

Chinese National Implementation Committee

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1. 2006 ACCOMPLISHMENTS & SCIENTIFIC HIGHLIGHTS

Cruises

From November 2005 to March 2006, a cruise from the Yellow Sea, East China Sea and along a transect from China to Antarctica were completed in conjunction with Chinese National Antarctic Research Expedition (CHINARE). Investigation on the structure and function of the Southern Ocean Ecosystem was carried out during this period. Main work focused on: 1) high-speed collection of the zooplankton and krill specimen throughout the cruise (122E, 29N - 67E, 67S, Fig.1); 2) investigation on zooplankton and krill in the Prydz Bay; 3) investigation on phytoplankton in the Prydz Bay; 4) collection of the benthos samples in the Prydz Bay; and 5) investigation of zooplankton and phytoplankton in the front of Amery Ice Shelf. Duplicate samples were preserved according to different protocols for regular research and for DNA barcoding, respectively. More than 200 samples were collected during this cruise. It is expected that analysis of these data will provide new understanding of species diversity, distribution, and abundance in relation to ecosystem structure and function in the Southern Ocean and the related areas.



Fig. 1 Sampling route from China to Antarctica

During April 10-30, 2006, China attended the international cruise of CMarZ: Exploring the Deep Sargasso Sea for the research, education and outreach on zooplankton.

North Area of South China Sea: From Feb. 13, 2006 to Feb. 26, 2006, a cruise was carried out in the north area of South China Sea in order to investigate the key species and community structure in this area. Survey was carried out in 14 stations during the cruise.

Other national cruise on biodiversity and ecology of marine zooplankton in conjunction with different national projects, including the investigation in the south area of the Yellow sea and the East China Sea from April 8-30, 2006, the monthly investigation of marine plankton in Jiaozhou Bay in the Yellow Sea, etc. These studies are all contributing to CMarZ and CoML.

Related National Projects

Chinese Offshore Investigation and Assessment (2004-2009)

“Chinese Offshore Investigation and Assessment” is a large project on census of marine life in Chinese offshore. Part of Chinese CoML Committee members participated in this project. This project covers the whole Chinese coastal waters, including habitats such as sea Islands, mangroves, coral reefs, and son on. Investigations are focused on physical oceanography and marine meteorology, sea bottom and topography, marine biology and ecology, marine chemistry and marine optics. One of its goals is to understand the status of Chinese coastal environment and resource, to understand the status of marine development and utilization, and to predict the changing trend of the marine environment and ecology. During the past one year, the spring cruise has been finished and the summer cruise is ongoing from July to August, 2006.

Key Processes and Sustainable Mechanisms of Ecosystem Food Production in the Coastal Ocean of China (2006-2010)

Some of Chinese CoML Committee members have started a National Basic Research Program (also called 973 Program), “Key Processes and Sustainable Mechanisms of Ecosystem Food Production in the Coastal Ocean of China (2006-2010)”. This program is one of China's on-going national keystone basic research programs and is organized and implemented by the Ministry of Science and Technology. This program aims to conduct further investigations and studies on the service function of a marine ecosystem together with its regulating mechanisms and key processes of food production in order to benefit the healthy and sustainable utilization of marine environment and the exploitation marine living resources. The major scientific questions to be dealt with are: the biogeochemical processes of food production, the physical mechanisms of biogenic element cycle and supplement, coupling mechanism of primary production with major biogeochemical processes, food web trophodynamics of major biological functional groups. The research activities will mainly aim at some unique sub-ecosystems in the Yellow Sea and the East China Sea. It is believed that the achievements resulted from the program will provide scientific basis for ensuring food supply in the new century, for establishing a marine management system based on both sustainable food production and ecosystem before the year of 2015. Two cruises in the Yellow Sea and the East China Sea have been carried out in 2006, and field samples varying from the primary producer to the top predator were obtained and are being analyzed.

DNA Barcoding

Research on DNA Barcoding of Chinese marine species is carried out by national and international collaboration. Samples collected from various cruises including Chinese coastal area and southern ocean were preserved according to appropriate protocols for DNA Barcoding research. Identification on marine zooplankton specimen was conducted by the traditional taxonomic methods prior to the DNA barcoding. Prof. SUN Song attended the DNA Barcoding workshop for CoML held in the Netherlands on May 15-17, 2006. The samples from the Chinese coast and related areas will provide more information on barcodes of zooplankton.

Database

Currently, the Chinese OBIS Database contains about 200000 records, which mainly include the data on marine algae in China Sea and the data on the Chinese National Comprehensive Oceanographic Survey carried out during 1958-1960. Quality control of these data is being carried out by the experts from various fields of taxonomy in Marine Biological Museum of Chinese Academy of Sciences. Websites for CoML China and the OBIS Regional Node in China have been established at <http://www.coml.org.cn> and <http://www.iobis.org.cn>, respectively. Chinese OBIS has installed DiGIR and part of the data in Chinese OBIS database is accessible online through the international OBIS portal now. The specimen data digitization is ongoing and the web service function of the Chinese RON is being developed in order to strengthen the function of the Chinese Node further.

Workshop

The Chinese CoML Scientific Steering Committee convened the second CoML meeting in December 20, 2005. More than 30 participants from Chinese Ocean Research Institutions, Ocean Universities and relevant governmental departments attended the meeting. The main goal of the meeting was to understand the progress of the international CoML projects, to review the progress of CoML China in the past year, and to discuss the developing strategy and working plan of CoML China for the next stage. The meeting focused on presentations and discussion of scientific problems, infrastructure construction, training plan and regional research plan.

2. SOCIETAL BENEFITS, IMPACT & APPLICATIONS

The uniform, standardized protocols and new technologies and methods developed by CoML are valuable for the national and multi-national research. The set up of national transects or other important transects is useful for data comparison on spatial and temporal scales.

The data obtained from marine census lay a basis for the national decision-making, ocean exploitation, ocean economy development, ocean administration and ocean safeguard.

By understanding the status of marine environment and resource, the status of marine exploitation and the changing trend of marine ecology and environment, it is possible for related departments to further understand the ocean's carrying capacity, sustainability and the potential to resolve problems such as food, water source, energy, and so on. CoML provides basic data for development of ocean economy and government administration.

Based on the census data, by developing assessment on the health and safety, the service function and the value of marine ecosystem, a scientific foundation could be laid for regulation of pollutants discharge, for the layout of maricultural area and for marine environmental protection.

3. WORK PLANNED FOR 2007

Research:

- Biodiversity research in the Antarctic and Arctic area during the IPY of 2007.
- Continuation on the national programs

- Initiation of new projects, including two grants on jellyfish research and marine biodiversity model and one key program on zooplankton from National Scientific Foundation of China.

Database and information system:

- more specimen data digitization
- data quality control
- better online service, including data search and map search, etc.

Meetings:

- One biodiversity conference will be held in 2007.

4. EDUCATION & OUTREACH

Initiated by the Chinese CoML committee member Prof. Zheng Shouyi, the first base for outreach and education on Foraminifera was established in Qingdao on May 2006. The purpose to establish such a base is to show the diversity of Foraminifera, to introduce the latest progress of research on Foraminifera, and to provide opportunities for students and public to access the beautiful marine organisms. The base was established jointly by Institute of Oceanology and the Qingdao Costume Company.

Based on models of Foraminifera developed by Prof. Zheng Shouyi, a series of products were developed, such as various souvenirs, shirts with images of Foraminifera, and so on. These products were welcomed by peoples from different communities. The small marine organisms, which people were unfamiliar with before, are going to people's daily life gradually.

The Marine Biological Museum of Chinese Academy of Sciences is a main base for outreach and education on marine biology. As a multi-functional and modern museum, aside from serving as depository of various marine specimen including marine algae, invertebrates and fishes, it's a site for popular science exhibition, and researches are carried out in the field of taxonomy, ecology, biosystematics and biodiversity of marine plants and animals. During the last one year, the MBMCAS has been open for the visits of different levels of students and for the public.

Presentations on marine science were given to the middle and high school students by the Chinese CoML committee members, for example, "Little Giants in Large Sea- Foraminifera, by Prof. Zheng Shouyi; "Science and Society, by Prof. J.Y. Liu"; "Ocean---the cradle of life, by Prof. Sun Song".

5. GEOGRAPHIC EXPANSION

The ongoing projects cover the Chinese coastal waters, including the Bohai Sea, the Yellow Sea, the East China Sea and the South China Sea. Some investigation has been and would continue to be conducted in the southern ocean and the Arctic Ocean. The Chinese CoML committee members are considering to initiate new projects based on CoML's methods.

Currently, the Chinese CoML attended the project of CMarZ. At the same time, some work is being conducted on DNA Barcoding. The scientists hope to participate more CoML projects.

6. PARTNERSHIPS & COLLABORATION

a. Partnerships

None to report.

b. Links to CoML Ocean Realm Projects

Project Name	Liaison or Cross-over personnel	Nature of Relationship
CMarZ	Sun Song	Member of CMarZ SSC

c. Links to other CoML National and Regional Implementation Committees (NRICs)

None to report.

d. Liaisons to CoML Cross-Cutting Groups

Project Name	Liaison Name & Institution	Nature of the Relationship
OBIS	SUN Song , Institute of Oceanology, Chinese Academy of Sciences	Chairman of Chinese CoML Committee
HMAP		
FMAP		
SCOR Tech Panel	SUN Song , Institute of Oceanology, Chinese Academy of Sciences	Member of SCOR Panel on New Technologies for Observing Marine Life
E&O	SUN Song , Institute of Oceanology, Chinese Academy of Sciences	Chairman of Chinese CoML Committee
Barcoding		