathering Products



- Size Sorting**
- **The different minerals that form as weathering products have different characteristic grain sizes.**
 - **Un-weathered material has largest grain size.**
 - **Quartz sand is 0.1 to 2 mm.**
 - **Clays are less than 0.001 mm (1µm).**
 - **Ca⁺², Na⁺¹, CO₃⁻², SO₄⁻², and Cl⁻ are dissolved.**

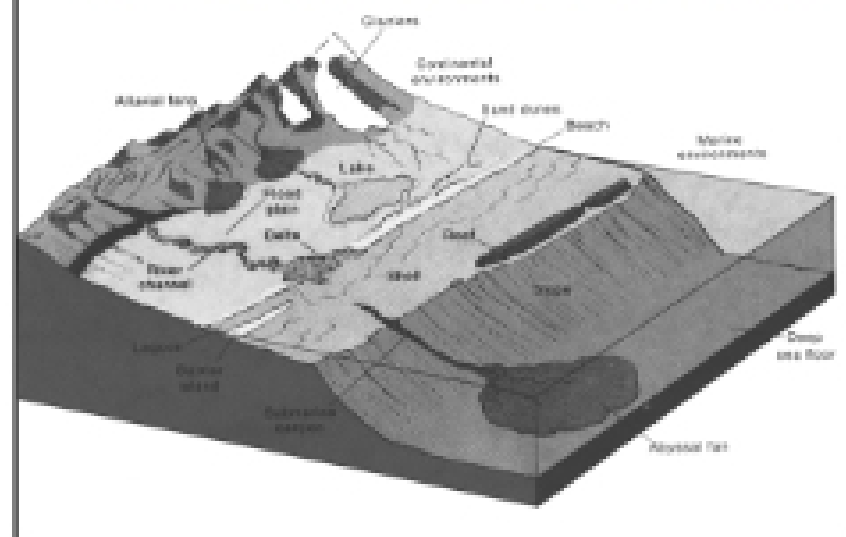
Particle Sizes

Particle Size	Sediment	Rock
> 25cm	Boulder	Conglomerate
6-25cm	Cobble	Conglomerate
2 – 60 mm	Pebble	Conglomerate
0.06 – 2 mm	Sand	Sandstone
4 – 60 µm	Silt	Siltstone
< 4 µm	Clay	Shale

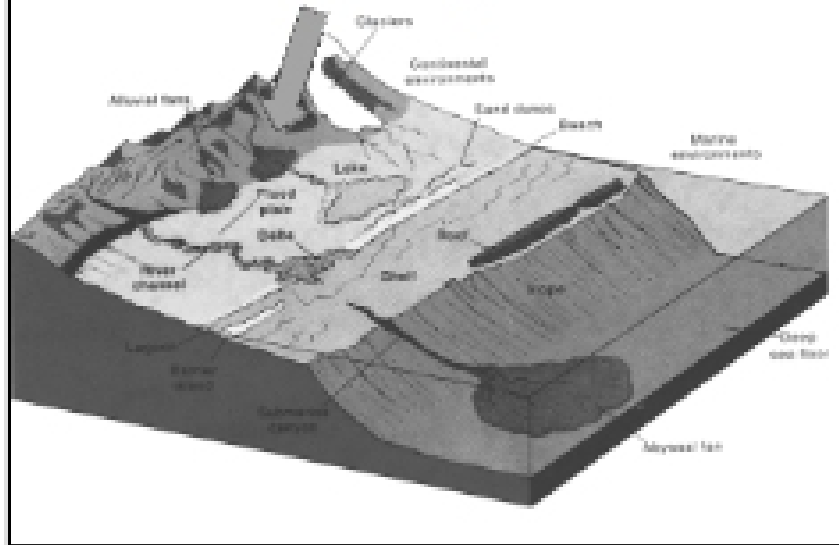
Size-Sorting Gives Different Sedimentary Rocks

- **Breccias** have moved very little.
- **Conglomerates** are near-source continental.
- **Sandstones** are continental.
 - **Eolian sandstones** are desert deposits.
 - **Fluvial sandstones** are river deposits.
- **Shales** are shallow marine (salt water).
- **Limestones** are tropical shallow marine (reefs).
- **Evaporites** result from evaporation of seawater.

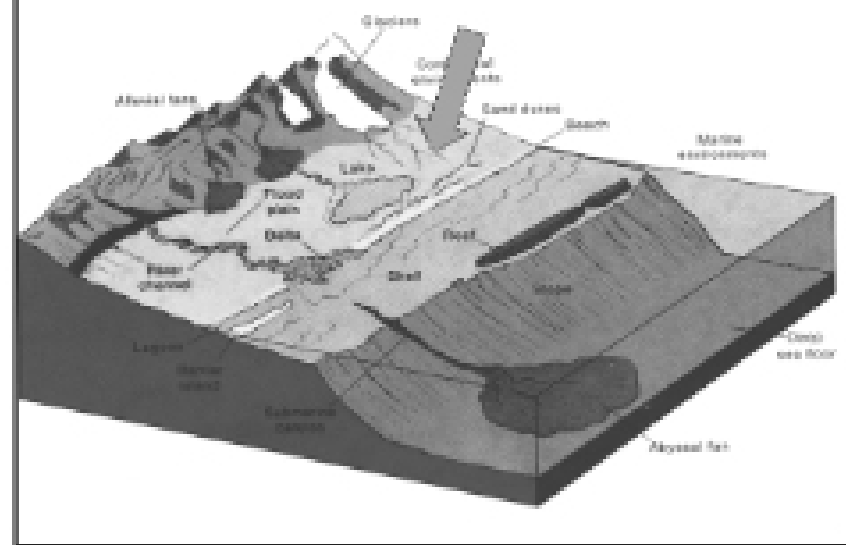
Depositional Environments



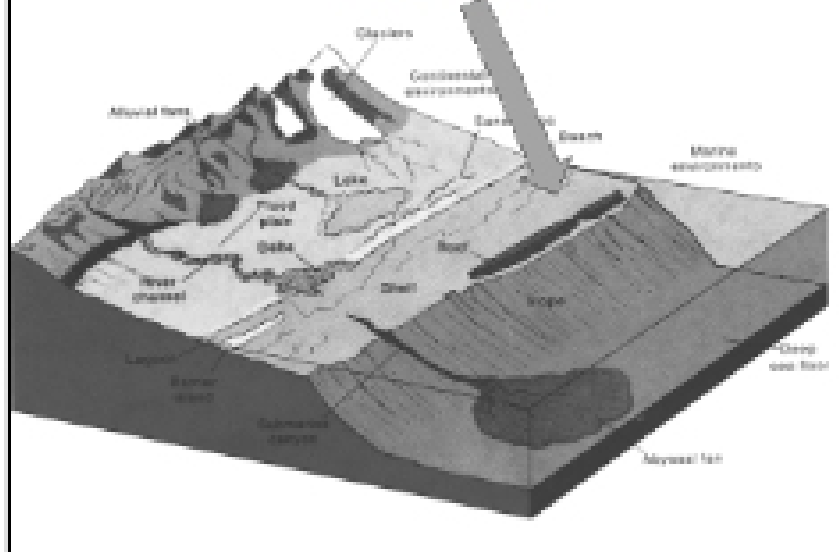
Breccias, Conglomerates



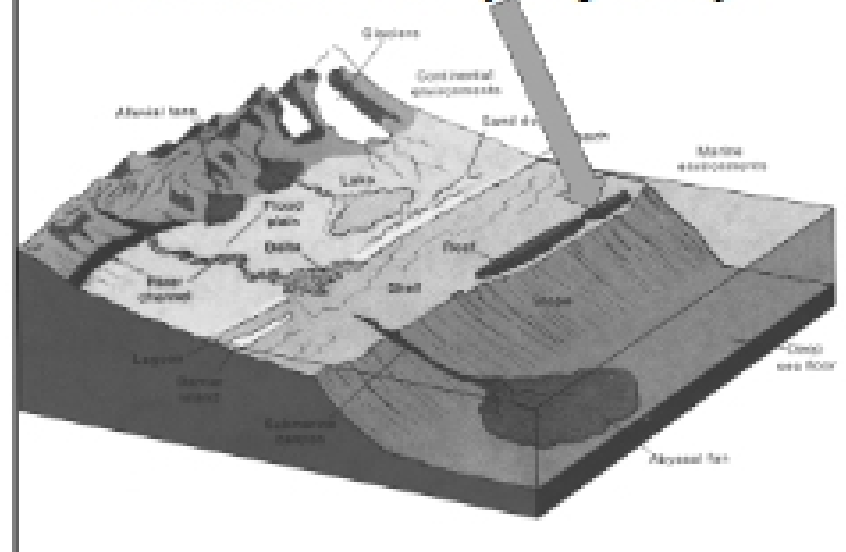
Sandstones

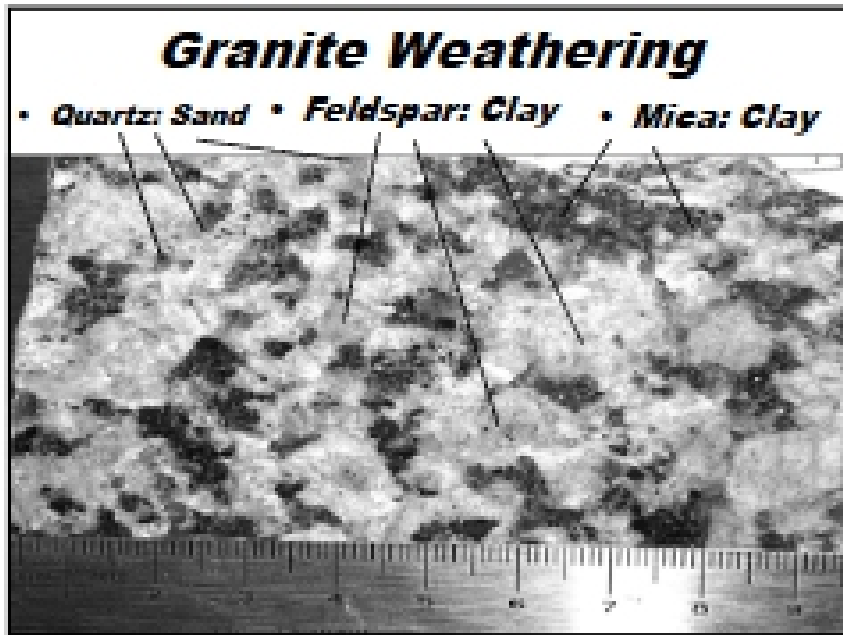


Shales



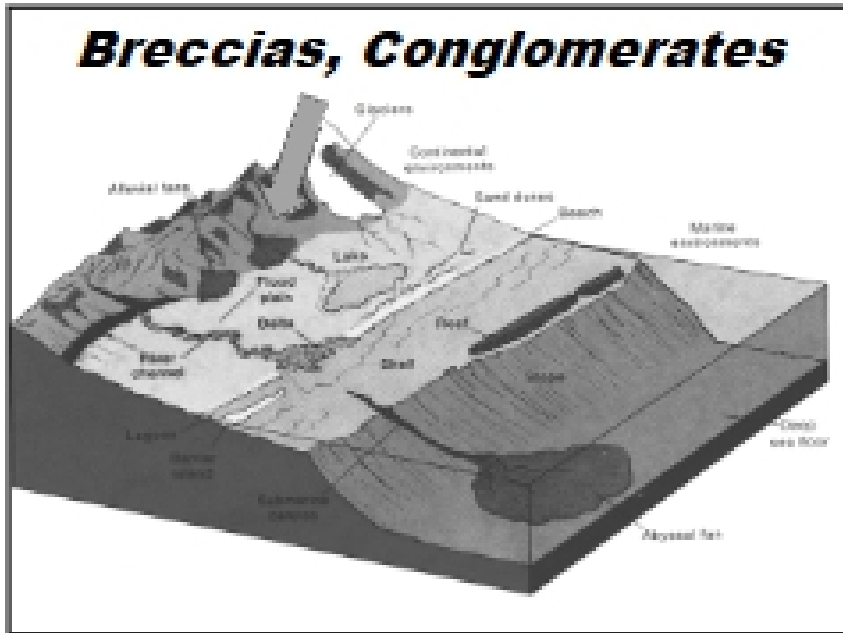
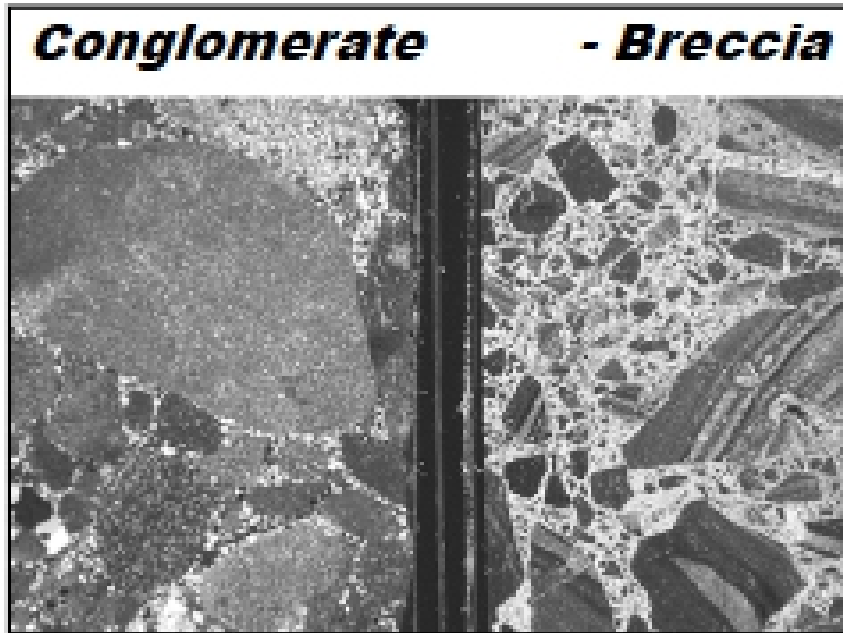
Limestones (tropical)





Conglomerates and Breccias

- **Breccias are composed of coarse, angular fragments.**
 - Breccia fragments have not traveled far.
- **Conglomerates are composed of coarse, rounded fragments**
 - Conglomerate fragments have traveled further
- **Conglomerates and Breccias are typical of continental alluvial fans**



Sandstones

- **Arkose contains feldspar and is near-source**
 - Fountain Formation (Flatirons) is made of arkose and conglomerates
- **Eolian sandstones are desert (wind) deposits**
 - Commonly show cross-bedding
- **Fluvial sandstones are stream deposits**
 - Commonly have asymmetric ripples and channels.