SOLAS 2015- 2025

SOLAS Vision

"to achieve quantitative understanding of the key biogeochemical-physical interactions and feedbacks between the ocean and atmosphere, and of how this coupled system affects and is affected by climate and environmental change."

Current scientific sponsors:

WCRP World Climate Research Programme

iCACGP

International Council for Science Scientific Committee on Oceanic Research SCOR

GLOBAL CHANGE IGBP International Geosphere-Biosphere Programme

futureearth research for global sustainability to become a sponsor in 2015/2016

SOLAS Science Plan & Implementation Strategy, 2004:

Focus 1: Biogeochemical interactions and feedbacks between ocean and atmosphere

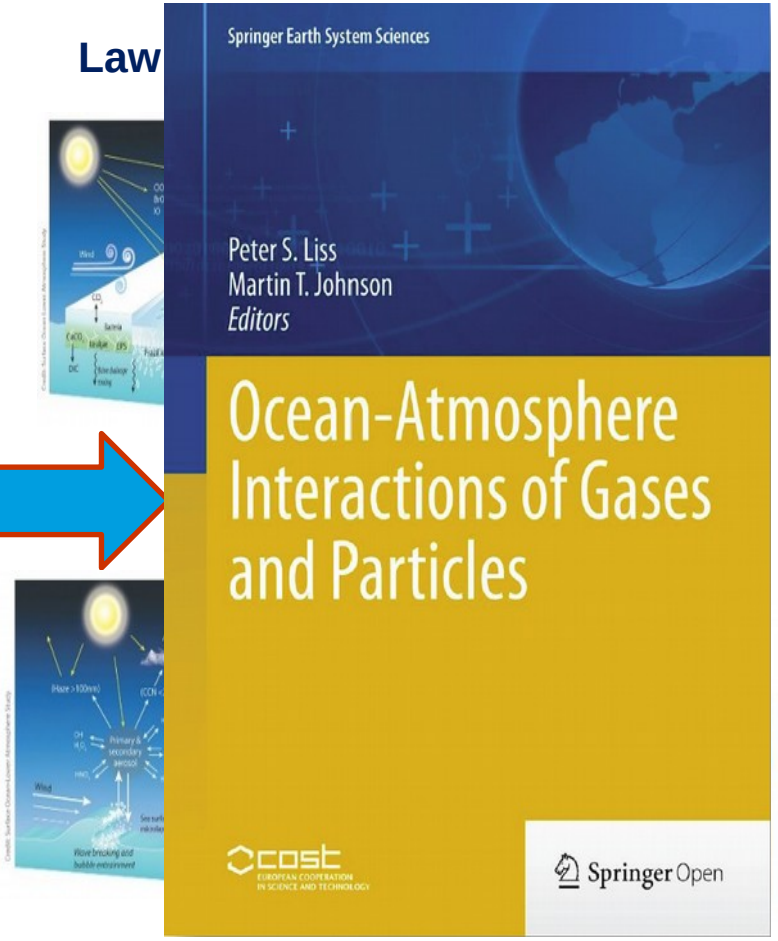
Focus 2: Exchange processes at the air-sea interface and the role of transport and transformation in the atmospheric and oceanic boundary layers

Focus 3: Air-sea flux of CO_2 and other long-lived radiatively-active gases

Joint SOLAS/IMBER Carbon WGs:
WG1: Surface Ocean Systems
WG2: Interior Ocean
WG3: Ocean Acidification (OA-ICC)

White Papers on the Mid term strategy initiatives, 2009:

Law



2014 Synthesis

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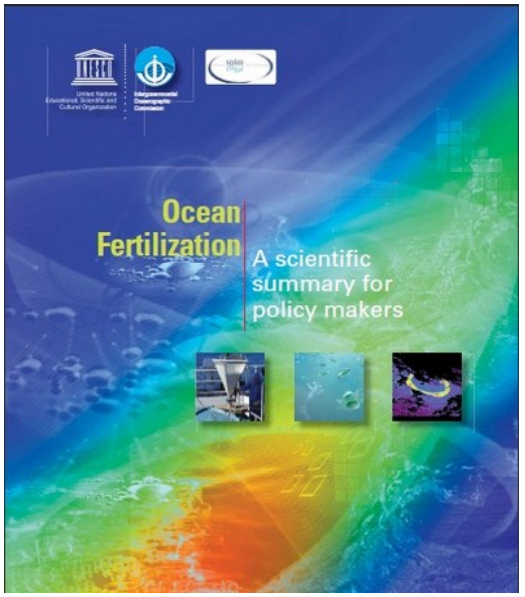
Some examples of SOLAS research with societal relevance

Joint SOLAS-IMBER
Ocean Carbon Research

Ocean acidification

Megacities and the coastal zone: air-sea interactions (IGBP)

Published in 2010



Contents lists available at SciVerse ScienceDirect
Process Safety and Environmental Protection
Journal homepage: www.elsevier.com/locate/psep
ELSEVIER
IChemE

Ocean fertilization for geoengineering: A review of effectiveness, environmental impacts and emerging governance

Phillip Williamson[a,], Douglas W.R. Wallace[b], Cliff S. Law[c], Philip W. Boyd[d], Yves Collos[e], Peter Croot[f], Ken Denman[g], Ulf Riebesell[h], Shigenobu Takeda[i], Chris Vivian[j]*

Published in 2012

2013 Hutchinson Medal Institution of Chemical Engineers (IChemE)

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A change in the landscape of Global Change science coordination: the future of SOLAS

- A change in the landscape of Global Change science coordination
- IGBP is winding down in 2015 and Future Earth research for Global sustainability started in 2013
- SOLAS decided that it will transition from IGBP to Future Earth in the first half of 2014.
- In this new landscape, SOLAS 2015-2025 will have more emphasis on the human relevance of SOLAS science (e.g. geoengineering and environmental services)

SOLAS 2015-2025

SOLAS 2015-2025
Early career scientist workshop
Plymouth, December 2013

Rationale:

SOLAS realm is focus of intense anthropogenic modification and geoengineering interest

"Institutional" barriers between ocean/atmosphere communities

International coordination on field projects, data, methodology

SOLAS 2015-2025 science plan development:

-white papers on SOLAS 2015-2025 science themes

-online community consultation

-Plymouth early career scientists workshop

-Galway, planning workshop

-2nd community consultation

New Science Plan submitted to SCOR, WCRP, IGBP and iCACGP in December 2014

…. towards Futur arth

Transition statement addressed to Future Earth in November 2014,
Future Earth reply provided last April , responses to referees comments sent to Future Earth end of May,

SOLAS Science Plan 2015-2015 sent to Future Earth December 2014,

ECS Ocean Governance, socio-economists and SOLAS Scientist Workshop, June 2015, Kiel,
Christa Marandino, Angela Landolfi, Erik van Doorn, Ulrike Kronfeld-Goharani, Sarah Gahlen

OSC Kiel 2015: Plenary on SOLAS Science and Society, September 2015, Kiel
Hans Joachim Schellnhuber (Germany), Lucia Fanning (Canada), Phil Boyd (Australia), David Turner (Sweden)

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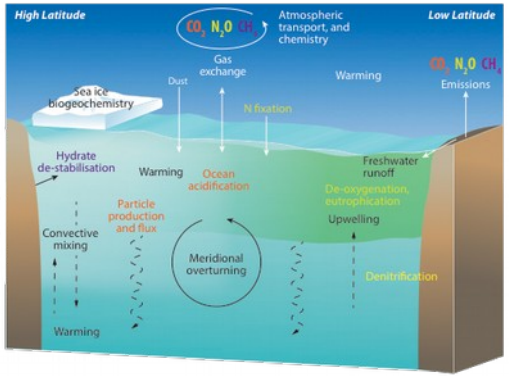
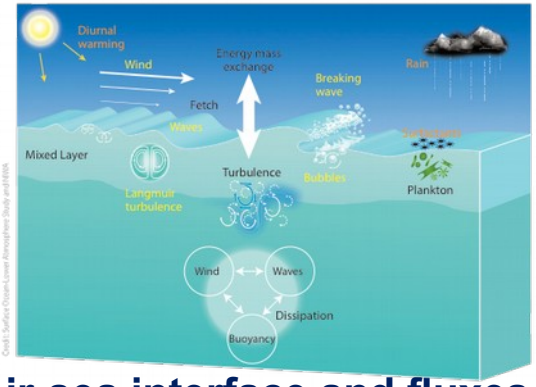
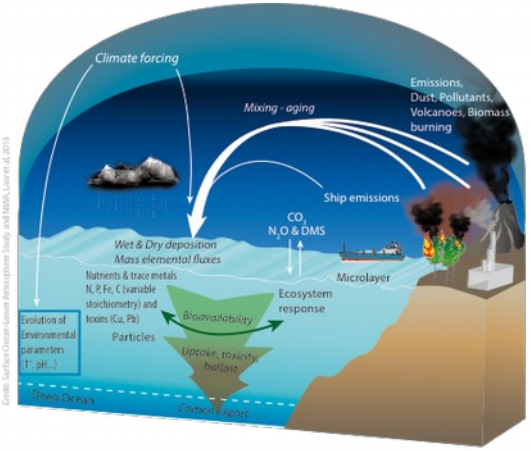
SOLAS 2015-2025 core themes



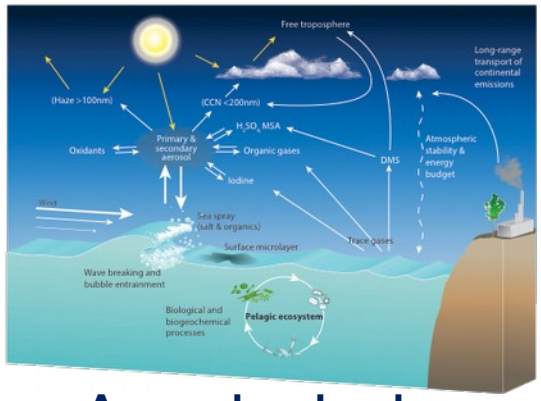
Greenhouse gases and the oceans



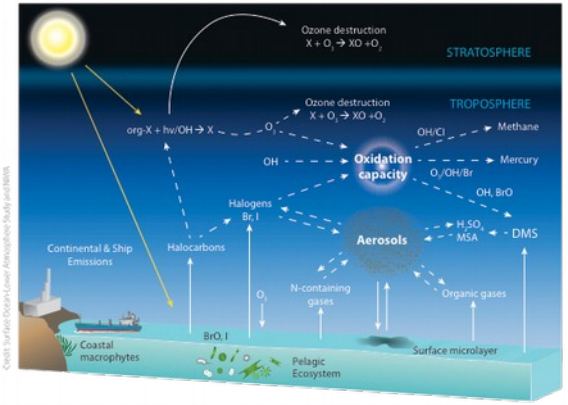
Air-sea interface and fluxes of mass and energy



Atmospheric deposition and ocean biogeochemistry



Aerosols, clouds, and ecosystems



Ocean biogeochemical controls on atmospheric chemistry

-Integrated Topics : Regional process studies in high sensitivity systems

-SOLAS and Geoengineering

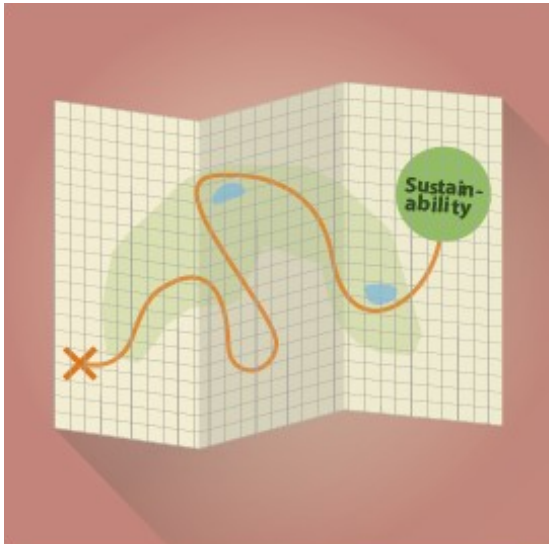
-SOLAS and Society

Strategic Research Agenda 2014

Dynamic Planet

Global Sustainable Development

Transformations towards Sustainability



Educating people now should be a call to arms for engaging people in these challenges.

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2025 vision

SOLAS 2015-2025

7 key Global Challenges

- Nexus
- Decarbonisation
- Natural Capital
- Cities
- Health
- Consumption
- Governance

5 Core Themes + Crosscutting Themes

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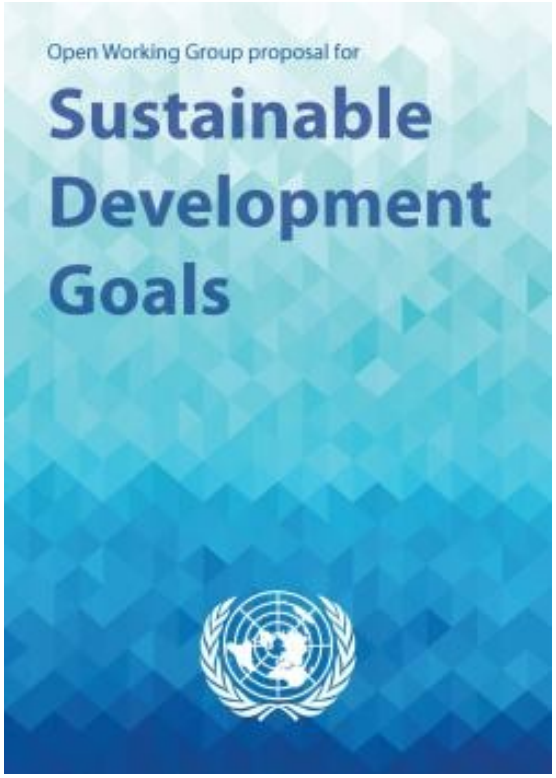
SOLAS 2015-2025



SDG 3 : Ensure healthy lives and promote well-being for all at all ages

SDG 5 : Achieve gender equality and empower all women and girls

SDG 11 : Make cities and human settlements inclusive, safe, resilient and sustainable

SDG 13 : Take urgent action to combat climate change and its impacts

SDG 14 : Conserve and sustainably use the oceans, seas and marine resources for sustainable development

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Towards a Natural Capital and/or Ocean Knowledge Action Network within Future Earth?

Examples of possible topics across IGBP and soon Future Earth core projects for co-design and co-production of knowledge in marine and atmospheric sciences:

Extreme events in Eastern Boundary Upwelling systems

Atmospheric chemistry services ----> environmental services

Changes in the Arctic: threat or opportunity?

More of course to be listed and discussed during our OSC in Kiel Sept 2015

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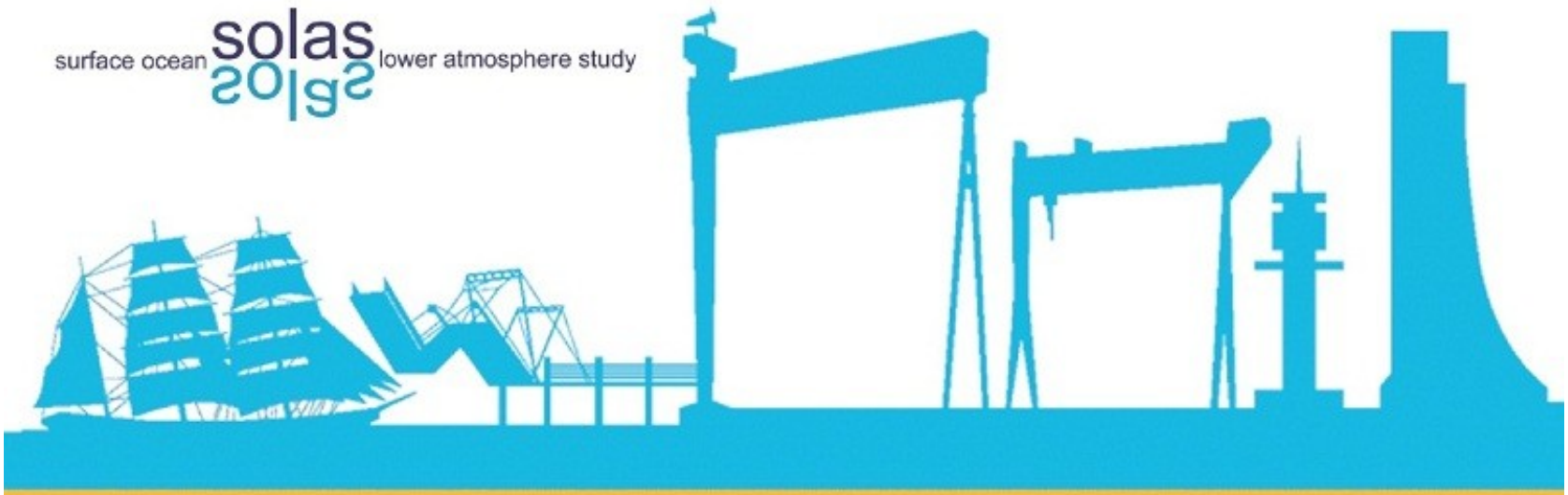
Upcoming event



SOLAS Open Science Conference

7 - 11 September 2015
Kiel, Germany
Registration opening September 2014

www.solas-int.org/osc2015.html

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