



Preface

Many volcanoes at any tectonic settings host hydrothermal systems. Volcano-hydrothermal systems (VHS) are result of interaction of the upper part of plumbing systems of active volcanoes with crust, hydrosphere and atmosphere. They are heated by magma, fed by magmatic fluids and meteoric (sea) water, transport and re-distribute magmatic and crustal material. VHS are sensitive to the activity of a host volcano. VHS may have specific features depending on the regional and local tectonic, geologic and geographic settings. The studies reported in this volume help to illustrate the diversity of the approaches and investigations that are being conducting at different volcano-hydrothermal systems over the world and the results of which will be of important value in furthering our understanding of the complex array of the processes accompanying hydrothermal activity of volcanoes. About 60 papers were submitted to a special session of "Volcano-Hydrothermal Systems" at the 2015 fall meeting of the American Geophysical Union. The papers in this special issue of the Journal of Volcanology and Geothermal Research were originally presented at that session.

There are many aspects in studying VHS that addressed in 15 papers comprising this volume:

- Reviews on the gas and isotope geochemistry of the Icelandic hydrothermal systems (A. Stefánsson; Gunnarsson-Robin et al.).
- Geochemistry of hydrothermal systems of the rift and hot spot settings in Iceland, Africa and Azores (Stefánsson; Lee et al.; Woitischek et al.).
- Geochemical evolution of hydrothermal manifestations after an eruption within the Karymsky volcanic Centre, Kamchatka (Taran et al.).
- Mineralogy of alteration in the ultra-acidic environment of Poás volcano, Costa Rica (Rodríguez and van Bergen).
- Geochemistry, solute fluxes and geothermal potential of the caldera-type hydrothermal systems in Kamchatka and Kuril Islands (Kalacheva et al.; Taran et al.).
- Detailed study of chemical and physical dynamics of a hyper-acidic spring-lake system on White Island, New Zealand, during its long and varied history (Christenson et al.).
- Source characterization using carbon isotopes in CO₂ from fluid inclusions in rocks erupted by Stromboli volcano, Italy (Gennaro et al.).
- Relationships between Cl and B in andesitic and rhyolitic melt inclusions and hydrothermal fluid composition for New Zealand hydrothermal systems (Bégué et al.).
- A long time-scale temperature monitoring of thermal fields at active volcanoes in Italy and Chile (Diliberto; Zimmer et al.).
- Soil CO₂ fluxes from hydrothermal systems of the Karymsky volcanic Centre, Kamchatka (Inguaggiato et al.).
- Geochemical response in thermal manifestations and its origin during the unrest of Nevado del Ruiz volcano, Colombia (Federico et al.).
- Experimental study on the benzene formation under hydrothermal conditions (Venturi et al.).

The diversity of applications and of the techniques used to study the volcano-hydrothermal systems extends beyond the limited numbers of papers in this special issue. However, the papers presented here provide a sample of this research area.

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Last September, Bruno Capaccioni, one of the brightest Italian geochemists, lost his life in a tragic car accident. Bruno, professor of Geochemistry and Volcanology at the University of Bologna (Italy), was one of the pioneers in the field of organic geochemistry applied to volcanic and geothermal areas. He also excelled in many other fields of fluid geochemistry, as testified by the many papers he published in international peer-review journals. We wish to dedicate this volume to the memory of this illuminated scientist and good friend. We will miss him. Rest on peace.

Yuri Taran
*Institute of Geophysics, Universidad Nacional Autónoma de México,
 Coyoacan, México, 04510, México*
 Corresponding author.
 E-mail address: taran@geofisica.unam.mx

Franco Tassi
*Dept. of Earth Sciences University of Florence Via La Pira 4, 50121, Florence,
 Italy*

Johan Varekamp
*Istituto Nazionale di Geofisica e Vulcanologia, Via Ugo la Malfa 153,
 Palermo, Italy.*

Salvatore Inguaggiato
*Earth & Environmental Sciences 265 Church Street, Wesleyan University
 Middletown CT 06459, USA*

Elena Kalacheva
*Institute of Volcanology and Seismology, FED RAS, Petropavlovsk-
 Kamchatsky, 683006, Russia*