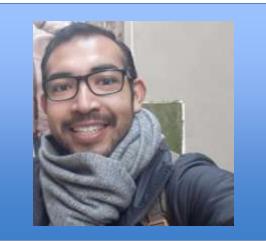
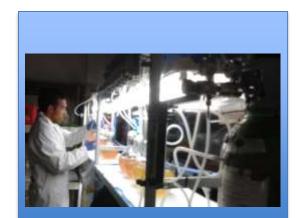


Orientation: Ocean Observation and Global Change Specialization Area: Ocean Observation Research Area: 1.4 Biological Oceanography







PhD project: Effect of ocean acidification in phytoplankton pigments

Supervisors: Dra. Cristina Sobrino (Universidade de Vigo) Dr. José Luis Garrido (Instituto de Investigaciones Marinas (IIM-CSIC)

Summary: The oceans play a major role as a sink for up to 26% of the anthropogenic CO₂ produced by emission from fossil-fuel burning, cement production, deforestation and other land-use changes. Despite the considerable contribution of marine phytoplankton to global climate and biogeochemical cycles, many aspects of their physiology and ecology in future global change-ocean biology relationships are poorly understood. Most marine phytoplankton species have active Carbon Concentrating Mechanisms (CCMs) under present CO₂ concentrations. But down-regulation of CCMs activity is expected for high CO₂ levels predicted for future climate scenarios compared to present conditions. Among them, a downregulation of enzymatic activity and production of different cellular metabolites, including chlorophyll a, has been observed in high CO₂ cultures under stable conditions. However, the extent of how phytoplankton metabolism regulation under high CO₂ conditions affects pigment pools and patterns is unknow. This study will show the effect of atmospheric CO₂ increase on pigment concentration of important marine primary producers.