



Lecture Outline

Depositional Profiles

- Ramp
- Platform
- Offshore bank or isolated platforms

Facies Belts

Shelf Facies

- Supratidal/intertidal flats
- Shallow marine open or restricted shelf
- Platform or bank margin

Slope Facies

- Foreslope
- lower slope/basin margin

Basinal Facies

Ramp Depositional Profile

- Regional carbonate bodies that build away from positive areas.
- Generally have very low gradient (slopes less than 5°).
- Form continuous slopes w/ no real breaks in slope.
- Form broad facies belts with very gradational, irregular boundaries.
- Environments with highest wave energy (grain-rich facies) generally near shore and finer-grained sediments offshore.

2 Ramp Types:

Platform or Rimmed Shelf Profile

- Regional carbonate bodies that buildup forming a horizontal top with an abrupt change in slope forming a shelf margin.
- Highest energy deposits form offshore at the shelf margin.
- Facies belts are narrower and more discrete.
- In favorable environmental settings carbonate ramps rapidly buildup into platforms.

Offshore Bank or Isolated Platform Profile

- Complex buildups well offshore from platforms or ramps at continental margins.
- Typically associated with tectonic uplift (horst blocks).
- Platforms typically have very steep margins or slopes, in some cases almost vertical.
- Often associated with open ocean facies.
- Facies belts are generally narrow and abrupt.

Facies Belts

- Depositional facies are very sensitive to changes in water depth, water chemistry, and water circulation.
- The different profiles previously described vary with respect to these variables.
- Along an onshore to offshore depositional profile the following facies belts are produced.
 - **Shelfal Facies**
 - **Supratidal/intertidal flats**-water depths <5m.
 - **Shallow marine open or restricted shelf**-water depths of 5-20m..
 - **Platform or bank margin**-water depths 0-50m.
 - **Slopal Facies**
 - **Foreslope**- water depths from about 50m to 1000m.
 - **Lower slope/basin margin**- water depths of 100's of meters to 1000'sm.
 - **Basinal Facies**-water depths of 100's to 1000'sm.