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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**

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**Summary:** The oceans play a major role as a sink for up to 26% of the anthropogenic $CO_2$ 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 $CO_2$ concentrations. But down-regulation of CCMs activity is expected for high $CO_2$ 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 $CO_2$ cultures under stable conditions. However, the extent of how phytoplankton metabolism regulation under high $CO_2$ conditions affects pigment pools and patterns is unknow. This study will show the effect of atmospheric $CO_2$ increase on pigment concentration of important marine primary producers.