Ocean Features

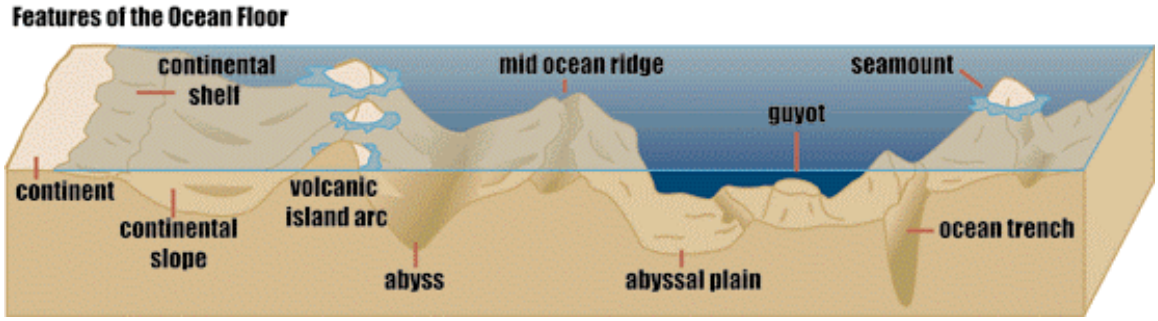

image from Museum of Science http://www.mos.org

Abyssal currents are the principal means by which cold, dense water, produced in high latitudes due to cooling by the atmosphere, flows to the equator.

Abyssal plains are flat or very gently sloping areas of the deep ocean basin floor. They are among the Earth's flattest and smoothest regions and the least explored. Abyssal plains cover approximately 40% of the ocean floor and reach depths between 2,200 and 5,500 m (7,200 and 18,000 ft). They generally lie between the foot of a continental rise and a mid-oceanic ridge.

Bathymetry: Bathymetry refers to the relief (the shapes) on the floor of the ocean. This includes the sea floor ridges, canyons, and abyssal plains that lie up to depths of five miles beneath the ocean surface. They yield different gravitational pulls on the ocean waters.

Contour Line: The contour line represented by the shoreline separates areas that have elevations above sea level from those that have elevations below sea level. We refer to contour lines in terms of their elevation above or below sea level.

Continental shelf is the extended perimeter of each continent and associated coastal plain, which is covered during interglacial periods such as the current epoch by relatively shallow seas (known as shelf seas) and gulfs. The shelf usually ends at a point of increasing slope (called the shelf break). The sea floor below the break is the continental slope. Below the slope is the continental rise, which finally merges into the deep ocean floor, the abyssal plain. The continental shelf and the slope are part of the continental margin.

Eddy is the swirling of a fluid and the reverse current created when the fluid flows past an obstacle. The moving fluid creates a space devoid of downstream-flowing water on the downstream side of the object. Fluid behind the obstacle flows into the void creating a swirl of fluid on each edge of the obstacle, followed by a short reverse flow of fluid behind the obstacle flowing upstream, toward the back of the obstacle. This phenomenon is most visible behind large emergent rocks in swift-flowing rivers.

Mid-Atlantic Ridge (MAR) is a mid-ocean ridge, a divergent tectonic plate boundary located along the floor of the Atlantic Ocean. It separates the Eurasian Plate and North

American Plate in the North Atlantic, and the African Plate from the South American Plate in the South Atlantic.

Mid-ocean ridge or mid-oceanic ridge is an underwater mountain range, typically having a valley known as a rift running along its axis, formed by plate tectonics. This type of oceanic ridge is characteristic of what is known as an oceanic spreading center. The mid-ocean ridges of the world are connected and form a single global mid-oceanic ridge system that is part of every ocean, making the mid-oceanic ridge system the longest mountain range in the world. The continuous mountain range is 65,000 km (40,400 mi) long and the total length of the system is 80,000 km (49,700 mi).

Oceanic basin may be anywhere on Earth that is covered by seawater, but geologically ocean basins are large geologic basins that are below sea level. Geologically, there are other undersea geomorphologic features such as the continental shelves, the deep ocean trenches, and the undersea mountain ranges (for example, the mid-Atlantic ridge) which are not considered to be part of the ocean basins; while hydrologically, oceanic basins include the flanking continental shelves and shallow, epeiric seas. An **epeiric sea** (also known as an **epicontinental sea**) is a large but shallow body of salt water that lies over a part of a continent.

Oceanic trenches are hemispheric-scale long but narrow topographic depressions of the sea floor. They are also the deepest parts of the ocean floor. Are natural boundaries on the Earth's solid surface, that between two lithospheric plates. Trenches are generally parallel to a volcanic island arc, and about 200 km from a volcanic arc. Oceanic trenches typically extend 3 to 4 km (1.9 to 2.5 mi) below the level of the surrounding oceanic floor. The deepest ocean depth to be sounded is in the Challenger Deep of the Mariana Trench at a depth of 10,911 m (35,798 ft) below sea level. Oceanic lithosphere disappears into trenches at a global rate of about a tenth of a square meter per second.

Seamount is a mountain rising from the ocean seafloor that does not reach to the water's surface (sea level), and thus is not an island. These are typically formed from extinct volcanoes, that rise abruptly and are usually found rising from a seafloor of 1,000 - 4,000 meters depth. They are defined by oceanographers as independent features that rise to at least 1,000 meters above the seafloor.

Thermocline is the transition layer between the mixed layer at the surface and the deep-water layer. The definitions of these layers are based on temperature. The mixed layer is near the surface where the temperature is roughly that of surface water. In the thermocline, the temperature decreases rapidly from the mixed layer temperature to the much colder deep-water temperature. The mixed layer and the deep-water layer are relatively uniform in temperature, while the thermocline represents the transition zone between the two.

Topographic Map Graphical portrayal of the topographic featured of a land area, showing both the horizontal distances between the features and their elevations above a given datum.

Topography The representation of a portion of the earth's surface showing natural and man-made features of a given locality such as rivers, streams, ditches, lakes, roads, buildings and most importantly, variations in ground elevations for the terrain of the area.

Volcanic arc is a chain of volcanic islands or mountains formed by plate tectonics as an oceanic tectonic plate subducts under another tectonic plate and produces magma. There are two types of volcanic arcs: oceanic arcs (commonly called island arcs, a type of archipelago) and continental arcs. In the former, oceanic crust subducts beneath other oceanic crust on an adjacent plate, while in the latter case the oceanic crust subducts beneath continental crust.