Glossary

anti-cyclonic sense of rotation around a centre of high pressure (clockwise in the northern hemisphere, anti-clockwise in the southern hemisphere); see also cyclonic

barrier layer the depth range between the bottom of the mixed layer and the seasonal thermocline

cast (also hydrographic cast or hydrographic station) the measurement of temperature, salinity and other properties using either a series of water sampling devices attached to a wire ("bottle cast") or a CTD mounted in a rack ("rosette") holding such devices ("CTD cast"), lowered into the ocean from a ship; also a set of data (usually depth, temperature, salinity, oxygen, and nutrients) collected in that way

convection vertical movement produced by increasing the density of a fluid at the upper surface of a volume or by decreasing the density at the bottom

convergence horizontal movement through a volume of fluid in which more fluid enters the volume than leaves it horizontally, resulting in vertical movement out of the volume

cyclonic sense of rotation around a centre of low pressure (anti-clockwise in the northern hemisphere, clockwise in the southern hemisphere); derived from the circulation around tropical cyclones

diapycnal directed across surfaces of constant density

divergence horizontal movement through a volume of fluid in which less fluid enters the volume than leaves it horizontally, resulting in vertical movement into the volume

downwelling downward vertical movement of water through the bottom of the surface layer produced by a convergence at the surface

eddy circulation system in which the water follows closed circular or elliptic paths; can be cyclonic or anti-cyclonic

entrainment movement of mass from one layer of a fluid into another layer without compensatory movement of fluid in the opposite direction

finestructure variability of a property in space on scales of a metre or less

haline related to salinity

halocline the layer where salinity changes most rapidly with depth

interleaving a process where fluid with given properties moves laterally into a region occupied by fluid with different properties; as a result, layers of the first type of fluid form within the second type of fluid

isobars contours of constant pressure

subpolar pertaining to the regions between the polar and temperate climate zones

subtropical pertaining to the regions under the influence of the Trade Winds

temperate pertaining to the regions under the influence of the Westerlies

thermal relating to temperature

thermocline the layer where temperature changes most rapidly with depth during summer (the seasonal thermocline); the depth range where temperature changes rapidly with depth throughout the year (the permanent or oceanic thermocline). Consult chapter 5 for a full explanation of terms

thermohaline relating to temperature and salinity

thermostad a layer where the vertical change of temperature is very small and displays a local minimum

tropical pertaining to the regions between the Trade Winds of the two hemispheres (the Doldrums)

upwelling upward vertical movement of water through the bottom of the surface layer produced by a divergence at the surface

water mass a body of water with a common formation history

water type a set of parameter values to describe water with the corresponding properties

subduction sinking of water through movement on inclined isopycnal surfaces

source water type a set of parameter values to describe the properties of a newly formed water mass

tracers a common name for properties which do not affect the density of seawater and therefore have no impact on water movement but can be used to indicate water movement; in addition to the classical tracers (oxygen and nutrients) oceanography now uses tracers introduced or enriched by human activity such as carbon, cesium, the chlorofluorocarbons (CFCs or freons), plutonium, strontium, tritium, and others

tritium radioactive isotope of hydrogen with mass number 3; naturally found in seawater at low concentration levels, during the last decades found at elevated concentration levels as a result of fallout from atmospheric bomb testing

zonal in the direction parallel to the equator, i.e. east-west