河口海岸学国家重点实验室
(华东师范大学)
State Key Laboratory of Estuarine and Coastal Research
(East China Normal University)

2011 ANNUAL REPORT
年度报告

河口海岸学国家重点实验室（华东师范大学）

2011 年度报告

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CAS – Chinese Academy of Sciences
CAE – Chinese Academy of Engineering
SOA – State Oceanic Administration of China
CAFS – Chinese Academy of Fishery Sciences

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实验室简介
SKLEC Introduction

河口海岸学国家重点实验室是在华东师范大学河口海岸学科 30 多年研究工作的基础上创建的。实验室依托华东师范大学，于 1989 年由国家计委批准筹建，1995 年 12 月通过国家验收并正式向国内外开放。

经过二十多年的建设，实验室已拥有一支结构合理、多学科交叉、专业互补、老中青结合的研究队伍；配备了先进的野外勘测及室内测试与分析仪器。实验室现有固定人员 61 人，其中研究人员 47 人 (教授 26 人，副教授 5 人，讲师 16 人；具有博士学位的 45 人)，技术人员 11 人，管理人员 3 人。秉承“开放、流动、联合、竞争”的运行机制，实验室瞄准国际学科前沿，围绕国家重大需求，在河口海岸学科前沿领域深入进行应用基础性研究，已发展成为代表我国河口海岸研究水平的科研基地与高层次人才的培养基地。

The State Key Laboratory of Estuarine and Coastal Research (SKLEC) was established on the basis of estuarine and coastal research in East China Normal University (ECNU) for more than 30 years. It was set up by the formerly State Planning Commission of China in 1989, and went into operation in December 1995. It is now co-sponsored by Ministry of Science and Technology of China (MOST) and ECNU.

Since 1989, the laboratory has formed a number of multidisciplinary research teams, equipped with advanced instruments both for fieldwork and laboratory analysis. There are 61 fulltime faculties and staff members in the laboratory, which include 47 research faculties (26 professors, 5 associate professors, and 16 lecturers, among them 45 with Ph.D. degree), 11 technicians and 3 administrative staff.

SKLEC carries out a large amount of theoretical and applied research projects to serve the demands of national development, social sustainability, and frontline science on estuaries and coasts. Guided by the philosophy of “Openness, Exchange, Cooperation and Competition”, it has become a high level research and training base for estuarine and coastal studies in China.

大事记
Headlines

2011 年 2 月，经国务院学位委员会第 28 次会议审核，我室“海洋科学”一级学科硕士点获批。

Audited by the 28th meeting of the Academic Degrees Committee of the State Council of China in February 2011, SKLEC was authorized to offer “Marine Science” master degree, including physical oceanography, marine chemistry, marine geology and marine biology.

2011 年 5 月，我室荣获中华人民共和国交通运输部“长江口深水航道治理工程建设先进集体”荣誉称号，陈吉余院士荣获“长江口深水航道治理工程建设杰出人物”荣誉称号。

In May 2011, SKLEC was honored as the Excellent Unit for the Yangtze Estuary Deepwater Channel Regulation Project from Ministry of Transport of China, and Academician Chen Jiyu was honored as an Outstanding Personnel.

2011 年 6 月 21 日，教育部任命周云轩教授和王光谦院士分别担任河口海岸学国家重点实验室主任和学术委员会主任 (教技司 [2011]217 号)。

Prof. Zhou Yuanxuan and Prof. Wang Guangqian were appointed as director of SKLEC and chair of the Academic Committee of SKLEC, respectively, by Ministry of Education of China on June 21, 2011.

2011 年 9 月 3 日上午，荷兰教育文化科学部副部长、国务秘书 Halbe Zijlstra 一行访问和参观了我室。周云轩主任介绍了实验室的近况，中荷战略联盟项目中方主持人丁平兴教授、荷方主持人 Huib de Vriend 教授汇报了研究工作进展。Zijlstra 副部长对中荷项目所取得的成就和工作状态给予高度评价。

Led by Halbe Zijlstra, vice Minister of the Ministry of Education, Culture and Science of the Netherlands, a delegation visited SKLEC on September 3, 2011. Prof. Zhou Yunxuan introduced the recent developments of SKLEC. Prof. Ding Pingxing and Prof. Huib de Vriend the Chinese and Dutch PI of Programme Strategic Scientific Alliances between China and the Netherlands, respectively, presented the research progress to the vice Minister, to which Mr. Zijlstra gave high appraisal.

2011 年 10 月 18 日，由上海市宝山区出资、华东师范大学总承包、校设计学院和我室负责陈列设计的全国首家以河口科技为主题的专业科普展馆——上海长江河口科技馆落成开馆。

Yangtze River Estuary Science and Technology Museum, which was supported by Baoshan District, contracted by ECNU and designed by SKLEC and School of Design, ECNU, opened to public on October 18, 2011. It was the first museum with estuarine science and technology as the theme of professional exhibition in China.

2011 年 10 月 18-21 日，我室承办“第十一届细颗粒泥沙动力学国际会议 (INTERCOH XI-2011)”。本次会议的主要内容包括泥沙运动的物理过程、室内及野外试验、数学模型、边界层理论和地貌演变等，焦点是细颗粒泥沙运动对人类活动的响应及其环境效应，并开展了长江河口泥沙运动的专题研讨。

The 11th International Conference on Cohesive Sediment Transport Processes (INTERCOH XI-2011) was hosted by SKLEC during October 18-21, 2011. The main contents of this conference are physical process of sediment movement, indoor and field test, mathematical model, boundary layer theory, and geomorphic evolution. It focuses on impacts of human activities on fine sediment transport and its environmental effect. A special session was dedicated to fine sediments issues in the Yangtze River estuary

2011 年 10 月 24-29 日，我室承办科技部和欧洲空间局 (ESA) 在对地观测领域开展的大型科技合作项目“龙计划”二期海洋遥感高级培训班，该培训班以“遥感科技在海洋科学和监测领域的应用”为主题，系统讲授了 ERS 卫星、EnviSat 卫星、TPM 和资源卫星数据处理等相关软件、方法与应用。

The ESA-MOST Dragon 2 programme “Advanced Training Course in Ocean Remote Sensing” was organized by SKLEC during 24-

29 October, 2011. It was supported by the Ministry of Science and Technology (MOST) of China and the European Space Agency (ESA). The theme of the training class was the application of remote sensing technology in marine science and monitoring.

2011 年 11 月 18 日，为加快推进长江口系统监测和综合研究，落实上海市委、市政府布署，依托华东师范大学成立的“长江口综合研究中心”举行揭牌仪式。综合研究中心的工作机构放在河口海岸学国家重点实验室，联合、协调市水务局 (市海洋局)、市环保局、交通运输部长江口航道管理局、上海勘测设计研究院、上海市地质调查研究院、中交上海航道勘察设计研究院有限公司、上海河口海岸科学研究中心等单位，共同开展长江口综合研究工作。

In order to accelerate system monitoring and comprehensive study on the Yangtze River estuary and implement the deploy of Shanghai Committee of Chinese Communist Party and Shanghai Municipal Government, the unveiling ceremony of “Comprehensive Research Center of The Yangtze Estuary”, which is affiliated to East China Normal University, was held at SKLEC on 18 December, 2011. The comprehensive study on the Yangtze River estuary will be jointly carried out by SKLEC, Shanghai Water Authority (Shanghai Municipal Oceanic Bureau), Shanghai Environmental Protection Bureau, The Yangtze Estuary Waterway Administration of Ministry of Transport, Shanghai Investigation and Design Research Institute, Shanghai Geological Survey Institute, Shanghai Waterway Engineering Design and Consulting Co, Ltd., and Shanghai Estuarine & Coastal Science Research Center.

2011 年 11 月 23 日，我室科研成果“长江流域 - 河口三角洲地貌环境演变：全球变化和人类活动的响应”获 2011 年上海市自然科学一等奖 (获奖号：20112008)，该成果由陈中原、王张华、李茂田、陈静、韦桃源等完成。

The research team, consisting of Chen Zhongyuan, Wang Zhanghua, Li Maotian, Chen Jing, and Wei Taoyuan, received the Shanghai Natural Science Award (Grade I) (No: 20112008) from the Shanghai Municipal Government on November 23, 2011. The awarded research was entitled “Evolution of Yangtze River Basin and Estuary Delta’s Geomorphological Environment: Response to the Global Warming and Human Activities.

2011 年，为了提高实验室的管理效能、资源利用效率，加强团队精神，形成较稳定的研究方向，经过教授会议讨论、征求全体科研人员的意见，实验室进行了组织机构调整，围绕实验室三大研究方向，设立“水沙动力学和工程应用”、“动力地貌与沉积”、“沉积环境演变”、“化学海洋学与生物地球化学”、“水环境”、“湿地生态”和“遥感与地理信息”7 个研究团队。

SKLEC set up seven research centers in 2011, they are Center for Center for Hydro-Sediment Dynamics and Coastal Engineering, Center for Morphodynamics and Sedimentation, Center for Paleoenvironment Changes, Center for Chemical Oceanography and Biogeochemistry, Center for Aqua Environment, Center for Coastal Wetland Ecosystems, and Center for Remote Sensing and Geoinformatics Systems. The aims are to improve the management and resources using efficiency, strengthen the team spirit and form a stable research direction for each team.

2011 年，周俊良教授入选中共中央组织部海外高层次人才引进计划 (“千人计划”)。

Prof. Zhou Junliang was admitted to the Recruitment Program of Global Experts in 2011. The program also named Thousand Talents Program, which is organized by Chinese Central Goverment.

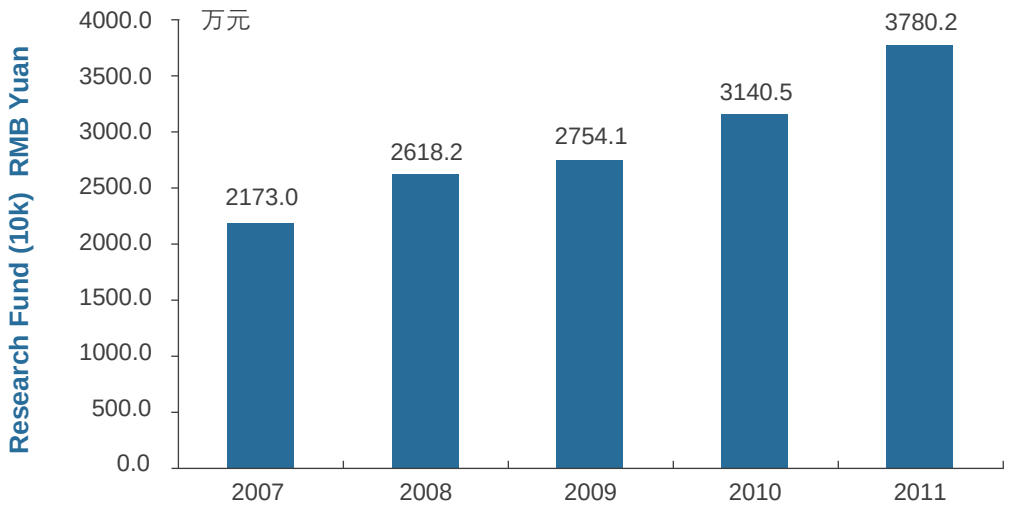
2011 年 12 月 18 日，我室第五届学术委员会第一次会议在上海召开。

The first meeting of the 5th SKLEC Academic Committee was held in Shanghai on December 18, 2011.

科研经费和科研课题
Research Grants & Program Highlights

2011 年实验室承担国家和省部委各类项目 100 余项 (包括新增科研课题 48 项)，其中承担国家级项目 42 项，实到经费 1702.1 万元；省部委课题 21 项，实到经费 989.4 万元；横向协作课题 30 余项，实到经费 456.7 万元；国际合作课题 8 项，实到项目经费 132 万元。此外，实验室还获得科技部国家重点实验室专项经费 900 万元，其中 500 万元用于自主研究课题的部署，400 万元用于实验室管理运行；获得科技部仪器专项资助 550 万元。

More than 100 research projects were carried out in 2011 at SKLEC, including 48 new projects granted. Among them, 42 projects of national level totaled 17million RMB, 21 provincial and ministerial level projects 9.9million RMB, 30 enterprise projects 4.6 million RMB, and 8 international cooperation projects 1.3 million RMB. In addition, SKLEC received a special funding of 9 million RMB from the Ministry of Science and Technology (MOST) of China, among which 5 million RMB was targeted at scientifi c research, and 4 million RMB for administration and operation of SKLEC. And a special funding of 5.5 million RMB for instrument purchasing was granted from MOST.



2007-2011 年实到科研经费
Research Funding in 2007-2011

新增重大项目简介
Brief Introduction of Selected Key Projects

973 项目：多重压力下近海生态系统可持续产出与适应性管理 (2011CB409800)
National Basic Research Program (“973” Project): Sustainability of Marine Ecosystem Production under Multi-Stressors and Adaptive Management (2011.01-2013.12)

本项目由华东师范大学主持，首席科学家为张经教授，其他承担单位包括中国水产科学研究院黄海水产研究所、中国海洋大学、国家海洋局第二海洋研究所、中国科学院海洋研究所、厦门大学。项目设立以下 5 个课题：典型生态系统中的生物地球化学过程、营养元素循环的关键过程对多重压力的响应与反馈、近海物理环境对多重压力的响应与其对生源要素供给的影响、微食物环与生物地球化学循环的耦合作用、人类活动及气候变化对近海典型生态系统结构与功能的影响与反馈机制。

The project was headed by Prof. Zhang Jing. The partners are Yellow Sea Fisheries Research Institute of Chinese Academy of Fishery Sciences, Ocean University of China, the Second Institute of Oceanography of State Oceanic Administration of China, Institute of Oceanology of Chinese Academy of Sciences, and Xiamen University. It comprises 5 sub-projects: 1) biogeochemical process of typical ecological system; 2) response of nutrients cycling to multi-stressors and its feedback; 3) response of physical environment in marginal sea to multi-stressors and its impact on nutrients supply; 4) coupling between microbial food loop and biogeochemical cycle; 5) impact of human activities and climate change on typical ecosystem and the feedback mechanism.

国家自然科学基金创新研究群体科学基金项目：高浊度河口及其临近海域的陆海相互作用 (41021064)
NSFC Creative Research Groups Fund: Land-Sea Interaction in the High Turidity Estuaries and Its Adjacent Sea (2011.01-2013.12)

本项目是国家自然科学基金委创新群体项目的延续。项目以长江口和毗邻的海域为载体，认识长江自三峡库区以下水 / 沙过程的特点和时 / 空变化的记录，干、支流之间的物质成分交换作用对下游与河口的影响；三角洲地区的沉积和动力学过程特点，地貌形态演化和沉积动力学之间的联系及其体现；长江口外与毗邻海域的动力、生物地球化学和沉积过程对陆架环流和长江径流变化的响应等。
This project was a continual support from the NSFC Group of Excellence Grant. The study region was focused on the Yangtze River estuary and its adjoining sea. The research topics included: 1) characteristics of water/sediment transportation in the reach downstream of the Three Gorges Dam and their spatial/temporal variations, material exchange between the main stream and branches and its effect on downstream and estuary; 2)sedimentary dynamics and morphodynamic processes of the Yangtze River Delta; 3) the response of hydrodynamics, biogeochemistry and deposition process of the Yangtze River estuary and adjacent sea area to change of shelf circulation and runoff of the Yangtze River.

上海市科委重大项目：长江口横沙东滩成陆机制及其近海海洋开发研究 (11DZ1204900)
Major Project sponsored by Science and Technology Commission of Shanghai Municipal Government (STCSM): Formation Mechanism of the Eastern Hengsha Shoal of the Yangtze River Estuary and Development Strategy of the Adjacent Sea (2011.12-2013.09)

本项目由陈吉余院士领衔，与中交上海航道勘察设计研究院共同承担。项目从流域－河口－海洋联动系统的角度出发，关注当前流域出现的水沙巨大变异，重视海洋动力的驱动作用，探讨横沙东滩的成陆机制，提出适合上海近海海洋开发的横沙东滩规划及其发展战略，为上海扩大空间资源提供科学依据和技术支撑。
The project was headed by Prof. Chen Jiyu. The partner is Shanghai Waterway Engineering Design and Consulting Co., Ltd. Taking into account the water continuum of river basin, estuary and sea, the project focuses on the formation process of Hengsha Shoal, in a context of significant water and sediment discharge variations in the catchment. The project will propose a planning and development strategy of Hengsha Shoal and provide scientific support for sustainable resource use.

部分新增项目
Selected New Projects

国家 973 项目课题 National Basic Research Program ("973" sub-project)	
多重压力下近海生态系统可持续产出与适应性管理的科学基础 (2011CB409801) Scientific Basis for Sustainability of Marine Ecosystem Production under Multi-Stressors and Adaptive Management (2011.01-2013.12)	张经 Zhang Jing
营养元素循环的关键过程对多重压力的响应与反馈 (2011CB409802) Response of Nutrients Cycling to Multi-Stressors and Its Feedback (2011.01-2013.12)	吴莹 Wu Ying
国家自然科学基金创新研究群体科学基金项目 NSFC Creative Research Groups Fund	
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国家自然科学基金专项基金项目 NSFC Special Fund	
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国家自然科学基金主任基金项目 NSFC Director Fund	
近几千年来气候变化及人类活动对长江三角洲地区沉积环境的影响 (41040044) The Influence of Climate Change and Human Activities on Sedimentary Environment of the Yangtze River Delta over the Last Several Thousands of Years (2011.01-2013.12)	孟翊 Meng Yi
国家自然科学基金国际 (地区) 合作与交流项目 NSFC International (Regional) Cooperation and Exchange Project	
长江河口和 Ems 河口细颗粒泥沙动力过程及其影响因素 (51061130544) Fine Sediment Dynamic Process in the Yangtze River Estuary and Ems Estuary and Influencing Factors (2011.01-2014.12)	李九发 Li Jiufa
国家自然科学基金面上项目 NSFC General Project	
北部湾全新世百 — 十年尺度气候环境演化及影响机制研究 (41076034) Holocene Centennial and Decadal Climatic Changes and Influencing Mechanism in the Gulf of Tonkin (2011.01-2013.12)	李珍 Li Zhen
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国家自然科学基金青年科学基金项目 NSFC Young Scientists Fund	
长江口表层水溶解铁分布及地球化学特点初探 (41006043) Dissolved Iron Distribution and Geochemical Characteristics in Surface Water of the Yangtze River Estuary (2011.01-2013.12)	张瑞峰 Zhang Ruifeng
基于遥感模型的河口湿地碳通量的估算研究 (41001269) Estimation of Carbon Flux in Estuarine Wetland Based on the Remote Sensing Model (2011.01-2013.12)	王洁 Wang Jie
城市轨道交通颗粒污染的磁学诊断及机理研究 (41001331) Magnetic Diagnosis of Particulate Pollution in Urban Rail Traffic Systems (2011.01-2013.12)	王冠 Wang Guan
长江口细颗粒泥沙耦合絮凝机制及其对底部边界层悬沙结构影响研究 (51009068) Flocculation Mechanism of Fine Sediment in the Yangtze River Estuary and Its Effects on Suspended Sediment Structure in the Bottom Boundary Layer (2011.01-2013.12)	程江 Cheng Jiang
国际合作项目 International Cooperation Project	
长江中下游淡水资源与气候变化 (澳大利亚国家科学研究基金会)(20102700) Freshwater Resources and Climate Change in the Middle and Lower Reaches of the Yangtze River (Australia Research Council) (2011.01-2013.12)	陈中原 Chen Zhongyuan
波罗的海和东海的低氧的对比研究：以气候变化和土地利用改变为因素 (科技部国际科技合作计划项目)(2010DFA24590) Comparison of Low Oxygen between the Baltic Sea and the East China Sea: Take Climate Change and Land Use as Factors (MOST International Cooperation Project) (2011.01-2013.12)	吴莹 Wu Ying
省部级项目 Projects Funded by Provincial and Ministerial Commission	
长江口横沙东滩成陆机制及其近海海洋开发研究 (上海市科委重大项目)(11DZ1204900) Formation Mechanism of the Eastern Hengsha Shoal of the Yangtze River Estuary and Development Strategy of the Adjacent Sea (Science and Technology Commission of Shanghai Municipal Government Major Project) (2011.12-2013.09)	陈吉余 Chen Jiyu
上海市第二次湿地资源调查 (国家林业局、上海市林业局) The 2nd Round Shanghai Wetland Resources Survey (State Forestry Administration of China and Shanghai Forestry Bureau) (2011.09-2013.12)	周云轩 Zhou Yunxuan
枯枝落叶和脱硫石膏对滩涂土壤的改良研究和工程示范 (国家环境保护部)(201109023) Tidal Flat Soil Improvement using Litters and Desulfurization Gypsum and Engineering Demonstration (Ministry of Environmental Protection of China) (2011.01-2013.12)	李小平 Li Xiaoping

科技部实验室专项基金
MOST Special Fund

2011 年，科技部实验室 500 万专项基金共资助 9 项科研项目，包括 4 项自主研究课题和 5 项人才启动资助。
Laboratory special fund, supported by the Ministry of Science and Technology (MOST) of China, granted 9 projects with a total of 5 million RMB. It was targeted for supporting outstanding researchers and new faculties.

专项基金资助一览表
List of Recipients of Special Fund

项目名称 Project	负责人 Leader
新形势下长江河口资源安全和开发治理预研究 Pilot Study of Resources Safety and Management of the Yangtze River Estuary	陈吉余 Chen Jiyu
北极生物地球化学研究：以王湾地区为例 Biogeochemistry Study on Arctic region: Wangwan Area as an Example	张经 Zhang Jing
流域人类活动作用下的河口湿地生态系统和地貌演变 Ecosystem and Geomorphic Evolution of Estuarine Wetland under the Influence of Human Activities in the River Basin	周云轩 Zhou Yunxuan
福岛核电事故核素在我国生物体中的演替规律及其应用 Fukushima Nuclear Accident Derived Radionuclides in Organism of China	杜金洲 Du Jinzhou
气候变化对长江河口湿地的影响及其响应研究 Response of the Yangtze River Estuarine Wetland to Climate Change	田波 Tian Bo
长江口北支盐水倒灌的异重流特性研究 Saltwater Intrusion in the North Branch of the Yangtze River Estuary: New Insight from the Perspective of Gravity Currents	韦桃源 Wei Taoyuan
重金属胁迫下红树幼苗内外源胁迫激素的相互作用及其对幼苗抗逆性意义的研究 Interaction of Exogenous/Eodogenous Phytohormones in Mangrove Seedlings under Heavy Metal Stress and Its Significance in Stress Adaptation	闫中正 Yan Zhongzheng
长江口海域水动力数值预报及发布系统的初步开发和研制 Development of Integrated East China Sea-Changjiang Estuary Operational Hydrodynamic Forecasting Model System	葛建忠 Ge Jianzhong
维甲酸 X 受体抑制剂 UVI3003 对斑马鱼胚胎毒性的蛋白质组学研究 Toxicoproteomic Analysis of a Retinoid X Receptor Antagonist UVI3003 on Zebrafish Embryos	郑亮 Zheng Liang

交流与合作
Academic Exchange & Cooperation

实验室积极开展国际交流与合作，目前承担了中荷战略科学联盟计划、欧盟第七框 架等国际合作项目 8 项。
SKLEC is active in international exchange and cooperation. Currently, SKLEC is involved in a number of internationally cooperation projects, such as the Programme Strategic ScientificAlliancesbetweenChinaandthe Netherlands, and EU 7th Framework Project.

2011 年实验室有 60 余人次参加国际学术会议，并有 4 人次做特邀报告；30 余人次赴国外合作研究或学术交流；接待国外学者来室合作研究与学术交流 100 多人次。主 / 承办 4 次国际会议以及河口海岸研讨会等 3 次国内学术研讨会。2011 年实验室共举办学术报告近 90 场次。
In 2011, SKLEC members participated in international conferences for more than 60 person-times, including four invited talk. There were more than 30 person-time visiting abroad, and more than100 person-time foreign experts visiting SKLEC. In 2011, SKLEC hosted four international conferences, as well as three national conferences, including the Annual Meeting of China Estuarine and Coastal Science. In total, 90 lectures were given in SKLEC.

新增国际合作项目介绍
Brief Introduction of New International Cooperation Projects

国家自然科学基金国际（地区）合作与交流项目：长江河口和 Ems 河口细颗粒泥沙动力过程及其影响因素 (51061130544)
NSFC International (Regional) Cooperation and Exchange Project: Fine Sediment Dynamic Process in the Yangtze River Estuary and Ems Estuary and InfluencingFactors(2011.1-2014.12)

该项目系我室和上海河口海岸科学研究中心共同承担，外方合作单位为荷兰乌特勒支大学，由国家自然科学基金委员会 (NSFC) 与荷兰科学研究组织 (NWO) 共同资助。课题围绕长江河口和 Ems 河口细颗粒泥沙进行来源及时空变化、理化性质、动水絮凝机理、动力过程和数值摸拟计算研究。
The project is investigated by SKLEC, Shanghai Estuarine & Coastal Science Research Center, and Utrecht University. It is supported by National Natural Science Foundation of China (NSFC) and The Netherlands Organization for Scientific Research (NWO). Focused on fine sediments in the Yangtze River Estuary and Ems Estuary, the project aims to study the source and temporal-spatial variation, physicochemical properties, aggregation mechanism, hydrodynamic process and numerical modeling.

科技部国际科技合作计划项目：波罗的海和东海的低氧的对比研究：以气候变化和土地利用改变为因素 (2010DFA24590)
MOST International Cooperation Project: Comparison of Low Oxygen between the Baltic Sea and the East China Sea: Take Climate Change and Land Use as Factors (2011.1-2013.12)

该项目系中荷合作项目，中方承担单位为华东师范大学和中国海洋大学，荷方为乌特勒支大学。为了解波罗的海和东海低氧的时空变化特征，课题结合水体和沉积物中的记录变化，探讨其形成与流域营养盐排放、土地利用改变以及气候变化等因素的关联，同时比较两海域低氧的演变历史，从而为修复技术的提出提供理论依据。
The project is a cooperation project between China and the Netherlands. The Chinese partners are East China Normal University and Ocean University of China. The Dutch partner is Utrecht University. In order to understand the spatial and temporal variations of low oxygen in the Baltic Sea and the East China Sea, by studying water and sedimentary records, the project will discuss the relationship between low oxygen formation and factors such as nutrient discharges in river basin, land use and climate change. Low oxygen evolution history is to be compared in these two sea areas, which will form the theory basis for remediation technology.

澳大利亚国家科学研究基金会中 - 澳国际合作项目：长江中下游淡水资源与气候变化 (20102700)
China – Australia Cooperation Project of Australia Research Council: Freshwater Resources and Climate Change in the Middle and Lower Reaches of the Yangtze River (2011.1-2013.12)

该项目系中澳合作项目，澳方合作单位为墨尔本大学。随着全球气候变化和人类活动日益加剧，长江河口淡水资源面临着巨大的挑战。该项目瞄准这一严峻问题，开展气候变化和人类活动对河口淡水资源的影响以及社会对气候变化的适应的研究工作。具体包括：流域气候变化对河口淡水资源的影响；南水北调等水利工程以及海平面上升对河口淡水资源的调节；长江流域污染对河口淡水水质的影响；人类社会对淡水资源调配对策。
The project is a cooperation project between China and Australia. The Australia partner is The University of Melbourne. This project aims at the freshwater issues of the lower Yangtze, including its estuary in response to climate change and human impact, and societal adaptation to climate change. Its research topics are: 1) the influence of catchment climate change on estuarine freshwater resources, 2) regulating of estuarine freshwater by the transfer of the water to northern China and sea level rise, 3) the influence of water pollution of the Yangtze River basin on freshwater quality of estuary, 4) strategy for freshwater resources.

学术会议
Workshop & Conference

第五届中—日—韩“海洋生物地球化学与生态系统整合研究”研讨会：全球海洋生态系统动力学、海洋生物地球化学和生态系统综合研究
The 5th China-Japan-Korea IMBER Symposium and Training: Global Ocean Ecosystem Dynamics, Integrated Marine Biogeochemistry and Ecosystem Research

该会议于 2011 年 11 月 22-25 日在上海召开，由 IMBER 项目区域办公室 (IMBER RPO)、中国 IGBP-GLOBEC/ IMBER 工作组和我室共同举办。来自日本、韩国及国内 16 个大学和科研机构的八十余名学者和学生出席了本次会议。它为中、日、韩海洋领域的学者们搭建起更为紧密的合作平台，也为青年学者提供了成果展示和学习的机会。
This activity was held in Shanghai during 22-25 November 2011. It was co-organized by IMBER Regional Project Office (IMBER RPO), China IGBP-GLOBEC/ IMBER working group, and SKLEC. More than 80 scientists and students from China, Japan, and Korea attended the meeting. This symposium not only set up close cooperation platform among oceanography scholars in three countries, but also provided the opportunities for young scholars to exchange their research results.

中美绿色合作伙伴 (湿地研究) 第五次工作会议
The 5th Workshop on US-China EcoPartnerships (Wetland Research)

该会议于 2011 年 11 月 16-18 日在华东师范大学举办。来自美方和国内湿地研究相关的 35 个单位的 70 余位湿地研究人员参加了会议。会议回顾了中美合作的历程，总结了在湿地研究方面所取得的重大成果，并就下一步合作研究的具体内容展开了讨论。
This meeting was held at ECNU during 16-18 November, 2011. More than 70 wetlands researchers from 35 institutions of the United States and China participated in the meeting. The meeting reviewed the history of US-China cooperation in wetland research and discussed the future cooperation plan.

第十一届细颗粒泥沙运动过程国际会议
The 11th International Conference on Cohesive Sediment Transport Processes (INTERCOH XI-2011)

该会议于 2011 年 10 月 18-21 日在我校召开。会议由 INTERCOH 科学指导委员会主办、我室承办，来自 18 个国家的 100 多位科研工作者参加了这次会议。会议聚焦陆海交互研究，特别是环境问题和人类活动的影响，并开展了长江河口泥沙运动的专题研讨。
The meeting was held in ECNU during 18-21 October, 2011. It was organized by INTERCOH committee and hosted by SKLEC. More than 100 researchers from 18 countries participated in the meeting. It focuses on land-sea interaction studies, particularly on environmental issues and the impact of human activities. A special session was dedicated to fine sediments issues in the Yangtze River estuary.

“龙计划”二期海洋遥感高级培训班
ESA-MOST Dragon 2 Programme: Advanced Training Course in Ocean Remote Sensing

2011 年 10 月 24-29 日，我室承办了科技部 (MOST) 和欧洲空间局 (ESA) 在对地观测领域开展的大型科技合作项目“龙计划”(Dragon Programme) 二期海洋遥感高级培训班，此届培训班为期 6 天，来自中国、德国、英国、法国和挪威的 13 名海洋遥感领域高级研究人员担任培训专家，邀请了 60 名亚洲各国从事海洋遥感应用学习和研究的博士生、博士后及相关科研人员参加。培训班以“遥感科技在海洋科学和监测领域的应用”为主题，系统讲授了 ERS 卫星、EnviSat 卫星、第三方卫星和资源卫星数据处理等相关软件、方法与应用。

The ESA-MOST Dragon 2 Programme “Advanced Training Course in Ocean Remote Sensing” was hosted by SKLEC during October 24-29, 2011. It was supported by the Ministry of Science and Technology (MOST) and the European Space Agency (ESA). This training lasted 6 days. Thirteen senior researchers in the field of ocean remote sensing from China, Germany, Britain, France and Norway were invited as the training experts. Sixty researchers and Ph.D. students participated in this training. The theme of this training was the application of remote sensing technology in marine science and monitoring.

华东地区适应气候战略研究学术研讨会
Workshop on Adaption Strategy of Eastern China to Climate Change

2011 年 6 月 9-10 日，科技部中国 21 世纪议程管理中心主办、我室承办的“华东地区适应气候战略研究学术研讨会”在上海召开。围绕华东地区适应气候变化战略的主题，来自中国农业科学研究院、中国农业大学、中国林科院、中科院地理所、福建省水利厅、浙江省水利河口研究院、国家海洋局第二海洋研究所、国家海洋局东海预报中心、长江水利委员会长江科学院、水利部太湖流域管理局、上海市气候中心及华东师范大学的科研工作者进行了研讨。

The Workshop on Adaption Strategy of Eastern China to Climate Change was held in Shanghai during 9-10 June, 2011. It was organized by the Administrative Centre for China’s Agenda 21, the Ministry of Science and Technology (MOST). The scholars came from Chinese Academy of Agricultural Sciences, China Agricultural University, Chinese Academy of Forestry, Institute of Geographic Sciences and Natural Resources Research, CAS, Department of Water Resources of Fujian Province, Zhejiang Institute of Hydraulies and Estuary, The Second Institute of Oceanography of the State Oceanic Administration, East China Sea Brqanch of the State Oceanic Administration, Changjiang Water Resources Committee, Taihu Basin Authority of the Ministry of Water Resources, Shanghai Climate Center and ECNU.

三峡工程泥沙专家组河口座谈会
Estuary Workshop organized by Sediment Experts Group of Three Gorges Project

2011 年 12 月 6-8 日，“三峡工程泥沙专家组河口座谈会”在上海召开，座谈会由三峡泥沙专家组和实验室共同举办，围绕三峡工程蓄水以来长江口及其临近水域泥沙运动变化和河床演变响应趋势，40 多位专家开展了学术研讨。
This workshop was hosted in Shanghai during December 6-8, 2011. More than 40 experts discussed changes in water and sediment transport, and river channel evolution in the Yangtze Estuary since water storage of the Three Gorges Dam.

专家学者来访
Visiting Scholars

2011 年实验室接待国内外学者、专家来室合作研究与学术交流 100 多人次。
In 2011, more than 100 scholars visited SKLEC.

List of Visitors

专家 Visiting Scholar	单位 Affiliation	来访时间 Visiting Period
Ulo Mander	爱沙尼亚塔尔图大学 / Tartu University, Estonia	2011.8.26-2011.8.31
Thilo Hofmann	奥地利维也纳大学 / University of Vienna, Austria	2011.11.29-2011.12.1
Brian Finlayson	澳大利亚墨尔本大学 / University of Melbourne, Australian	2011.5.1-2011.10.31
Jon Barnet	澳大利亚墨尔本大学 / University of Melbourne, Australian	2011.9.1-2011.10.30
Mark Wang	澳大利亚墨尔本大学 / University of Melbourne, Australian	2011.10.12-2011.10.20
Michael Webber	澳大利亚墨尔本大学 / University of Melbourne, Australian	2011.10.6-2011.10.23
Eric Wolanski	澳大利亚詹姆斯库克大学 / James Cook University, Australia 澳大利亚海洋科学研究所 / Australian Institute of Marine Science, Townsville, Australia	2011.6.20-2011.7.6
Ali Rashid Tabrez	巴基斯坦国家海洋研究所 / National Institute of Oceanography, Pakistan	2011.12.2-2011.12.7
Samina Kidwai	巴基斯坦国家海洋研究所 / National Institute of Oceanography, Pakistan	2011.12.2-2011.12.7
Soeren Nors Nielsen	丹麦哥本哈根大学 / University of Copenhagen, Denmark	2011.8.1-2011.11.30
Carsten Brockmann	德国 Brockmann / Brockmann Consult, Germany	2011.10.25-2011.10.30
Gerhard Kattner	德国阿尔弗雷德·魏格纳极地与海洋研究所 / Alfred Wegener Institute for Polar and Marine Research, Germany	2011.4.1-2011.4.10
Venugopalan Ittekkot	德国不莱梅大学热带海洋生态研究中心 / Leibniz Center for Marine Tropical Ecology, University of Bremen, Germany	2011.1.17-2011.1.28
Roland Doerffer	德国亥姆霍兹国家研究中心联合会海岸研究所 / Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research (HZG), Helmholtz Association of German Research Centres	2011.10.24-2011.10.29
Werner Rudolf Alpers	德国汉堡大学 / University of Hamburg, Germany	2011.10.24-2011.10.29

专家 Visiting Scholar	单位 Affiliation	来访时间 Visiting Period
Bodo V. Bodungen	德国莱布尼兹波罗的海研究所 / Leibniz Institute for Baltic Sea Research (Institu für Ostseeforschung Warnemünde, Germany	2011.11.10-2011.12. 3
Fabrice Collard	法国基于卫星的环境数据服务公司 / Collecte Localisation Satellites, France	2011.10.25-2011.10.29
Vinca Rosmorduc	法国基于卫星的环境数据服务公司 / Collecte Localisation Satellites, France	2011.10.23-2011.10.30
Joan Murillo Reotita	菲律宾大学 / University of Philippines	2011.3.1-2011.4.30
Zhengbing Wang	荷兰代尔夫特理工大学 / Delft University of Technology, the Netherlands	2011.7.10-2011.8.13
B.C. vanMaren	荷兰代尔夫特理工大学 / Delft University of Technology, the Netherlands	2011.5.1-2011.5.31
Han Winterwerp	荷兰代尔夫特理工大学 / Delft University of Technology, the Netherlands	2011.4.1-2011.4.30 2011.11.1-2011.11.30
Zhongbo (Bob) Su	荷兰特温特大学 / University of Twente, the Netherlands	2011.8.10-2011.8.28 2011.10.21-2011.11.4
Joris Timmermans	荷兰特温特大学 / University of Twente, the Netherlands	2011.10.18-2011.11.2
Lichun Wang	荷兰特温特大学 / University of Twente, the Netherlands	2011.10.18-2011.11.29
Niels Alebregtse	荷兰乌特勒支大学 / Utrecht University, the Netherlands	2011.6.29-2011.7.9
H. E. de Swart	荷兰乌特勒支大学 / Utrecht University, the Netherlands	2011.6.26-2011.7.3
Yingang Xue	江苏省常州市环境监测中心站 / Changzhou Environmental Monitoring Center, China	2011.5.10-2011.5.17
Wenxi Zhu	联合国教科文组织国际奥委会西太平洋区域办事处 / UNESCO/ IOC Regional Office for the Western Pacific	2011.12.16
Ning Wang	美国地质勘探局哥伦比亚环境研究中心 / Columbia Environmental Research Center, United States Geological Survey, USA	2011.4.19-2011.4.22
Birane Sambe	联合国粮农组织 / Food and Agriculture Organization of the United Nations	2011.06.08-2011.08.13
S. T. Hsieh	美国杜兰大学 / Tulane University, USA	2011.7.1-2011.11.30
Willian Mitsch	美国俄亥俄州立大学 / Ohio State University, USA	2011.1.1-2011.1.31
Keqi Zhang	美国佛罗里达国际大学 / Florida International University, USA	2011.5.1-2011.5.31
David Major	美国哥伦比亚大学 / Columbia University, USA	2011.11.30-2011.12.1
Xin Zhang	美国加利福尼亚大学 / University of California, USA	2011.9.23
Irving A. Mendelssohn	美国路易斯安娜州立大学 / Louisiana State University, USA	2011.5.25-2011.6.7
Edward Allen Boyle	美国麻省理工学院 / Massachusetts Institute of Technology, USA	2011.6.10-2011.6.16
Changsheng Chen	美国麻州大学 / University of Massachusetts, USA	2011.6.28-2011.7.10
Huan Feng	美国蒙特克莱尔州立大学 / Montclair State University, USA	2011.8.1-2011.8.12
Robert Wersberg	美国南佛罗里达大学 / University of South Florida, USA	2011.10.13-2011.10.16
Willard S. Moore	美国南卡罗来纳大学 / University of South Carolina, USA	2011.2.21-2011.2.28 2011.6.1 -2011.6.27 2011.9.28-2011.10.12
Haiyan Zhang	美国圣地亚哥大学 / San Diego University, USA	2011.5.1-2011.5.31
Jian Shen	美国威廉玛丽大学 / College of William & Mary, USA	2011.6.1-2011.6.30

专家 Visiting Scholar	单位 Affiliation	来访时间 Visiting Period
John Gary	美国西北太平洋国家实验室 / Pacific Northwest National Laboratory, USA	2011.1.1-2011.1.31
Ronald M. Thom	美国西北太平洋国家实验室 / Pacific Northwest National Laboratory, USA	2011.1.1-2011.1.31
Steve Pennings	美国休斯顿大学 / University of Houston, USA	2011.8.23-2011.8.27
Christopher Craft	美国印第安纳大学 / University of Indiana, USA	2011.8.23-2011.8.27
Yi Luo	南开大学 / Nankai University, China	2011.11.21-2011.11.22
Johnny A. Johannessen	挪威南森环境与遥感中心 / Nansen Environmental and Remote Sensing Center, Norway	2011.10.23-2011.10.30
Andy Zmuda	欧洲空间局对地观测研究中心 / Earth Observation Research Centre, European Space Agency	2011.10.18-2011.11.24
Craig Donlon	欧洲空间局 - 欧洲空间研究与技术中心 / European Space Research and Technology Centre, European Space Agency	2011.10.23-2011.10.30
Xinyu Guo	日本爱瑗大学 / Ehime University, Japan	2011.3.4-2011.3.15 2011.10.10-2011.10.23
Toru Tamura	日本地质调查所 / Geological Survey of Japan, Japan	2011.11.21-2011.11.24
Yoshiki Saito	日本地质调查所 / Geological Survey of Japan, Japan	2011.5.13-2011.5.27, 2011.11.21-2011.12.3
高桥铁哉	日本立正大学 / Rissho University, Japan	2011.9.1-2011.9.30
Eiji Matsumoto	日本名古屋大学 / Nagoya University, Japan	2011.6.8-2011.6.22, 2011.12.8-2011.12.22
Hong Huang	上海海洋大学 / Shanghai Ocean University, China	2011.4.7-2011.4.11
Kon-Kee Liu	台湾国立中央大学 / National Central University, Taiwan	2011.7.2
Ping Dong	英国邓迪大学 / University of Dundee, UK	2011.6.1-7.31
Helen Mary Snaith	英国国家海洋研究中心 / National Oceanography Centre, UK	2011.10.22-26
Dapeng You	英国拉夫堡大学 / Loughborough University, UK	2011.9.2-2011.9.16
David Thomas Llewellyn-Jones	英国莱斯特大学 / University of Leicester, UK	2011.10.23-2011.10.30
Andrew J. Plater	英国利物浦大学 / University of Liverpool, UK	2011.5.17-2011.5.23
Stan Van den Berg	英国利物浦大学 / University of Liverpool, UK	2011.11.10-2011.11.12
John A. Dearing	英国南安普顿大学 / University of Southampton, UK	2011.11.8-2011.11.13
Sumei Liu	中国海洋大学 / Ocean University of China, China	2011.9.28
Jun Gong	中科院烟台海岸带研究所 / Yantai Institute of Coastal Zone Research, Chinese Academy of Sciences, China	2011.11.23-2011.11.25

邀请报告与大会报告
Invited & Keynote Presentations at International Conferences

2011 年实验室有 60 余人次参加国际学术会议并进行学术交流，其中特邀报告 4 次，大会报告 6 次。
Members of SKLEC attended international conferences for more than 60 person-times, including 4 invited talks and 6 plenary lectures.

Invited Talks:

Zhou Yunxuan, Case Studies in Yangtze Estuary and East China Sea Shelf – A Brief Introduction, International Workshop on Integrated Coastal Area Management Planning for Sinda and Balcochistan Coast of Pakistan, May 13-15, 2011, Karachi, Pakistan

Chen Zhongyuan, Holocene Mega Deltas of China, Formation and Neolithics, IAG – the 15th Joint Geomorphological Meeting, Jun. 1-3, 2011, Greece

He Qing, Behavior and Fate of Fine Sediment in the Yangtze River Estuary, 11th International Conference on Cohesive Sediment Transport Processes, Oct. 18-21, Shanghai, China

Zhang Jing, Remobilization of Nutrients from Watersheds and Eutrophication in Marine Recipients, PICES-2011 Annual Meeting, Oct. 18-24, Khabarovsk, Russia

Plenary Lectures:

Li Xiuzhen, Summary Reports of the 8th IALE World Congress, Aug. 18-23, 2011, Beijing, China

Chen Zhongyuan, Asia Megadeltas–Climate Challenges and Adaption, EMECS-9 Conference, Aug. 27-31, 2011, Baltimore, USA

Chen Zhongyuan, A Newly-developed Coastal Megacity at Enclosed Bohai Bay: Development and Challenge, APN Workshop, Aug. 27-31, 2011, Baltimore, USA

Zhang Liquan, Interactions between the Range Expansion Patterns of Pioneer Vegetation and the Hydrodynamic Regimes in the Yangtze Estuary, China and Netherland Bilateral Conferences “Eco-Health Estuaries-Processes and Response”, Oct. 20-23, 2011, the Netherlands

Shen Fang, The Use of MERIS & TPM Data for Ocean Color Applications in Chinese Coastal Areas, ESA-MOST Dragon 2 Programme: Advanced Training Course in Ocean Remote Sensing, Oct. 24-29, Shanghai, China

Lu Jianjian, "US-China EcoPartnerships (Wetland Research)" Work Statement, The 5th “US-China EcoPartnerships (Wetland Research)” Working Conference, Nov. 16-18, Shanghai, China

开放基金
SKLEC Research Fund

2011 年，实验室在研开放基金 16 项，共 152 万元，新增开放基金 9 项，共 38 万元。
There were 16 on-going projects funded by SKLEC with a total of 1.52 million RMB, and 9 new projects amounted to 0.38 million RMB in 2011.

2011 年河口海岸学国家重点实验室开放基金获得者
Recipients of SKLEC Research Fund in 2011

Liu Zhanfei	The University of Texas at Austin, USA
赵欣 Zhao Xin	华东师范大学 East China Normal University
刘素美 Liu Sumei	中国海洋大学 Ocean University of China
王素芬 Wang Sufen	中国科学院南海海洋研究所 South China Sea Institute of Oceanology, Chinese Academy of Sciences (CAS)
赵军凯 Zhao Junkai	九江学院 Jiujiang University
唐峰华 Tang Fenghua	中国水产科学院东海水产所 East China Sea Fishery Research Institute, Chinese Academy of Fishery Sciences (CAFS)
郑宗生 Zheng Zongsheng	上海海洋大学 Shanghai Ocean University
易亮 Yi Liang	国家海洋局第一海洋研究所 The First Institute of Oceanograrphy, State Oceanic Administration (SOA)
秦养民 Qin Yangmin	中国地质大学 China University of Geosciences

研究进展
Research Highlights

2011 年，实验室在河口研究方面，围绕流域气候和人类活动对河流入海物质通量影响、水溶性核素 Ra 的河口应用、长江淡水悬沙絮凝研究、长江河口盐水入侵和羽状锋数值模拟、河口动力地貌及人类活动的影响等主题开展了深入研究；在海岸研究方面，围绕开放海岸盐沼沉积动力学、台风对砾石滩地貌的塑造等方面开展了深入研究；在生态环境方面，围绕河口缺氧、河流有机碳输运、河口营养盐地球化学、红树林及盐沼湿地地球化学、湿地外来物种控制、大气气溶胶沉降以及环境研究的原位拉曼光谱和放射性核素技术应用等开展了深入研究。
In 2011, in the field of estuarine study, the following topics were focused on: the impact of catchment climate and human activities on material flux to the sea, the application of water-soluble Ra in estuarine study, freshwater suspended sediments flocculation in the Yangtze River, numerical modeling of saltwater intrusion and plume front in the Yangtze River Estuary, and estuarine morphodynamics and the influence of human activity. In the field of coastal study, the topics were: sedimentary dynamics in salt marsh of open coast, and the effect of typhoon on boulder beach geomorphology. In the field of ecological and environmental study, the following areas were focused on: estuarine hypoxia, fluvial organic carbon transport, estuarine nutrient geochemistry, geochemistry of mangrove and saltmarshes, exotic species control in wetland, application of in situ Raman spectrum and radioactive nuclide in aerosol deposition and environmental studies.

此外，实验室紧密结合国民经济和社会发展需求，积极向政府提供河口资源利用和保护建议，努力解决沿海地区有关重大工程中的关键科学技术问题，为沿海地区国民经济建设和公众教育服务。如陈吉余院士向上海有关部门以及中国工程院提出《依托北槽深水航道、建设人工岛和开发亚三角洲》的建议，得到上海市政府和主要领导的高度重视。由我校设计学院和我室负责陈列设计的上海长江河口科技馆，已于 2011 年 10 月 18 日正式落成开馆。实验室受水利部太湖流域管理局委托，发展完善已在太湖流域管理局运行多年的风暴潮与天文潮预测模型，并增加浙江及福建海域的预报计算模块，实现太湖流域风暴潮预测全覆盖。受国家气象局资助，改进海洋数值模式，与大气数值模式 GRAPES 耦合，研究台风作用下海洋的响应。受上海市地质调查研究院委托，揭示长江水下三角洲晚第四纪年代地层框架和沉积相演变、河海边界条件改变对海岸带沉积环境安全的影响。受国家海洋局东海分局东海信息中心委托，建立海洋 GIS 服务平台，以反映长江口地质及水下冲淤演变。受中国水产科学研究院东海水产所委托，揭示日本福岛核反应堆泄露事故对东海水产品放射性污染的影响。
In addition, SKLEC was actively involved in the studies aiming at providing support for government decision making, solving key scientific and technological issues related to local and national economic and social sustainable development. For example, proposed by Academician Chen Jiyu, a proposal on "Construction of an Artificial Island and Development of Sub-Delta Using Resources of the Deep Water Channel of North Passage" was submitted to the Shanghai Municipal Government and Chinese Academy of Engineering, which received well attention. The Yangtze River Estuary Science and Technology Museum, which was designed by School of Design, ECNU and SKLEC, officially opened to the public on October 18, 2011. Funded by Taihu Basin Authority, the storm surge and astronomical tide prediction model that has been run in years by Taihu Basin Authority, was improved and upgraded, including the addition of forecast module for Zhejiang and Fujian sea areas and and therefore a full area coverage of the whole Taihu Basin. Funded by the China Meteorological Administration, the ocean numerical models was improved, which was coupled with atmospheric numerical model GRAPES and applied to the study of ocean response to typhoon. Commissioned by Shanghai Institute of Geological Survey, late Quaternary stratigraphy and sediment facies evolution in subaqueous Yangtze River Delta was studied, and impact of river-sea boundary condition change on coastal zone security was examined. Commissioned by Information Center, the East Sea Branch of the State Oceanic Administration (SOA), marine GIS service platform was developed to provide information of the geology of the Yangtze River Estuary and erosional/depositional process. Commissioned by East China Sea Fishery Research Institute, Chinese Academy of Fishery Sciences (CAFS), effect of the Fukushima nuclear-leak event on radioactivity pollution in marine products from East China Sea was examined.

河口演变规律与河口沉积动力学
Estuarine Evolution and Estuarine Sediment Dynamics

Is the Three Georges Dam the Cause behind the 2006 Extreme Low Suspended Sediment Discharge into the Yangtze (Changjiang) Estuary?

Dai, Z.J., Chu, A., Stive, M.J.F., Li, J.F., ***Hydrological Sciences Journal,*** 2011, 56(5), 1–9.

In 2006, the suspended sediment discharge (SSD) into the Yangtze (Changjiang) Estuary, China, reached the historical low value of 85 × 106 t. One hypothesis is that this was caused by the second impoundment, i.e. the second stage of the water-level increase behind the Three Gorges Dam (TGD). However, coincidentally, a significant drought occurred in the same year. From our analysis of long-term data on discharge and SSD, we conclude that the SSD decrease in the upstream catchment area resulting from the extreme drought is primarily responsible for the historical low SSD into the Yangtze Estuary. We quantified the contributions of the extreme drought and the second impoundment to the reduction of SSD into the Yangtze Estuary in 2006 as 82% and 18%, respectively. Even though the TGD is the largest dam in the world, the results indicate that the extreme drought conditions had a greater impact than such a manmade river regulation.

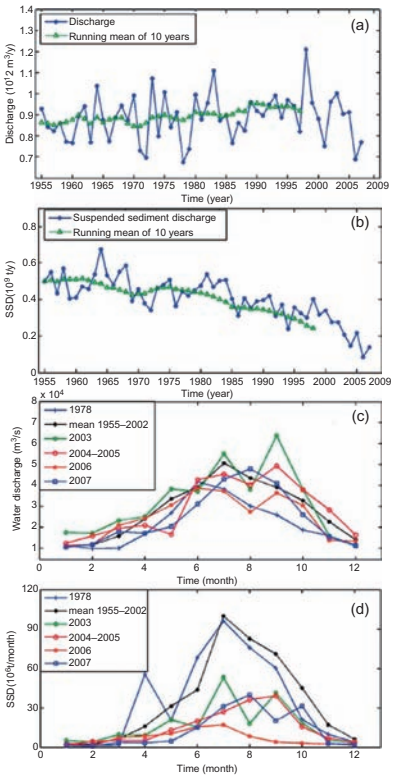


Fig 2. Discharge and suspended sediment discharge (SSD) at Datong station

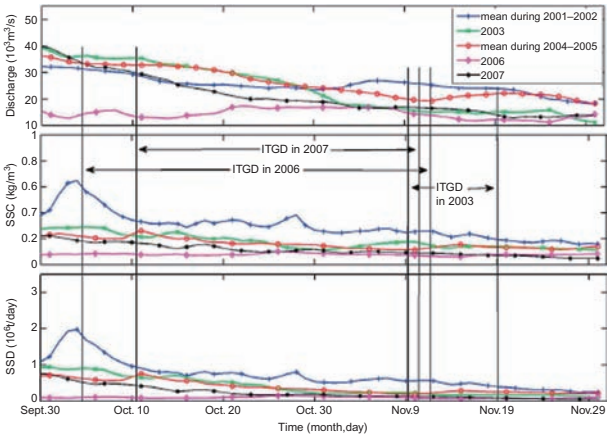


Fig. 3 The daily discharge, suspended sediment concentration (SSC) and SSD at Datong during the impoundment phase (ITGD): impoundment phase of the TGD)

Unusual Salinity Conditions in the Yangtze Estuary in 2006: Impacts of an Extreme Drought or of the Three Gorges Dam

Dai, Z.J., Chu, A., Stive, M.J.F., Zhang, X.L., Yan, H., ***AMBIO,*** 2011, 40: 496-505.

During the extreme dry year of 2006, abnormal salinity conditions in the Changjiang Estuary of the Yangtze River occurred in partial coincidence with the second impoundment phase of the TGD (Three Gorges Dam). Analysis of discharge observations in the upperreaches of the estuary and of salinity observations in the estuary as a whole reveals that in 2006 salinity was over100 mg/l during 275 days, over 250 mg/l during 75 days and over 400 mg/l during 48 days. It is well known that this is due to extreme low discharges from the upper catchment area into the estuary. Moreover, large amounts of water consumed along the lower reaches of the Yangtze River can also aggravate the low discharges that lead to stronger saltwater intrusion in the estuary. Of the 75 days that

salinity was over 250 mg/l, the low discharge was decreased further by 10 to 20% due to water consumption. The additional impact of the impoundment phase of the TGD (lasting 37 days in autumn) was noticeable only during 7 days in 2006. During that period, the relative contributions of the TGD and the water consumption in the lower reaches of the Yangtze River amounted to 70 and30%, respectively. It may be concluded that the impact of the second impoundment phase of the TGD on salinity intrusion in the estuary was modest, while the extreme drought of 2006 was the dominant cause.

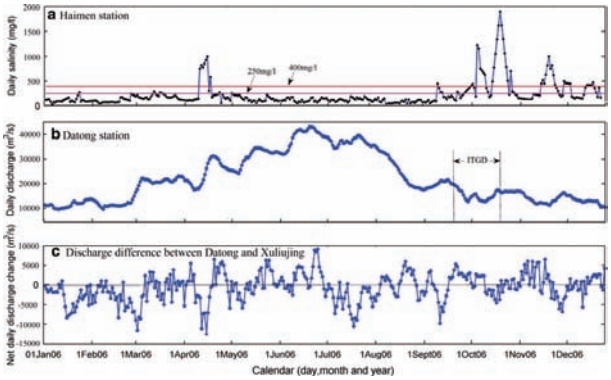


Fig. 3 Daily salinity and discharge, and daily discharge difference between Datong and Xuliujing in 2006 (Data at Datong 6 days in advance of Xuliujing, accounting for the discharge travel time between these stations (Chu and Zhai 2006))

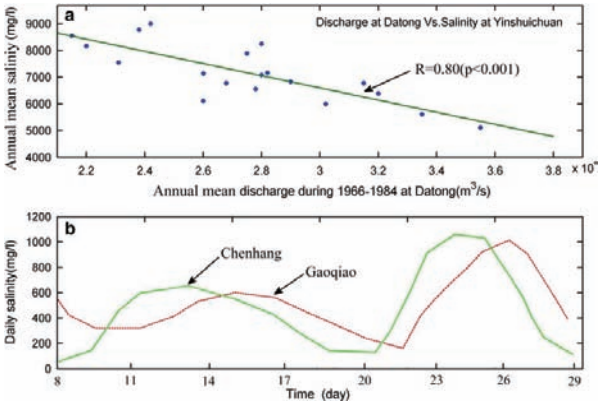


Fig. 4 Salinity change of over bi-monthly and yearly intervals (a Yearly salinity change during1966–1984 at Yinshuichuan (revised from Chen and Heng2009); b Daily salinity at Chenhang and Gaoqiao during neap-spring cycle on 8–29, March, 1996 (Mao et al. 2000)

Freshwater Flocculation of Suspended Sediments in the Yangtze River, China.

Guo, L.C., He, Q., 2011. ***Ocean Dynamics,*** 2011, 62(2-3): 371-386.

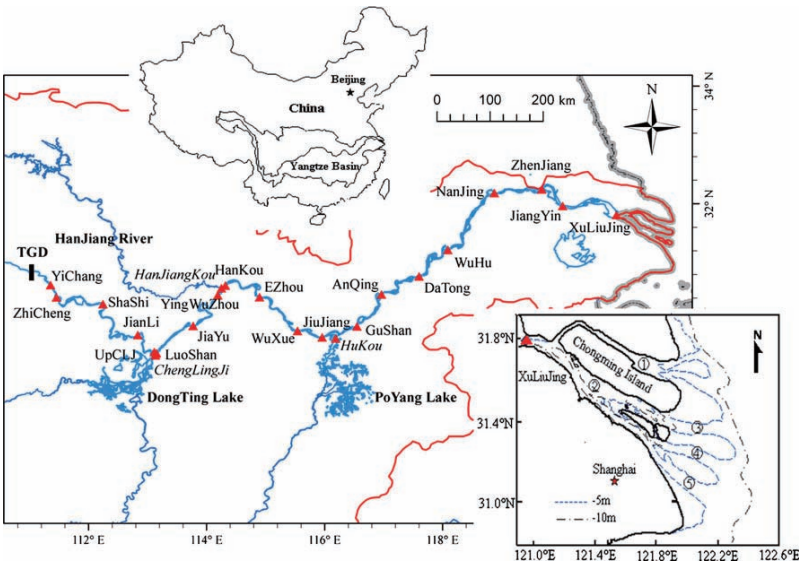
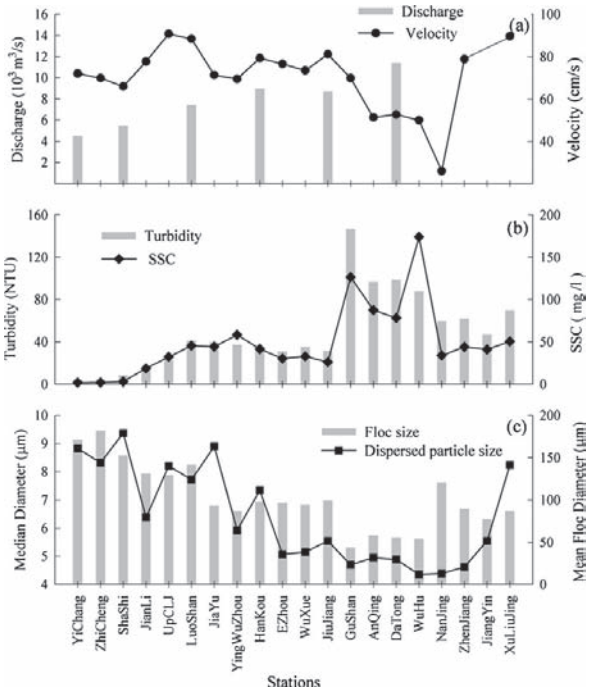


Fig. 1 Maps of the middle and lower Yangtze River and the Yangtze Estuary: the Yangtze Basin in China (*upper panel*), the study area and the site stations (italic names refer to stations at the tributaries mouths) (*middle panel*), and the topography of the Yangtze Estuary (*right bottom panel*). The numbers *1–5* refer to the North Branch, South Branch, North Channel, North Passage and South Passage, respectively. *TGD* Three Gorges Dam

This study focuses on suspended sediments and in situ flocculation in the Yangtze River, with the goal of improving our understanding of the relationship between freshwater and estuarine flocculation. A field survey with state-of-the-art instruments was carried out in January 2008 in the reach from downstream of the Three Gorges Dam to the estuary. The data show that in situ floc mean diameters range from 22 to 182 μm in the river, whereas the median dispersed grain sizes are 4.4–11.4 μm. This demonstrates that flocculation is an important process during the transport of suspended sediments along the river. The flocculation characteristics, suspended sediment concentration and dispersed grain sizes all vary longitudinally in the main stream of the Yangtze River.



Biochemical factors are likely be more significant in the freshwater flocculation than in the estuary, where hydrodynamics and biochemical factors are both important. Flocculation is found in the freshwater river, in the estuary and in coastal waters, which indicates that dynamic break-up/reflocculation processes take place during the suspended sediment transport. The freshwater flocs may behave as parent flocs to the estuarine flocculation. This study enhances our understanding of flocculation from estuarine and coastal areas to fresh river systems and provides insights into the effects of input of riverine flocs to the estuarine flocculation and into the sources and fate of flocs.

Fig. 2 Longitudinal variation of cross-section-averaged discharge and cross-section-averaged velocity (a), SSC and turbidity (b), and the median dispersed particle sizes and mean floc diameter (c)

Tidal Modulation on the Changjiang River Plume in Summer

Wu, H., Zhu, J.R., Shen, J., and Wang, H., ***Journal of Geophysical Research***, 2011, 116, C08017, doi: 10.1029/2011JC007209.

Tide effects on the structure of the near--field Changjiang River plume and on the extension of the far -- field plume have often been neglected in analysis and numerical simulations, which is the focus of this study. Numerical experiments highlighted the crucial role of the tidal forcing in modulating the Changjiang River plume. Without the tidal forcing, the plume results in an unrealistic upstream extension along the Jiangsu coast. With the tidal forcing, the vertical mixing increases, resulting in a strong horizontal salinity gradient at the northern side of the Changjiang River mouth along the Jiangsu coast, which acts as a dynamic barrier and restricts the northward migration of the plume. Furthermore, the tidal forcing produces a bidirectional plume structure in the near field, and the plume separation is located at the head of the submarine canyon. A significant bulge occurs around the head of the submarine canyon and rotates anticyclonically, which carries a large portion of the diluted water toward the northeast and merges into the far -- field plume. A portion of the diluted water moves toward the southeast, which is mainly caused by tidal rectification. This bidirectional plume structure is more evident under certain wind conditions. During the neap tide with the reduced tidal energy, the near -- field plume extends farther offshore, and the bulge becomes less evident. These dynamic behaviors are maintained and are fundamentally important in the region around the river mouth even under the summer monsoon and the shelf currents, although in the far field the wind forcing and shelf currents eventually dominate the plume extension.

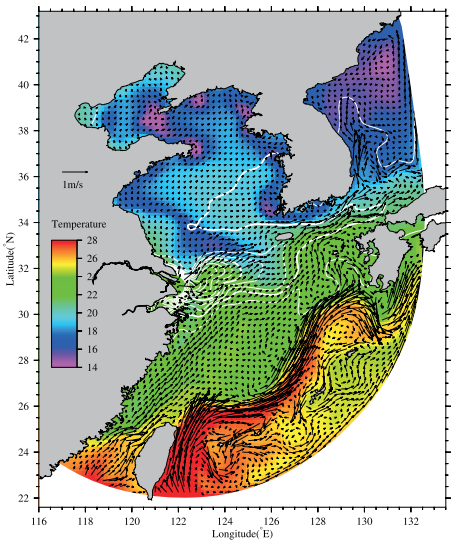


Fig. 5 Modeled tidal -- averaged (during the spring tide) surface currents, temperature (color scale) and salinity (white contours, interva l of 2 psu) under the summer climatological conditions. To bettervisualize, current vectors were selected every 1/4°. The isohalines 26 and 32, which are often treatedas the boundaries of the Changjiang diluted water, are signified by thick lines.

Tripod Measured Residual Currents and Sediment Flux: Impacts on the Silting of the Deepwater Navigation Channel in the Changjiang Estuary

Liu, G.F., Zhu, J.R., Wang, Y.Y., Wu, H., Wu, J.X., ***Estuarine Coastal and Shelf Science,*** 2011, 93: 192-201.

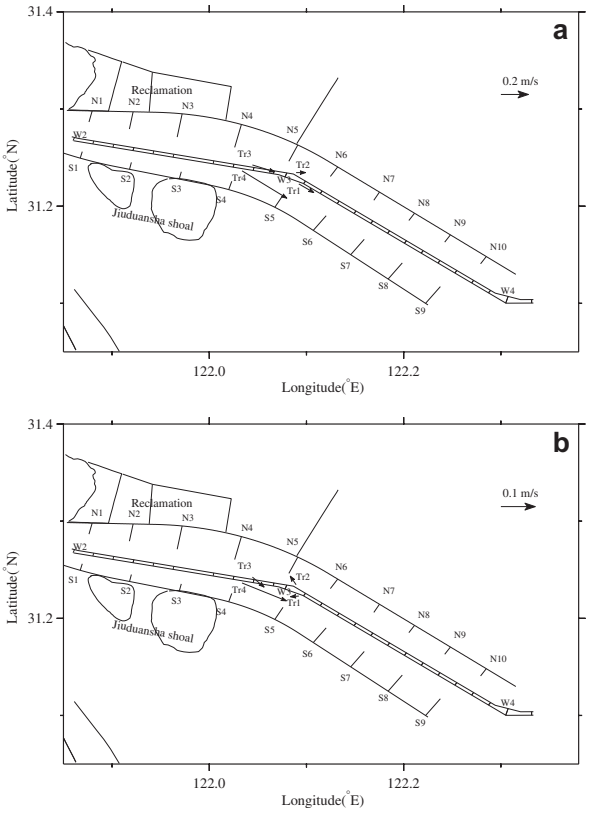


Fig. 5 Residual currents calculated at four stations for the (a) depth average for the entire water column and (b) the average of the bottom 1.1 m. The depth-averaged residual current at Stas. Tr3 and Tr4 at the up-estuary side of node W3 was larger than that at Stas. Tr1 and Tr2 at the down-estuary side. The near-bed residual currents exhibited a convergent zone near the node W3.

Four bottom-mounted instrument-equipped tripods were deployed at two sections spanning the region characterized by severe sedimentation rates in the Deepwater Navigation Channel (DNC) along the North Passage of Changjiang Estuary in order to observe currents, near-bed suspended sediment, and salinity. Seaward residual currents predominated in the up-estuary section. In contrast, a classical two-layered estuarine circulation pattern occur red in the down-estuary section. Flow moved seaward in the upper layer and a heavier in flow, driven by the salinity gradient, moved landward in the lower layer. The near-bed residual currents in the up-estuary section and the down-estuary section acted in opposing directions, which implies that the region is a convergence zone of near-bed residual currents that trap sediment at the bottom. The maximum salinity gradient at the maximum flood current indicates the presence of a strong front that induces sediment trapping and associated near-bottom convergence of sediment, which explains the high sedimentation rates in this sect ion of the estuary.

Analytical Solution for Salt Intrusion in the Yangtze Estuary, China.

Zhang, E.F., Savenije, H.H.G., Wu, H., Kong, Y.Z., Zhu, J.R., ***Estuarine, Coastal and Shelf Science,*** 2011, 91, 4: 492-501.

The Yangtze Estuary is one of the largest estuaries in the world, with three-order bifurcations and fouroutlets into the sea. In recent years salt intrusion has been given more attention due to the increase in its level and frequency. In this paper, for the first time, an analytical model is applied to the Yangtze Estuary to analyze the salt intrusion. This model has been tested in 18 estuaries in the world. Originally it was derived for single channel estuaries, which makes the application to the Yangtze Estuary challenging. The results show that this model can describe the salt intrusion from the sea in the Yangtze Estuary very well, with a good fit between computed salinity and measurements. The good results for the Combined South Branch and Combined South Channel indicate that the multi- channel estuary system functions as an entity. Additionally, this model can be used to estimate the river discharge distribution over the separate channels. Further work is needed based on more detailed salinity measurements and accurate bathymetry, particularly for the North Branch of the estuary system.

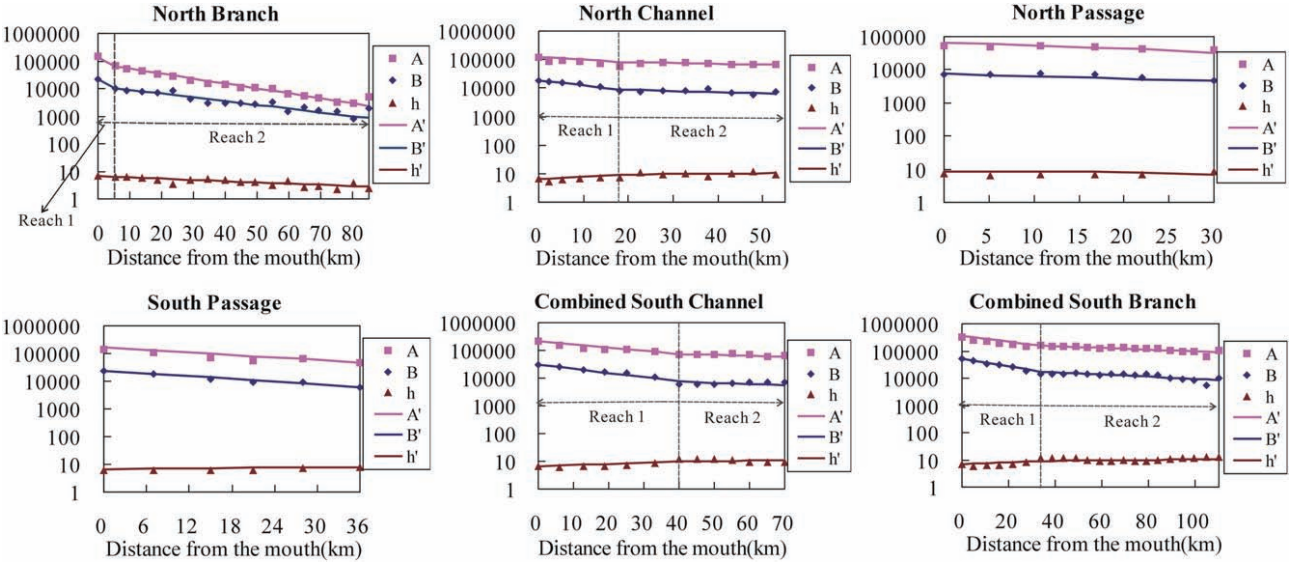


Fig. 3 Topography of the Yangtze Estuary, showing cross-sectional area A (m2), the width B (m), and the depth h (m) (squares, diamonds, and triangles represent observations, and the drawn lines represent the exponential equations (1)-(3)).

Morphodynamic Characteristics of the Dextral Diversion of the Yangtze River Mouth, China: Tidal and the Coriolis Force Controls

Li, M.T., Chen, Z.Y., Yin, D.W., Chen, J., Wang, Z.H., Sun, Q.L., ***Earth Surface Processes and Landforms***, 2011, 36(5): 641-650.

This paper examines the morphological development of the Yangtze River mouth, which has been diverting south-easterly (dextrally), according to historical (150 years) chart-based digital evolution model and on-site measured tidal flow data. We reveal a significantly narrowing of the northern river mouth branch from formerly >30 km wide to presently 10 km wide due to rapid siltation. Net siltation there, however, decreases gradually, which largely contrasts with the fact that the siltation has shifted to the southern river mouth area, as shown by many newly-emerged estuarine islands, sandy shoals and bifurcated branches. Our data have further demonstrated that the ebb flow that dominates in the study area changes its direction gradually from east to southeast from the inner to outer river mouth area, and its duration is much longer than the flood flow in the inner river mouth area, but nearly equal at the river mouth area. Accordingly, the sediment transport pathway has been diverted from east to southeast. We examine whether the Coriolis Force could explain the dextral diversion of the ebb flow and the altered morphodynamical processes. Although too weak to strengthen the tidal flows, the Coriolis Force can drag the ebb flow southeasterly, and so influence sediment transport paths at the estuarine scale. The Coriolis Force is limited in the inner river mouth, but substantial at and in the outer river mouth area when gradually free of estuarine topographic constraints. The Coriolis Force causes an offset in propagation of in-out flow directions at the river mouth area to form a slack water setting prone to estuarine siltation. Using the present approach also enables explanation of the morphological development of the Holocene Yangtze delta-coast that extends to the southeast.

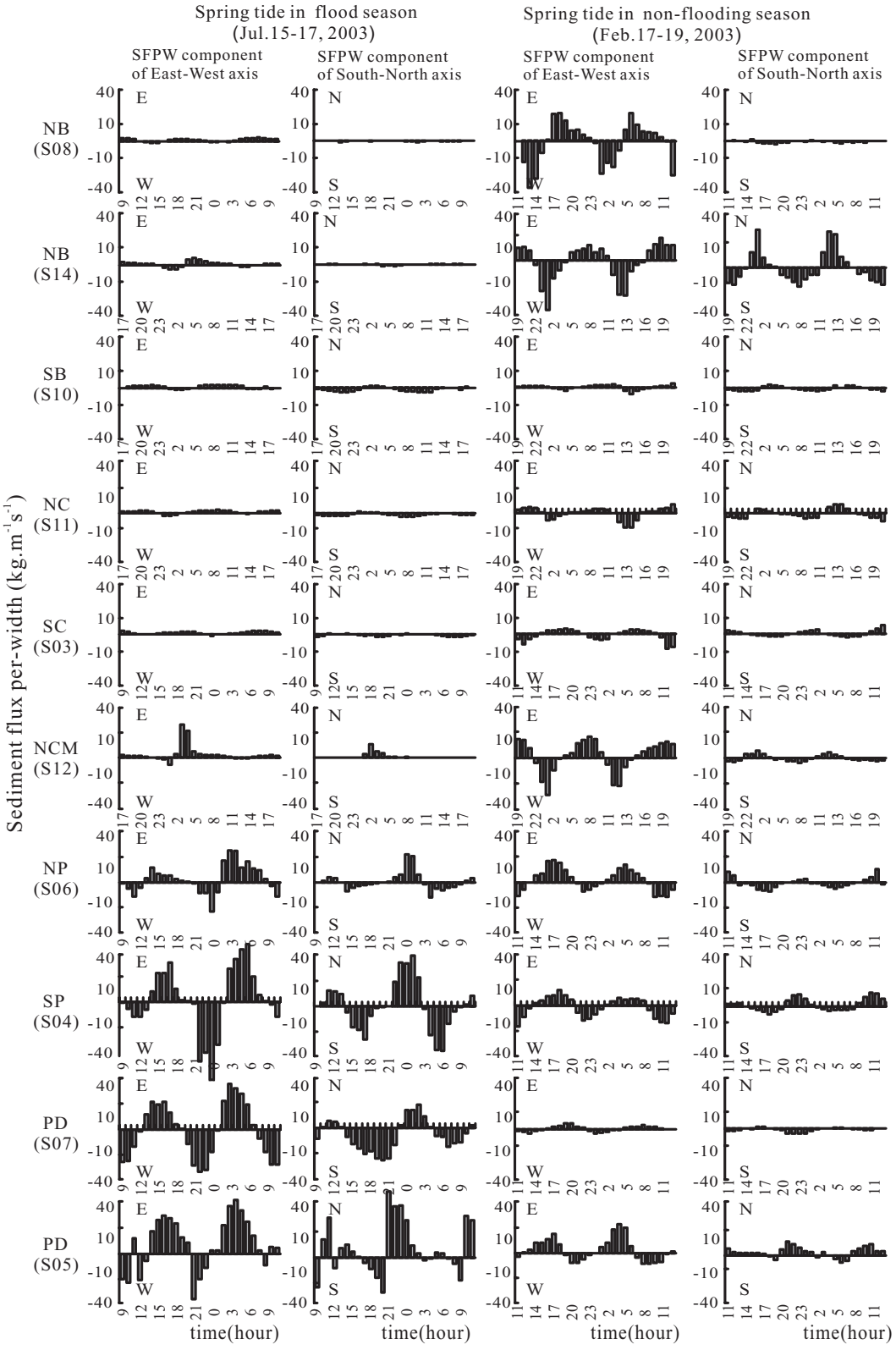


Fig. 5 Sediment flux component per width (in kg $m^{-1}s^{-1}$; 1 m used here) measured for the two full tidal cycles of 26 hours in the Yangtze River mouth area. While investigating in 2003, anchored and semi-synchronous to synchronous observation took place at all sites during the flood and non-flood seasons (spring tide, herein).

50,000 Dams Later: Erosion of the Yangtze River and Its Delta

Yang, S.L., Milliman, J.D., Li, P., Xu K., ***Global and Planetary Change,*** 2011, 75: 14-20.

Using 50 years of hydrologic and bathymetric data, we show that construction of ~ 50,00 0 dams throughoutthe Yangtze River watershed, particularly the 2003 closing of the Three Gorges Dam (TGD), has resulted indownstream channel erosio n and coarsening of bottom sediment, and erosion of the Yangtze's subaqueousdelta. The downstream channel from TGD reverted from an accretion rate of ~ 90 Mt (1Mt = 1000 000 t)/yrbetween the mid-1950 s and mid-1980 s to an erosion rate of ~ 60 Mt/yr after closing of the TGD. The deltafront has devolved from ~ 125 Mm^3 (1 Mm^3= 1000 000 m^3)/yr of sediment accumulation in the 1960s and 1970s, when river sediment load exce eded 450 Mt/yr, to perhaps 100 Mm^3/yr of erosion in recent years. As of 2007 erosion seemed to have been primarily centered at 5–8m water depths; shallower areas remainedrelatively stable, perhaps in part due to sediment input from eroding deltaic islands. In the coming decadesthe Yangtze's sediment load will probably continue to decrease, and its middle-lower river channel and deltawill continue to erode as new dams are built, and the South-to-North Water Diversion is begun.

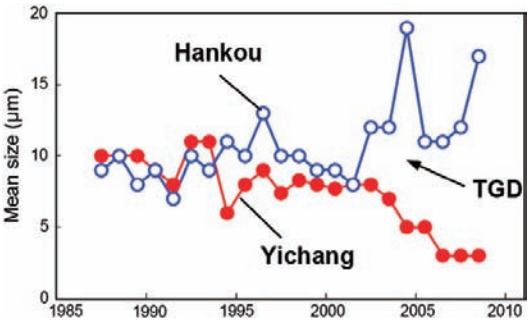


Fig. 4 Mean grain size of suspended sediment at Yichang and Hankou, 1987–2008. Note the abrupt grain size change after the 2003 TGD closure.

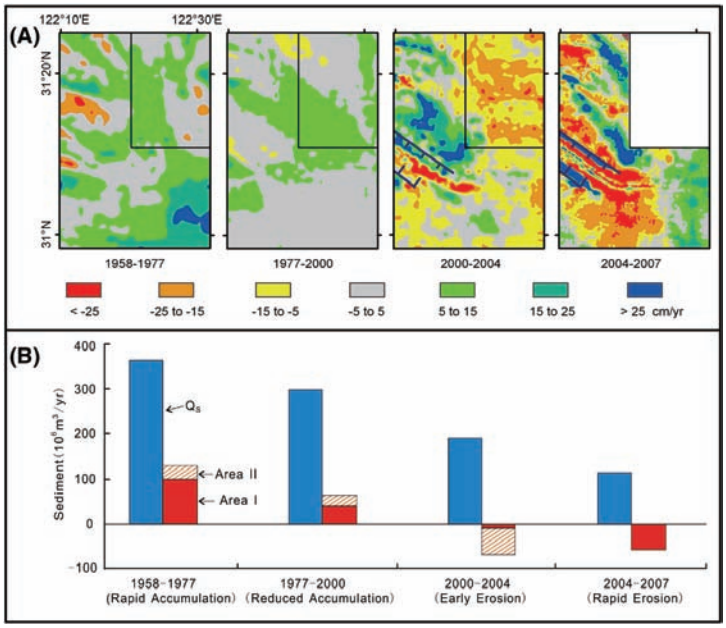


Fig. 7 A) Accumulation/erosion in Study Areas 1 and 2, 1958–1977, 1977–2000, 2000–2004, 2004–2007. By 2004 the TJ-GC and dredged channel extended into the study area. B) Comparison of sediment load at Datong and sediment accumulation/erosion in Study Areas 1 and 2; sediment load converted to Mm^3/yr assuming a bulk density of 1.25 t/m^3.

Impacts of Human Activity on the Late Holocene Development of the Subaqueous Yangtze Delta, China, as Shown by Magnetic Properties and Sediment Accumulation Rates

Wang, Z.H., Li, M., Zhang, R., Liu, Y., Saito, Y., Xie, J., Li, B., Zhao, B., ***Holocene,*** 2011. 21(3), 393-407.

Development of the Yangtze delta during the late Holocene, and its relationship to human activities in the drainage basin, was analyzed using data from 16 cores collected from distributaries to the prodelta. We used AMS ^{14}C dating and digital elevation model (DEM) data from marine charts from 1864 through 2005 to determine ages and estimate sediment accumulation rates. The results demonstrate that the latest major subaqueous delta front formed

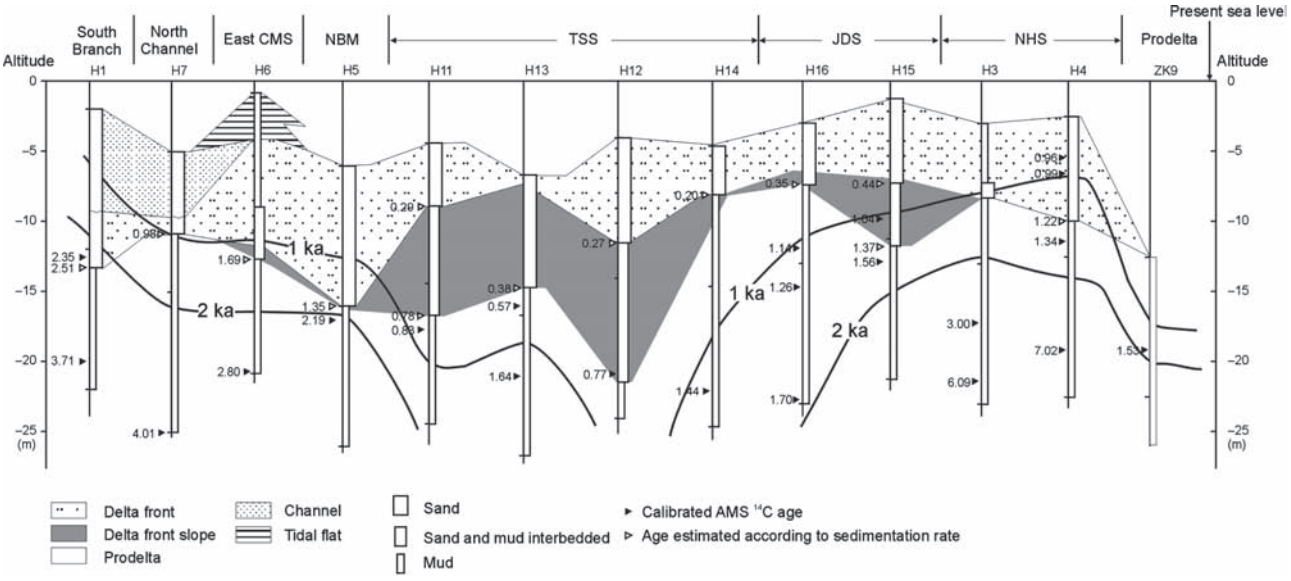


Fig. 5 Comprehensive cross-section of main cores with simplified lithology and AMS 14C ages. Cores without AMS 14C ages are not included. Geomorphologic units and sedmentary facies are also shown. Age ranges of all sand bodies are estimated from the AMS 14C dates and DEM results (Fig 3 and 4). Only the middle values of the age ranges are shown. Time lines of 1 cal. ka BP and 2 cal. ka BP are indicated to show the approximate sediment accumulation rate during the past 2000 years. Abbreviations are the same as those indicated in Fig 1 (b).

within the past c. 0.8 cal. ka and features remarkably high accumulation rates (1–4 cm/yr) in comparison with those of previous delta fronts. We also examined the temporal distribution of grain size and magnetic susceptibility in all 16 cores. Results show soil-derived super paramagnetic (SP) minerals generally occur, and even dominate, in the recent (c. 1.7 cal. ka) Yangtze delta fine-grained sediment, as shown by high values of frequency-dependent magnetic susceptibility (both χ_{FD} and χ_{FD}%). Rock-derived magnetite dominates generally in the river channel and delta front sand bodies as a result of hydrodynamic sorting, but is also enriched in both fine and coarse-grained sediment formed more recently (c. 0.8 cal. ka), as evidenced by rising values of mass specific magnetic susceptibility (χ_{LF}). SP grains were deposited as early as the late Neolithic, possibly indicating local deforestation associated with the use of fire at that time. We suggest major deforestation in the drainage basin started c. 1.7 cal. ka BP, and intensified after c. 0.8 cal. ka BP when both χ_{LF} and χ_{FD} show the highest values. We therefore conclude that upland deforestation and cultivation as a result of the migration of human populations from northern China since c. 1.7 cal. ka BP resulted in increased sediment discharge of the Yangtze and played an important role in recent delta construction.

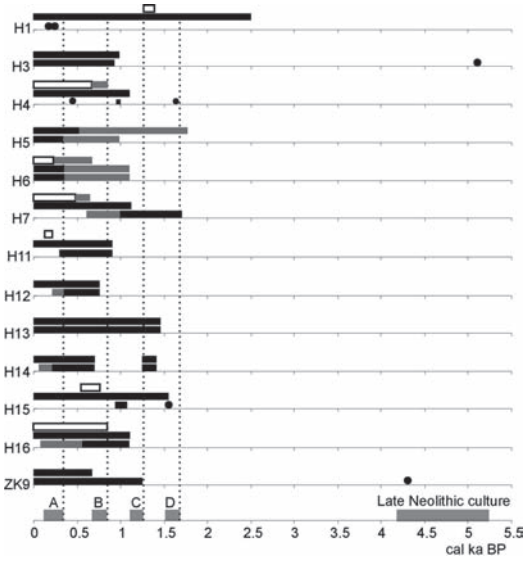


Fig. 6 Time periods or points for which χ_{LF} and χ_{FD}% values increase remarkably in core sediments (from Figure 2). Bottom black bars of each core represent time periods of χ_{FD}% values exceeding 2%; middle black bars for ascending χ_{LF} values; and upper white bars for further rising χ_{LF} values but low χ_{FD}% values. Gray bars denote possible age ranges estimated from both AMS ^{14}C dates and DEM results. Those without gray bars denote ages estimated only from AMS ^{14}C dates, with a range of about ±0.1 ka. Black circles denote individual ages. The gray portions of A–D denote four major episodes of population expansion occurring at ad 1650–1850 (0.30–0.10 cal. ka BP), ad 1126–1279 (0.82–0.67 cal. ka BP), ad 755–961 (1.20–1.09 cal. ka BP), and ad 291–453 (1.66–1.50 cal. ka BP). The late-Neolithic time is also indicated

海岸动力地貌与动力沉积过程
Coastal Dynamical Geomorphology and Sediment Process

Wave Attenuation at a Salt Marsh margin: A Case Study of an Exposed Coast on the Yangtze Estuary

Yang, S.L., Shi, B.W., Ysebaert, T., Luo, X.X., ***Estuaries and Coasts***, 2011, 34: 1-14.

To quantify wave attenuation by (introduced) *Spartina alterniflora* vegetation at an exposed macrotidal coast in the Yangtze Estuary, China, wave parameters and water depth were measured during 13 consecutive tides at nine location s ranging from 10 m sea ward to 50 m landward of the low mars h edge. During this period, the incident wave height ranged from <0.1 to 1. 5 m, the maximum of which is much higher than observed in other marsh areas around the world. Our measurements and calculations showed that the wave attenuation rate per unit distance was 1 to 2 magnitudes higher over the mars h than over an adjacent mudflat. Although the elevation gradient of the mars h margin was significantly higher than that of the adjacent mudflat, more than 80% of wave attenuation was ascribed to the presence of vegetation, suggesting that shoaling effects were of minor importance. On average, wave s reaching the mars h were eliminated over a distance of ~80 m, although a mars h distance of≥100 m was needed before the maximum height wave s were full y attenuated during high tide s. These attenuation distances were longer than those previously found in American salt marshes, mainly due to the macrotidal and exposed conditions at the present sit e. The ratio of water depth to plant height showed an inverse correlation with wave attenuation rate, indicating that plant height i s a crucial f actor determining the efficiency of wave attenuation. Consequently, the tall shoots of the introduced *S. alterniflora* makes this species much more efficient at attenuating waves than the shorter, native pioneer species in the Yangtze Estuary, and should therefore be considered as a factor in coastal management during the present era of sea-level rise and global change. We also found that wave attenuation across the salt marsh can be predicted using published models when a suitable coefficient is incorporated to account for drag, which varies in place and time du e to difference s in plant characteristics and abiotic condition s (i.e., bed gradient, initial water depth, and wave action).

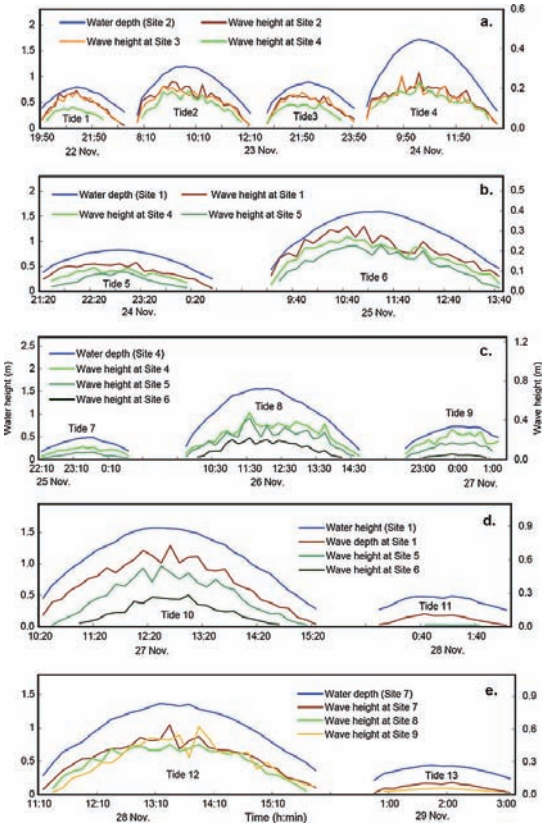


Fig. 3 Time series of burst based water depth and significant wave height for sequential tidal cycles 1 –4(a), 5 and 6 (b), 7 –9(c), 10 and 11 (d), and 12 and 13 (e). The locations of wave-measuring sites are shown in Fig. 1d. Water depth was always based on records taken at the site with the lowest site number (i.e., closest to the water front), as indicated by the blue line in each panel

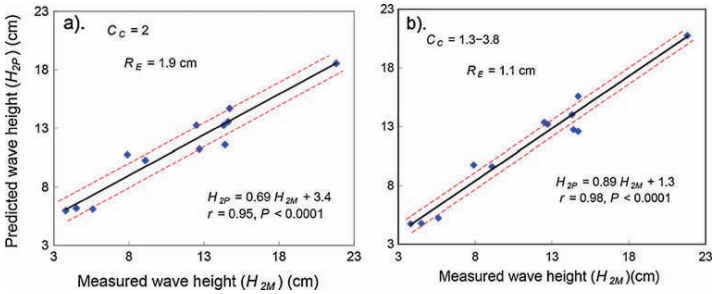


Fig. 8 Correlation between predicted and measured heights of transmitted waves, showing a predicted values calculated based on our revised Dean (1978) model (adding a combined drag coefficient C_C= 2 to Eq.2), and b predicted values calculated by changing the drag coefficient in our revised Dean (1978) model from 2 to 1.3 − 3.8, according to the relative water depth (Table 2). H_{2M}: measured transmitted wave height; H_{2P}: predicted transmitted wave height; R_E root mean square error; r correlation coefficient; P significance level

Morphodynamics of a Boulder Beach, Putuo Island, SE-China Coast: the Role of Typhoon

Chen, B., Chen, Z.Y., Stephenson, W., and Finlayson, B., ***Marine Geology***, 2011, 283: 106-115.

In this paper we examine the sedimentological properties and morphodynamic evolution of a boulder beachat Huayanpeng Cape on Putuo Island off the southeast China coast. Focus is given to the formation of the boulder beach (256–2000 mm diameter) and resulting morphology in relation to high-energy storms and seasonal typhoon. Holocene sea level rise to the present position at ca. 7000– 6000 yrs BP provides a long term window for the formation of the beach. The beach is primarily characterized from east to west by: 1) the convex to concave beach morphology, 2) reduced longest axis of the skeleton boulders, 3) decreased flatness of the skeleton boulders, and 4) greater sphericity of the skeleton boulders. Infilling cobbles/pebbles in the beach demonstrate a bi-modal distribution, corresponding to dominant sizes of 100 –250 mm and 50 –100 mm in diameter, on the eastern beach and western beach, respectively. This reflects changed intensity of storm waves alongshore. Multiple-peaks of the distributions of infilling clasts for the western beach (supratidal) probably reflect storm and calm weather sedimentation. Statistically, both the skeleton boulder sand infilling clasts follow a β-distribution, reflecting the high-energy control of beach formation and the dominance of crushing in boulder size reduction. A boulder transport model applied in the present study further reveals that boulders with an a-axis length of 500 –1000 mm (the dominant component on the beach) move under a wide range of wave conditions depending on wave height and wave period with a cluster of critical wave heights in the range 2– 6 m and wave periods of 5– 15 s.

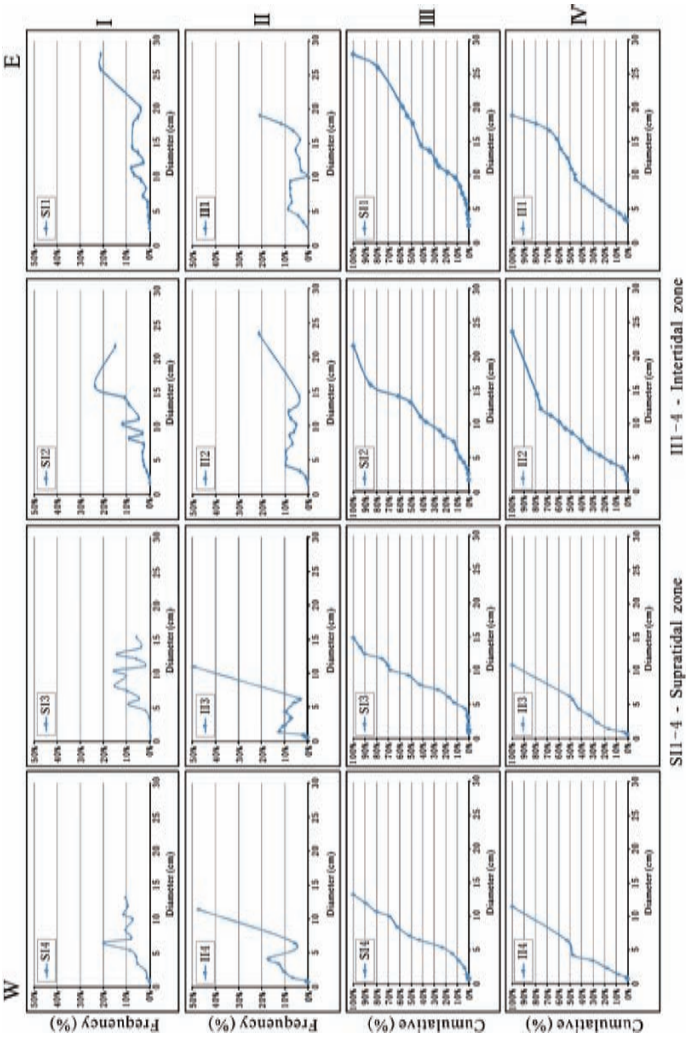


Fig. 5 Particle size distribution (frequency and cumulative) of in filling sediments (in centimeters). Note: two major frequency peaks in the supratidal and intertidal zones, and multi-peaks in the western supratidal zone.

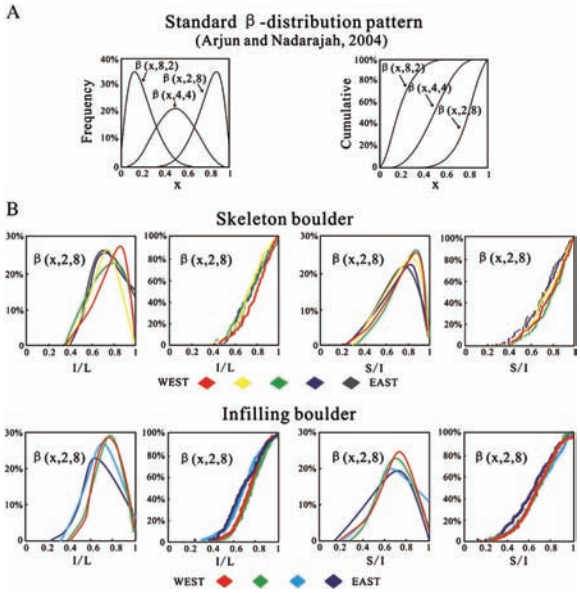


Fig. 6 Beta distribution chart of skeleton boulders and infilling sediments (details discussed in text).

河口海岸生态与环境
Estuarine and Coastal Ecology and Environment

Variation of Riverine Material Loads and Environmental Consequences on the Changjiang (Yangtze) Estuary in Recent Decades (1955-2008)

Dai, Z.J., Du, J.Z., Zhang, X.L., Su, N., Li, J.F., ***Environmental Science and Technology***, 2011. 45:223–227.

With intense anthropogenic perturbations in the Changjiang (Yangtze) River basin, the riverine loads and compositions of materials into the Changjiang Estuary have greatly changed, resulting in dramatic deterioration in the Changjiang Estuary and adjacent sea environments. Based on a long-term data set of the material loads into the Changjiang Estuary, changing trend sand associated impacted factors were presented. The results showed downward trends concentrations and loads of dissolved silicate (DSi) over the past 50 years due to dam constructions in the Changjiang River. However, dissolved nitrogen (DIN) and dissolved inorganic phosphate (DIP) exhibited remarkable upward trends due to the increase of the population and the use of large-scale chemical fertilizer in the Changjiang River basin. The sharp decrease in the ratio of DSi/DIN and the increase in the ratio of DIN/DIP could cause increased Red tide bloom and decreased dissolved oxygen in the Changjiang Estuary. In addition, even though water discharge has remained almost constant, the suspended sediment discharge was shown to be sharply decreased due to the construction of dams.

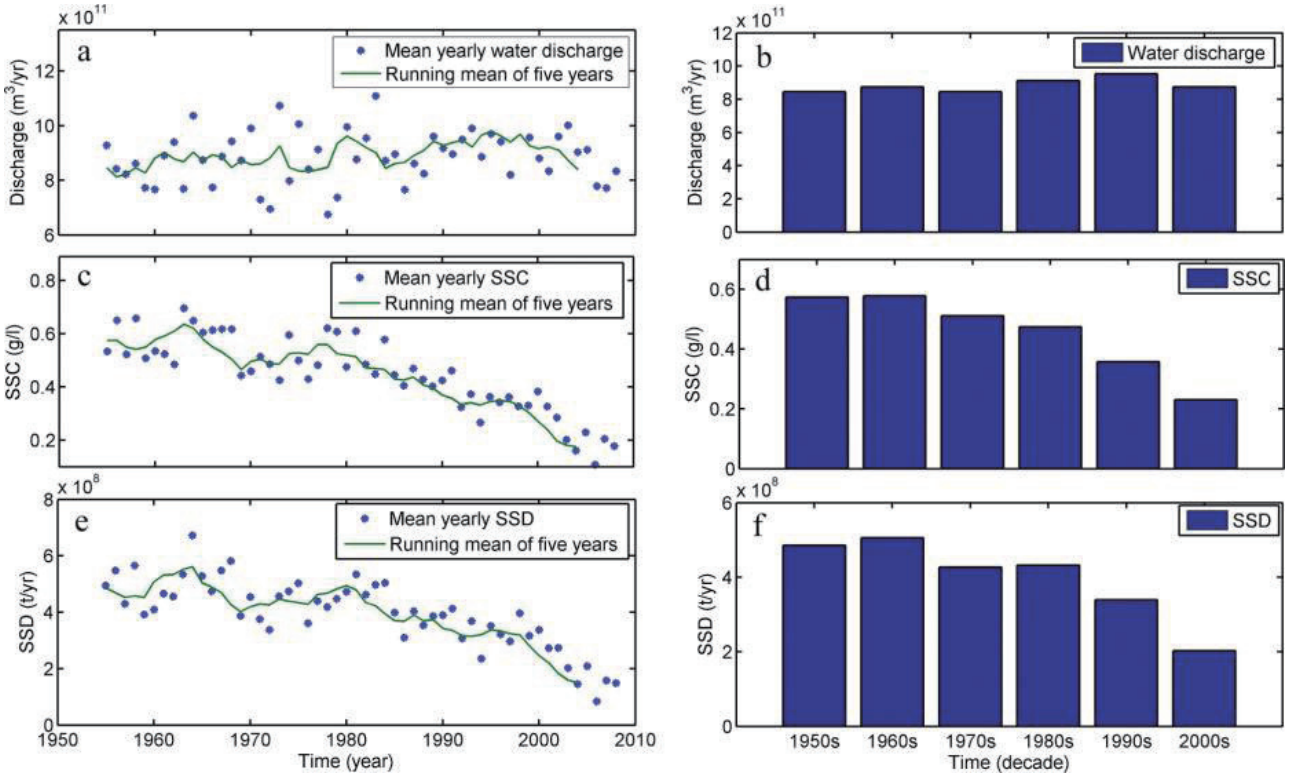


Fig. 2 Interannual and decennial variation of runoff, SSD and SSC at Datong.

Impact of Extreme Drought and the Three Gorges Dam on Transport of Particulate Terrestrial Organic Carbon in the Changjiang (Yangtze) River

Yu, H., Wu, Y., Zhang, J., Deng, B., and Zhu, Z.Y., ***Journal of Geophysical Research***, 2011. 116, F04029, doi: 10.1029/2011JF002012.

To investigate the impact of extreme drought and the Three Gorges Dam on organic carbon (OC) exported by the Changjiang (Yangtze) River, suspended particulate matter samples collected in 2003 (normal year) and 2006 (drought year) from the middle and lower reaches of the mainstream of the river were analyzed for elemental carbon, stable carbon isotope, and lignin-phenol yields. In comparison with suspended particulate matter samples collected in 2003, the 2006 samples showed elevated organic carbon content [OC%: (1.91 ± 0.43)% and (0.95 ± 0.07)% respectively in 2006 and 2003], higher autochthonous OC [Chl-*a*/OC: (20.68 ± 9.03)mg/g OC and (7.33 ± 2.97)mg/g OC in 2006 and 2003], decreased lignin yields [Λ8: (0.90 ± 0.41)mg/100 mg OC and(1.91 ± 0.33)mg/100 mg OC in 2006 and 2003], and higher degradation state [(Ad/Al)v:0.44 ± 0.21 and 0.27 ± 0.028 in 2006 and 2003]. These differences may be explained by changes in grain composition and concentration of the suspended particulate matter, which were caused by the lower water discharge and sediment load in 2006. Extreme drought and impoundment of water by the Three Gorges Dam not only affected the signatures and fluxes of terrestrial OC, but hid the seasonal signal of riverine OC. The impact of the Three Gorges Dam was more significant in the middle reach than in the lower reach. Lakes and tributaries in the lower Changjiang River supplied great amounts of terrestrial OC to the mainstream. In the drought year, the supplement of water provided by the lower lakes and tributaries was more significant. The absolute magnitude of reduction of terrestrial OC in the Changjiang River during drought and Three Gorges Dam influence (2006) would have severely affected the local carbon cycle and would have influenced the global carbon cycle to some extent.

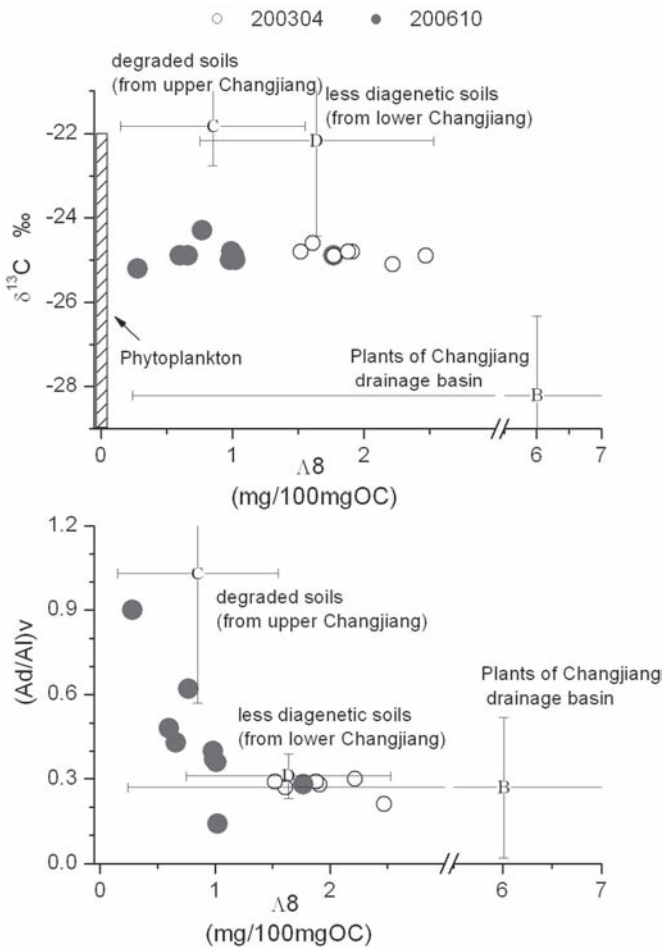


Fig. 4 Plots of Λ8 versus $\delta^{13}C$ (upper plot) and Λ8 versus (Ad/Al)v (lower plot). The values for degraded soils, less diagenetic soils, and plants were taken from [Yu et al., 2007].

Hypoxia off the Changjiang (Yangtze River) Estuary: Oxygen Depletion and Organic Matter Decomposition

Zhu, Z.Y., Zhang, J., Wu, Y., Zhang, Y.Y., Lin, J., Liu, S.M., ***Marine Chemistry***, 2011. 125:108-116.

In an especially dry year (2006) in the Changjiang Estuary, three cruises were conducted between June and October, to study the process of oxygen depletion. Data for the hypoxic zone pooled for 1959 through 2006 suggest that adramatic increase in the area of hypoxia has occurred in recent years, and that the center of hypoxia moved northwards in 2006. In August, the hypoxic area (dissolved oxygen, or DO, b 62.5 μM) in the northern region was 15,400 km^2, which is comparable to that in the Gulf of Mexico. A large area of low DO (62 .5 μM b DOb 94 μM) also was found in the southern region. In near- bottom waters, particulate organic carbon (POC), dissolved

in organic phosphorus (DIP), dissolved inorganic nitrogen (DIN) and apparent oxygen utilization (AOU) showed coupled variation. For example, relationships can be found between AOU and POC/nutrients (PO C/DIP: r =−0.47 , P O C /DI N :r= −0.50; pb 0.00 1, n = 8 6), and between AOU and Δσ of the water column (r = 0.66 , pb 0.001, n = 86 ;Δσ=density$_{near\text{-}\ bottom\ waters}$ − density$_{surface\ waters}$). It is interesting that oxygen depletion in the northern and southern regions developed separately, and they showed distinct differences. Oxygen depletion in the southern region is milder and relatively long lived, whereas in then or thern region it is more pronounced and short lived. The different relationships between AOU and inorganic nutrients, indicates different mechanisms for the occurrence ofoxygen depletion between the southern and northern regions , respectively. This can be due to 1) the influence of dissolved organic nutrients as another decomposition product besides inorganic forms, 2) and/or different chemical composition of organic matter that decomposed in the near-bottom waters.

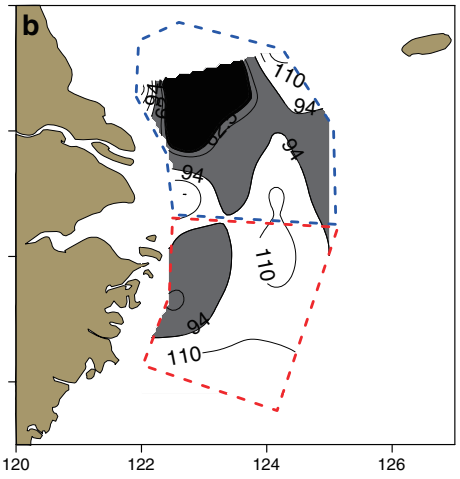


Fig. 2 DO (μM) distribution of near-bottom waters in August of 2006. (unit: mg/L; gray: 2<DO<3; black: DO<2)

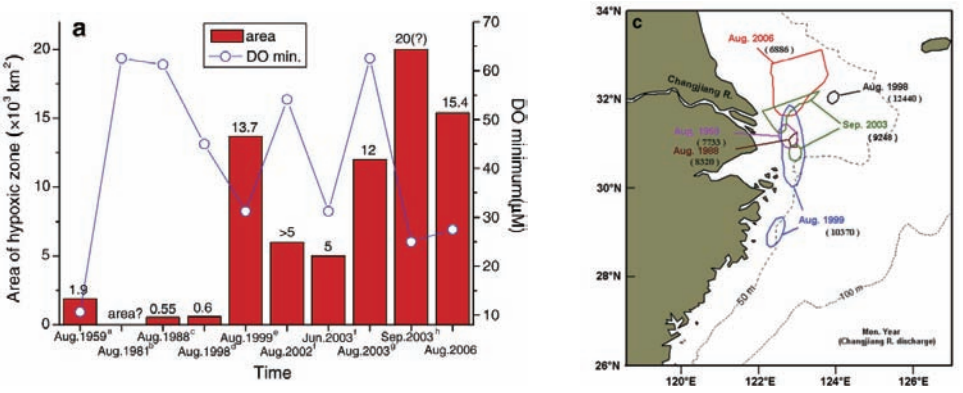


Fig. 5 Overview of hypoxia off the Changjiang Estuary. Reported area of hypoxic zone and DO concentration minimum based on literature and this study. Note that there is not acontinuous timeline along the x-axis due to lack of historical observation data. (c)Pooled bottom hypoxic zone from 1959 to 2006.

Burial of Terrestrial and Marine Organic Carbon in Jiaozhou Bay: Different Responses to Urbanization

Yang, L.Y., Wu, Y., Zhang, J., Liu, S.M., Deng, B., ***Regional Environment Change***, 2011, 11: 707-714.

Organic geochemical proxies (OC, OC/TN, $\delta^{13}C$, and lignin oxidation products) were measured in a 271 cm long sediment core collected from central Jiaozhou Bay, northern China, to study the response of terrestrial and marine organic carbon burials to the surrounding urbanization. Terrestrial organic carbon content was constantly low from the bottom of the core to ~150 cm depth, indicating a stable and low level of terrestrial input before urbanization. Thereafter, it increased up to ~20 cm depth, suggesting that increased human activities and land-use changes during urbanization likely enhanced the flux of terrestrial organic carbon to the bay. Overall, 5–38% of the total organic carbon was terrigenous, which was derived from a mixture of woody and non-woody angiosperms and moderately degraded. Marine organic carbon content did not increase notably during urbanization. It increased from the bottom of the core to ~180 cm and stayed at high levels until it decreased in the top 20 cm. It was affected by multiple factors, including grain size and nutrient composition. These results demonstrate the different influences of urbanization on terrestrial and marine organic carbon cycles and suggest the importance of discriminating between these two organic carbon pools in the reconstruction of their historical changes.

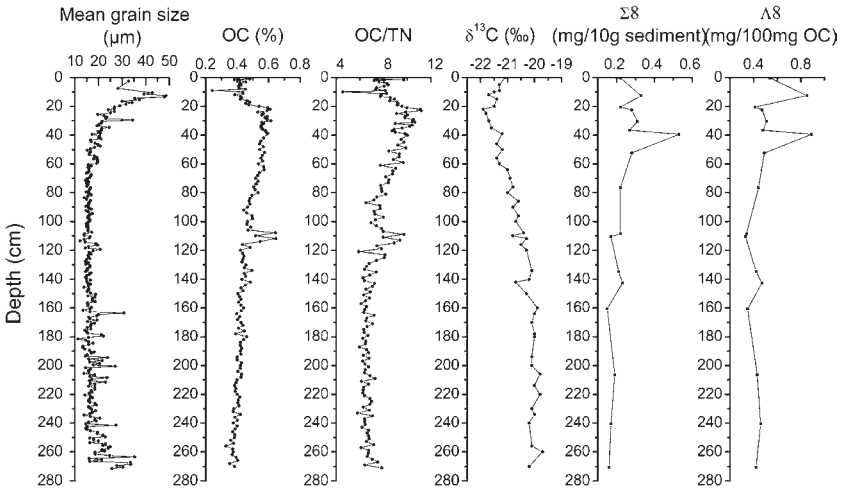


Fig. 3 Vertical distributions of bulk properties (mean grain size, OC, OC/TN, and $\delta^{13}C$) and lignin contents (∑8 and Λ8) in the sediment core (OC and OC/TN were redrawn from Liu et al. 2010)

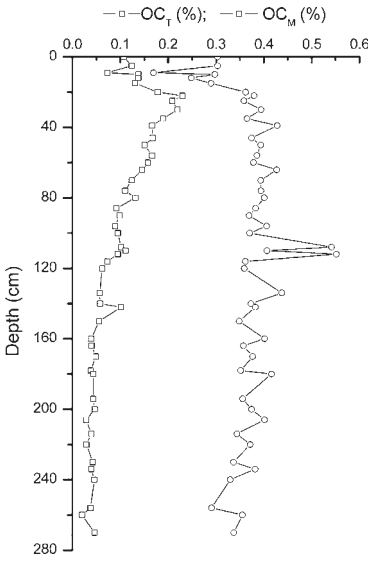


Fig. 5 Vertical distributions of the terrestrial and marine organic carbon content (OC_T and OC_M) when the $\delta^{13}C$ endmember values of terrestrial and marine organic matter ($\delta^{13}C_T$ and $\delta^{13}C_M$) were – 26 and - 19.35%, respectively

Chemical Characterization of Humic Substances Isolated from Mangrove Swamp Sediments: the Qinglan Area of Hainan Island, China

Zhang, Y.L., Du, J.Z., Zhang, F.F., Yu, Y.H., Zhang, J., ***Estuarine, Coastal and Shelf Science***, 2011, 92: 180-187.

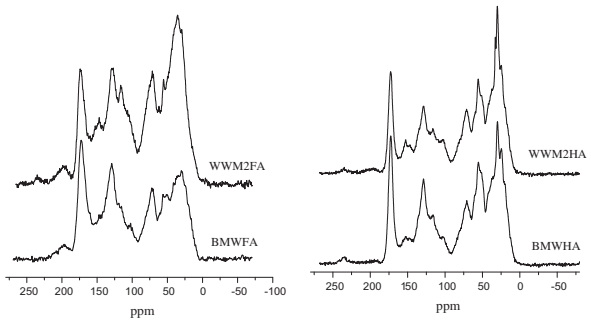


Fig. 4 ^{13}C NMR spectra of FAs and HAs isolated from the BMW and WWM2 sites.

In order to improve the understanding of structural and reactive features of sediment organic matter from mangrove swamp as well as evaluate the relationship between such features and the impact from different sources (marine and terrestrial), humic and fulvic acids were is olated from two mangrove swamp sediments located in the Qinglan harbors on Hainan Island, China. One is a forest surface sediment site (WWM2), and the other is an estuary subaqueous sediment site (BMW). The humic and fulvic acids were characterized and compared using chemical and spectroscopic methods, including elemental analysis, thermogravimetric analysis (TGA), Fourier Transformed Infrared Spectroscopy (FTIR), ^{13}C nuclear magnetic resonance (^{13}C NMR) and potentiometric titrations. The results indicated that there were less aliphatic compounds but more aromatic compounds and oxygen-containing functional groups in fulvic acids. Humic acids contained more long-chain hydrocarbons and nitrogen compounds. Comparison of the C/N ratios and $\delta^{13}C$ values for the humic substances at both sites indicated a larger marine and/or microbial contribution to the BMW site. Humic substance s at the WWM2 site have more acidic functional groups than those of the BMW site. Compared to the literature, more phenolic groups existed in the samples of both sites, which may be due to the autochthonous contribution of mangrove plants.

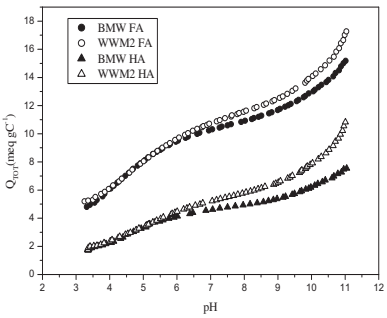
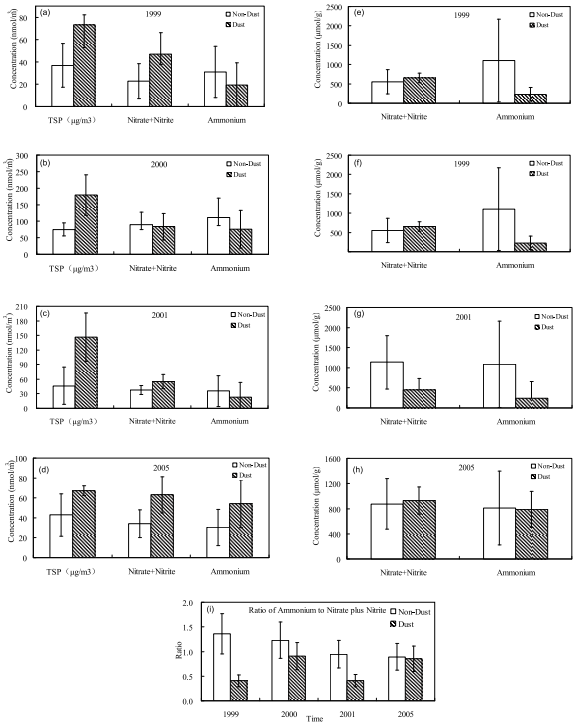


Fig. 5 Potentiometric titration curves for the FAs and HAs isolated from the BMW and WWM2 sites.

Nitrogen Species in Rainwater and Aerosols of the Yellow and East China Seas: Effects of the East Asian Monsoon and Anthropogenic Emissions and Relevance for the NW Pacific Ocean

Zhang, J., Zhang, G.S., Bi, Y.F., and Liu, S.M., ***Global Biogeochemical Cycles***, 2011. 25: p. GB3020.

Rainwater and aerosol samples were collected from a coastal urban area (Qingdao)and remote islands (Qianliyan and Shengsi) and along cruise tracks in the Yellow Seaand East China Sea from 1997 to 2005. The samples were analyzed for nitrogen species(NO_3^-, NO_2^-, NH_4^+, and organic nitrogen) and other important elements. The nitrogenspecies concentrations showed considerable temporal and spatial variations for wet as wellas dry atmospheric depositions. In addition, there was a dramatic reduction in the influenceof anthropogenic emissions on nitrogen species with increasing distance from coastalurban stations to remote areas across the Yellow Sea and East China Sea.



The monsoonclimate of East Asia also had prominent effects on the atmospheric composition ofnitrogen, with higher loadings in northerly (i.e., winter) than southerly (i.e., summer)monsoon periods, owing to strong emissions from the East Asian landmass. Dust storms inspring dramatically reduced the periodically high concentrations of atmospheric pollutants(e.g., nitrogen species) across the NW Pacific Ocean, but this was accompanied by a twofold-to-fourfold increase in the temporal deposition flux, which showed broad spatial dimensions. Finally, our study identified a strong gradient of wet as well as dry nitrogendeposition fluxes from East Asia to the interior of the North Pacific Ocean. Thegradient reflected changes in emission sources and chemical reactions (e.g., formingsecondary aerosols), rainfall and scavenging, and change in air mass trajectory.

Fig. 5 Impacts of spring dust storms on the aerosol composition of nitrogen species in the Yellow Sea and East China Sea, which shows the comparison of samples collected during the pass-through of dust events and before storms.

Tracing the Quarter-diurnal Signatures of Nutrients and Dissolved Organic Matter to Evaluate Their Nonconservative Behaviors in Coastal Seawaters

Gao, L., Fan, D.D., Zhang, Y.W., Li, D.J., Cai, G.G., ***Journal of Geophysical Research***, 2011, 116, G03015, doi: 10.1029/2010JG001627.

In June 2009, six consecutive observations with duration times of 13 h or 26 h were performed at the sea surface of outer Hangzhou Bay in the East China Sea. Physical (current direction and velocity), hydrological (salinity, suspended particulate matter (SPM) turbidity, total volume and mean size of suspended flocs), and chemical tracer (nutrients, chromophoric dissolved organic matter, and dissolved organic nitrogen) data were collected. Harmonic analysis that included diurnal, semidiurnal, and quarter-diurnal constituents was conducted on time series data for all of the parameters measured. Spectral analysis was performed to determine whether the three harmonics could characterize the variations observed in the data. The amplitude ratio of quarter-diurnal harmonic to the sum of diurnal and semidiurnal harmonics was expected to quantify the nonconservative extent of the chemical tracers. This ratio generally was higher inturbid seawater, whereas the lowest ratio occurred at a station where the seawater displayed zero turbidity throughout the experiment. The quarter-diurnal phase lags between SPM and chemical

tracers were believed to provide information about how SPM and chemicals interact. How field processes such as resuspension and flocculation/disaggregation affected the kinetics of the chemical tracers also was explored by plotting the quarter-diurnal phase spectra along the 32 size classes obtained from Laser In Situ Scattering and Transmissometry measurements. This study provided an interesting and potentially useful technique to estimate the nonconservative behaviors of biogenic elements and to study the relationships between the fields of physical oceanography and biogeochemistry in estuarine and coastal seawaters.

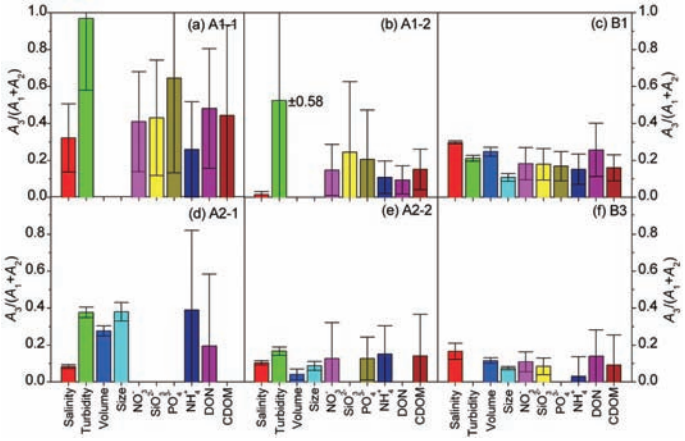


Fig. 11 Amplitude ratios of A3 to the sum of A1 and A2 after K1 + M2 + M4 modeling (A1, A2, and A3 refer to the amplitudes of diurnal, semidiurnal, and quarter-diurnal harmonics, respectively) of the data for the 10 hydrological and chemical tracers from the six observations.

Influences of Sediment Dessication on Phosphorus Transformations in an Intertidal Marsh: Formation and Release of Phosphine

Hou, L.J., Liu, M., Ding, P.X., Zhou, J.L., Yang, Y., Zhao, D., Zheng, Y.L., ***Chemosphere***, 2011, 83, 917-924.

This study investigated the effects of sediment dewatering on the phosphorus transformations concerning about the production and emission of phosphine in the intertidal marsh of the Yangtze Estuary. The concentrations of matrix-bound phosphine ranged from 18.62–72.53 ng kg^{-1} and 31.14–61.22 ng kg^{-1} within the August and January exposure incubations, respectively. The responses of matrix-bound phosphine concentrations to sediment dessication demonstrate that the production (or accumulation) of matrix-bound phosphine significantly increased with water loss at the start of the emersion incubations. However, further dehydration inhibited the formation of matrix-bound phosphine in sediments. The significant correlations of matrix-bound phosphine with the organic-P bacteria abundance and alkaline phosphatase activities implicate that the production of matrix-bound phosphine within the dessication incubations was linked closely to the microbial decomposition of organic P. The emissions of phosphine generally decreased with sediment dewatering, with the fluxes of 7.51–96.73 ng $m^{-2}h^{-1}$and 5.34–77.74 ng $m^{-2}h^{-1}$ over the exposure incubations of both August and January, respectively. Also, it is observed that the releases of phosphine during the entire exposure periods were affected not only by its production but also by sediment water and redox conditions.

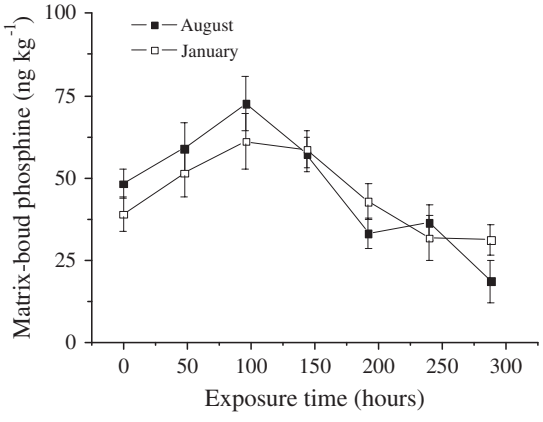


Fig. 3 Changes of matrix-bound phosphine within the exposure incubations of both August and January. Data shown are averages from triplicate cores. Vertical bars represent the standard deviation.

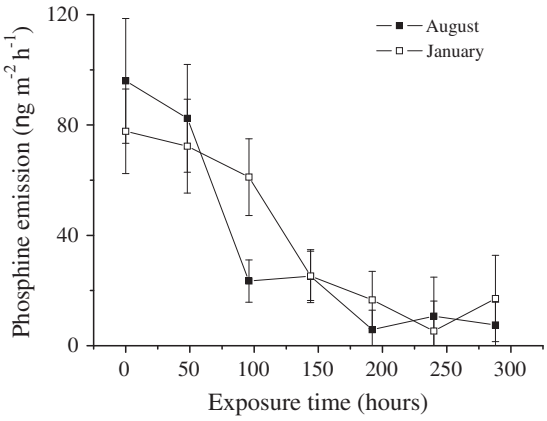


Fig. 4 Changes of phosphine release fluxes within the exposure incubations of both August and January. Data shown are averages from triplicate cores. Vertical bars represent the standard deviation.

Phenanthrene Sorption to Chinese Coal: Importance of Coal's Geochemical Properties

Yan, C.X., Yang, Y., Liu, M., Nei, M.H., Zhou, J.L., ***Journal of Hazardous Materials***, 2011, 192: 86-92.

Phenanthrene (Phen) was chosen as the probe compound for determining the sorption of PAHs to a series of different coal samples from China. Based on elemental analysis and nuclear magnetic resonance (NMR) spectra analysis, coal samples were characterized with different metamorphic evolutional degrees. The experimental sorption data were fitted well by the Freundlich model, suggesting enhanced sorption capacity and strong nonlinearity of coal samples. The combined partition and adsorption model yielded a better fit than the Freundlich isotherm, indicating that adsorption dominated the sorption at low aqueous concentrations. Correlations between coal properties and sorption capacity values indicated that C%, H/C and O/C atomic ratios were the key factors controlling the sorption behavior. Compared to total carbon, BC might play more important role in the sorption of Phen to coal samples. Moreover, there existed nonlinear relationships between combined carbon, aromatic and aliphatic carbon contents and $\log K_{Fr}$ and n values, respectively, indicating the significance of aromatic and aliphatic carbon in the coal sorption behavior.

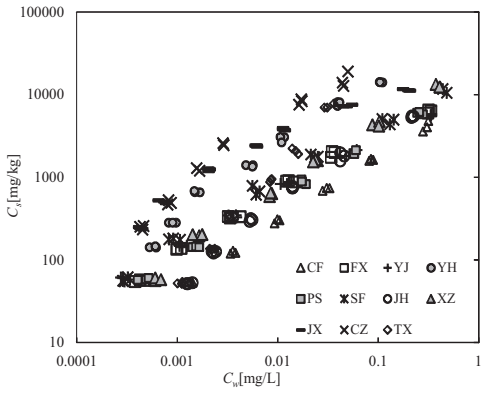


Fig. 3 Phen sorption isotherms by different coal samples from China.

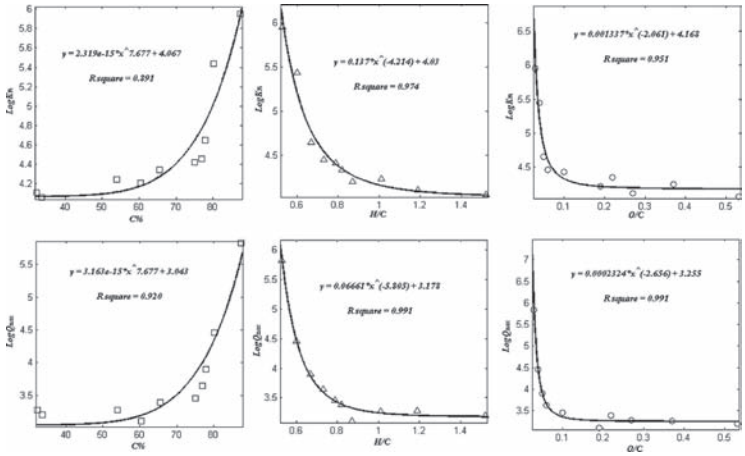


Fig. 6 Correlation analysis for sorption parameters and coal properties.

Emission of Phosphine in Intertidal Marshes of the Yangtze Estuary

Hou, L.J., Liu, M., Zhou, J.L., Yang, Y., Zhao, D., Yin, G.Y., Zheng, Y.L., ***Applied Geochemistry***, 2011, 26: 2260 - 2265.

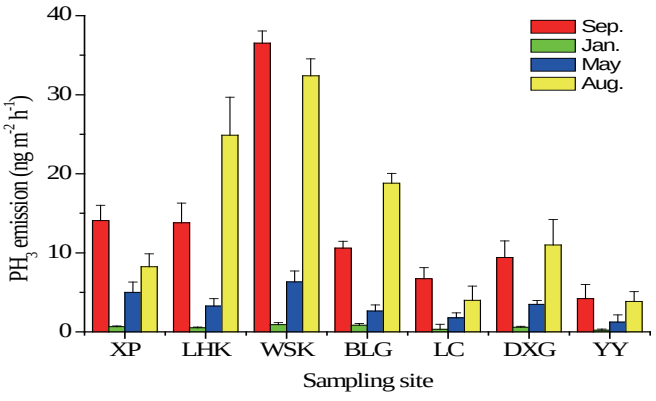


Fig. 3 Emission fluxesof phosphine (PH_3) in the intertidal marshes of the Yangtze Estuary in September, January, May and August, respectively.

Emission of phosphine, a gaseous form of P, is presently considered a potential pathway of the P biogeochemical cycle in aquatic sediments. This study investigated the emission fluxes of phosphine and its potential production mechanisms in the intertidal marshes of the Yangtze Estuary. It is shown that the relatively high emission fluxes of phosphine were measured in warm seasons, with the values of 3.85–24.9 ng $m^{-2}h^{-1}$ and 4.21–36.5 ng $m^{-2}h^{-1}$ in August and September, respectively. In contrast, lower fluxes of phosphine appeared in May (1.23–6.32 ng $m^{-2}h^{-1}$) and January (0.21–0.91 ng $m^{-2}h^{-1}$). Also, the

fluxes of phosphine were generally higher in the freshwater marsh, compared with the brackish marsh. The spatio-temporal pattern of phosphine emissions was observed to be mainly associated with sediment structure, temperature and salinity. Meanwhile, the significant correlations of phosphine emissions with sedimentary P and alkaline phosphatase activities reflect that phosphine probably derives from the microbial transformations of PO_4 and organic P. In addition, it is estimated that approximately1.08×10^6g of phosphine is released annually from sediments into the pelagic water of the Yangtze Estuary. Therefore, it is concluded that phosphine emissions may be an important internal source of P, making a significant contribution to the occurrence of algal blooms especially during warm seasons.

Particle Dynamics of ^{7}Be, ^{210}Pb and the Implications of Sedimentation of Heavy Metals in the Wenjiao/ Wenchang and Wanquan River Estuaries, Hainan, China

Huang, D.K., Du, J.Z., and Zhang, J., ***Estuarine, Coastal and Shelf Science***, 2011, 93: 431-437.

Radionuclides (i.e., ^{7}Be and ^{210}Pb) can be used to trace particle and sediment dynamics and to quantify coastal oceanic processes with time scales ranging from a few days to a hundred years. Here, we study the settling dynamics of suspended particles and the implication by sedimentary heavy metal s in the Wenjiao/Wenchang River and Wanquan River estuaries through the measurement of the particulate ^{7}Be and ^{210}Pb nuclides. Activity in the particulate phase had a range of 2.1-54.5 and 4.6-67.9 Bq kg^{-1} for ^{7}Be and excess ^{210}Pb ($^{210}Pb_{xs}$), respectively, in the Wenjiao/Wenchang River estuary. In the Wanquan River estuary, activity is in the range of 1.2- 43.5 Bq kg^{-1} for ^{7}Be and 6.2-194.5 Bq kg^{-1} for $^{210}Pb_{xs}$. At the same time, activity in the dissolved phase had a range of 0.46 - 1.26 and 0.30-1.17 Bq m^{-3} for ^{7}Be and ^{210}Pb, respectively, in the Wenjiao/ Wenc hang River estuary; ranges of 0.10-2.31 and 0.09-1.87 Bq m^{-3} for ^{7}Be and ^{210}Pb, respectively, were observed in the Wanquan River estuary. The distribution coefficients (K_d) for the two nuclides decreased within increased in suspended particle matters (SPM) concentration and/or salinity in Wanquan River estuary. The residence times of particulate ^{7}Be and $^{210}Pb_{xs}$ had ranges of 0.4-1.6 and 1.65-5.15 days, respectively, in the Wenjiao/Wenchang River estuary; and ranges of 0.02-3.2 and 0.61-4.4 4 days, respectively in the Wanquan River estuary. All residence times for the two nuclides increased in the seaward direction. In the Wenjiao/Wenchang River estuary, we found that 11.8-21.0% of Cu, 3.0-9.0 % of Zn and 43.2-69.9% for Cd is removed from the water column and de posited into the estuary and 24.2-34.8% for Cu, 7.2-23. 8% for Zn, and 70.0-82 .5% for Cd in the Wanquan River estuary, respectively.

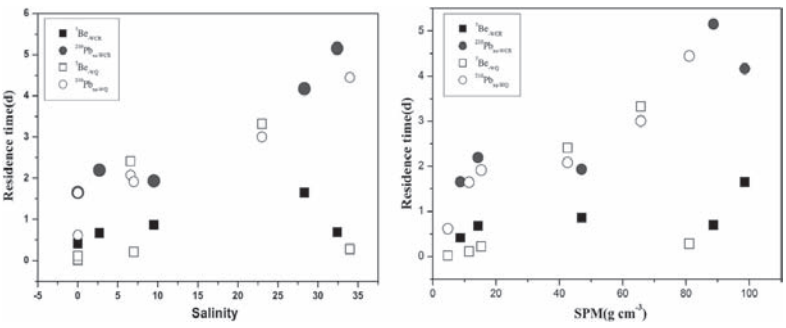


Fig. 4 Plots of residence times (in days) of particulate ^{7}Be and $^{210}Pb_{xs}$ vs. salinity and SPM in the Wenjiao /Wenchang River and Wanquan River estuaries.

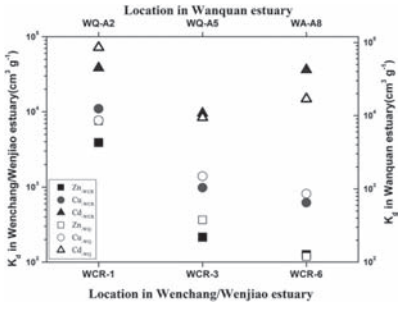


Fig. 5 Plots of distribution coefficients (K_d ,cm^{3}g^{-1}) of heavy trace metals in the Wenjiao/Wenchang River and Wanquan River estuaries.

An Examination of Groundwater Discharge and the Associated Nutrient Fluxes into the Estuaries of Eastern Hainan Island, China Using ^{226}Ra

Su, N., Du, J.Z., Moore, W.S., Liu, S.M., Zhang, J., ***Science of the Total Environment***, 2011. 409: 3909–3918.

Nutrient concentrations and ratios in a coastal bay/estuary are strongly influenced by the direct riverine discharge and submarine groundwater discharge (SGD). In order to estimate the fluxes of groundwater discharge into the Bamen Bay(BB) and Wanquan river estuary(WQ) of eastern Hainan Island, China, the naturally occurring radium isotope (^{226}Ra) was measured in water samples collected in the bay/estuary in August 2007 and 2008. Based on the distribution of ^{226}Rain surface water, a 3-end-member mixing model was used to estimate the relative contributions to these systems. Flushing times of 4.3 and 14.2 days were estimated for the BB and WQ, respectively, to calculate the radium fluxes for each system. Based on the radium fluxes from groundwater discharge and the isotopic compositions in groundwater samples, the estimated SGD fluxes were 3.2 m^3 s^{-1} in the BB and 0.05 m^3 s^{-1} in the WQ, respectively, or 15% and 0.04% of the local river discharge. Accordingly, the nutrient fluxes from groundwater discharge seeping into the BB and WQ regions were estimated as well. Comparison with the nutrient fluxes from the local rivers, SGD-derived nutrient fluxes especially in the BB played a vital role in controlling the nutrient components and their structures in the study area.

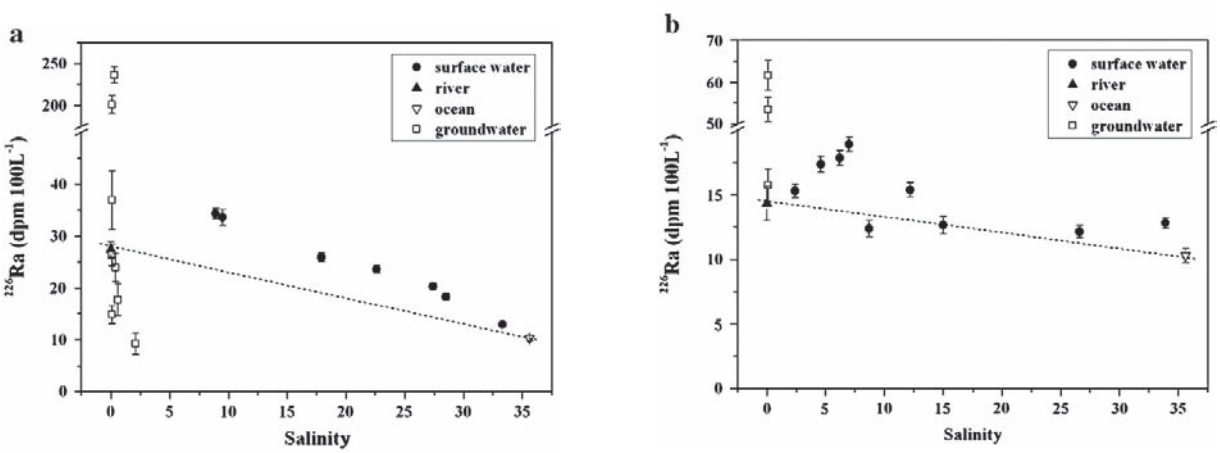


Fig. 2 Plots of dissolved ^{226}Ra versus salinity for all the water samples collected in the Bamen Bay (a) and Wanquan River estuary (b) showing the mixing from river, ocean and groundwater end-members. The river end-member includes the dissolved and desorbed radium. The short dashed line represents the conservative mixing line between river and seawater end-members. Note the scale breaks on the y-axis of both plots.

The Application of Cutting Plus Waterlogging to Control *Spartina alterniflora* on Saltmarshes in the Yangtze Estuary, China

Yuan, L., Zhang, L.Q., Xiao, D.R., Huang, H.M., ***Estuarine, Coastal and Shelf Science***, 2011. 92:103-110.

Control and eradication of the exotic and invasive plant *Spartina alterniflora* within the Chongming Dongtan nature reserve, Shanghai, China, is vital for the management and conservation of the saltmarshes. A demonstration project was established using waterlogging and cutting to control this invasive species. Results from 2007 to 2008 showed that, although the managed waterlogging significantly reduced biomass and seed production of *S. alterniflora* at an early stage, the species subsequently showed rapid adaptation to the long-term waterlogging stress. Thus, managed waterlogging alone was insufficient for the effective eradication of *S. alterniflora*. However, managed waterlogging for around 3 months, combined with cutting the above-ground part of *S. alterniflora* at a key stage (flowering period in July), controlled and eradicated the plant successfully. Both the above-ground and below-ground parts of *S. alterniflora* were killed and the plants began to decompose after 3 months. Furthermore, there was no regrowth of the emergent part of *S. alterniflora* in the following years. However, once the impounded water was released restoring the natural hydrodynamic regime of the saltmarshes, the seeds and seedlings of

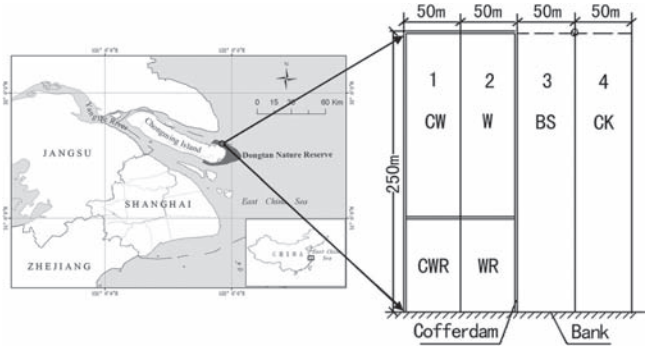


Fig. 1 The location of the Chongming Dongtan nature reserve and the experimental design for the demonstration project site. Block CW-cutting *Spartina alterniflora* at the flowering period plus managed waterlogging. Block W-managed waterlogging alone. Block CWR and WR-the cofferdam was broken to restsore the natural hydrodynamic regime in 2008 after managed waterlogging in 2007, Block CK-the control.

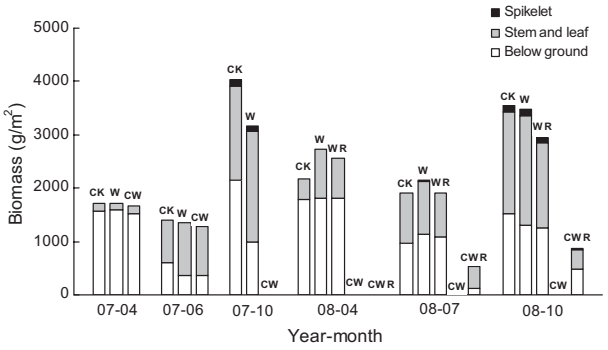


Fig. 4 Effects of different treatments (the legends see Figure 1) on the biomass of *Spartina alterniflora* during the years 2007-2008 in the demonstration project site.

S. alterniflora reinvaded the controlled site from the neighboring areas and the *S. alterniflora* community was re-established. Thus, after eradication of *S. alterniflora*, control measures should be maintained to prevent the re-establishment of *S. alterniflora*. The results of this demonstration project indicate a potentially useful and effective approach for the control and management of large-scale invasion by *S. alterniflora* on saltmarshes in the Yangtze Estuary, China.

In situ Raman Spectral Mapping Study on the Micro-scale Fibres in Scleractinian Blue Coral (*Heliopora Coerulea*) Skeletons

Zhang, F.F., Cai, W.Y., Zhu, J.C., Sun, Z.R., Zhang, J., ***Analytical Chemistry***, 2011.83: 7870-7875.

The presence and localization of organic matrix associated with the aragonite phase in the fibers of blue coral *Heliopora coerulea* skeletons were studied by in situ micro Raman mapping spectra, with a spatial resolution of ~0.3 μm. Spatial variations in the amounts and chemical compositions of the fibers were imaged. The results showed that the amide I and the α-helix of amide III were perpendicular to the c-axis of fibers' growth, whereas the β-turns/sheet of amide III was in the parallel conformation. Visible S–S and C–S bonds were consistent with the XANES results, which indicated the existence of organic sulfur in coral skeletons. Regular cyclic changes between aragonite and organic matrix refined a stepping growth mode of the fibers' biomineralization. An inorganic PO_4 bond was detected and exhibited the same concentration variation trends as the v_4 aragonite bands. Instead of providing an ocean P proxy on the subseasonal to centennial scale by LA-ICPMS, the possibility was raised of producing high resolution surface ocean phosphorus records on daily environmental variation via P/Ca variation cycles determined from Raman mapping data.

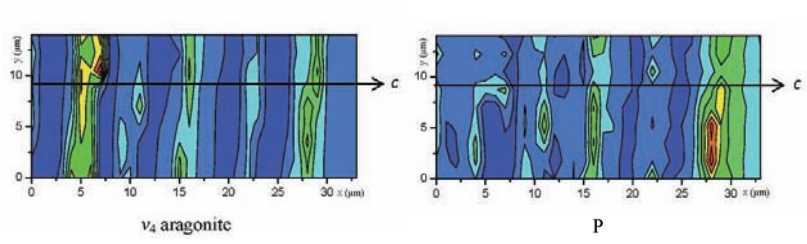


Fig. 4 Raman mapping on v_4 aragonite and P of the blue coral skeleton

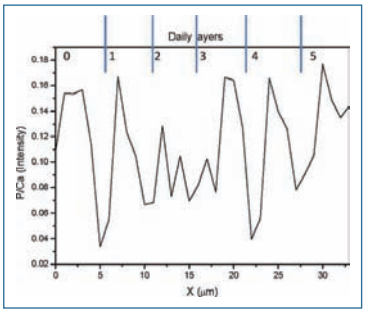


Fig. 5 P/Ca ration assessed by Raman mapping of fibers, and daily layers were determined from the aragonite variation cycles.

论文专著
List of Peer Reviewed Publications

2011 年，实验室发表学术论文 120 多篇，其中国外刊物 59 篇，国内重要刊物 60 篇，在国际会议论文集或专集上发表论文 10 篇，英文专著文章 5 篇，出版专著 1 册。
In 2011, more than 120 peer-reviewed papers and books were published, among which 59 were published in international journals, 60 in national journals, 10 in international conference proceedings, 5 English book chapters, and 1 book.

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获奖
Awards

陈中原、王张华、李茂田、陈静、韦桃源，长江流域 - 河口三角洲地貌环境演变：全球变化和人类活动的响应，2011 年上海市自然科学一等奖 (获奖号：20112008) 。

The research team consisting of Chen Zhongyuan, Wang Zhanghua, Li Maotian, Chen Jing, and Wei Taoyuan, was the recipient of the Shanghai Natural Science Awards (Grade I) (20112008) from the Shanghai Municipal Government. The awarded research work was entitled “Evolution of Yangtze River Basin and Estuary Delta’s Geomorphological Environment: Response to the Global Warming and Human Activities”.

2011 年 5 月，中华人民共和国交通运输部授予我院 (室) “长江口深水航道治理工程建设先进集体”荣誉称号、授予陈吉余院士“长江口深水航道治理工程建设杰出人物”荣誉称号。

In May 2011, the lab was honored as the Excellent Unit for the Yangtze Estuary Deepwater Channel Regulation Project by Ministry of Transport of China, and Prof. Chen Jiyu was honored as an Outstanding Personnel.

2011 年 11 月，我院 (室) 作为“上海市三维城市地质调查”项目的第四完成单位，荣获中华人民共和国国土资源部科学技术奖一等奖 (证书号：KJ2011-1-02-D4)，王张华教授获个人一等奖 (证书号：KJ2011-1-02-R14)。

In November 2011, as the fourth institution that finished the geological survey of 3D Shanghai City, SKLEC received the Scientific and Technical Award (Grade I) issued by Ministry of Land and Resources of China, and Prof. Wang Zhanghua received Individual Prize (Grade I).

平台与仪器
Facilities & Equipments

2011 年，实验室利用学校“985 工程二期”平台建设经费、“211 重点学科三期”建设经费和科技部实验室专项经费中的仪器设备费，与崇明县水文站合作协商建设横沙和长兴 2 个水文、泥沙等多参数野外长期监测站有关事宜，购置了多台大型室内、野外仪器，建成 MC-ICP-MS 超净实验室和样品前处理超净实验室。实验室大部分大型仪器设备均加入了上海市研发公共服务平台，对社会开放和共享。

In 2011, with support of the "985" and “211” Project from ECNU and special funding from the Ministry of Science and Technology (MOST) of China, two hydrological observation stations were established along Changxing and Hengsha Islands through cooperation with Chongming County Hydrological Station. A number of field survey instruments and laboratory analysis facilities were installed, including the operation of MC-ICP-MS ultra-clean laboratory and sample preparation ultra-clean laboratory. Most of the equipments participated in the Shanghai R & D Public Service Platform for public access.

新增仪器
New Equipments

新增室内大型仪器设备 (20 万元以上)
New Instruments for Laboratory Analysis

设备名称 Equipment	生产厂商 / 型号 Manufacturer / Type
快速溶剂萃取仪 / Accelerated Solvent Extractor	DIONEX Corporation, USA / ASE 350
岩芯断层扫描仪 / Core Scanner	Geotek Ltd., UK / MSCL-XCT
液相串联四级杆质谱仪 / Ultraperformance Liquid Chromatography Triple Quadrupole Mass Spectrometry	Waters Corporation, USA / Xevo TQ-S
元素分析仪 / Elemental Analyzer	Elementar Analysensysteme GmbH, Germany / Vario MACRO cube
光合作用监测仪 / Photosynthesis Monitor	Daletown Company Ltd., UK / PTM-48A
河口海岸生物多样性鉴定系统 / Biodiversity Appraisal System in Estuary and Coast	Zeiss, China / Custom Tailor

新增野外大型仪器设备 (20 万元以上)
New Instruments for Field Survey

设备名称 Equipment	生产厂商 / 型号 Manufacturer / Type
声学多普勒海流剖面仪 / Acoustic Doppler Current Profiler	Teledyne RD Instruments Company, USA / WHSW-ADCP-600kHz
根系动态监测仪 / Root Dynamic Monitor	UAS / CI-600
浪潮测量仪 / Wave-Tide Gauge	Nortek, the Netherlands / AWAC
声学后向散射仪 / Acoustic Backscatter System	AQUAscat Company, UK / AQUAscat 1000S

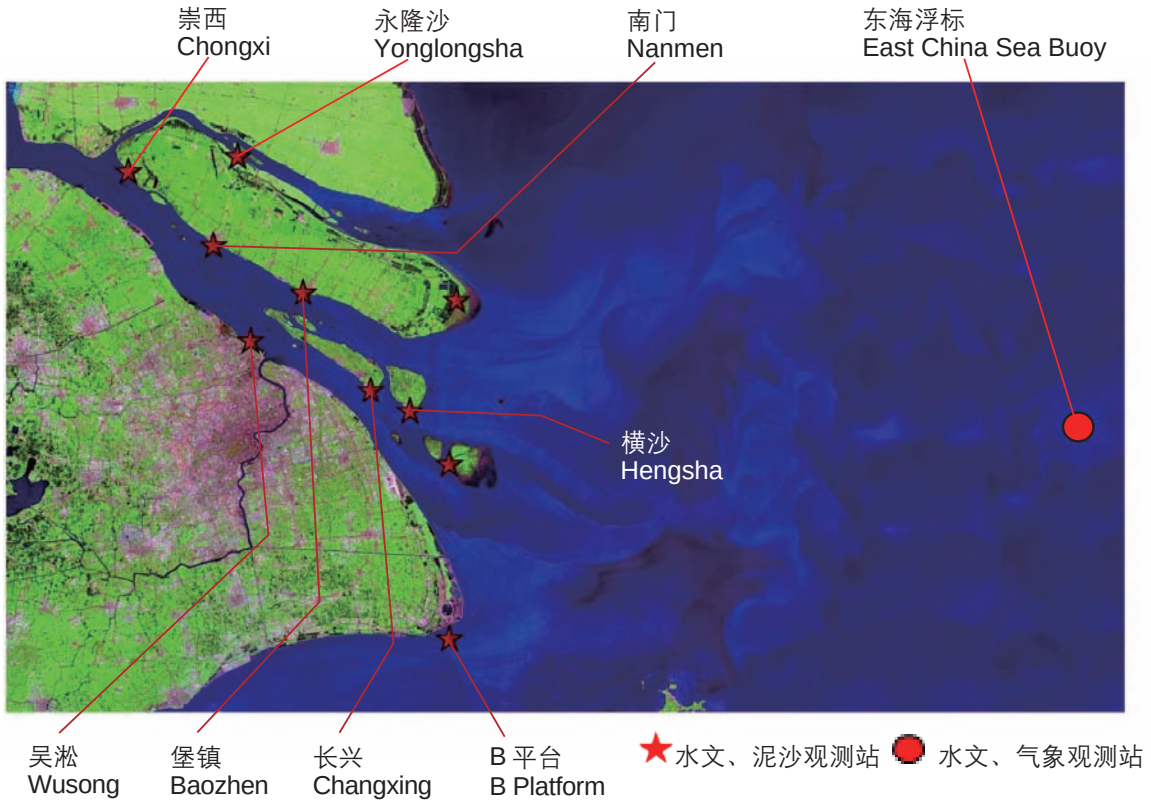
平台建设
Facilities

超净实验室
Ultra-clean Laboratory

2011 年，MC-ICP-MS(Neptune) 超净实验室和样品前处理超净实验室正式投入使用，目前，SKLEC 正在研发的方法有 Pb、Si、Fe 同位素的组成分析。
In 2011, MC-ICP-MS ultra-clean laboratory and sample preparation ultra-clean laboratory were put into use. SKLEC is developing analysis methods for isotope of Si, Fe and Pb.

野外水文、泥沙监测站
Hydrological and Sediment Monitoring Stations

2011 年，实验室拟增设横沙和长兴 2 个野外水文、泥沙长期监测站，主要用于风速、风向、温度、盐度、浊度和潮位等参数的获取，并扩容叶绿素和溶解氧的测试功能；对崇明东滩自动气象站日常管理、维修和标定以及资料的无线传输等工作进行了升级。
In 2011, two hydrological and sediment monitoring stations on Hengsha and Changxing Islands were established. The parameters monitored included wind speed and direction, temperature, salinity, turbidity, tide level, chlorophyll and dissolved oxygen. The automatic meteorological station at the eastern Chongming Island was upgraded.



长江河口及东海野外观测站分布图
Observation Stations in the Yangtze River Estuary and East China Sea

同位素 (放射性) 海洋学实验室
Laboratory of Isotope (Radionuclides) Oceanography

2011 年，同位素海洋学实验室参与了 IAEA 组织的国际比对工作，结果为 A。实验室及时参与了 2011 年日本福岛核反应堆泄露事故后我国水产品等环境放射性监测。同时，还参与了海洋环境放射性国家标准的咨询和验证工作。
Laboratory of Isotope Oceanography participated in open proficiency test organized by IAEA in 2011. The laboratory performance assessment result was ranked A. Right after the Fukushima nuclear-leak in 2011, the lab conducted immediately the radioactivity monitoring in marine environment. Meanwhile, the lab also provided the identification test and advisory for making new national standards analysis methods of radioactive nuclides in marine environment.

珊瑚中铅同位素组成分析
Analysis of Lead Isotopic Ratios in Coral

实验室建立了阴离子交换树脂分离富集珊瑚中痕量铅的前处理方法，应用高分辨电感耦合等离子体质谱仪测定了珊瑚样品中铅的同位素比值，此方法可推广应用于其它复杂样品中铅同位素组成的测定。
A method to separate and preconcentrate trace lead in corals using anion exchange resin, and determination of Pb isotope ratio by high resolution inductively coupled plasma mass spectrometry (HR-ICP-MS), was established in our laboratory. This method can also be applied to other similar complex samples.

人才培养
Student Programs

2011 年实验室在读研究生 185 人，其中博士研究生 98 人，硕士研究生 87 人。2011 年 2 月，经国务院学位委员会第 28 次会议审核，我室“海洋科学”一级学科硕士点获批。
There are 185 postgraduate students in SKLEC, including 98 Ph.D. students, and 87 M.Sc. students. Audited by the 28th meeting of the Academic Degrees Committee of the State Council in February 2011, SKLEC was authorized to offer “Marine Science” master degree, including physical oceanography, marince chemistry, marine geology and marine biology.

学位授予
Degrees offered

硕士学位：自然地理学；地图学与地理信息系统；海洋化学；生态学；环境科学；港口、海岸及近海工程
博士学位：自然地理学；河口海岸学；生态学
M.Sc. Programs: Physical Geography; Cartography and Geographic Information Systems; Marine Chemistry; Ecology; Environmental Science; Port, Coastal and Offshore Engineering
Ph.D. Programs: Physical Geography; Estuarine and Coastal Science; Ecology

入学新生与毕业学生
The Freshmen and Graduates

2011 年实验室共招收硕士研究生 30 人，博士研究生 23 人，其中直博生 9 人、硕博连读 3 人。2011 年共毕业 42 人，其中博士生 14 人，硕士生 28 人，彭俊获得 2011 年上海市优秀毕业生称号。
Fifty-three (53) students were enrolled in 2011, including 23 Ph.D. and 30 M.Sc. Students. Forty-two (42) students graduated in 2011, among whom, 14 students were awarded Ph.D. degrees and 28 students M.Sc. Degrees. Peng Jun was honored as Outstanding Graduate Student of Shanghai.

博士毕业生 List of Ph.D. Graduates

自然地理学 /Physical Geography

姓名 Name	导师 Supervisor	毕业论文题目 Thesis	就业单位 Employment
刘高峰 Liu Gaofeng	朱建荣 Zhu Jianrong	长江口水沙运动及三维泥沙模型研究 / The Study on Sediment Transport in the Changjiaing Estuary and 3D Sediment Numerical Modeling	上海河口海岸科学研究中心 / Shanghai Estuarine & Coastal Science Research Center
林军 Lin Jun	朱建荣 Zhu Jianrong	长江口外海域浮游植物生态动力学模型研究 / A Model Study of the Phytoplankton Dynamics off the Changjiang Estuary	上海海洋大学 / Shanghai Ocean University
葛建忠 Ge Jianzhong	丁平兴 Ding Pingxing	Multi-Scale FVCOM Model System for the East China Sea and Changjiang Estuary and Its Applications	华东师范大学 / East China Normal University
彭俊 Peng Jun	陈沈良 Chen Shenliang	黄河水沙变化过程及其三角洲沉积环境演变 / Variation Process of Water and Sediment in the Yellow River and Evolution of Sedimentary Environment in the Yellow River Delta	东华理工大学 / East China Institute of Technology

姓名 Name	导师 Supervisor	毕业论文题目 Thesis	就业单位 Employment
赵军凯 Zhao Junkai	李九发 Li Jiufa	长江中下游江湖水交换规律研究 /Study on the River-Lake Water Exchange in Middle-Lower Reaches of the Yangtze River	九江学院 / Jiujiang College

河口海岸学 /Estuarine and Coastal Science

姓名 Name	导师 Surpervisor	毕业论文题目 Thesis	就业单位 Employment
陈晞睿 Chen Bingrui	朱建荣 Zhu Jianrong	无结构网格二维河口海洋数值模式的研制 / Development of an Unstructured Grid Two-Dimensional Estuary and Ocean Numerical Model	国家海洋局东海预报中心 / East China Sea Branch, State Oceanic Administration
潘丽红 Pan Lihong	朱建荣 Zhu Jianrong	台风条件下上海地区典型海提防御能力评价研究 / Assessment of Defence Capability of Sea Dikes in Shanghai for Tyhpoon	上海市水利工程设计研究院有限公司 / Shanghai Water Engineering Design & Research Institute Co., Ltd.
王伟伟 Wang Weiwei	李道季 Li Daoji	长江口潮滩营养动态与稳定同位素指示研究 / Nutrient Dynamic and Stable Isotope Indicators in Tidal Flats of the Yangtze Estuary	山东东方海洋科技股份有限公司 / Shangdong Oriental Ocean Sci-Tech Co., Ltd
英晓明 Ying Xiaoming	丁平兴 Ding Pingxing	洋山港建设对海床冲淤演变影响及机制研究 / The Impact of Yangshan Deepwater Harbor Construction on Seabed Morphological Change and Mechanism Analysis	国家海洋局南海分局 / South China Sea Branch, State Oceanic Administration
王亚 Wang Ya	何青 He Qing	长江河口水流输运时间的研究 / The Study of the Transport Timescale in the Changjiang Estuary	华东师范大学博士后 / Postdoctoral fellow of East China Normal University

生态学 /Ecology

姓名 Name	导师 Surpervisor	毕业论文题目 Thesis	就业单位 Employment
熊李虎 Xiong Lihu	陆健健 Lu Jianjian	鸟类及其群落对崇西湿地生态恢复和生境重建的响应 Responses of Birds and Their Community to Ecological Restoration and Habitat Restoration in a Reed-dominated Tidal Marsh Ecosystem	浙江省水利河口研究院 Zhejiang Institute of Hydraulic and Estuary
程曦 Cheng Xi	李小平 Li Xiaoping	淀山湖氮磷营养物与浮游藻类增长相互关系的研究 / Relationship between Phosphorous and phytoplankton growth in Dianshan Lake	上海市环境科学研究院 / Shanghai Academy of Environmental Sciences
马安娜 Ma Anna	陆健健 Lu Jianjian	崇西湿地的甲烷释放及封碳效应 / Methane and Carbon Dioxide Emissions from Different Types of Riverine Wetlands	未定 /NA
孙永光 Sun Yongguang	李秀珍 Li Xiuzhen	长江口不同年限围垦区景观结构与功能分异 / Differentiation of Landscape Structure and Function during Different Reclamation Time at the Changjiang River Estuary	赣南师范学院 /Gannan Normal University

硕士毕业生 List of M.Sc. Graduates

自然地理学 /Physical Geography

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
陈浩 /Chen Hao	戴志军 /Dai Zhijun	陆岸青 /Lu Anqing	李珍 /Li Zhen
洪官林 /Hong Guanlin	沈芳 /Shen Fang	张珍 /Zhang Zhen	杨世伦 /Yang Shilun
陆勤 /Lu Qin	陈沈良 /Chen Shenliang	李铖 /Li Cheng	丁平兴 /Ding Pingxing
张风艳 /Zhang Fengyan	孟翊 /Meng Yi		

地图学与地理信息系统 /Cartography and Geographic Information Systems

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
陈悦 /Chen Yue	蒋雪中 /Jiang Xuezhong	袁庆 /Yuan Qing	周云轩 /Zhou Yunxuan
倪一卓 /Ni Yizhuo	程和琴 /Cheng Heqin		

海洋化学 /Marine Chemistry

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
孙蕴婕 /Sun Yunjie	吴莹 /Wu Ying	吴梅桂 /Wu Meigui	杜金洲 /Du Jinzhou
何荣 /He Rong	邓兵 /Deng Bing		

生态学 /Ecology

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
马志刚 /Ma Zhigang	李秀珍 /Li Xiuzhen	陈炜清 /Chen Weiqing	李道季 /Li Daoji
刘海霞 /Liu Haixia	李道季 /Li Daoji	贾悦 /JiaYue	李秀珍 /Li Xiuzhen
祝振昌 /Zhu Zhenchang	张利权 /Zhang Liquan		

环境科学 /Environmental Science

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
马鸿磊 /Ma Honglei	张卫国 /Zhang Weiguo	姜经梅 /Jiang Jingmei	侯立军 /HouLijun

港口、海岸及近海工程 / Port, Coastal and Offshore Engineering

姓名 /Name	导师 /Supervisor	姓名 /Name	导师 /Supervisor
陈锦山 /Chen Jinshan	何青 /He Qing	沈淇 /Shen Qi	朱建荣 /Zhu Jianrong
管君阳 /Guan Junyang	陈沈良 Chen Shenliang	宋永港 /Song Yonggang	茅志昌 /Mao Zhichang
和玉芳 /He Yufang	陈吉余 /Chen Jiyu	张田雷 /Zhang Tianlei	茅志昌 /Mao Zhichang
刘蕾 /Liu Lei	茅志昌 /Mao Zhichang	范中亚 /Fan Zhongya	丁平兴 /Ding Pingxing

公派留学
Oversea Study Supported by China Scholarship Council

2011 年，实验室共有 3 位学生获公派留学资格，赴荷兰攻读学位或接受联合培养。
Three students received China Scholarship Council scholarships to study abroad (the Netherlands) for Ph.D. degrees to be afforded either fully by oversea institutions or jointly with SKLEC.

博士研究生 /Ph.D. Degree to be Offered by Oversea Institute

姓名 Name	申报国别 / 地区 Country/Region	留学单位 Oversea Institute
祝振昌 /Zhu Zhenchang	荷兰 /the Netherlands	荷兰生态研究院 / Netherlands Institute of Ecology
田欣 /TianXin	荷兰 /the Netherlands	代尔夫特工业大学 / Delft University of Technology

联合培养 /Ph.D. Degree to be Offered Jointly with SKLEC

姓名 Name	国内导师 Supervisor	申报国别 / 地区 Country/Region	留学单位 Oversea institution
朱琴 /Zhu Qin	杨世伦 /Yang Shilun	荷兰 /the Netherlands	代尔夫特工业大学 / Delft University of Technology

海外研修
Oversea Visiting

2011 年，实验室有 8 位同学赴加拿大、德国、丹麦、美国、荷兰进行交流访学。
Eight students went abroad (Canada, Germany, Denmark, USA, and The Netherlands) as visiting students.

姓名 /Name	访学单位 Visiting institute	起止时间 /Date
路兵 /Lu Bing	加拿大多伦多大学 /University of Toronto, Canada	2011.03.27-2012.03.27
葛建忠 /Ge Jianzhong	德国 Helmholtz-Zentrum Geesthacht 海岸研究中心 / Institute of Coastal Research of the Helmholtz-Zentrum Geesthacht Zentrum für Material- und küstenforschung GmbH, Germany	2011.04.01-2011.07.20
张佳蕊 /Zhang Jiarui	丹麦哥本哈根大学 /University of Copenhagen, Denmark	2011.06.20-2011.09.20
孟海星 /Meng Haixing	美国西北太平洋国家实验室 /Pacific Northwest National Laboratory, USA	2011.06.27-2011.12.27
陈炜 /Chen Wei	荷兰乌特勒支大学 /Utrecht University, The Netherlands	2011.08.30-2011.12.02
杨忠勇 /Yang Zhongyong	荷兰乌特勒支大学 /Utrecht University, The Netherlands	2011.08.30-2011.12.02
鲍红艳 /Bao Hongyan	瑞士苏黎世联邦理工学院 /Eidgenössische Technische Hochschule Zürich (ETH),Switzerland	2011.09.13-2012.03.13
姜冰冰 /Jiang Bingbing	美国俄亥俄州立大学 /The Ohio State University, USA	2011.10.21-2012.10.21

研究生科研成果
Research Achievements by Graduate Students

2011 年研究生发表第一作者论文 69 篇，占实验室第一作者论文总数的 69.8%，其中 SCI/SCIE 论文 17 篇，占实验室 SCI/SCIE 论文的 39.5%。实验室学生中共有 3 人次参加国际学术会议，其中 1 人为口头报告。
The graduate students published 69 papers as first authors, among which 17 papers were published in SCI/SCIE journals.Three students attended international conferences, including 1 oral presentation.

教学委员会
主　任：何青
副主任：张卫国
委　员：丁平兴、李道季、杜金洲、沈芳、周云轩、戴志军、袁琳

SKLEC Education Committee
Chair: Prof. He Qing
Deputy Chair: Prof. Zhang Weiguo
Members: Prof. Ding Pingxing, Prof. Li Daoji, Prof. Du Jinzhou, Prof. Shen Fang, Prof. Zhou Yunxuan, Prof. Dai Zhijun, Dr. Yuan Lin

研究队伍
Faculty and Staff

- 2011 年重点实验室招聘和引进 9 人，现有固定人员 61 人 (其中研究人员 47 人，技术人员 11 人，管理人员 3 人)。
  Nine members joined SKLEC in 2011. There are 61 fulltime members, including 47 academic research members, 11 technical members and 3 administrative members.
- 周俊良入选中组部“海外高层次人才引进计划”(简称“千人计划”)。
  Prof. Zhou Junliang was funded by the Recruitment Program of Global Experts (also named Thousand Talents Program) that is organized by the Chinese Central Government.
- 李珍入选教育部“新世纪优秀人才支持计划”。
  Prof. Li Zhen was admitted to the New Century Excellent Talent Program supported by Ministry of Education of China.

研究团队
Research Clusters

2011 年对实验室组织机构进行了调整，设立“水沙动力学和工程应用中心”等 7 个研究团队。
In 2011, SKLEC established seven research centers, described in the following tabel.

水沙动力学及工程应用研究中心 Center for Hydro-Sediment Dynamics and Coastal Engineering	主任：何青 成员：丁平兴、李九发、程和琴、朱建荣、孔亚珍 *、吴辉、宗海波、葛建忠、王宪业、王正兵 *、章可奇 *、沈健 *、陈长胜 * Director: He Qing Members: Ding Pingxing, Li Jiufa, Cheng Heqin, Zhu Jianrong, Kong Yazhen*, Wu Hui, Zong Haibo, Ge Jianzhong, Wang Xianye, Wang Zhengbing*, Zhang Keqi*, Shen Jian*, Chen Changsheng
动力地貌与沉积研究中心 Center for Morphodynamics and Sedimentation	主任：陈沈良 成员：杨世伦、戴志军、张国安 *、李占海、李茂田 *、张二凤 *、韦桃源 Director: Chen Shenliang Members: Yang Shilun, Dai Zhijun, Zhang Guo'an*, Li Zhanhai, Li Maotian*, Zhang Erfeng*, Wei Taoyuan
沉积环境演变研究中心 Center for Paleoenvironmental Change	主任：张卫国 成员：陈中原、蒋辉 *、王张华、李珍、陈庆强、孟翊 *、孙千里 *、陈静 * Director: Zhang Weiguo Members: Chen Zhongyuan, Jiang Hui*, Wang Zhanghua, Li Zhen, Chen Qingqiang, Meng Yi*, Sun Qianli*, Chen Jing*
化学海洋学与生物地球化学研究中心 Center for Chemical Oceanography and Biogeochemistry	主任：杜金洲 成员：张经、吴莹、邓兵、张芬芬、朱卓毅、张瑞峰、何利军、叶祁 * Director: Du Jinzhou Members: Zhang Jing, Wu Ying, Deng Bing, Zhang Fenfen, Zhu Zhuoyi, Zhang Ruifeng, He Lijun, Ye Qi*
水环境研究中心 Center for Aqua Environment	主任：李道季 成员：周俊良、李小平、杨毅 *、施华宏、侯立军、高磊、郑亮 Director: Li Daoji Members: Zhou Junliang, Li Xiaoping, Yang Yi*, Shi Huahong, HouLijun, Gao Lei, Zheng Liang

湿地生态研究中心 Center for Coastal Wetland Ecosystems	主任：张利权 成员：李秀珍、童春富、袁琳、闫中正 Director: Zhang Liquan Members: Li Xiuzhen, Tong Chunfu, Yuan Lin, Yan Zhongzheng
遥感与地理信息研究中心 Center for Remote Sensing and Geoinformatics	主任：沈芳 成员：周云轩、蒋雪中、田波 Director: Shen Fang Members: Zhou Yunxuan, Jiang Xuezhong, Tian Bo

* 兼职人员 /Adjunct members

固定人员
Faculty and Staff

教授 Professors

姓名 Name	研究专长 Research Interests	Email
陈吉余 院士 Chen Jiyu Academician of CAE	河口海岸 Estuarine and Coastal Research	jychen@sklec.ecnu.edu.cn
陈庆强 Chen Qingqiang	海洋沉积学；环境与生物地球化学 Marine Sedimentology; Environmental Geochemistry & Biogeochemistry	qqchen@sklec.ecnu.edu.cn
陈沈良 Chen Shenliang	海岸动力地貌；三角洲侵蚀与脆弱性 Coastal Morphodynamics; Delta Erosion and Vulnerability	slchen@sklec.ecnu.edu.cn
陈中原 Chen Zhongyuan	河流 - 三角洲沉积地貌过程；水文地貌过程；环境考古 River-Delta Sedimentological and Geomorphological Processes; Geoarchaeology	z.chen@sklec.ecnu.edu.cn
程和琴 Cheng Heqin	河口海岸动力沉积学；工程地貌与环境；海岸带管理 Estuarine and Coastal Dynamic Sedimentation; Engineering Geomorphology and Environment; Coastal Management	hqch@sklec.ecnu.edu.cn
戴志军 Dai Zhijun	河口海岸动力地貌 Estuarine and Coastal Morphodynamics	zjdai@sklec.ecnu.edu.cn
丁平兴 Ding Pingxing	潮滩动力学及数值模型；波 - 流与泥沙输运 Coastal Dynamics and Numerical Modeling; Sediment Transport by Waves and Currents;	pxding@sklec.ecnu.edu.cn
杜金洲 Du Jinzhou	同位素海洋学；环境放射化学 Isotopic Oceanography; Environmental Radiochemistry	jzdu@sklec.ecnu.edu.cn
何青 He Qing	河口海岸水动力学；河口海岸泥沙运动学 Estuarine and Coastal Hydrodynamics; Estuarine and Coastal Sediment Transport	qinghe@sklec.ecnu.edu.cn
李道季 Li Daoji	生物海洋学；河口和近岸海域生态系统 Biological Oceanography; Estuarine and Coastal Ecosystem	daojili@sklec.ecnu.edu.cn
李小平 Li Xiaoping	生态修复；湖泊富营养化控制和土壤 / 沉积物修复 Ecological Restoration; Eutrophication Control and Soil/ Sediment Remediation	xpli@sklec.ecnu.edu.cn
李九发 Li Jiufa	河口潮汐、潮流和泥沙运动；河口海岸沉积过程；海岸工程 Tidal Current and Sediment Movement in Estuary; Estuarine and Coastal Sedimentation; Coastal Engineering	jfli@re.ecnu.edu.cn

姓名 Name	研究专长 Research Interests	Email
李秀珍 Li Xiuzhen	景观生态学；湿地生态学；遥感与地理信息系统应用 Landscape Ecology; Wetland Ecology; Application of Remote Sensing and GIS	xzli@sklec.ecnu.edu.cn
李珍 Li Zhen	全新世气候变化；三角洲演化；孢粉学 Holocene Climate Change; Delta Evolution; Palynology	zli@sklec.ecnu.edu.cn
陆健键 Lu Jianjian	生物多样性；生态系统的结构和过程以及服务功能和恢复 Biodiversity; Ecological Structures and Process, Wetland Services and Restoration	jjlu@sklec.ecnu.edu.cn
沈芳 Shen Fang	近岸 / 近海水色遥感；遥感技术与 GIS 综合应用 Coast / Ocean Colour Remote Sensing; Integrated Applications of GIS and Remote Sensing Technology	fshen@sklec.ecnu.edu.cn
王张华 Wang Zhanghua	河口 - 三角洲沉积地貌环境演变 Sedimentary and Morphological Evolution of Estuary and Delta	zhwang@geo.ecnu.edu.cn
吴莹 Wu Ying	海洋有机地球化学；海洋生物地球化学 Marine Organic Geochemistry; Marine Biogeochemistry	wuying@sklec.ecnu.edu.cn
杨世伦 Yang Shilun	海岸湿地沉积动力过程；河口对流域变化的响应 Sediment Dynamics in Coastal Wetlands; Estuarine Response to Impacts from River Basin;	slyang@sklec.ecnu.edu.cn
俞立中 Yu Lizhong	环境磁学；环境过程；环境演变与可持续发展 Environmental Magnetism; Environmental Processes; Environmental Change and Sustainable Development	lzyu@admin.ecnu.edu.cn
张经 院士 Zhang Jing, Academician of CAS	生物地球化学与化学海洋学 Biogeochemistry and Chemical Oceanography	jzhang@sklec.ecnu.edu.cn
张利权 Zhang Liquan	植物生态学；湿地生态学；景观生态学 Plant Ecology; Wetland Ecology; Landscape Ecology	lqzhang@sklec.ecnu.edu.cn
张卫国 Zhang Weiguo	环境磁学；环境演变；环境污染 Environmental Magnetism; Environmental Change; Environmental Pollution	wgzhang@sklec.ecnu.edu.cn
周俊良 Zhou Junliang	污染物河口地球化学；新型污染物分析；污染物毒理学 Estuarine Pollutant Geochemistry; Emerging Contaminant Analysis; Environmental Toxicity	jlzhou@sklec.ecnu.edu.cn
周云轩 Zhou Yunxuan	海岸带资源与环境遥感；土地利用与覆盖变化；地理信息系统应用 Coastal Zone Remote Sensing; LUCC; Application of GIS	zhouyx@sklec.ecnu.edu.cn
朱建荣 Zhu Jiangrong	河口海岸海洋动力学；河口海岸海洋数值模式 Estuarine, Coastal and Ocean Dynamics; Estuarine, Coastal and Ocean Model;	jrzhu@sklec.ecnu.edu.cn

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姓名 Name	研究专长 Research Interests	Email
邓兵 Deng Bing	沉积地球化学；沉积学；古环境 Sedimentary Geochemistry; Sedimentology; Paleoenvironment Study	dengbing@sklec.ecnu.edu.cn
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蒋雪中 Jiang Xuezhong	河口海岸遥感与 GIS 应用；河口海岸变化及其人类活动响应 Remote Sensing & GIS; Coastal and Estuarine Change and Its Response to Human Activity	xzjiang@sklec.ecnu.edu.cn
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讲师 Lecturers

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高磊 Gao Lei	河口海岸地区营养盐的生物地球化学过程 Nutrient Biogeochemistry in Estuarine and Coastal Areas	lgao@sklec.ecnu.edu.cn
何利军 He Lijun	谱系生物地理学；种群遗传学 Phylogegraphy; Population Genetics	ljhe@sklec.ecnu.edu.cn
刘文亮 Liu Wenliang	海洋底栖生态学；海洋甲壳动物分类与进化；滨海湿地生物多样性 Marine Benthic Ecology; Marine Crustacean Taxonomy and Evolution; Biodiversity of Coastal Wetlands	zyzhu@sklec.ecnu.edu.cn
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闫中正 Yan Zhongzheng	植物生理生态；海洋水色遥感 Plant Ecophysiology; Ocean Color Remote Sensing	zzyan@sklec.ecnu.edu.cn

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张瑞峰 Zhang Ruifeng	痕量元素海洋生物地球化学 Biogeochemistry of Trace Metals in the Ocean	rfzhang@sklec.ecnu.edu.cn
郑亮 Zheng Liang	水生生物分子遗传学；环境毒理基因组学、转录组学及蛋白质组学 Molecular Genetics in Aquatic Life; Genomics, Transcriptomics and Proteomics for Environmental Toxicology	lzheng@sklec.ecnu.edu.cn
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技术人员 Technical Staff

姓名 Name	技术专长 Technical Expertise	姓名 Name	技术专长 Technical Expertise
瞿建国　副教授 Qu Jianguo, Associate Professor	无机分析 Inorganic Analysis	张文祥　高级工程师 Zhang Wenxiang, Senior Engineer	野外仪器 Field Surveying Instrument
周菊珍　高级工程师 Zhou Juzhen, Senior Engineer	无机分析 Inorganic Analysis	崔莹　工程师 Cui Ying, Engineer	有机及无机分析 Organic and Inorganic Analysis
顾靖华　工程师 Gu Jinghua, Engineer	野外仪器 Field Surveying Instrument	张国森　工程师 Zhang Guosen, Engineer	有机及无机分析 Organic and Inorganic Analysis
邓鸿　助理工程师 Deng Hong, Assistant Engineer	生物分析 Biological Analysis	徐敏　助理工程师 Xu Min, Assistant Engineer	有机分析 Organic Analysis
薛云　助理工程师 Xue Yun, Assistant Engineer	无机分析 Inorganic Analysis	张婧　技术员 Zhang Jing, Technician	有机分析 Organic Analysis
袁庆　技术员 Yuan Qing, Technician	遥感与高性能计算 Remote Sensing and High Performance Computing		

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国际期刊、组织任职
International Roles

Name	International Organizations/Journals	Position	Term of Service
张经 Zhang Jing	IGBP-IMBER Capacity Building Task Team	Leader	2009-
	IOC/WESTPAC-CorReCAP	Leader	2008-
	SCOR-Committee on Capacity Building	Member	2009-
	LOICZ/IMBER-Continental Margin Task Team	Member	2011-2013
陈中原 Chen Zhongyuan	IAG (International Association of Geomorphologists)-Large Rivers Working Group	Member	2001-
	EMECS-Environmental Management of Enclosed Coastal Seas	Committee Member	2004-
	LOICZ Scientific Steering Committee	Member	2009-2011
	IAG-International Association of Geomorphologists	Representative of China	2001-
何青 He Qing	INTERCOH Scientific Steering Committee	Member	2003-
李秀珍 Li Xiuzhen	IALE- International Association for Landscape Ecology	Council Chair	2011-2015
丁平兴 Ding Pingxing	Estuarine Coastal and Shelf Science	Editorial board member	2005-
张经 Zhang Jing	Journal of Marine Systems	Editorial board member	2008-
	Water, Air and Soil Pollution	Editorial board member	1994-
	Water, Air and Soil Pollution: Focus	Editorial board member	1999-
陈中原 Chen Zhongyuan	Geomorphology	Editorial board member	2001-
	Estuarine Coastal and Shelf Science	Editorial board member	2010-
陆健健 Lu Jianjian	Ecological Engineering	Editorial board member	2008-
李秀珍 Li Xiuzhen	Ecological Engineering	Editorial board member	2008-
	Journal of Conservation Planning	Editorial board member	2001-
周云轩 Zhou Yunxuan	Ocean & Coastal Management	Editorial board member	2011-2015
周俊良 Zhou Junliang	Sciences in Cold and Arid Regions	Editorial board member	1997-
	Journal of Aquaculture Research & Development-Open Access	Executive Editor	2008-
	Journal of Chromatography and Separation Techniques-Open Access	Editorial board member	2008-
	The Scientific World Journal	Editorial board member	2009-

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New Appointees

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主要经历：
华东师范大学，博士 (2011)
美国麻州大学达特茅斯分校，
访问学者 (2007-2009)
研究专长：
水动力及泥沙运动数值模拟；
可视化系统及高性能计算

Education and Major Experience:
Ph.D., East China Normal University (2011)
Visiting Scholar, University of Massachusetts - Dartmouth, United States (2007-2009)
Research Interests:
Numerical Modeling of Hydrodynamics and Sediment Transport;
Visualization System and High-Performance Computing

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主要经历：
中国科学院动物研究所，
博士 (2007)
中国水产科学研究院东海水产研究所，助理研究员 (2005-2011)
研究专长：
谱系生物地理学；
种群遗传学

Education and Major Experience:
Ph.D., Institute of Zoology, Chinese Academy of Sciences (2007)
Lecturer, East China Sea Fishery Research Institute, Chinese Academy of Fishery Sciences (2005-2011)
Research Interests:
Phylogegraphy;
Population Genetics

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主要经历：
华东师范大学，博士 (2008)
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研究专长：
海岸带遥感；
地理信息系统开发与应用

Education and Major Experience:
Ph.D., East China Normal University (2008)
Postdoctoral Fellow, Fudan University (2008-2010)
Research Interests:
Coastal Zone Remote Sensing;
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英国利兹大学，博士 (2006-2010)
研究专长：
水动力与地貌过程；
沉积物运移；
异重流

Education and Major Experience:
Ph.D., University of Leeds, the United Kingdom (2006-2010)
Research Interests:
Hydrodynamics and Morphological Processes;
Sediment Transport;
Gravity Currents

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主要经历：
中科院南海海洋研究所，
博士 (2009)
香港城市大学，博士 (2011)
研究专长：
植物生理生态;
海洋水色遥感

Education and Major Experience:
Ph.D., South China Sea Institute of Oceanology, Chinese Academic of Science (2009)
Ph.D., City University of Hong Kong (2011)
Research Interests:
Plant Ecophysiology;
Ocean Color Remote Sensing

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主要经历：
日本北海道大学，博士 (2011)
日本北海道大学，
专门研究员 (2011.4-2011.10)
研究专长：
水生生物分子遗传学;
环境毒理基因组学、转录组学及蛋白质组学

Education and Major Experience:
Ph.D., Hokkaido University in Japan (2011)
Research Associate, Hokkaido University in Japan (2011.4-2011.10)
Research Interests:
Molecular Genetics in Aquatic Life;
Genomics, Transcriptomics and Proteomics for Environmental Toxicology

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华东师范大学，硕士 (2011)
技术专长：
遥感与高性能计算

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Technical Expertise:
Remote Sensing and High Performance Computing

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实验员 (2008-2010)
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Technical Expertise:
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