EPFL

Master or SIE Project, Fall 2020	Start:	14/09/2020
30 ECTS if Master project, 4 ECTS if SIE project	End:	18/12/2020 (approx.)
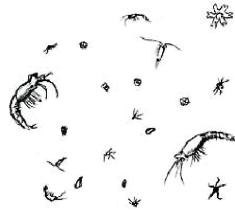
Title	**Zooplankton Diel Vertical Migration in Lake Léman**
Supervisors	Dr. Camille Minaudo and Dr. Hugo Ulloa
Objective	Understand, characterize and model zooplankton diel vertical migration in lake Léman

Abstract

During the day, zooplankton colonies in lakes and oceans hide below a certain level of light to avoid being predated. As the night comes, they swim upwards near the surface where more phytoplankton is available, on which they can feed. This cycle is known as the Diel Vertical Migration (DVM) of zooplankton. Recent high-resolution data acquired in Lake Léman evidenced this major process. Based on data-analysis and numerical modelling, you will characterize the spatio-temporal variability of this process, and help us improve our understanding of its interplay with hydrodynamic processes.

Tasks

1. Analyze high-resolution data collected from the research LéXPLORE platform in Lake Geneva to characterize the magnitude and intensity of zoo-DVM

2. Use and improve an existing 1D numerical model to represent zoo-DVM and test several hypothesis on its interaction with the lake hydrodynamic

Learning outcomes

- Development of practical data processing skills using open-source languages
- Development of academic and technical writing skills
- Development of aquatic systems understanding, from data collection to scientific report results
- A vibrant experience in an active research team in aquatic sciences
- The possibility to join fieldwork campaigns on Lake Léman

Required skills

- Interest for understanding the functioning of lake ecosystems
- Good knowledge of Matlab and/or R and/or Python
- Sense of curiosity to raise pertinent scientific questions and try to answer them with data analysis or numerical tools

Contacts camille.minaudo@epfl.ch and hugo.ulloa@epfl.ch