



Summer School in

New challenges for research in biodiversity and ecology of micro- and macro-algae

Dates: 27/11 to 06/12/2015

Place: Estación Costera de Investigaciones Marinas (ECIM), Las Cruces, Chile

PROGRAM

Algal biodiversity

- Introduction to algal diversity (definition of different concepts of biodiversity) - Christophe Destombe (U. Paris 6)
- Microphytoplankton diversity in Chilean waters - Catharina Alves (U. Federal de Rio)
- Antarctic phytoplankton diversity from metabarcoding plastid 16S gene - Nicole Trefault (U. Desarrollo)
- World distribution of genetic diversity of radiolarian algal symbionts - Fabrice Not (CNRS)
- Macroalgae DNA barcoding, diversity and phylogeny - Marie Laure Guillemin (U. Austral)
- The problem of cryptic species and possibility of interspecific hybridization in macroalgae - Christophe Destombe
- Comparative phylogeography of Chilean macroalgae - Sylvain Faugeron (U. Catolica de Chile) and Marie Laure Guillemin

Community ecology, Population genetics and metagenomics

- Introduction to community ecology - Evie Wieters (U. Catolica de Chile)
- Introduction to population genetics - Christophe Destombe and Marie-Laure Guillemin
- Theory and application of network analyses to community ecology, population genetics and to metagenomics - Sophie Arnaud (IFREMER)
- Are patterns of species and genetic diversity correlated? The example of kelps forests along Brittany coastline - Myriam Valero (CNRS)
- Population genetics analyses in dinoflagellates - Christophe Destombe and Myriam Valero
- Genome variability in *Ostreococcus* - Gwenael Piganeau (CNRS)

- Metagenomes of microalgae and functional diversity from Antarctic waters - Nicole Trefault

Response to a changing world - Interactions

- Introduction to the study of physiological responses to a changing world - Loretto Contreras (U Andres Bello)
- Introduction to the study of biotic interactions in a changing world - Fabrice Not
- Parasites of phytoplankton : specific and a-specific interactions - Catharina Alves and Gwanael Pignaneau
- Interactions in Open ocean symbioses - Fabrice Not
- Responses to temperature changes in macroalgae - Loretto Contreras and Myriam Valero

Tutorials

- Sampling and isolation of phytoplankton - Fabrice Not
- Sampling, isolation and identification of macroalgae – Andres Mansilla (U Magallanes)
- Phytoplankton parasite isolation - Catharina Alves
- Processing of metabarcodes sequence data - Nicole Trefault
- Genome analysis - Gwenael Pignaneau
- Seaweed DNA barcoding analysis –Marie-laure Guillemin
- Phylogeography analyses – Sylvain Faugeron
- Population genetic analyses – Christophe Destombe and Myriam Valero
- Network analyses of genetic data – Sophie Arnaud

Target Students:

Master and early PhD students interested in developing their thesis in collaboration between France, Chile and/or Brazil. The summer school is organized by the international network GDR Diversity, Biotechnology and Evolution of Marine Algae, integrating researchers in phycology, evolutionary biology and ecology, and molecular biology of marine algae from France, Chile and Brazil. Selected students will be motivated by integrative and/or comparative research in the framework of this international collaboration.

How to apply:

Send the Application Form ([downloadable here^{\[1\]}](#)) to Sylvain Faugeron (sfaugeron@bio.puc.cl) and/or to Myriam Valero (valero@sb-roscoff.fr), by the 10th of September 2015.

Costs/Fees:

The summer school is free of charge. Students will be hosted in or nearby the marine station ECIM with full support for lodging and meals. Travel costs will be supported for abroad students whenever they have no alternative funding.

Teaching team:



Catharina Alves de Souza
National Museum
U. Federal de Rio de Janeiro
Phytoplankton diversity



Sophie Arnaud-Haond
UMR Marine Biodiversity, Exploitation and Conservation
IFREMER
Evolutionary ecology and adaptation



Loretto Contreras
Department of Ecology and Biodiversity
U. Andres Bello
Algal responses to stress using “omics” and cellular biochemistry approaches



Christophe Destombe

UMI Evolutionary Biology and Ecology of Algae

U. Pierre et Marie Curie

Reproductive ecology of algae, mating system evolution, speciation in algae



Sylvain Faugeron

UMI Evolutionary Biology and Ecology of Algae

U. Catolica de Chile

Evolutionary ecology, phylogeography, adaptation



Marie-Laure Guillemin

UMI Evolutionary Biology and Ecology of Algae

U. Austral de Chile

Evolutionary biology, speciation and classification of algal species, life cycle evolution



Andres Mansilla

Instuto de la Patagonia

U. Magallanes

Taxonomy, ecophysiology, biogeography of algae



Fabrice Not

Team Oceanic Plankton

UMR Adaptation and Diversity in the Marine Environment

CNRS

Micro- and macroevolutionary processes between marine viruses and their planktonic hosts



Gwenael Piganeau

Team Evolutionary and Environmental Genomics of Phytoplankton

UMR Integrative Biology of Marine Organisms

CNRS

Evolutionary and Environmental Genomics of Prasinophytes



Nicole Trefault

Centro de Genómica y Bioinformática

U. Mayor

Metagenomics and functional diversity of phytoplankton



Myriam Valero

UMI Evolutionary Biology and Ecology of Algae

CNRS

Evolutionary biology of algae, life cycle evolution, population genetics