

Submitting your research for SOLAS endorsement (* required fields)

1. Summary

Title of the research project* BIOACID (Biological Impacts of Ocean ACIDification)

Status* Funded Submitted Proposed

Is your project part of a larger national/regional programme?

If yes, please give details and outline any relation to other IGBP, SCOR, WCRP or iCACGP projects

The project itself is a large (German) coordinated project with 14 associated scientific institutions and over 100 scientists

2. Contact Information

Principal Investigator*	Prof. Dr. Ulf Riebesell	Other Investigators (indicate institution in brackets)
Institution (include address)*	Leibniz Institute of Marine Sciences	Bijma, Jelle(AWI)
IFM-GEOMAR		Boersma, Maarten (AWI)
West Shore Campus		Boettcher, Michael (IOW)
Duesternbrooker Weg 20		Brey, Thomas (AWI)
D-24105 Kiel		Clemmesen, Catriona (IFM_GEOMAR)
Germany		Diepenbroek, Michael (PANGAEA)
Phone*	++49-431 600-4444	Engel, Anja (AWI)
Fax	++49-431 600-4446	Immenhauser, Adrian (Uni Bochum)
Email*	uribesell@ifm-geomar.de	Maack, Stefanie (Uni Kiel)
		Mark, Felix (AWI)
		Melzner, Frank (IFM_GEOMAR)
		Meyerhöfer, Michael (IFM-GEOMAR)
		Oschlies, Andreas (IFM_GEOMAR)
		Pätsch, Johannes (Unu Hamburg)
		Pörtner, Hans (AWI)

	Quaas, Martin (Uni Kiel) Reusch, Thorsten (IFM-GEOMAR) Schneider, Birgit (Uni Kiel) Storch, Daniela (AWI) Tollrian, Ralph (Uni Bochum) Wahl, Martin (IFM-GEOMAT)
--	---

3. Details of the Project

Summary / Abstract of Project* Next to the atmosphere, the ocean is the second largest sink for anthropogenic carbon dioxide. As fossil fuel CO₂ enters the surface ocean, it reacts with seawater to form bicarbonate and protons, thereby consuming carbonate ions. The net result of this process, termed ocean acidification, is an increase in CO₂ and bicarbonate concentrations and a decrease in seawater pH and carbon ion concentration. If CO₂ emissions continue to rise at current rates, before the end of this century the resulting changes in seawater chemistry will expose marine organisms to conditions which they have not experienced during their recent evolutionary history and which may pose a threat to the competitive fitness of pH/CO₂ sensitive species and groups. Thus, as the ocean continues to acidify, there is an increasing risk of biodiversity losses, of profound ecological and functional shifts, and of a reduced capacity of the ocean to buffer further CO₂ increase. Despite this emerging problem and the risks it may involve, surprising little is known about the possible impacts of ocean acidification. To close the many gaps in our understanding and to allow a systems-based assessment of the risks and uncertainties associated with ocean acidification, BIOACID will take an integrated approach combining the expertise of molecular and cell biologists, biochemists, plant and animal physiologists, marine ecologists, ocean biogeochemists and ecosystem modellers. The interaction between BIOACID scientists across disciplines, research themes and projects will include joint experiments, collaborative use of equipment and measurement capacity, exchange of samples and expertise, and the analysis and synthesis of comprehensive data sets towards an ecosystem model of ocean acidification. These activities will be complemented by training workshop offered by BIOACID experts to all members of the consortium. Following this approach, the overarching questions of BIOACID are: What are the effects of ocean acidification on marine organisms and their habitat, what are the underlying mechanisms of responses and possible adaptations on the level of populations and communities, how are they modulated by other environmental stressors, and what are the consequences for marine ecosystems, ocean biogeochemical cycles, and possible feedbacks to the climate system? To address these questions for a wide range of potentially sensitive biological processes, research activities will be structured according to key ecosystem components and functional groups. Information gained in a variety of experimental approaches and field assays will be synthesized to

obtain an integrated assessment of sensitivities and uncertainties and to identify the potential thresholds associated with ocean acidification. BIOACID will benefit from close interactions with related national and international project focussing on ocean acidification and ocean warming.

Key words of project* Ocean acidification, biogeochemistry, anthropogenic carbon dioxide, seawater pH, ecological and functional shifts, sensitivity of marine organisms

Relevant SOLAS Activities (tick all that apply)*

FOCUS 1	FOCUS 2	FOCUS 3	CROSS-CUTTING ACTIVITIES
1.1 Marine Particle Emissions <input type="checkbox"/>	2.1 Air-Sea Interface <input checked="" type="checkbox"/>	3.1 Air-Sea CO ₂ Fluxes <input checked="" type="checkbox"/>	Modelling <input checked="" type="checkbox"/>
1.2 Trace Gas Emissions <input type="checkbox"/>	2.2 Oceanic Boundary Layer <input type="checkbox"/>	3.2 Surface Layer Carbon <input checked="" type="checkbox"/>	Remote Sensing <input type="checkbox"/>
1.3 Dimethylsulphide & climate <input type="checkbox"/>	2.3 Atmospheric Boundary Layer <input type="checkbox"/>	3.3 Air-Sea Flux of N ₂ O and CH ₄ <input checked="" type="checkbox"/>	Time Series <input type="checkbox"/>
1.4 Iron & Marine Productivity <input type="checkbox"/>			Palaeo-SOLAS <input type="checkbox"/>
1.5 Nitrogen cycling <input checked="" type="checkbox"/>			

4. Data

Will new data be collected as part of this project?* Yes No

Where will this data be reported / archived?* PANGAEA

When will your data be submitted?* During and at the end of the project

5. Budget

Start date and end date of funding* September 1st 2009 until August 31st 2012

Total funding secured to date* 8,500,000.00

Total proposed funding* 8,500,000.00

Sources of funding* Federal Ministry of Education and Research, Germany

6. Submission

Please indicated whether you have contacted your national representative?

Yes No

If no, are you happy for us to send the details that you submit to your national representative?

Yes No

If not, please clarify why

If you do not have a national representative, please tick this box

Please email this document with the 'Subject' as 'SOLAS Project Endorsement' to solas@uea.ac.uk