

publicise that it exists and what the research themes are. There is a SOLAS poster which was produced for the Global Change Open Science Conference (July 2001). This can be used to promote SOLAS (available electronically).

Decision: To produce a small brochure for SOLAS during the next few months.

Meetings for 2002

Decisions:

- Next SSC meeting 11-13 December 2002 in San Francisco, immediately after the AGU.
- Meeting of National Representatives and Executive Committee in Amsterdam 10-14 June 2002.

Appointment of Executive Group

Executive Committee was appointed, consisting of: Peter Liss (Chair), Paty Matrai (Vice Chair), Barry Huebert, Uli Platt, Gerbrand Komen.

Other Business

Duce and Liss are publishing an article on SOLAS in Atmospheric Environment which should be useful to engage the atmospheric community.

Task Teams

The concept of a set of task teams was raised to develop foci which act as an international coordinator. There was concern that such task teams may be viewed as “priority” areas of research for SOLAS, or premature (implementation activities before an Implementation Strategy has been written). They could be seen as teams to look further into the future, beyond the short term and even beyond SOLAS. It may be important to use task teams to collaborate with other projects/programmes.

Decision: The concept of Task Teams will be revisited once the draft Implementation Strategy has been written.

IPO Status

There is currently no International Project Office. Therefore the SSC members will need to carry out some tasks until an IPO is established. Possibilities for the IPO, which are being explored are:

- Norwegian Research Council may be interested in hosting the SOLAS IPO after the end of JGOFS (end 2003).
- Canadian SOLAS Secretariat at Dalhousie (Project Manager, Secretarial Support, Data Manager) could be expanded to host the international office. Long-term funding is currently not possible through the Canadian system. Short term (2 years max) funding may be possible through the International Opportunity Fund (Canadian NSERC).
- The idea was raised that you may be able to get an Executive Officer (bringing their own salary) by secondment. Australian and Canadian governments are favourable to funding such secondments.
- Mitsuo Uematsu will talk to people in Japan about possibly funding an office there.

SOLAS Summer School

The concept of a SOLAS Summer School arose from the Open Science Meeting in Damp. Corrine Lequere is putting an application to the EU and IOC for funds to bring European and developing country scientists to the first School in July 2003. If successful it is planned to be an annual event. Approx 80 students. There is some French support for participants. The atmospheric part of the programme needs development.

The committee felt the School was an excellent idea and have the following comments to be considered in development of the programme:

- 80 students is too many with hands-on models/measurements. Optimum size for teaching groups is 30-40.
- Programme does not currently allow for tuition in a broad range of introductory level courses in all disciplines. Radiative transfer missing. Field studies (dust) in N. Mediterranean could be developed with French scientists.
- Target audience should be expanded to include the brightest final year undergraduates
- The timing is in conflict (for lecturers) with the IUGG general assembly (Japan), which has a SOLAS session.

SOLAS Website, Brochure etc

The new website at UEA will be updated and information transferred from the Kiel site early in 2002, although the Kiel address should be maintained to direct visitors to the UEA site. In addition, the website should include information about the summer school, the SOLAS poster (downloadable), a list of SSC members, national contacts (and links to their websites) and upcoming meetings.

Discussed whether the time is right for a brochure or whether we wait until after implementation strategy has been written. The feeling was that SOLAS needs a brief brochure at this stage to

will lead that effort) is not clear. There is concern over finding funding for interdisciplinary activities.

- **Brazil** – a brief report on SOLAS Brazil was tabled. See more details at www.iag.usp.br/meteo/labmicro/SoBraz2.htm

Discussion:

- Repetition of iron fertilisation experiments in national efforts – what is going to be gained by so many? Technology has now been developed (ACE-Asia) to look at dust in detail from aircraft. We are in a good position to do a lagrangian experiment on dust from Asia across Pacific and deposited into the Pacific Ocean (natural iron fertilisation experiment). Impact of Asian pollution on bio-availability of iron.
- Measurement campaigns on ships of opportunity should be coordinated with CLIVAR (meeting in Goa, India February 26, 2002 – try to get SOLAS on agenda). Request that Dileep Kumar attend for SOLAS.
- Buoy technology is being developed which will enable much cheaper experiments to be performed.
- The organisers of the Bermuda Atlantic Time Series Station (BATS) are very keen to collaborate with SOLAS.

Action: Ed Urban to send a letter to Peter Dexter at WMO to request that Dileep Kumar be invited to the JCOM meeting in Goa to represent SOLAS.

Implementation Strategy

SOLAS is the first IGBP Project which will not have a detailed Implementation Plan but will have a brief Implementation Strategy appended to the Science Plan. There was discussion on what the Implementation Strategy should include. There was agreement to base the structure of the implementation strategy on the following points (not in order of priority):

- **Promising approaches and their implementation**
- Organisational Structure – SSC, National programmes, IPO, Task Teams,
- Interaction with IGBP projects and other international activities
- Endorsement
- Outreach
- Capacity building
- Modelling
- Time series
- Palaeo
- Remote sensing (the current draft tables need updating or removing)
- Ethical issues etc. The idea of having a high level group was proposed, composed of natural scientists and social scientists to discuss ethical issues such as those related to iron fertilisation and scenarios for CO₂ sequestration.

Further discussion:

- The SOLAS SSC should endorse activities in order to ensure that the SOLAS name is not associated with experiments that are not within the philosophy of SOLAS.
- Detailed timelines are unrealistic and should not be included in the strategy (these are ultimately determined by national funding as it becomes available).
- There should be some prioritisation of activities and regions of focus, in order to encourage nations to work together, particularly to implement some of the large-scale experiments proposed.

Decision: The following were asked to act as liaison with other projects:

- Ocean Futures – Bill Miller
- LOICZ – Tim Jickells
- GLOBEC – Kathy Richardson
- GAIM – Ken Denman
- PAGES – Elsa Cortijo
- Atmosphere (IGAC II) – Mitsuo Uematsu?
- WCRP – Peter Schlosser
- CACGP – Tim Jickells

ACTION: Peter Liss to write to the above (except Bill Miller who will receive information from IGBP/Ocean Futures) to outline what is expected of them.

National Committee Reports

Received National Reports from:

- **Japan** – Mitsuo Uematsu – see report in working papers. An active national committee exists.
- **Canada** – Bill Miller – See report in working papers. Funding from July 2001. Secretariat at Dalhousie University. Aircraft were not funded as part of the proposal, but new applications are being made to involve aircraft and atmospheric scientists. Excellent training opportunity: there is funding for many students, technicians and post-docs in Canadian SOLAS every year. Ocean Carbon Systems (private company for power companies) have put funding into the iron addition experiments.
- **Australia-NZ** – Neil Tindale – see report in working papers. Problem with recognition of SOLAS National Committee. 3 focus regions for domain of ANZ SOLAS – (1) tropical regions and Great Barrier Reef, (2) Southern Ocean and sub-Antarctic region, (3) the role and impact of dust.
- **France** – no information at present.
- **Germany** – Doug Wallace – see attached report (appendix 1)
- **India** – Dileep Kumar – see report in working papers. At the moment the marine community are trying to involve the atmospheric community. A list of SOLAS hypotheses relevant to the region has been developed.
- **Netherlands** – Gerbrand Komen – see report in working papers. In addition, the EU initiative PRISM (Programme for Integrated Earth System Models) is being developed by Komen and Brasseur. This is an integrated land-ocean-atmosphere model.
- **UK** – Peter Liss – see report in working papers. Current proposal to be submitted to the UK (22 million USD) includes sulphur/halogens in water and air, gas exchange, dust inputs and iron fertilisation experiments and coupled atmosphere-ocean modelling. Atlantic Meridional Transect cruises (focussed in the SOLAS domain) have been funded for the next 3 years (2 cruises per year).
- **US SOLAS** – Paty Matrai – see report in working papers. May 2001 workshop (70 scientists) was funded by several agencies (NSF, ONR, NOAA and NASA). Meeting focussed on (1) Boundary layer physics, (2) dynamics of long-lived climate relevant compounds, (3) dynamics of short-lived compounds (gases, aerosols, photochemistry, biological controls) (4) atmospheric effects on marine biogeochemical processes. Report (waiting for section 3) is to be submitted to funding agencies and research community. The US SOLAS organising committee will then be disbanded. The way forward (and who

Draft Minutes of the 1st Meeting of the SOLAS Scientific Steering Committee

14-17 December, 2001, San Francisco, USA

SSC Members present

Peter Liss (Chair), Elsa Cortijo, Ken Denman, Barry Huebert, Tim Jickells, Gebrand Komen, Dileep Kumar, Paty Matrai, Bill Miller, Uli Platt, Peter Schlosser, Mitsuo Uematsu, Doug Wallace

Other participants

Wendy Broadgate (Deputy Director, Natural Sciences, IGBP), Bob Duce (President, SCOR), Neil Tindale (Australia-New Zealand SOLAS Committee), Ed Urban (Executive Director, SCOR).

Introduction

Peter welcomed members to the first SOLAS SSC meeting. Apologies were received from Phil Boyd, Truls Johannessen, Katherine Richardson and Ilana Wainer.

Focusing of the SOLAS Science Plan

Discussion of reviewers' comments and IGBP-SC comments to focus the plan. During the meeting, adjustments were made to the Science Plan according to the following decisions:

- Select the most important questions (bullet points) based on (a) questions that require a coupled study of ocean and atmosphere (b) questions not already being addressed by other projects (c) best science (achievable in 10 years).
- Set topics as questions or testable hypotheses, as appropriate, but do not force everything into hypothesis form
- Evaluate whether there are important atmospheric questions missing
- Intersperse discussion throughout foci of (a) ice, (b) palaeo, (c) coastal, (d) appropriate time and space scales of study and scaling up and down, (e) specific scientific goals to be achieved by end of project, (f) links with other international projects/programmes
- Focus text, bearing in mind that the core of SOLAS is ocean-atmosphere coupling and so avoid, for example, nitrate in the deep ocean
- Include discussion of how to scale up from process studies
- Common issues will be mentioned in introduction (and/or foci) but in general (with the exception of coastal) will be incorporated into the "implementation" section.

ACTION: All to send (hard copy) comments on the whole text of the Science Plan to focus leaders by **4 January**. Focus leaders: Intro./common issues Peter Liss, F1 – Tim Jickells, F2 – Ken Denman, F3 – Doug Wallace. **Focus leaders** to send final versions (electronically) to Peter Liss by **11 January**.

ACTION: Peter Schlosser to advise Peter Liss on what WCRP need for their JSC meeting in March 2002, and when it is required.

Interaction with other projects/programmes

Wendy Broadgate and Ed Urban introduced the status of other new and continuing IGBP Projects (Atmospheric Futures, LOICZ, GAIM, PAGES) and IGBP/SCOR Projects (Ocean Futures, GLOBEC). The Carbon Joint Project (CJP sponsored by IGBP, IHDP, WCRP and DIVERSITAS) was also introduced. The CJP will synthesise carbon research carried out within SOLAS and other parts of the sponsoring programmes to address interdisciplinary questions of global sustainability. There were comments that, in some countries, the CJP is seen to be competing with SOLAS for participants and funding.