FOREWORD

The study of interaction of water, rock, organic matter and gas is one of the most important directions of the development of modern geochemistry, hydrogeology and many other disciplines of the geological sciences, because many natural processes, including mineral formation, sedimentation, diagenesis, metamorphism, dissolution and transfer of ore components, and the formation of chemical composition of groundwater and surface water, are determined by this interaction. Over the last century, these natural processes have been impacted by industrial activity and other anthropogenic influences, leading to global climate changeand it's negative consequences for both human and animal populations. International scientific meetings are held regularly to discussthe importance of these geological processes.

Two of the very successful international organizations that organisesuch meetingsare the "Water-Rock Interaction" (WRI) and "Applied Isotope Geochemistry" (AIG) Working Groups of the International Association of GeoChemistry (IAGC). The first symposium of water rock interaction (WRI-1) was held in Prague in 1974. The symposium, which has been held every three years since then, brings together scientists from many countries, with a focus on the interaction of rock and water. The symposium of the Applied Isotope Geochemistry Working Group has been held regularly since its first meeting in Geiringer (Norway) during 1993. IAGC decided in 2018 to combine its various Working Group meetings into a single biennial IAGC International Conference and this joint meeting of WRI and AIG in the city of Tomskin the heart of Siberia (Russia)is the first implementation of this new conference series.

The proceedings of the 1stIAGC International Conference (WRI-16, AIG-13) are published as short articles (or extended abstracts), 3-5 pages long. These reportshave been reviewed by independent experts who decided upon suitability for the publication. The editorial group reviewed over 300 abstracts from around the world and recommended275 of them for publication in this proceedings. The topics of these papers are diverse. Many follow the traditional orientation of WRI and AIG, such as evolution of water-rock system, organic geochemistry, thermodynamics and kinetics of water-rock interaction, geochemical cycles of elements, global environmental changes, geochemistry of natural and contaminated waters, atmospheric precipitations to deep brines, water-rock interaction controlling water quality and human health issues, and applied isotope geochemistry. Topicswere added in areas of interest to the organisers of the conference, including those related to geological issues in Western Siberia, host to the Russian oil reserve andwhere plants for the production of radioactive materials are concentrated. These topics include "water-rock interaction during oil and gas field development" and "operation and geological, hydrogeological and geochemical aspects of disposal of radioactive waste". The largest number of abstracts are concentrated in the area of the theoretical and applied aspects of the water-rock interaction, such as the evolution of water-rock systems, the geochemistry of natural waters, and the isotope geochemistry.

In addition, special sessions are dedicated to the memory of two outstanding scientists: Stepan L. Shvartzev (Russia) and Dr. Tom Bullen (USA). Dr. Shvartzev was one of the founders of hydrochemistry research in Russia and made important contributions to understanding the geological evolution of the water-rock interaction system. He participated inall previous WRIsymposia, and was the reason why organisers of this conference in Russia chose Tomsk as its host city. He worked and lived all his adult life in Tomsk andis considered here a founder of Russian branch of the WRI Working Group.

Thomas Darwin Bullen, a Research Hydrologist at the U.S. Geological Survey and a former Secretary of the International Association of GeoChemistry (IAGC) from 2008 to 2014, passed away in September 2018 at the young age of 67 years. Tom was a distinguished scientist who had a career of high quality scientific contributions and enthusiastic leadership services to both the WRI and AIG Working Groups and, in fact, to the larger global geochemistry community. Tom pioneered the use of metal and metalloid isotopes (e.g., Cr, Fe, Ca, B, Se and Te stable isotopes and Sr radiogenic isotopes) and water chemistry to understand hydrologic and biogeochemical processes at scales ranging from mineral-water interfaces to water flow paths in watersheds and regional aquifers.

The publication of these articles was not possible without the support by many reviewers from around the world who spent many hours assessing the scientific merit and quality of the articles and revising English translations. The editors extend their thanks to each reviewer. The organising committee of the symposium, overseen by the Secretary-General, is to be commended for their outstanding and efficient organisational work. To all of them, the editorial board expresses sincere appreciation.

We anticipate that articles in this volume will be of interest to a wide range of scientists, including geochemists, hydrogeologists, hydrologists, chemists, and other specialties, as well as to the trainees.