特邀主编 裴向军 罗 璟

地 球 科 学

2026 年 9 月 第 51 卷 第 9 期

目 次

极端环境地质扰损区保护与修复专辑

震后九寨沟地质灾害生态化治理与地质环境保护研究 …… 裴向军(3251)
西部山区大型交通工程弃渣场多因素耦合层次递阶区域选址方法
…… 罗 璟,裴向军,白占雄,杨沛璋,张春晖,朱正清,姬翠翠,王斯蒙,李郭兵,孙文洋(3274)
地质环境扰损区灾害生态化防治多元技术配置方法研究
…… 蒋卓君,崔圣华,裴向军,张晓超,雷泞菲,李景吉,杨晴雯(3290)
高寒草甸工程扰损区生态重构土壤养分与微生物群落演变特征
…… 李 琪,张鹏飞,沈逸凡,李宇航,金 博,魏人杰,罗 璟,张卫彪,张晓超,雷泞菲,裴向军(3309)
高寒山区 TBM 洞渣土坡面植物-微生物固土与抗侵蚀机制…… 罗正宇,裴向军,韩洪瑞,谢永芳,邹 桐,闫国茹(3320)
青藏高原东缘隧道建设对土壤团聚体有机碳微生物和植物碳源的影响
…… 林洪羽,于 杜,曹 欢,王 率,李 凛,裴向军,唐晓鹿(3332)
青藏高原重大道路工程的生态系统影响及狭域物种灭绝风险评估 …… 晋 港,孙耀航,郭建军,邹丰翼,岳东霞(3349)
冻融环境陡立边坡生态修复植生层优化及性能演化 …… 陈慧娥,吕宏泽,杜 华(3361)
生物矿化结皮-有机物-固化小球缓释联合改性边坡客土水-力学特性 …… 泮晓华,潘广慧,唐朝生,余航波(3378)
贡嘎山东坡 2022 年泸定地震灾后滑坡区植被绿度演化特征 …… 陈瑞琛,陈 剑,谭华容,麻 晟,葛润泽,马泓尧(3391)
深度网络耦合遥感的重大铁路工程施工期生态环境质量评价
…… 姬翠翠,万 胜,黄早阳,张晓超,罗 璟,杨恒聪,裴向军(3405)
地质灾害生态化治理工程耐久性评估指标研究
…… 吕雅兰,崔圣华,裴向军,蒋卓君,杨人杰,张晓超,雷泞菲,李 琪(3422)
岩石强度的可解释性预测:基于 COA-LightGBM-SHAP 框架
…… 张 岩,杨奇来,罗 璟,刘亚斌,简怀磊,曾 鹏,李天斌(3433)
新型保水材料联合黑曲霉对新疆铁尾矿渣的改良效果
…… 李 琪,胡成博,唐佳豪,杨镒霞,段一然,沈逸凡,苟林平,王双成,李 强,裴向军(3445)
“苔-藻”生物结皮对工程弃渣的改良作用
…… 魏人杰,裴向军,李宇航,苟林平,王冰鹤,沈逸凡,杨镒霞,张慧媛,修宇鑫,肖云星,秦欣科,李 琪(3457)
多源遥感解译与物理模型反演协同优化样本的降雨滑坡易发性评价方法
…… 罗 璟,宋 琛,裴向军,严 睿,刘自强,李郭兵,吴金刚,刘洪洋(3469)

****

南岭地区正冲锂铷铯矿床云英斑岩成因 …… 刘湘华,许金梅,韦桂妹,林寿洪,唐 汉,张 博,赖健清,李 斌(3484)
基于增强残差特征蒸馏的地震图像超分辨率重建 …… 吴 迪,刘 刚,陈麒玉,崔哲思,方洪峰,张 策(3501)
基于矿床规模约束的西秦岭寨上-李坝矿集区智能矿产预测
…… 王 斌,高永宝,刘向东,朱志昊,侯 聪,白兆华,王怀涛,荆林海(3513)
基于岩浆锆石微量元素的机器学习模型对斑岩铜矿成矿潜力的评估…… 吴川川,孟旭阳,刘 品,辛茹月,成嘉伟(3530)
一种融合半监督深度学习与多点地质统计的三维地质建模及不确定性评估框架
…… 周顺平,袁 创,储德平,方 芳,潘声勇,刘兆鑫,李 红,万 波(3547)
冀中坳陷大城凸起深部煤层气不同相态分布规律及控制因素
…… 朱洁琼,蒲龙川,古 强,王小明,肖 阳,窦连彬,史冠中,张霁潮,王 磊(3562)
冀中坳陷石炭系-二叠系残留断陷盆地深部煤层气富集规律及有利区评价
…… 闫睿昶,李熹微,李小冬,罗 静,王元杰,黄 芸,李 奔,王小明,史冠中(3578)
鄂尔多斯盆地东缘临兴中区太原组下段大型复合潮道砂体沉积演化特征及含气性耦合关系
…… 陶振鹏,张 兵,米洪刚,杜 佳,秦晨烊,焦养泉,吴立群,乐 亮(3599)
华南早古生代混合岩中熔体包裹体的发现及其地质意义
…… 陈以莉,虞鹏鹏,单宏祥,郑 义,阳 峰,林振文,钱加慧(3619)

·其他·

《地球科学》2026 年 10 月第 51 卷第 10 期要目预告 …… (3421)

主编 王焰新 **责任编辑** 李 根
期刊基本参数: CN 42－1874/P＊1957＊m＊A4＊372＊zh＊P＊￥100.00＊1200＊25＊2026－09
封 面 照 片: 2017年“8•8”九寨沟地震震损火花海保护修复,为世界遗产保护贡献“中国方案”(罗璟提供).

Guest Editors Pei Xiangjun Luo Jing

EARTH SCIENCE

Vol.51 No.9 Sept. 2026

CONTENTS

Protection and Restoration of Geologically Disturbed Areas in Harsh Environments

Research on Post-Earthquake Eco-Geological Conservation and Restoration in the Jiuzhaigou World Natural Heritage Site ····· *Pei Xiangjun* (3251)
A Hierarchical Multi-Factor Coupled Regional Preliminary Site Selection Method for Transportation-Project Spoil Disposal in Western Mountainous Areas ····· *Luo Jing*, *Pei Xiangjun*, *Bai Zhanxiong*, *Yang Peizhang*, *Zhang Chunhui*, *Zhu Zhengqing*, *Ji Cuicui*, *Wang Simeng*, *Li Guobing*, *Sun Wenyang* (3274)
An Integrated Multi-Technology Configuration Method for Ecological Hazard Prevention and Control in Geologically Disturbed Areas····· *Jiang Zhuojun*, *Cui Shenghua*, *Pei Xiangjun*, *Zhang Xiaochao*, *Lei Ningfei*, *Li Jingji*, *Yang Qingwen* (3290)
Characteristics of Soil Nutrient and Microbial Community Evolution in Ecologically Restored Areas Affected by Engineering Disturbance in High-Altitude Alpine Meadows ····· *Li Qi*, *Zhang Pengfei*, *Shen Yifan*, *Li Yuhang*, *Jin Bo*, *Wei Renjie*, *Luo Jing*, *Zhang Weibiao*, *Zhang Xiaochao*, *Lei Ningfei*, *Pei Xiangjun* (3309)
Plant-Microbe Interactions in Soil Stabilization and Erosion Control on TBM Muck Slopes in Alpine Regions ····· *Luo Zhengyu*, *Pei Xiangjun*, *Han Hongrui*, *Xie Yongfang*, *Zou Tong*, *Yan Guoru* (3320)
Effects of Tunnel Construction on Microbial and Plant Derived Carbon Sources in Soil Aggregate Organic Carbon on the Eastern Margin of the Qinghai-Xizang Plateau ····· *Lin Hongyu*, *Yu Du*, *Cao Huan*, *Wang Shuai*, *Li Lin*, *Pei Xiangjun*, *Tang Xiaolu* (3332)
Ecological Impacts of Major Road Infrastructure on the Qinghai-Xizang Plateau and Extinction Risk Assessment of Narrow-Range Species ····· *Jin Gang*, *Sun Yaohang*, *Guo Jianjun*, *Zou Fengyi*, *Yue Dongxia* (3349)
Research on Optimization of Planting Layer Materials and Performance Evolution in Ecological Restoration of Steep Slopes in Freeze-Thaw Environments ····· *Chen Hui'e*, *Lü Hongze*, *Du Hua* (3361)
Hydro-Mechanical Properties of Slope External-Soil Modified by Combined Method of Bio-Crust, Organic Matter, and Slow-Release of EIMC Solidified Sand Particle Balls ····· *Pan Xiaohua*, *Pan Guanghui*, *Tang Chaosheng*, *Yu Hangbo* (3378)
Post-Earthquake Vegetation Greenness Dynamics in Landslide-Affected Areas on the Eastern Slope of Mount Gongga Following the 2022 Luding Earthquake ····· *Chen Ruichen*, *Chen Jian*, *Tan Huarong*, *Ma Sheng*, *Ge Runze*, *Ma Hongyao* (3391)
Eco-Environmental Quality Assessment of Major Railway Project Construction Period by Deep Learning Network Coupled with Remote Sensing····· *Ji Cuicui*, *Wan Sheng*, *Huang Zaoyang*, *Zhang Xiaochao*, *Luo Jing*, *Yang Hengcong*, *Pei Xiangjun* (3405)
Durability Evaluation Indicators for Ecological Remediation Engineering in Geological Hazard Governance ····· *Lü Yalan*, *Cui Shenghua*, *Pei Xiangjun*, *Jiang Zhuojun*, *Yang Renjie*, *Zhang Xiaochao*, *Lei Ningfei*, *Li Qi* (3422)
Interpretable Prediction of Rock Strength: A Study Based on the COA-LightGBM-SHAP Framework ····· *Zhang Yan*, *Yang Qilai*, *Luo Jing*, *Liu Yabin*, *Jian Huailei*, *Zeng Peng*, *Li Tianbin* (3433)
Improvement of Xinjiang Iron Tailings Using a Novel Water-Retaining Material Combined with *Aspergillus niger* ····· *Li Qi*, *Hu Chengbo*, *Tang Jiahao*, *Yang Yixia*, *Duan Yiran*, *Shen Yifan*, *Gou Linping*, *Wang Shuangcheng*, *Li Qiang*, *Pei Xiangjun* (3445)
Effects of Moss-Algal Biological Crusts on Alpine Construction Spoil ····· *Wei Renjie*, *Pei Xiangjun*, *Li Yuhang*, *Gou Linping*, *Wang Binghe*, *Shen Yifan*, *Yang Yixia*, *Zhang Huiyuan*, *Xiu Yuxin*, *Xiao Yunxing*, *Qin Xinke*, *Li Qi* (3457)
Rainfall-Induced Landslide Susceptibility Assessment Based on Collaborative Sample Optimization Using Multi-Source Remote Sensing Interpretation and Physical Model Simulation ····· *Luo Jing*, *Song Chen*, *Pei Xiangjun*, *Yan Rui*, *Liu Ziqiang*, *Li Guobing*, *Wu Jingang*, *Liu Hongyang* (3469)

****

Genesis of Quartz-Zinnwaldite-Topaz Porphyritic Rocks from the Zhengchong Lithium-Rubidium-Cesium Deposit, Nanling Region ····· *Liu Xianghua*, *Xu Jinmei*, *Wei Guimei*, *Lin Shouhong*, *Tang Han*, *Zhang Bo*, *Lai Jianqing*, *Li Bin* (3484)
Seismic Image Super-Resolution Reconstruction Based on Enhanced Residual Feature Distillation ····· *Wu Di*, *Liu Gang*, *Chen Qiyu*, *Cui Zhesi*, *Fang Hongfeng*, *Zhang Ce* (3501)
Intelligent Mineral Prospectivity Mapping Constrained by Deposit Scale in the Zhaishang-Liba Mining District, West Qinling Orogen, China ····· *Wang Bin*, *Gao Yongbao*, *Liu Xiangdong*, *Zhu Zhihao*, *Hou Cong*, *Bai Zhaohua*, *Wang Huaitao*, *Jing Linhai* (3513)
Application of Machine Learning Models Based on Magmatic Zircon Trace Elements for Discriminating the Metallogenic Potential of Porphyry Copper Deposits ····· *Wu Chuanchuan*, *Meng Xuyang*, *Liu Pin*, *Xin Ruyue*, *Cheng Jiawei* (3530)
A Three-Dimensional Geological Modeling and Uncertainty Analysis Framework Integrating Semi-Supervised Deep Learning and Multiple-Point Geostatistics ····· *Zhou Shunping*, *Yuan Chuang*, *Chu Deping*, *Fang Fang*, *Pan Shengyong*, *Liu Zhaoxin*, *Li Hong*, *Wan Bo* (3547)
Distribution Patterns and Controlling Factors of Different Phases of the Deep Coalbed Methane (CBM) within the Dacheng Uplift, Jizhong Depression ····· *Zhu Jieqiong*, *Pu Longchuan*, *Gu Qiang*, *Wang Xiaoming*, *Xiao Yang*, *Dou Lianbin*, *Shi Guanzhong*, *Zhang Jichao*, *Wang Lei* (3562)
Enrichment Patterns and Favorable Area Evaluation of Deep Coalbed Methane in Carboniferous-Permian Residual Faulted Basins of Jizhong Depression ····· *Yan Ruichang*, *Li Xiwei*, *Li Xiaodong*, *Luo Jing*, *Wang Yuanjie*, *Huang Yun*, *Li Ben*, *Wang Xiaoming*, *Shi Guanzhong* (3578)
Sedimentary Evolution Characteristics of Large-Scale Composite Tidal Channel Sandbody in the Lower Member of Taiyuan Formation in Linxing Middle Block, Ordos Basin and Their Coupling Relationship with Gas-Bearing Properties ····· *Tao Zhenpeng*, *Zhang Bing*, *Mi Honggang*, *Du Jia*, *Qin Chenyang*, *Jiao Yangquan*, *Wu Liqun*, *Yue Liang* (3599)
Discovery of Melt Inclusions in Early Paleozoic Migmatites of South China and Their Geological Significance ·····*Chen Yili*, *Yu Pengpeng*, *Shan Hongxiang*, *Zheng Yi*, *Yang Feng*, *Lin Zhenwen*, *Qian Jiahui* (3619)

Editor in Chief Wang Yanxin
Executive Editor Li Gen