

كلية العلوم

القسم : الفيزياء

السنة : الثانية



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المادة : لغة تخصصية ١

المحاضرة السابعة /نظري/

{{{ A to Z مكتبة }}}  
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## What are Earth's five main oceans ?

The continents are like huge islands surrounded by one vast , interconnected global ocean . Almost three fourths of earth is covered by ocean water . Earth's global ocean is divided into five main oceans . The largest is the Pacific ocean . It contains about half of earth's water . The Atlantic Ocean is next in size . It stretches in a north – south direction . The third – largest ocean , the Indian Ocean , is found in the southern Hemisphere . The Southern Ocean is located near Antarctica . The smallest ocean , the Arctic Ocean , is nearly covered by ice much of the year .

## What are some characteristics of ocean water ?

Ocean water has both chemical and physical properties . Its chemical characteristic include salinity , or the amount and type of dissolved

salts , and the amount and type of gases in the seawater . Its physical characteristics include temperature and density .

**Salinity** : On average , one kilogram of seawater contains about 35 g of dissolved salts . Thus , the overall salinity of seawater is about 3,5 percent . Dissolved salts come from different sources . Water flowing on or under Earth`s surface erodes rocks and carries calcium , magnesium , and sodium ions into the ocean . Underwater volcanoes and vents release solutions that are the source of chloride ions . Over time , the salinity of seawater has remained relatively steady . However , it does vary from place to place . The salinity of water near the ocean`s surface can be lower than average in areas where freshwater streams enter the ocean or where abundant precipitation falls into the ocean . Conversely ,

salinity can be higher than average in areas where rates of evaporation are high .

**Temperature :** Ocean water temperature varies by latitude , by depth , and by seasons . There are three distinct temperature layers by depths . the top layer , or surface zone , is the warmest layer . This layer is heated by the sun . The thermocline is the next zone . In the thermocline , water temperature drops with increased depth faster than it does in other layers . The deep zone is the deepest layer , and the coldest . By latitude , the warmest surface water is near the equator . The coldest is near the poles . But the surface zone is generally warmer than deeper water regardless of latitude . Surface water is warmest in summer and coldest in winter . Driven by winds and density differences , both surface currents and deep currents travel through the global ocean , distributing energy in the form of heat .

**Density** : Recall that density is a measure of the mass of a substances divided by its volume . The density of ocean water depends on temperature and salinity . Salt water is denser than fresh water because salt water contains a large amount of dissolved solids .

Temperature also affects water density . As liquid ocean water becomes colder , its molecule move around less and pack closer together . Thus , cold ocean water is denser than warm ocean water .

Temperature affects the density of ocean water more than salinity does . So the densest ocean water is found near the poles , where the ocean surface is coldest . In the global ocean , differences in density drive the circulation of deep ocean currents , which distribute energy in the form of heat throughout the ocean .



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