



UNESCO/IOC-ODC TRAINING COURSE ON OCEAN MODEL AND DATA ASSIMILATION



PROGRAMME

10-21 July 2023

Qingdao, China

Hosted by

**The First Institute of Oceanography (FIO),
Ministry of Natural Resources (MNR), China**



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1. Background

The UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate (ODC) was officially established through the Agreement signed by the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the host institute, the First Institute of Oceanography (FIO), Ministry of Natural Resources (MNR) of China, at the WESTPAC-VIII in Bali, Indonesia in May 2010. ODC Center was built to provide advanced training and education for young scientists and officers, promote exchange among experts within and outside the WESTPAC region on ocean research and initiate cutting-edge research on ocean and climate model development. ODC center was inaugurated on 9 June 2011 at the host institute of the First Institute of Oceanography, China as the first UNESCO/IOC Regional Training and Research Center. Furthermore, the cooperation agreements with a work plan has been renewed through the exchange of letters every 5 year.

ODC center has been providing annual training and research opportunities on ocean dynamics, air-sea interactions, climate change and numerical modeling to junior scientists and doctoral/master students. Financial support is provided to about 15 trainees mainly from the developing member states of IOC. ODC center also provides support on high performance computing, data processing and numerical modeling during the training course and joint researches.

Eleven training courses had been successfully held annually in last 12 years with the subjects of Ocean Models (10-16 June 2011), Ocean Dynamics (16-22 July 2012), Air-Sea Interaction and Modeling (12-23 August 2013), Climate Models (3-14 November 2014), Climate Change (7-18 September 2015), Ocean Dynamics and Multi-scales Interaction (5-16 September 2016), Development of Coupled Regional Ocean Models (12-23 June 2017), Ocean Forecast System (25 June-7 July 2018) and Climate Dynamics and Air-sea Interactions (17-28 Jun 2019), Regional Application of Coupled Climate Models (5-16 July 2021) and Prediction and Projection of Climate (22-28 August 2022), with an exception in 2020 due to epidemic COVID-19. Total 670 trainees from 54 countries have been selected from 1221 applications from 69 countries, and trained in these previous courses. More information could be found on ODC website (<http://odc.fio.com.cn>).

With the constructive suggestions and overwhelming interests received from the previous training courses, the topic of 12th ODC Training Course is scheduled as Ocean Model and Data Assimilation that will be held during 10-21 July, 2023. This year the BRICS joint project “Improvement and demonstration application of BRICS Ocean Forecast Model” will provide partial financial support for the training with focus on the trainees from BRICS nations. This training is designed to introduce wave-tide-circulation coupled models and its applications in ocean and climate research, basic theory of data assimilation with practice in ocean models, developing of the regional ocean forecast system and its validation, developing of the wave model and wave data assimilation, and other related frontier topics.

2. Training Program

2.1 Time Schedule

(All time in this schedule is Beijing time, GMT+08:00)

Time	Activities	Speaker/Chair
Monday 10 July 2023		
8:30-9:00	Registration	
	Opening Ceremony	Chaired by Li Li
9:00-9:30	Opening remarks from ODC Center & FIO	Fangli Qiao
	Welcome remarks from Ministry of Natural Resources, China (online)	Antao Wang
	Welcome speech from lecturer representative	Qiang Wang
	Introduction to the 2023 ODC training course	Xunqiang Yin
9:30-10:00	Group photos and break	
10:00-11:30	Training Lecture Wave-tide-circulation coupling and its application in ocean and climate models	Fangli Qiao
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Practice, Q&A	Fangli Qiao Shizhu Wang, Bin Xiao
17:00-17:30	Group Discussion (1)	All Trainees
17:30-19:00	Buffet dinner	
Tuesday 11 July 2023		
9:00-11:30	Training Lecture Modeling the ocean using unstructured grid system	Qiang Wang
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Practice on modeling the ocean using unstructured grid system	Qiang Wang
17:00-18:00	Trainee report (1)	All Trainees
Wednesday 12 July 2023		
9:00-11:30	Training Lecture Basic theory of data assimilation	Shaoqing Zhang
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Lab practice	Shaoqing Zhang Zikuan Lin
17:00-18:00	Trainee report (2)	All Trainees
Thursday 13 July 2023		
9:00-11:30	Training Lecture Advanced topics in coupled model data assimilation (1)	Shaoqing Zhang
11:30-14:00	Lunch	
14:00-17:00	Training Exercise	Shaoqing Zhang

	Lab practice	Zikuan Lin
17:00-18:00	Trainee report (3)	All Trainees
Friday 14 July 2023		
9:00-11:30	Training Lecture Advanced topics in coupled model data assimilation (2)	Shaoqing Zhang
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Lab Practice	Shaoqing Zhang Zikuan Lin
17:00-18:00	Group Discussion (2)	All Trainees
Second Week		
Monday 17 July 2023		
9:00-11:30	Training Lecture Developing of the ocean forecast system and its validation	Mohd Fadzil Akhir
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Practice, Q&A	Mohd Fadzil Akhir
17:00-18:00	Trainee report (4)	All Trainees
Tuesday 18 July 2023		
9:00-11:30	Training Lecture Application of regional ocean models	Changshui Xia
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Practice, Q&A	Changshui Xia Youting Wu
17:00-18:00	Trainee report (5)	All participants
Wednesday 19 July 2023		
9:00-11:30	Training Lecture Development of the surface wave model in recent decade	Alexander Babanin
11:30-14:00	Lunch	
14:00-17:00	Training Lecture Lecture on wave coupled effects and Q&A.	Alexander Babanin
	Instruction on how to setup of WAVEWATCH-III	Qingxiang Liu
17:00-18:00	Trainee report (6)	All Trainees
Thursday 20 July 2023		
9:00-11:30	Training Lecture Wave model and wave data assimilation	Xunqiang Yin
11:30-14:00	Lunch	
14:00-17:00	Training Exercise Practice, Q&A	Xunqiang Yin Meng Sun
17:00-18:00	Group Discussion (3)	All Trainees
Friday 16 July 2021		

9:00-10:30	Group Reports	Jiayi Guo
10:30-11:30	Completion ceremony	

2.2 Place for Training

Most of lectures for this two-week training will be given at the meeting room 302, located at the 3rd floor of the Administrative Building (see Figure 1), in the First Institute of Oceanography, Ministry of Natural Resources, China.



The training venue at FIO

2.3 Lecturers and Resource Persons

Lecturers (By order of teaching)

Prof. Fangli Qiao

Director of UNESCO/IOC ODC center
Deputy Director General of FIO, MNR, China
Co-chair of IOC/WESTPAC
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Prof. Qiang Wang

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Prof. Mohd Fadzil Akhir

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Prof. Alexander Babanin

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Prof. Xunqiang Yin

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Teaching Assistants (By order of teaching)

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Local Organizers

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Dr. Li Li

Division Chief
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Volunteers

Ms. Jing Ren

Phd Student
First Institute of Oceanography, MNR

Ms. Kaixin Ren

Master student
First Institute of Oceanography, MNR

Ms. Yanfang Zhang

Master student
First Institute of Oceanography, MNR

Ms. Qiuying Fu

Master student
First Institute of Oceanography, MNR

Mr. Qian Chen

Master student
First Institute of Oceanography, MNR

Mr. Yuting Zhang

Master student
First Institute of Oceanography, MNR

3. Other Activities

3.1 Trainee Reports

This activity is designed to help the trainees to establish research networks, and identify possible areas of cooperation in future. Before the course, all participants are required to prepare a 10-minute presentation, including an introduction to your work and study related to this course. Participants will introduce during the training, if you haven't prepared the introduction, you are encouraged to do early. The order of these reports will be announced during the training course.

3.2 Group Discussion and Reports

Trainees will be divided into several groups with a group leader and a secretary elected from each group. Their task is to help the respective group members to organize group discussions and to accumulate group reports.

The trainees in each group will be working together in this period. Each group is encouraged to find a research topic which is relevant to the themes of this training course and then start to develop a proposal during the two weeks. A **draft proposal** for new research is required to be presented at the section of Group Reports.

3.3 Trainee Certificates and Awards

For evaluating the performance of trainees during the training course, a score will be given to each trainee. The score is determined by attendance (both onsite and online), motivation, activity performance in class, questions and discussions, quality of homework, trainee reports and group reports. For online trainees, this evaluation will be done based on the virtual platform.

Best Trainee Award: In order to encourage trainees deep participate the activities during these two weeks, 2-3 trainees who performance well during the training and generate the trainee report and group reports in good quality will be recognize with a certificate. Trainees who obtained this award will be considered for the financial supports in next training course with high priority.

4. Useful Information

4.1 Platforms

A **WeChat** group had been set up for easy communications for onsite trainees. If you have the WeChat in your cell phone, please scan the following figure and join the group. This figure is only validate for 2 weeks and it will be updated on ODC website. If you can't join the WeChat group through this figure, please open the ODC website to find the new one.



A **Slack Channel** had been set up for easy communications for both online and onsite trainees. You could always raise your questions in the respective daily sub-channels in the Slack Channel. All trainees and lecturers are encouraged to join the slack channel by clicking the following link: <https://app.slack.com/huddle/T03LRRBLZUG/C05FRUDFSUR>.

In order to provide more chance to access this training course, the training courses will be live-streamed via **Zoom** for online trainees. If you haven't used this platform before, please make sure to get familiar with it in advance. Guidelines can be found here: <http://www.stats.gov.cn/english/InternationalTraining/2021/202109/P020210907572692910386.pdf>.

- ✧ Meeting room number(during 10-21 July): **972 1897 1414**
- ✧ Password: **will be sent by email**.
- ✧ Link: <https://zoom.us/j/97218971414?pwd=ZGFiV2l6cDUxNDhWd1pZQVFIT1lrQT09>

4.2 Weather in Qingdao

July is the beginning of summer in Qingdao and it is a warmer month. You can wear a T-shirt during the daylight. But the weather is a little cool in the early morning and evening. It is better to bring a thin coat with you, especially when you go to the seaside or outside. The temperature and rainfall are listed in the following table for your reference. More information could be also found on the internet and you are encouraged to check it before your coming.

Month	Average High Temperature		Average Low Temperature		Average Temperature		Average Rainfall	
July	81°F	27°C	72°F	22°C	75°F	24°C	165 mm	12 days

4.3 Currency and ATM in Qingdao

The official currency of China is RMB. The other currencies are not accepted in markets, shops, restaurant or taxi. Visa, MasterCard, American Express, JCB, Diners Club, Discover and other major international credit cards are accepted at some large establishment and hotels.

There are exchange bureaus in the airport terminals but their opening hours are limited (8:30am to 7pm or 9pm). Visa, Master and a few other international cards can be used to withdraw cash in local currency from ATMs with respective labels on, however, ATMs in different bank may accept different cards to withdraw cash. Hence it might be a process of trial and error. There are several ATMs with English language options that accept international credit cards in the basement of Lion Mall or Leader Plaza. We advise you to exchange RMB at your own countries as your first option. If you do need to exchange money in Qingdao, please use USD or Euro.

4.4 Medical services

The Affiliated Hospital of Qingdao University is located at No. 59, Haier Road, Laoshan District Qingdao, near FIO. If any problems, please call 96166 (inside Qingdao) or 0532-96166 (outside Qingdao).

The International Medical Center of Qingdao (ICQD) is the nearest hospital with English-, Japanese- and Korean -speaking- doctors, located at No. 5 Donghai Middle Rd, Qingdao, China. It was in the 4th Floor of Main Building in Qingdao Municipal Hospital (East).

Service hours: Mon~Sat 8:00am-12:00am; 1:00pm~5:00pm

Reception Tel: 0532-85937690; Emergency Tel: 0532-85937678

4.5 Electricity

In China the standard voltage is 220 V and the frequency is 50 Hz, and the common type of power socket is shown on the right. Some outlets accept US and European style plugs, but you may also consider to bring a power plug adapter.



4.6 Useful Numbers

Some useful numbers are provided to you if any emergency issues.

Police number is 110; Fire Number is 119; Ambulance Number is 120.

Local telephone numbers: country code (+86), area code (532), telephone number (8 digits)

4.7 Internet connection

All Google applications (Gmail, Google Drive etc.), social media tools (Facebook, Twitter, Instagram, Youtube, etc.) and application like Dropbox, are not accessible in China without a VPN (Virtual Private Network).

4.8 Tips

In China it is not customary to tip restaurant waiters, taxi drivers or hotel.



Welcome to join this training course!



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