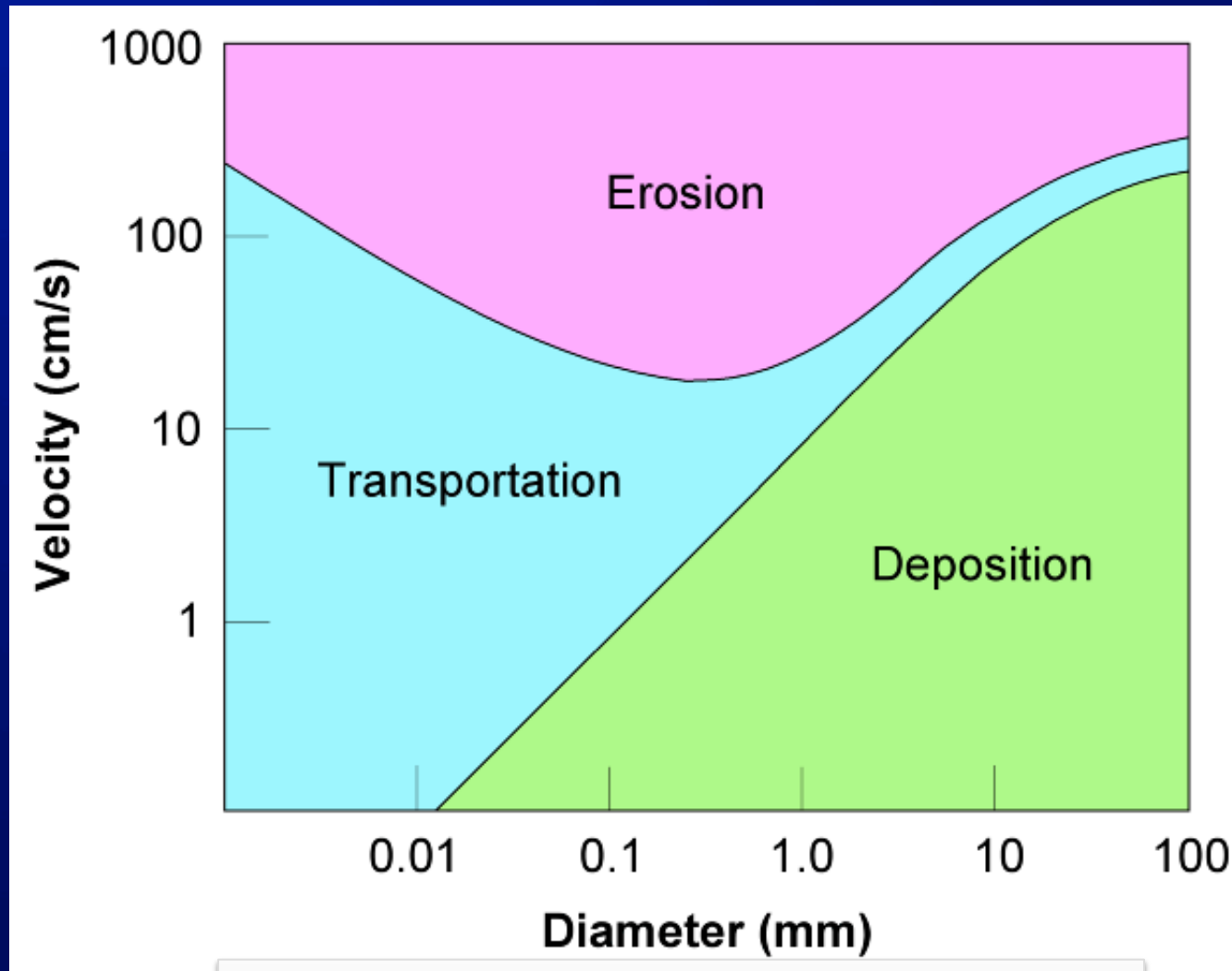
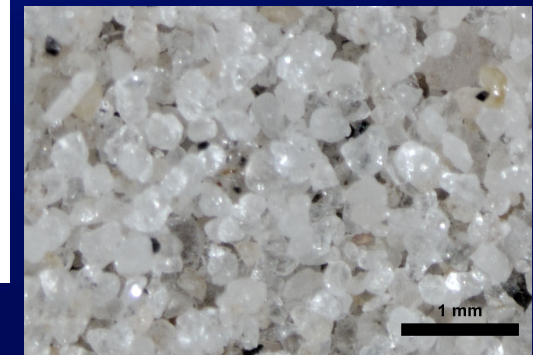


# The Hjulstrom Experiment and Diagram:

Velocity thresholds for *Erosion*, Transportation, Deposition



- Quartz spheres, free of organics
- **Sand is *THE MOST* ERODABLE** particle
- Relevant to beaches and dunes



CLAY – SILT – SAND – GRAVEL

# Vegetation Makes *All* the Difference



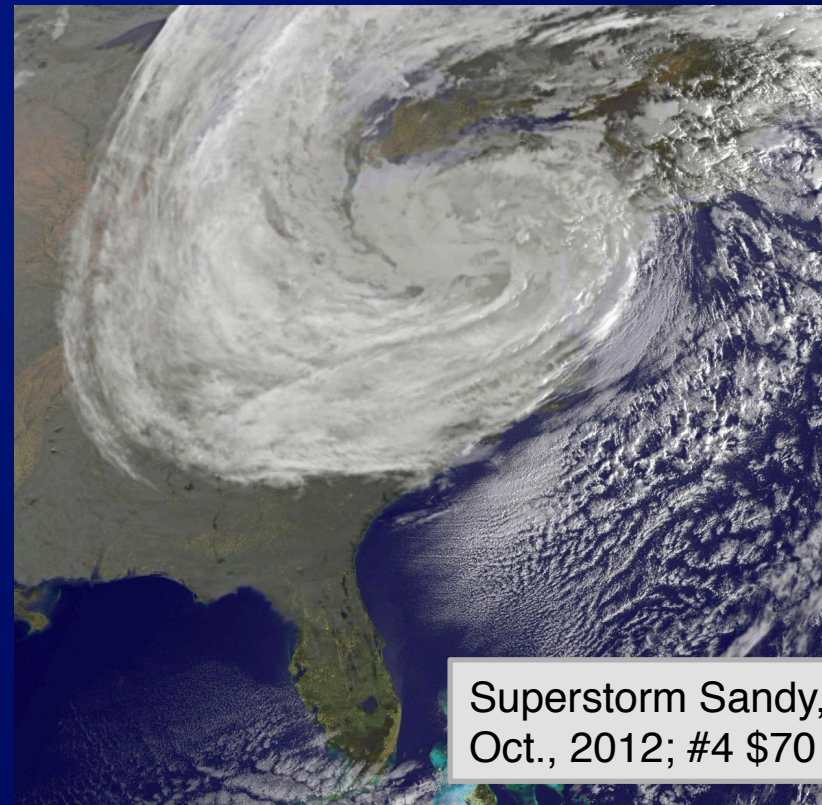
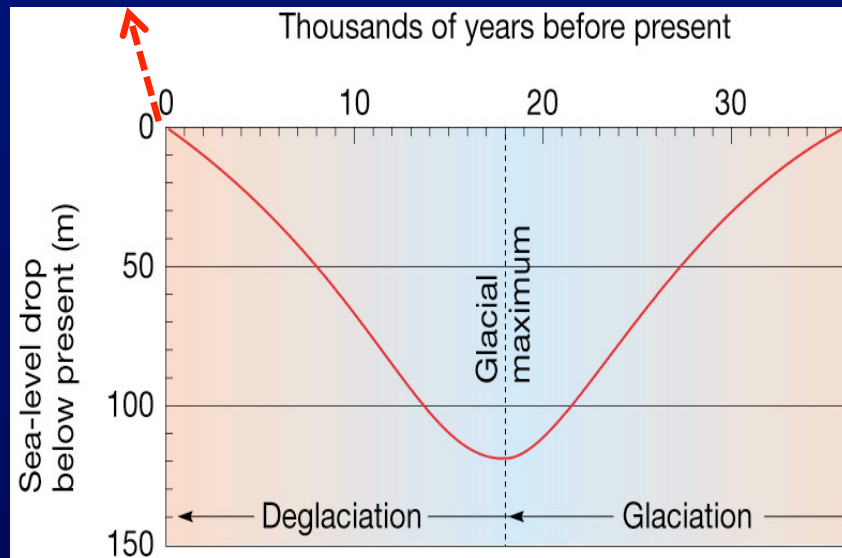


# Coastal Clustering is the Rule



40% of humanity lives within 100 kilometers (63 mi) of the sea – an area that accounts for only 20% of the total land area.

But BI's are particularly unstable – built of *mobile sand facing-off against a rising sea*



Superstorm Sandy, Oct., 2012; #4 \$70 bil

... and both *sea levels and storm intensity are on the rise*



## Geographic Contingency:

Summertime beach boomtowns of New Jersey established early; barrier islands close to cities are some of the most extensively developed, and also the most valuable...

### “Scenery for Sale”



- Densely populated, largely paved; *natural flexibility impossible* since closely-packed and very valuable real estate anchored in place
- Narrow, low-elevation; natural dunes gone

