

CNRS Summer School on

Active transport in the Ocean: Turbulence, Chemistry and Biology

Wimereux, France; 2 - 6 July 2018

Context & Scope:

The spatio-temporal variability of chemical substances and microorganisms in the ocean is the result of the combined action of the turbulent dynamics of the carrying fluid flow and of a variety of processes taking place at submillimetric scales. One can think for instance of molecular diffusion, chemical reactions or the feeding and mating of microorganisms. Recent technological advancements on biogeochemical probes allow access to highly-resolved field measurements and makes oceanic active/reactive transport studies a fast developing domain. In this context there is a need for the development of theoretical and numerical modeling of the ocean biogeochemical variability at the smallest spatial and temporal scales.

The aim of the present school is to offer an overview of the rich phenomenology of active transport and mixing in the ocean and at the same time to present the modeling tools that are currently in use, or can be adopted, to better understand biogeochemical dynamics. The one-week program is built around mini-courses (4:30 hours) and extended seminars (1:30 hours) delivered by specialists in the field. The lectures are intended to be pedagogical but will also give perspectives on open problems and present research challenges.

The school will focus on the three following main topics:

1. Ocean turbulence: theory, modeling, experiments
2. Ocean biogeochemistry: phenomenology and experiments
3. Modeling complex flow systems from chemistry to microorganism population dynamics: theory and numerical approaches.

Location:

The school will take place in the enchanting marine environment of the Côte d'Opale in Wimereux, France, in the facilities of the Laboratory of Oceanology and Geosciences (LOG- CNRS) located just few meters from the shore of the Eastern English Channel.

Full fee: 500 (researchers, post-doc) and 300 (PhD) euros. The course fee includes: lodging, lecture notes, conference proceedings, coffee breaks, and conference dinner. Payment must be received by June 1st, 2018.

Keynote speakers (* = to be confirmed):

- E. Hernandez Garcia (CSIC, Spain)
- J. R. Taylor (Univ. Cambridge, UK)
- P. Franks (UC San Diego, USA)
- C. Jeandel (CNRS, Toulouse, France)
- G. Lapeyre (CNRS, Paris, France)
- J. Huisman (Univ. Amsterdam, NL)*
- F. Toschi (TU Eindhoven, NL)*
- F. De Lillo (Torino Univ., Italy)
- F. Peters (ICM, Barcelona, Spain)
- Y. Cuypers (Univ. Paris 6, France)*

The junior participants will have the opportunity to give short presentations about their work (15 minutes) or to present a poster.

The Summer School is organized by:

- François G. Schmitt, CNRS Research professor, Director of Laboratory of Oceanology and Geosciences, France
- Stefano Berti, Associate professor, University of Lille, Laboratory of Mechanics of Lille, France
- Enrico Calzavarini, Associate professor, University of Lille, Laboratory of Mechanics of Lille, France

Registration:

Applicant should send an email to the organizers (active.transport@gmail.com) before May 1th, 2018. This should include a short CV (2 pages maximum), a letter specifying the interest/motivation to attend the Summer School and providing a brief (10-line) description of the applicant's PhD or Post-doctoral project, a motivation for partial financial support to cover travel costs, a letter of recommendation of their supervisor, and administrative details (including billing address).

The selection of up to 50 participants will be made by the organizing committee and the scientific advisory committee.

Notification of admittance will be sent by email before May 15th, 2018.