



ESA - MOST Dragon 2 Programme

2011 DRAGON 2 SYMPOSIUM

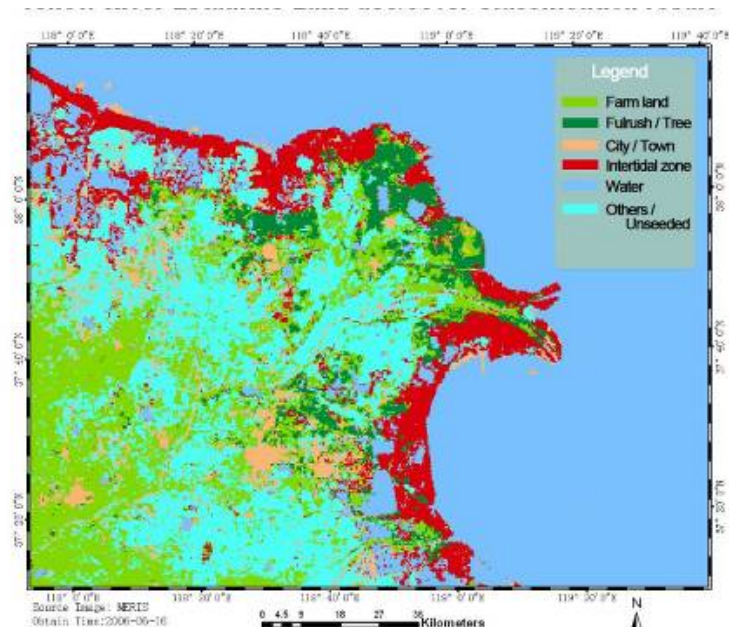
中国科技部-欧洲空间局合作“龙计划”二期

“龙计划”二期2011年学术研讨会

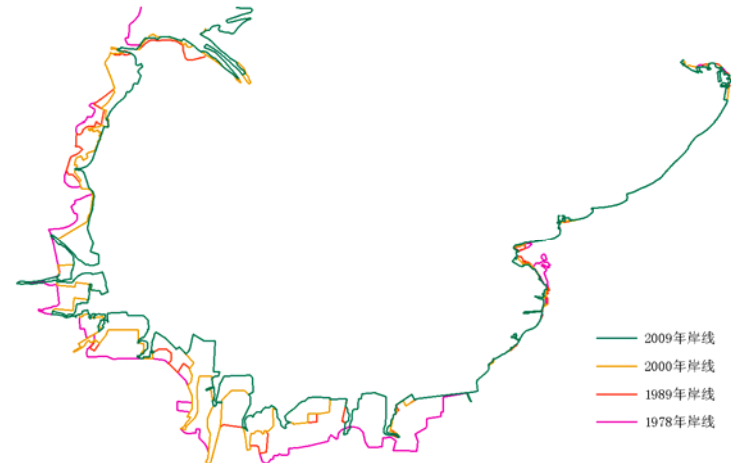
Project Summary
id. 5292 River Deltas
Friday & June 24th

Main Results

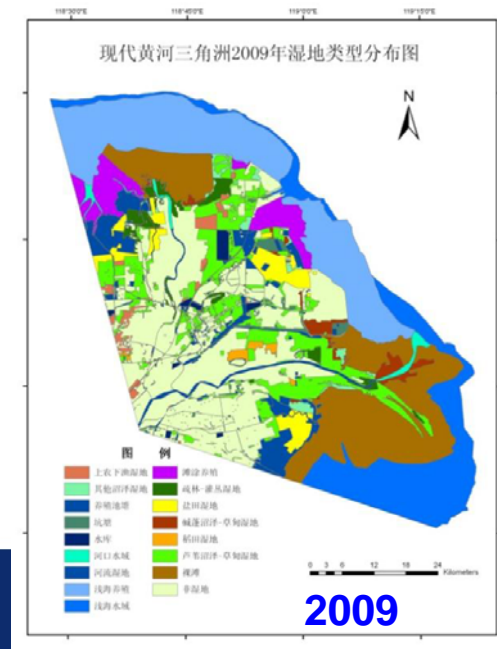
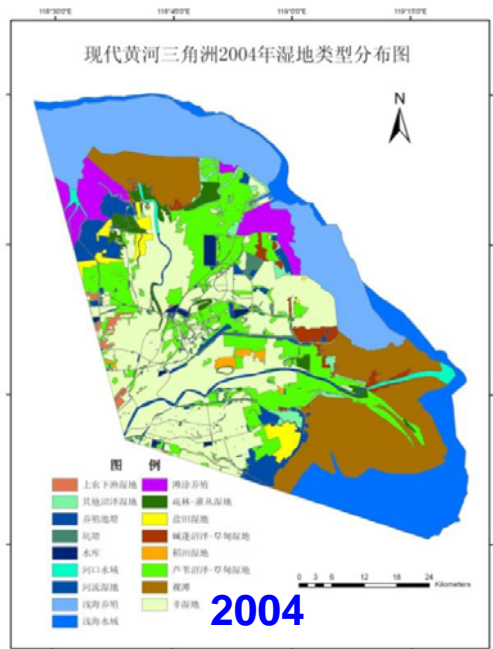
- **Land use/cover** : Based on field works in the 3 largest river deltas of China, satellite images (MERIS.,HY-1B CZI, etc.) were interpreted and classified. The up-to-date LUC status as well as their changes during over 20 years were quantified. The driving factors were identified.



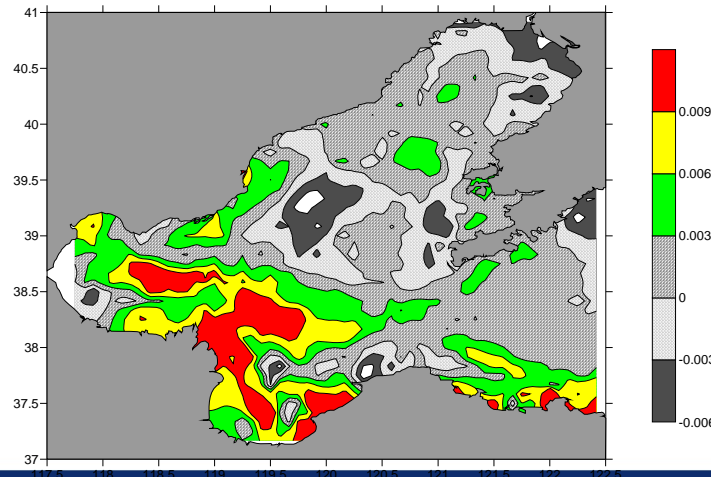
- **Coastline**: A new method to automatically extract coastal line from satellite images was developed and validated. Coastline changes over 30 years (1978~2009) in the Laizhou Bay of Bohai Sea were analyzed.



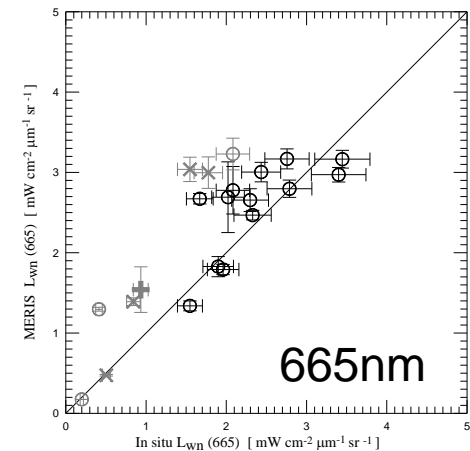
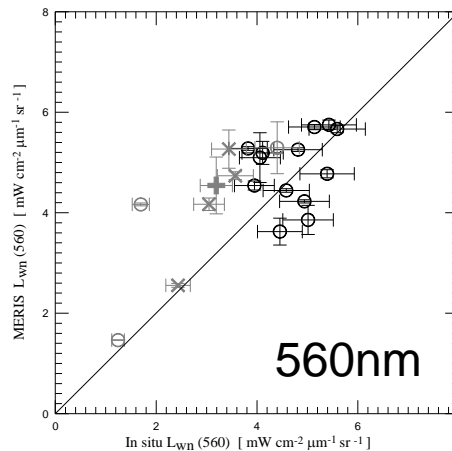
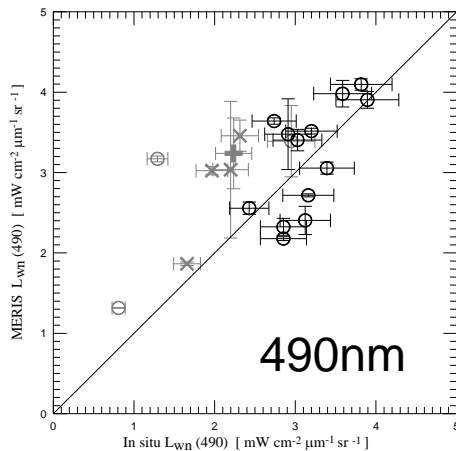
- Wetland:** Wetland changes in the Yellow River Delta during 2001 and 2008 were analyzed. Wetland ecological services were also valued and the variability during recent 5 years were quantified.



- **Water quality:** New regional models for SPM and sea surface salinity retrieval in the Bohai Sea were developed, by which spatial pattern as well as seasonal and long term variability of these parameters were analyzed. Classical QAA model was modified with in situ data to give more reasonable retrievals of IOPs.



- **Validation:** Extensive *in situ* data were collected to assess MERIS L2 products (e.g. L_{wn}, SPM, Ch_{la}) in the turbid semi-closed Bohai Sea and the clean open South China Sea.



List of Publications

1. Tingwei Cui (崔廷伟), Jie Zhang, Steve Groom, Ling Sun, Timothy Smyth, Shubha Sathyendranath. **Validation of MERIS Ocean Color Products in the Bohai Sea: A case study for turbid coastal waters.** [Remote Sensing of Environment](#), 2010, 114: 2326-2336.
2. Tingwei Cui (崔廷伟), Jie Zhang, Yanfeng Wang, Chen-qingFan, Guan Sheng. **Validation of satellite remote sensing product by ship-towed profiling system.** [Acta Oceanologica Sinica](#). 2010, 32(6),102-107.
3. Tingwei Cui (崔廷伟), Jie Zhang, Junwu Tang, Yi Ma, and Song Qing. **Satellite retrieval of inherent optical properties in the turbid waters of the Yellow Sea and East China Sea.** [Chinese Optics Letters](#) , 2010, 8(8), 721-725.
4. Tingwei Cui(崔廷伟), Jie Zhang, MA Y, et al. **Study on the distribution of suspended particulate matter in the Bohai Sea by Remote Sensing.** [Acta Oceanologica Sinica](#) (In Chinese), 2009,31(5),10-18 .
5. Tingwei Cui(崔廷伟), Jie Zhang, MA Y, et al. **Diffuse attenuation coefficient kd(490) inversion model for nearshore area of the Bohai sea.** [Journal of Remote Sensing](#) (In Chinese), 2009,13(3): 411-416.
6. CUI T W(崔廷伟), ZHANG J, MA Y, et al. **Backscattering Coefficient Retrieval Model for Nearshore Area of the Bohai Sea.** [ACTA OPTICA SINICA](#), 2008, 28(11):2041-2046.

List of Publications (Cont.)

7. Y. Ma(马毅), T. Cui, G. Ren, Y. Liu, Q. Wu, T. Malthus. **Review of the mid term research progress of dragon 2 river deltas project (ID 5292).** [*Proceedings of 2010 DGAGON 2 Middle Progress*](#).ESA.SP684.
8. Qingsong(青松), Jie Zhang, Tingwei Cui, Li-e Sun. **Spatial and temporal variability of bio-optical properties and retrieval of chlorophyll-a concentration in bohai sea.** [*Proceedings of 2010 DGAGON 2 Middle Progress*](#).ESA.SP684.
9. Jiang Laixiang(姜来想), Zhang Jie, Ma Yi. **TEXTURE OF WETLAND IN SINGLE-BAND AND SINGLE-POLARIZATION ENVISAT ASAR IMAGE.** [*Proceedings of 2010 DGAGON 2 Middle Progress*](#).ESA.SP684.
10. Qingsong (青松), Junwu Tang, Tingwei Cui, Jie Zhang. **Retrieval of inherent optical properties in the Yellow Sea and the East China Sea by QAA.** [*Chinese Journal of Oceanology and Limnology*](#), 2011, 29(1):33-45.
11. Xiaoling Chen, Jianzhong Lu, **Tingwei Cui** (崔廷伟), Wensheng Jiang, Liqiao Tian, Liqiong Chen, Wenjing Zhao. **Coupling remote sensing retrieval with numerical simulation for SPM study—Taking Bohai Sea in China as a case.** [*International Journal of Applied Earth Observation and Geoinformation*](#). 2010, 12(2) S203-S211.
12. Yanfen Liu(刘艳芬), Yi Ma, Jie Zhang, Kai Shan, Xiaohua Jin. **Change Detection of the Eastern Reserve Wetlands after the Yellow River Resumed its Normal Runoff.** [*Key Engineering Materials Journal*](#). 2010, 439-440: 890-895.

Dragon 3 Project Planning – 2012 and 2016

- **Sea ice detection by synergy use of**
 - AATSR (snow- and ice temperature)
 - MERIS (reflectance, water vapor correction)
 - SAR (ice thickness)
- **Water constituents**
 - Sediments (improved retrieval using in situ)
 - Green algae (early detection by MERIS fluorescence signal, HJ-1 and SAR)
- **Inter-comparison of satellites based on Level 1B, and Level 2 data**
 - MERIS (ENVISAT)、OLCI (Sentinel-3)
 - HJ-1、MERSI、COCTS

Project Activities – 2008 and 2011

Free University Berlin

Sea ice and snow detection by synergy of
AATSR (snow- and ice temperature
MERIS (reflectance, water vapour correction)

Water constituents

Radiative transfer in atmosphere and ocean
Chlorophyll fluorescence
Polarization