



Supervisor:
China Geological Survey
Sponsor:
China Geological Survey
Chinese Academy of Geological Sciences
<http://chinageology.cgs.cn>



CONTENTS

Volume 4, Issue 3, 25 September 2021, 377-540

(Full text available online at <http://chinageology.cgs.cn>)
(<https://www.sciencedirect.com/journal/china-geology>)

**Special issue on the latest research progresses of five extreme environment's waters in China
(waters in Tibetan Plateau, Loess Plateau, Desert area, Karst area and Coastal zone)**

Original Articles

Characteristics of groundwater in Northeast Qinghai-Tibet Plateau and its response to climate change and human activities: A case study of Delingha, Qaidam Basin
Wei Zhao, Yan-zhu Lin, Peng-peng Zhou, Guang-cai Wang, Xue-ya Dang, Xiao-fan Gu 377

Response of glacier area variation to climate change in the Kaidu-Kongque river basin, Southern Tianshan Mountains during the last 20 years
Lu-chen Wang, Kun Yu, Liang Chang, Jun Zhang, Tao Tang, Li-he Yin, Xiao-fan Gu, Jia-qiu Dong, Ying Li, Jun Jiang, Bing-chao Yang, Qian Wang 389

Relationship of underground water level and climate in Northwest China's inland basins under the global climate change: Taking the Golmud River Catchment as an example
Jia-wei Wang, Jin-ting Huang, Tuo Fang, Ge Song, Fang-qiang Sun 402

Responses of phreatophyte transpiration to falling water table in hyper-arid and arid regions, Northwest China
Li-he Yin, Dan-dan Xu, Wu-hui Jia, Xin-xin Zhang, Jun Zhang 410

Groundwater characteristics and climate and ecological evolution in the Badain Jaran Desert in the southwest Mongolian Plateau
Zhe Wang, Li-juan Wang, Jian-mei Shen, Zhen-long Nie, Ling-qun Meng, Le Cao, Shi-bo Wei, Xiang-feng Zeng 421

Hydrodynamic characteristics of a typical karst spring system based on time series analysis in northern China
Yi Guo, Feng Wang, Da-jun Qin, Zhan-feng Zhao, Fu-ping Gan, Bai-kun Yan, Juan Bai, Haji Muhammed 433

Mechanisms of salt rejection at the ice-liquid interface during the freezing of pore fluids in the seasonal frozen soil area
Huan Huang, Chang-fu Chen, Xiao-jie Mo, Ding-ding Wu, Yan-ming Liu, Ming-zhu Liu, Hong-han Chen 446

Changes of groundwater flow field of Luanhe River Delta under the human activities and its impact on the ecological environment in the past 30 years
She-ming Chen, Fu-tian Liu, Zhuo Zhang, Qian Zhang, Wei Wang 455

Gene abundances of AOA, AOB, and anammox controlled by groundwater chemistry of the Pearl River Delta, China
Kun Liu, Xin Luo, Jiu Jimmy Jiao, Ji-dong Gu, Ramon Aravena 463

Hydrogeochemical characteristics of groundwater and pore-water and the paleoenvironmental evolution in the past 3.10 Ma in the Xiong'an New Area, North China
Kai Zhao, Jing-xian Qi, Yi Chen, Bai-heng Ma, Li Yi, Hua-ming Guo, Xin-zhou Wang, Lin-ying Wang, Hai-tao Li 476

Current situation and human health risk assessment of fluoride enrichment in groundwater in the Loess Plateau: A case study of Dali County, Shaanxi Province, China
Rui-ping Liu, Hua Zhu, Fei Liu, Ying Dong, Refaey M El-Wardany 487

Determining the groundwater basin and surface watershed boundary of Dalinuoer Lake in the middle of Inner Mongolian Plateau, China and its impacts on the ecological environment
Wen-peng Li, Long-feng Wang, Yi-long Zhang, Li-jie Wu, Long-mei Zeng, Zhong-sheng Tuo 498

(contents continued on inside back cover)

Important Note to Authors

Online submission is now available for this journal: to submit your article online, go to the journal homepage at <http://chinageology.cgs.cn>. Instructions on how to submit a manuscript to the journal can be found in the Guide for Authors on the journal homepage.

ISSN 2096-5192



Original Articles

- Characteristics of groundwater in Northeast Qinghai-Tibet Plateau and its response to climate change and human activities: A case study of Delingha, Qaidam Basin
- Response of glacier area variation to climate change in the Kaidu-Kongque river basin, Southern Tianshan Mountains during the last 20 years

Review Articles

- Distribution, characteristics and influencing factors of fresh groundwater resources in the Loess Plateau, China

Aims and scope

China Geology is co-sponsored by the China Geological Survey (CGS) and the Chinese Academy of Geological Sciences (CAGS). The journal is published quarterly by China Geology Editorial Office.

China Geology aims to be an innovative, high-impact and authoritative academic journal for researchers across the entire geological community. It will primarily publish new research results in cutting-edge and emerging topics, as well as covering traditional topics in geology. The journal seeks to promote research from all aspects of geology, including basic, applied and engineering research and applications, such as mineralogy, igneous and metamorphic petrology, geochemistry; sedimentology, paleontology, historical geology; petroleum geology and petroleum engineering, tectonic-orogenic geology (such as the central Asian orogenic belt, Tethys-Himalayan tectonic domain, etc.), marine geology, geophysics, economic and applied geology (ore deposit research and exploration), remote sensing geology, engineering geology, environmental geology, urban geology, groundwater science and engineering, etc.

China Geology publishes Original and Review articles that are of high quality, high interest and far-reaching consequence in the field of geology, as well as Editorials, Research Advances, News and Highlights. The Reviews papers featuring invited high-profile synthesis articles by leading experts on timely topics to bring cutting-edge research to the wider community. Emphasis is placed on high-quality content and form for all articles and on international coverage of subject matter. All papers are subject to international peer review.

Copyright Information

©2021 China Geological Survey

For Authors

As soon as an article is accepted for publication, authors will be requested to assign copyright of the article (or to grant exclusive publication and dissemination rights) to the China Geology Editorial Office, China Geological Survey. This will ensure the widest possible protection and dissemination of information under copyright laws.

For Readers

This journal and the individual contributions contained in it are protected under copyright, and the following terms and conditions apply to their use in addition to the terms of any Creative Commons or other user license that has been applied by the publisher to an individual article:

—Photocopying

Single photocopies of single articles may be made for personal use as followed by national copyright laws. Permission is not required for photocopying of articles published under the CC BY license nor for photocopying for non-commercial purposes in accordance with any other user license applied by the publisher. Permission of the Publisher and payment of a fee is required for all other photocopying, including multiple or systematic copying, copying for advertising or promotional purposes, resale, and all other forms of document delivery. Special rates are available for educational institutions that wish to make photocopies for non-profit educational classroom use.

—Derivative Works

Users may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions or companies. Other than for articles published under the CC BY license, permission of the publisher is required for resale or distribution

outside the subscribing institution or company. For any subscribed articles or articles published under a CC BY-NC-ND license, permission of the publisher is required for all other derivative works, including compilations and translations.

—Storage or Usage

Except as outlined above or as set out in the relevant user license, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the Publisher.

—Notice

No responsibility is assumed by the Publisher for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions or ideas contained in the material herein. Because of rapid advance in the medical sciences, in particular, independent verification of diagnoses and drug dosages should be made. Although all advertising material is expected to conform to ethical (medical) standards, inclusion in this publication does not constitute a guarantee or endorsement of the quality or value of such product or of the claims made of it by its manufacturer.

Citing articles in *China Geology*

China Geology (CG) uses the digital object identifier (DOI) as the primary means to identify papers, instead of the more traditional Volume / Issue / Consecutive page numbers. The DOI is an international, public, "persistent identifier of intellectual property entities" in the form of a combination of numbers and letters. For CG content, the DOI is assigned to an item of editorial content, providing a unique and persistent identifier for that item. The DOI system is administered by the International DOI Foundation, a not-for-profit organization. CrossRef, another not-for-profit organization, uses the DOI as a reference linking standard, enables cross-publisher linking, and maintains the lookup system for DOIs. *China Geology* is a member of CrossRef.

To cite articles published in *China Geology*, you can give the paper's DOI at the end of the citation. For example:
[Author(s)], ([Year]). [Title]. *China Geology* [volume], [page(s)]; doi: [DOI].
Or
[Author(s)]. [Title]. *China Geology* accepted article preview, [publication date]; doi: [DOI].

For your background information, the DOI has two components, a prefix (before the slash) and a suffix (after the slash). The prefix is a DOI resolver server identifier (10) and a unique identifier assigned to the publisher; for example, the identifier for *China Geology* is 10.31035 and the entire DOI prefix for an article published by *China Geology* is 10.31035. The suffix is an arbitrary number provided by the publisher; it can be composed of numbers and/or letters and does not necessarily have any systematic significance. Each DOI is registered in a central resolution database that associates it with one or more corresponding web locations (URLs).

Disclaimer

The editorial policies of this publication are determined by China Geology Editorial Office in accordance with the legal and regulatory requirements of China.

Publication information

China Geology (pISSN 2096-5192, eISSN 2589-9430, CN 10-1549/P). For 2021, volume 4 including issues 1-4 are scheduled for publication. For information on subscription rates and further information please contact the China Geology Editorial Office, China Geological Survey.

Published by: Journal center of China Geological Survey
Printed by: Beijing BOHS Colour Print Co.,Ltd
Distributed by: Journal center of China Geological Survey
(Address: No. 45 Fuwai Street, Xicheng District, Beijing 100037, P. R. China)

(contents continued from outside back cover)

Review Articles

Distribution, characteristics and influencing factors of fresh groundwater resources in the Loess Plateau, China

Hai-xue Li, Shuang-bao Han, Xi Wu, Sai Wang, Wei-po Liu, Tao Ma, Meng-nan Zhang, Yu-tao Wei, Fu-qiang Yuan, Lei Yuan, Fu-cheng Li, Bin Wu, Yu-shan Wang, Min-min Zhao, Han-wen Yang, Shi-bo Wei

513

Effects of groundwater level on vegetation in the arid area of western China

Ge Song, Jin-ting Huang, Bo-han Ning, Jia-wei Wang, Lei Zeng

527

News and Highlights

China's water resources in 2020

Xi-jie Chen, Long-feng Wang, Li-qiong Jia, Ting Jia

536

Editorial Contents of *China Geology*

539

Cover Photo

Water is as precious as oil in the Mongolian Plateau and the Loess Plateau of China. In order to solve the draught and irrigation problems of tens of millions of people, the Chinese government built the Sanshengong Yellow River Water Control Project in Bayannaoer League of western Inner Mongolia as early as 1959, which has played an important role in regulating the amount of water, eradicating local drought disasters, and contributing to the elimination of extreme poverty in the local area. In September 2019, the Hetao Irrigation District was listed as the World Irrigation Heritage (photo provided by the Water Development Center of Inner Mongolia Hetao Irrigation District).

Guest editors: Wen-peng Li, Long-feng Wang

Guidelines for Authors

We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be requested to put your paper into a 'correct format' for acceptance and provide the items required for the publication of your article.

Please write your text in good English (American or British usage is accepted, but not a mixture of these).

Types of papers

There are four types of submission: regular manuscripts for publication as Original Research Articles /Reviews and short fast track manuscripts for publication as Letters or Notes.

Original Research Articles/Reviews should present detailed scientific studies of the geology, mineralogy, and geochemistry of mineral deposits.

Research Advances are intended for fast publication of exciting new scientific results in geology that will be of broad interest.

News and Highlights are intended for fast publication of short accounts of new discoveries that have not reached the maturity to warrant publications as a full Article, and brief descriptions of new prospects.

Original /Review Articles typically should be 10-30 pages in length within the journal (approximately 30-90 manuscript pages of 1600 characters including text, title, references, less space needed for tables and figures).

Research Advances should be no longer than four print pages (less than 12 manuscript pages of 1600 characters including title, abstract, references, tables and up to four display items).

News and Highlights should be no longer than two print pages (less than 6 manuscript pages of 1600 characters including title, abstract, references, tables and up to four display items).

Editor-in-Chief

Dr. Hao Zi-guo, E-mail: haoziguo@126.com

Editorial staff

Dr. Jia Li-qiong, E-mail: jialiqiong1225@163.com

Dr. Chen Xi-jie, E-mail: xijiechen2020@163.com

Jia Ting, E-mail: tina_533@163.com

China Geology Editorial Office

Tel: +86-10-58584308, 58584267, 58584239

E-mail: chinageology_2018@163.com

Website: <http://chinageology.cgs.cn>

Address: No. 45 Fuwai Street, Xicheng District, Beijing 100037, P. R. China

USD: 40/RMB: 200