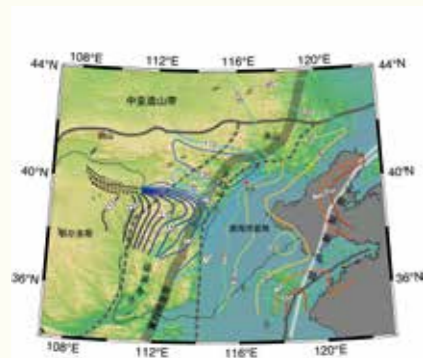
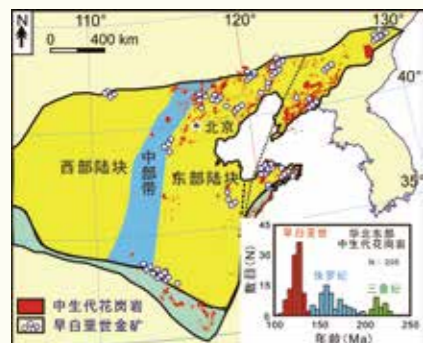


Research Group of Destruction of the North China Craton, Institute of Geology and Geophysics, Chinese Academy of Sciences

On the basis of the development of new technology and methods, and the establishment of first-class international geochemical and geophysical experimental and observational platforms, through the integrated observational, experimental and theoretical multi-disciplinary research, this research group has determined the spatial-temporal scopes of the destruction of the North China Craton, proposed and proven the universal existence of the peridotite-melt interaction during craton destruction, found that the mantle flow instability induced by the subduction of oceanic plates and the metasomatism and melting of lithospheric mantle are the main driving force for the craton destruction, revealed the genetic relationship between Mesozoic large-scale mineralization and North China Craton destruction, proposed a new model of metallogenic prediction, and established a theoretical framework for "craton destruction". These original achievements have not only significantly advanced the theory of continental evolution, but have also provided a scientific basis for exploration of deep resources in China. The research group has been at the forefront of research on craton destruction and has established it as key topic in Earth Sciences, which has greatly enhanced the international influence of China in solid Earth Sciences.



华北克拉通岩石圈厚度
The lithospheric thickness of the North China Craton



华北东部中生代花岗岩与早白垩世金矿
Mesozoic granitoids and Early Cretaceous gold deposits in the eastern North China Craton

Outstanding contributors of this research group

Zhu Rixiang

Proposed and demonstrated the viability of a new view that mantle flow instability induced by the subduction of oceanic plate leads to craton destruction. He pushed this research field to the forefront of solid Earth Sciences.

Zhang Hongfu

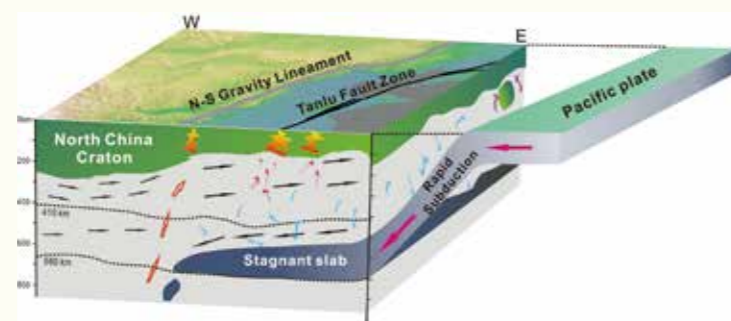
Identified the spatial-temporal heterogeneity of the lithospheric mantle beneath the North China Craton, proposed and proven the universal role of the peridotite-melt interaction in craton destruction.

Yang Jinhui

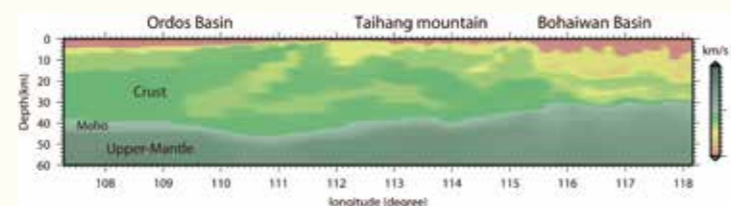
Set up an isotopic dating method for hydrothermal gold, proposed terms and definitions for decratonization, found the genetic relationship between large scale gold mineralization, magmatism and cratonic destruction.

Other members

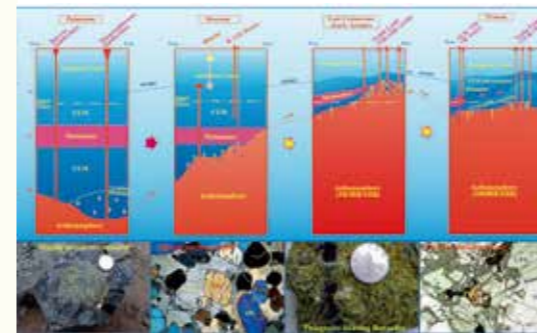
- Zheng Tianyu
- Fan Hongrui
- Ai Yinshuang
- Chen Ling
- Jiang Neng
- Lin Wei
- Meng Qingren
- Tang Yanjie
- Zeng Qingdong
- Zhao Liang
- Yang Yueheng
- Ying Jifeng
- Li Qiuli
- Zhang Xiaohui
- Qian Qing
- Yang Wei
- Zhao Xinmiao



华北克拉通破坏的动力学机制
Destruction mechanism of the North China Craton



华北克拉通地壳速度结构
Cross section of the crustal shear-wave velocity structure of the North China Craton



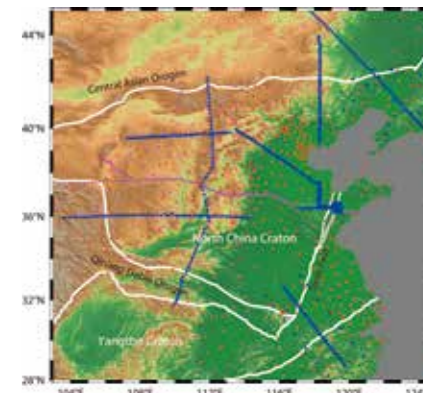
橄榄岩-熔体相互作用导致的岩石圈地幔组成时空变化
Spatial-temporal compositional changes of the lithospheric mantle through peridotite-melt interaction

华北克拉通破坏研究集体

研究集体推荐单位：中国科学院地质与地球物理研究所

研究集体主要科技贡献：

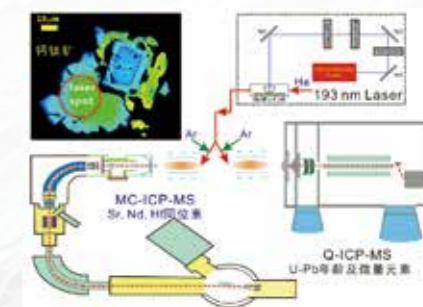
在开拓新技术方法、建立国际一流实验和观测平台基础上，通过“观测、实验和理论研究”三位一体的多学科研究，厘定了华北克拉通破坏的时空范围，提出并论证了橄榄岩-熔体相互作用在克拉通破坏过程中具有普适性，发现大洋板块俯冲导致地幔流动失稳、岩石圈地幔交代-熔融是克拉通破坏的主要动力机制，揭示了华北中生代大规模成矿与克拉通破坏的内在联系，提出了成矿预测新模型，建立了“克拉通破坏”理论体系。这些原创性成果是对大陆演化理论体系的发展，也为我国深部资源探测提供了科学依据。该集体引领了克拉通破坏研究，使其成为地球科学热点，提升了我国固体地球科学的国际影响力。



华北克拉通全空间覆盖地震观测
Seismological observations throughout the North China Craton



辽东半岛野外地质考察
Field observations in the Liaodong Peninsula, North China Craton



单矿物年龄、同位素和微量元素联机原位微区分析
In-situ simultaneous age dating, isotopic and trace elemental analyses on a single crystal



朱日祥 Zhu Rixiang

研究集体突出贡献者

朱日祥

提出并论证了大洋板块俯冲引起地幔流动失稳导致克拉通破坏的新观点，推动该研究领域进入固体地球科学前沿。

张宏福

发现华北岩石圈地幔的时空不均一性，提出并论证了橄榄岩-熔体相互作用在克拉通破坏过程中具有普适性。



张宏福 Zhang Hongfu

杨进辉

建立热液金矿同位素测年方法，提出“去克拉通化”的术语和内涵，论证了巨量金成矿、岩浆作用与克拉通破坏的内在联系。



杨进辉 Yang Jinhui

研究集体主要完成者

- 郑天愉 范宏瑞 艾印双 陈凌 姜能 林伟 孟庆任 汤艳杰
- 曾庆栋 赵亮 杨岳衡 英基丰 李秋立 张晓晖 钱青 杨蔚
- 赵新苗