

## Preface

The Geological Survey of Japan (GSJ) has been cooperating with institutes in East and Southeast Asian countries through Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP) and other networks. A groundwater research group in GSJ has a good relationship with the Department of Groundwater Resources (DGR), Thailand and Department of Geology and Minerals of Vietnam (DGMV).

Under such cooperation, the authors widely conducted groundwater temperature measurements and water samplings in the Chao-Phraya plain at numerous observation wells established by DGR from 2003 to 2005, and those in the Red-river plain in observation wells operated by DGMV in 2005 and 2006. These surveys were not done under a large project, but on a voluntary basis by the researchers of those institutes. The primary purpose of these measurements is to understand the whole groundwater flow system and subsurface temperature distribution in these plains from a pure scientific interest viewpoint. The secondary purpose is to obtain basic information that is needed to exploit the subsurface water and heat resources in these areas.

The authors have special interest in the application of geothermal heat pump systems that may be important from both energy security and environmental protection aspects. The latter case is more important so information was obtained on the use of heat resources of these plains. The first two papers on this special issue are written from this aspect.

As a result of DGR efforts, the authors had an opportunity to conduct an operation test of a geothermal heat pump system for space cooling at the DGR Kamphaengphet office from 2006 to 2007. The latter two papers in this issue show the results of this test operation. Although the shallow subsurface temperature in Kamphaengphet is rather high and not quite suitable for a cooling system, the experimental results can be applied to other regions. Thus, places more suitable for a geothermal heat pump (GHP) system will be found as a result of this experiment and regional groundwater survey.

This special issue, “Study on geothermal heat pump applications in Tropical Asia” is published to share our knowledge and ideas on groundwater study and heat pump application for space cooling with our colleagues in Asian countries. The authors are grateful that they were able to publish a special issue on the results of our study that was conducted on a voluntary basis, without a big budget. This publication may never have been realized without long-term international cooperation. Special thanks should be given to our supervisors and colleagues at National Institute of Advanced Industrial Science and Technology (AIST) for supporting these studies, to the reviewers and editing committee of the GSJ Bulletin for important advises, and, again, to our nice friends and colleagues at DGR and DGMV for their wonderful collaboration.

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