

## Submitting your research for SOLAS endorsement (\* required fields)

### 1. Summary

Title of the research project\* bCARBOCHANGE - Changes in carbon uptake and emissions by oceans in a changing climate

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

CarboChange has further asked for endorsement by IMBER. CarboChange also contributes to the RECCAP project of the Global Carbon Project.

### 2. Contact Information

Principal Investigator*	Christoph Heinze	Other Investigators (indicate institution in brackets)
Institution (include address)*	Geophysical Institute, Allégaten 70, 5007 Bergen, Norway	Total > 100 scientist from 28 institutions. Contact PIs of project partners:
Phone*	+47 555 898 44	Jørgen Bendtsen (Vituslab, Denmark)
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		Toste Tanhua (IFM-GEOMAR, Germany)
		Joachim Segschneider (MPG, Germany)
		Reiner Steinfeld (University of Bremen, Germany)
		Jon Olafsson (MRI-UI, Iceland)
		Brian Ward (University of Galway, Ireland)
		Karim Hilmi (INRH, Morocco)
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	Laurent Bertino (NERSC, Norway)
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	Leif Anderson (University of Gothenburg, Sweden)
	Nicolas Gruber (ETH Zurich, Switzerland)
	Fortunat Joost (University of Bern, Switzerland)
	Ian Totterdell (MetOffice, UK)
	David Hydes (NERC, UK)
	Nick Hardman-Mountford (PML, UK)
	Marko Scholze (University of Bristol, UK)
	Andrew Watson (UEA, UK)
	Pedro Monteiro (CSIR, South Africa)
	Robert Key (Trustees of Princeton University, USA)
	Helmuth Thomas (Dalhousie University, Canada)

### 3. Details of the Project

Summary / Abstract of Project\* CARBOCHANGE - Changes in carbon uptake and emissions by oceans in a changing climate - is a large-scale integrating collaborative research project of 7 million Euros funded by the EU's 7th Framework Programme in the period 2011-2015 (start 1 March 2011). The goal of CARBOCHANGE is to quantify the oceanic uptake of human-produced carbon dioxide from the atmosphere. It is coordinated by the Geophysical Institute at the University of Bergen and the Bjerknes Centre for Climate Research, Norway. CARBOCHANGE gathers a consortium of 28 research institutions from Europe, North America (USA and Canada) and Africa (Morocco and South Africa) with outstanding scientific expertise in the field of carbon cycle research. Carbon dioxide from fossil fuel burning and land use changes is the main contributor to a human-induced climate change. Currently, the ocean takes up about 25% of the worldwide annually produced carbon dioxide but this rate is subject to continuous change. CARBOCHANGE investigates how large this uptake rate has been in the past, how it is changing at present, and how it will evolve in the future. Carbon dioxide in the surface ocean has to pass through the bottleneck of oceanic mixing on its way to the deep ocean. Climate change and biogeochemical processes further modify the oceanic

absorption of carbon dioxide. CARBOCHANGE employs cutting edge measurement and modelling techniques to watch the ongoing carbon dioxide uptake by the oceans, to understand the underlying processes, and to predict changes in uptake to come. The project places special emphasis on a systematic combination of ocean carbon observations and ocean models through advanced model performance assessments and data assimilation methods. CARBOCHANGE will provide science-based guardrails for political decisions on mitigation actions in order to control and alleviate the impact of carbon dioxide emissions and climate change.

Key words of project\* carbon cycle - ocean - carbon uptake and emissions - biogeochemical processes - physical processes - feedbacks - observing systems - data model integration - global synthesis

Relevant SOLAS Activities (tick all that apply)\*

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

#### 4. Data

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

Where will this data be reported / archived?\* Databases will be available through project website: [www.carbochange.eu](http://www.carbochange.eu)

When will your data be submitted?\* continuously during project

#### 5. Budget

Start date and end date of funding\* 01/03/2011 until 01/03/2015

Total funding secured to date\* 6 989 906,00 €

Total proposed funding\* 6 989 906,00 €

Sources of funding\*

EU FP7- ENV - 2010; ENV.2010.1.1.3-1

## 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](mailto:solas@uea.ac.uk)