Workshop
Oceanographic Observation
& Monitoring Systems

Universidad Austral de Chile
Conocimiento y Naturaleza

IDEAL
Centro de Investigación
Dinámica de Ecosistemas Marinos
de Altas Latitudes

Universidad de Valparaíso
CHILE

EXPO 2018 NAVAL

COMITÉ OCEANOGRÁFICO NACIONAL - CHILE
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Workshop and mini courses: Oceanographic observation and monitoring systems
Valparaiso 3-6 December 2018

LECTURER

Dr. Francisco Javier Ocampo Torres, Centro de Investigación Científica y de Educación Superior de Ensenada. Mexico.
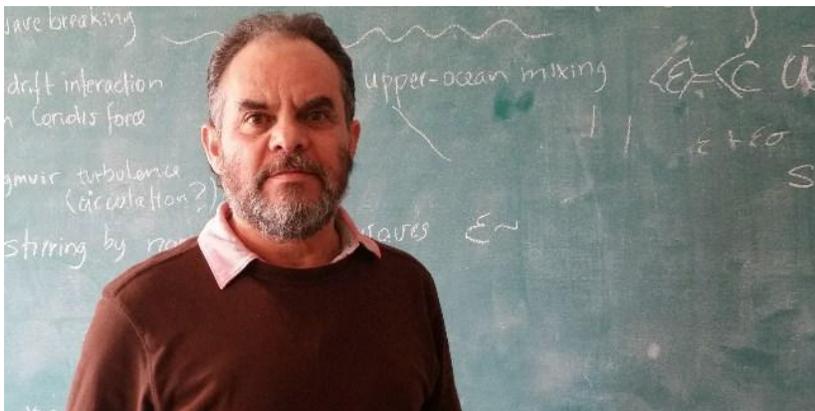
Course: The use of land based HF radars to measure tides, surface currents and waves in coastal areas.

Short bio: Francisco J. Ocampo Torres, Oceanógrafo e investigador científico con interés en la dinámica del oleaje y la conversión de su energía, y de los procesos de interacción entre el océano y la atmósfera en los que el oleaje juega un papel primordial.
 Obtuvo el Dr. (PhD) en 1989 en el Departamento de Oceanografía de la Universidad de Southampton, del Reino Unido. Desarrolla investigación para mejorar nuestro entendimiento de aspectos fundamentales del oleaje, mismos que afectan a los procesos de interacción entre el océano y la atmósfera.
Aborda el problema utilizando observaciones directas y con sensores remotos, y la simulación numérica para la incorporación del efecto asociado con la interacción entre el oleaje y las corrientes.

Curso se realizará en español, como prerrequisito se requiere conocimiento de MATLAB.

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LECTURER

Dr. Wilhelm Petersen, Coastal Research Institute Helmholtz-Zentrum Geesthacht. Germany.

Course: Ferries as platforms to set up autonomous laboratories, the experience of FerryBox.

Short bio: Dr. Wilhelm Petersen is head of the department "In-situ Measuring Systems" at the Coastal Research Institute Helmholtz-Zentrum Geesthacht (HZG, www.hzg.de) and is in charge of the FerryBox activities within the coastal observatory COSYNA (www.cosyna.de) in the North Sea. He got his Ph.D. in Natural Sciences, Analytical Chemistry at the University in Hamburg. Since 1986 he is a senior scientist at HZG. In the nineties, he worked in environmental science and was involved in the investigation of exchange processes of trace elements at the sediment-water interface and the development of analytical methods and instruments for the detection of aquatic substances. Furthermore, he worked on statistical analysis of long-term time series of water and the development of automated and remote-controlled measuring systems for the determination of environmental parameters and contaminants in coastal waters.

Since 15 years, he is involved in the development and operation of FerryBox systems and new biogeochemical instruments (e.g. pH, alkalinity, nutrients, algal group detection etc.). Over the years, he participated in several European marine projects. His current area of research covers the investigations on the behavior of phytoplankton in the marine environment and the studies of biogeochemical processes with focus on the carbon cycle.

Wilhelm Petersen is active in the European FerryBox community and leads the FerryBox Task Team (www.ferrybox.org) within EuroGOOS. Within the European FerryBox community, he is also responsible for the European FerryBox database (http://ferrydata.hzg.de) which is hosted by HZG.

Course will be held in English, no prerequisite is needed.

Dr. Josh Kohut, Department of Marine and Coastal Sciences, Rutgers University. USA.

Course: Gliders to measure water column properties in complex environments

Short bio: Physical processes in the coastal ocean are highly variable in space and time and play a critical role in coupled biological and chemical processes. From events lasting several hours to days on through inter-annual and decadal scales, the variability in the fluid itself structures marine ecological systems. Dr. Kohut's approach is to apply ocean observing technologies that now sample across these important time and space scales to better understand the physical ocean that structures marine ecosystems. Consequently, this new knowledge has relevancy to broader stakeholder communities with interests in the coastal ocean. Working through partnerships across these stakeholder groups, his research is collaborative and supports both science and its application. Through these partnerships, he is able to frame relevant scientific hypotheses and efficiently translate the output to better management and monitoring.

Growing up in New Jersey, his interest in the physics of the ocean began along the shores of Barnegat Bay. After receiving his Bachelor's degree in Physics at the College of Charleston in Charleston, SC, he returned to New Jersey and began his research career at Rutgers. Now he looks forward to addressing new science and, working through partnerships, translating that science into applications that benefit the many stakeholders with interests in the coastal ocean.

Course will be held in English, prerequisite: basic knowledge of MATLAB.

LECTURER

Dr. Maxime Geoffroy, Centre for Fisheries Ecosystems Research Marine Institute of Memorial University of Newfoundland, Canada.

Course: Echosounders as non-intrusive observations of the pelagic.

Short bio: Dr. Maxime Geoffroy is a research scientist at the Fisheries and Marine Institute of Memorial University in St. John's, Canada. His research aims at better understanding the ecology of North Atlantic and Arctic pelagic fish in relation to hydrography and climate change using bioacoustic tools. In addition to ship-based surveys, he uses new technology, as unmanned vehicles and active acoustic moorings, to study marine ecosystems.

Active bioacoustic tools use sound waves to detect marine and freshwater organisms. This technology is widely used to study the distribution and abundance of pelagic fish and zooplankton. The course focuses on 1) understanding the basic theory behind the detection of marine organisms with sound; 2) processing and interpreting multi-frequency echograms from example datasets; and 3) discriminating, exporting and plotting the backscatter from nekton and zooplankton. The course will be highly interactive and will combine lectures and hands-on exercises.

Course will be held in English, prerequisite: basic knowledge of R.

Dra. Andrea Piñones, Universidad Austral de Chile, Centro Fondap IDEAL, Copas Sur Austral.

Course: Sensors on marine mammals I. (Marine mammals as Gliders)

Short bio: Andrea is an oceanographer interested in understanding, describing and modeling physical and biological interactions in high latitude marine ecosystems. She is been studying the role of ocean dynamics in the transport, pathways and connectivity of marine organisms at different spatial and temporal scales, using numerical modelling as a tool. Her research interests also focus in individual based models and their coupling with ocean circulation models.

She received her PhD from Old Dominion University in 2011, and afterward was involved in a project that focused in understanding the hydrographic conditions of Antarctic coastal waters, in regions where traditional sampling methods are not able to measure. This involved tagging marine mammals to sample ocean conditions along the inner-shelf of the Ross. The study observed and described the seasonal transition of the erosion of water column stratification from summer to winter and described the main physical forcings playing a role in the dynamics of Antarctic coastal waters.

Curso se realizará en español, como prerrequisito se requiere conocimiento básico de MATLAB.

Dr. (c) Luis Bedriñana-Romano, Universidad Austral de Chile.

Course: Sensors on marine mammals II. (Analysis of habitat selection by large mammals).

Short bio: Dr(c) Luis Bedriñana-Romano is a PhD student at Instituto de Ciencias Marinas y Limnológicas, Universidad Austral de Chile. His current research interests are habitat selection drivers. For this, he is currently combining species distribution models, movement models and theoretical simulations to gain a deeper insight into this ecological process.

Curso se realizará en español, como prerrequisito se requiere conocimiento básico de R.