

**„AIR AND WATER – COMPONENTS OF THE ENVIRONMENT”
CONFERENCE
AT 10 YEARS OF EXISTENCE**

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1. HYDROLOGY AND METEOROLOGY SPECIALIZATION

The Faculty of Geography has experienced a constant and accelerated development since 1994, when it became an independent subunit of Babeş-Bolyai University. In this context, in 2006, the fifth and the newest specialization of the faculty, *Hydrology and Meteorology*, was launched as Bachelor studies level. This specialization has as main aim to meet to practical needs, namely the training of specialists for several fields of the economic development, mainly for the national hydrological and meteorological networks.

In order to provide a superior level of education for this specialization, in 2009 was established the Master studies program, under the title *Resources and risks in the hydro-atmospheric environment*. This ensured the complex training of future hydrologists and meteorologists. Over the 10-years period, the two study programs have been quite attractive, the number of students in the 1st year oscillating between 20 and 30 students, at Bachelor level and between 10 and 20 students, at Master level (Pandi, 2014).

The opportunity and success of the specializations resulted also from the relatively high number of graduates who have been employed in the hydrological and meteorological national networks, as well as in other institutions. Moreover, many employees from the branches of the „Romanian Waters” National Administration and the National Meteorological Administration have completed their studies at a bachelor or master level.

Most graduates work as hydrologists or meteorologists in weather and hydrological stations, research institutes, water basin monitoring offices, water management departments including leadership positions etc.

2. THE BEGINNING

The success of the specialization, from its very beginning, has posed the problem of its development in two main directions: the orientation towards practice and the establishment of a scientific background in the fields of hydrology and meteorology-climatology. The practical character was ensured and accentuated by some changes in the curricula. In order to accomplish the second aim, the teaching staff considered necessity to initiate a scientific symposium or conference. Thus, after the first three years

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of the Bachelor studies and in the same year with the beginning of the Masters study programs, in 2009 the first edition of the conference „Air and Water - Components of the Environment” was held. The stated goal was the integration of all the institutions in Cluj-Napoca that deal, scientifically or practically with the air and water.

Thus, the Someș-Tisa Basin Administration, the North Transylvania Regional Meteorological Center, the Someș Water Company, Hidroelectrică, the Regional Environmental Protection Agency, the BBU’s Faculty of Environmental Science and Engineering, the City Hall, as well as some private companies were called to join the project.

The success was only partial. Some of them have understood the necessity for such actions from the beginning, others joined us along the way. After ten years, the present edition was organized by the staff of hydrologists and meteorologists from the Faculty of Geography as the main organizer, the Someș-Tisa Water Basin Administration, as a co-organizer, the Someș Water Company and Hidroelectrică as partners, the City Hall of Cluj-Napoca, MDS Electric and BEIA Consult International as sponsors.

The date of the conference is strictly determined by the World Water Day and World Meteorological Day. Taking advantage of the fact that the two events take place annually in consecutive days – 22nd and 23rd of March, the conference takes place around this date.

3. „AIR AND WATER” ASSOCIATION

In agreement with the purposes of the conference, the Air and Water Association, with legal personality, organized on non-profit principles, was established in 2012. Members of the Conference Organizing Committee became founding members of the association.

The main purpose of the Air and Water Association is to explore concepts, methods, techniques and instruments specific to the hydrological and meteorological community as well as to stimulate the scientific activity of its members and to promote the its results, primarily by organizing and supporting the Conference “Air and Water – Components of the Environment”.

4. ANALYSIS OF THE 10-YEAR ACTIVITY

4.1. Scientific sections

The evaluations of the 10 editions of the conference were conducted by consulting the programs and conference proceedings of the Air and Water –



Components of the Environmental Conference (Fig. 1). Data regarding the year 2018 are estimates based on the information provided by the organizers.



Fig. 1. The program and proceedings book covers

The program booklet shows that the number of sections varied between five (2009, 2010, 2011, 2013) and eight (2014). In recent years, it seems to have constant number of seven sessions. The number of presentations in the plenary session was higher at the beginning of the conference (seven). After that it oscillated, with one exception (2015), between three and four presentations. Starting with the third edition, the students' performances increased. Thus, a session dedicated to them was set up, where the moderators included students and professors. The number of presentations varied a lot, depending on their choice and the persuasive teaching staff. This sessions has been missing for the last two editions of the conference, mainly because the students were included into the author groups of presentations and articles. The posters occupied an important place for each edition. Their number was remarkably high in the 2015 and 2017 editions (24 and 20 respectively) (Fig. 2).

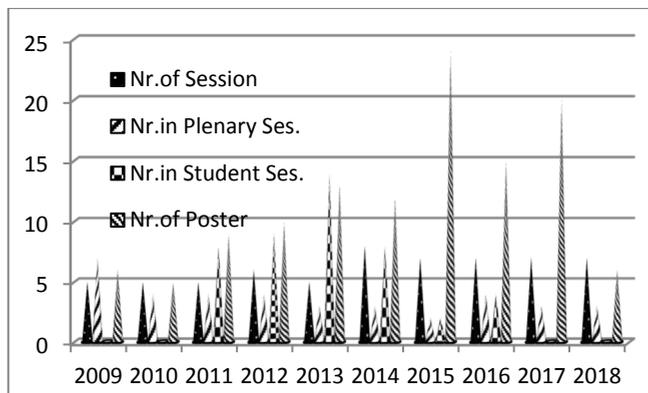


Fig. 2. Number of sessions and presentations

4.2. Published articles

The United Nations establishes each year a theme for the two days dedicated to the air and the water environment. All the conference proceedings (issued from 2010 to 2018) included the analysis of the specific theme of the year in order to highlight the title of the scientific event and the moment of its development.

From the volumes of the ten conference editions, there is an interesting and relevant statistic for the road ahead. Thus, the number of published articles shows a relatively stable trend. The fewest were published at the first edition. At that moment, the conference papers were not published in a proceedings volume, but in special issues of *Studia Universitatis Babeş-Bolyai*, *Seria Geographia* and of *Riscuri* and *Catastrofe* journals.

In the first proceedings book, published for the second edition (2010) the number of articles considerably increased, and remained, until 2017, between 55 and 80. Most articles (79) were published in 2011. It should be noted that the number of articles published in the volume is restricted by the maximum limit of two papers for each participant (as the first author or as co-author) (Fig. 3).

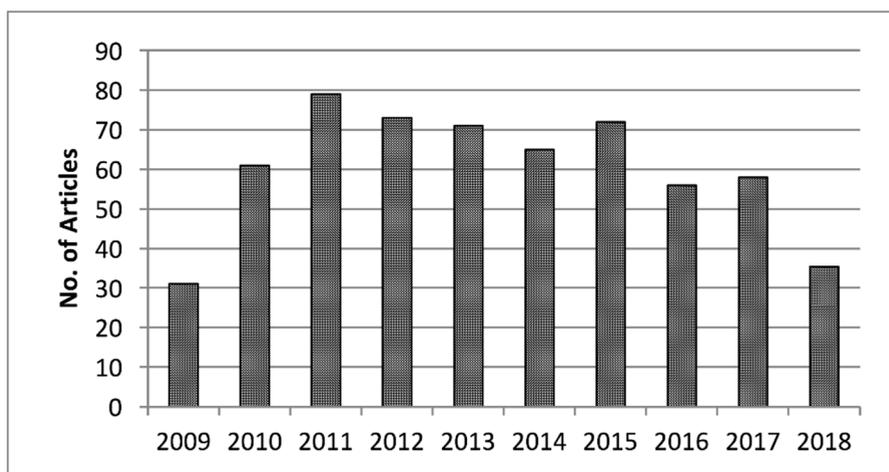


Fig. 3. *Number of published articles*

The declared topics (sessions) of the conference, which have been maintained over the years, are the following: air and water environment monitoring, climatic and hydrological hazards, climatic changes and their impact, pollution and protection of the air and water environment, weather and hydrological forecast, tourism potential of hydro-climatic resources.

As it is obvious from their titles, scientific papers submitted should address the air and water environment in different ways. If the two environments are analyzed separately, it follows that, after a balanced situation during the first edition, for the next three editions the papers dedicated to water environment were dominant. After that, the relative balance has been restored. The maximum number of articles related to

hydrology was published in 2011 (49 articles), and most articles dedicated to air environment were recorded in 2013 and 2015 (37 articles for each edition) (Fig. 4).

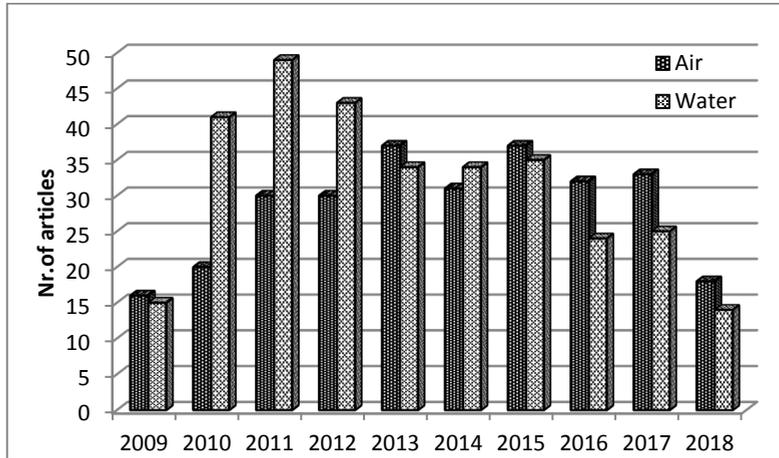


Fig. 4. *The themes of the articles on the two media*

If we analyze the number of papers submitted by foreign and Romanian authors, there have been recorded opposite trends. Over the 10-year period, the trend of articles written by foreign authors has been increasing, and that of Romanian authors has been decreasing. Foreign authors have produced between 4 and 24 articles. The Romanian authors were the most numerous in 2011, with 72 articles. Their number has been maintained over 50 by 2015, and dropped below 40 after that. Trends highlight the strengthening of the international character of this scientific event (Fig. 5).

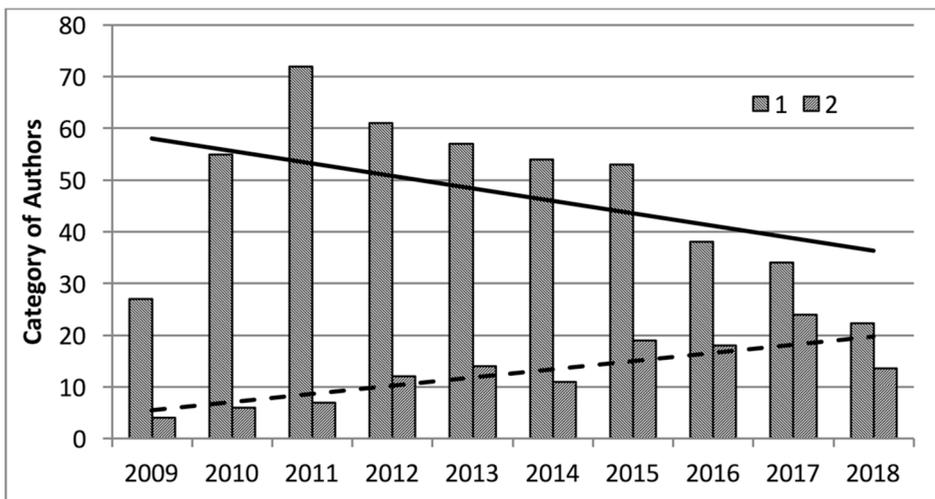


Fig. 5. *Number of published articles (1-articles by Romanian authors 2-articles by foreign authors)*

The total number of articles written by foreign authors was 165. Of course, the great majority of foreign authors came from the European continents, providing 143 articles; the other articles were written by authors originated in Asia, Africa and North America (Fig. 6).

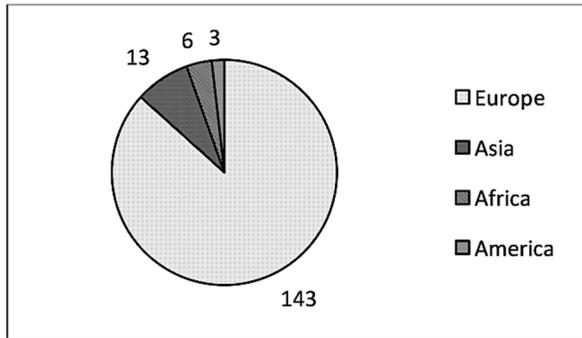


Fig. 6. *Repartition by continents of articles with foreign authors*

The number of pages dedicated to the conference closely follows the evolution of the number of articles because the extension of articles is, generally, limited to a maximum of eight pages. Thus, from 230 pages, at the first edition, the number increased for the first proceedings book to 526 pages. The volume of pages continued to be over 400, except in 2018, when it slightly exceeded 310. The maximum number of pages (584) was specific for the third edition, in 2011 (Fig. 7).

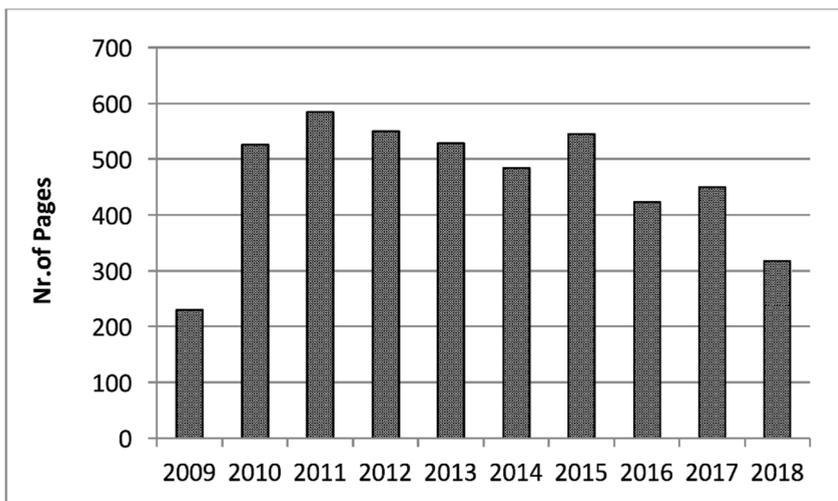


Fig. 7. *Number of pages of the conference proceedings*

4.3. Participants

Along with the Romanians, over the ten years the participants from abroad came from 29 countries. International representation became more accelerated from

one edition to another: 2 countries in the first year and 14 countries in 2017. On average, in one year, apart from Romania, eight countries were represented at the conference (Fig. 8).

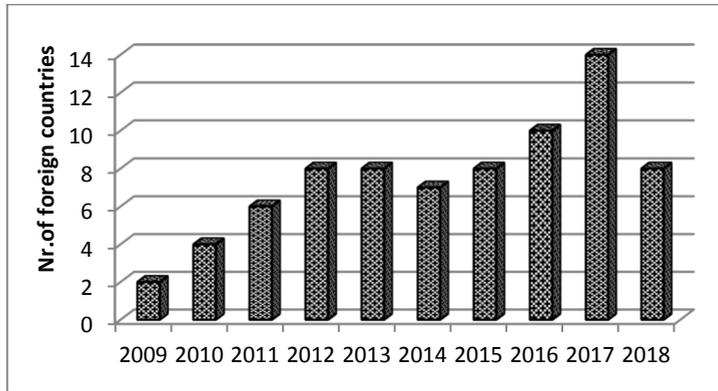


Fig. 8. Number of foreign participants by countries

The nationwide distribution of foreign participants indicated an almost double number of European countries (18) compared to the sum of the other three continents (11 countries). The most frequent attendees were participants from Hungary and France (with 8 editions each). The most active were the representatives of Hungary (47 papers), Republic of Moldova (19 papers) and Poland (14 papers). The most remote countries providing authors were Taiwan, Vietnam, Republic of South Africa and the USA.

4.4. Field trips

Next to the scientific sessions day, a field trip followed during each edition of the conference. It included visits to hydrological and hydro-technical objectives (natural lakes, reservoirs, river sectors, hydrometric stations, dams, hydropower plants, etc), weather and evaporation stations, as well as other natural and anthropic sightseeing: mountain areas, gorges, fishery, historical fortresses, museums, the botanical garden and natural reservation area, fruit and wine growing areas, mining operations, etc. The latest editions also included a guided tour of Cluj-Napoca city. In 2018 this last goal is missing because the conference is organized in Sovata (Mureş county), the most famous SPA resort from Transylvania. The field trips routes were as follows:

- 2009 Izvorul Crişului – Beliş - Mărişel
- 2010 Petreştii de Jos – Cheia – Ocna Mureş
- 2011 Cojocna – Geaca - Sic
- 2012 Lupşa – Roşia Montană - Câmpeni
- 2013 Zalău – Vârşolţ - Jibou
- 2014 Valea Drăganului – Remeţi – Ciucea
- 2015 Lechinţa – Colibiţa - City of Bistriţa - Tihuta
- 2016 Râmeţ Monastery– Alba Iulia – Blaj

2017 Târgu Mureș – Sighișoara – Biertan
2018 Sovata – Praid – Corund – Târgu Mureș

5. CONCLUSIONS

The international conference *Air and Water - Components of the Environment* is an important achievement of the team of meteorologists and hydrologists from the Babeș-Bolyai University, Faculty of Geography. In the ten years, the conference enjoyed the unconditional support of faculty leadership. Also, we should emphasize the fruitful collaboration with partner institutions.

Over time, the conference gained visibility, both in the country and abroad. As main results, we can mention the increasing number of participants and of the quality of the published articles in the conference proceedings. The conference was attended by representatives of prestigious universities, as well as of leading specialized research centers in the field of meteorology and hydrology, both from Romania and from abroad.

At the same time, the scientific level of the papers presented and published has increased steadily, both by Romanian authors and by foreigners. This is reflected by the continuous increase in the impact volume of the conference volume, which is now indexed in five of the most prestigious data basis in the world: DOAJ, ProQuest, EBSCO Host, Ulrichs Web, and CiteFactor.

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