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Final Course Report.

Topic: Earth's Oceans and Features on the Ocean Floor (Self Understanding Summary)

Earth's Oceans and Features on the Ocean Floor (Summary)

The earth surface comprises of about 70% of water and which 99% of the water are ocean water, the world ocean is subdivided into five oceans, the Pacific Ocean is the biggest of all and the deepest, it account for more than half of the earth's ocean space, the Atlantic is the second biggest ocean with an "S" shape which is boarded by the African, North America, South America, and the Europe Continental plates, Indian Ocean is the third biggest ocean which is enclose by the Asia, African and Australia continental plate, in addition the northern pole ocean known as the Arctic Ocean is the shallowest of the world ocean and it is mostly of sea ice of few meters thick, and finally is the Southern Ocean Also called The Antarctic Ocean, this ocean comprise of the southern part of the Atlantic, Pacific and the Indian Ocean that are below the 50^0 S latitude.

The ocean water is salty of salinity approximately 35 ppt and from previous studied it shows that the ocean serve has a reservoir for many elements, molecules, compounds, and minerals, also it is a home for many lives ranges from bacteria to higher Animals, the ocean has shown significant contribution to life today and also has serve has a communities for different lives, as we have it in the hydrothermal system environment, Also while studying of the atmosphere it has shown the ocean has a great contribution on the behaviour of the atmosphere (Air-Sea interaction).

The ocean floor has been studied using different techniques and method base on scientists interest and some of which are the use of Acoustic (Sounding), Optical (Light), Magnetic, Seismic, Electrical Resistivity, Satellite, Submersible, Remotely Operated Vehicles (ROV), Autonomous Vehicles (AUV), drilling and other methods base on research interest. The ocean floor is made of different structures both active and passive, the ocean floor is a young plate of high density, the structure of the ocean floor are result of volcanic activities continuous happening on the ocean floor,

Mid-Oceanic Ridges (MOR) are chains of undersea volcanoes that connect the Atlantic, Pacific, and Indian sea-floor, ridges are mostly created at the MOR and are be destroyed at East Pacific Rise (EPR), the creation and destruction of this sea-floor is a theory that explain the movement of plate

(tectonic activities), the plate movement can be of different direction base on the source of it movement and in relative to the other plate movement also.

The three major plate tectonic are the convergence plate movement, which involved the moving of two plates towards each other, in this movement different things can happen as the plate move towards each other, we can have subduction, obduction, crushing of plate, formation of mountains, series of earthquake activities and other natural disasters, the other plate tectonic movement is the convergence plate movement, which is the moving away of two plate in respect to each other, when plate broke and move away from each other, rifts are formed and this is how the sea-floor are formed and lastly is the transform plate movement i.e. the sliding of two plates, this movement those not mostly cause no harms to nature but it still sometime triggers some low magnitudes of earth quake.

The volcanic activities at the MOR (Divergence) are the source of the formation of the ocean floor, in which new floor are created at point of eruption and later moved away from point of eruption to form the older see floor and are mostly Basalt, because the magma coming are from the mantle along this ridges are where we can find the Hydrothermal Vents and other active sea-floor erupting features. Also, away from the MOR is where we can find a plain undisturbed floor know has the Abyssal Plains.

Abyssal plains are most found immediately after the continental margin, in some active ocean floor like we have in the Pacific Ocean, the abyssal plain has been disturb by some hot spots found in the ocean floor, in which magma erupted to the sea-floor through this spot and as the plate moves on this spot the magma keeps erupting and this course series of chains of mountains on the sea floors know as abyssal hill or sea mounts an example of this is the Hawaii , sometimes the sea mounts can be so high that they are above the sea surface and this type of sea mount is called Island, Island are sometimes destroyed and washed away by sea water and when the surface of an island is washed away and it is below the ocean water for about 100 m, then it can be called a Guyot, towards the continent it is the continental margin, the continental margin can be an active continental margin as we have in mostly around Pacific ocean and the passive continental margin around the Atlantic ocean, the margin links the ocean floor to the continent, and the continental margin comprises of the continental shelf, slope and rise, at most active margin the rise is always not found but instead we have Trenches along there, Oceanic Trench are associated with subduction zone (Ocean crust destroyed), I.e. where there is convergence movement of plate, be it oceanic-oceanic plate of continent-oceanic plate movement and the trench is the deepest part of the ocean floor, Mariana trench is approximately 11000 m deep and areas where trenches dominated also are surrounded by volcanic

island arcs, with this features around the active Pacific ocean, then it can be concluded that the pacific ocean volcanic islands arcs are connected to the abundant trenches that surrounds it.

Also, on the other end on the continental margin, the submarine Canyons can be found, they are V-shaped valleys that cut across the continental shelves and slopes and it brings lot of sediments from the continent to the sea-floor, this sediment are settled at the continental rise, at the continental rise the ocean current is been slow down and the coarse, heavy particles are settle first and followed by the fine particles.

Other features we can found on the ocean floor are the Coral Reefs, the Coral Reefs are most of interest to the marine biology because it is a features on the sea-floor that give good environmental conditions for life, the Coral Reef can be Atolls, Fringing or Barrier Reefs, the different in this Coral reef are the geological features differences. Coral Reefs can be formed in the warm, shallow water area, where the sun light can be felt, this is so because the communities at the Coral reefs needed sunlight for the primary manufacturing of their food, The Atolls are reef found at the mouth of the destroyed inactive volcanic arcs, they are circular in shape and surrounded by deep ocean water, the Fringing reefs are mostly found directly to the shore and the Barriers reef are found on the barriers that are parallel to the shore, they are mostly formed by the movement of sediment carried by current.