

REPORT OF THE SEREAD STEERING COMMITTEE

Suva, Fiji

August 20-21, 2001

(Second Meeting)

**“Scientific Educational Resources And Experience Associated With The Deployment of Argo
Drifting Floats in the South Pacific Ocean”**

Prepared by: William Erb
September 4, 2001

I. Introduction

The SEREAD Steering Committee (SSC) was formed to oversee the planning and development of the project entitled: **Scientific Educational Resources And Experience Associated With The Deployment of Argo Drifting Floats in the South Pacific Ocean**. Committee members include IOI Pacific Islands at USP (Robin South and Than Aung), UNESCO Apia (Hans Thulstrup), NIWA (Julie Hall), the IOC Perth Regional Programme Office (Bill Erb), Scripps Institution of Oceanography (Dean Roemmich) and SOPAC (Alf Simpson).. Bill Erb serves as Chairman of the committee and prepared this report based on information recorded by Robin South. The committee has approved the report.

IOI-USP and the IOC Perth Regional Programme Office signed an MOU outlining the objectives and general operating procedures of the project on December 26, 2000 (Attachment 4). The agenda of this meeting is also attached (Attachment 1). Funding to attend the meeting was provided by the participants and not by project funds.

Special thanks go to IOI-USP, Robin South and Than Aung for hosting the meeting at their new marine science facility at the University of the South Pacific in Suva. Also, many thanks to Alf and Alice Simpson for hosting a wonderful dinner at their home in Suva.

II. Meeting Notes

The following people attended the meeting; SSC members are identified with an asterisk:

William Erb (Chairman)*

Robin South (Project Manager; IOI-Pacific Islands)*

Than Aung (USP – Project Leader)*

Dean Roemmich (SIO)*

Julie Hall (NIWA)*

Alf Simpson (SOPAC, Suva)*

Hans Dencker Thulstrup (UNESCO Apia Office)*

Dick Northcott (IOI-Pacific Islands)

Mahendra Kumar (Head of Physics Department, USP)

Note: The following numbered paragraphs coincide with the numbered paragraphs of the meeting agenda (Attachment 1).

1. **The Agenda** was approved. The Chairman welcomed the members and local participants to the SEREAD Steering Committee meeting. The participants introduced themselves. William Erb reported that the recent IGOOS and Assembly meetings of the Intergovernmental Oceanographic Commission approved the progress of the SEREAD Project.
2. **Dean Roemmich presented an update on the status of the ARGO Project.** Argo, by 2005, will be providing 100,000 S/T profiles annually. Floats in the Pacific are generally being deployed to 1,000 m depth. (Measurements are made as the float rises, and data are then transmitted to the data archive.) Details of how the floats work are available on the Argo Website (www-argo.ucsd.edu), and also on CD's. Deployment of floats can be made from ships or from aircraft. Advantages of Argo are that world climate can be tracked (through heat and water measurements), and that data can be used in weather forecasting (e.g. cyclones, sea level rise). Ninety percent of the heat in global warming is resident in the ocean and sea level rise increases with increased heat. Ocean temperature, salinity and sea surface temperatures are the key measures of the climate state and its variability. Sea level and temperature are closely linked in the tropical Pacific. Argo float profiles utilized in the tracking of hurricanes in the Southeast US show important correlations between hurricane intensity

and temperature changes in the surface layers of the ocean. A storm's intensity may increase if the water below it is warm. As it passes over the water cools.

Deployment of the floats is a regional process. There is a need to train more people in float deployment and utilization of Argo data. There are plans to deploy 218 and 290 floats in the Pacific in 2001 and 2002, respectively. There is a strong interest in the western Pacific, with regard to predictions of El Niño events. There are three varieties of Argo floats, including a US Commercial Version, and some institutional varieties. At present all are using the same CTD. There are about 35 floats presently deployed by Scripps in the western Pacific (refer to website for up-to-date information). At the website, each float can be viewed (latest data including ST profiles and location). The Argo Information Center (argo.jcommops.org) will provide data on float locations, international coordination information, and links. The Argo Information Center is still under development. The Global Data Center (CORIOLIS – www.ifremer.fr/coriolis) allows downloading of data; this site also is still under construction. The Regional Data Center (Japan: www.argo-kishou.go.jp) is another source of data, with good maps depicting older floats. Real time versions of the data can be downloaded from the Regional Data Center.

All of the Climate Forecasting Agencies are now using Argo temperature data (salinity not yet used), and these data are being used to initialize coupled models leading to seasonal forecasts. The data products can be downloaded from the website. The Argo datasets are one element in a variety of other data sets now available (e.g. www.coc.ncep.noaa.gov/pacifdir/). It was noted that special graphics could be produced for SEREAD. It was agreed that direction should be given to Dean with regard to SEREAD graphics needs.

3. **Robin South summarized the Project Progress Up-date report (Attachment 2).** (Note: Several issues discussed under this agenda item are discussed in more detail under agenda item 4.)

Regarding item 4 in the Up-date report, selection of schools, Alf Simpson shared his experience at a recent meeting in the US, where schools are involved in a similar process to that of SEREAD. Discussion of this was deferred pending the arrival of Hans Thulstrup mid-morning. According to Than some of the contacts identified to solicit involvement in SEREAD may not be right. He also suggested that it could be more successful if personal approaches were made (e.g. as in Niue and Nauru). Julie stated that working with the **UNESCO Associated Schools Programme (ASP) in the Pacific** might be more successful. It was noted that the selection of schools would be to some extent determined by the budget. The issue regarding resources and time availability of local staff (project Manager and Leader) will need to be addressed by the meeting.

Resource materials have been developed in draft form. Input has been received from Dean and Julie. Two drafts were circulated: *Sea level Variations due to Climate Change and ARGO* and *Oceanography – the Argo Project keeps watch on a changing Ocean*. Than made a presentation on the philosophy of how the modules are being developed, following detailed input from Professor Konai Thaman, a regional education expert in curriculum development in Pacific Island schools. Than outlined how he was approaching curriculum development, and how this would be brought into the schools. Julie Hall stated that she firmly believes that teachers should be involved in the curriculum development from the beginning. She indicated that there are two approaches to curriculum development: write the material for introduction into an existing curriculum (this requires educators to be involved from the very beginning); the second approach is to say that this is a whole new subject, which is a much harder approach to adopt. There is a need for the SEREAD Committee to look at the approach being used, before going too far and putting too much effort into

it. Than stated that no school in the region will introduce a new subject, so the first approach is the one being adopted, and this was generally understood by the Committee. Bill Erb commented that the Committee should write a page describing our approach (principles for) to the curriculum development exercise. A draft of the approach (Attachment 5) was developed during the meeting, and it was agreed that the philosophy contained in it should be included in the Prospectus.

With respect to websites, it was noted that there are quite a few websites under development and relevant to SEREAD. The Committee will need to agree on the design of the website. To an extent the SEREAD project is largely a pioneer activity. Bill mentioned that the Argo Information Centre is keen to assist SEREAD with the development of the website. The possibility of assigning the website (webpage) development to one of the other SEREAD partners was raised. The Toulouse group has agreed to assist, so could be approached once the requirements for SEREAD are known; this was endorsed by the Committee. In discussion it was agreed that the SEREAD web page should be part of the Toulouse website. The Toulouse Coordinator is well versed in web design, and could be available to assist SEREAD. It was agreed that Than would contact Toulouse to begin this work.

On publicity it was agreed that a flyer for distribution to Pacific Island schools and teachers be developed; the draft would be circulated to the Steering Committee for comment, before proceeding, and by the end of September. The Committee also agreed that a week after the circulation of drafts no response means compliance. After further discussions (see revised Timelines, Attachment 3, it was agreed that the production of the flyer would be put on hold.

The project needs to update the SEREAD Power Point Presentation, and there is a need for a SEREAD logo (not yet agreed). The ppt should be updated regularly. It was agreed that Julie would be the ppt manager.

4. **Identification of key issues and tasks:** (Note: Several issues discussed under agenda item 3 are discussed in more detail under this agenda item.)

Selection of Schools: Selection of schools is a priority. Julie attended a UNESCO ASP workshop in Auckland, NZ, in March 2001; there was a significant level of interest from the ASP coordinators in the SEREAD Project. There has been no response to the letter sent from IOI-Pacific Islands to the national coordinators in Fiji, Samoa, Tonga and Nauru. UNESCO Apia, through the Director, would be willing to draft a new letter seeking a response **from national education authorities, to be** followed up by telephone calls. It was agreed that schools other than those under the ASP Project might also be approached (Than has already made contacts with Niue, Tuvalu and Cook Islands, which were not part of the original group). UNESCO would furthermore be able to assist with non-ASP Schools, through contacting the National Commissions or Secretaries of Education, seeking their endorsement and cooperation. Additionally, personal contacts with schools was seen as a good mechanism of determining potential schools. On the basis of such informal contacts, formal endorsement could be sought (through UNESCO). It was agreed that Robin would prepare an information paper for the Secretary of the USP Council (whose members are Ministers of Education), for the October meeting of the USP Council.

Development of Resource Materials Than has been working with the proposal from Dean Roemmich and Julie Hall regarding the content of the resource materials. This proposal was intended as a set of initial guidelines. Most of the basic elements have been drafted and now needs to be fleshed out and circulated to the Steering Committee for comment. Julie's view is that there is little point in drafting detailed materials until the school curricula have been reviewed, in order to determine where the materials would fit in. Dick Northcott suggested that it would help to have a

video on the SEREAD Project. Alf Simpson was in favor of this and proposed that the USP Media Centre could interview Dean Roemmich and Bill Erb on video tape, as a step towards developing an appropriate video (the idea of the Video was later put on hold: see Timelines, Attachment 3). There was a wide-ranging discussion on how to introduce the SEREAD curriculum materials within the schools, and it was agreed that involvement of a school curriculum person is a necessity. The current school curriculum needs to be reviewed (e.g. Physics, Geography) and it was agreed that this information is within the university system and should be sourced. The possibility of the SEREAD project being a part of extra-curricular activities was favorably viewed by the Committee; this might include the involvement of the Physics Society of the South Pacific.

Teacher training: This activity needs to be scheduled in the revised matrix. The possibility of using USPNet2000 for teacher training should be explored, while the concept of including SEREAD materials in USP classes could be encouraged. Teachers in training might be encouraged to use SEREAD materials during their teaching practice (USP offers a course for Secondary Science Teachers). The Committee could consider putting together a short proposal for running a SEREAD Teacher Workshop, and it was agreed that the Committee members would use their contacts to source possible funds. Potential sources are the Taiwan Fund, the Australian National Commission, the Argo Workshop, and UNESCO through the Apia Office.

Website Development: Than will contact Toulouse and communicate with the SIO on the development of the web site. The plan would be to have the web site as a page on the Toulouse web site, and linked to the web sites of the SEREAD partners. With respect to the interactive aspect of the web page, it was agreed that Than would be the “filter”. Items needed for the site would include the name of the float, its position, the latest S/T profile, etc. Than will advise the Steering Committee on progress with development of the web page.

Actions Required by the Argo Science Team: These include assistance with the web page development, curriculum materials, and communications via the SEREAD mailing list.

Adoption of the Floats: The process of adoption needs to be clear. Schools might adopt an existing float (within their EEZ) or even be present during the launching (either in reality or virtually). The float deployment log could be made available to the adopting school. The idea of having an adoption certificate was agreed by the Committee. NIWA will work on the design of the float adoption certificate.

Additional publicity: Items discussed included a flyer (to be developed), press releases and presentations at meetings.

Prospectus completion: Comments and feedback on the draft have been received. It was agreed that the schedule for the completion of the prospectus should be finalized by the end of the meeting. It was also agreed that the principles for curriculum development presented at the meeting would be incorporated into the Prospectus. Dean Roemmich and Julie Hall will re-draft the text and Robin South will source the illustrations. The team will review the revisions and IOI-Pacific Islands will organize design and printing.

Enlistment of support staff from UNESCO Apia Office: The UNESCO Apia Office has several volunteers working with the office’s Education programme; however, tasks need to be identified. Help with editing and publicity would be possible. Sourcing of curriculum material from the Samoa Education Department would also assist the project. These matters will be taken up by the

UNESCO Office by Hans on his return to Samoa. It is expected that UNESCO Apia Office will encourage Samoa's involvement in the project.

5. **Schedule of Implementation:** See Timelines, Attachment 3.

6. **SERead Funding and Budget:** It was proposed that a letter be sent to POGO, describing progress and soliciting the possibility of POGO finding the necessary resources for sustaining SERead; the letter would be drafted by Bill Erb and Dean Roemmich. Dean Roemmich will be attending the POGO meeting in November in Halifax, Canada, and could follow up. The possibility of other partner donors (e.g. the IOI; UNESCO) would also be explored. It was also agreed that the Project Manager would prepare a budget statement in late 2001, together with a proposed budget for 2002-2003.

7. **Local arrangements in Suva:** It was agreed that the Suva-based group would meet when and as necessary, to address specific tasks, and that other resource persons from the education sector would be co-opted as necessary. The meetings would be convened at the request of the Project Leader.

Bill reported that the IOC through the Perth Office had purchased a laptop computer for use by Than and the project. The laptop was kindly procured through SOPAC and will be returned to the IOC at the appropriate time.

8. **Travel Plans and Training:** See Timelines, Attachment 3.

9. **Plans for the Argo workshop.** SOPAC is strongly promoting GOOS in the Pacific. The deployment of Argo in the Pacific has involved SOPAC in the process of securing permission from SOPAC countries. All SOPAC countries (plus Palau and NZ territories) have concurred with the deployment of Argo buoys. The concept of the Argo Workshop would be to advise stakeholders (e.g. Met. Bureau, Fisheries, etc.) about the benefits of the Argo measurements in the Pacific. The sponsor, date etc. of the workshop have yet to be agreed. The cost would be in the range of US\$40-60k. The Committee needs to determine how SERead will be integrated into the proposed Argo workshop. The possibility of having the Argo workshop back-to-back with an IGOOS meeting was raised. It is important that the Pacific Island countries see the value of the Argo project, its products, and applications. SERead's involvement in the workshop will be determined by the nature and participants of the Argo Workshop. It was agreed that SERead should be part of the Workshop, on terms to be decided once more details are known. It is suggested that Vanuatu or Fiji were possible venues for the workshop in mid-2002.

10. **SERead at the Annual SOPAC meeting in October (Majuro):** It was agreed that SERead would be presented at the SOPAC STAR meeting, by Bill Erb, Alf Simpson, or another designated person.

11. **The SERead Logo:** There have been comments about the float looking like a syringe; it was agreed that there is a need to design a proper SERead logo. Robin South suggested that he could solicit some designs from post-graduate students.

12. **Meeting with SOPAC and USP staff interested in SERead:** See items 4 and 7, above.

13. **Membership of the SEREAD Steering Committee:** It was agreed that Dean Roemmich should be confirmed as a full member of the Steering Committee. It was also agreed that the next meeting of the Steering Committee will be at the call of the Chair in early 2002. The possibility of linking with the Argo Science Team meeting in Hobart March 12-14, 2002 will be considered.

Other Business:

Julie Hall presented an outline of a SEREAD-related project being initiated in New Zealand. The Committee discussed the implications of the New Zealand initiative in relation to the current project, and it was agreed they could be mutually beneficial. Bill Erb requested that New Zealand write a letter to him mentioning the New Zealand SEREAD initiative, so that he could provide a supporting letter on behalf of the Steering Committee.

Bill reported that several countries (Canada, Australia, Portugal, Korea, UK) have expressed interest in starting up SEREAD projects. Thus far there has been no followup but we should expect this once the project becomes operational. The Steering Committee favors expansion and will cooperate with anyone interested in becoming involved.

14. The meeting concluded at 1140 am on August 21. Dean Roemmich and Alf Simpson gave interviews to the Suva TV network and Fiji Times concerning the SEREAD project and benefits of the Argo project in the region.

SERREAD STEERING COMMITTEE MEETING

Suva, Fiji
August 20-21, 2001

Agenda

1. Welcome: Bill Erb
2. Status of Argo implementation in Pacific: Dean Roemmich.
3. Summary of project development status: Robin South and Than Aung
4. Identification of key issues and tasks: Committee discussion with input from Robin and Than addressing development of resource materials, selection of schools, liaison with ministries of education, plans for teacher training, web site development, actions required with Argo Science Team, Scripps, Argo Information Center, adoption of float process, additional publicity, status of prospectus development, enlistment of UNESCO Apia Office re ASP system and other issues deriving from Agenda item 3 discussion.
5. Determine schedule of implementation and establishment of new milestones and priorities.
6. SERREAD budget status and plans for next years funding. Discussion on future sponsorship and possibility of single donor.
7. Define responsibilities of “assisting personnel” at USP, UNESCO Apia, elsewhere.
8. Discuss and agree on travel plans to implement project in region and any associated training sessions or workshops. Include Argo science team and others.
9. Plans for Argo workshop: Alf Simpson and Dean Roemmich
10. Discussion of SERREAD at SOPAC annual meeting in October. Issue here is can meeting be used to further project objectives?
11. Decision on SERREAD logo and comments for improving SERREAD PPT.
12. Discussion with USP and SOPAC staff involved in project support. Time and place to be arranged by Robin South and Alf Simpson preferably towards end of meeting but allowing for some discussion of SSC afterwards.
13. Review membership of SSC, its role, next meeting.
14. Close

SERREAD Project Progress Up-date

G. Robin South

Reference should be made to the Activities Matrix developed at the inaugural meeting of the Steering Committee (copy attached). Progress is presented according to the numbered activities in the matrix.

1) Confirmation of Project Leader

This was confirmed in February 2001, following discussions with the then Head of Physics, Professor A.J. McArthur. The current Head of Physics, Prof. Mahendra Kumar has been invited to attend the meeting. Dr Than Aung is the Project Leader; this is an unpaid position and duties are performed for SERREAD on a voluntary basis. Dr Aung has a very heavy teaching load in the Physics Department, but the Project has offered assistance to him as part of the budget allocation. Dr Aung was previously a member of the Tidal Facility team based at the University of Adelaide, and was involved in educational aspects of that program in a number of Pacific Island countries. He is also a very experienced teacher at both secondary school and tertiary levels.

2) Secure funding

All funding has been secured from the SERREAD partners.

3) Develop Project Prospectus

The prospectus has been drafted, and input received from some of the SERREAD Committee members. There was some criticism that the prospectus does not adequately separate SERREAD from the Argo Project. Revisions are continuing and it is suggested that the **final draft of the Prospectus be agreed at this meeting.**

4) Selection and Endorsement of Schools

This is being done with the assistance of the UNESCO Apia office. While it had been hoped that the USP's Institute of Education would assist with the school identification and contacts, Dr Aung received a fairly cool reception from IOE and little interest in assisting. This could be because, like other USP Institutes (not the IOI, which is an International NGO affiliated with, but not part of the USP), IOE has to work in a commercial mode and saw no prospect of income from assisting with the SERREAD Project. Letters of invitation were sent to a group of schools (see attached copies of letters); to date, no reply has been received from any of the schools. While SOPAC has been identified to assist with this, SOPAC has not been approached so far.

It is recommended that a mechanism be found to speed up the school contacts and obtain commitment from them – UNESCO's assistance will be crucial here. The Committee should check whether SOPAC could also assist with this.

5) Complete resource review

NIWA has provided information on resources. There is a need to work more on this, as it is felt that there are many more resources that have not yet been identified.

The Committee should discuss additional means of sourcing information. The possibility of obtaining assistance from the Pacific Islands Marine Resources Information System (PIMRIS), whose Coordinating Unit is based at the USP, should be considered.

6) Resource Development

This is an identified Team Activity. A considerable amount of work has already been done, with assistance from some of the SEREAD Team, and with a professional curriculum writer (Mr Dick Northcott), a retired ex-Lecturer from the Physics Department. Mr Northcott has been contracted through the project to assist Than with development of resource materials. **Than will be providing a report on progress to the Committee. It is important that the Committee discuss the whole question of how curriculum material development and student and teacher training proceeds in the Pacific Island context, since this is very different from similar activities in New Zealand, Australia or elsewhere.**

7) School Visits

School visits cannot be planned until the schools have been identified and have agreed to participate in the project. It would be preferable if school visits (which would focus on teacher training) could take place before the end of the 2001 academic year.

8) Web Page Development

Some progress has been made, but there is a need to work more closely with the Argo Team, and the Argo Tracking Group (in Toulouse). **There is a need for some better coordination on the development of the SEREAD Web Page, and for a proper design to be created for the web page. These issues need to be clarified and agreed on at the meeting. It is also recommended that the SEREAD Web Page be linked with the IOI Web Page at the University, which in turn is linked to the global IOI website.**

9) Publicity/Media

The Project has been publicised at a number of venues (eg. GOOS meeting; USP Beat; PASIFIKA, International Ocean Institute Newsletter, etc.). **It is recommended that appropriate publicity should be circulated among Pacific Island schools, and that a SEREAD flyer (separate from the brochure) be developed.**

10) Float Identification and tracking

There are no floats currently deployed in the South Pacific. In preliminary discussions with SOPAC we have been advised that Ms Cristelle Pratt is our contact regarding float tracking, and Cristelle has provided us with the Toulouse contact (see attached copy of IOC-WMO-UNEP/I-GOOS-V/8-9 Sup 1, attached). **Contact needs to be established soon with the Argo Information Centre regarding float identification, deployment activities and adoption. SEREAD Committee Members are asked to endorse this and provide appropriate advice.**

11) Project Evaluation

This is a Team activity identified for January-March 2002. **The Committee should discuss how the evaluation will be conducted, and by whom.**

12) Reporting and Documentation

This is an on-going activity. The main contact through eMail has proved to be cost-effective and efficient.

13) Prepare Power Point

This has been done. **Feedback from the Team on the Power Point and how it might be improved will be welcomed. It is suggested that the Power Point be presented during the meeting, in order to facilitate the Committee's input.**

14) Teacher Training

This activity will take place during the school visits, and once the basic curriculum materials have been developed. **It is recommended that the Teacher Training Materials be developed within the next two months, and that they be reviewed by the Committee prior to the planned school visits.**

15) Meetings of the Steering Committee

It is recommended that the next meeting of the Steering Committee should be in March 2002.

G. Robin South
IOI-Pacific Islands

2001/08/13

SEREAD TIMELINES (Revised; August 21st, 2001)

	Responsibility	Actions 1	Actions 2	Actions 3	Action 4
Prospectus	Dean/Julie (Actions 1, 2) Robin (Action 3) (review by Team)	Complete electronic version end September	Organise design and printing by end October	Distribute prior to school visits (at least 1000 copies)	
Flyer	N/a (on hold)	N/a	N/a	N/a	
Logo	Robin	Solicit designs from USP PG students	Team to select & approve winner (end of September)	Professional completion of design (end of October)	Distribute electronic copy to all partners for use
Fund raising strategy	Robin/Dean/Bill	Circulate draft (end of September)	Approach POGO Secretariat (end Nov.)		
Budget	Robin	Develop "ball park" budget projections for 2002-2003	Budget statement by end of 2001	First draft of 2002-2003 budget (end Dec.)	2002-2003 budget approved
Float Launch Certificate	NIWA	Design Certificate (end of November)	Print Certificates (December)		
School Selection	Hans/Astrid/Project Leader	Letters to contacts from UNESCO (August)	Schools selected (end November)		
Web page Completion	SIO/Argo Information Centre/Team	Contact Argo Inf. Centre re: webpage development (September)	Web page draft completed (end of October)	Web page formally launched (December)	
Teacher Training	Team Leader/CDU Suva Group	Teacher workshops begin? (November)	Follow-up USPNet meetings		
Video Production	To be decided				
Argo Workshop	Alf/Robin/Bill/Dean	Bill, Dean, Alf to inform Stan Wilson (September)	SEREAD input complete (summer 2002)	Approach Taiwanese for possible funds	
Development of Curriculum Materials	Than Aung/Dick Northcott Suva CDU Group	First drafts of part of materials completed (end of Sept.)	Initial revisions completed (End Oct.)	Final due ? Robin please give date.	Review school curriculums available USP (end of Sept.)

Identify UNESCO Apia volunteers and tasks	Hans/Astrid	End of Sept			
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SERREAD TIMELINES (Revised; August 21st, 2001) (continued)

	Responsibility	Actions 1	Actions 2	Actions 3	Action 4
SERREAD at SOPAC Annual Mtg- Oct 01	Alf, Dean, Bill to plan (Oct)	Bill to present. Dean to present Argo.			
NZ SERREAD Letter to Chair	Julie to draft when appropriate.	Bill to reply.			
Organize Teacher Workshop	Robin/Than	Secure Funding (November)	Draft outline (October)		

MEMORANDUM OF UNDERSTANDING

BETWEEN

International Ocean Institute Operational Centre for the Pacific Islands (*IOI-Pacific Islands*) at the University of the South Pacific and the IOC Perth Regional Programme Office

TO PROVIDE

Scientific Educational Resources And Experience Associated With The Deployment of Argo Drifting Floats in the South Pacific Ocean (SEREAD)

I. Background: The Argo Project proposes deployment of approximately 3,000 drifting floats over the world's oceans. The floats will provide salinity and temperature profiles from the surface down to 2,000 meters depth. Approximately 300 floats will be deployed in the South Pacific Ocean in the next few years with some already deployed. This data will support scientists and operational oceanography and will be used by modelers of climate for prediction and forecasting of seasonal and annual variations of climate, and others. There will be many applications for the data, some related to agriculture, marine living resources and coastal area management.

Education should be an important component of Argo, as a means to relate the importance of the data in understanding climate studies, environmental consequences, the role of the ocean in climate, local impacts and application of the data to local problems. It is also an excellent mechanism for environmental consciousness, awareness and stewardship. Parents may well become interested in the program and local newspapers and TV stations could help in publicity. It has been suggested that the students involved be identified as "Argonauts".

As Argo floats will be deployed globally there is potential for inter-comparisons amongst regions such as the Indian Ocean, Atlantic and so on. This would give a wider perspective on oceanic characteristics worldwide and generate communication across continents.

The project will be viewed as more than just Argo for the reasons stated above. It is basically a practical entrée' for studying and understanding oceanography and climate in the broad sense.

II. Objective: An Argo float will be identified and adopted by any number of countries or schools in the South Pacific. The school might decide a name for the float and it could be marked accordingly. Otherwise the float number would have to suffice. The float will be tracked by using the Internet; thus Internet access is required. School children supervised by science teachers will update the location about every two weeks. A chart in a classroom will depict the progress of the float. Floats belonging to other schools or countries could be tracked as well. Scientists and educators will provide scientific and technical information about the causes for the floats movement and give insight about ocean currents, heat exchange, the southern oscillation, environmental issues, etc. The process should generate discussions about global observing systems, climate change, sea level rise and global warming and local impacts. Such information can easily be put on the web site and be interpreted by teachers and explained to the class. Scientists might be enticed to actually visit some schools and at a minimum contribute to the web site. Comparisons between schools will make the whole exercise more exciting and educational. The activity should develop ownership by the region in the Argo program.

III. Coordination: The project will be coordinated and led by IOI-Pacific Islands in partnership, with the International Ocean Institute-Headquarters, UNESCO-Apia, NIWA-New Zealand, IOC Perth Regional Programme Office, SOPAC, Argo Science Team, POGO and NOAA. A SEREAD Steering Committee will provide overall guidance and advice. The partners will be identified as the sponsors of the project whenever possible.

IV. Partner Functions:

IOI-Pacific Islands: Primary responsibility for execution of project. Administer the funds and manage all contracts. Identify facilitators, assist in the development of program material, coordinate with schools and instruct teachers, draft status reports and informational material for sponsors.

UNESCO Office Apia: Contribute to the development of the education program in cooperation with the University of South Pacific. Provide access and use of its education network.

Argo Science Team: Provide scientific and educational materials, facilitate naming of floats and provide assistance in tracking and interpretation of data.

NIWA: Assist in development of educational materials and provide access to resource people who will deliver the program in the region.

NOAA: Assist in coordinating activities with Argo Science Team and assist as possible in contribution of educational materials.

SOPAC: Assist with coordination in region, development of education materials and provide interaction with governments as appropriate.

POGO: Provide scientific and educational materials and assist with planning and oversight advice as may be appropriate.

IOC Perth Regional Programme Office: Chair SEREAD Steering Committee and assist as necessary.

V. Funding: Partners will each provide \$3K (US) to the project for an initial budget. Additional funds will be required and sought from the partners as the project develops. Approximately \$30K annually is anticipated to operate the project. Funds will be solicited from each partner by letter from IOI-PI.

Funds will be used to set up the web site, travel costs of a coordinator in the South Pacific to arrange the program in interested schools, development of educational materials, project costs associated with coordination and general administration of the project. Volunteerism is expected to reduce real costs.

VI. Timing: The project will begin when the funds have been deposited with the IOI-PI Office. Argo floats are already being deployed in the South Pacific. The project will continue for as long as the partners remain interested and maintain funding.

VII. Default: In the event of default all funds will be returned to the partners in shares based on their payment minus expenditures. Any party may withdraw from this agreement at any time for any reason. Funds will be returned if requested in writing within 60 days of withdrawal.

Signed:

Director, IOI-Pacific Islands

Date:

Head, IOC Perth Regional Programme Office

Date:

Principles for Teaching Resource Development

1. The teaching resource will be developed as a collaborative undertaking between scientists and educators.
2. The teaching resource will be designed to complement the current curriculum taught in schools.
3. The teaching resource will include a section which outlines the links between the content of the resource and the teaching curriculum.
4. The teaching resource will be trialed using teachers and students as part of the development of the resource.
5. The teaching resource will use creative and innovative ways of presenting the material.

Attachment 6

Scientific Educational Resources and Experience Associated with the Deployment of Argo Drifting Floats in the South Pacific Ocean,
(SEREAD)

PARTNERS & CONTACTS

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