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**Minutes of the 9th SOLAS Scientific Steering Committee Meeting  
25-27 March 2009  
Washington DC, USA**

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**Approved Version**

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**Participants**

***SOLAS SSC members***

Cacho Isabel (Spain)  
Dai Minhan (China)  
Guieu Cecile (France)  
Gulev Sergey (Russia)  
Kieber Dave (USA)  
Law Cliff (New Zealand)           via speakerphone  
McGillis Wade (USA)  
Quinn Patricia (USA)  
Saltzman Eric (USA)  
Stefels Jacqueline (Netherlands)  
Takeda Shigenobu (Japan)  
Von Glasow Roland (UK)  
Wallace Doug (Germany)

***Guests***

Broadgate Wendy (IGBP)  
Tedesco Kathy (IOCCP)  
Urban Edward (SCOR)

***SOLAS officers***

Bayliss-Brown Georgia   Project Officer  
Brévière Emily           Executive Officer

***Apologies***

De Leeuw Gerrit (Finland)  
Garçon Veronique (France)  
Kubilay Nilgun (Turkey)  
Shi Guang-Yu (China)  
Simò Rafel (Spain)

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### 1 Welcome/Introduction from the SOLAS chair

Doug welcomed all present and presented the agenda (Annex 1). Doug described the agenda/logistics and goals of the meeting of Thursday 26 pm with some US agency representatives and programme managers at the National Academy of Sciences (NAS). 13 managers from 4 different agencies have confirmed their attendance. Wade provided more information on the agencies and the representatives.

### 2 Review of the decisions of the 8<sup>th</sup> SSC mtg and the last Executive Scientific Committee mtg 08.

All decisions are available in the working papers (p4 and 6). Only the decisions with the status 'To do' or 'In progress' were presented. Among these, only the decisions not regarding the next Open Science Conference (OSC) and the next SOLAS Summer School (SSS) were discussed.

8<sup>th</sup> SSC mtg, D29: Asian Dust and Ocean EcoSystem (ADOES) is not currently ready to be endorsed as a regional task team by SOLAS. Joint 4<sup>th</sup> workshop on ADOES with Asian SOLAS to be held in Korea in May 09. Doug to attend.

**Decision 1:** Minhan to investigate about SOLASNews printing cost in China (8<sup>th</sup> SSC mtg, D16)

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### 3 SOLAS Summer school (SSS)

Georgia presented the information reported in the working papers p 9. The discussion was opened towards the future of the SSSs.

#### *Discussion:*

-Ed commented on the cost and the IPO staff time invested on the SSS (Wendy and Eric agreed) and questioned if it should be continued? Or if the SSS should take place less often?

-Roland thinks that it is important to keep the SSS every 2 years. When it is every 2 years, it gives PhD students 2 chances to attend it.

-Wade highlighted the benefits of the SSS for the students, stressed the careers of the US alumni. It was also mentioned that the time invested in the SSS by the IPO is therefore not invested in other tasks. Call for hosting and funding the SSS could be sent out and maybe companies should be considered as sponsors.

-Sergey mentioned some mechanisms existing in Russia which might support financially the SSS. The fact that the SSS and the OSC are taking place the same year in 2009 raised the question of timeline for these 2 events in the future (see later section on the future of SOLAS).

-Ed confirmed that it is problematic financially to have the SSS and the OSC the same year.

-Wade concluded that it drained resources out from what SOLAS should be doing.

The location of the SSS was discussed including the possibility that other institutions or countries may be willing to host and/or support the SSS. It was noted that the efficiency of organizational work done by the IPO is, for a major part, reliant on the experience gained with the existing location. However the SSS organization is particularly time consuming and stressful because of the financial situation and the time that is required in seeking funds.

**Decision 5:** SSC decided to keep investigating possible locations for the SSS. 1) Emily to send info to the SSC members about the minimum requirements that an institute needs to consider hosting the SSS. 2) SSC members to get back to Emily with targeted potential new locations. 3) Emily to investigate directly with the potential hosts for bids.

#### 4 IPO Update

Emily reported on the IPO.

##### *1-Communication*

New design for the monthly e-bulletin since September

2 issues of the newsletter- distribution 1600p- hardcopies distributed 300

##### *2- National representatives (NR)*

SOLAS national network= 26 countries with NR (and/or national coordinators), many of the NR are SSC members too.

For the first year, in January all NR were asked to fill in an annual report template provided by the IPO. 14 were filled and sent back. The content will be used for knowing the current activities, for reporting, for updating the website... The info requested were 1) Scientific Highlights and Achievements 2) Main Activities (research projects, cruises, special events, workshops, outreach, capacity building etc) 3) Publications in 2008 (reports, articles, models, datasets, products, website etc) 4) Interactions and Collaborations 5) Goals and Plans for future activities and 6) Other comments

##### Discussion points:

- Selection of the NR- revision of procedure?
- SSC members and NR- too many duties?
- Inactive NR- how to change?
- Frequency for requesting a report to the NR? Every year in Jan/Feb?
- Comments welcome on the items requested

-Wendy reminded that SOLAS could have NR related to the IGBP national committee and that IGBP encourages a 3-year rotation role in committee membership throughout the programme.

- Cliff suggested to consider having 2 NR per country, which could/should ensure a reply and feedback from each member country.

**Decision 6:** IPO to review the status of the National Representatives (NR) (time they served, SSC member as well, if they would like to have an helper)

**Decision 7:** A targeted scientist can be asked to serve as NR by the IPO

**Decision 8:** Doug to write a polite letter to the inactive NR to thank them for their service, and inviting them to suggest names of possible successors. (Note post mtg: we may consider writing to all NR, active or inactive, exploring whether they want to continue).

**Decision 9:** Amendment to be made to the annual report template:

-Merge/rearrange 1) and 2) such as 1) highlights and 2) accomplishments (rest) and add to 2) remote sensing used.

-modify 4) to International interactions and collaborations

**Decision 10:** IPO to send to the NR the annual report template to fill in once a year (Jan/Feb)

**Decision 11:** IPO to update the SOLAS website with the annual reports received and to keep requesting the 'missing' one.

##### *3- Endorsement*

SOLAS has endorsed in 2009 the funded projects DUNE and EPOCA in 2009.

**Decision 12:** IPO to update the SOLAS website with the endorsed projects information

##### Discussion points:

- Should we encourage endorsement submission?
- Should we follow up every year with a template?

#### 4- Budget

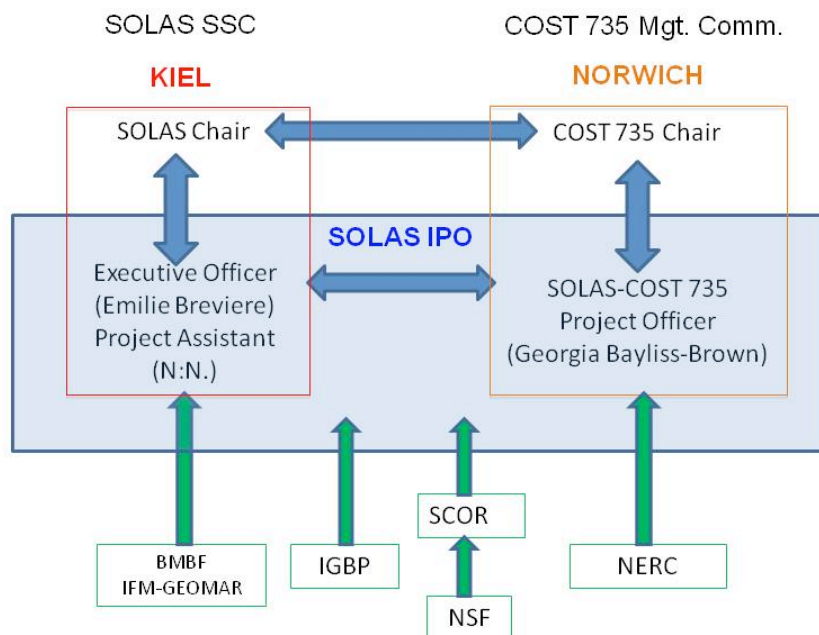
Emily presented the budget (Annexe 2). The SOLAS IPO receives funds from 4 different organisations, NSF via SCOR, NERC, IGBP and COST; all have different fiscal years. Therefore Emily presented 1) the incomes and expenses of the NERC funds dealt with at UEA between April 08 and March 09 2) the budget of the NERC funds at UEA between April 09 and March 10 and finally 3) the budget of the NSF and IGBP funds at SCOR between Sept 08 and Aug 09.

Emily noted that since February, Tom Bell (project integrator) hired Hannah Mossman for 3 months from his own grant, however Hannah works 70% on SOLAS IPO and COST duties. This was extremely useful for the IPO. Unfortunately Hannah will stop work at the end of April at exactly the time that, and the 2 major SOLAS events are approaching.

Emily highlighted that the understaffed situation of the IPO and the increase of SOLAS activities are leading to an unsustainable situation.

#### 5- Funding contract for IPO

The NERC funding contract for the IPO will end in March 2010. For the renewal of the IPO funding contract, a co-funding mechanism has been proposed, proposals will be sent to NERC in UK and to BMBF (Federal Ministry of Education and Research) and the IFM-GEOMAR in Germany. The IPO would then be split between 2 locations, Norwich and Kiel (see diagram), with COST business remaining in Norwich. This new setting would hopefully help to improve resolve the staffing issue of the IPO, by having a total of 3 and a half persons (2 persons in Kiel and 1,5 in Norwich), instead of the current 2 persons. Another benefit of this setting would be to have the Executive Officer located in close proximity to the Chair.



#### Discussion:

-Wendy recalled that Doug had been appointed chair until Dec 2010. At the end of his membership, Doug would have served 8 years on the SOLAS SSC. According to the IGBP rules Doug could serve a maximum of 9 years. So Doug could remain as Chair until Dec 2011. A request could be made to the IGBP Officers to extend his membership beyond 2011 but it is unlikely that they would accept according to past similar examples with other projects.

Wendy questioned. Will the funding continue if the Chair is not German? Doug replied that the proposed funding for the IPO would be joint between the IFM-GEOMAR and the BMBF. It is unlikely that the IFM-GEOMAR Director would offer one of its positions for support of the IPO unless it was associated with a strong leadership role of IFM-GEOMAR personnel within SOLAS. (Note post-mtg: Subsequent to meeting it is learned that the position of the BMBF is that the IPO funding should be

financed jointly by the Federal Government and the State Government of Schleswig-Holstein. IFM-GEOMAR positions are supported 50% by the BMBF and 50% by Schleswig-Holstein. In effect this means that shared funding of 2 IPO Staff in Kiel will require 1.5 positions to be provided by IFM-GEOMAR and funding for an extra 0.5 position from the BMBF. This represents a major investment of IFM-GEOMAR personnel.)

-Roland questioned whether it is worth making a move for 1-2 years?

-Wendy mentioned that the cost of such a move should be taken into consideration.

After some further discussion (see later section future of SOLAS) the following decisions were taken.

**Decision 13:** The SSC supported the proposed partial move of the IPO to Kiel, Germany.

**Decision 14:** On the procedural level, a strategy regarding the IPO funding contract and locations should be written and communicated to the SOLAS sponsors and to the Kiel funders for their approval.

## 5 Sponsor reports

### 1- SCOR

Ed presented the SCOR Working groups relevant to SOLAS. <http://www.scor-int.org/wkgroups.htm>

WG131: The Legacy of in situ Iron Enrichment: Data Compilation and Modeling

Co-Chairs: Philip Boyd (New Zealand) and Dorothee Bakker (UK)

WG 133: OceanScope

Co-Chairs: H. Thomas Rossby (USA) and Kuh Kim (Korea)

Doug questioned whether it may be possible to extend this group to consider measurements of the marine boundary layer chemistry that could be made from Volunteer Observing Ships. Ed was going to discuss with Tom Rossby.

WG 134: The Microbial Carbon Pump in the Ocean

Co-chairs: Nianzhi JIAO (China-Beijing) and Farooq Azam (USA)

WG 135: Hydrothermal Energy Transfer and its Impact on the Ocean Carbon Cycles (with InterRidge)

Co-chairs: Christopher German (USA) and Nadine Le Bris (France)

Ed mentioned that GEOTRACES has a COST Action. There are opportunities to reinforce the collaboration between SOLAS and GEOTRACES, including potentially via the 2 COST actions. Ed noted that several GEOTRACES cruises will take place soon.

Ed recalled that SCOR is giving SOLAS 10kUSD for the OSC09 and the SSS09 to sponsor scientists from developing countries. SCOR submitted to NSF also a proposal of 50kUSD to cover the attendance of the US students and lecturers to the SSS09 and hopefully some developing country students. Ed added that he will request an additional 25kUSD for the OSC. Ed mentioned that to help the IPO we could consider to hire Liz Gross from SCOR.

**Decision 15:** Doug to contact GEOTRACES leaders to ask if there are some berths available on their cruise ships to be filled by SOLAS biologists.

### 2-IGBP

Wendy explained that IGBP has been reviewed by ICSU its parent body and following their recommendations IGBP is planning a synthesis and integration activity, which will be discussed at the IGBP Scientific Committee meeting in April 09 in Japan. SOLAS vice-chair, Shigenobu will attend the IGBP SC. This year IGBP decided to not invite the Executive Officers to the SC. Wendy noted that SOLAS has proposed 2 Fast Track Initiatives to IGBP, one on Megacities and one on nutrient cycling. IGBP will decide and inform by the end of May which FTI they will have selected.

### 3-WCRP

Sergey and Wade to report

## 6 Open Science Conference

Isabel reported on the progress regarding the logistics of the OSC and on the most updated budget. The budget is in debit. Ed asked if web-broadcasting or taping of the public lectures would be possible. Isabel confirmed that it would.

**Decision 16:** Two options to cut down the OSC cost were identified if the budget is still in debit closer to the event date: cancel the banquet (currently very pricey) and/or not having the posters up all the conference duration.

**Decision 17:** The OSC registration fee includes the submission of one poster abstract. Each additional poster abstract submitted will be charged 50 EUR

**Decision 18:** OSC posters will be organized into three sessions (3 foci)

**Decision 19:** The OSC discussion sessions will be divided into 2 sets:

-7 sessions will be pre-set for each of the 7 white papers of the SOLAS mid-term Strategy planning, with the white papers available on the web

-the remaining 8 sessions will be selected after sending a call out to the wider community.

All session leaders will be sent the list of poster abstracts (once accepted) and will be given an opportunity to select some of these to be presented at their session as a 1-slide presentation.

Maximum 10' of presentation included a max 30' introduction per session is allowed.

**Decision 20:** Chairs of the OSC plenary sessions were identified as follow:

-Long-lived gases and ocean acidification: Minhan Dai (China)

-Advances in gas exchange parameterisation: Wade McGillis (US)

-Surface ocean - lower atmosphere interactions of the past: Rainer Zahn (Spain) (to be confirmed)

-Aerosols over the ocean: Eric Saltzman (US)

-Advanced techniques for SOLAS: Doug Wallace (Germany)

-Ozone and halogens over the ocean: Roland von Glasow (UK)

-Nutrient limitation and atmospheric deposition: Cliff Law (NZ)

-Genomic and genetic studies of ocean-atmosphere exchanges: Ronald Kiene (US)

**Decision 21:** The SSS textbook should be promoted during the OSC (IGBP to be contacted??)

**Decision 22:** OSC local organizers to consider using IGBP expertise regarding the press release in Barcelona. IPO to help.

#### Future Open Science Conferences:

Roland re-mentioned that SOLAS is generous regarding the financial support that it offers to the speakers.

Trish regretted that not more time/ time slots were dedicated to young scientists.

Eric suggested to have 1-min poster oral presentation in plenary. Examples show that it works well.

Doug noted that already in contrast to earlier Conferences, there are more presentations including more talks by more junior scientists.

**Decision 23:** SSC agreed to release a call for hosting the future OSCs. First announcement to be release at the OSC09 Barcelona.

**Decision 24:** To start the process of synthesis of SOLAS, the invited speakers of the next OSC could be asked to take charge of a special issues in a Journal.

More in the later section on the future of SOLAS.

## **7 Meeting with US agencies program managers**

The meeting took place at the National Academy of Sciences in Washington DC downtown, on Thursday 26 from 2.30 to 6pm.

The following 12 representatives from 5 different US agencies were present:

Li Jiang (NOAA), David Legler (US CLIVAR), Ashley Williamson (DOE), Scott Harper (Office of Naval Research-ONR), Don Rice (NSF, Ocean Sciences), Fred Lipschultz (NASA), Ajit Subramaniam (NSF Ocean Sciences), Ken Mooney (NOAA), Baris M Uz (NSF Ocean Sciences), Joel Levy (NOAA), Alex Pszenny (NSF Atmospheric Sciences), Daniel Eleuterio (Office of Naval Research)

Doug introduced SOLAS and the purposes of the meeting; Wade gave a brief update on US SOLAS activities. This was followed by 7 presentations introducing briefly the SOLAS mid-term strategy planning:

- Atmospheric control of nutrient cycling and productivity in the Surface Ocean presented by Cecile
- Ocean-derived aerosols: production, evolution, and impact presented by Trish
- Ship plumes: Impacts on atmospheric chemistry, climate and nutrient supply to the oceans presented by Roland
- Sea ice biogeochemistry presented Jacqueline
- Air-sea gas fluxes at Eastern boundary upwelling systems presented by Isabel
- Call for potential 'Large scale SOLAS field experiments' presented by Eric
- Interdisciplinary OceanSITES...covering both Atmosphere and Ocean presented by Doug

The presentations were well received. Considerable interest was shown and there was a long, detailed discussion. Some of the points and suggestions are summarized below:

Don Rice made the following comments:

- There is an interest in collaboration
- The proposals relating to collaboration have to come from the community to NSF.
- Specific comment on large scale experiments and time series: a champion is needed to make the case, however if a strategic location or projects is identified, getting funds should be possible.
- NSF Ocean Sciences is very busy the 3<sup>rd</sup> week of May and November every year, so attendance at the OSC 09 is, unfortunately, unlikely.

Ken Mooney and Joel Levy mentioned that NOAA is undergoing significant change linked with the arrival of the new Administrator (Jane Lubchenco). The first signs of interest seem to go towards ocean acidification and OceanSITES. In OceanSITES if a proposal is well prepared, NOAA would certainly agree to team up with other agencies regarding funding.

Don Rice noted that it is a period of recession and financial crisis, however there is also a very strong interest in science in the present administration.

Ajit Subramaniam asked if a biology component could be added to MOIN (cf OceanSITES white paper) and asked if NOAA would be willing to do so. Joel Levy replied yes and that they are actually pushed to do so. Ken Mooney added that the proposal on ARGO floats has been well received (all agreed) and that we should be a bit patient regarding this topic.

Don Rice added that NSF received an additional \$3billion to fund research. These funds have strings attached, however the news funding can potentially free up some funds from the general budget to be used with more flexibility (and this quite soon, e.g. Oct 2010).

Dan Eleuterio from ONR suggested possible relevance of DOE's ARM mobile facility to SOLAS projects. The first mobile facility deployment onboard a ship is underway. Ashley Williamson (DOE) suggested making contact with Wanda Ferrell (DOE) concerning future plans for this facility.

**Decision 25:** Doug to send a letter to all the US program managers and agency representatives to thank them.

**Decision 26:** Doug to contact Wanda Ferrell (DOE) regarding possible future collaboration on the use of the ARM mobile facility in connection with SOLAS research.

*SSC summary on the above interaction and potential ways forward:*

The effort should be bottom up and include/engage OCB via the OCB scoping workshop mechanism. Alex Pszenny should be kept informed to be assured that Ocean and Atmosphere within NSF are kept connected. The next steps forward regarding each of the white paper topics were discussed.

\*'Atmospheric control of nutrient cycling and productivity in the Surface Ocean' and 'Ocean-derived aerosols: production, evolution, and impact'

The idea was raised to set up a big workshop which could be entitled 'Aerosols in and out', a

combination of the following 2 white papers 'Atmospheric control of nutrient cycling and productivity in the Surface Ocean' and 'Ocean-derived aerosols: production, evolution, and impact'.

Bob Anderson from GEOTRACES should be involved.

Asia (ADOES), Europe (COST), US (OCB) and New Zealand (COST/OCB) should collaborate.

\*'Air-sea gas fluxes at Eastern boundary upwelling systems'

Ed reminded the group of GEOTRACES Pacific cruise.

The idea was raised to have a workshop in Peru, perhaps organized by Peru, France (Veronique), Germany (Doug) and OCB. Dave to communicate US scientists names to be involved in the workshop. The suggestion to send the white paper to Francisco Chavez for his input was expressed (done). Minhan to be involved as there are possibilities of Chinese cruises to the region.

\*'Sea ice biogeochemistry'

The first step is to distribute the white paper to get inputs from the wider concerned community.

Jacqueline to circulate the white paper to Scott Elliot (potential US partner), Paty Matrai (OASIS community), Lucy Carpenter, the AICI community (Eric Wolff), Paul Shepson, CLIVAR community (Dave Karlson, Sergey to provide names to Jacqueline).

The discussion session at the OSC in Barcelona will be used to get inputs.

The next step could involve use of the COST platform.

\*'Ship plumes: Impacts on atmospheric chemistry, climate and nutrient supply to the oceans'

Doug had already provided suggestions/corrections to Roland. Trish to provide info to Roland within a month. Eric questioned if this project should be joined with IGAC, Roland replied that it doesn't matter. The whitepaper is to be sent to various communities to get input. And the subject is expected to be discussed further during the discussion session at the OSC in Barcelona.

\*Call for potential 'Large scale SOLAS field experiments'

This is not a whitepaper but rather a collection of separate proposals/ideas that need to be evaluated, prioritised, etc.... The SSC members gave a strong support to this initiative and are urged to provide Peter Liss with feedback.

**Decision 27:** SSC members to read carefully the proposals concerning large-scale experiments and to send their feedback and comments to Peter and Emily. Feasibility in the timeframe of SOLAS, significance, relevance to SOLAS and link to the Science Plan and Implementation Strategy should be considered for each of the experiments proposed. Once Peter receives all the comments, he will narrow down the number of experiments proposed.

Once the number of experiments proposed is narrowed down by Peter and depending on the IPO budget, a meeting could be organised. An OSC discussion session on the topic should be planned, planning could take place during the SSS.

\*'Interdisciplinary OceanSITES...covering both Atmosphere and Ocean'

This whitepaper contribution is being developed within OceanSITES and in preparation for OceanObs'09.

## 8 SSC membership

The current SSC membership is reported in Annexe 3. At the end of 2009, Veronique, Dave and Cliff are ending their 1<sup>st</sup> term. Gerrit, Wade (WCRP rep) and Shigenobu are ending their 2<sup>nd</sup> term and will cycle off.

The idea of establishing a list of "Associates" which might provide recognition for scientists that are strongly involved with SOLAS, yet not part of the SSC, was rejected. Doug preferred the idea of *ex-officio* participation instead. Ed recalled being cautious regarding the use of the *ex-officio* system. A balance should be kept; the SSC should not keep the same *ex officio* positions for too long and there should not be too many from the same countries. Wendy added that *ex-officio* positions were to provide a link to specific activities. Ed and Wendy clarified that there is no official procedure regarding *ex-officio* appointments. SOLAS should, however, inform sponsors about its decisions.

Following the sponsors' rules, the number of SSC members should be 15. SOLAS has currently 18. The idea of decreasing the number to 15 was rejected given the breadth of disciplines working within the SOLAS programme. A brainstorming session then took place to collect names of potential future

candidates for the SSC.

The following areas of expertise were mentioned as being underrepresented in the SSC at present: clouds, global integrative modelling (Ken Denman had this role in the past), climate modelling, C-cycle, remote sensing.

Cliff noted that the Southern Hemisphere was also underrepresented.

In terms of recent and imminent changes in the SSC membership, the following was noted:

-Shigenobu's area of expertise is now covered by Cecile.

-Gerrit's area of expertise is covered by Trish.

-Wade's rotation off presents a problem:

There had been discussion earlier in the meeting as to whether SOLAS should take stronger "ownership" of the general area of surface fluxes, including fluxes of heat and momentum, that had previously been a shared focus with CLIVAR. This would require strengthening of these areas on the SSC, however there is a concern that if SOLAS moves in this direction then it risks diluting other areas of SOLAS science for which there are no obvious alternative sponsors or co-sponsors. Wade commented that we do not need to consider this as an expansion or shift in direction as we already have strong links with the surface flux community. Doug requested that Wade and Sergey provide a written viewpoint on the future role of SOLAS with respect to this important area of SOLAS-related science. This would provide a basis for further considerations by the SSC, and allow SOLAS to formulate a clear position that could be negotiated with CLIVAR and the WCRP.

Members of the SSC expressed concern, that consideration is being given to expanding responsibility in the area of IMP2 at the time when Wade is rotating off the SSC. It was suggested that consideration should be given to giving Wade *ex-officio* status as a representative of IMP2 in order to guide the SSC on this issue and other IMP2 developments.

It was suggested that consideration could be given to giving all IMP leaders placement as either a sitting SSC member or via an *ex-officio* role.

#### Surface Fluxes/IMP2:

It was agreed that, potentially, one scientist on the SSC could cover the area of Wade and Gerrit's expertise.

The following names were suggested: Rik Wanninkhof, Christoph Garbe, David Ho, Bernd Jähne, Jim Edson and Ian Brooks, Bill Asher, Graig McNeil, David Wolff, Chris Fairall.

#### Carbon Coordination/IMP3:

Doug reported on the situation with respect to carbon coordination. Currently Chris Sabine (Chair, IOCCP) and Truls Johannessen (Chair, SOLAS IMBER Carbon (SIC)) are leading this activity. The SIC group is divided into 3 working groups (WG); WG1 (surface ocean) led by Nicolas Metzli; WG2 (ocean interior) led by Niki Gruber and WG3 (future ocean) which presently does not exist as a WG and has no Chair.

Doug reported that, following discussions with Julie Hall (IMBER Chair), the suggestion is being made that the WG3 could evolve out of a combination of the current EPOCA Steering Committee and its International Advisory Board. This would imply an initial, strong focus on ocean acidification for this WG. Given the excellent international coordination established under the EPOCA programme, it makes little sense to attempt to invent a separate advisory body. SOLAS and IMBER can work to make this body sustainable for the period beyond the EPOCA project (a 4 year project of the European Union). It was noted that it may be desirable to expand the membership in some areas, in particular to assure adequate international networking and / or allow for reporting to the SOLAS or IMBER SSCs. This basic idea has been discussed with and approved by Truls Johannessen (Chair, SIC) and is the subject of discussion between Julie Hall and Jean-Pierre Gattuso (EPOCA Coordinator). The goal would be to decide on this at the EPOCA Annual Meeting in Plymouth, UK (June-July).

In order to increase efficiency and communication between the IOCCP and the working groups of SIC, Doug has proposed working towards establishing a flat structure linking the various projects and working groups. This could involve establishing an "executive" made up of the IOCCP Chair and the 3 WG Chairs. In order to facilitate communication it was suggested to include in the SSC, either as members (preferably) or *ex-officio*, either the leaders or representatives of the relevant WGs. For

SOLAS the most relevant groups are IOCCP, WG1 and WG3. (Whereas for IMBER, IOCCP, WG2 and WG3 are of highest relevance).

Various suggestions were made as to how to proceed. Nicolas Metzl has requested to rotate off the leadership of WG1 and could, potentially be replaced by Yukihiro Nojiri or Are Olsen (Bergen). Yukihiro Nojiri was suggested as a future SSC member. Several possible leaders for the ocean acidification WG were discussed, but this awaits the results of the discussions between Julie Hall and Jean-Pierre Gattuso of EPOCA.

Remote sensing:

Hubert Loisel

Clouds and Cloud Processes:

Gordon McFiggans, Sarah Norris

Modelling:

Jim Orr, Saito, Christoph Heinz

Ask idea to Guy Brasseur, Ken Denman, Ken Caldeira, David Erickson, Heidi Sosik, Yamanaka

Southern Hemisphere representation:

Laura Farias, Chile (N cycling), Bronte Tilbrook, Australia (Carbon cycling), Carl Palmer, South Africa (halocarbons), Keith Hunter, New Zealand (trace metals and surface microlayer) and Jacyra Soares, Brazil (air-sea exchange).

**Decision 28:** IMP2 to have an *ex officio* position at future SSC mtgs, to be held by Wade McGillis while he chairs this group.

## 9 Future of SOLAS

Discussion took place regarding the overall timeline of the project SOLAS. The end date for SOLAS is defined as 10 years following the publication date of the SP&IS (2004). By this calculation, SOLAS would end in 2014. However, there are strong arguments to extend to at least 2015. The fact that SOLAS was still developing new ideas and these initiatives were noted as evidence for its relative youth. Extension of the main SOLAS phase by 1 year (to 2015) would allow a reasonable chance that initiatives established on the basis of the current mid-term strategy could be conducted prior to the end of SOLAS. Doubt was expressed as to whether SOLAS synthesis can be completed by 2015: the situation with JGOFS was recalled and it was recommended that SOLAS ask its sponsors to consider a synthesis phase extending beyond 2015.

**Decision 29:** Doug and Emily to write a letter to the 4 SOLAS sponsors requesting to have SOLAS ending to at least the end of 2015.

Ed informed about the GLOBEC case. GLOBEC is ending in 2009 for its sponsors SCOR and IGBP, GLOBEC last OSC is in June 09. However GLOBEC received funds from NERC, UK for another year to implement the synthesis.

On the base of proposed ending not before 2015, and the earlier discussion about the SOLAS Chair, the following timeline was sketched and discussed (see diagram):



Under this timetable, the SOLAS synthesis phase would take place in 2014-2015, but it was generally considered by the SSC that allows insufficient time for the new strategic initiatives.

**Decision 30:** SSC members agreed to request that IGBP extend Doug's term as a Chair by an extra year (from Jan to Dec 2011), which would allow then Doug to serve as an *ex-officio* (Past Chair) in 2012 (Jan to Dec 2012).

**Decision 31:** SSC members decided to keep the SSS every second year. The next SSSs are scheduled for 2011 and 2013 (no SSS in 2015).

**Decision 32:** SSC members decided to have the OSC less often, every 3 years. The next OSC are scheduled for 2012 and 2015.

**Decision 33:** SSC decided to use special issues in journals as a platform for the SOLAS synthesis. The process should start now. Wade volunteered to initiate the process of publication and will report on it at the next SSC mtg (example Wade's 'Gas Exchange' special issue in progress)

## 10 Other

### *1-European Space Agency (ESA)*

Emily reported on the collaboration between ESA and IGBP. Stephen Plummer is the liaison person between IGBP and ESA. In 2009, ESA launched a new project relevant to SOLAS CoastColor. The project user requirements were collected during an user workshop organised at the National Maritime Center, Cork, Ireland, 19-20 March 09. No SOLAS representative attended this workshop because of a too short notice, however the LOICZ chair Alice Newton agreed to represent the IGBP marine projects.

Funds are available from ESA (25kEuros/year) to send SSC members and/or IGBP projects Executive officers to attend ESA workshops/meetings (list on the website). Reciprocally this fund could be used to have ESA representative attending IGBP projects SSC meeting.

Wendy suggested inviting Stephen Plummer to attend the OSC.

**Decision 34:** IPO to invite Stephen Plummer (or other ESA representative) to our 10<sup>th</sup> SSC meeting and to inform him about the next OSC in Barcelona.

### *2-Ocean Carbon & Biogeochemistry (OCB)*

Wade updated the SSC briefly on behalf of Scott Doney.

OCB objectives are to promote, plan, and coordinate collaborative, multidisciplinary research opportunities within the U.S. research community and with international partners.

It was suggested that SOLAS make better use of this structure.

OCB sent some comments on the 'Atmospheric control of nutrient cycling and production in the surface ocean' White Paper, in particular they expressed their concerns of an overlap with GEOTRACES.

Ed mentioned that IMBER for their IMBIZO conference received funds from OCB.

### *3- US SOLAS*

Wade presented a nice survey of the subsequent careers of the US participants in the past 3 SSS. The SSC members can request hardcopies of the US SOLAS Science Implementation Strategy via the IPO.

Wade mentioned research activities planned to make use of the Cape Verde Observatory. Eric noted that he will be involved in a campaign on Cape Verde this year. Doug noted that there are ideas of the Observatory members to organize an information workshop concerning the Observatory on the US East Coast where a large Cape Verdean diaspora lives. The Cape Verdeans are looking for scientific partners to assist with organising such a workshop. The idea was raised to organized a workshop with an information day about Cape Verde observatory goals in Boston, most likely, or Dartmouth. This event could also be aimed at reaching the CV organizations and, possible, motivate private donations for needed infrastructure there. Collaboration with OCB should be investigated. Wade to contact Ken Buesseler and Phoebe Lam regarding this. Doug noted some suggestions received from Margaret Leinen concerning possible organizations to contact. Wade to contact Margaret Leinen and with Ed's help to get information regarding this. Eric should be kept in the loop.

### *4-Next SSC meeting*

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Sergey proposed Moscow and Emily proposed Turkey with the support of Nilgun and Baris (Turkey NR). IPO will consider options.

## **ANNEX 1: Agenda**

### **Wednesday 25<sup>th</sup> March**

Where? Bolger Center

**9.00-9.20** (20')

Welcome and Introduction from the SOLAS Chair

Agenda revision and logistics info (description of meeting of Thursday pm at NAS)

Round table and introduction of the New SSC members

**9.20-9.35** (15')

Review of the table of decisions of 8<sup>th</sup> SSC mtg

Review of the table of decisions of the last SOLAS Exec mtg

**9.35-10.00** (25')

Summer School 2009 (finance and future of the SSS)

Presentation from Georgia Bayliss-Brown

**10.00-10.30: Morning Coffee Break** (30')

**10.30-11.10** (40')

IPO Update (comm., finance- national contributions-, staff, challenges...)

Presentation from Emily Breviere

**11.10-12.00** (50') (3x10min+ 2x10min tbd)

Presentations by 3 new members (10 min each)

*Trish Quinn on 'Aerosol properties in coastal and open ocean marine environments'*

*Minhan Dai on 'Introduction to a Carbon-China program - Carbon cycling in China Seas - budget, controls and ocean acidification'*

*Cecile Guieu on 'a 'clean mesocosm' approach to study the atmospheric deposition to the ocean'*

**12.00-13.00: Lunch** (1h)

**13.00-14.00** (60')

SSC membership

**14.00-15.30** (1h30')

Sponsor reports and discussion

Presentations from Ed Urban for SCOR, Wendy Broadgate for IGBP and Sergey Gulev for WCRP (3x10min each)

**15.30-16.00 Afternoon Coffee Break** (30')

**16.00-16.40** (40')

Open Science Conference 2009 (finance)

Presentation from Isabel Cacho

**16.40-17.10** (30')

Project Integration/ COST Action 735

Presentation from Emily Breviere

**17.10-17.30** (20')

US SOLAS

Presentation from Wade MacGillis

### **Thursday 26<sup>th</sup> March**

Where?

Morning at the Bolger Center

Afternoon at the National Academy of Sciences

**8.30-12.00** with morning coffee break at 10.00 for 30'  
SOLAS Mid-term strategic planning  
Discussion and preparation for the afternoon meeting

- \* "Activity of the Minimum of Oxygen (OMZ) in the Pacific" (AMOP-SOLAS)  
*by Isabel Cacho*
- \* Ship Plumes: Impacts on atmospheric chemistry, climate and nutrient supply to the oceans  
*by Roland von Glasow*
- \* Atmospheric control of nutrient cycling and production in the surface ocean  
*by Cecile Guieu or Shigenobu Takeda (tbc)*
- \* MOIN: The Minimalist OceanSITES Interdisciplinary Network  
*by Doug Wallace*
- \* Large Scale experiments for hypothesis testing  
*by Eric Saltzman*

**12.00-13.00 Lunch** at the Bolger Center

**13.00-14.30** Transfer to the National Academy of Sciences

**14.30- 17.30** with a coffee break at 16.00 (30') at the National Academy of Sciences

Roundtable discussion with US agencies program managers

Presentations of the SOLAS Mid-term strategic planning (5min max per white paper)

Open discussion

**19.00** Dinner in downtown Washington DC

## Friday 27<sup>th</sup> March

Where? Bolger Center

**8.30-9.00** (30')

Feedback of the previous day interaction

Actions resulting from it

**9.00-10.00** (60')

IMP1- Discussion (structure)

**10.00-10.30: Morning Coffee Break** (30')

**10.30-11.00** (30')

Miscellaneous by Doug Wallace (OceanObs'09, Iron fertilization, London Convention, etc...)

**11.00-12.00** (60')

IMP2- Discussion

15-min presentation from Wade MacGillis

**12.00-13.00 Lunch** (1h)

**13.00-14.00** (60')

IMP3- Discussion

**14.00-15.00** (60')

Synthesis of decisions, next meetings (dates and place) and any other business

**END 15.30-16.00 Afternoon Coffee Break** (30')

**ANNEX 2: SOLAS Budget**

2008												2009												2010											
J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
←				← NERC@UEA →								← NERC@UEA →								← NERC →															
← NSF@SCOR →						← NSF@SCOR →						← NSF@SCOR →						←																	
← IGBP@SCOR →						← IGBP@SCOR →						← IGBP@SCOR →						←																	
←				← COST/EU@COST →								← COST/EU@COST →								← COST /EU@COST →															

IPO accounts held at UEA (1st April 2008 - 31st March 2009)

		GBP		
		Credit	Debit	
<b>Opening balance</b>	31.03.2008	£5,296.44		
<b>Income</b>	NERC	£152,678.00		
	COST @ UEA left over from 08mtgs	£4,079.60		
<b>Expenses</b>	(estimates based on expenditure in 07 or salary scaling) (per annum)			
salary Jeff	Salary costs 08-09+09-10		£16,069.12	
salary Emily	Salary costs 08-09+09-10		£31,084.15	
salary Georgia	Salary costs 08-09+09-10		£17,949.98	
salary Justin	Salary costs 08-09+09-10		£12,805.23	
Overheads	Overheads 08-09+09-10		£34,863.94	
Stationery/Computing			£954.67	
Postage (inc. Newsletter)			£534.89	
Newsletter (2 issues: design and print)			£3,255.85	
Telephone (inc. mobile and fax)			£484.18	
Travel	Travel costs 08-09+09-10		£15,868.93	
	<b>TOTAL</b>	<b>£162,054.04</b>	<b>£133,870.94</b>	<b>£28,183.10</b>

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IPO accounts held at UEA (1st April 2009 - 31st March 2010)

		GBP		
		Credit	Debit	
<b>Opening balance</b>	31.03.2009	£28,183.10		
<b>Income</b>	NERC	£152,925.00		
	COST website	£2,000.00		
<b>Expenses</b> (estimates based on expenditure in 07 or salary scaling) (per annum)				
salary Emily	Salary costs 08-09+09-10		£51,000.00	
salary Georgia	Salary costs 08-09+09-10		£37,000.00	
salary Hannah	Salary costs 08-09+09-10		£12,000.00	
Overheads	Overheads 08-09+09-10		£42,000.00	
Stationery/Computing			£1,000.00	
Postage (inc. Newsletter)			£600.00	
Newsletter (2 issues: design and print)			£3,000.00	
Telephone (inc. mobile and fax)			£500.00	
Travel	Travel costs 08-09+09-10		£19,300.00	
OSC buffer			£16,000.00	
	<b>TOTAL</b>	<b>£183,108.10</b>	<b>£182,400.00</b>	<b>£708.10</b>

**Detail of the row: travel**

From March 2009 to April 2010

COMMITTED	Sponsored	1 speaker tbd	PICES Annual mtg	Korea	Oct 2009	£1,500.00
		SSC members (Isa, Cecile, Jacqu, Roland, Shigenobu, Minhan)	SOLAS 9th SSC mtg	Washington (flights)	April 2009	£6,900.00
	Office	Emily Breviere	Chair/EO mtg	Kiel	May 2009	£600.00
			SOLAS/IMBER Fr mtg	Paris	June 2009	£500.00
			Chair/EO mtg	Kiel	July 2009	£600.00
			SSS 09	Corsica	Aug 2009	£900.00
			Chair/EO mtg	Kiel	Sept 2009	£600.00
			OSC	Barcelona	Nov 2009	£500.00
			AGU	San Francisco	Dec 2009	£1,500.00
			Chair/EO mtg	Kiel	Jan 2010	£600.00
			Conference	?	Feb 2010	£1,000.00
			Chair/EO mtg	Kiel	March 2010	£600.00
		Georgia Bayliss-Brown	SSS 09	Corsica	Aug 2009	£900.00
			OSC on site 2	Barcelona	Sept 2009	£500.00
			OSC	Barcelona	Nov 2009	£500.00
			OSC 11 and SSS 11 ???		?	£1,000.00
			IPO mtg at IGBP	Stockholm	Feb 2010	£600.00
				<b>TOTAL</b>	<b>£19,300.00</b>	

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IPO accounts held at SCOR (1st September 2008 - 31st August 2009)

		USD		
		Credit	Debit	
<b>Opening balance</b>	01.09.2008		\$6,959.44	
<b>Income</b>	NSF	\$25,000.00		
	IGBP (20% of 08+ full block grant 09)	\$24,000.00		
	CSIRO (advert in SOLAS NL)	\$1,030.00		
	EMIN (SSS09)	\$2,715.17		
	PML (SSS09)	\$1,292.68		
	NSF- developing countries (SSS09)	\$5,000.00		
	NSF- US (SSS09)	\$50,000.00		
<b>Expenses</b>				
Administrative			\$47.28	
Travel	TravelSept08-Aug09		\$74,599.52	
SSS buffer for students attendance			\$20,000.00	
	<b>TOTAL</b>	<b>\$109,037.85</b>	<b>\$101,606.24</b>	<b>\$7,431.61</b>

**Detail of the row: travel**

	Who	REASON	Details	Date	Amount
PAID	Barry Huebert	Travel support	IGAC Conference	Nov 2008	\$3,591.67
COMMITTED	SSC members ( <u>accomm+flights</u> )	SOLAS 9th SSC mtg	Washington	March 2009	\$12,000.00
	SSS09 <u>deving countr</u> students and lecturers (NSF)	SSS09 Attendance	Corsica	Aug 2009	\$5,000.00
	SSS09 US students and lecturers (NSF)	SSS09 Attendance	Corsica	Aug 2009	\$50,000.00
	SSS09 <u>deving countr</u> students and lecturers (EMIN)	SSS09 Attendance	Corsica	Aug 2009	\$2,715.17
	SSS09 <u>deving countr</u> students and lecturers (PML)	SSS09 Attendance	Corsica	Aug 2009	\$1,292.68
				<b>TOTAL</b>	<b>\$74,599.52</b>

**ANNEX 3: Current SSC memberships**

TOPIC	Jan to Dec-09	Jan to Dec-10	Jan to Dec-11	Jan to Dec-12
Ocean boundary layer	Wade McGillis, M, USA (2004)(2nd term)			
Nutrient biogeochemistry	Shigenobu Takeda, M, Japan (VC) (2009)(2nd term) (5y)			
Atmospheric boundary layer	Gerrit de Leeuw, M, Finland (2004) (2nd term)			
Air-sea exchange/ nutrients	Cliff Law, M, New Zealand (2007) (1st term)			
Photochemistry	David Kieber, M, USA (2007) (1st term)			
Biogeochemical modelling	Veronique Garcon, F, France (2007) (1st term)			
Carbon/ air-sea overview	Douglas Wallace (Chair), M, Germany (2008) (8y)			
Atmospheric transport coast	Guang-Yu Shi, M, China (2005) (2nd term)			
Sulphur cycle	Jacqueline Stefels, F, Netherlands (2008)(1st term)			
Halogens	Roland von Glasow, M, UK (2008)(1st term)			
Aerosol chemistry	Eric Saltzman, M, USA (2008)(1st term)			
Atmospheric transport	Nilgun Kubilay, F, Turkey (2008)(1st term)			
Air-Sea physical interaction	Sergey Gulev, M, Russia (2006)(2nd term)			
Paleoceanography	Isabel Cacho-Lascorz, F, Spain (2006) (2nd term)			
Ocean coastal carbon	Minhan Dai, M, China (2009) (1st term)			
Biogeochemical cycles	Rafel Simo, M, Spain (2009)(1st term)			
Marine ecosystems	Cecile Guieu, F, France(2009)(1st term)			
Aerosols/atmosph chemistry	Patricia Quinn, F, USA (2009) (1st term)			