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# Battle Space on Demand: Our Approach to Educating Our Masters and Doctors Students

Monterey, California: Naval Postgraduate School.

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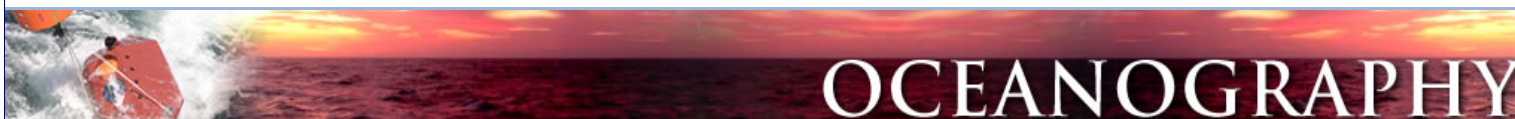
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## Oceanography

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### Battle Space on Demand: Our Approach to Educating Our Masters and Doctors Students

Educating our METOC and Physical Oceanography masters and doctoral students is the most important activity of the department. Our education mission is to provide a sound understanding of the science of physical oceanography and to develop the technical expertise to provide and use oceanographic and acoustic data and models in support of all aspects of sea operations and undersea warfare. Our central focus is equipping our students to perform well as technical leaders in the world they will face after graduation.



*Welcome to the Department of Oceanography. Our mission of research and education is fueled by the intellectual vitality and contributions of our faculty. Our high quality instruction and viable research program (~ 18 million in FY12) will prepare our students on Decision Superiority through Battlespace on Demand.*

**Peter C. Chu, OC Chair**

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Since its inception in 1968, the NPS Oceanography Department faculty has developed internationally recognized research and education programs focused on pushing forward the frontiers of physical oceanography while at the same time meeting the future needs of the Navy. These synergistic goals work to the benefit of the scientific as well as warfighting communities.

Our recognized research programs are predominantly Navy (ONR 6.1 and 6.2, N45, NAV0) and NSF-funded with strong Naval relevance. This provides a cutting edge environment for thesis research. It also provides emphasis on vertical integration from basic research, to observational analysis, modeling and transitioning to operational Navy applications.

Our education mission is to provide a sound understanding of the science of physical oceanography and to develop the technical expertise to provide and use oceanographic and acoustic data and models in support of all aspects of sea operations and undersea warfare. Our graduate students are contributing partners in our research program and participate in research cruises, present scientific papers at conferences and coauthor journal articles and reports.

Our research mission applies the science of physical oceanography to Naval operations. Our areas of expertise include global and littoral/regional numerical prediction including the increasingly critical polar regions, nearshore oceanography and their impact on mine-counter-measures and amphibious warfare, littoral/coastal oceanography including the impact of littoral processes, eddies and boundary currents on ocean surveillance systems, and acoustical oceanography with an anti-submarine warfare focus.

For more information, please see the brief description of the areas of expertise below, the research pages on this site for more areas of interest and more details on the myriad of projects going on in the Oceanography Department. Also take a virtual visit to the extensive observational network NPS is pleased to be running. The data recorded is fed into NPS and other government research programs and is available on a limited basis to external partners.

#### Brief description of areas of expertise

The numerical prediction group has helped to develop the best global and regional models that are available anywhere; and group members evaluate and improve their physical realism for the Navy forecasting challenge, particularly in the areas of regional oceanography and global circulation and structure of the oceans.

The increasingly critical polar regions are being addressed with participation in numerous field programs in the Arctic and Antarctic involving ice camps and ice breakers and the development of numerical models to simulate the motion of sea ice and ocean currents at high spatial resolution. Recent modeling results have illustrated the decreasing trend of sea ice cover in the Arctic region and its projected future reduction which has direct implications for the global thermohaline circulation and the U.S. Navy.

The littoral/coastal oceanography group has specific expertise in the area of coastal ocean circulation that derives from unique instrumentation and modeling capabilities. The direct measurements of coastal currents provide needed input to simulate and predict the 4-D environment in the coastal ocean.

Nearshore oceanography research is focused on field measurements of waves, surf zone currents, bottom morphology and sediment properties. The group has unique field capabilities and a rigorous program of analysis and modeling of nearshore processes. The research is highly relevant to the Navy problems of Special Force operations, amphibious landings, and mine-counter-measures.

Acoustical oceanography thrusts include the quantification of the physics, coherence, variability and predictability of sound propagation in littoral

regions (e.g., South China and Philippine Seas) and the development and applications of acoustical remote sensing techniques to monitor the ocean's physical properties and marine mammal activities.

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