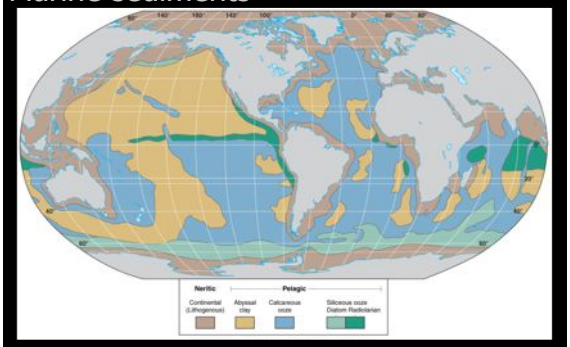
Marine sediments



Lithogenous Biogenous Hydrogenous Cosmogenous

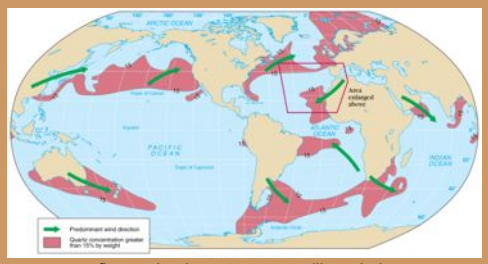
Lithogenous sediments

- Neritic
  - Typically deposited quickly
  - Eroded by wind, water, ice

Lithogenous sediments

- Pelagic: abyssal clay

  Wind-blown dust, volcanic ash, deep ocean currents



fine-grained quartz vs prevailing winds

Biogenous sediments

- Hard remains of once living organisms
  - Macroscopic: shells, bones, teeth
  - Microscopic: algal tests and protozoans
    - settle in 10-50 years
    - clumps settle 10-15 days

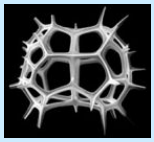
Biogenous sediments

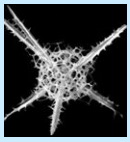
Siliceous sediments

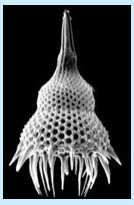
- Diatoms: algae

  silica test
- Radiolarians: protozoans

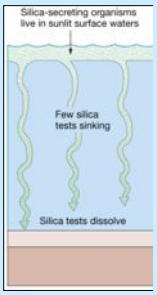
  silica skeletal elements



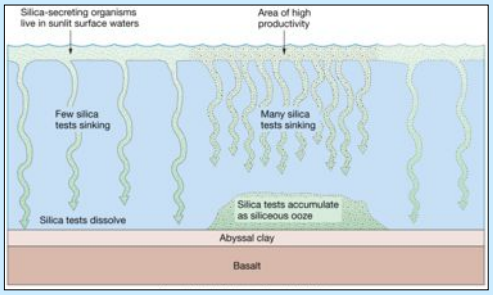




Biogenous sediments



Biogenous sediments

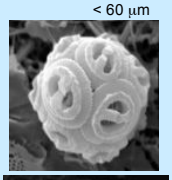


Biogenous sediments

< 60 μm

Calcareous sediments

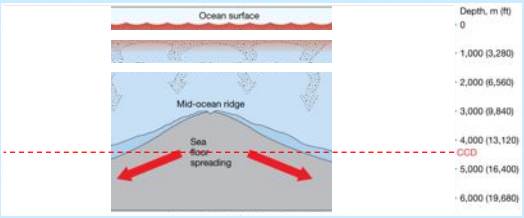
- Coccolithophores: algae
  calcium carbonate skeleton
- Foraminifera: protozoans



< 2 mm

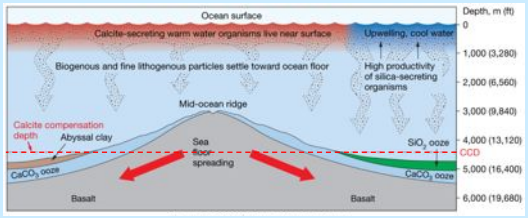
Calcite compensation depth - where $CaCO_3$ dissolves as fast as it is supplied

Warm, shallow ocean saturated



Cool, deep ocean undersaturated

$CaCO_3(s) + H_2O + CO_2 \rightarrow Ca_2^+(aq) + 2HCO_3^-(aq)$

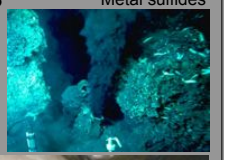


Hydrogenous sediments

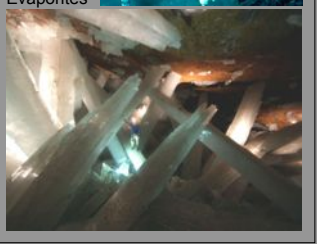
Metal sulfides

Manganese

Phosphates



Evaporites



Carbonates: oolites