SEREAD: Ocean Science Education for the Pacific Island Region (Report: September 2006)

SEREAD Objectives:

SEREAD\(^1\) is an educational program and resource that provides regionally relevant and focused ocean science in a format that fits directly into existing curricula of Pacific Island schools. SEREAD teaches basic scientific fundamentals in a hands-on approach using examples that build on Pacific students’ everyday observations and experiences. The program facilitates interactions and discussions between today’s ocean and climate scientists, teachers and students, and tomorrow’s leaders on the important connections between the ocean, land and climate of the Pacific Island Region.

Management and support:

Direction for the SEREAD Program is provided by the SEREAD Steering Committee, including experts from inside and outside the Pacific Islands region (SOPAC, UNESCO, IOC, Scripps, NIWA and others). The Program is presently managed by Dr. J Hall (NIWA/NZ). Two teachers, Mr. Keith Hartle (Dargaville High School, NZ) and Mrs. Carol Young (Team Solutions, Auckland University, NZ), have been responsible for development of the teaching and resource materials and for conducting teacher training workshops in the islands in 2002-2004. Support for SEREAD has included contributions from SOPAC, UNESCO, the NOAA-Argo Program, IOC, IOI, NIWA and POGO.

Resource Material and Implementation:

SEREAD currently consists of three teaching units tailored for the requirements of existing primary and secondary school curricula in Pacific Island nations which are freely available on the websites for SOPAC (www.sopac.org) and Argo (www.argo.ucsd.edu/FrEducational_use.html).

The three units consist of:

- **What is weather?** A teaching unit for years 3 - 6 children (lower primary)
- **What is climate?** A teaching unit for years 7 - 10 children (upper primary)
- **Oceans rising? Part A.** A teaching unit for years 8 - 12 children (lower secondary)
- **Oceans rising? Part B.** Literacy Activities for the children, years 8 - 12 (lower sec.)

\(^1\) Scientific Educational Resources and Experience Associated with the Deployment of Argo profiling floats in the South Pacific Ocean.
An additional unit (both for upper secondary school) will be developed in 2006: on the role of the oceans in the climate system. The unit will promote familiarity and usage of internet-available ocean datasets in the region, including Argo.

SEREAD is being introduced into the Pacific school systems through cooperative arrangements with the local Ministries of Education. SEREAD teacher training workshops have already been conducted in the Cook Islands and Samoa (2002-2003), with a follow-on workshop held in Samoa (2004) and visits to teachers in the Cooks (2004). Initial SEREAD workshops focus on training of teachers. Follow-on activities are for training of island-based teacher-trainers and for assessment and feedback on results of SEREAD units. Most of the SEREAD funds have been utilised for staging the workshops and for transportation and expenses of local teachers to attend.

**SEREAD Activities:**

SEREAD activities over the past four years have focused on the development of the resource material for the programme and the training of teachers in the use of the SEREAD in the classroom for the Cook Islands and Samoa. These resources have been updated after each teacher-training workshop based on feedback from the teachers involved. Also, they have been tailored for the specific country to ensure that the links with the curriculum are maximized.

**Cook Islands**
The Cook Islands was the first country where SEREAD was introduced. There have been two sets of training workshops for teachers with a total of forty-four teachers being trained to use SEREAD in the class room. These teachers were from Rarotonga, Aitutaki and Mangaia. A follow-up visit to Rarotongan schools showed that teachers were using the material in the classroom and the trained teachers were working with other teachers in their schools. Discussions with the Science Teacher Advisor in the Cook Islands revealed an urgent need to translate the lower primary school SEREAD material into the local vernacular language in order to increase the uptake of the SEREAD programme in primary schools.

**Samoa**
A strong relationship has been developed with the Ministry of Education, Sport and Culture in Samoa. This has led to Ministry Advisors in science attending the SEREAD training workshops and Ministry staff supporting the attendance of teachers at the training workshops. The SEREAD teaching resources are closely aligned with the new science curriculum in Samoa. There have been two sets of training workshops in Samoa (the second set was conducted at the request of Ministry staff) with a total of forty-six teachers being trained. Sixteen of these have been trained as mentors who have trained over seventy other Samoan teachers in the use of the SEREAD resource material in the classroom. Mrs. Young and Mr. Hartle supported these mentor teachers to run their workshops.
Promotion of SEREAD to other Pacific Island countries:

There has been a very positive response to the SEREAD programme by teachers due to the regional relevance of the resource and the effective use of everyday material for demonstrating scientific concepts. The success of the programme in the Cook Islands and Samoa has resulted in other Pacific Island Nations expressing an interest to introduce and implement the SEREAD programme in their school systems. This was exemplified when the SEREAD programme was presented to the Pacific Islands Directors of Education Conference in Rarotonga in November 2003. At the conference a number of countries expressed a keen interest in the SEREAD programme being introduced into their education system. These countries included Niue, Marshall Islands, Federated States of Micronesia and Tuvalu. We have also had discussions with the Curriculum Advisors of the Fijian Ministry of Education, who have declared a keen interest in the programme and a willingness to look at implementation once they have completed an extensive curriculum review.

A Working Group considering Ocean Science Education Issues in the South Pacific was convened at the SOPAC/STAR Annual Sessions in Samoa, September 2005. Discussion in the group clearly indicated an interest from all the Pacific Island Nations to either introduce or improve marine science education at the primary and secondary school levels. All participants indicated their desire to access and use the material in the most appropriate format for their countries. Island country representatives also requested the translation of the material into the local vernacular language.