

JGOFS Executives Committee Meeting
Williamsburg, Virginia, USA
30-31 October 1997

Participants

Executive Members: John Field (Chair), Hugh Ducklow, Michael Fasham, Karin Lochte, James Murray, Egil Sakshaug, Liz Gross and Roger Hanson. Administrative Assistant: Judith Stokke. *Guests:* Scott Doney (US JGOFS, WOCE), Janet Campbell (Program Manager at NASA), Hugh Livingston (Director of the US JGOFS Planning Office), Mardi Bowles (Editor of the US JGOFS News).

Welcome & Opening Remarks

Field opened the Executive Committee Meeting on Thursday 30 October at 09:00 and welcomed everyone, remarking that Ducklow and Fasham were attending an Executive Meeting for the first time. Field then welcomed each guest who had taken time to join the meeting. Field also directed a special thanks to Ducklow for the effort he had put into organising the meeting in Williamsburg. All applauded.

Field's suggestion of rearranging the agenda and thereby starting with New Business was accepted. Two additional "Other" items were proposed and accepted: (1) To discuss JGOFS relationship with GAIM, and (2) To have a discussion focusing on the sometime problem, due to cultural differences, of interaction among participants at JGOFS SSC meetings.

Corrections: Due to complications in the selection process of new SSC members, a list was circulated that was incorrect. Robert Anderson's name is to be stricken from all lists. The name of Professor Hong is to be added.

Action. Stokke is to send a revised SSC name and address list to all members.

New Business

Future Synthesis Plans and Implementation

Discussion with US JGOFS, US WOCE: Doney presented US JGOFS goals and objectives with a focus on the Synthesis and Modelling Project. Another topic was the US WOCE program, which is grappling with a few problems common to other programs. Dealing with synthesis for several groups is especially difficult, and Doney expressed a need for ocean models. Another continuing problem is that data sets need to be more accessible on a larger scale in the community.

Is JGOFS synthesis phase covered adequately?: Ducklow informed the execs of a large workshop, which is being planned (USA) to draw groups from different disciplines. This scientific directed effort would include representatives from Global Change research. There should be a parallel effort at producing small data sets while working on the co-ordination of "grand scale" data. There followed a discussion on funding and on designating priorities. The problem faced by most research groups is that while cruises are being given funding support, money is not always designated for the synthesis phase. The rationale to possibly change this would be to stress that the initial investment needs protecting. Addressing this issue, US JGOFS is leveraging the funding groups to give priority to synthesis and modelling programs.

Agreement that money spending has to be done on a national level; yet at the same time, it was argued that there should be strong links between nations. A question was raised if it was possible to successfully co-ordinate and to distribute tasks between European and US groups. It was agreed that an implementation plan for Synthesis should be drafted which could then be used as argument in funding questions for all countries. As it was pointed out, this is a goal of JGOFS next 5-year workplan.

The Second IGBP Congress is planned for 4-9 May 1999, and JGOFS is expected to have a half-day presentation. Not everyone agreed that a synthesis meeting was appropriate at this time. Field felt that a request for Synthesis at this point was too early. Gross referred to a talk with Neil Swanberg where he expressed the opinion that it was time for the Task Teams and Planning Groups to step back and take a look at Synthesis and the results. Field again stressed that a book on Synthesis at this time would be too early.

The forum of a Congress would give high visibility to put forward a Synthesis plan. The agenda for the Congress would be for three or four people to talk on Science. Gross pointed out the possibility of combining this meeting with a JGOFS synthesis forum, especially since IGBP would already be paying for travel.

Another question asked is who will be attending the 1999/2000 JGOFS science conference. Main emphasis for an open science meeting would be to show what we have learned about the ocean carbon cycle and to present future perspectives, while the main emphasis at synthesis meeting would be to discuss where we are now in regards to synthesis and future plans.

The Execs agreed that individual activities need time to develop their own synthesis activities and thereafter time for meeting together. In addition, time-series data and synthesis should be incorporated into other synthesis groups. Earlier discussions included the premise that Task Teams and Planning Groups should be restructured to include synthesis with membership rotating every year.

Lochte talked of an umbrella document to organise and direct the regional groups in the right direction. Ducklow proposed that Chairs of the Task Teams and Planning Groups would form the Synthesis Task Team Group. There were several added suggestions. First, someone with global perspective should participate, and second perhaps a representative from GAIM, as Fasham will no longer be directly involved with GAIM. This would be advisable in that IGBP stresses the need to link with other projects.

This led to the question of who represents JGOFS in GAIM. Doney would be a good liaison for JGOFS if he had the time. No definite action was taken here.

The idea of planning an open science meeting in 1999 was met with the reaction that it was too soon. Although most JGOFS groups would have something to present, it would be better to wait until year 2000. This would make a good balance since this would make a 5-year cycle. One obvious issue would be that in Year 2000 the Bergen JGOFS International Project Office might not be able to help. On the other hand, this might be an argument to give more leverage in the effort to get the University in Bergen and the Norwegian Research Council to commit funds for a continuation.

Fasham addressed again the issue of structuring a committee for synthesis and the need to make a framework for defining the relationship between regional and global synthesis. One possible solution would be to draft a bureaucratic, concise and high profile document, which each group could use in requesting funds.

Sakshaug suggested a letter of endorsement for a 4-year Synthesis and Modelling phase to help regions to secure funds.

At the end of the discussion on synthesis the following tasks were assigned:

Action. Hanson/Platt/Fasham: Draft a Synthesis document, which is to be circulated among the Execs and presented at the next SSC meeting.

Action. Fasham: Draft a set of generic Terms of Reference, which can be referred to by other synthesis groups. Circulate terms to the Execs before final decision.

Action. Hanson: Draft a letter of endorsement for the 4-year Synthesis and Modelling phase which could be presented regionally. The purpose of the letter would be to help obtain funding. Letter to be sent to Chairs, National Chairs and IGFA.

Action. Fasham/Ducklow/Hanson: Draft the JGOFS 5-year Workplan and send IGBP.

Data Management and Synthesis Workshop - late 1998

The Data Management Task Team and the Data Management and Synthesis Workshop should meet back-to-back with the Execs Meeting in Bergen with emphasis on the issues of data accessibility via the Internet.

Restructuring the Planning Groups

All groups indicated, following the lead of the NAPG, a need to reform groups for synthesis. Group Chairs have power to recommend new members and invite after Execs approval. It was asked if the restructured group should set terms of reference for the synthesis group. All agreed.

IGBP wide-effort in synthesis

There seems to be a new direction in GAIM. The new focus is on joint ventures with Core Projects. For example, there could be a joint venture in the Equatorial Pacific, which is a new idea for GAIM. Co-operation is important. In addition, there were new ideas and new proposals after the modelling workshop in Oban, UK. Fasham informed the Execs and guests that themes, which had developed from two meetings (Barcelona and Paris), have been rehashed into the new GAIM Plan. Hanson received a draft plan received from IGBP.

Fasham said that not everyone was satisfied with the GAIM Plan and that it might upset a few JGOFS individuals. Hanson commented that there had been some revision of the GAIM Plan at the IGBP IPO meeting in Germany, and that it was his opinion that there is a general good feeling of co-operation and positive attitude.

3-D modelling is going ahead. A possibility was mentioned that there should be a GSMTT liaison between JGOFS and GAIM, which led to a discussion of GSMTT restructuring.

Action. The Execs agreed that Platt should recommend a "new" GSMTT with new members (composition), and call a meeting.

Action. GAIM and JGOFS should have cross membership in the GSMTT and this "new" Task Team should run OCMIP (Ocean Carbon Modelling Inter-Comparison Projects).

Future programs in ocean biogeochemical research

Watson and group held a meeting in January 1997. Although the SOLAS group is now dissolved, there was a proposal for future SOLAS activities. There was concern that the SOLAS proposal was too biogeochemically focused. The program should not be another JGOFS, but a new venture and new plans. Present proposal centres on a tracer study in the Atlantic. A good

rule to follow is to keep the project small with simple experiments. Since then, Watson has been asked to form a committee to organise a larger group, a workshop, for 50-100 people.

JGOFS should be making input into SOLAS but this should not be seen as a JGOFS successor. Lochte pointed out that the funding philosophy was moving away from climate research, and is now hard to get funds. There is more focus on biotechnology in the European Union.

There were concerns that JGOFS has not participated enough in global change science meetings and that there should be more involvement. There are mixed signals coming from programs and no broad community input or consensus. Also, there is too often an individual oriented attitude (i.e., old pals) that needs to be dispelled. There was also a concern that there is weakness in reporting. Field mentioned that greater monitoring would come from SCOR and IGBP in the future.

Action. Field agreed to write a letter to Watson and IGAC to ask how JGOFS could provide greater input to bridge and strengthen the future. There is a need for co-ordinating certain areas, such as carbon dioxide, which has not been covered very well.

Action. JGOFS members need to show greater involvement in open science meetings.

Next Meetings

SSC Meeting

There was a suggestion that the next SSC meeting be held in Cape Town, South Africa. Although the airfare would be expensive, the accommodations are less expensive than other alternatives. John tentatively set the date for April 25/26, 1998. Hanson mentioned that the SSC would need approximately 22-25 rooms.

Old Business

Executive Committee Minutes- Bergen Meeting. Revisiting some of the issues

IGFA Meetings: Hanson took up the issue of the IGFA Report and explained that IGFA had reconciled some inconsistencies in the projects although there is still a need for more work. It was a difficult exercise in budgeting for most of the projects. There were often discrepancies between project budgets and the funding agencies' perception of their needs.

Lochte suggested asking for an estimate from each country stating their funding needs. Hanson said that we could do this but he did not want to spend too much more time on this.

JGOFS Report # 24 now lists over 1500 JGOFS publications between 1988 and 1996. It will be printed soon and distributed. Other lists will be printed in 1999 and in 2001 with publications between 1988-1998 and 1988-00, respectively.

SSC Restructuring: SCOR and IGBP had accepted the guidelines to restructure, which Field read to the EXEC.

Chair of JGOFS: There has been a unanimous positive response to the nomination of Mike Fasham as Chair for JGOFS. IGBP and SCOR had also supported and approved this recommendation. The Execs and guests expressed their pleasure at his acceptance. Field also announced that both Lochte and KK would serve another term on SSC and for continuity Field will continue as Past Chair for 1 year. There are two new members on the SSC: Hong and

Quinones. They have accepted the nomination and approved by our sponsors. The alternate nominee, Robert Anderson, will be a strong candidate to be considered in the future.

The "JGOFS Legacy Report" has not been written but it will be part of the Villefranche book.

Villefranche Book: Field directed a special thanks to Hanson as senior editor for the great job he has done. Hanson updated the Execs on the progress of the book. There have been some titles changes and the last chapter of the book is not yet in. There were some comments regarding the book's title.

The Execs approved the 1996 Execs Minutes.

International Scientific Highlights (Summarised)

There followed brief bullets about what items to highlight and list as JGOFS main achievements. The Execs provided these examples:

- North Atlantic experiment, decrease in CO₂, weeks to restore equilibrium,
- Biological carbon significant in ocean carbon modelling,
- Diatom calcification produces CO₂,
- Spatial patterns of community structure and function,
- Identifying ocean regions as major CO₂ sinks and sources,
- Understanding carbon cycles and waves in the Equatorial Pacific,
- Role of physics (eddies) in North Atlantic spring blooms,
- JGOFS provides a collective benefit of biologists and chemists working together,
- Equatorial Pacific-impact on global CO₂ flux,
- Vertical export view changing,
- Understanding the El Niño Southern Oscillation (ENSO),
- Climate influence on biogeochemical processes in Arabian Sea,
- Development of 3-D biogeochemical modelling,
- DOM export, simulate DOM, regional differences, closing carbon budgets,
- Understanding phosphate and nitrite couples in carbon export,
- Nitrogen fixation relation to ocean nitrogen-phosphate limitations,
- Ocean photosynthesis limitations,
- Southern Ocean-iron fertilisation, wind transport, plankton diversity,
- JGOFS provides several disciplines the opportunity to work together towards the synthesis of existing knowledge,
- Development of submodels to describe main functions in 3-D models,
- Export flux estimated from sediment traps and thorium measurements,
- Uniform set of standard core measurements (protocols),
- Joint global interdisciplinary conclusions,
- Global CO₂ survey, reference standards, anthropogenic CO₂ discrimination in Atlantic deep water,
- Instigation and support behind the development of SeaWiFS, ocean-colour algorithm and validation,
- Production of JGOFS CD-ROMs (data sets),
- Additional highlight information has been received from various Planning Groups and Task Teams and is posted on the JGOFS homepage.

Lochte commented that there seems to be a gap (i.e. a few missing CD-ROMs), including a Dutch/German (Southern Ocean) data set.

Action. Baliño, please, check and update the list of CD-ROM productions to include the Dutch/German Southern Ocean data.

Other news: Hanson informed the Execs about the new IGBP brochure that IGBP is working on to inform the non-professional (public relations). The brochure will be laid-out under the six Global Change Research Questions of IGBP. Unfortunately, JGOFS, LOICZ and GLOBEC (marine biology projects) will share space under one question, "How do ocean biogeochemical processes influence and respond to climate change?" This gave the Execs some concern. Hanson was asked to e-mail Field with information and that he would respond to IGBP stating the Execs concerns (i.e., so little space is being given to such an important issue).

Action. Field/Hanson: Regarding the issue of brochure format and allocation of space for the three marine programs, Hanson will send information to Field who will respond with a note to IGBP expressing the Execs concerns.

List of Significant 1997 Activities-no comments.

IGBP 5-Year Workplan

IGBP has asked for input from all Core Projects to furnish information on their next 5-year workplan (detailed timeline).

Action. Hanson asked for input on JGOFS activities and timelines.

Murray raised a question regarding whether a process study should be allowed to hold a major meeting at the end of its campaign. Field said that a meeting should not be held for form sake but only if there is a genuine need. At the science meeting (JGOFS Conference), there could be parallel meetings and planning groups. Gross asked about the symbolism in the extended lines (Timeline insert) and whether this means that support would be expected to occur on a regular basis? Hanson explained that they represented expected timelines (or extended activity) and not necessarily support. Lochte asked if it was possible to include a workshop at the scientific meeting (JGOFS Conference). Ducklow stated that he believed the focus should be on synthesis and force cross synthesis from several groups. Field felt that the Terms of Reference should co-ordinate mechanistic synthesis and co-ordinate regional "global synthesis".

Action. Fasham, Ducklow and Hanson will prepare JGOFS 5-year work plan and send IGBP.

SeaWiFS Report: Update from Janet Campbell (Brief Synopsis)

SeaWiFS (Sea-viewing Wide Field-of-view Sensor), owned and operated by Orbital Sciences Corporation (OSC), was launched on 1 August 1997 and presently in routine operation since 18 September 1997.

SeaWiFS records two kinds of data on board the spacecraft: global area coverage at four-kilometre resolution, and local area coverage at one-kilometre resolution. The spacecraft also broadcasts real-time data in the HRPT format. There are, however, some gaps in the real-time high resolution. This data is only available through an agreement with NASA and OSC. Information may be found on the SeaWiFS Home Page (<http://seawifs.gsfc.nasa.gov/seawifs.html>). The application is found under Announcements.

SeaWiFS is expected to have a life span of 4 years. Although this satellite data will be too late to incorporate in most JGOFS field research, it will benefit current and future programs.

Scientific Steering Committee Issues

Letters of Appreciation to outgoing members: Hanson mentioned that IGBP requests more information in order to write letters for Takahashi, Morel and Priddle. Priddle recently announced his resignation, as Chair of the SOPG, and that he would be moving on to SCAR. He was originally slotted to Co-chair SOPG until the end of 1998. He will now leave as chair (ex-officio member) and rotates off the SSC. The Execs noted that Priddle had been a very active Chair of SOPG and that he would be missed at SSC meetings.

Other JGOFS Activities and Issues

Southern Ocean Planning Group Recommendations: SOPG request funds of \$30,000 to support two meetings 1998 and 1999. The following are comments to the recommendations, point by point:

Recommendation #1. Iron Intercalibration issue: This is not an U.S. issue according to Ducklow but a European problem. In fact, it is a problem for JGOFS and therefore for everyone. There is disputed reliability in measurements. The general opinion is that the Execs should deal with this issue. Fasham informed that he was attempting to get in touch with Watson to discuss the issue.

Field felt that something more formal and strong should be done on this issue of intercalibration of iron concentration measurements. Murray professed that this is complicated and that there are analytical concerns. The problem being that very low concentrations are difficult to measure or even to make iron standards that low.

Action. Ducklow/Murray/Hanson: Issue of intercalibration of iron concentration measurements. A letter should go to Field as SCOR representative to alert SCOR working group. Not to point fingers, but to stress the necessity of calibration consistency. In addition, a letter should go to Dave Turner to find out if any damage has been done, due to the international disagreement, to influence funding agencies. We must also alert Watson as well. In addition, Uli Bathmann, SOPG Chair, should be kept informed.

Recommendation #2. Inclusion of ultraviolet radiation is an issue JGOFS has avoided in the past. However, increasing pressure from ICSU to pay attention to social related issues makes it a SO-JGOFS problem. The Execs agreed that if SO group can do it then they should include this in their terms of reference and develop it further. Fasham suggested a one-dimensional model.

Action. Field should inform SOPG Chair (Bathmann) to include in its new Term of Reference and a recommendation to develop the work on the UV program. (Reference John Cullen-Halifax. "UV Effect on Algae").

Recommendation #3. SOPG action.

Recommendation #4. Baliño's action.

Action. SOPG with DMTT help should catalogue SO data and to provide an inventory of data useful to subsequent modelling and synthesis. This catalogue should include relevant "non JGOFS" data.

Recommendation #5. Discussion about the feasibility of supporting two workshops. Ducklow questioned if more support should be coming from other funding. The Execs questioned whether SOPG has received more funds than other groups. The Execs agreed to support (travel funds to Liège, Belgium, for example) one workshop with a synthesis theme. There was a concern about

concentrating on an area of parameters (narrow meeting). This should go into the response to the group.

Recommendation #6. Agreed

Recommendation #7. The Execs approved Bathmann as Chair and Paul Tréguer as Vice-Chair. If Bathmann can not attend a SSC meeting, Tréguer may replace him.

Recommendation #8. The Execs questioned whether SOPG should be phased into synthesis now. The answer was affirmative. Fasham will write Terms of Reference for the all Synthesis and Modelling Groups. In addition, one member from each group must be selected to represent its group as a member of Global Synthesis and Modelling Task Team (Global Synthesis and Modelling Task Team should be official title.) Also, synthesis products should be added to TOR, i.e. provide a plan for a final product and reports.

Recommendation #9. Yes. It is being done.

Recommendation #10. The Execs expressed reservations about having more than one workshop each year. The Execs approved the one biogeochemical province workshop in 1998. The funding for the Large-scale Variability in the Southern Ocean Workshop in 1999 should be shared with other funding sources.

JGOFS Synthesis and Implementation Plan: There is a need for a synthesis and implementation plan for global aspects and regional synthesis.

Action. Fasham, Platt and Hanson should draft a framework for Implementation Plan to be delivered as full plan in September 1998.

It was also suggested that during the Execs meeting in Bergen in 1998, there should be a joint meeting of the EXEC, Data Management TT and GSMTT, if possible. Hanson felt that they could meet during their parallel sessions in Bergen, i.e. the day before the Data Management and Synthesis Workshop.

The IOC/JGOFS CO₂ Panel has its own work plan for synthesis. Although this group reports to SCOR, it is necessary that they strengthen their link with JGOFS. The Execs also asked to receive the CO₂ Panel Terms of Reference.

Action. Hanson will inquire about any recent changes to the Panel's Terms of Reference (and membership), and request a copy from IOC or Watson.

The Execs also felt that there has not been enough emphasis put on the CO₂ Panel or for that matter the Remote Sensing Task Team. The future will probably show that these two groups are the scientific groups that will receive the most recognition. The Execs agreed that these two groups are most important to JGOFS synthesis plans.

Representation on the GSMTT: The Execs discussed the membership of the GSMTT and suggested an ideal discipline makeup for the task team. It should contain a 3-D modeller, an ecological modeller, a representative of the CO₂ Survey and Satellite Remote Sensing groups, a geochemist (chemical tracer specialists) and possibly a physicist.

Rotation of Planning Group Chairs towards synthesis: The Execs agreed that the Execs members must approve Synthesis and Modelling Group Chairs and they would be full members of the JGOFS SSC. The Execs may appoint new Group Chairs via email

Terms of Reference for the Synthesis Groups: Decisions regarding the Terms of Reference for the Synthesis Groups will be left to Fasham and Hanson to ensure the best wording. Gross asked for comments on progress of Terms of Reference. Hanson acknowledged Gross' request

Southern Ocean Planning Group: Field referred to Priddle's appointment at SCAR, and said that it was very important rotation for JGOFS and SCAR, and for future SO studies and synthesis.

Generic Terms of Reference for the Synthesis Groups: The generic Terms of Reference for the Synthesis Groups should be circulated among the Execs before any final decisions regarding SOPG synthesis plans. Hanson will copy Gross and SCOR.

Task Teams and Planning Groups

Data Management: A new member from France will be recommended to the Execs for approval.

Remote Sensing: The task team is presently on hold because of overlap with the new IOCCG on ocean colour.

Action. Yoder and Platt, RSTT and GSMITT Chairs are requested to inform the SSC on remote sensing and IOCCG activities.

The Execs agreed that formalising a connection with SCAR through Priddle would be important and would report to JGOFS as well as SCOR. Satellite data is also necessary for GSMITT information. The Execs recommended that the Remote Sensing group should stay on hold. This group should not be disbanded, as it is too important. Remote sensing issues might come up again. At present time, there will not be any money designated for a meeting.

Action. Hanson: draft a letter to Jim Yoder and ask the RSTT to re-visit and update its Terms of Reference.

IOC/ CO₂ Advisory Panel: Field made it clear that a representative from CO₂ Panel should report to JGOFS SSC annually. Merlivat had offered to continue as liaison, which would have been a satisfactory solution. Watson has proven not to be reliable. He did not come to 12th SSC meetings.

Action. Fasham will talk with Watson and ask for a list of any new members on the Panel or reorganisation plan. The Panel needs good representation with approval by both JGOFS and IOC. If they propose broadening their studies, it will require new Terms of Reference.

The Execs wants to make sure that a representative from the CO₂ Panel be present at the next SSC meeting. In fact, it should be made clear to all appointees that high priority must be given to participating in meetings if appointed to serve as SSC or Chair.

Photosynthesis Measurement: Sakshaug reported that when the Photosynthesis article has been printed in the Journal of Plankton Research, a request would be forthcoming to reprint it as a JGOFS Report. Sakshaug also reported that the meeting in Longyearbyen, Svalbard, Norway in August, had proven to be important and productive. A small meeting of three members at the end of 1998 should be enough to finalise Longyearbyen report for publication. Sakshaug requests a small meeting in October 1998 to finish second paper.

Sakshaug stressed that this group is also relevant for the synthesis and modelling phase. Perhaps a useful function could be found for the group in SCOR as well as in Synthesis and Modelling Groups.

Field congratulated Sakshaug on a job well done on producing Reports. Field was firm about target dates and Terms of Reference. The Photosynthesis group should disband at end of 1998. A report to the SSC meeting should be forthcoming and the Photosynthesis Chair should present synthesis at the JGOFS Science Meeting to finalise the work.

[Field took a break in the meeting to extend a wish to Hugh Livingston for his success in his new position in Monaco. He has done an excellent job as director of US JGOFS Planning Office and he will be missed.]

North Pacific Task Team: Bychkov with co-chair Saino are a very enthusiastic pair. Terms of Reference should incorporate the new generic Terms of Reference, stating the need for parallel synthesis with data gathering. Positive note: the high profile of NPTT has generated a lot of scientific activity in Japan, Russia and China-Beijing and Taipei.

Action. Hanson asked to request a written report from the NPTT for the April SSC Meeting.

Continental Margin Task Team: Field mentioned that they have recently met in Holland and held their second Workshop. Coleen Moloney has resigned. Quinones, Chen and Hall presently represent JGOFS on the CMTT. New changes should occur in Task Team membership and Terms of Reference with the phasing in of Synthesis. There should be strong links to GSMTT, and we should be aware of this when considering new membership. Field noted that there might be a problem with designated CMTT national projects in other countries' national waters that address JGOFS issues, such as carbon cycle, and projects to fill gaps. The Execs stressed that national programs should be aimed at relevant goals.

Deep Ocean Flux: Shimmield and Lochte requested support to go to PAGES Open Science Meeting and to start an active group. At the next SSC meeting, they will report on possible progress in collaboration with PAGES/IMAGES. The Execs approved the travel request of Lochte and Shimmield (high priority).

North Atlantic Planning Group: Fasham mentioned that they plan to meet in March or April and will discuss the new membership of the new synthesis group. Fasham offered several names to the Execs for NASMG membership. The Execs approved the request for a meeting in Southampton (high priority), and suggested that they invite Watson to the meeting as an observer. Fasham will recommend a new Chair and membership for Execs approval.

Equatorial Pacific Planning Group: Murray reports that there have been several, multi-authored contributions on synthesis after the last Workshop. Last issue was in 1997. Three volumes have been produced. Murray also presented a tentative membership for the new EPSMG for Execs consideration. The Execs advised Murray to consider the list of names carefully in regards to discipline, gender and national balance. Candidates for the Chair and members are to be recommended to the Execs for approval. The Execs requests that the Terms of Reference to be drafted at the next meeting. The Execs approved support for the next Equatorial Pacific meeting in Seattle, Washington, US (high priority).

Action. Murray will write letters of appreciation to previous members of the Equatorial Pacific Planning Group, thanking them for their services, and form the new Synthesis and Modelling Group, which must show diversity.

Indian Ocean Planning Group: Field mentioned that Platt had previously suggested a modelling workshop to take place together with the Arabian Sea Synthesis meeting. Burkill and Sharon Smith (U.S. Arabian Sea JGOFS) had also planned a meeting (Symposium) in India about the same time. Significant confusion exists between these planned meetings. Gross informed the

Execs of the developments, followed by a discussion. The Execs decided that the following issues were to be focused on:

The SCOR/START Training workshop in India. A lot of work has already gone into the planning with SCOR, START and India. The Execs recommends that this should be a regional workshop with time and place to be decided later.

The Training Workshop must go ahead. It could be back to back with the Science Symposium of Smith and the Synthesis Group meeting of Burkill.

Science Symposium has already received advance support and US JGOFS guaranteeing US attendance, but there is still a question about the attendance from other nations.

On the issue of data availability in India. At this time, it is unclear as to the availability of India's data sets to the general JGOFS community. The Execs is concerned.

Burkill requests support for two meetings in 1998: 10 people for 3 days (times two). The Execs is concerned about the available funds for 1998, the rationale for two meetings, the selection of the new Synthesis group, etc. The Execs decided not to approve the January meeting due to the shortage of funds at this time.

Action. Fasham asked to inform Burkill that the Execs approved funding for one meeting in India in 1998 (high priority).

North Pacific Task Team: Bychkov and Saino request funds for a third meeting. The Execs felt that there is a need for more justification in order to finance another meeting at this time. They have had two meetings (Japan and Korea) since the organisation of the NPTT. This meeting would be immediately in front of the PICES meeting in Fairbanks, Alaska. Links with PICES are dependent upon Bychkov. JGOFS might be able to fund \$8,000 (low priority), pending funds, report(s), proposal and plan.

JGOFS-GAIM Task Team: Field anticipates that there might be a meeting to organise a JGTT. He suggests a contribution of \$5,000, if there is enough money in the project (low priority).

Action. Hanson asked to notify Chairs of Task Teams and Planning Groups about budget approvals and/or cuts for 1998 meetings and activities.

International Project Office

IGFA Resource Assessment: Hanson informed the Execs of the recent IGFA/IGBP meetings and attempts to assess the funding of global change programs and the requirements for future global change activities.

IGBP Book Series: Previously discussed. Despite several suggestions, the Execs could not agree upon a title for the upcoming book and are happy to leave it in the hands of the editors.

European Commission Proposal: The proposal for funding a position to develop WWW interface to the JGOFS Data Index was denied. The second option is that Lowry (UK) and Hammond (USA) will take on the responsibility.

Norwegian JGOFS Project Data Centre: The Institute of Marine Research in Bergen plans to go forward with a proposal to Norwegian Research Council to develop a pilot project with the Norwegian JGOFS community for data transfer and exchange. If successful, the project will

expand to other disciplines in a data building project. This initiative is important for Norway, the NO-JGOFS Program, International JGOFS and the International Project Office.

Reports and Publications: The office continues its efforts to give support in preparing and publishing JGOFS reports. The publication list, 1988-1996, will soon be distributed and work continues to publish a third volume in two years time. There are over 1700 JGOFS citations from 1988 to the present.

The office has also assisted with press articles and supplied science highlights for posters, such as the one made especially for United Nation General Assembly on Sustainable Systems in New York by IGBP. There is a co-operative effort to make an International JGOFS Poster under a uniform template for IGBP. Baliño has also produced and presented a poster on JGOFS Data Management policy, model and products at the Ocean Data Symposium in Dublin, October 1997.

Data Management Activities: The JGOFS Cruise Inventory, linked to the JGOFS Homepage, contains the records of all JGOFS cruises since the start of the field program (1986). Baliño is continuously collecting and updating the file, and has made Hyperlinks to HOTS and BATS data.

The Homepage is an invaluable information base for co-ordinating communication. It contains several publications that can be downloaded, including the biogeochemical data set collected at the 1-D Modelling Workshop and the Protocols for JGOFS core measurements (JGOFS Report No. 23).

The International Project Office has provided administrative support for the JGOFS Data Management Task Team by tracking the location of data sets, adding lines of communication between JGOFS planning groups and DMTT functions related to synthesis and modelling. It has also acted as a data co-ordinator to strengthen links between JGOFS DMTT and IGBP-Data and Information System (DIS).

Future plans for the International Project Office is to assist in the development and implementation of the JGOFS Data Index. This catalogue will describe all data sets acquired during the JGOFS field program. Users will be able to query the database via the homepage.

JGOFS IPO Budget: A JGOFS budget is to be presented at the next Execs Meeting in Bergen for approval with a breakdown for sources of income and expense categories.

Hanson requested Execs approval to upgrade IPO computers, as well as Hanson's travel requests to the AGU (February) and WOCE (May) Meetings in 1998. The Execs approved computer upgrade and EO travel.

Action. Hanson and Stokke will Fax this year's expense sheets to the Execs which includes all income sources and expense categories of the International Project Office.

Other Business Matters

Before closing the meeting, there were a few points that had not been mentioned or discussed.

Hanson mentioned that the diagrams used on posters are available and that they could be transferred electronically. Bowles informed the Execs that any figures appearing in US JGOFS News could be made available.

The Execs felt that cultural differences among JGOFS members might have inhibited some members, such as Eastern cultures, from fully participating in SSC discussions. The problem is that many western participants are verbal in comparison to their eastern colleagues.

Action. Field will look into this matter of cultural differences among members, perhaps talking directly with KK to get more insight and then taking the issue up with ICSU, if necessary.

Meeting adjourned at 16:45, Friday 31 October 1997.

List of 1997 Execs Action Items

Action. Stokke is to send a revised SSC name and address list to all members.

Action. Hanson/Platt/Fasham: Draft a Synthesis document, which is to be circulated among the Execs and presented at the next SSC meeting.

Action. Fasham: Draft a set of generic Terms of Reference, which can be referred to by other synthesis groups. Circulate terms to the Execs before final decision.

Action. Hanson: Draft a letter of endorsement for the 4-year Synthesis and Modelling phase which could be presented regionally. The purpose of the letter would be to help obtain funding. Letter to be sent to Chairs, National Chairs and IGFA.

Action. Fasham/Ducklow/Hanson: Draft the JGOFS 5-year Workplan and send IGBP.

Action. The Execs agreed that Platt should recommend a "new" GSMTT with new members (composition), and call a meeting.

Action. GAIM and JGOFS should have cross membership in the GSMTT and this "new" Task Team should run OCMIP (Ocean Carbon Modelling Inter-Comparison Projects).

Action. Field agreed to write a letter to Watson and IGAC to ask how JGOFS could provide greater input to bridge and strengthen the future. There is a need for co-ordinating certain areas, such as carbon dioxide, which has not been covered very well.

Action. JGOFS members need to show greater involvement in open science meetings.

Action. Baliño: Check and update the list of CD-ROM productions to include the Dutch/German Southern Ocean data.

Action. Field/Hanson: Regarding the issue of brochure format and allocation of space for the three marine programs, Hanson will send information to Field who will respond with a note to IGBP expressing the Execs concerns.

Action. Hanson asked for input on JGOFS activities and timelines.

Action. Fasham, Ducklow and Hanson will prepare JGOFS 5-year work plan and send IGBP.

Action. Ducklow/Murray/Hanson: Issue of intercalibration of iron concentration measurements. A letter should go to Field as SCOR representative to alert SCOR working group. Not to point fingers, but to stress the necessity of calibration consistency. In addition, a letter should go to Dave Turner to find out if any damage has been done, due to the international disagreement, to influence funding agencies. We must also alert Watson as well. In addition, Uli Bathmann, SOPG Chair, should be kept informed.

Action. Field should inform SOPG Chair (Bathmann) to include in its new Term of Reference and a recommendation to develop the work on the UV program. (Reference John Cullen- Halifax. "UV Effect on Algae").

Action. SOPG with DMTT help should catalogue SO data and to provide an inventory of data useful to subsequent modelling and synthesis. This catalogue should include relevant "non JGOFS" data.

Action. Fasham, Platt and Hanson should draft a framework for Implementation Plan to be delivered as full plan in September 1998.

Action. Yoder and Platt, RSTT and GSMTT Chairs are requested to inform the SSC on remote sensing and IOCCG activities.

Action. Hanson: draft a letter to Jim Yoder and ask the RSTT to re-visit and update its Terms of Reference.

Action. Fasham will talk with Watson and ask for a list of any new members on the Panel or reorganisation plan. The Panel needs good representation with approval by both JGOFS and IOC. If they propose broadening their studies, it will require new Terms of Reference.

Action. Hanson asked to request a written report from the NPTT for the April SSC Meeting.

Action. Murray will write letters of appreciation to previous members of the Equatorial Pacific Planning Group, thanking them for their services, and form the new Synthesis and Modelling Group, which must show diversity.

Action. Fasham asked to inform Burkill that the Execs approved funding for one meeting in India in 1998 (high priority).

Action. Hanson asked to notify Chairs of Task Teams and Planning Groups about budget approvals and/or cuts for 1998 meetings and activities.

Action. Hanson and Stokke will Fax this year's expense sheets to the Execs which includes all income sources and expense categories of the International Project Office.

Action. Field will look into this matter of cultural differences among members, perhaps talking directly with KK to get more insight and then taking the issue up with ICSU, if necessary.

List of Acronyms

Execs	Executive Committee
IPO	International Project Office (Bergen)
SSC	Scientific Steering Committee
TOR	Terms of Reference
CMTT	Continental Margin Task Team
DMTT	Data Management Task Team
DOFTT	Deep Ocean Flux Task Team
EO	Executive Officer
EPPG	Equatorial Pacific Planning Group
GSMTT	Global Synthesis and Modelling Task Team
IOC/ CO ₂	Carbon Dioxide Panel
IOPG	Indian Ocean Planning Group
NAPG	North Atlantic Planning Group
NASMG	North Atlantic Synthesis and Modelling Group
NPTT	North Pacific Task Team
PMTT	Photosynthesis Measurement Task Team
RSTT	Remote Sensing Task Team
SOPG	Southern Ocean Planning Group
IGBP	International Geosphere-Biosphere Programme
SCOR	Scientific Committee on Oceanic Research
IMAGES	International Marine Global Change Study
START	System for Analysis, Research and Training
GAIM	Global Analysis, Interpretation and Modelling
PAGES	Past Global Changes
IOCCG	International Ocean Colour Co-ordinating Group
GAC	Global Area Coverage
LAC	Local Area Coverage
NASA	National Aeronautics and Space Administration
OSC	Orbital Space Corporation
WOCE	World Ocean Circulation Experiment
SOLAS	Surface Ocean & Lower Atmosphere Study
IGAC	International Global Atmospheric Chemistry
IGFA	International Group of Funding Agencies
SCAR	Scientific Committee on Antarctic Research