OR QUATERNARY RESEARCH



EDITORS

Derek B. Booth Nicholas Lancaster Lewis A. Owen



QUATERNARY RESEARCH

SENIOR EDITORS

Derek B. Booth Nicholas Lancaster Lewis A. Owen

ASSOCIATE EDITORS

Patrick J. Bartlein, Robert Booth, Louisa Bradtmiller, Aaron Diefendorf, Tyler Faith, David Fink, Jaime Fucugauchi, Vance T. Holiday, Matthew Lachniet, Zhongping Lai, Terri Lacourse, Pete Langdon, Thomas Lowell, Curtis W. Marean, Barbara Mauz, James O'Connor, Michael A. O'Neal, W. Wyatt Oswald, Jeff Pigati, James Shulmeister, Ashok K. Singhvi, Xiaoping Yang

EDITORS EMERITI

A. Lincoln Washburn Estella B. Leopold Stephen C. Porter Eric J. Steig Alan R. Gillespie

MANAGING EDITOR

Karin Perring

Quaternary Research Center Box 351360 University of Washington Seattle, WA 98195-1360

EDITORIAL BOARD

ZHISHENG AN

Institute of Earth Environment, Chinese Academy of Sciences Quaternary geology, monsoon and global change, dust and aerosols

GAIL ASHLEY

Rutgers University Paleoenvironments, paleohydrology of springs, wetlands and rivers, geoarchaeology

JULIE BRIGHAM-GRETTE

University of Massachusetts Stratigraphy, sedimentology, chronology of Arctic climate and sea level

JOHN DODSON

Institute of Earth Environments, Xi'an, China Australia, Pacific Islands, China, vegetation history, human impacts

YEHOUDA ENZEL

Hebrew University of Jerusalem Desert geomorphology, palaeohydrology of lakes and streams

SHERI FRITZ

University of Nebraska–Lincoln Paleoclimate, paleolimnology, diatom ecology of North and South America

ALAN R. GILLESPIE

University of Washington
Glacial geology, paleoclimate, megaflooods,
Central Asia

LISA GRAUMLICH

University of Washington paleoclimatology, paleoecology, climate change, mountain ecosystems

DONALD K. GRAYSON

University of Washington

Archeology and vertebrate paleontology:

North America and Western Europe

RICHARD G. KLEIN

Stanford University

Human origins, Quaternary paleontology

MELANIE LENG

British Geological Survey, University of Nottingham Stable isotope geochemistry, climate and environmental change

DANIAL R. MUHS

U.S. Geological Survey Quaternary sea level history, Eolian stratigraphy, soils North America, Pacific, Atlantic, and Caribbean Islands

COLIN V. MURRAY-WALLACE

University of Wollongong Coastal evolution, neotectonism, geochronology, Quaternary sea-level changes

JAY QUADE

Department of Geosciences, University of Arizona geochemistry, paleoclimatology, Quaternary geology

MARIA SOCORRO LOZANO-GARCIA

Universidad Nacional Autónoma de México Tropical paleoecology, paleoclimatology, human impact on ecosystems

CATHY L. WHITLOCK

Montana State University Paleoecology and vegetation history: North and South America

YURENA YANES

University of Cincinnati

Isotope geochemistry, paleoclimatology,

Quaternary mollusks, taphonomy, paleoecology

LIPING ZHOU

Peking University

Land-sea correlation, loess, geochronology, geomorphology, Central Asia, East Asia

Cover photo. Landscape of the Zuojiang Huashan Rock Art. Rock art at 38 sites, together with their associated karst, riverine and tableland landscape in the Zuojiang River valley (southwest of Guangxi Zhuang Autonomous Region, southern China), were included in UNESCO's World Heritage List in 2016. This photo presents the landscape at the spectacular site of Mt. Huashan (which is called pay laiz in the local language, meaning a mountain with colorful paintings). Dated to the end of the Eastern Han dynasty (AD 25 to 220), the rock paintings at Mt. Huashan occupy approximately 8000 m² on the steep cliff cut through the karst landscape by the Mingjiang River, a tributary of Zuojiang River. Today, the Zuojiang River valley is habited by the Zhuang Nationality, who still respects these paintings as symbols of power. Photo: Q.P. Zhu (See the article by Shao et al., pages 1–13, in this issue.)