

# 中国地质大学（北京） 水资源与环境学院优秀大学生夏令营 欢迎你！

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求真务实  
艰苦朴素  
温家宝

中国地质大学创建于1952年，是全国64所重点大学之一，是首批“211工程”建设单位之一。学校的光荣校训是“勤奋、谦虚、求真务实”。学校以“德才兼备、文化底蕴深厚、知识面广、专业素养高”为特色，培养创新型毕业生。

中国地质大学（北京）是中国教育地质科研人员 and 各类专业人才的主要中心之一。现有17个学院，47个本科专业，118个硕士专业，37个博士专业，16个工程硕士专业，9个博士后流动站。

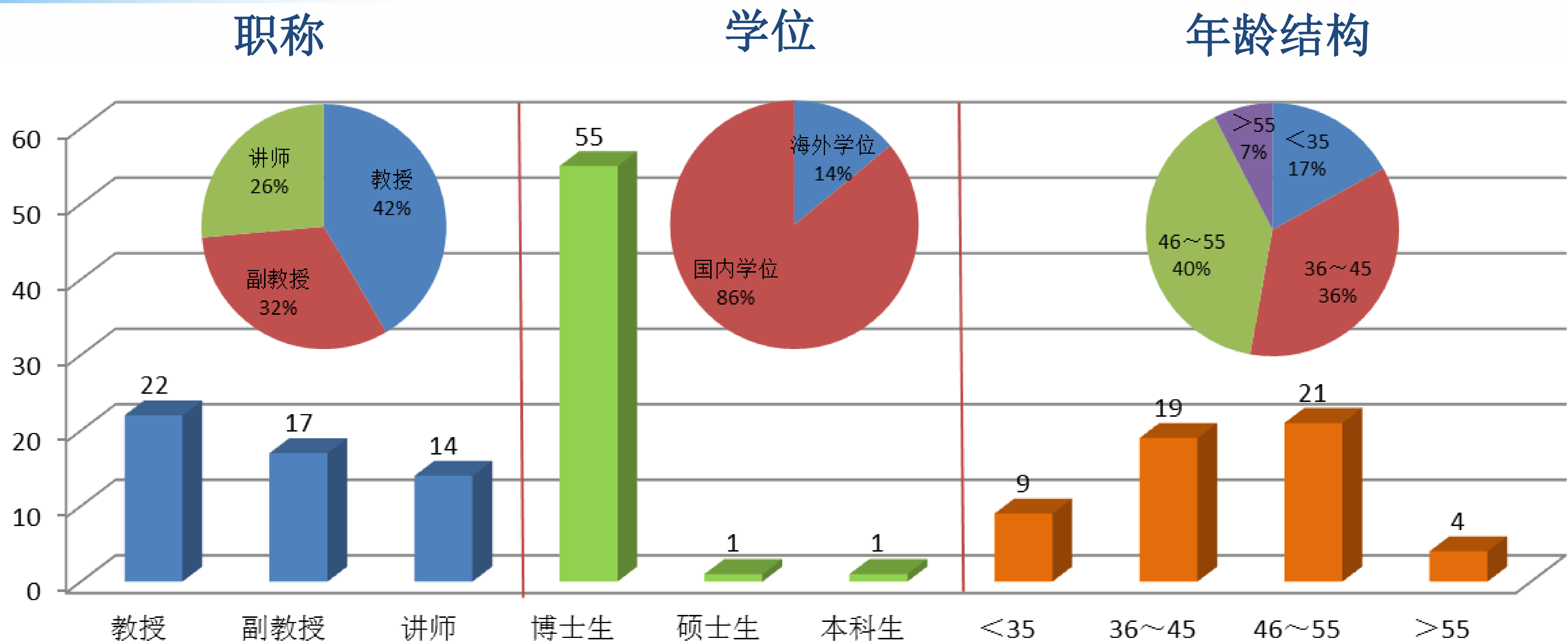


# 水资源与环境学院

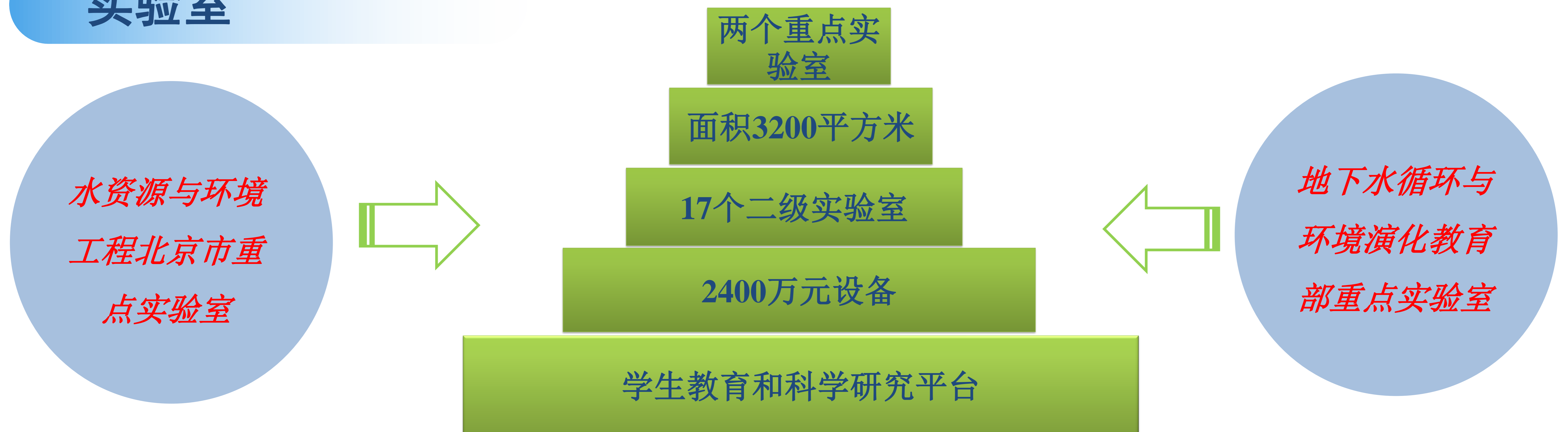


水资源与环境学院前身是原北京地质学院水文地质与工程地质系，1952年建校时同时成立。学院现有教职员工59人，学生1000余名，设立三个一级学科包括环境科学与工程、水利工程和地质资源与地质工程。学院旨在为建设地下水特色的国内一流教学研究中心而努力奋斗。

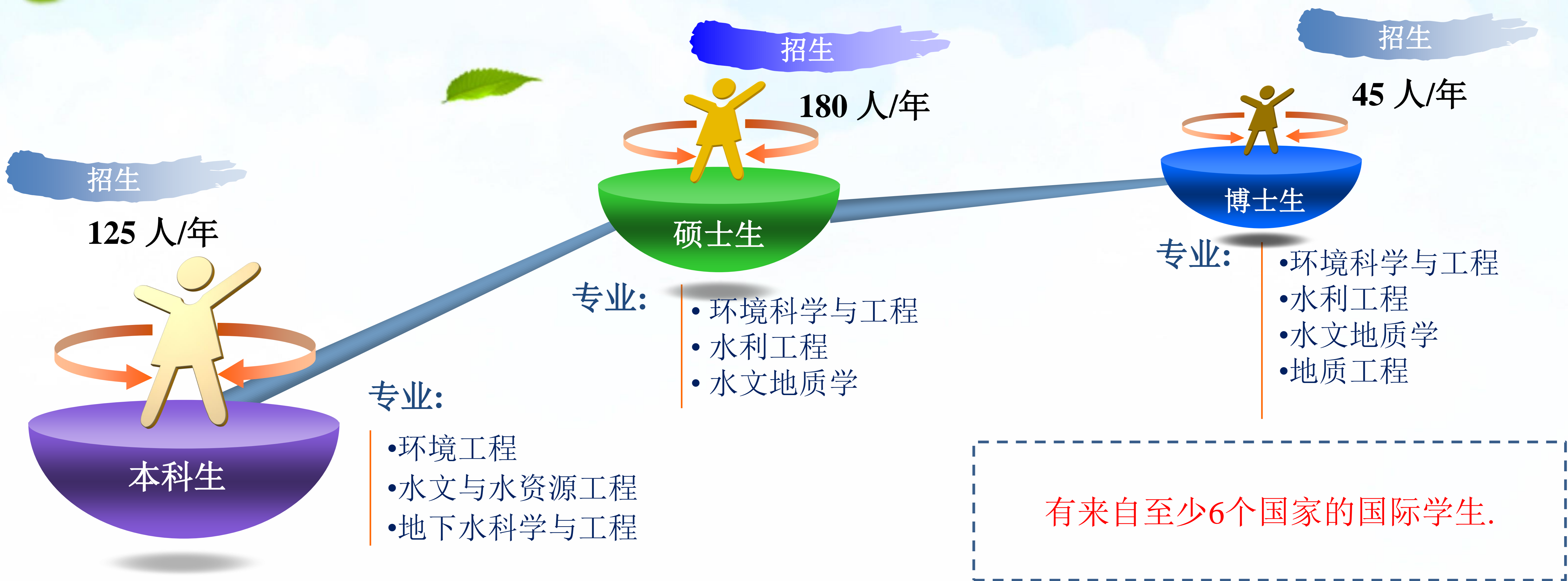
## 人员



## 实验室



# 学科，专业和招生



学科	研究方向
水文地质学	水文地球化学
	地下水循环
	地下水资源
	生态水文地质
	污染水文地质
环境科学与工程	水污染控制
	土壤/地下水污染修复
	环境污染监测与评价
	环境生物技术
水利工程	水文学及水资源
	地下水科学与工程
	水力学及渗流力学
	生态水利及水环境保护
地质工程	地质灾害防治理论与方法
	矿山环境评价与修复

## 国际交流与合作



- 举办“干旱区生态水文学”国际学术研讨会
- 建立“中国-荷兰生态水文地质学”研究中心
- 达成了亚洲五国（地区）七校研究生教育联盟的框架协议
- 承办了“地下水科学机遇与挑战”国际学术研讨会。
- 举办“第三届亚太地区海岸带含水层管理会议”
- 举办第四届和第七届“中日韩研究生论坛”
- 主办“第八届海峡两岸土壤及地下水污染调查与整治研讨会”
- 主办中德“地质成因环境砷”双边研讨会”
- 组织6人国际合作团队开展纳米比亚中西部地区的水文地质调查。

## 国际组织任职



李海龙 教授  
Hydrogeology  
Journal副编辑



郭华明 教授  
Applied  
Geochemistry副编辑  
Journal of Hydrology  
编辑



王广才 教授  
水资源与环境学院院长  
Groundwater副编辑



冯传平 教授  
International  
Journal of  
Environment and  
Waste Management  
编辑委员会

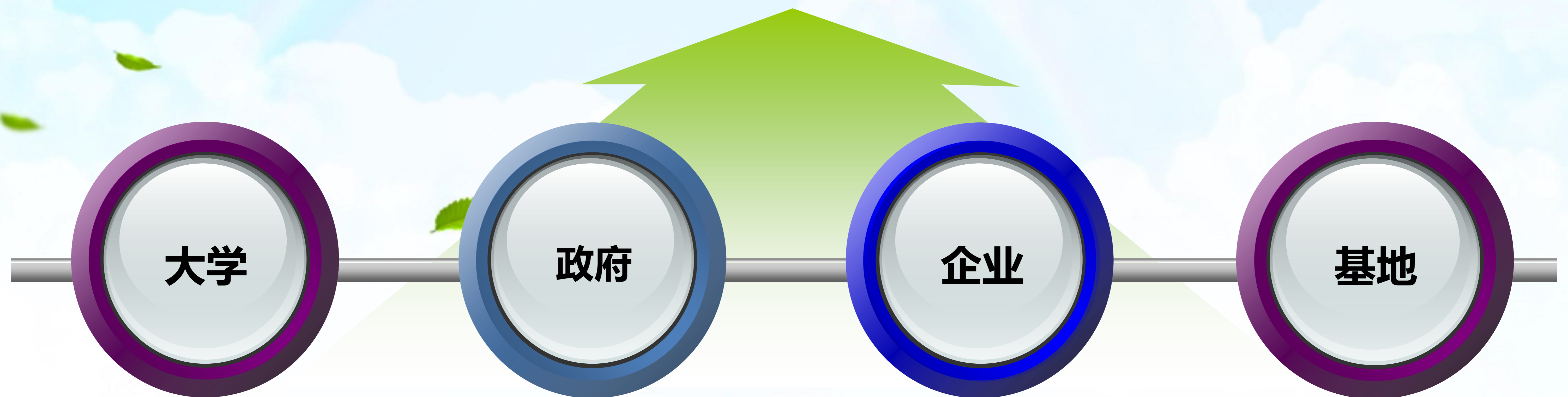


王旭升 教授  
Hydrogeology  
Journal编辑委员会



蒋小伟 教授  
国际水文地质学家协会（IAH）区域地下  
水流专业委员会副主席

# 产学研实习基地



大学

政府

企业

基地

## 设备

- 共计1436套各类仪器设备
- 其中43套价值超过10万人民币
- 仪器设备的总花费超过三千万人民币

## 单位

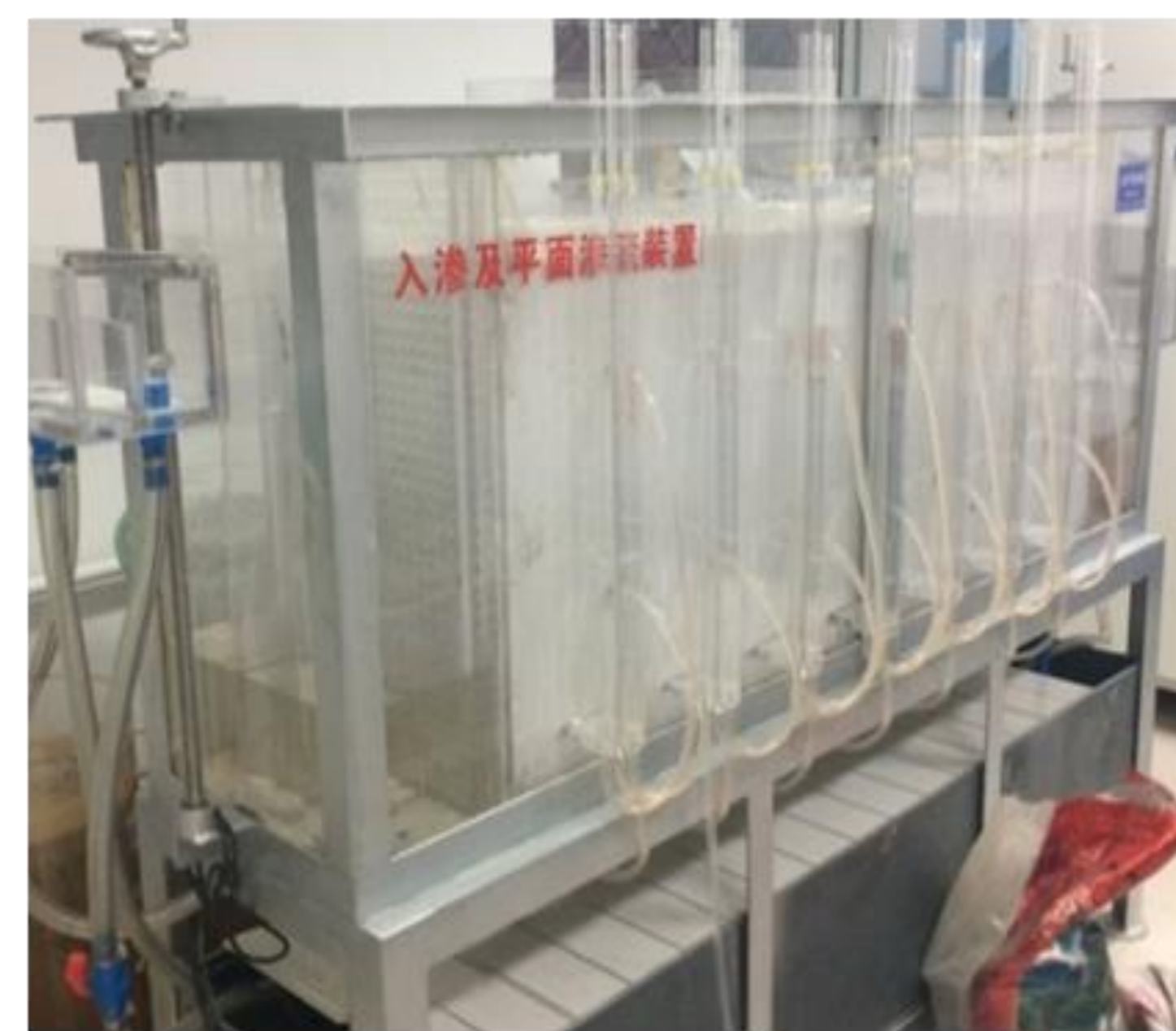
- 河北水文工程地质勘察院
- 云南地质调查院
- 甘肃省地矿局

## 公司

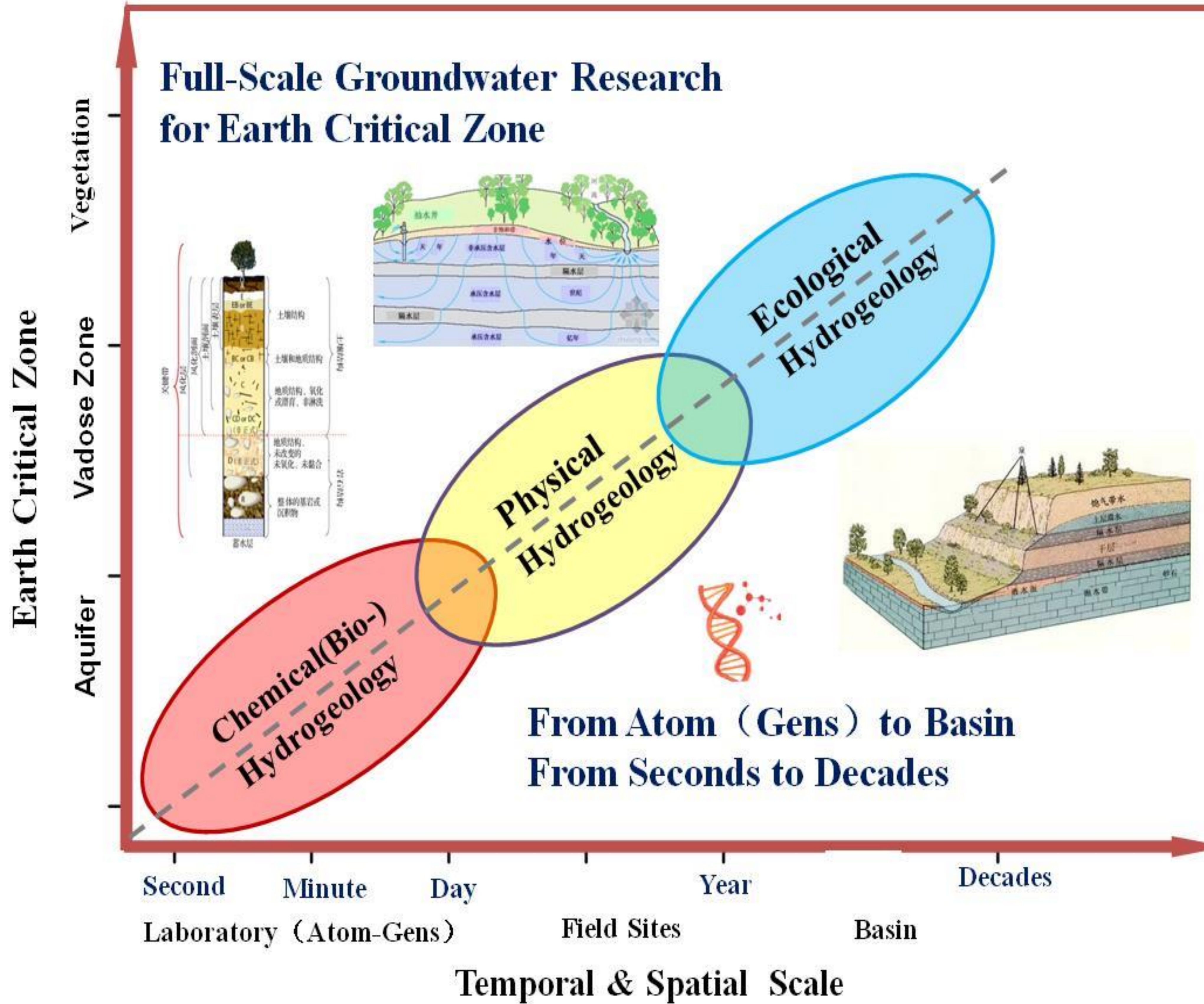
- 中国北控水务有限公司
- 生活污水处理
- 废水处理
- 工业园区废水处理

## 基地

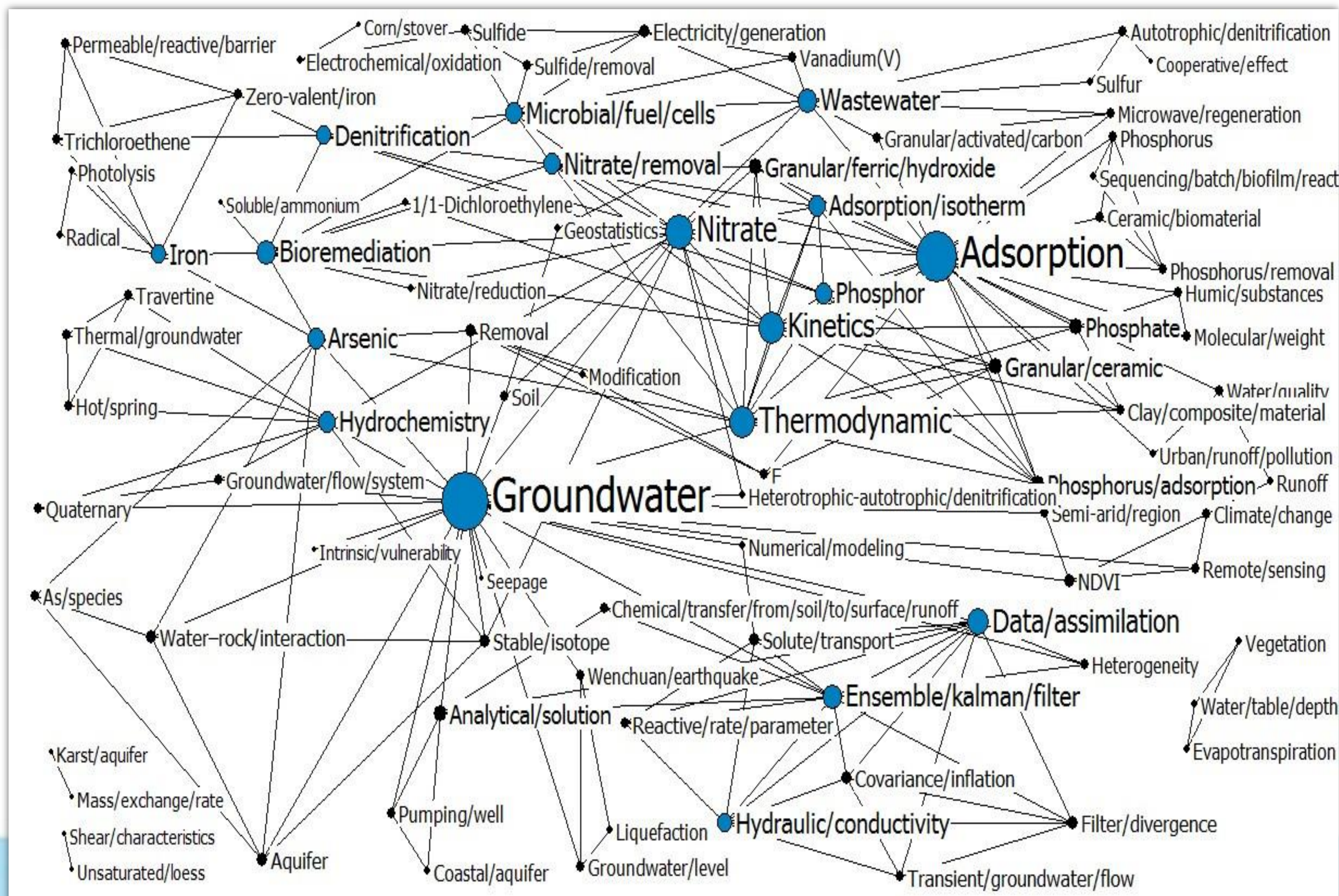
- 河北省秦皇岛市建立柳江盆地野外实习基地
- 抽水试验
- 气象观测
- 水质检测



# Groundwater +

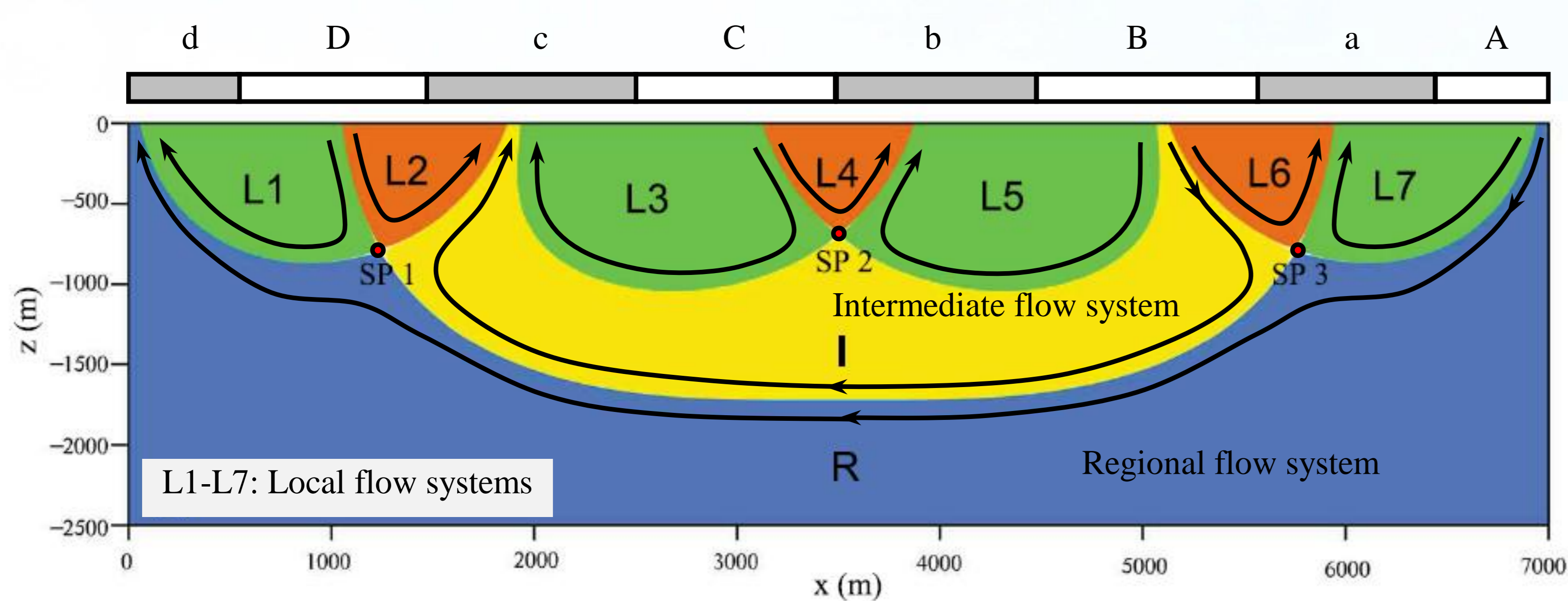


## 主要研究关键词网

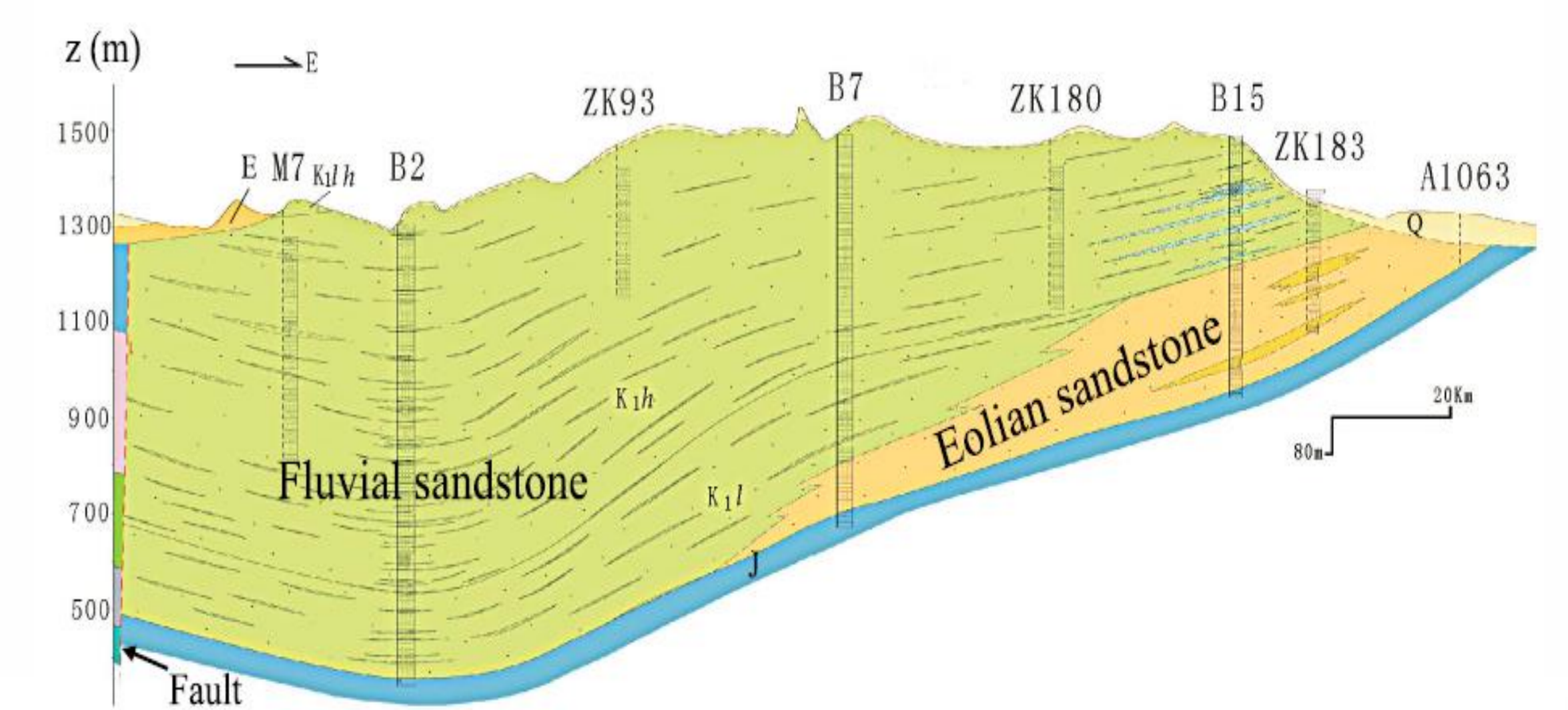
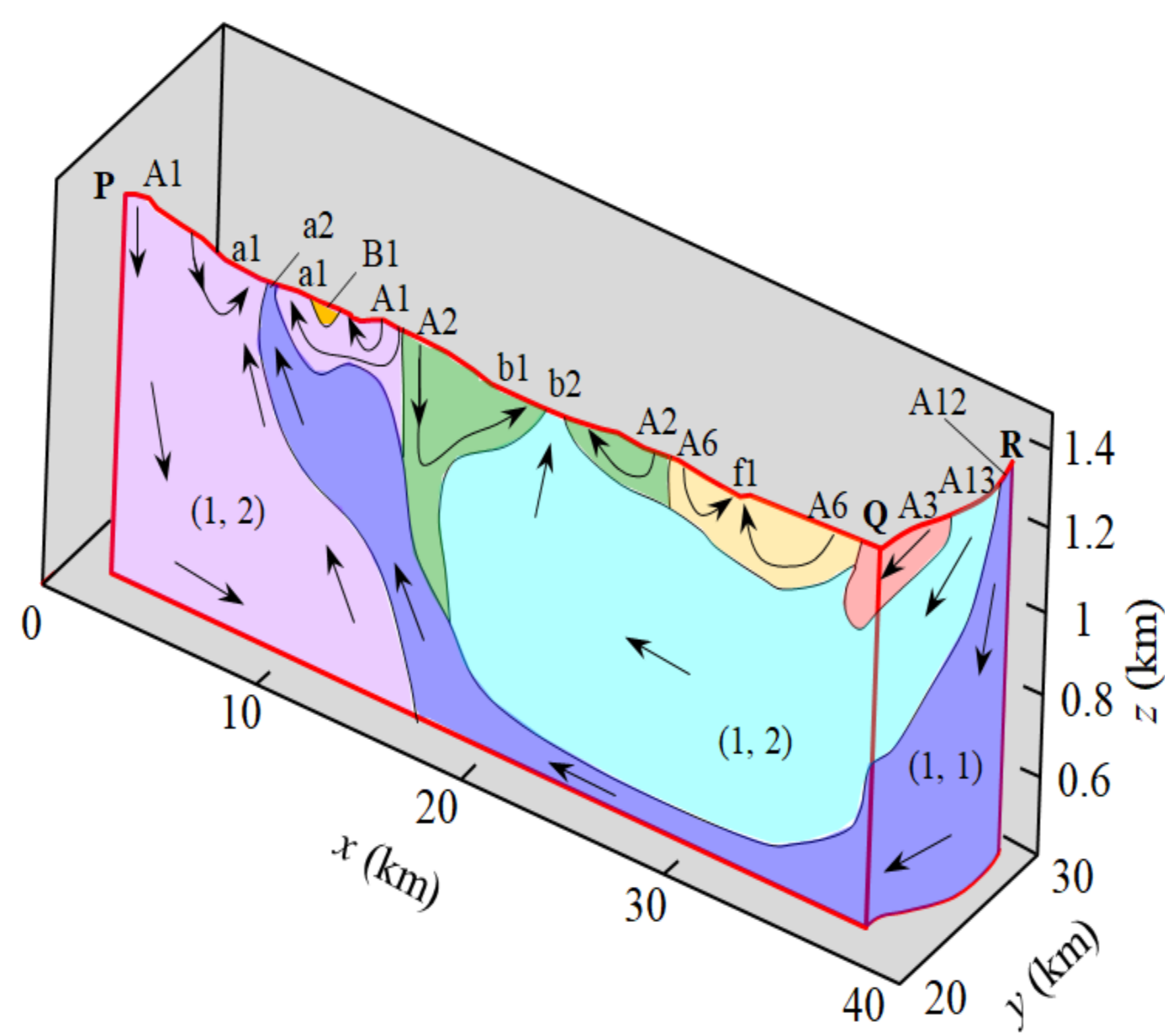
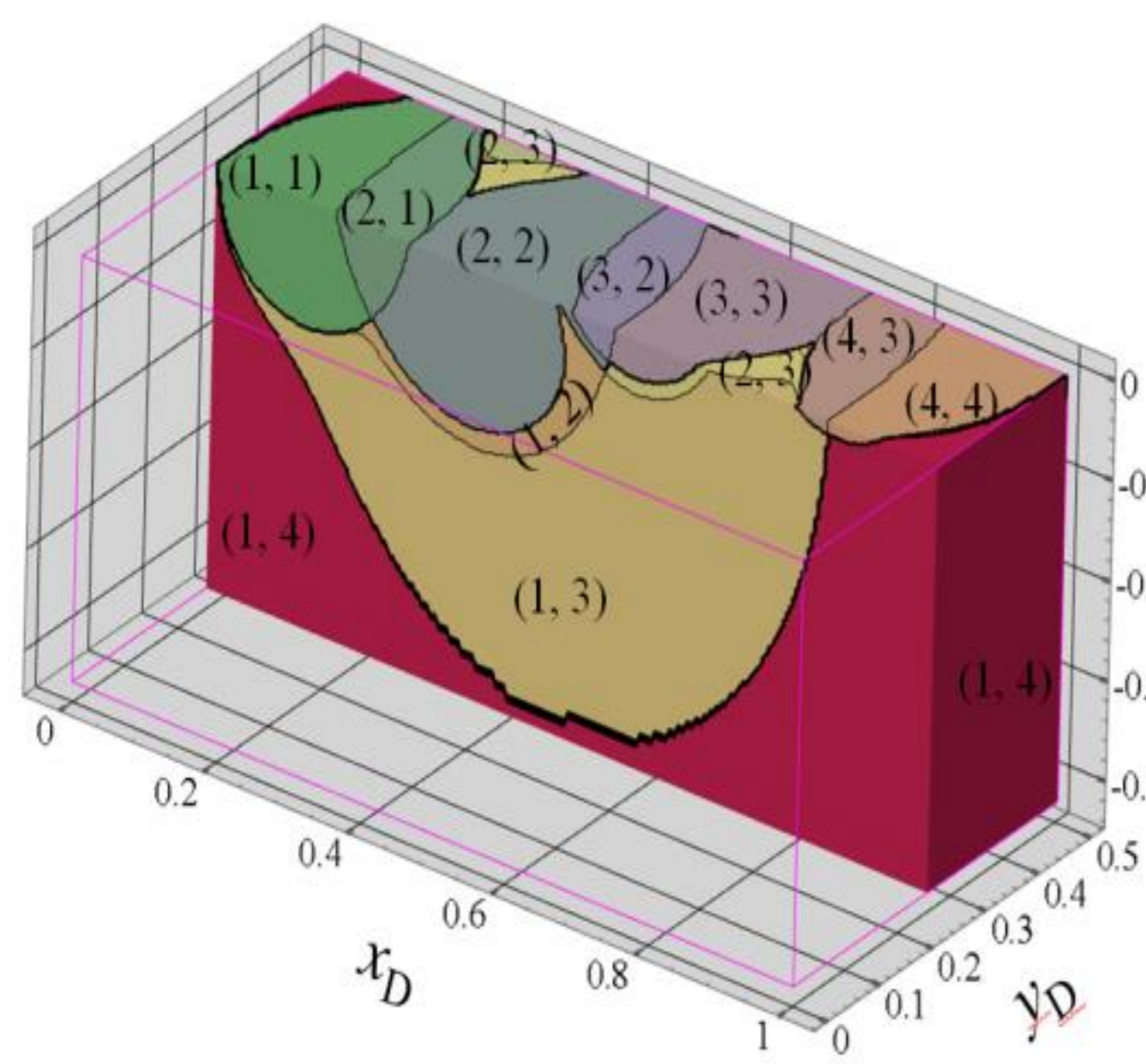


# 科研平台—教育部地下水循环及环境演化重点实验室

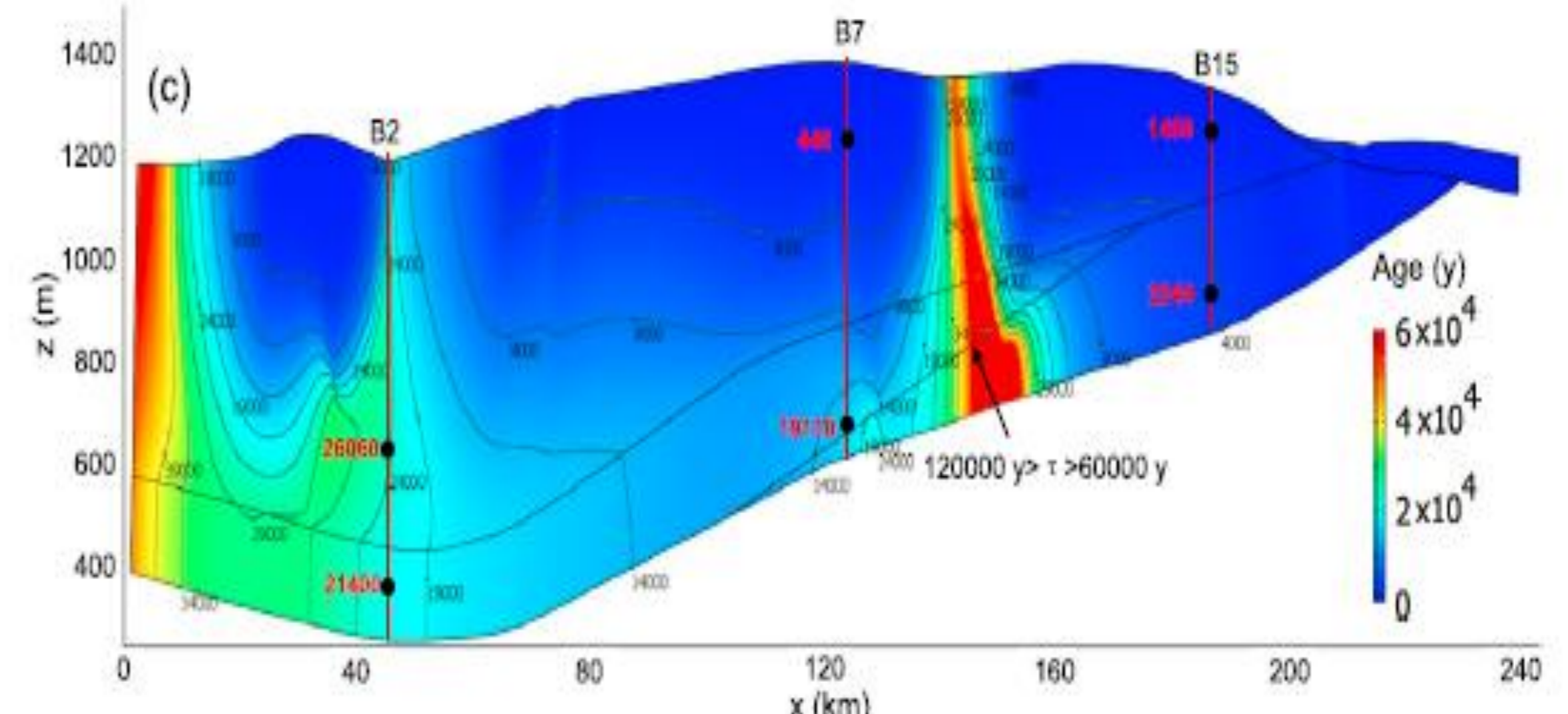
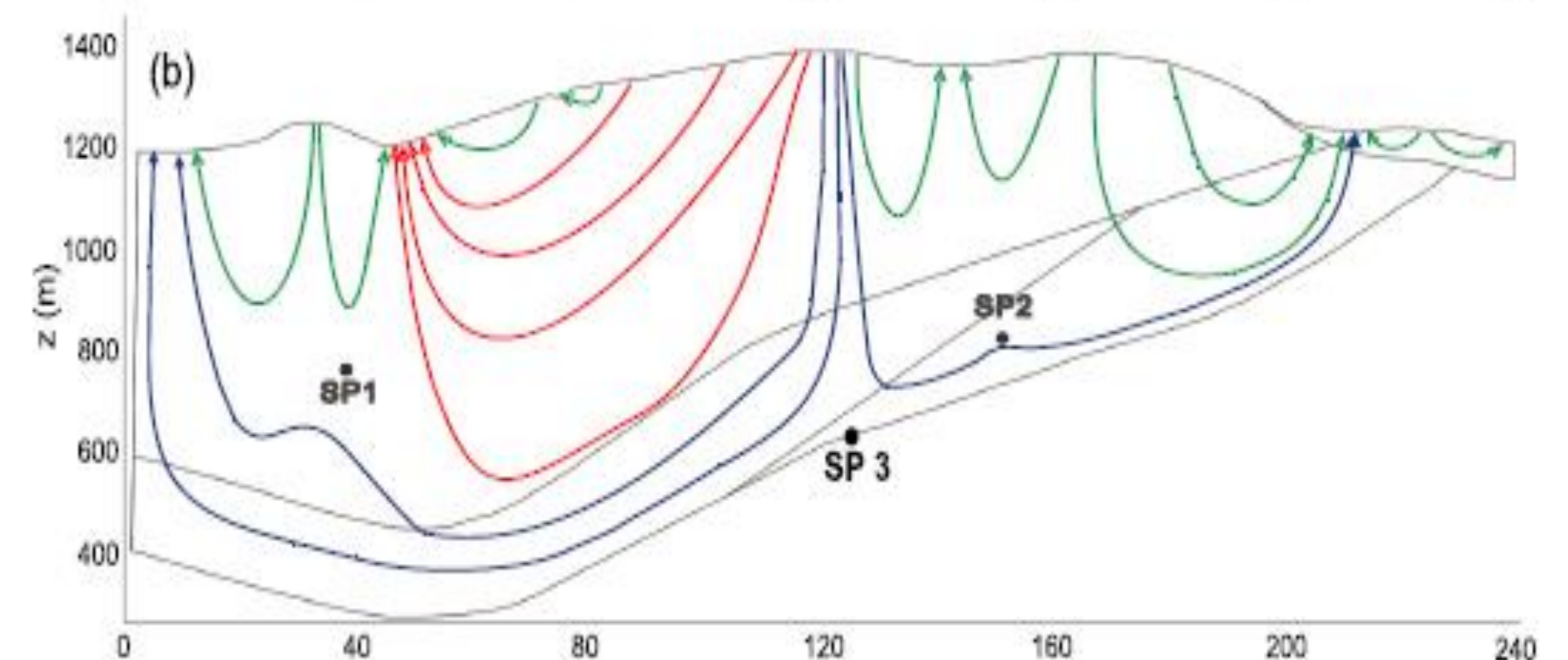
## 地下水循环及生态水文地质



**Multi-scale groundwater flow systems in basins in the Northwest China**



Erdos Basin, 2011-2018



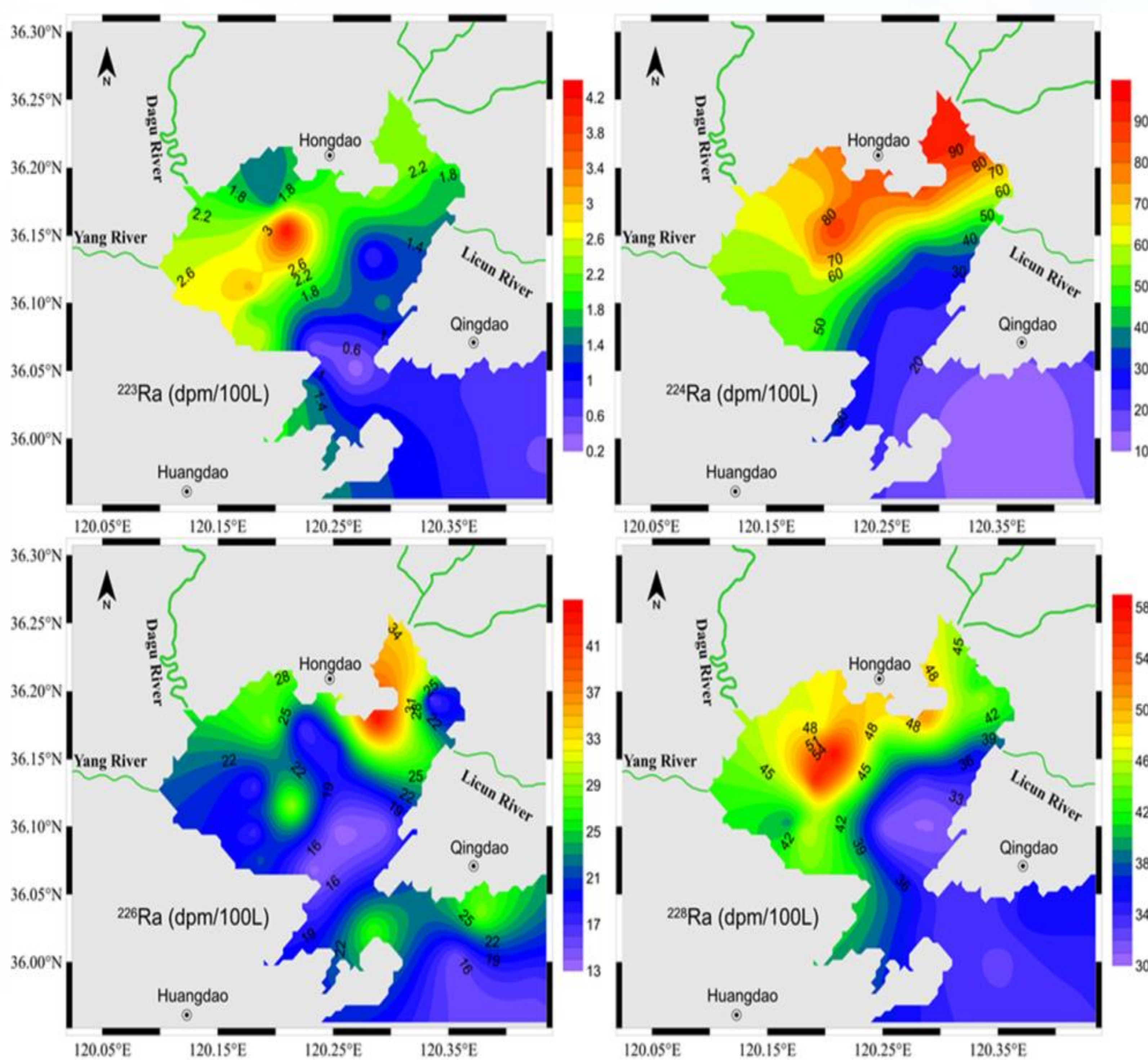
Wang, J. Z., et al., 2015. An analytical study on artesian flow conditions in unconfined-aquifer drainage basins. *Water Resources Research*, 51(10), 8658-8667.

Wang Xu-Sheng, et al., 2017. Identifying three-dimensional nested groundwater flow systems in a Tóthian basin. *Advances in Water Resources*, 108, 139-156.

Jiang X.W, Wan L, Ge S, et al., 2012. A quantitative study on accumulation of age mass around stagnation points in nested flow systems. *Water Resources Research*, 48(12), 1-14.

# 科研平台—教育部地下水循环及环境演化重点实验室

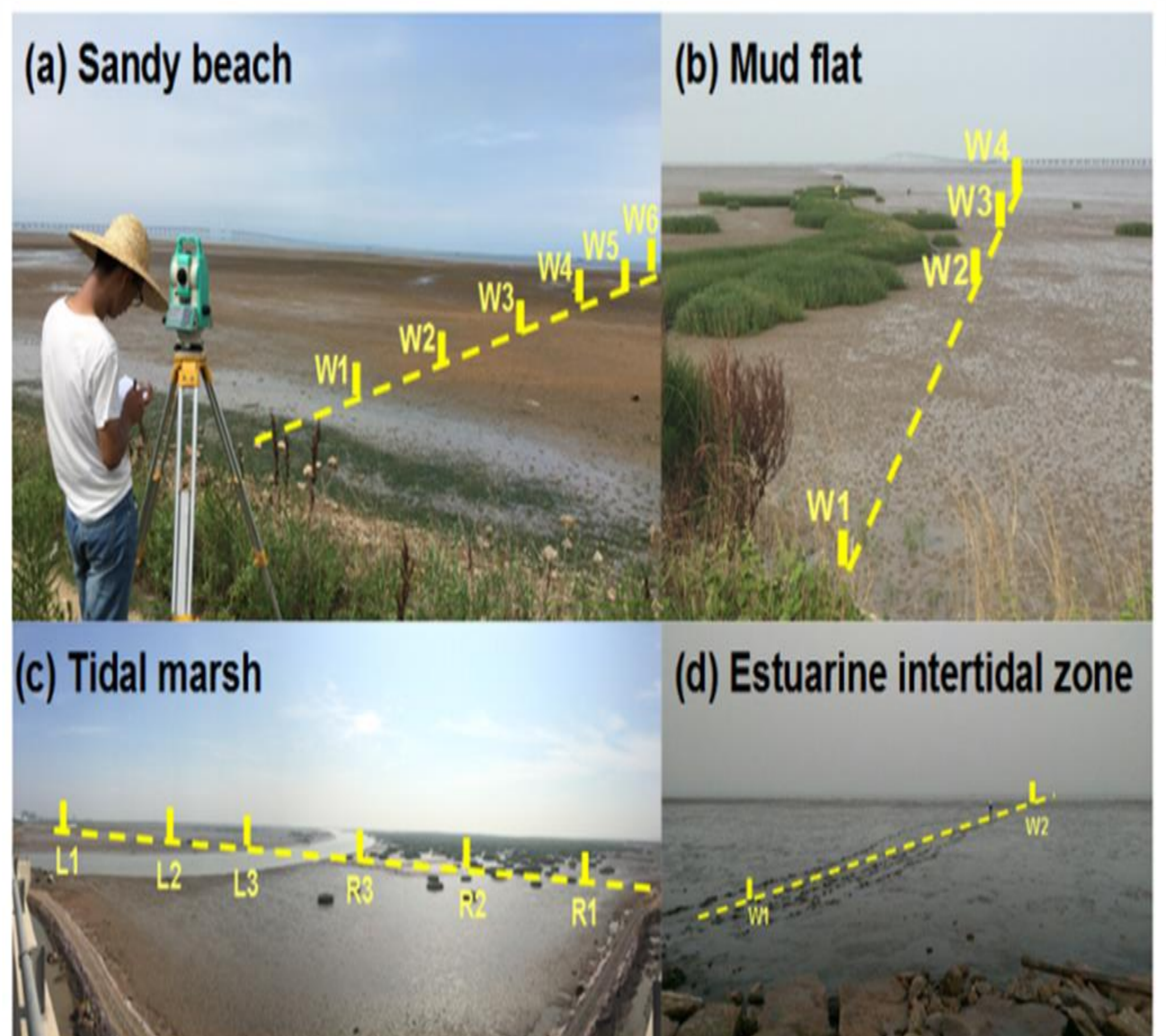
## 海水及地下水排泄 (SGD)



Estuarine ecology is closely related with N and P in groundwater discharged to sea.

Hailong Li and Boufadel, M.C., 2010. Long-term persistence of oil from the Exxon Valdez spill in two-layer beaches. *Nature Geoscience*, 3(2), 96-99.

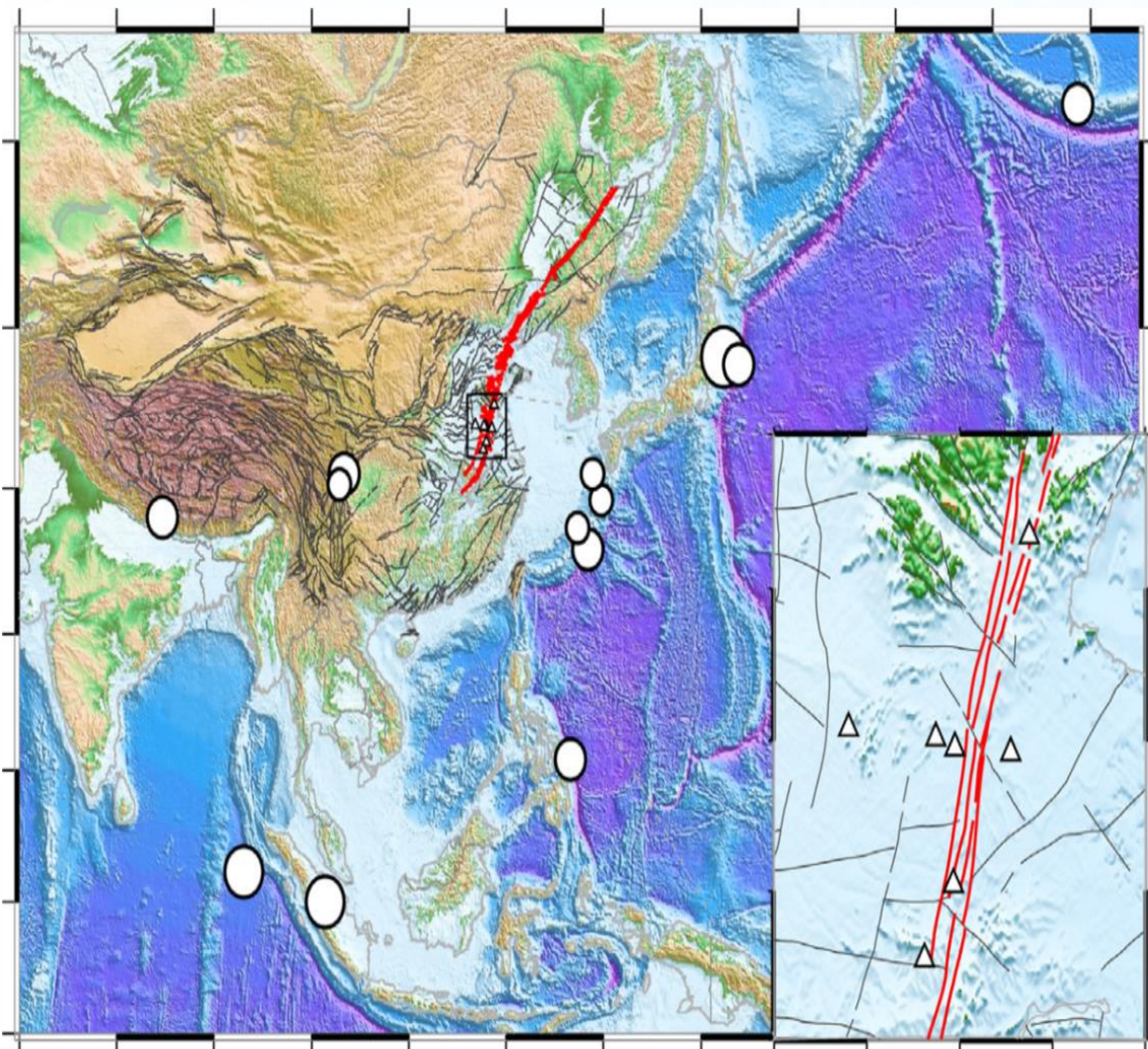
Xuejing Wang, Hailong Li, Jinzhong Yang et al., 2017. Nutrient inputs through submarine groundwater discharge in an embayment: A radon investigation in Daya Bay, China. *Journal of Hydrology*, 551, 784-791.





# 科研平台—教育部地下水循环及环境演化重点实验室

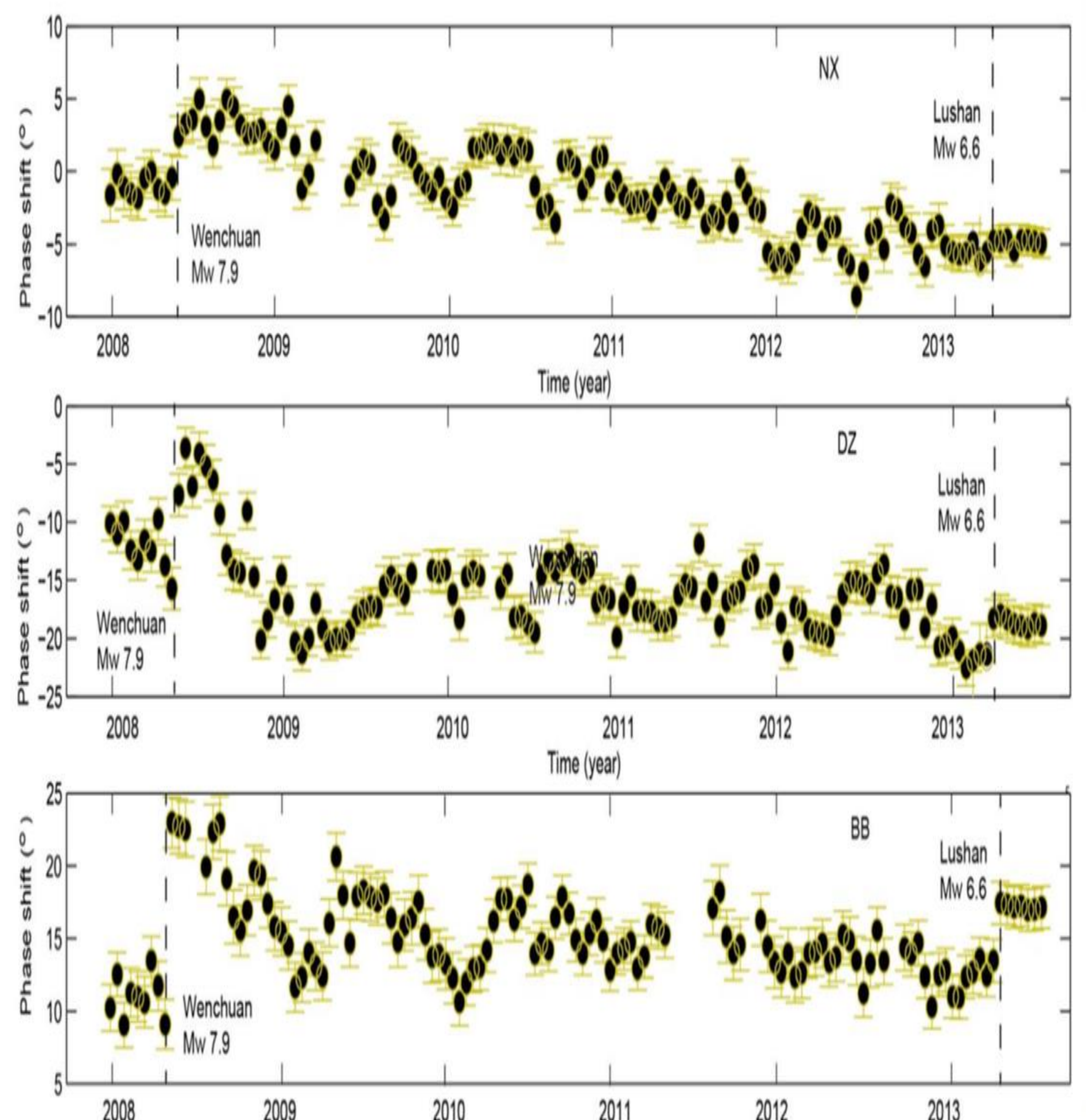
## 地下水对地震的响应



Water table can indicate and be fluctuated before and after earthquake.

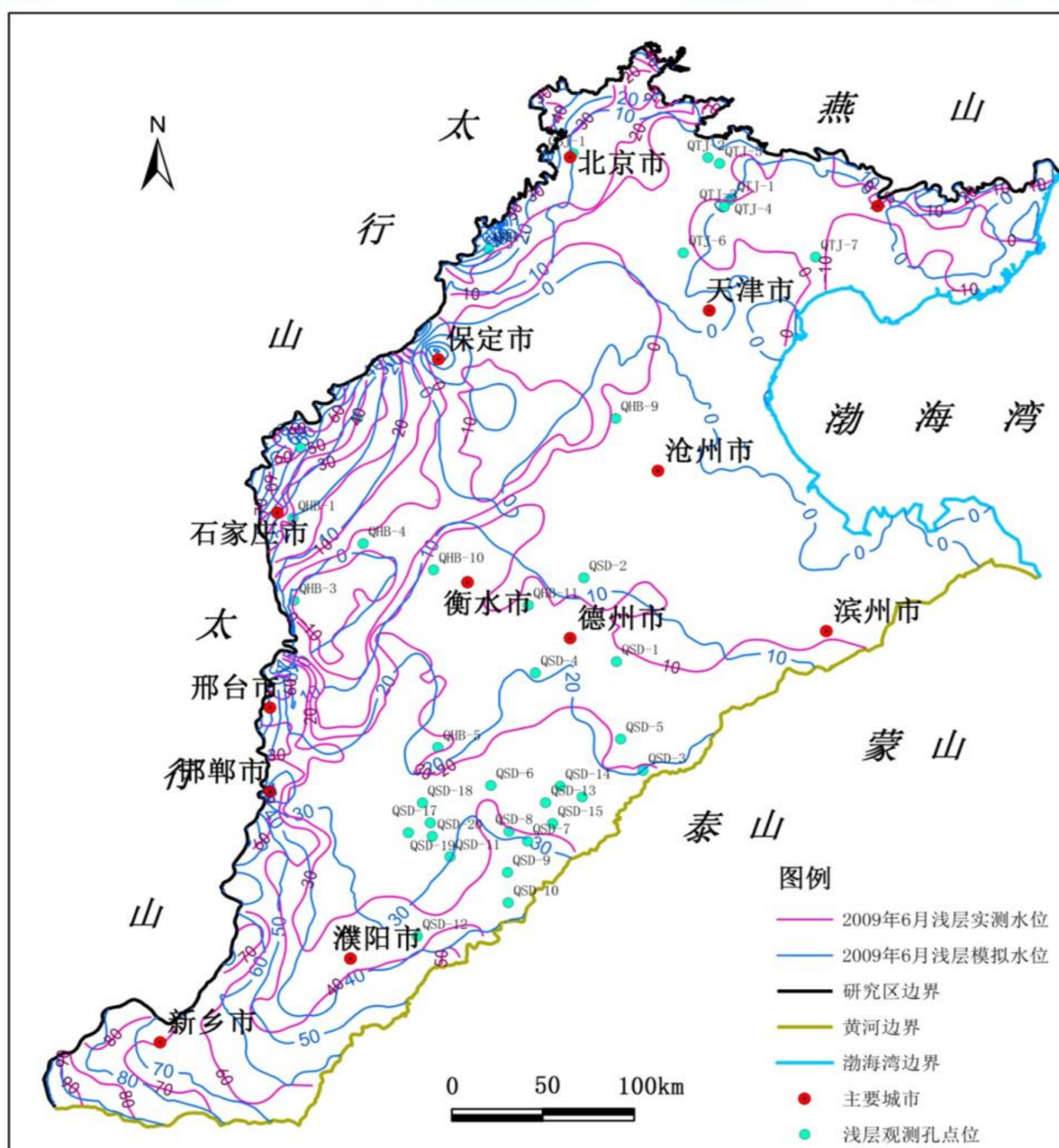
Shi, Z., Wang, G., Manga, M, et al., 2015. Mechanism of co-seismic water level change following four great earthquakes – insights from co-seismic responses throughout the Chinese mainland. *Earth and Planetary Science Letters*, 430, 66-74.

Shi, Z., Wang, G., 2017. Evaluation of the permeability properties of the Xiaojiang Fault Zone using hot springs and water wells. *Geophysical Journal International*. 209, 1526-1533.

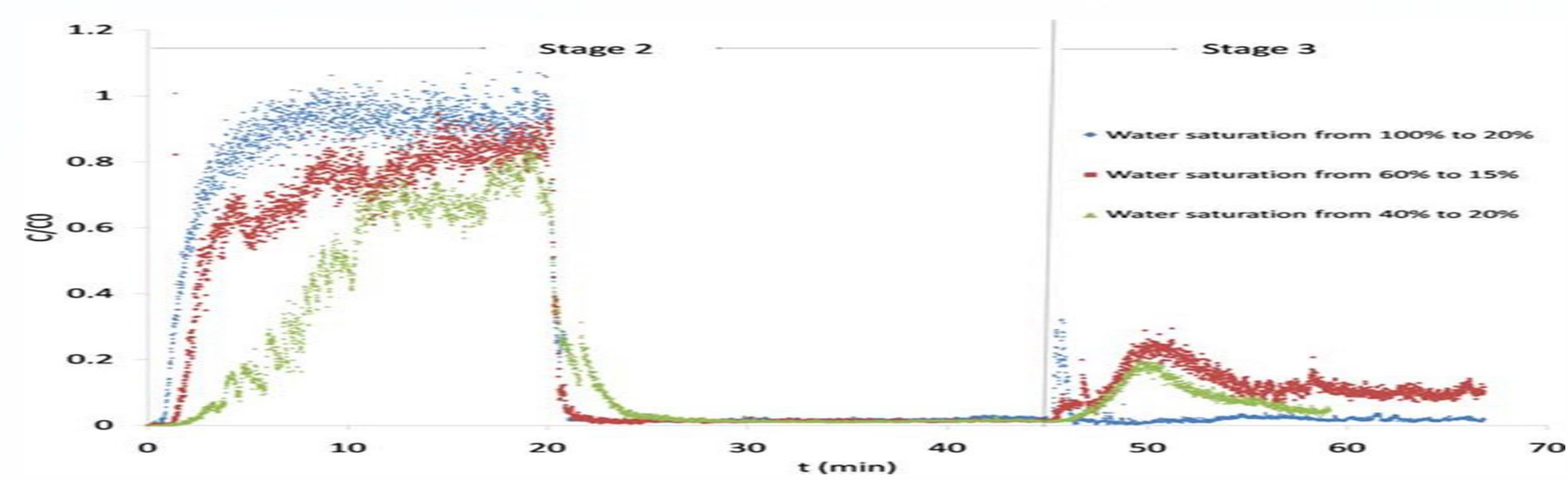


# 科研平台—教育部地下水循环及环境演化重点实验室

## 水资源管理（胶体运移）



Model of water resource develop and usage fro North China plain supported by CGS.



## 温泉与卤水



Cause, distribution and chemical characteristics for special hot spring and brine



Qiulan Zhang, A. Raouf, and S.M. Hassanizadeh, 2015.

Porescale study of flow rate on colloid attachment and remobilization in a saturated micromodel. *Journal of Environmental Quality*. 44, 1-8.

Qiulan Zhang and S.M. Hassanizadeh, 2017.

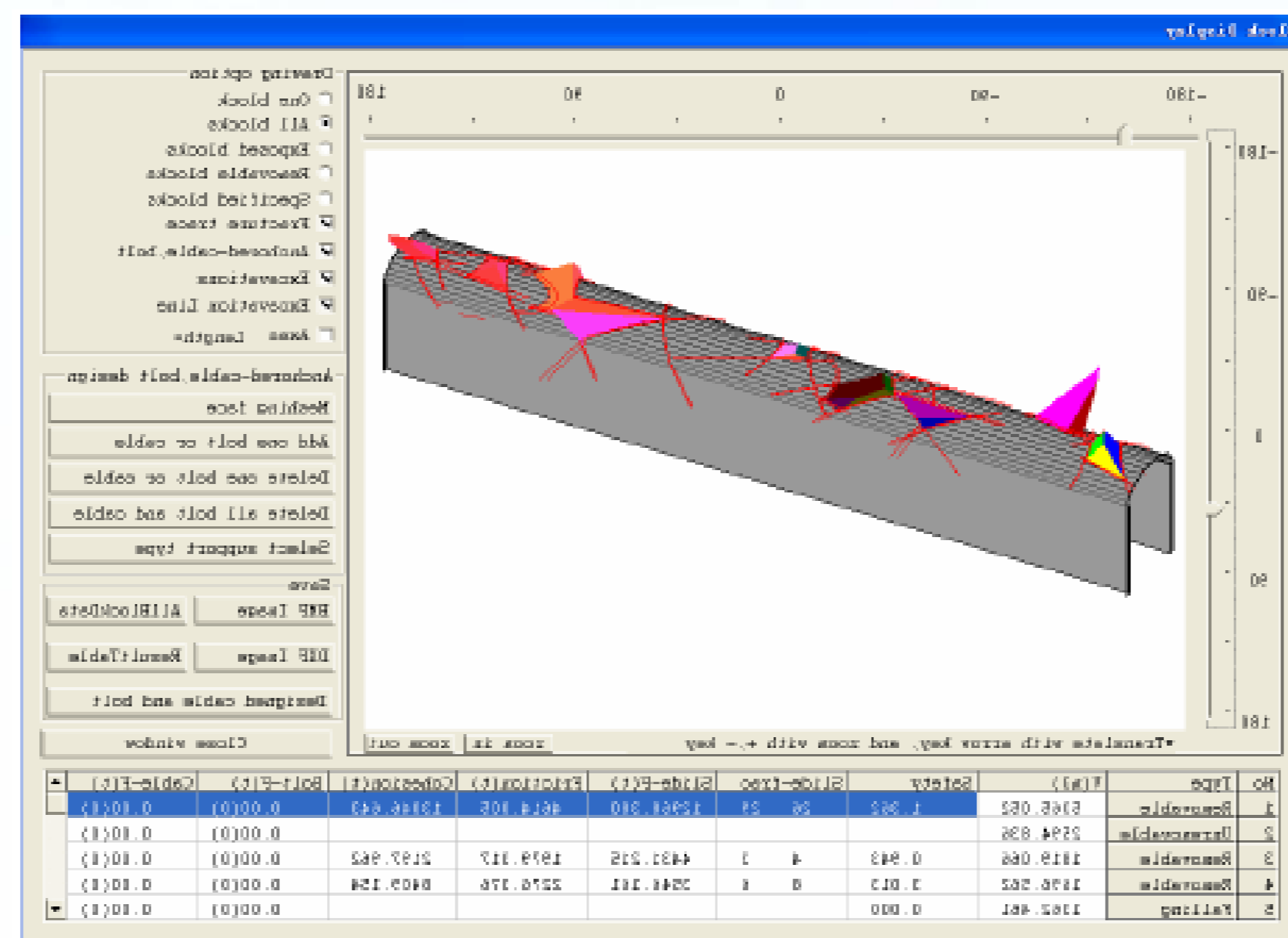
The role of interfacial tension in colloid retention and remobilization during two-phase flow in a Polydimethylsiloxane micromodel, *Chemical Engineering Science*, 168, 437-443.

# 科研平台—教育部地下水循环及环境演化重点实验室

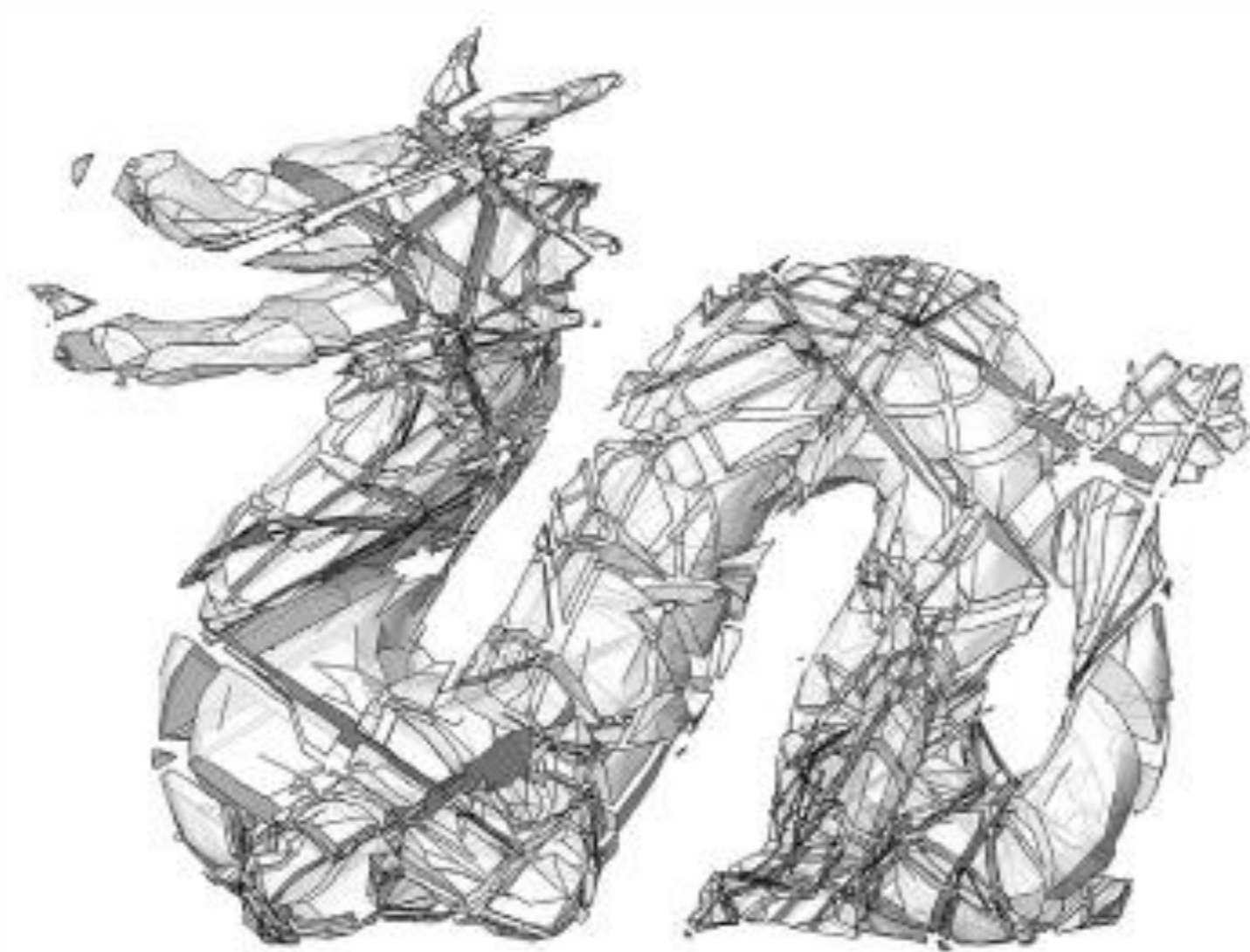
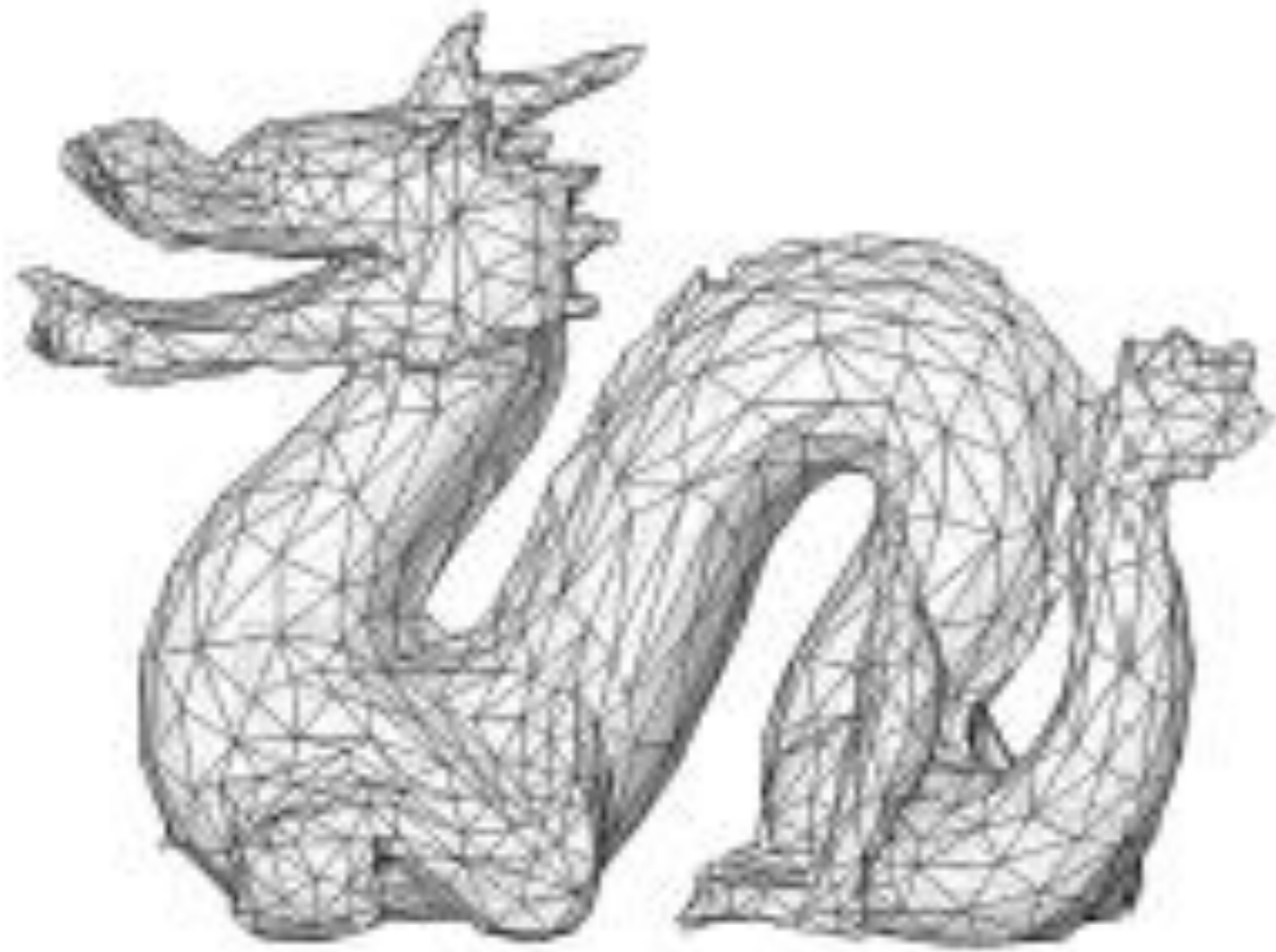
## 岩石裂隙及流体运移



三峡船闸开挖块体垮落<sup>[1]</sup>



三峡地下厂房顶拱不稳定块体<sup>[1]</sup>



复杂裂隙条件下块体识别算法验证<sup>[2]</sup>



岩体渗流及突破压力实验仪器<sup>[3-5]</sup>

[1] Lu Xia, Qingchun Yu\*, Blockiness level of rock mass around underground powerhouse of Three Gorges Project, *Tunnelling and Underground Space Technology*, 2015

[2] Yinhe Zheng, Lu Xia, Qingchun Yu\*, Identifying rock blocks based on exact arithmetic, *International Journal of Rock Mechanics & Mining Sciences*, 2016

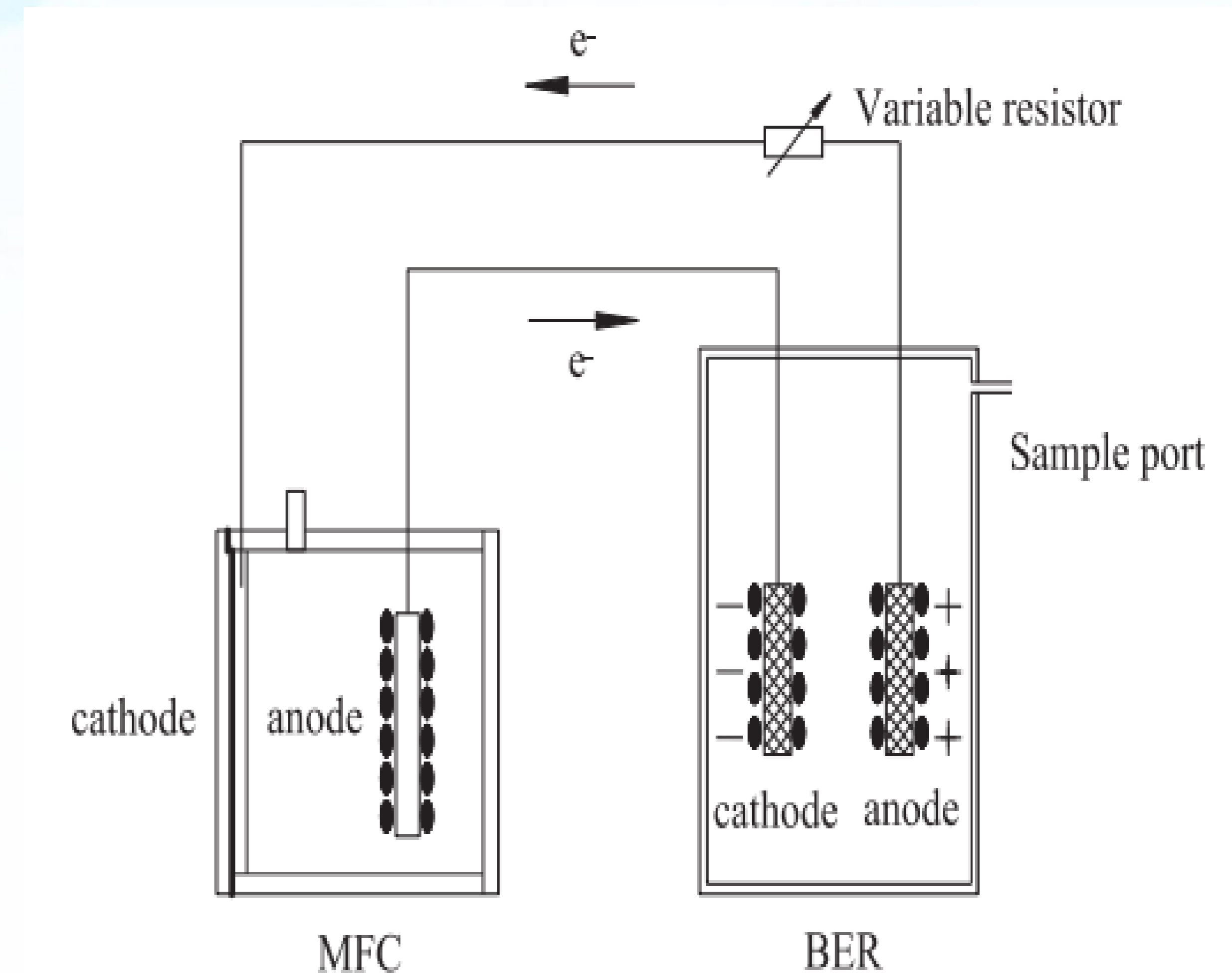
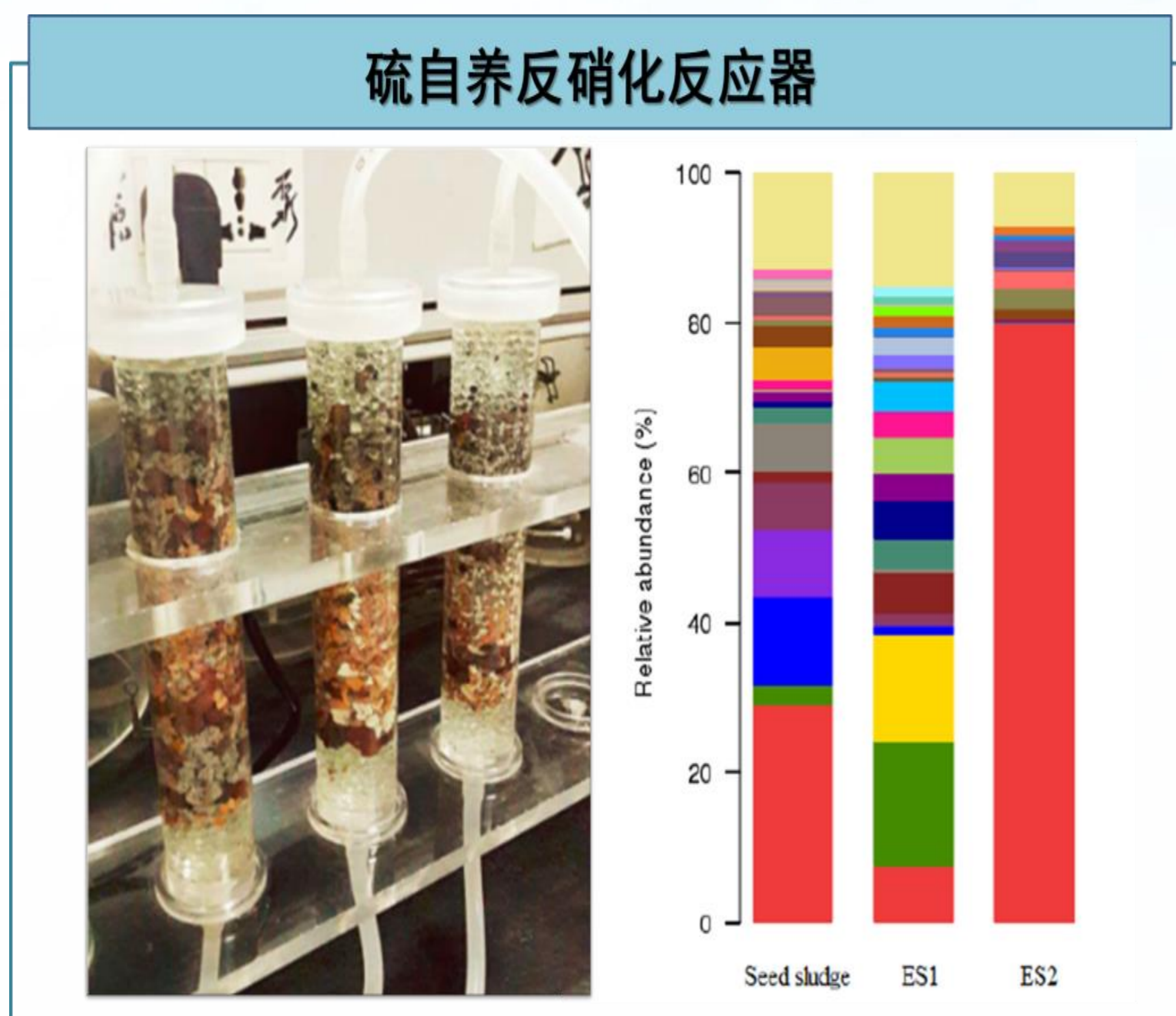
[3] Milei Wang, Qingchun Yu\*, A method to determine the permeability of shales by using the dynamic process data of methane adsorption, *Engineering Geology*, 2019

[4] Zhang Cheng, Qingchun Yu\*, Breakthrough pressure and permeability in partially water-saturated shales using methane-carbon dioxide gas mixtures, *AAPG Bulletin*, 2019

[5] Wang Lu, Wan, J., Tokunaga, T. K., Kim, Qingchun Yu\*, Experimental and modeling study of methane adsorption onto partially saturated shales. *Water Resources Research*, 2018

# 科研平台—北京市水资源与环境工程重点实验室

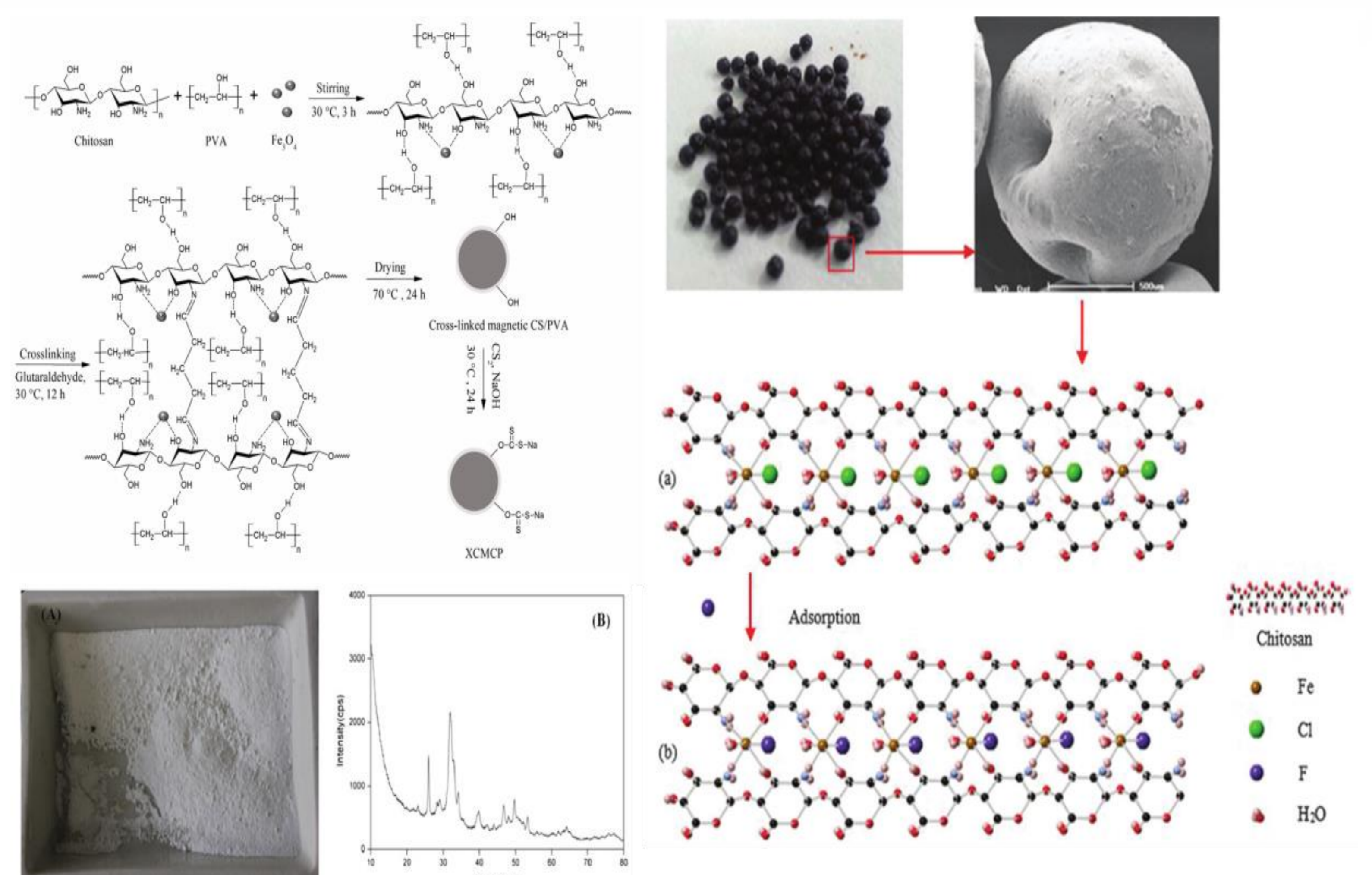
## 饮用水及废水处理



### Bioreactor new adsorption Electro-chemical oxidation

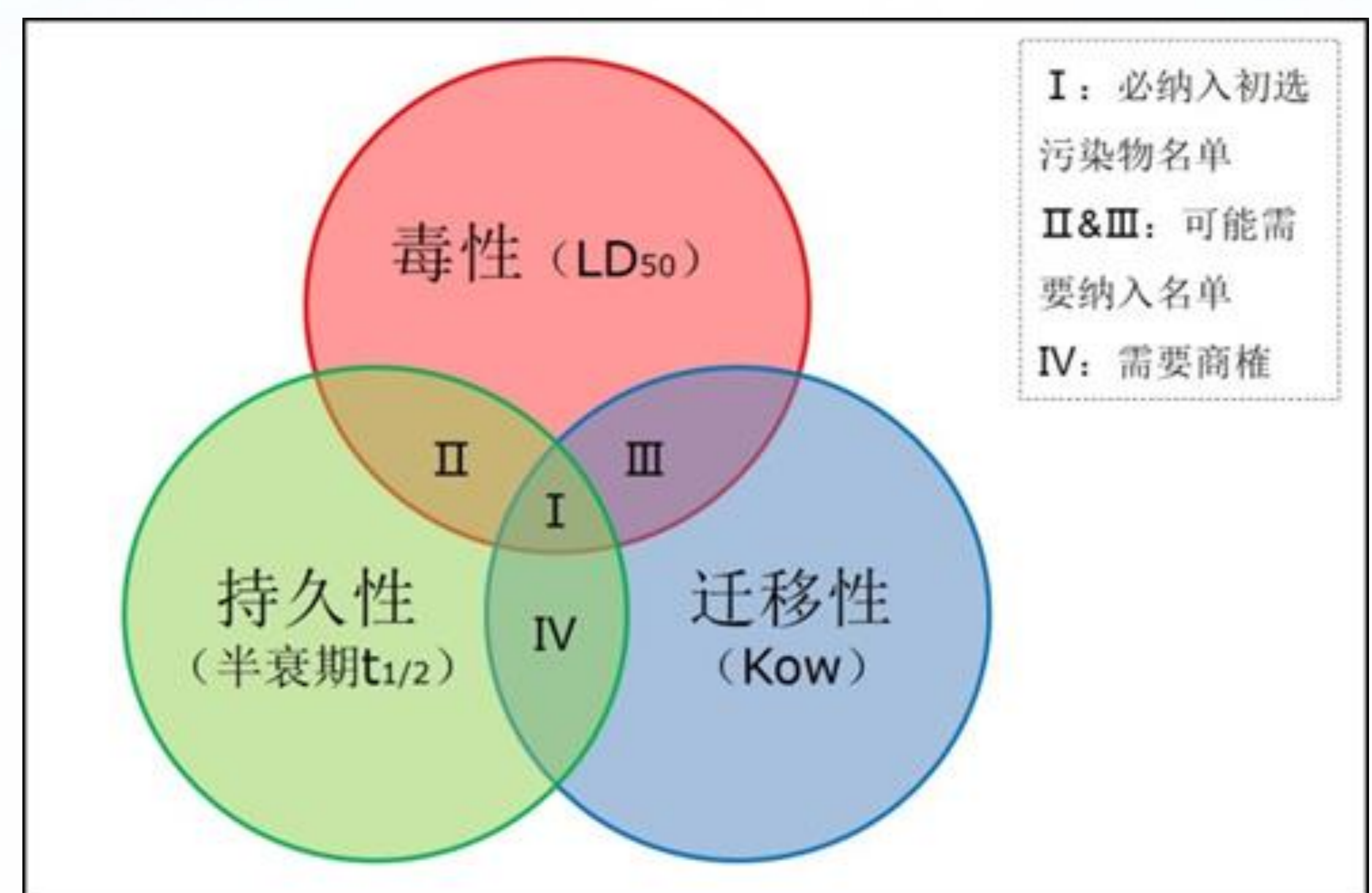
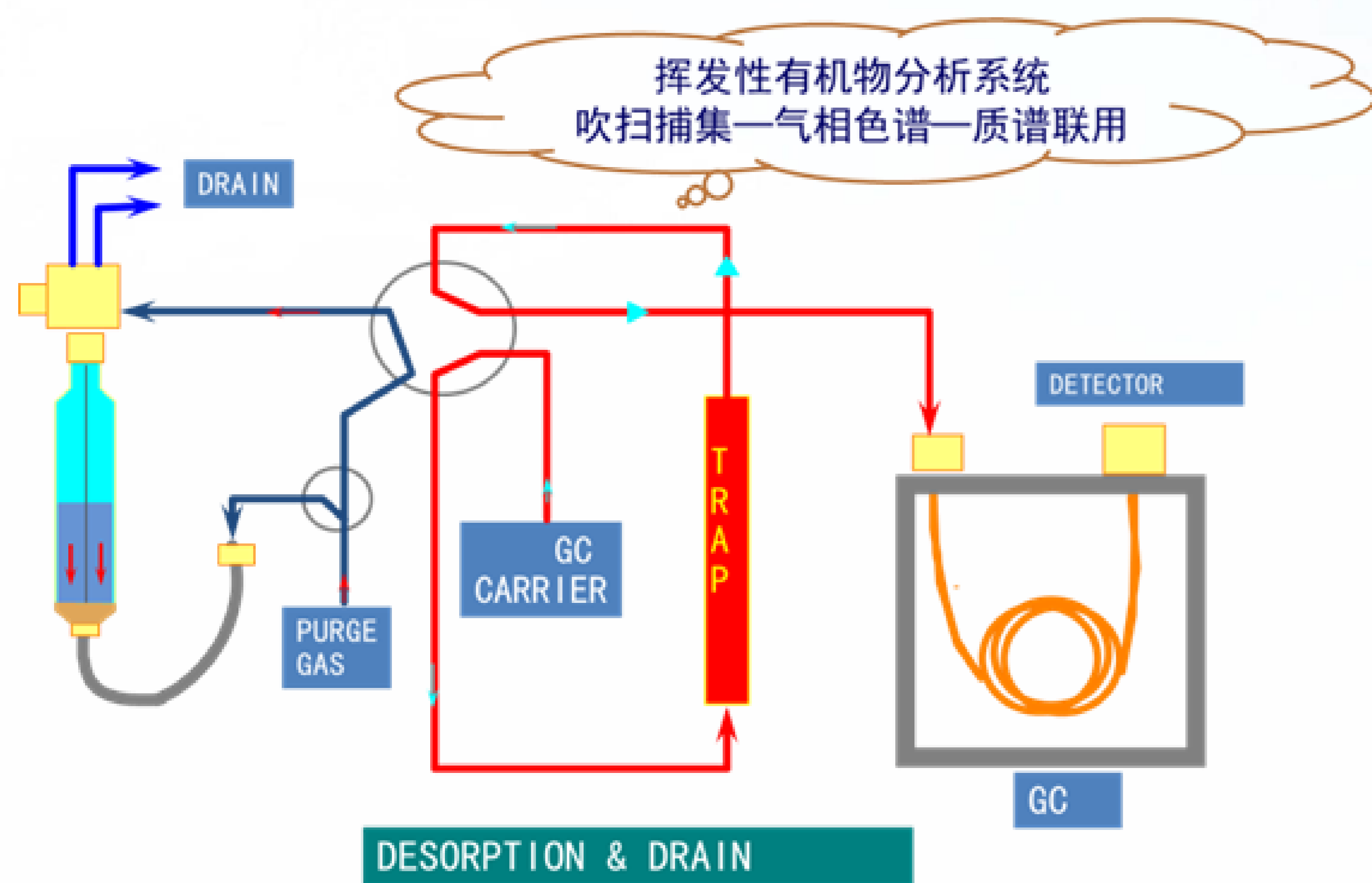
Li Rui, Feng chuanping\*, Hu Weiwu et al., 2015. Woodchip-sulfur based heterotrophic and autotrophic denitrification (WSHAD) process for nitrate contaminated water remediation, *Water Research*, 89, 171-179.

Wang Di, Chen Nan\*, Yu Yang et al., 2016. Investigation on the adsorption of phosphorus by Fe-loaded ceramic adsorbent, *Journal of Colloid and Interface Science*, 464, 277-284.



# 科研平台—北京市水资源与环境工程重点实验室

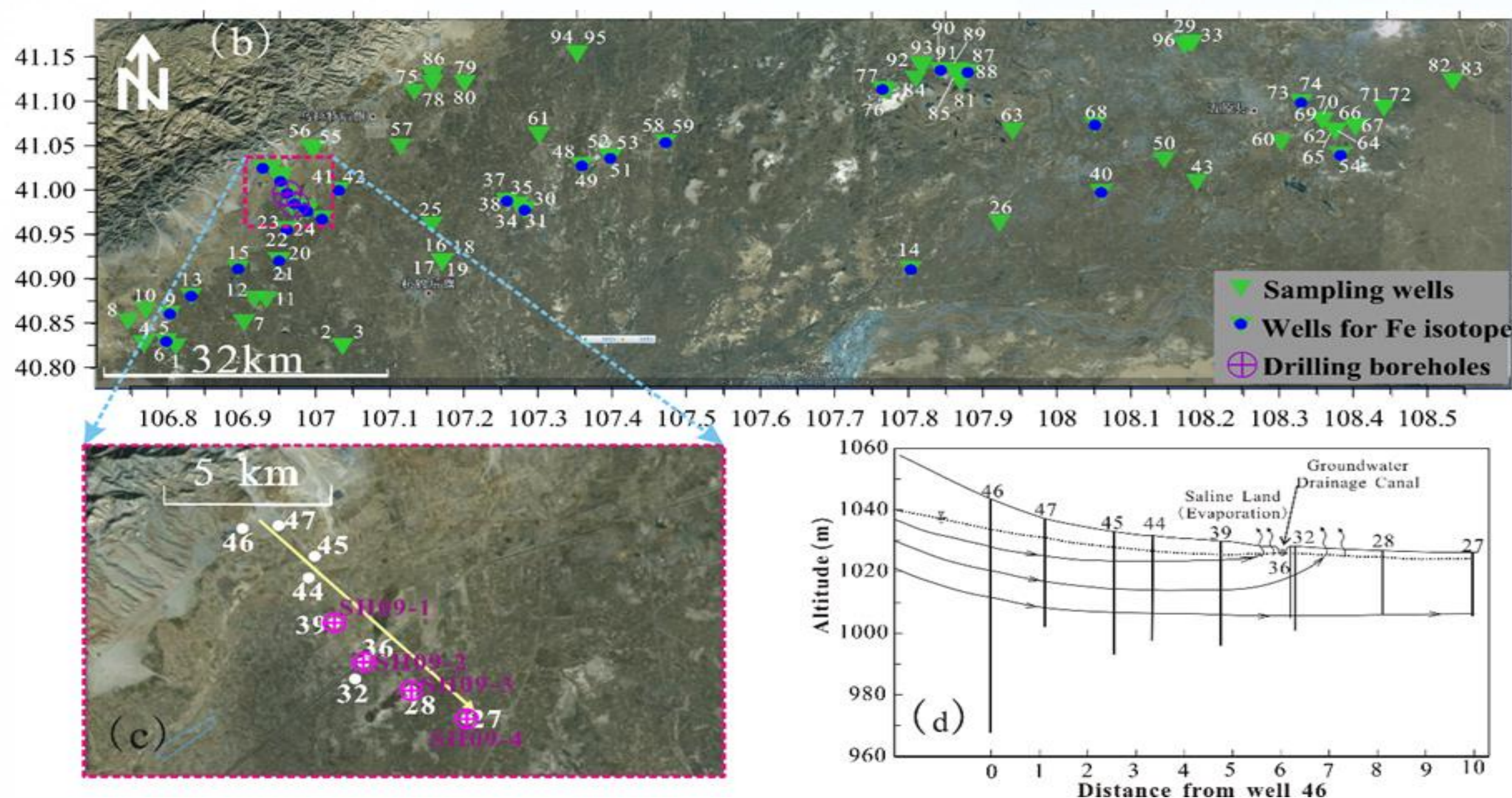
## 监测和筛选地下水中的有机污染物



Items	Instrument	Pretreatment	MDL
56 VOCs	Agilent P&T 6890/5973NGC-MS	Purge& Trap	Inject 10.0 mL, MDLs 0.02~0.29 $\mu\text{g.L}^{-1}$
99 SVOCs	Agilent P&T 6890/5973NGC-MS	LLE, concentrate 1L to 1mL	MDL 20-50 $\text{ng.L}^{-1}$
26 OCP-PCBs	Agilent P&T 6890/5973NGC-MS	LLE, concentrate 1L to 1mL	MDL 0.5-2.0 $\text{ng.L}^{-1}$
35 antibiotics	Waters UPLC-MS/MS	SPE, concentrate 1L to 1mL。	MDL 0.3-4.0 $\text{ng.L}^{-1}$
82 pesticides	Agilent P&T 6890/5973NGC-MS	LLE, concentrate 1L to 1mL。	MDL 0.7-197 $\text{ng/L ng.L}^{-1}$

# 科研平台—北京市水资源与环境工程重点实验室

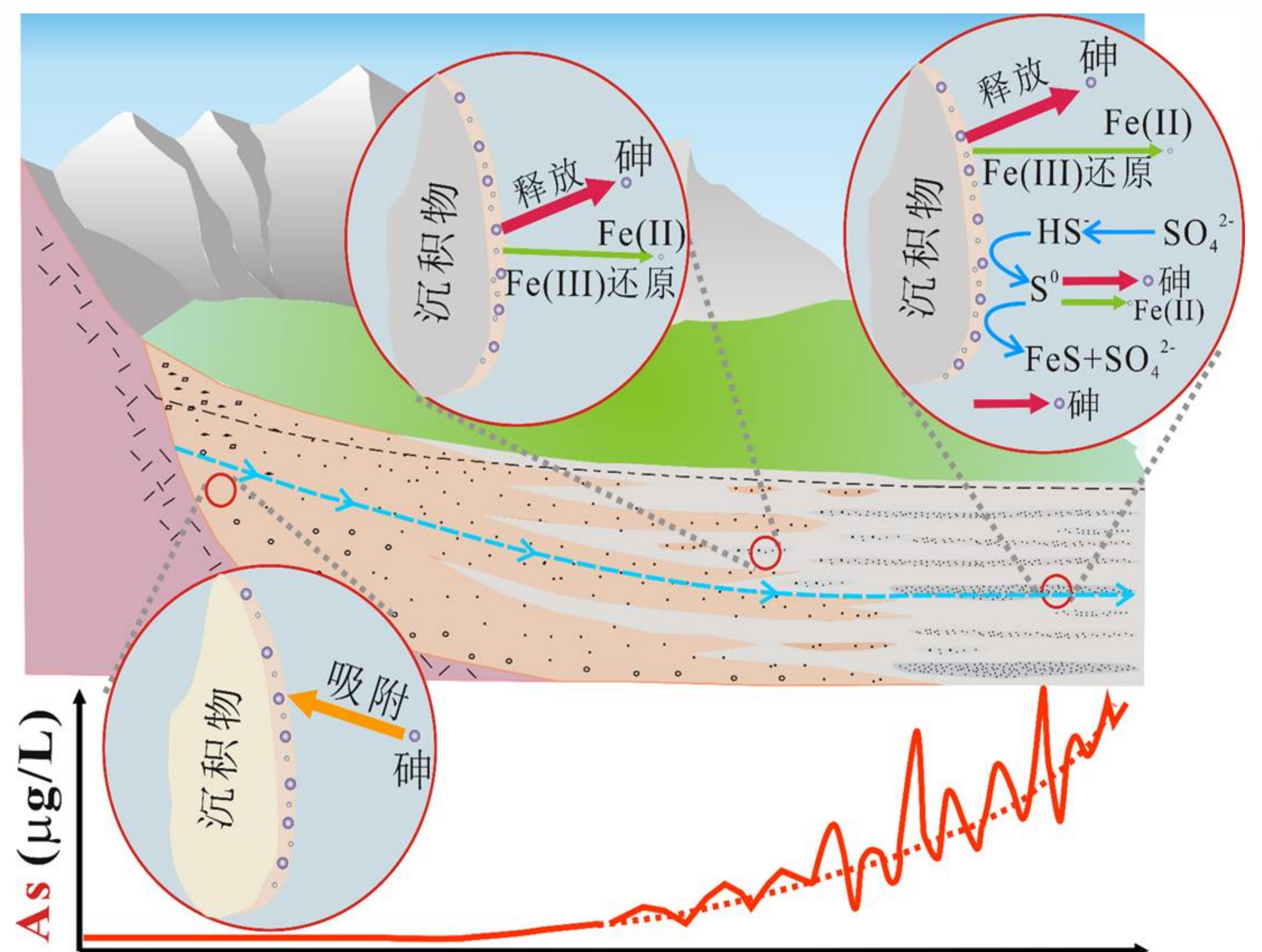
## 砷的地质成因



Proposed the new mechanism of arsenic releasing from mineral by Hetao basin research.

Guo et al., 2013, Pathways of coupled arsenic and iron cycling in high arsenic groundwater of the Hetao basin, Inner Mongolia, China: An iron isotope approach. *Geochimica et Cosmochimica Acta*, 112, 130-145.

Guo et al., 2016, Sulfur cycling-related biogeochemical processes of arsenic mobilization in the western Hetao basin, China: Evidences from multiple isotope approaches. *Environment Science & Technology*, 50(23), 12650-12659.



# 科研平台—北京市水资源与环境工程重点实验室

## 土壤及地下水污染修复



**Adsorption and bio-PRB for N**

**In-situ chemical oxidation for TCE-DNAPL**

**High concentration Cr by Fe-PRB**

**Removal for perchlorate**

