

1. Background

The 14th NOWPAP IGM (Toyama, Japan, 8-10 December 2009) approved CEARAC 1workplan for the 2010-2011 biennium with the budget cutdown to 107,000US\$. Following the decision on the budget cutdown, allocation of CEARAC budget to each specific project was revised by CEARAC and it was approved by CEARAC Focal Points through e-mail correspondence.

Draft proposal to conduct the next training course jointly with IOC/WESTPAC and PICES (Annex) was approved at the 13th NEAR-GOOS Coordinating Committee Meeting (April 2010, Russia) and adopted at the 8th Intergovernmental meeting of IOCWESTPAC (May 2010, Indonesia). The same proposal was also submitted to PICES and it will be further discussed at the PICES annual meeting in October 2010 in Portland.

This document is a revised work plan and budget for third NOWPAP training course on remote sensing data analysis.

2. Objective

Objective of this activity is to provide opportunities for students, young researchers and coastal managers to help obtain useful skills and knowledge to utilize remote sensing data in monitoring and assessment of the marine environment.

3. Main tasks

Based on the experiences of the past training courses, CEARAC will conduct the third NOWPAP training course on remote sensing data analysis in an efficient manner. NOWPAP WG4 experts are expected to coordinate organization of the training course in the following aspects:

- Review of workplan
- Review of syllabus
- Nomination of lecturers
- Recommendation of potential trainees
- Selection of applicants

4. Potential partnership with other organization

In order to efficiently implement the training course, CEARAC will form a cooperative relationship with Pacific Oceanographic Institute of Russian Academy of Science, IOC/WESTPAC and PICES to jointly conduct the training course. CEARAC will continue to look for potential partners that are capable of providing and/or sharing the following resources and materials.

- Travel expenses of lecturers and trainees
- Training texts (materials)

5. Expected outcome

Implementation of the third NOWPAP training course on remote sensing data analysis is expected to contribute to capacity building of the NOWPAP member states for utilizing remote sensing data for marine environment conservation. It is also expected to obtain useful information to consider future directions of CEARAC activities related to remote sensing through feedbacks from trainees.

6. Schedule

Proposed schedule will be as follows.

Time		Actions	Main body
2010	Q1	<ul style="list-style-type: none"> • Preparation of draft workplan for implementation of the training course 	CEARAC
	April	<ul style="list-style-type: none"> • Discussion with IOC/WESTPAC and PICES for funding 	WESTPAC/CEARAC
	May	<ul style="list-style-type: none"> • Approval of budget contribution from WESTPAC at the 8th WESTPAC IGM 	WESTPAC
	Sep (8 th CEARAC FPM)	<ul style="list-style-type: none"> • Review of revised workplan and budget for the third NOWPAP training course on remote sensing data analysis. • Determination of venue and local host 	CEARAC / CEARAC FPs
	Oct	<ul style="list-style-type: none"> • Discussion on budget contribution 	PICES/ CEARAC

		from PICES at the annual PICES meeting	
	Q3	• Determination of the venue and timing	CEARAC/CEARAC FPs
	Q4	• Conclusion of MoU with local host for preparation and implementation of the training course	CEARAC and local host
2011	Feb	• Discussion at the 16 th IOCCG Committee meeting for potential contribution from IOCCG	CEARAC/ experts (lecturers)
	Mar	• Review of preparation status	CEARAC / experts (lecturers)
	April	• Announcement of the training course on CEARAC website	CEARAC
	Q2 to Q3	• Application by potential participants	Potential participants
	Q3	• Selection of participants	CEARAC / CEARAC FPs
	Fall	• Organization of the third NOWPAP training course on remote sensing data analysis.	CEARAC/ experts (lecturers) / participants

7. Budget

10,000 US\$ is requested from NOWPAP Trust Fund. However this requested money is subject to change depending on availability of other fund sources.

**Proposal for Joint Training Course
on Remote Sensing Data Analysis
(Draft as of April 12, 2010)**

I. BACK GROUND

The Integrated Report on Ocean Remote Sensing for the NOWPAP Region, published in 2005, suggested activities of enhancement of technical training programs. Mid- and long-term strategies of CEARAC adopted at the 5th CEARAC FPM in 2007 also stated the needs of training programs to disseminate outcomes of CEARAC activities.

Following these suggestions, CEARAC organized series of training courses on remote sensing data analysis for capacity building of the NOWPAP member states. The first course was jointly organized with IOC/WESTPAC in September 2007 at Nagasaki University, Japan. The second course was organized at Cheju National University, Cheju, Korea in cooperation with KORDI in November 2008.

In addition to the above, as part of the cooperative activities between NOWPAP and PICES, NOWPAP CEARAC director and expert attended the PICES Summer School on Satellite Oceanography for the Earth Environment in August 2009 at Seoul National University, Korea.

In spite of importance of and continuing demand for these capacity building programs, there have been no such training implemented in China and Russia under the NOWPAP framework in the past yet. The 14th NOWPAP Intergovernmental Meeting in December 2009 approved CEARAC work plan including the 3rd training course on remote sensing data analysis for 2010-2011 biennium.

Taking into the account that CEARAC, IOC/WESTPAC and PICES all have been making great efforts on capacity building in the Asia-Pacific region and PICES annual meeting in 2011 is scheduled to be held in Russia (most probably in Vladivostok), it is proposed to conduct joint training course on remote sensing data analysis during or back to back with the 2011 PICES annual meeting in Vladivostok in cooperation with IOC/WESTPAC and PICES.

II. METHODOLOGY

(1) Organization:

Organizers:	NOWPAP CEARAC
Organization Committee:	Experts of NOWPAP, IOC/WESTPAC and PICES
Local Host:	Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences
Supporters:	NOWPAP, IOC/WESTPAC and PICES (tentative)
Secretariats:	NOWPAP CEARAC

(2) Financial source:

NOWPAP:	USD 10,000-
IOC/WESTPAC:	USD 10,000
PICES:	USD 10,000

Total:	USD 30,000

(3) Budget breakdown:

Funds will cover mainly the cost of materials for the course and travel expenses of the participants. Breakdown of budget for each item will be as follows;

Travel expenses for 7 selected trainees and 5 lecturers from Northwest Pacific region	18,000 USD (1,500 for each)
Travel expenses for 2 selected trainees and 2 lecturers from outside of Northwest Pacific region	8,000 USD (2,000 for each)
Compiling and printing of handout materials	2,000 USD
Facilities and equipment	1,000 USD
Reception and sundry	1,000 USD

Total	30,000 USD*

*Depending on funds availability, the number of trainees and lecturers will be adjusted.

As the organizer, CEARAC will take responsibility for the following:

- Preparation of a classroom for the training course.
- Travel arrangements of the participants.
- Overall financial management.

(4) Procedure:

- CEARAC will place announcement on the Internet with application form.
- Candidates will submit their application forms.
- Organization committee will select participants

III. OBJECTIVES

The objectives of the training course are:

- To contribute to capacity building of the NOWPAP, IOC/WESTPAC and PICES member countries in utilizing remote sensing techniques for monitoring and assessment of marine and

coastal environment through providing technical assistance.

- To make the participants become acquainted with the concept of NEAR-GOOS and its operations in the WESTPAC region, contribute to a new capacity building project on the “UNESCO/IOC Regional Network of Training and Research Centers on Oceanography in the Western Pacific”.
- To contribute to development of CREAMS/PICES Capacity Building Program.

IV. DATE AND Venue

(1) Date and period: 5 consecutive days in Fall 2011 (tentative)

(2) Venue: Pacific Oceanological Institute, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia

V. EXPECTED PARTICIPANTS

(1) Expected participants:

The course is targeted at postgraduate students, professional researchers and local government officers working in the areas of marine sciences and coastal zone management in the Asia-Pacific Region. Applications from advanced undergraduates may also be considered.

(2) Capacity of class:

The maximum number of the trainees will be around 25.

(3) Tuition fee:

Training will be provided free of charge. Travel expenses and accommodation will be provided for selected trainees.

VI. TRAINING CONTENTS

The course will consist of lectures by specialists and hands-on practical sessions on the process and analysis of ocean remote sensing data. Topics will cover remote sensing of eutrophication, red tides, oil spills and coastal habitats. Syllabus for typical 5-days training course is shown in the following table. Lecturers will be decided by organizing committee.

Day	Time	Program
Day 0		Welcome Party
Day 1	9:00-9:20	Welcome address
	9:20-10:50	Introduction to Satellite Oceanography (L)
	11:00-12:30	Introduction to Ocean Color Remote Sensing (Atmospheric correction, In-water algorithm) (L)
	13:30-17:00	Availability of oceanological data and in situ data in ASIA-Pacific Region (OC, SST, NPEC, JAXA, NGSST, NEAR-GOOS, PICES etc.) Introduction of software (WIM and SeaDAS) (L) + (H)
Day 2	9:00-10:30	Case studies of red tides (L)
	10:45-12:15	Theories of red tide detection by remote sensing (L)
	13:30-17:00	Imaging and verification of ocean colour satellite data (L)
Day 3	9:00-10:30	Preliminary assessment of eutrophication by remote Sensing (L)
	10:45-12:15	Validation of Ocean Colour (L)
	13:30-17:00	Time series analysis of ocean colour data and preliminary eutrophication assessment by remote sensing (H)
Day 4	9:00-12:15	Utilization of the Landsat archives and other high resolution optical sensors for coastal environment (L)
	13:30-17:00	Analysis of Landsat images (H)
Day 5	9:00-10:30	Oil spill monitoring by remote sensing (L)
	10:50-12:15	Habitat mapping by remote sensing (L)
	13:00-17:30	Assignment for all trainees (H)
	17:00-17:30	Closing
		Farewell party

(L) Lecture

(H) Hands-on computer exercise