

Argentina, 2-9 Oct 2023

---BioGeoSCAPES survey---

Answers are based on the reply of 6 researchers working in Argentina (compiled by Federico Ibarbalz)

[[1]] What are your thoughts about the preliminary BioGeoSCAPES Mission statement (see below)? Could it be improved?

"To improve our understanding of the functioning and regulation of ocean metabolism and its interaction with nutrient cycling within the context of a hierarchical seascape perspective"

The message could benefit from further clarity. What does a "hierarchical seascape perspective" mean? Does it stand for ecosystem organization levels? Also, nutrient cycling varies at different spatial and temporal scales, although this might be too long for one statement. The term "microbial" could be added if the intention is to focus on processes driven by microbes (e.g. "ocean metabolism driven by microbes" or "interaction with nutrient cycling and microbial assemblages composition"). Finally, setting a goal could enhance the message's clarity (e.g. to address ocean sustainability based on scientific knowledge).

[[2]] How would Argentina best contribute to BioGeoSCAPES efforts? – e.g. fieldwork, laboratory work, modelling, intercalibration efforts, project coordination, data management, bioinformatics.

Argentina has sea waters of high primary production and good access to the Southern Ocean. In spite of a solid oceanographic tradition, Argentina (and the SW South Atlantic Ocean) still accounts for a relatively low observation/data intensity compared to the Global North. Thus, the inclusion of Argentina has the potential to augment the capacity to observe the global ocean. Due to our current financial constraints, in the short term we could mainly contribute with project coordination, conceptual discussion, modelling and bioinformatics. In the mid-term, hopefully, with fieldwork, intercalibration efforts, lab work and data management.

[[3]] What science questions are most important to Argentina within the broad scope of BioGeoSCAPES on a 10-year timeframe?

Edge currents and their impact on shelf waters biogeochemistry and ecology (e.g. fertilization processes, or connectivity between open ocean and shelf waters for plankton dispersal, HABs). Role of coastal and open ocean biodiversity in carbon uptake and storage. Climate change impacts on marine productivity (Argentina's fisheries) and carbon storage. Land-ocean interaction in a changing climate scenario (e.g. dust fertilization; or carbon transfer from land to coastal regions). And in a wider context, an important question is how to engage society in caring about the ocean.

[[4]] Are there any impediments that the international community could seek to mitigate via training or collaboration?

Definitely. The Argentinian research community in ocean science is rather small and with several areas of expertise lacking personnel. Additionally, funds and infrastructure are lagging behind. International collaboration could help this research community grow and consolidate, both in quality and quantity, by training and collaboration in most marine research areas. Some specific areas or measurements: biogeochemical modelling; trace element measurements; POC flux by ^{234}Th and the characterization of DOM pools at the molecular scale.