Introduction to physical oceanography

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Abstract
"This textbook covers physical-oceanographic processes, theories, data, and measurements, targeted at upper-division undergraduates and graduate students in oceanography, meteorology, and ocean engineering. In addition to the classical topics, the author includes discussions of heat fluxes, the role of the ocean in climate, the deep circulation, equatorial processes including El Nino, databases used by oceanographers, the role of satellites and data from space, ship-based measurements, and the importance of vorticity in understanding oceanic flows. Students should have studied differential equations and introductory college physics, although math is de-emphasized."--Open Textbook Library.

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Subject
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Department
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1) Variations in ocean density with depth (i.e. ocean vertical stratification) in many parts of ocean are predominantly controlled by temp. (not salinity). 2) Usually there is a layer of relatively uniform temperature near ocean surface -so-called mixed layer. Depth - typical from 20m to 100m, but can go to ~1000m in high latitudes. 3) In tropics and mid-latitudes warm surface waters and colder deep waters are separated by a layer with rapidly changing temps (large dT/dz) -thermocline. There are two types of thermocline - seasonal and permanent (or main).

Introduction to Physical Oceanography

1. Introduction To Physical Oceanography
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2. Contents
Preface

1. A Voyage of Discovery

1.1 Physics of the ocean

This textbook covers physical-oceanographic processes, theories, data, and measurements, targeted at upper-division undergraduates and graduate students in oceanography, meteorology, and ocean engineering. In addition to the classical topics, the author includes discussions of heat fluxes, the role of the ocean in climate, the deep circulation, equatorial processes including El Nino, data bases used by oceanographers, the role of satellites and data from space, ship-based measurements, and the importance of vorticity in understanding oceanic flows.

Introduction To Physical Oceanography. Book · January 2008 with 957 Reads. How we measure ‘reads’. These physical mechanisms were essential in bringing nutrients to the surface and then transporting planktonic organisms from the oceanic zone to Patagonian fjords and channels. In the zonal band between 41 and 43° S, the latitude of Chiloé Island, upward Ekman pumping and Ekman transport during spring and summer favored a reduced sea surface temperature and increased chlorophyll a (Chl a) levels; this is the first time that such Ekman upwelling conditions have been reported so far south in the eastern Pacific Ocean. “Physical oceanography” encompasses a broad range of subjects, from heat transfer to sound and optics. Knauss brings all these disparate fields together in this comprehensive text.