

# **REGIONAL MARINE OBSERVATION AND QUALITY CONTROL**

OceanTeacher Global Academy (OTGA) organized the training course, “Regional Marine Observation and Quality Control”, hosted jointly by National Center of Marine Standards and Metrology (NCOSM) and a subordinate of Ministry of Natural Resources, China, National Marine Data and Information Service (NMDIS). The course was held at Tianjin Victoria International Hotel from 25 to 28 March 2018, with support of IOC/IODE through the government of China, Flanders and Belgium.

Professional and trainees from China, Japan, Australia, and most from the Pacific region countries attended the training. International students from around China related to the field of Marine Oceanography were also the part of 26 hours comprehensive training course. Following the opening speeches by the members from MNR, IODE, NMDIS and NCOSM, the course contained 10 theoretical lectures, a software training class and demo visit to laboratories of NCOSM.

## **LECTURE 1: Global Ocean Observation System (GOOS) / Second International Indian Ocean Expedition (IIOE-2)**

**Speaker:** YU Weidong, from National Marine Environmental Forecasting Center.

**Key points:**

1. Introduction to Ocean and Marine life.
2. History of Ocean Exploration.
3. Ocean Observation.
4. Marine Environment and Pollution.
5. Ocean and Climate Change.
6. Ocean observation technologies.
7. Indian Ocean Observation.

## **LECTURE 2: Buoy observation network and WIGOS**

**Speaker:** JIANG Long, from JCOMM in-situ Observation Platform Support Center, and World Meteorological Organization (WMO)

**Key points:**

1. Introduction to WMO.
2. WMO and its integrating supportive network.
3. Working of WMO around the globe.
4. Observing network and quality control.

## **LECTURE 3: Conductivity – Temperature – Depth Observation**

**Speaker:** Dr. YANG Guangbin, from First Institute of Oceanography, Ministry of Natural Resources

**Key points:**

1. CTD observation.
2. CTD hardware and development.
3. Software for CTD observation.
4. CTD sensors and its calibration.
5. CTD data processing and quality control.
6. Effects of Salinity, Temperature and Pressure anomaly.

## **LECTURE 4: Managing and Visualizing CTD Data**

**Speaker &** Greg REED, UNESCO / IOC Project Office for IODE

**Instructor**

**Key points:**

1. Introduction to Global CTD data and World Ocean Data (WOD).
2. Ocean Data View (ODV) software.

3. ODV software training and Practice (North-West Pacific region data view)

### **LECTURE 5: Data Processing and Quality Control of CTD observation**

**Speaker:** JI Fengying, from National Marine Data and Information Service

**Key points:**

1. CTD observation.
2. Data processing and Analysis of Argo, drifting buoy, CTD and LADCP data.

### **LECTURE 6: The History and Development of CTD**

**Speaker:** LI Hongzhi, from National Ocean Technology Center

**Key points:**

1. History of CTD measurement.
2. CTD tools and CTD data processing.
3. Development of high precision CTD tools.

### **LECTURE 7: Sea Bird Sensor: Characteristics, Calibrations, and Data correction**

**Speaker:** Lance Zhou, from Laurel Technologies Company Limited

**Key points:**

1. Introduction to Sea Bird Sensor.
2. Characteristics and deployment of Sea Bird Sensor.
3. Sensor calibration and sensor data correction.

### **LECTURE 8: A technical description of the RBR sensor technology, calibration, practical maintenance and data processing**

**Speaker:** WANG Qi, from RBR Limited

**Key points:**

1. Introduction to RBR Sensor.
2. Hardware demonstration and working principal of RBR sensor.
3. Sensor calibration and sensor data processing (tools and softwares).

### **LECTURE 9: NOSS: towards direct in situ absolute salinity measurement using optical technology – CTD observations in the Mediterranean Sea.**

**Speaker:** Alexandre ACELDY, from NKE Marine Electronics

**Key points:**

1. Introduction to NKE electronics.
2. NOSS, accuracy and precision compared with other sensors.
3. Theory, hardware and working mechanism of optical salinity sensor (NOOS).

### **LECTURE 10: Best practices and standards of CTD observation.**

**Speaker:** YUAN Lingling, from National Center of Ocean Standards and Metrology

**Key points:**

1. CTD instruments.
2. Data measuring principles.

### **LECTURE 11: CTD Calibration in NCOSM and Chinese Standard Seawater.**

**Speaker:** PANG Yongchao, from National Center of Ocean Standards and Metrology

**Key points:**

1. CTD instruments methods in NCOSM laboratories.

The whole lectures were designed to know the very basics of marine observations to advanced levels and future of marine observation systems. Demonstration of tools and calibration techniques at NCOSM laboratories (sensors calibration labs) were quite useful for both oceanography and marine engineering field of studies.

Basically this seminar training delivered an overview of marine observation on both regional and international levels. The course provided the ideas of marine applications and quality control of CTDs; its measurement and calibration. Furthermore, the participants got the opportunity to exchange the research progress on regional marine observation, and also got the skills to improve the in-situ oceanographic measurements, which will help us to know about the vast oceans surrounding us.