

Oral Presentation: Brazilian Ocean Acidification Research (BROA)

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The increase in atmospheric carbon dioxide concentrations caused mainly by fossil fuel combustion is changing ocean carbonate chemistry equilibrium and decreasing seawater pH. On continental margins these changes are less clear, mainly due to *i*) the extreme heterogeneity among coastal ecosystems, *ii*) the fact that carbonate chemistry is strongly regulated by riverine and open ocean delivery of nutrients and biological processes in these areas, *iii*) natural variation of pH in these areas at daily and/or seasonal time scales, and *iv*) lack of observations and the inadequacy of global biogeochemistry models in resolving these areas, especially in tropical and subtropical regions.

Brazil has a vast coastline facing the south-western Atlantic Ocean, with a large diversity of coastal, continental margin and open ocean ecosystems. Among these are included mangroves, coastal lagoons, coral reefs (including deep water corals), rhodolith beds, sea mounts and oceanic atolls and islands. Unfortunately, the state-of-the-art of scientific knowledge for both marine biogeochemistry (e.g. pH, total alkalinity, pCO₂, DIC, nutrients) and biodiversity is still has large gaps (spatially and long-term observations) that impede the correct understanding of biogeochemical processes and ocean acidification impacts.

After a successful international Workshop in December 2012 ("Studying Ocean Acidification and its Effects on Marine Ecosystems"), organised by the IGBP-Brazilian Regional Office and the São Paulo University, a group of circa 20 Brazilian researchers have decided to create the research network "Brazilian Ocean Acidification Research" (BROA, www.broa.furg.br), now enlarged and registered at the Brazilian Scientific Research Council (CNPq). After the creation of the group there have been already established several scientific cooperation among national research teams. On medium term, BROA aims at implementing the necessary scientific equipment and analyses certification for ocean acidification research. This goal includes the participation of Brazilian laboratories to international intercalibration exercises, and the cooperation with experimented international groups. On a longer term, BROA envisages the creation of a critical mass of trained researchers, able to deal with the different scientific and societal aspects included in the ocean acidification problem (e.g. identifying vulnerable areas, proposing adaptation and/or mitigation strategies to impacted areas and communities).