

Minutes of the 7th SOLAS Scientific Steering Committee Meeting

**Room 201, Ling Feng Building, Xiamen University
Xiamen, China**

March 4-5, 2007

In attendance:

BH	Barry Huebert	Member; USA
CL	Cliff Law	New Member; New Zealand
DK	David Kieber	New Member; USA
DW	Doug Wallace	Guest; Monday only; Germany
EB	Emily Breviere	IPO Project Officer; UK
EU	Ed Urban	SCOR; USA
GS	Guang-Yu Shi	Member; China
HH	Hua-Sheng Hong	SCOR; China
IC	Isabel Cacho	Member; Spain
JH	Jeff Hare	IPO Executive Officer; UK
JZ	Jing Zhang	GEOTRACES; Japan
MD	Min-Han Dai	Local Host; China
MK	Maria Kanakidou	CACGP; Greece
MU	Mits Uematsu	Imp1 Chair; Japan
PL	Peter Liss	Chair; UK
PM	Paty Matrai	Vice-chair; USA
SG	Sergey Gulev	WCRP Member; Russia
ST	Shigenobu Takeda	Member; Japan
TJ	Truls Johanessen	Imp3 Chair; Norway
TZ	Tong Zhu	IGAC; China
VG	Veronique Garcon	New Member; France
WH	Wei-Gen Huang	LOICZ; China
WM	Wade McGillis	Imp2 Chair; WCRP Member; USA

Apologies:

ChL	Christiane Lancelot	Member; Belgium
GD	Gerrit de Leeuw	Member; Finland
TiJ	Tim Jickells	Member; UK
OU	Osvaldo Ulloa	Member; Chile
UP	Uli Platt	Member; Germany

Day One: March 4

New SSC Members (CL, VG, and DK) and guests (MK, WH, TZ, HH, JZ, MD) are welcomed.

Minutes from the 6th SSC Meeting in Amsterdam were introduced for comment. No comments were offered, so the minutes were accepted.

Reports from Sponsors and Associated Programs

SCOR Report – EU

A SCOR Working Group (WG) was proposed with SOLAS encouragement prior to the last SCOR General Assembly. This proposal was also presented to SCAR for co-sponsorship, but they declined to sponsor but did endorse it for SCOR sponsorship. This proposal was also endorsed by IMBER. The proposal received good comments, but there was a discussion at the General Assembly as to whether or not this was an appropriate WG for SCOR. The suggestion was made by SCOR that the group identify the needed data, assemble it, then re-visit the proposal to SCOR. This proposal was seen as a new concept. Most groups synthesize, but this one planned to put iron data sets together and use the merged data set for modeling studies.. There was also some discussion as to the composition of the group.

Action: IPO should ask the proponents about the status and understanding of the communication from SCOR. Will they plan to re-visit this proposal, after assembly of the data? Deadline for SCOR WG proposals is end of April for August 2007 consideration.

Data management was a major topic of the recent SCOR projects summit in London (December 2006).

GEOTRACES had an SSC meeting and discussion of data management in December in San Francisco (JH was in attendance for SOLAS). Two cruises are planned for 2007/2008 for intercalibration. SOLAS has been invited to participate (possibly un-manned, as berthing is full), particularly with aerosol observations

Action: IPO identify a liason with GEOTRACES.

The second symposium on “The Oceans in a High CO₂ World” will be held 6-8 October 2008 in Monaco. Sponsors are IOC, IGBP, IAEA and SCOR. Invited speakers will comprise 50% of the presentations, and Jim Orr is the chair of the organizing committee. 125 participants attended the 1st symposium in 2004, perhaps twice as many are expected in 2008. SOLAS has a scheduled topic on “Biogeochemical consequences”, and “Feedbacks to climate” is a suggested topic for the meeting.

Action: EU to ask whether this last topic can be included.

SCAR/SCOR Expert Group will hold a workshop 1-3 October 2007 in Bremen on Southern Ocean observations, systems and gaps in knowledge. Richard Bellerby is the SOLAS liason for this group.

A SCOR project summit meeting was held in December 2006 in London. It was suggested that projects interact with OceanSITES, which is a coordinating group for time-series measurements. There was a discussion at the meeting in London about the needs for bathymetry data in the Southern Ocean. Satellite observations and the lack of agency actions for providing this information was also brought forward, and it was suggested that SCOR provide assistance to reduce gaps in satellite coverage for important variables. SCOR is developing a catalog of capacity building activities within its projects, and SCOR has initiated a committee to promote and develop capacity building projects. Each SCOR project's website was reviewed, and SOLAS' site received some suggestions for improvement. A long discussion about the use of digital-object identifiers (DOI's) for data sets occurred at the summit meeting.

Action: IPO to identify what IMBER's capacity building team does. SOLAS may consider following suit.

SCOR currently contributes \$40k for SOLAS, and this is expected to continue at least until September 2009. SCOR provided a total of \$13k for the 2007 Open Science meeting and the 2005 SOLAS Summer School. A conference manager system has been subscribed for SCOR projects, and the basic cost is borne by SCOR. In January, SCOR provided lodging and subsistence for the project offices to visit Johns Hopkins University to work with Liz Gross on project and fund management.

A short discussion ensued about to the contribution by NSF Chemical Oceanography to International SOLAS through SCOR. NSF provided some funding for the US-SOLAS participation in the 2005 Summer School, and subsequently withdrew equivalent amount from the SCOR funds for International SOLAS.

Action: WM and JH discuss strategy for maintaining the US-SOLAS participation in the SOLAS Summer School, while maximizing the funds for international activities.

CACGP - MK

CACGP is one of the Commissions in IAMAS, which is one of the Associations of IUGG, which is one of the Unions of ICSU. Suggestion is that CACGP will adopt a new acronym: iCACGP. MK is the new president, Kimitaka Kawamura is the new vice-president, John Burrows is the new secretary, and the SOLAS representative to CACGP is Nilgun Kubilay (Turkey).

Action: IPO to investigate whether or not someone from the SSC should represent SOLAS at CACGP.

CACGP supports research in atmospheric chemistry, facilitates understanding of atmospheric composition, promotes research, coordinates research programs, and stimulates discussions on atmospheric chemistry topics. CACGP seeks to maximize interaction between its projects, such as IGAC, SOLAS, and the non-sponsored iLEAPS.

New website www.icacgp.org

A major task ahead for CACGP is to organize a discussion forum at special sessions of conferences and at the quadrennial joint symposia (with IGAC). The next IGAC conference is scheduled for the French Alps in 2008, and a joint symposium will be held in 2010. **MK** would like SOLAS to develop sessions for this conference. The next CACGP meeting will occur during the IGAC conference.

Relevant key issues for CACGP are SOLAS representation on the commission, and development of a topic on Megacities Impacts on the Marine Environment.

IGBP – JH

Fast-Track Initiative procedures have been re-developed, and these details were presented.

There will be an IGBP Congress in May 2008 in Cape Town, and the next SOLAS SSC will be held during the Congress. Schedules for various activities during the Congress are still in process, and **JH** and **PL** will travel to Brazil for the SC-IGBP meeting, where some discussions on this subject will happen. SSC Members are encouraged to provide input to synthesis sessions with the other IGBP projects.

Some discussion of the Congress schedule ensued. Questions were raised as to why the SSC meeting time was scheduled for Days one and five, with non-SOLAS relevant African sustainability workshops intervening. Is it possible to hold a continuous 2-3 day SSC meeting?

SOLAS has a growing network of researchers in South Africa, and we would like to develop a workshop with the locals as part of the IGBP Congress. Half the talks would be provided by the South Africans, and the other half by the SSC.

Action: IPO and **PL** determine appropriate date to meet with the South Africans, based on the IGBP schedule to follow.

IMP1 – MU

The group met in February 2006 during the AGU Ocean Sciences Meeting. In July in Beijing, there was a special session at the Western Pacific Geophysics Meeting on “Asian dust and impacts on climate and biogeochemical cycles”. In December at the AGU Fall Meeting in San Francisco, a special session was held on “SEAREX to SOLAS”.

Asian Dust and Ocean Ecosystems (ADOES) has asked local governments for money to coordinate and meet. IMP1 also worked to develop the DMS model intercomparison workshop in December in Brussels (CODiM), as well as the “Nitrogen impacts on the open ocean” workshop in Norwich in November were IMP1 activities.

There is a strong network of scientific activity in Taiwan at the moment, with 8 proposals submitted for consideration on “Atmospheric forcing on ocean biogeochemistry”.

The Belgian network has had funding for the IMP1 secretariat (Vero Schoemann) and has sought a re-newal of that funding. Vero has done good work for the group, and the SOLAS IPO and SSC endorsed the proposal.

IMP1 has developed a mission statement (thanks to Bill Miller). Its purpose is to gather information on existing and upcoming projects and sub-projects, recommend and encourage research within its remit, identify items from the SOLAS Science Plan which need to be emphasized, encourage the implementation of research in Focus 1, coordinate international cooperation in field work and other SOLAS projects, and manage data.

It is recommended that IMP1 ask the SOLAS National Representatives for assistance in compiling project information. **JH** pointed out that the new SOLAS Project Integrator (Tom Bell) will be working to develop project inventories from each of the IMPs. Tom will develop a template for input.

PL mentions that the most recent outcome from IMP1 is the synthesis paper in the journal *Science* on iron addition experiments, an exercise that was supported financially by the SOLAS IPO.

IMP2 – WM

New members include Jacqueline Boutin, Lisa Miller, Mary-Elena Carr, and Satoru Komori.

The WCRP Working Group on Surface Fluxes (WGSF) and IMP2 have a close association, and there have been numerous examples of this partnership in the WGSF-produced Flux News magazine.

A mission statement for IMP2 has been provided to the IPO. This includes: encourage Focus 2 collaborative projects, generate database of activities, seek program support; provide information, engage and foster collaboration with other SOLAS Foci, plan joint studies and workshops; contribute to WGSF and SOLAS communications; facilitate organization and funding for young researchers; and provide and facilitate data management and data exchange.

Topics of interest to IMP2 were brought forward at a meeting in Heidelberg in September 2006 (coincident with the meeting on air-water interface exchange). Some of the hot

topics include GasEx in the Southern Ocean, the DOGEE cruises (UK-SOLAS), infrared observations of the sea surface, and advances in remote sensing-based parameterizations.

A discussion ensued about the assembly of project inventories, and cooperation with the SOLAS Project Integrator.

IMP2 has benefited from support for a secretariat in Canada, but the funding has ended for this. Daniela Turk is pursuing continuation of the funding at Dalhousie University in Halifax. **WM** has encouraged each IMP2 member to secure funding sufficient for one meeting per year, and perhaps collectively this will amount to significant resources. IMP2 has taken the strategy that it is better to focus on smaller workshops with more specific topics (rather than attempt to cover the entire remit of Focus 2 science). These smaller workshops can be developed around existing complementary meetings (such as the COST meeting in Brussels in late May).

Action: IPO to investigate the possibility of holding an IMP2 meeting coincident with the COST meeting in Brussels.

Action: IPO to work to develop and coordinate a WGSF/IMP2 group to look into coastal fluxes. **WM** and **MD** agree to work on this.

IPM3 – TJ

This group is joint with IMBER under the acronym SOLAS IMBER Carbon Group (SIC). A presentation was made of the membership of the group and the subgroups (surface ocean systems, interior ocean carbon storage, and carbon cycle climate sensitivities and feedbacks). Chairs of the subgroups are Nicolas Metz1, Niki Gruber, and Kitack Lee, respectively. The second group has developed a whitepaper on the addition of oxygen sensors to ARGO floats (website:http://ioc.unesco.org/ioccp/Docs/o2_argo_whitepaper_15feb07_r.pdf).

IMP3 is also closely aligned with CARBOOCEAN, and WP4 of that group met in September in Norwich.

There was also a presentation about the IOCCP meeting in April 11-14 in Paris on “Surface pCO₂ Variability and Ocean Vulnerability”, hosted by IOCCP. SOLAS, IMBER, GCP, SCOR, and IOCCP are the sponsors. SIC will meet during this meeting in Paris.

There was an ocean acidification workshop, sponsored by PAGES, supported by SCOR and IGBP, at LDEO last September.

An Atlantic Ocean Carbon Synthesis Meeting was held in late June 2006 in Iceland. This basin-scale activity is critical, and the other oceans will be treated similarly.

IGAC - TZ

A presentation was made on IGAC activities, including MegaCities, ITCT, AMMA, DEBITS, POLARCAT, AICI, and HitT.

The Atmospheric Chemistry and Climate (AC&C) initiative is co-sponsored by IGBP and WCRP. This project seeks to develop an inventory of emissions distribution and magnitude, transport, rates of chemical transformation, and deposition down to the subgrid scale. AC&C has identified high priority areas of high relevance, and tractable science, including the role of observations. Phase 1 of the project is on model studies to uncover which processes contribute to uncertainties in radiative forcing and climate change. There are four planned activities: 20-year hindcast of ozone and aerosols, what controls the distribution of aerosols and gases, better representation of cloud aerosol and chemical interactions, and analysis of sensitivities and uncertainties of future scenarios.

Action: IPO to identify a lead from SOLAS to interact with IGAC on AC&C.

In early September 2007, IGAC will hold its next SSC meeting in Seattle.

Action: IPO identify someone to be the SOLAS representative to IGAC SSC (**BH** has volunteered in the short term).

GEOTRACES - JZ

In December, GEOTRACES held its first SSC meeting in San Francisco to discuss implementation of GEOTRACES science. The next SSC meeting will be held in November 2007 in Barcelona.

Action: Identify a representative from SOLAS to the GEOTRACES SSC.

There are three major themes in GEOTRACES: fluxes of trace elements at ocean interfaces, internal cycling of trace elements, and proxies for past changes.

MU has worked with Greg Cutter of the GEOTRACES SSC on developing aerosol measurements during the GEOTRACES intercalibration cruises, planned for 2008, etc. Also, Alex Baker (UEA) has an interest in participation in the cruises.

There will be the following basin-based meetings to plan GEOTRACES cruises:

Pacific Ocean	26-29 June 2007	Honolulu
Atlantic Ocean	10-13 Sept 2007	Oxford
Indian Ocean	24-26 Oct 2007	Goa

Action: Can we identify other SOLAS scientists to interface with GEOTRACES? The IPO should publicize SOLAS interests in GEOTRACES and develop a strategy for integration between the two projects. It is proposed that the Cape Verde observatory could be used for this purpose.

Min-Han Dai is on the China-GEOTRACES committee and can be relied upon for help in this.

LOICZ - WH

An overview of LOICZ was presented. There will be an SSC meeting in Vancouver at the end of May.

Action: Can we identify a SOLAS individual to attend the LOICZ SSC meeting?

In September, LOICZ will hold a joint conference with IMBER on coastal ecosystems in Shanghai.

PAGES - IC

Some linkages with SOLAS were highlighted, including the analysis of aerosol tracers, CO₂ exchange (past and present), and nutrient cycling. IMAGES (the marine arm of PAGES) was discussed, along with the role of ocean circulation, quantification of changes in nutrient and carbon cycling. On September 3-7, the International Conference on Paleoceanography will be held in Shanghai.

IMAGES has a science plan (<http://www.images-pages.org/outreach.html/>) which has discussion on heat transfer in the deep and surface ocean, carbon dioxide changes due to ocean circulation and ocean chemistry, and marine-climate linkages. IMAGES aims to quantify the role of ocean circulation on climate change and to quantify the changes in oceanic nutrient and carbon cycles.

Action: **PL** suggests the development of a whitepaper that sets out the scientific utility of the two-way PAGES-SOLAS relationship. **IC** volunteers to lead this effort.

AIMES - JH

No presentation was provided for AIMES, but we do have a copy of the science plan draft. **PM** mentions that the document is quite thin and lacking in focus on marine issues. **PL** suggests we circulate a copy of the document and forward our comments to the AIMES IPO. **TJ** mentions that ocean modeling needs to be included in the science plan.

National Reports

China (Beijing) - GS

The China-SOLAS working group has 27 members, and the project focuses on dust, nutrient deposition, air-sea exchange, biogeochemical processes and modulation of CO₂, and emissions of radioactive gases. In November 2006, there was a mid-term evaluation

of SOLAS by the National Science Foundation of China, and the results of the review were largely positive.

There were 3 research cruises conducted in 2005 and 2006, along with the development of 2 island time series sites (Qianliyan and Xisha). About 45 journal articles have been contributed to a book entitled “Frontier Science Problems for the Surface Ocean Lower Atmosphere Study”, which will be published in Research Proceedings for China-SOLAS. In August, there was a second workshop on ADOES, and International SOLAS will support this activity. A special session at the AGU Western Pacific Geophysics Meeting in July 2006 was focused on ADOES. There will be another ADOES workshop in October or November 2007 in Xianggelila (Shangri-La). China-SOLAS has developed a Memorandum of Understanding for cooperation with Canada, and there are plans to develop similar cooperative agreements with Korea and Japan.

France – VG

There will be a meeting of SOLAS-France in June (since changed to September 2007).

Website: <http://www.lisa.univ-paris12.fr/SOLAS/>

Within the LEFE (Fluid Envelopes and Environment) programme, two are highly SOLAS-relevant:

CYBER – Theme number 4 is on biological and biogeochemical processes at the air-sea interface, and

CHAT – Atmospheric chemistry focus

The following projects are either ongoing or new initiatives:

DUNE – DUSt experiment in low Nutrient, low chlorophyll Ecosystem (Cecile Guieu), which is a mesocosm experiment

BIOCOPE – Biogeochemistry and Optics South Pacific Experiment (Herve Claustre)

KEOPS – Kerguelen: comparative study of the Ocean and Plateau in Surface and Subsurface Waters (Stephane Blain)

FLAMENCO2 – Air-sea CO₂ flux (Nicolas Metzl)

ISLAND – Iron / Sulfur: How iron limitation Affects DMS production (Eva Bucciarelli)

GRASIBU – Biogeochemical gradients in the subsurface (Yves Dandonneau)

UVECO – Ultraviolet radiation in marine ecosystems (Richard Sempere)

BOA – Biogeochemistry of iron at the air-sea interface (Geraldine Sarthou)

Action: EB to attend SOLAS-France meeting in the fall.

Japan - ST

W-PASS is the SOLAS-Japan program, and it began in June 2006, running for 4 years.

The program has been allotted about \$10 million, which makes this one of the most significant programs for SOLAS. There are 5 objectives of the project:

- quantify the transport of natural and anthropogenic materials from the Asian continent to the western Pacific that will contribute to primary production in the marginal and remote regions;

- determine the response of marine ecological systems to changes in atmospheric composition over the western Pacific;
- investigate the production and emissions of marine biogenic gases that might lead to changes in atmospheric composition, especially in subtropical and subarctic regions of the western Pacific;
- evaluate the contribution of marine biogenic gases to global climate change;
- provide basic knowledge of the interaction between global climate change, marine resources, and oceanic processes to policy makers.

About 10 cruises are planned for the coming year, and there will be a meeting in mid-March to coordinate.

Belgium – JH

The Comparison of Oceanic Dimethylsulfide Models (CODiM) was hosted in Brussels by SOLAS-Be. The national program is funded as a cluster under the national agencies 2-year funding cycle. There are specific projects within the cluster: biogeochemistry of the coastal zone, with emphasis on CO₂ fluxes and response of ecosystems to eutrophication; biogeochemistry of the Southern Ocean; Modelling; Acidification; and Biogenic aerosols. There were 2 SOLAS cruises in 2006. Veronique Schoemann is acting Secretariat for SOLAS Focus 1 (see: <http://www.co2.ulg.ac.be/solas>).

A general assembly of cluster participants is planned for early- to mid-2007, particularly to foster and encourage young scientists. There will be a series of short cruises in 2007 on the R/V Belgica.

Canada- JH

The Canadian SOLAS network officially ends on April 30, 2007, with the closing of the secretariat at Dalhousie. A new Canadian Arctic IPY project has been funded (about \$450k Canadian), and this project seeks to determine how variability in sea ice and water masses in the Arctic influence air-sea-ice exchange of climate-active gases and particles and the chemical and radiative properties of the Arctic atmosphere. A cruise with 18 PI's is planned for September – October 2007 on the icebreaker CCGS Amundsen.

Australia - CL

In early 2006, the Precursors to Particles (P-to-P 2006) campaign was undertaken at Cape Grim, and this effort was led by Jill Cainey. In addition, Jill is now the National Representative for SOLAS-Australia. Cape Grim welcomes international partners for collaboration, and this type of partnership is sought for continuation of the P to P experiment. There will be a Southern Hemisphere Spring 2007 campaign at Cape Grim, and 7 papers have been submitted for publication from the P-to-P 2006 campaign. SAZ-SENSE operated a cruise in January-February 2007 to look at acidification, productivity, and CO₂ exchange. This program is an international collaborative effort for Sub-Antarctic Zone waters.

New Zealand - CL

The SAGE iron enrichment and dual-tracer experiment was conducted in 2004, and the national SOLAS effort has since focused on dust and nutrient cycles. A SAGE special issue for DSR-II is nearing completion.

The Fe-Cycle experimental findings have been published in GBC (December 2005), and the N-Cycle cruise took place north west of New Zealand in March 2006. This cruise sought to quantify the importance of the nitrogen cycle to the upper ocean (including nitrogen fixation, nitrogen deposition, internal wave activity, etc) and was a joint SOLAS-IMBER campaign.

The SOLAS-, NIWA-, and NSF-supported iron experiment synthesis workshop occurred in late 2005 in Wellington, and this endeavor led to the successful publication of the Science paper by Boyd et al (2007).

Norway – TJ

Adirahman Omar is the National Representative for Norway. National and international funding have assisted the development of about a half dozen major efforts in the country (including the CARBOOCEAN project). These projects focus on surface ocean observations (VOS; Ocean Station Mike; interior carbon storage; mesocosms; the importance of the North Atlantic, Norwegian and Barents Seas for CO₂ uptake; and carbon cycle – climate sensitivities and feedbacks. Some efforts have also extended to instrument development (pCO₂). Richard Bellerby remains the point-of-contact for SOLAS Arctic/Antarctic research.

Russia - SG

About \$300k per year has been available (from the Russian Foundation for Basic Research, the Ministry of Science and Technology and Education, and the Russian Navy) for SOLAS research. There are active groups in Moscow, St. Petersburg, and Vladivostok. Research focuses on observations and modeling of air-sea exchange of CO₂, O₂ and particles, heavy metal deposition from aerosols, wind-wave effects, etc. A new program focused on the “World Ocean” is nearly adopted, and a new director has been appointed for the P.P. Shirshov Institute of Oceanology of the Russian Academy of Sciences (IORAS). The Russians are working with the Germans in the Meridional Oceanic Radiative Experiment (MORE), with 4 cruises per year planned for 2008-2009.

Spain – IC

Rafel Simo is the National Representative for SOLAS-Spain, although there is no explicit funding developed for the Spanish community. The committee has suggested that there be developed a proposal for workshops, participation in international activities (Summer School, etc) and collaborative networking for the group. Research focuses on plankton metabolism and CO₂ fluxes; nitrogen fixation; UV-radiation effects on carbon fluxes and

primary production; biogeochemical controls on DMS emission, biogenic sulfur, aerosols, and clouds; air-sea exchange rate controls; time series of SOLAS-relevant observations; air-sea exchange of CO₂, NH₄, and N₂O; acidification; and collaborations in CARBOOCEAN.

United Kingdom - PL

This presentation was prepared by Phil Williamson (UK-SOLAS coordinator), and UK-SOLAS has a subtitle of “Measuring, monitoring, and modeling in the North Atlantic”. \$20 million over 5 years has been committed to the UK-SOLAS effort (this includes aircraft time, ship time, etc). Twenty-four projects in 15 institutions are included, and a fall 2006 cruise was scratched due to vessel problems (it should be rescheduled). Four cruises are scheduled for 2007 and two more in 2008. The atmospheric observatory at Cape Verde has included a commitment of about \$2 million. The program is expected to sunset in 2009-2010. Focus for UK-SOLAS includes dust and iron, DMS, halogens, NO_x, CO₂, CH₄, sea salt, etc.

NERC Website: <http://www.nerc.ac.uk/research/programmes/solas/>

BODC Website: <http://www.bodc.ac.uk/projects/uk/uksolas/>

USA - WM

For more information about US-SOLAS, see the website: <http://www.us-solas.org/>. The US science plan has been printed and distributed. SOLAS is administered (in part) by the Ocean Carbon and Biogeochemistry (OCB) office in Woods Hole, and this coordination also includes IMBER, Ocean Carbon and Climate Change (OCCC), and the North American Carbon Program. The Southern Ocean GasEx will occur in March 2008. Other research efforts focus on coastal carbon, moored time series arrays (ORION, OOI, etc), air-sea exchange at high winds, development of parameterizations for gas exchange, DMS and clouds (VOCALS), DMS production and sulfur cycling, etc.

Africa – EB

Action: Communicate the timing of IGBP Congress to the African SOLAS Network, particularly those individuals in South Africa.

Day Two: March 5

Germany – DW

The SOPRAN project has secured 6.5 million Euros over 3 years, with another 3 years possible. There are 43 PI's from 12 institutions, and there are 23 planned projects within SOPRAN. Themes include: oceanic response to dust, effect of high CO₂ on marine ecosystems (including mesocosms and modeling) and on gas exchange, production and emission of radiatively and chemically active gases in the tropics, and inter-phase transfer at the surface. Other efforts include modeling, development of parameterizations, Cape Verde observatory (TENATSO), mesocosms, cruises, VOS lines, etc.

Collaborative / International Activities

VOCALS – BH

This is a regional experiment to be held in October 2008, off the coast of Chile. The DMS observations have implications for radiative budgets, the CLAW hypothesis, etc, and the participants are looking for more SOLAS interest. There is persistent talk of securing a second ship, but nothing concrete has materialized. This area has significant upwelling, large SST gradients, biological activity, pollutant sources inland, and high elevation changes (the Andes) onshore. The area is remarkable for the pockets of open cells (POC's), and DMS may be responsible for some of the controls on the cloud processes. NSF/NOAA/NASA/ONR are offering support, and proposal deadline is July 15th. The acquisition of the second ship needs SOLAS participants and interest. SOLAS should begin planning a biogeochemistry experiment to capitalize on the regional cruise, perhaps for 2010. **PL** points out that ammonia and isoprene measurements should also be made coincident with the DMS observations.

OASIS – PM

Website <http://www.oasishome.net/>

This is a 10-year program, not simply for IPY. About 200 scientists and 60 projects have been proposed, although funding is on an individual basis. Two large field campaigns have been established for 2009: one at Barrow, and an ice camp about 350km north of Alaska. A number of buoy deployments are also planned, and these will measure BrO and CO₂ (and other species). A special HitT/OASIS session is planned for EGU in Vienna for 2007.

Southern Ocean – PM

This report was generated by Richard Bellerby at the Bjerknes Centre for Climate Research. SOLAS is integrated into the SCAR/SCOR Expert Group on Oceanography, and SOLAS is also a participant in ICED (Integrating Climate and Ecosystem Dynamics in the Southern Ocean). This latter relationship has been identified by the Expert Group as being of importance, and it has been suggested that ICED and SIC pursue collaboration. SOLAS and IMBER have been asked to identify issues of importance to

the Southern Ocean and acidification. ICED is building a database of cruises, including those of interest to SOLAS, and there has also been an effort by CliC to collect information on IPY cruises (<http://www.clivar.org/organization/southern/process.htm>). A workshop to plan a Southern Ocean Observing System (SOOS) will be held 1-3 October 2007 in Bremen, sponsored by SCAR and SCOR.

Action: IPO to work to publicize this activity. **DW** suggests we emphasize the few real SOLAS efforts for this publicity and not attempt to list all active programs.

Action: IPO to contact Eileen Hoffmann (ICED Chair) to gather information for collaborative efforts.

ADOES - GS

This series of workshops explores the changes in physical and chemical properties of dust as it is transported in the atmosphere across the ocean and to understand the impact of dust loading on oceanic ecosystems. A first workshop was held in October 2005 in Weihai, and the 2nd workshop was held in Mongolia in August 2006 (joint with Asian SOLAS meeting). ADOES Chairs are **MU** and **GS**, and a proposal will be submitted in the fall of 2007 for support from the Chinese and Japanese governments.

Action: IPO to assist in the development of ADOES as a SOLAS Task Team.

A number of dust-related efforts have been undertaken recently, including a South American dust workshop in October 2007 in the city of Puerto Madryn, Argentina. Also, there is an emphasis on dust inputs within the SOPRAN plans, and there have been efforts to characterize the effects of African dust on oceanic ecosystems. We need to work toward coordination of these dust studies.

Action: IPO to publicize the October dust meeting in South America.

Action: IPO to publicize ADOES, as the next workshop is being planned.

MAP - PL

The report was developed by Colin O'Dowd at Galway, and this EU-funded project seeks information on primary and secondary marine aerosol production from natural sources. This includes quantification of new particle formation and investigation of the dominant precursors, investigation of how organic matter is linked to specific species, air-sea gas transfer and surfactants, and impacts of marine aerosols on the radiative budget. The project runs for 3 years with 20 partners and about 3 million Euros. A cruise, including covariance aerosol flux measurements, was undertaken off the Irish west coast in the early summer of 2006, and Mace Head was used as a base for observations.

OOMPH – JH

This report was created by Jonathan Williams, and the project is EU-funded. The Organics over the Ocean Modifying Particles in Both Hemispheres (OOMPH) project seeks to characterize the nature of organic trace species, in particular organic oxygenates, and the rate of emission from marine biological activity. The oxidation of these compounds in the atmosphere is directly linked to global ozone and aerosol budgets, while the oxidation pathways in seawater are not well known. Two cruises were conducted (Northern Hemisphere and Southern Hemisphere), and the last of these was completed in March 2007.

WGSF – WM and SG

Two papers are under development by the group, which has close links with SOLAS IMP2. One of the papers is on particles and is led by GD, and the other is led by **WM** and focuses on gas exchange. **SG** points out that WGSF will probably be disbanded at the end of 2007, and that WCRP is considering a merger with IGBP.

CARBOOCEAN – TJ

This project is subtitled “Marine Carbon Sources and Sinks” and is funded by the EU. There are 5 themes:

- North Atlantic and Southern Ocean CO₂ air-sea exchange,
- detection of decadal-to-centennial Atlantic and Southern Ocean carbon inventory changes, carbon uptake and release on the European scale,
- biogeochemical feedbacks of oceanic carbon sinks, and
- integration of carbon observations into an integrated modeling framework.

In June 2006, a synthesis workshop was held in Iceland for the North Atlantic.

CODiM – PM

This was a SOLAS sponsored workshop (Comparison of Ocean Dimethylsulfide Models) that occurred in December in Brussels. The Belgian federal science funding agency and Canadian SOLAS also provided support, and Veronique Schoemann, who is the IMP1 Secretariat, was the administrator responsible for executing it. The workshop is a direct result of discussions at the 2004 SOLAS Conference in Halifax. Comparisons were sought for 1D and 3D models of DMS-producing ecosystems. Five 1-D models were employed, and four 3-D models were compared. Twenty participants met during 4-8 December at Universite Libre de Bruxelles. Papers are being prepared from the discussions at the workshop, and a second workshop is being planned for Plymouth Marine Laboratory.

Nitrogen – PL

A workshop was held in November 2006 in Norwich at the University of East Anglia on Impacts of Nitrogen on the Open Ocean. SCOR, the SOLAS IPO, ESF, and NOAA

provided funding. About 30 people attended over a long weekend in November. The output from this workshop includes a paper for Science, and a manuscript is under development by Bob Duce (tentative title is “Impacts of Atmospheric Anthropogenic Nitrogen on the Open Ocean”). There are plans for a paper to be submitted to Global Biogeochemical Cycles (title: “Atmospheric nitrogen in the marine atmosphere”, including seasonal fluxes, model uncertainties, measurement needs, needs for organic nitrogen data collection, locations for measurements, ship emissions, etc), and Joe Prospero is first author. Sybil Seitzinger will lead on another paper for BGC (title: “Overall marine nitrogen budget”).

Large-Scale Experiments - PL

SOLAS needs to push for large scale experimental efforts that are multinational in scale. Thursday afternoon at the open science conference, there will be a session on this topic.

Coastal Zone Air-Sea Fluxes - MD

The occurrence of red tides and harmful algal blooms is a topic of significant interest within the community. **DK** suggests we push this as a hot topic. There is a discussion on Mega-Cities initiative of IGAC, where we could provide trace gas concentration and flux measurements over the sea. This would also partner nicely with LOICZ, and **PL** and **JH** will present this idea at the upcoming IGBP SC meeting in Brazil.

Action: Broaden the megacities concept to include harmful algal blooms (HABs), in partnership with GEOHAB.

Action: **JH** and **PL** to present a partnering proposal to LOICZ and IGAC on the topic of megacities collaboration. Correspondence should include **TZ**.

MD and **WM** agree to lead for SOLAS on this topic.

Next Chair – PL

PL will step down as Chair end of 2007, although he will remain as Past-Chair for one year. **DW** has been nominated and is the consensus best candidate. Concerns are raised by **BH** and **EU** that **DW** has many commitments and may be overextended. **MU** asks if it is acceptable to the IPO that a Chair is not co-located (at UEA), but it is pointed out that most of the projects have Chairs not co-located with the IPO. **EU** recommends that a suitable alternative be considered should this nomination fall through.

Next Science Conference - PL

Where/when? Previous conferences have been held in Damp (Germany), Halifax (Canada), and now Xiamen (China). Consensus is that we should look to Europe for the next site. Potential locations include: Bergen, Barcelona, Heidelberg, Brussels (or other Belgian city), Amsterdam (or other Netherlands city), and Norwich. Are there sites in the

USA (New York)? It is critical that there be strong local interest and commitment to support the organization as we have had in Xiamen (**MD**). There will be an ASLO conference in Nice in 2009, and IGAC plans a conference in 2008 in the French Alps.

Project Integration – JH

A presentation was created by the new SOLAS Project Integrator, Tom Bell of UEA. The concept of project integration (as opposed to strictly data management) was generally endorsed. **SG** notes that the WGSF has similar issues and suggests that metadata tracking is a good idea.

CL suggests a statement in the endorsement process (online) that projects should make use of the SOLAS Project Integration process.

PM suggests that privately held data needs to be encouraged to be placed into a national data center.

Summer School – EB

Schedule of deadlines is presented, and presentation of the advertisement poster is shown. This poster will be unveiled at the conference. Questions were posed as to the suitability of alternative sites for the next (2009) Summer School, as Cargese has not been as receptive to us (giving us a relatively poor schedule for 2007), the funding for the ship will not be provided again (comments by **VG**), etc. Piran in Slovenia has been suggested by Daniela Turk (now at ESF, formerly at Dalhousie and the IMP2 Secretariat). **EU** suggests we inquire about the Bermuda Biological Station or Catalina Island. **DW** suggests that we consider Cape Verde, although concerns are expressed about the ease and cost of getting in/out. However, there is a research vessel and a working field site available. Jamaica also has a biological station that may be suitable. Cost is certainly an issue.

SSC membership - JH

Presentation made on the current and future status of rotations. Due to sponsors acceptance of the IPO proposal, we are able to maintain for one year up to two members whose term is set to expire at the end of the year. Due to rotate off are: **UP, TJ, PM, BH, TiJ, MU, and PL** (see discussion on next chair). Thus, at the end of 2007, we need to replace 4 members. At the end of 2008, we ask two members to step down one year early (this includes **OU, ST, and ChL**; **WM** and **GD** have been asked by the sponsors to stay on until the end of their terms in 2009). This means replacing four members at the end of 2008, and at the end of 2009, we will need to replace three. The IPO has asked many individuals to provide names of replacements. **BH** suggests Chris Fairall, Phil Nightingale, Eric Saltzmann, and Trish Quinn; **PM** suggests Maurice Levasseur; **MU** suggests Urumu Tsunogai.

Next Meeting - JH

We are obligated to schedule our next SSC meeting for Cape Town during the IGBP Congress in May 2008. We need to think about an Executive Committee meeting in the fall of 2007.

Action: IPO to determine suitable time, attendance, and location for Executive Committee meeting.

Ethics – CL

Issues of ethics were raised at the first SOLAS SSC meeting, but we need to maintain some focus on these issues. In particular, the SOLAS SSC needs to consider whether we should take an official position on issues such as commercial iron addition for the purpose of sequestration of CO₂, etc. There could be far-field effects of perturbations to the oceanic environment from these types of activities. We need to be aware whether or not there are private/commercial interests embedded within our endorsed projects, so should we consider having projects disclose to us their “risks” to the environment? Other issues raised include the idea that our membership offset their carbon footprint for travel to/from the SSC meetings (something that GLOBEC has adopted). **VG** suggests that we consider a policy on private / corporate funding. **EU** mentions that there are implications of iron fertilization and SOLAS may consider a statement as to the non-effectiveness of the proposed practice. **DW** seconds the suggestion that the SSC be aware of corporate interests within the community.

Action: IPO to obtain a copy of the ASLO statement on iron addition (from **CL**) and distribute to the SSC.

End

Summary of Action Items

- 1** **Action:** IPO should ask the proponents about the status and understanding of the communication from SCOR. Will they plan to re-visit this proposal, after assembly of the data? Deadline for SCOR WG proposals is end of April for August consideration.
- 2** **Action:** IPO identify a liason with GEOTRACES.
- 3** **Action:** EU to ask whether this last topic can be included.
- 4** **Action:** IPO to identify what IMBER's capacity building team does. SOLAS may consider following suit.
- 5** **Action:** WM and JH discuss strategy for maintaining the US-SOLAS participation in the SOLAS Summer School, while maximizing the funds for international activities.
- 6** **Action:** IPO to investigate whether or not someone from the SSC should represent SOLAS at CACGP.
- 7** **Action:** IPO and PL determine appropriate date to meet with the South Africans, based on the IGBP schedule to follow.
- 8** **Action:** IPO to investigate the possibility of holding an IMP2 meeting coincident with the COST meeting in Brussels.
- 9** **Action:** IPO to work to develop and coordinate a WGSF/IMP2 group to look into coastal fluxes. WM and MD agree to work on this.
- 10** **Action:** IPO to identify a lead from SOLAS to interact with IGAC on AC&C.
- 11** **Action:** IPO identify someone to be the SOLAS representative to IGAC SSC (BH has volunteered in the short term).
- 12** **Action:** Identify a representative from SOLAS to the GEOTRACES SSC.
- 13** **Action:** Can we identify other SOLAS scientists to interface with GEOTRACES? The IPO should publicize SOLAS interests in GEOTRACES and develop a strategy for integration between the two projects. It is proposed that the Cape Verde observatory could be used for this purpose.
- 14** **Action:** Can we identify a SOLAS individual to attend the LOICZ SSC meeting?
- 15** **Action:** PL suggests the development of a whitepaper that sets out the scientific utility of the PAGES-SOLAS relationship. IC volunteers to lead this effort.
- 16** **Action:** EB to attend SOLAS-France meeting in the fall.

17 Action: Communicate the timing of IGBP Congress to the African SOLAS Network, particularly those individuals in South Africa.

18 Action: IPO to work to publicize this activity. **DW** suggests we identify the few real SOLAS efforts for this publicity.

19 Action: IPO to contact Ilene Hoffmann (ICED Chair) to gather information for collaborative efforts.

20 Action: IPO to assist in the development of ADOES as a SOLAS Task Team.

21 Action: IPO to publicize the October dust meeting in South America.

22 Action: IPO to publicize ADOES, as the next workshop is being planned.

23 Action: Broaden the megacities concept to include harmful algal blooms (HABs), in partnership with GEOHAB.

24 Action: **JH** and **PL** to present a partnering proposal to LOICZ and IGAC on the topic of megacities collaboration. Correspondence should include **TZ**.

25 Action: IPO to determine suitable time, attendance, and location for Executive Committee meeting.

26 Action: IPO to obtain a copy of the ASLO statement on iron addition (from **CL**) and distribute to the SSC.