

44th Annual Congress of the
International Association of Hydrogeologists (IAH)

“Groundwater Heritage and Sustainability”
„GROUNDWATER HERITAGE AND SUSTAINABILITY”



Dubrovnik, Croatia, September 25th to 29th 2017

Book of Abstracts

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The Congress is a contribution to the 8th phase of the UNESCO International Hydrological Programme (IHP-VIII, 2014-2021)



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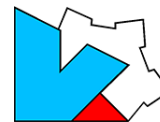


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Editors

Kristijan Posavec University of Zagreb, Croatia, Faculty of Mining, Geology and Petroleum Engineering
Tamara Marković Croatian Geological Survey, President of the Croatian National Chapter of IAH

ISBN: 978-953-6907-61-8

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Foreword

The Croatian National Chapter of the International Association of Hydrogeologists is honoured to host the 44th Annual Congress “Groundwater Heritage and Sustainability” in the Dubrovnik Palace hotel, Dubrovnik, Croatia, from 25th to 29th September 2017.

The city of Dubrovnik is the jewel of Croatian tourism, occupying a spectacular location on the eastern Adriatic coast. The city was declared a [World Heritage Site](#) by UNESCO in 1979.

The presence of the fresh water has been one of the key influences on the location of settlements throughout the history of mankind. The utilization of groundwater sources is therefore as old as human settlement and has become the part of our cultural heritage – a natural heritage which must be preserved. Due to significant industrial, agricultural, mining and touristic activities in the past century, together with the effects of climate change, the sustainability of groundwater use is now in the spotlight of hydrogeological research. Both the quality and quantity of groundwater sources are at risk of deterioration, and it is our task to reconcile meeting the water demands of contemporary settlements and economies with the need for conservation of this natural and cultural heritage in different environments around the globe.

The community of Croatian hydrogeologists would like to invite colleagues who deal with groundwater issues from different aspects to join this congress and share their ideas, experiences and knowledge. We extend our welcome to fellow scientists, engineers, other professionals, policy makers, government officials, as well as to students interested in groundwater.



Tamara Marković
President of the Croatian IAH Chapter

Code of abstract: T4.2.20

Type of presentation: Oral presentation

Topic: T4. Groundwater Monitoring – New Approaches

Session: T4.2. Monitoring of groundwater quality and contamination

Hydrochemical characteristics of the groundwaters in Prilep's part of Pelagonia valley– Republic of Macedonia

¹ Vojo Mircovski, ²Biljana Gičevski, ¹Gorgi Dimov

¹Faculty of Natural and Technical Sciences, Institute of Geology, "Goce Delcev" University in Stip Blvd. Goce Delcev 89, Stip, Republic of Macedonia, vojo.mircovski@ugd.edu.mk

² Exploring Society "Ursusspeleos", Dobromir Hrs 20 a, 1000 Skopje, Republic of Macedonia,

KEY WORDS - groundwater, Piper diagram, Chadha's diagram, cations, anions.

ABSTRACT

Hydrochemical properties of the groundwaters in Prilep region within the Pelagonia valley are analyzed with 12 samples of groundwater, taken from wells that exploits. The sampling was made only once on 27.08.2013. The groundwaters are used by the locals of this region as technical water, for irrigation of the surrounding arable land and for industrial needs.

Wells of were taken samples of groundwater is separated into three groups: wells with free level with depth up to 10 m, wells with free level with depth up to 100 m and artesian wells. The graphical methods, Piper diagram and Chadha's diagram, were applied in order to determine the hydrochemical properties of the groundwater. The results indicate that the groundwater samples have different hydrochemical properties. $Ca^{2+} > Na^{+} > Mg^{2+}$ for the cations and $HCO_3^{-} > Cl^{-} > SO_4^{2-}$ for the anions were dominantly dissolved ions in the majority of the water samples. Generally, increased values of Ca^{2+} , Mg^{2+} , Na^{+} , K^{+} , HCO_3^{-} , K^{+} and Cl^{-} occur in the groundwater from deeper artesian wells, as a result of the longer retention time of water in the underground and its interaction with the geological environment.

Dominant groundwater in Prilep field, in all three types of wells, are waters from hydrocarbonate class (HCO_3^{-}), calcium group (Ca), the first type of water.

Groundwater from the shallow wells show the increasing content of K^{+} , NO_3^{-} and PO_4^{3-} which indicates water pollution from fertilization of the cultivated areas, livestock farms as well as communal wastewater.

