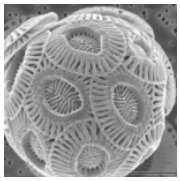
Exploring Marine Sediments at the OSU Marine and Geology Repository

Describing Sediment Cores

About the Sediment



Calcareous: Sediment or **sedimentary** rock formed from, or contains a high proportion of, calcium carbonate typically originating from shells from dead plankton, such as foraminifera and coccolithophores.

Ash Layer: An ash layer originates from volcanic explosions. Ash and other material from the volcano and are distributed in the marine realm by wind, streams, submarine gravity flows, ocean currents, and sea ice. Ash gets trapped between other layers of sediment that were deposited before and after the volcano erupted. This layer is usually very distinct in color (ranging from white and light pink to dark grey) and grain size. If transported long distance it will be fine-grained in contrast with coarser material above and below it.

Siliceous: Plankton such as diatoms and radiolarians produce shells made of silica, which when deposited on the seafloor form a siliceous ooze that ranges from white to grey/brown. You can tell it apart from calcareous ooze by looking at the types of shells under a microscope. Also carbonate shells will dissolve and bubble in the presence of weak acid, and siliceous sediment won't.

Red Clay: Red clay, also known as pelagic clay, accumulates in the deepest and most remote areas of the ocean. It originates from fine particles carried by wind far from land and in areas where there are very little plankton in the water. Other sediments aren't being deposited there, so there aren't any other sediment types in the core. Red clay covers 38% of the ocean floor and accumulates more slowly than any other sediment type. **,**

Metalliferous: These sediments tend to be found near mid-ocean ridges, where hot seawater moves through rocks extracting and concentrating metals in the hydrothermal fluid. The metal-rich fluids precipitate minerals that range in color from black to redish-brown. These deposits are often patchy – you'll see colors in only specific locations because the hydrothermal fluid discharge is highly localized and can turn on and off.

Turbidites: are sedimentary deposits consisting of material deposited by underwater avalanches that slide down the steep slopes of the continental shelf edge. As the sediment settles out, the coarse material falls out first, then the medium-sized material, then the fines (the smallest, finest grains) generating characteristic size sorted sequences that are easily identified in a core. Earthquake motion is a common mechanism that triggers underwater landslides and form turbidite deposits.

Ice Rafted Debris (IRD): is sediment of any grain size that has been transported by floating **ice** and released into the ocean. Embedded in the ice there is material from different rock types that vary in size, with some large pieces. When the ice melts after a certain amount of drifting, these objects are deposited on the seafloor in a big unorganized pile or as isolated boulders within finer sediment.

Coastal: You might see bits of plants at the top of the core, indicating that the core was taken at or near sea level. Along the Oregon coast we also often see evidence of tsunamis, which might show up as distinct layers of sand sandwiched between the estuarine mud, representing the power of the tsunami to carry and deposit coarse material downslope.