PICES 2022 AP-CREAMS ONLINE SUMMER SCHOOL
Ocean Turbulence: From Observing to Research

DATES: August 22-26, 2022

PRINCIPAL ORGANIZER: Fei Yu, Institute of Oceanology, CAS, yuf@qdio.ac.cn

Summer School Convener:
Dr. Fei Yu (Institute of Oceanology, CAS, yuf@qdio.ac.cn);
Dr. Xinyuan Diao (Institute of Oceanology, CAS, diaoxinyuan@qdio.ac.cn);
Mr. Jianming Ren   (Institute of Oceanology, CAS, rjm@qdio.ac.cn);

The summer school is also supported by the Marine Observation Branch of CHINESE SOCIETY FOR OCEANOLOGY AND LIMNOLOGY(CSOL）

The organizers will accept applications until the summer school is full. Participants will be notified as soon as possible following the applicant review process.

Application Procedure
Please forward your CV and Letter of Motivation to Dr Jianfeng Wang (Institute of Oceanology, CAS, jfwang2013@qdio.ac.cn)

SYNOPSIS/SCHOOL OBJECTIVES:
The study of ocean turbulence and mixing has been increased largely in the past decades, especially in the field direct measurements. Modern fast response, high-resolution shear and temperature sensors allow directly estimate of diffusivities and associated irreversible mixing. In this summer school, recent progress on ocean turbulence mixing will be reported and discussed.

    By the influence by COVID-19, the international travel is inconvenient in 2022. A 5-day summer school on "*Ocean Turbulence: From Observing to Research*" will be carried out online which consist of classroom lectures, interactive discussion. The introduction of ocean turbulence, ocean turbulence measuring method, ocean turbulence measuring instruments and data processing technique will be presented in the summer school which is intended to help graduate students and early-career scientists understand and analysis the data of ocean turbulence. *The official language of the school is English.

PROPOSED INSTRUCTORS/LECTURERS:
Dr. Fabian Wolf (Rockland Scientific International Inc, Canada; fabian@rocklandscientific.com);
Dr. Hidekatsu Yamazaki (Tokyo University of Marine Science and Technology, hide@kaiyodai.ac.jp);
Dr. Jae-Hak Lee (Korea Institute of Ocean Science and Technology (KIOST), jhlee@kiost.ac.kr）;
Dr. Wei Hao (Tianjin University, China, weihao@ouc.edu.cn);
Dr. Xiaodong Shang (South China Sea Institute of Oceanology, CAS, xdshang@scsio.ac.cn);
Dr. Fei Yu (Institute of Oceanology, CAS, yuf@qdio.ac.cn);
Dr. Chuanjie Wei (Institute of Oceanology, CAS, weicj@qdio.ac.cn)
Dr. Jianfeng Wang(Institute of Oceanology, CAS, jfwang2013@qdio.ac.cn)

Lecture Schedules:
1st Day
Lecture1: The Theory of Turbulence
Lecture 2: Introduction and Understanding Turbulence in the Ocean
Lecture 3: Introduction of Ocean Turbulence Measuring Techniques
Lecture 4: Introduction of Ocean Turbulence Measuring Instruments
2nd Day
Lecture 1: Introduction to VMP Probes and sensors (FP07, Shear probes,SBE7 microC)
Lecture 2: VMP Pre-deployment Checks (review pre-cruise checks and pre-deployment checks)
Lecture 3: VMP Deployment Techniques (coiling on surface of cable/tether, good/bad vehicle kinematics, time of flight calculations, recommendations for near bottom sampling)
Interactive Activity:
3rd Day

Lecture 1: VMP Maintenance (Critical Annual Maintenance routines for all VMPs and MicroRiders)
Lecture 2: Basic VMP Troubleshooting Techniques (common Instrument Communication issues, identifying broken probes, electronic and mechanical noise, tips and tricks)
Interactive Activity:
4th Day
Lecture 1: The shear probe and the spectrum of turbulent shear
Lecture 2: Long term observations of ocean mixing from a cabled observatory: mixing processes and planktonic ecosystem
Lecture 3: Dataset processing& Presentation preparation
Interactive Activity:
5th Day
Lecture 1: Turbulence in bottom boundary layer of shelf seas
Lecture 2: Assessment of fine scale parameterizations at low latitudes of the North Pacific
Issue Talk: Experience exchange about the coastal survey scientific
6th Day
Discussion Section Between Teachers and Students