

*Commission on Mineral and Thermal Waters*

*Commission Eaux Minérales et Thermales*



# **MINUTES**

**Activities of the CMTW  
during covid-19 pandemic restrictions 2020-2021**

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## **CMTW meeting in 2020**

The 49<sup>th</sup> Meeting of the Commission on Mineral and Thermal Waters in 2020 was planned during the 3<sup>rd</sup> International Multidisciplinary Conference on Mineral and Thermal Waters MinWat2020 in Caserta, Italy.

However, a few months before the conference the covid-19 restrictions were introduced in Europe. The major restrictions regarded personal meetings, travel limitations and work in larger groups of people. The Organizing Committee of the MinWat2020 decided to postpone the conference in order to secure for participants the possibility of personal attendance and field session visit. Conference dates were shifted twice and finally set to 26 – 30 June 2022.

The participants have the possibility to attend personally or on-line.

Since the initiation of such multidisciplinary conference on mineral and thermal waters MinWat, the CMTW-IAH supports the events in organizational and scientific terms. The 49<sup>th</sup> meeting of the Commission of Mineral and Thermal Waters will be held during MinWat2020 conference in June 2022.

## **Activities of the CMTW during covid-19 pandemic restrictions 2020-2021**

During the covid-19 pandemic restrictions in the years 2020 – 2021 the meetings of the CMTW were not officially organized.

Individual activities of the CMTW members and their participation in on-line conferences, symposiums or mineral and thermal waters industry meetings are in process of compilation.

### Preparation of Special Issue “Mineral and Thermal Waters”

One of the major activities of the CMTW during covid-19 pandemic 2020-2021 was preparation of the next special thematic issue of the Environmental Earth Sciences entitled “Mineral and Thermal Waters”. This work engaged number of CMTW members both in process of preparation of original manuscripts and in the editorial process of the manuscript review and evaluation. The preparation of the Special Thematic Issue of the Journal was initiated in 2019 and taken over a year from 2020 to 2021, when last papers were published online.

The editors of the special issue were members of the CMTW:

1. Dr Adam Porowski, Poland – guest editor (lead editor of the collection)
2. Dr Nina Rman, Slovenia – guest editor
3. Dr István Fórizs, Hungary – guest editor
4. Dr Jim Lamoreaux - editor

The first editorial foreword to the Special Thematic Issue were published in 2019:

Porowski A., Rman N., Fórizs I., LaMoreaux J. (2019) Introductory Editorial Thematic Issue: “Mineral and thermal waters”. *Environmental Earth Sciences* 78: 527  
 [ <https://doi.org/10.1007/s12665-019-8529-0> ]

Overall 17 papers were collected and published as can be seen in Table 1.

**Table 1.** List of papers published in Special Thematic Issue of Environmental Earth Sciences “Mineral and Thermal Waters”.

(thematic issue can be found here: <https://link.springer.com/collections/afigjffeif> )

No.	article
1	Wang, Y., Gu, H., Li, D. <i>et al.</i> Hydrochemical characteristics and genesis analysis of geothermal fluid in the Zhaxikang geothermal field in Cuona County, southern Tibet. <i>Environ Earth Sci</i> <b>80</b> , 415 (2021). <a href="https://doi.org/10.1007/s12665-021-09577-8">https://doi.org/10.1007/s12665-021-09577-8</a>
2	Romanova, A., Porowski, A., Zielski, T. <i>et al.</i> Origin and evolution of chemical composition of mineral waters of Szczawno-Zdrój inferred from long-term variation of ionic ratios, Sudetes Mts. (SW Poland). <i>Environ Earth Sci</i> <b>80</b> , 374 (2021). <a href="https://doi.org/10.1007/s12665-021-09643-1">https://doi.org/10.1007/s12665-021-09643-1</a>
3	Carreira, P.M., Marques, J.M., Guerra, A. <i>et al.</i> Caldelas and Gerês hydrothermal systems (NW Portugal): a comparative study based on geochemical and isotopic signatures. <i>Environ Earth Sci</i> <b>80</b> , 100 (2021). <a href="https://doi.org/10.1007/s12665-021-09389-w">https://doi.org/10.1007/s12665-021-09389-w</a>
4	Ćuk Đurović, M., Jemcov, I., Todorović, M. <i>et al.</i> Predictive modeling for U and Th concentrations in mineral and thermal waters, Serbia. <i>Environ Earth Sci</i> <b>79</b> , 456 (2020). <a href="https://doi.org/10.1007/s12665-020-09204-y">https://doi.org/10.1007/s12665-020-09204-y</a>
5	Štrbački, J., Živanović, V., Ćuk Đurović, M. <i>et al.</i> Origin, diversity and geothermal potentiality of thermal and mineral waters in Vrnjačka Banja, Serbia. <i>Environ Earth Sci</i> <b>79</b> , 309 (2020). <a href="https://doi.org/10.1007/s12665-020-09050-y">https://doi.org/10.1007/s12665-020-09050-y</a>
6	Todorović, M., Ćuk Đurović, M., Štrbački, J. <i>et al.</i> Rare earth elements in mineral waters in Serbia. <i>Environ Earth Sci</i> <b>79</b> , 290 (2020). <a href="https://doi.org/10.1007/s12665-020-09029-9">https://doi.org/10.1007/s12665-020-09029-9</a>
7	Liber-Makowska, E., Kiełczawa, B. Modelling of selected hydrodynamic and hydrochemical parameters of a geothermal water system: an example of Cieplice therapeutic waters. <i>Environ Earth Sci</i> <b>79</b> , 289 (2020). <a href="https://doi.org/10.1007/s12665-020-08947-y">https://doi.org/10.1007/s12665-020-08947-y</a>
8	Kralj, P., Kralj, P. Temporal variation of the halide ions (F <sup>-</sup> , Cl <sup>-</sup> , Br <sup>-</sup> , I <sup>-</sup> ) in medium-temperature (46–52 °C) thermal waters from the Sob-1 and Sob-2 wells, the Mura Basin, north-eastern Slovenia. <i>Environ Earth Sci</i> <b>79</b> , 283 (2020). <a href="https://doi.org/10.1007/s12665-020-09034-y">https://doi.org/10.1007/s12665-020-09034-y</a>

9	Garamhegyi, T., Székely, F., Carrillo-Rivera, J.J. <i>et al.</i> Revision of archive recovery tests using analytical and numerical methods on thermal water wells in sandstone and fractured carbonate aquifers in the vicinity of Budapest, Hungary. <i>Environ Earth Sci</i> <b>79</b> , 129 (2020). <a href="https://doi.org/10.1007/s12665-020-8835-6">https://doi.org/10.1007/s12665-020-8835-6</a>
10	Eröss, A., Csondor, K., Czuppon, G. <i>et al.</i> Groundwater flow system understanding of the lukewarm springs in Kistapolca (South Hungary) and its relevance to hypogene cave formation. <i>Environ Earth Sci</i> <b>79</b> , 132 (2020). <a href="https://doi.org/10.1007/s12665-020-8870-3">https://doi.org/10.1007/s12665-020-8870-3</a>
11	Sowiżdżał, A., Hajto, M. & Hałaj, E. Thermal waters of central Poland: a case study from Mogilno–Łódź Trough, Poland. <i>Environ Earth Sci</i> <b>79</b> , 112 (2020). <a href="https://doi.org/10.1007/s12665-020-8855-2">https://doi.org/10.1007/s12665-020-8855-2</a>
12	Kharitonova, N.A., Chelnokov, G.A., Bragin, I.V. <i>et al.</i> Major and trace element geochemistry of CO <sub>2</sub> -rich groundwater in the volcanic aquifer system of the Eastern Sikhote-Alin (Russia). <i>Environ Earth Sci</i> <b>79</b> , 55 (2020). <a href="https://doi.org/10.1007/s12665-019-8697-y">https://doi.org/10.1007/s12665-019-8697-y</a>
13	Sowiżdżał, A., Maćkowski, T. & Wachowicz-Pyzik, A. Variability of lithofacial parameters of Lower Jurassic geothermal aquifer in the Malanów region revealed by interpretation of geophysical well logs and seismic data. <i>Environ Earth Sci</i> <b>79</b> , 33 (2020). <a href="https://doi.org/10.1007/s12665-019-8759-1">https://doi.org/10.1007/s12665-019-8759-1</a>
14	Elena, F., Vasiliy, L., Natalia, K. <i>et al.</i> Hydrogeology and hydrogeochemistry of mineral sparkling groundwater within Essentuki area (Caucasian mineral water region). <i>Environ Earth Sci</i> <b>79</b> , 15 (2020). <a href="https://doi.org/10.1007/s12665-019-8721-2">https://doi.org/10.1007/s12665-019-8721-2</a>
15	Rman, N., Bălan, LL., Bobovečki, I. <i>et al.</i> Geothermal sources and utilization practice in six countries along the southern part of the Pannonian basin. <i>Environ Earth Sci</i> <b>79</b> , 1 (2020). <a href="https://doi.org/10.1007/s12665-019-8746-6">https://doi.org/10.1007/s12665-019-8746-6</a>
16	Bonotto, D.M., de Oliveira Thomazini, F. Comparative study of mineral and surface waters of Araxá spa, Minas Gerais State, Brazil. <i>Environ Earth Sci</i> <b>78</b> , 542 (2019). <a href="https://doi.org/10.1007/s12665-019-8539-y">https://doi.org/10.1007/s12665-019-8539-y</a>
17	Porowski, A., Rman, N., Fórizs, I. <i>et al.</i> Introductory Editorial Thematic Issue: “Mineral and thermal waters”. <i>Environ Earth Sci</i> <b>78</b> , 527 (2019). <a href="https://doi.org/10.1007/s12665-019-8529-0">https://doi.org/10.1007/s12665-019-8529-0</a>

#### Other individual activities (update in process)

1. In 2020, Russian Chapter of IAH together with dr Natalia Vinograd who is a member of the CMTW as well as the Vice President of IAH for Eastern Europe and Central Asia, participated in organization and support of the next **International Conference “Groundwater - 2020”, 28 – 30 September 2020.**

The conference was held on-line with three centers in Moscow, St. Petersburg and Essentuki. Dr Adam Porowski was invited to give a speech as a representative of the

Commission on Mineral and Thermal Waters of International Association of Hydrogeologists (CMTW-IAH). Dr Porowski gave a speech regarding chemical and isotopic quality of mineral bottled waters and normative regulations in Europe.

Porowski A., Romanova A. (2020) Isotopic composition as indicator of the quality and origin of mineral bottled waters: implications for bottled water industry and normative regulations. *International Conference "Groundwater", Moscow – St. Petersburg – Essentuki, 28 – 30 September 2020 (on-line)*

2. Other individual activities of the CMTW members at various events connected with the IAH activities are in process of collection and will be provided in the next CMTW Minutes for 2022.