

# Summary report of YSLME Ocean Color Workshop I (YOC-I)

**H. Kawamura**

Consultant

UNDP/GEF Yellow Sea Project “Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem”

Professor

Centre for Atmospheric and Oceanic Studies  
Graduate School of Science, Tohoku University

## Contents

**1. Meeting Report (Table 1, Figure 1, Group photo)**

**2. Action Items**

**ANNEX 1: Agenda**

**ANNEX 2: Participants list**

## Acronymus

CDOM: Colored Dissolved Organic Matter

ECS: East China Sea

GLI: Global Imager

KORDI: Korea Ocean Research and Development Institute

NFRDI: National Fisheries Research and Development Institute-ROK

NN: Neural Network

OC: Ocean Color

PRC: People’s Republic of China

SeaWiFS: Sea-viewing Wide-Field-of-view Sensor

SOA: State Oceanic Administration

TSM: Total Suspended Sediment

YEC: Yellow and East China Seas

YS: Yellow Sea

YSLME: Yellow Sea Large Marine Ecosystem

---

## **1. Meeting Report (Table 1, Figure 1, Group photo)**

### **Session 1. Organization of the Meeting**

H. Kawamura opened the YOC-I workshop at 9:40 a.m. on 4 June 2007. It was reported that the preliminary meeting in the evening of 3<sup>rd</sup> June was successfully organized inviting the members visiting Ansan. Y. Jiang welcomed all participants and mentioned YSLME aspects of the robust regional OC algorithm. He also pointed out country unbalance of participants in this meeting, and suggested more from PRC, which is left as future tasks for the next meetings. C. Chiang has informed on local logistics.

Introducing the proposal of this YSLME project (“Consultant to Develop Regional Ocean Color Algorithm for the Yellow Sea”), Kawamura presented “Purpose of workshop”. *The task of the formed scientist team* is to develop (or refine any existing) operational regional

algorithm for ocean color that can be used for better assessment and future monitoring of primary productivity in the Yellow Sea. In discussions after the presentation, he proposed to separate the OC algorithm validation (a goal of the workshop) and product generation (application of the regional OC algorithm) and to devote the succeeding activities for the former first.

The proposed agenda was approved (ANNEX 1). The members agreed to combine/present their presentation materials of the sessions 2 and 3 together if necessary. The participants list is attached in ANNEX 2.

**Session 2. Present status of the existing regional OC algorithms**

**Session 3. In situ bio-optical measurements in the YS and adjacent seas**

J-H. Ryu gave a presentation on bio-optical in-situ measurements of KORDI/Ahn's group, which is briefly summarized in Table 1 and Figure 1. Y-H. Ahn presented their OC algorithms, current problems and future directions.

J. Ishizaka presented on verification of the GLI OC products in the global oceans and validation of the SeaWiFS OC products, for which the regional in situ optical measurements were collected (Table 1 and Figure 1). The GLI algorithm and Tanaka's NN algorithm were also introduced.

J-W. Tang introduced their OC measurements obtained by 2003/2004 cruises in the western YEC (Table 1 and Figure 1), and the OC algorithms for Chl-a, TSM and CDOM retrieval developed by using them.

S-J. Yoo conducted the OC measurements in 1998, 1999 and 2000. He also presented YSLME potential use of the satellite Chl-a for estimate of the regional primary production, which is the key parameter for the YSLME project.

S-W. Kim showed the OC measurements in the ECS, which were carried out in a part of the NFRDI regular monitoring lines (Table 1 and Figure 1). He also presented the NFRDI regular in situ observations of ocean parameters (e.g., Chl-a) and validation of the OC products.

Kawamura presented inter-comparisons of the SS products of Ahn, Tang and SeaWiFS standard algorithms in the YES, concerning the temporal/spatial variability of SS distribution.

Table 1 Summary of the in situ bio-optical measurements presented in the workshop

<b>OC-data Holder</b>	<b>Period</b>	<b>Area</b>	<b>Ocean Platform</b>
<b>KORDI/Ahn's group (From Ryu's presentation)</b>	<b>1998-2006</b>	<b>Western YEC (Korean side)</b>	<b>Vessels, Ferry, Jeodo station</b>
<b>KORDI/Yoo's group</b>	<b>1998,1999,2000</b>	<b>Western YEC(Korean side)</b>	<b>Vessels</b>
<b>Ishizaka's group</b>	<b>2003, ?</b>	<b>East of Kyushu, Central ECS</b>	<b>Vessels</b>
<b>SOA/Tang's group</b>	<b>2003-2004</b>	<b>Eastern YES(China side)</b>	<b>Vessels</b>
<b>NFRDI/Suh-Kim's group</b>	<b>2000-2004</b>	<b>Central ECS</b>	<b>Vessels (regular monitoring lines)</b>

## **Session 4. Design of the YOC Activities**

After the PPT presentations and discussions described above, the members have discussed and decided the activities in this project as below.

### **1) Working Strategy**

First, we separate the OC in-water algorithm and the OC atmospheric correction algorithm. In the past, the in situ bio-optical measurements were separated by the county borders (Figure 1) and kept by the researchers for a long time though they were collected for the regional OC algorithm development. This situation prevented comprehensive validations of the existing in water algorithms in this region. Taking benefits of the merged regional in situ dataset (Figure 1, Table1), we concentrate first on the validation of in water algorithm. Considering characteristics of the OC remote sensing and reliability of the in situ parameters taken together with the in situ optical measurements, the OC-algorithms for retrieval of Chl-a (Chlorophyll-a), TSS (Total Suspended sediment), and CDOM (Colored dissolved organic matter) will be examined. As seen in the data distribution of Figure 1, the research area is the Yellow Sea and the East China Sea with border sea areas.

### **2) Shearing the regional bio-optical measurements**

In order to share the bio-optical measurements for the regional OC algorithm validation, the members decided the following procedures and schedule.

#### **For June/July (See their details in “2. Action items” in this report)**

- Establish a in-situ data server at YSLME with exclusive use by OC group (password control, within a few days)
- Submit in-situ data with documents (**deadline 30 June 07**)
- YSLME will consider making a common dataset
- Download in-situ data from server to each site
- Test in-situ algorithm and satellite products

The members discussed the in situ measurements to be submitted. The data content and format are entrusted to the data holders. However, the following example of data content has been generated by the members through discussions, and an example of the Exel-base data format is circulated by Ishizaka.

#### **In-situ data set (examples):**

- Latitude, longitude, area coverage: YS & ECS
- Date, time
- Chl-a
- TSM
- CDOM (slope, reference wavelength)
- Rrs – remote sensing reflectance (SeaWifs 8 wavelengths or more)
- Kd
- Sky condition
- other information, including e.g. methods, instruments
- Possibly Excel data and documents

### **3) Next meeting**

The 2<sup>nd</sup> meeting (YOC-II) will be an important opportunity for presenting the results of validation. It is not fixed yet. Once the NOWPAP/WESTPAC training course is approved, YOC-II will be jointly held during 1-2 September 2007 in the Nagasaki University. The first YSLME regional Science Conference is set for 14-16 August 2007 in Hangzhou, which will be a chance to have a meeting. In the case, the period of YOC-II is for 12-13 August 2007. Concerning the hosting countries of YOC-I (Korea) and YOC-III (Japan, in December 2007) and regional country balance, a YOC member proposed to have a YOC-II in Beijing, China in August/September, which is the third option

The following is also pointed out by members for YOC-II actions.

- Invite Prof. Jiang to enhance regional co-operation in RS – head of NSOAS
- Invite other “young” scientists. Candidates: P. Shanmugan - KORDI, Kim HC, He Xianqiang atm correction – SIO (Pan Delu’s group), Ma Yi – FIO, Keiko Yamada – NFRDI, Tanaka, Siswant

### **Session 5. Closing**

The meeting is successfully ended at 17:30. Group photos were taken in front of the KORDI building for meetings (below).



Photo of the YOC-I meeting participants. In front of the meeting building at 18:00 on 4<sup>th</sup> June 2007.

## **2. Action Items**

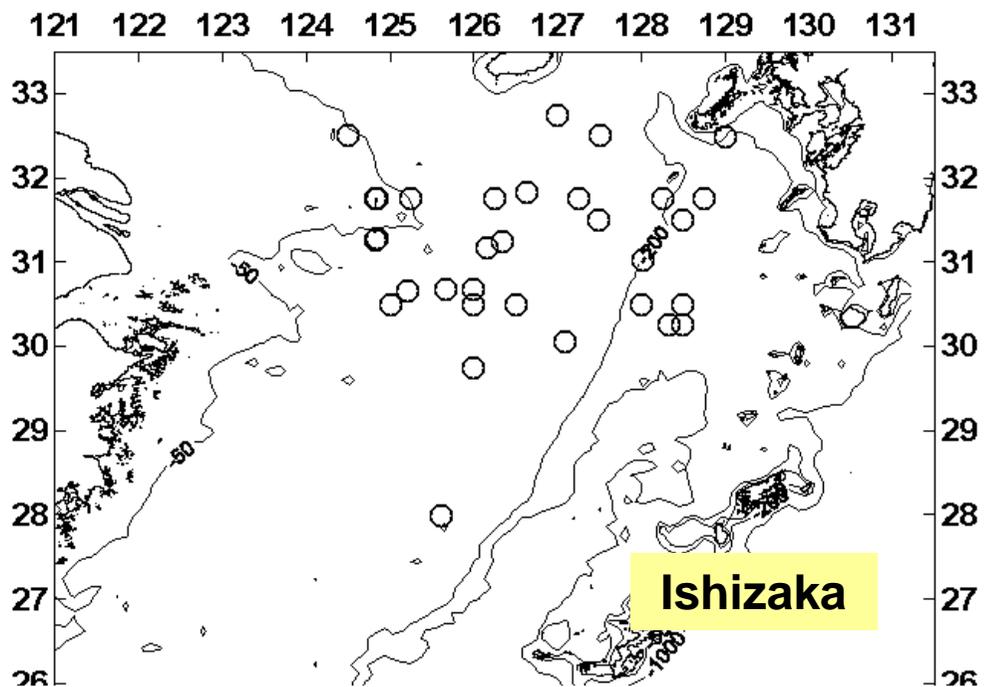
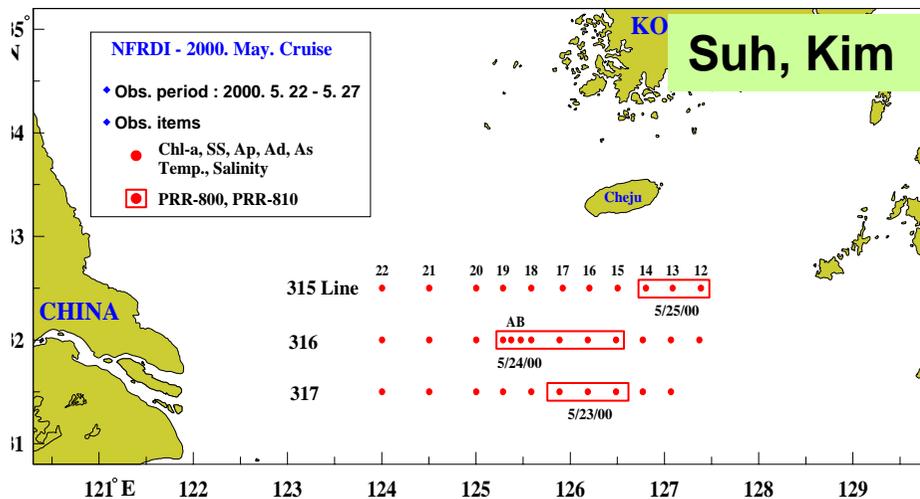
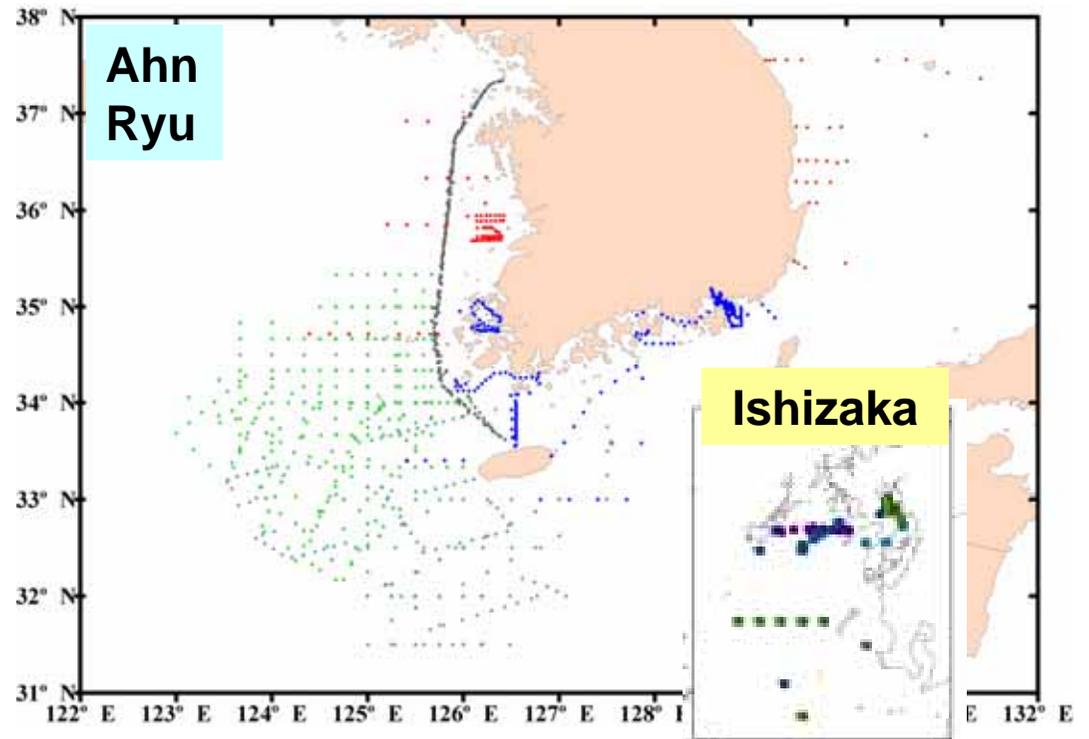
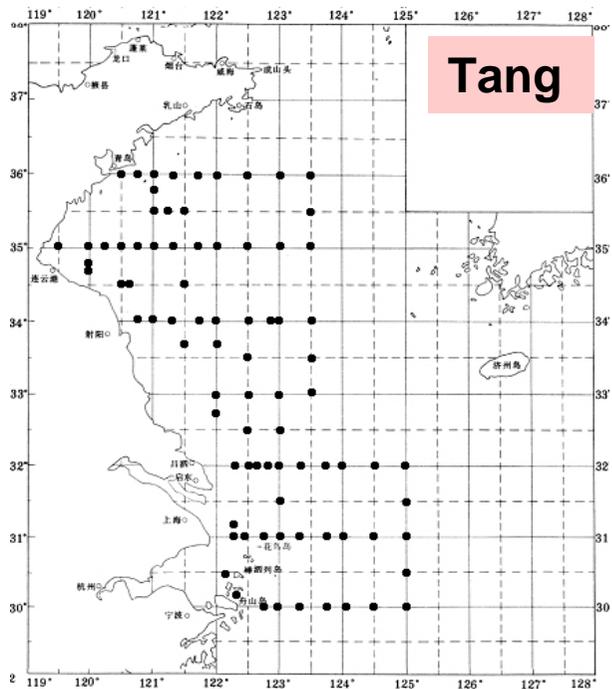
**Action 1:** YSLME establishes a in-situ data server with exclusive use by OC group (password control) *Due date: 15 June 2007*

**Action 2:** Holders of the regional in situ bio-optical measurements submit them with an information document to the YSLME server *Due date: 30 June 07*

**Action 3:** YSLME considers making a common dataset merging the submitted data and information. *Due date: By YOC-II*

**Action 4:** Once all the datasets presented in YOC-I become available, the YSLME server allows accesses of downloading them for the YOC members, who are tasked to validate the regional algorithms. *Due date: By YOC-II*

**Action 5:** Chairperson (Kawamura) considers the time and location of YOC-II through consultation with the YOC members, YSLME, IOC/WESTPAC, NOWPAP (i.e., regional partners) and the other related persons and organizations. *Due date: 13 July 2007*



**Figure 1** Distributions of the regional bio-optical measurements presented in YOC-I

## ANNEX 1: Agenda

### **YSLME workshop “Regional Ocean Color Algorithm for the Yellow Sea (YOC) – I”**

**Date: 19:00-20:00 on 3<sup>rd</sup> June 2007, 9:30-17:30 on 4 June 2007**

**Venue: A meeting room, KORDI Compound, Ansan, Korea**

#### **Preparatory meeting (19:00-20:30) on 3<sup>rd</sup> June 2007**

**Kawamuea, Ishizaka, Kim and Tang**

*The members are requested to convene in the lobby of Haepyngyang Hotel at 18:30*

#### **YOC-I meeting on 4<sup>th</sup> June 2007**

*Since the shuttle bus from the Hotel starts at 8:45 P.M., the members are requested to convene the hotel lobby at 8:30.*

#### **I. Morning Session (9:30 - 1230, Break at 11:00)**

##### **1. Organization of the Meeting**

###### **1.1 Opening and remarks**

**Introduction of YSLME and its role of the Ocean Color remote sensing (JIANG)**

**Local logistics (CHANG)**

###### **1.2 Purpose of workshop (KAWAMURA)**

###### **1.3 Adoption of the Agenda**

##### **2. Present status of the existing regional OC algorithms**

*Presentations on the local OC algorithms with regional validations will be given by their developers and others for surveying them. Each 15-minutes.*

**Presenters: AHN, ISHIZAKA, TANG, YOO, KIM and KAWAMURA**

##### **3. In situ bio-optical measurements in the YS and adjacent seas**

*Presentations by the regional in situ optical data holding/controlling experts. Each 15-minutes.*

**Presenters: AHN, ISHIZAKA, TANG, YOO and KIM**

#### **LUNCH (1230 – 14:00)**

#### **II. Afternoon Session (1400 - 1730, Break at 1530)**

##### **4. Design of the YOC Activities**

*Intensive discussions for designing all the activities*

**Data shearing, Validation analyses and expected outcomes, Scheduling all the activities**

**Following two meetings**

##### **5. Closing**

**Reception party (19:00- )**

*All the participants and local staffs are invited. A buffet shabu shabu restaurant that has Korean, Chinese and western foods*

## **ANNEX 2: Participants list**

### **Participant of YSLME workshop “Regional Ocean Color Algorithm for the Yellow Sea – I”**

#### **Regional OC Experts**

##### **Dr. AHN Yu-Hwan**

Ocean Satellite Research Group  
Korean Ocean Research & Development Institute  
Ansan P.O. Box 29, Seoul 425-600, Korea  
Phone: +81-31-400-6129  
E-mail: [yhahn@kordi.re.kr](mailto:yhahn@kordi.re.kr)

##### **Dr. ISHIZAKA Joji**

Faculty of Fisheries  
Nagasaki University  
1-14 Bunkyo-Cho, Nagasaki, 852-8521 Japan  
Phone: +81-95-819-2804, Fax: +81-95-819-2804  
E-mail: [ishizaka@nagasaki-u.ac.jp](mailto:ishizaka@nagasaki-u.ac.jp)

##### **Dr KAWAMURA Hiroshi**

Professor  
Centre for Atmospheric and Oceanic Studies  
Graduated School of Science, Tohoku University  
Aramaki-Aza-Aoba, Aoba-ku  
Sendai, Miyagi 9808578 JAPAN  
Phone: +81 22 795 6745, Fax: +81 22 795 6748  
Email: [kamu@ocean.caos.tohoku.ac.jp](mailto:kamu@ocean.caos.tohoku.ac.jp)

##### **Dr. KIM Sang-Woo**

Senior Researcher  
Marine Remote Sensing Lab.  
Ocean Research Team,  
National Fisheries Research & Development  
Institute  
408-1, Shirang-ri, Gijang-up, Gijang-gun,  
Busan, Korea 619-902  
Phone : +82-51-720-2226  
Fax : +82-51-720-2225  
Email : [swkim26@nfrdi.re.kr](mailto:swkim26@nfrdi.re.kr)

##### **Dr. RYU Joo-Hyung**

Senior Research Scientist  
Ocean Satellite Research Group  
KORDI  
Ansan PO Box 29  
Seoul, Korea 425-600  
Phone : 82-31-400-7601  
Fax : 82-31-400-7606  
E-mail : [jhryu@kordi.re.kr](mailto:jhryu@kordi.re.kr)

##### **Dr. TANG Junwu**

National Satellite Ocean Application Service  
SOA  
Beijing  
China  
Phone: +86-10-62189304  
E-mail: [jwtang@mail.nsoas.gov.cn](mailto:jwtang@mail.nsoas.gov.cn)

##### **Dr. YOO Sinjae**

Korea Ocean Research .& Development Institute  
Sa-Dong 1270, Ansan  
South Korea 425-170  
Phone: +82-31-400-6221, Fax: +82-31-408-5934  
E-mail: [sjyoo@kordi.re.kr](mailto:sjyoo@kordi.re.kr)

#### **YSLME**

##### **Mr. JIANG Yihang**

Project Manager  
UNDP/GEF Yellow Sea Project  
Ansan P.O. Box 29  
Seoul 425-600  
R. Korea  
Phone: +82-31 400 7825  
Fax: 82-31 400 7826  
E-mail: [yihang@yslme.org](mailto:yihang@yslme.org)

##### **Ms. CHIANG Connie**

Environment Officer  
UNDP/GEF Yellow Sea Project  
KORDI Compound  
1270, Sa-2dong, Sangnok  
Ansan City, Gyeonggi Province  
Republic of Korea 426-744  
Phone: +82-31-400-7833  
Fax: + 82-31-400-7826  
E-mail: [connie@yslme.org](mailto:connie@yslme.org)

##### **Ms. YUN Euidea**

IT Specialist  
UNDP/GEF Yellow Sea Project  
KORDI Compound  
1270, Sa-2dong, Sangnok  
Ansan City, Gyeonggi Province  
Republic of Korea 426-744  
Phone: +82-31-400-7830  
Fax: + 82-31-400-7826  
E-mail: [euidea@yslme.org](mailto:euidea@yslme.org)