

Editorial

Welcome to the 27th Volume of the International Hydrographic Review (IHR). With this edition, I officially take over the duties as Chief Editor.

I would first like to thank my predecessor Capt. (Ret) Brian Cannon for his dedicated induction. Together with the entire IHR team, Brian has made a huge impact on the public profile of the IHR over the last two years: a new website was launched and access to the IHR archives was improved. And let's not forget, four editions have been published with interesting and exciting articles and notes on aspects of hydrography and beyond.

Briefly about me: I graduated as a geodesist in 2005 from Technische Universität Dresden (Germany) and completed my Ph.D. in 2012. I then worked in academia and conducted research and teaching in the fields of photogrammetry and laser scanning. In 2017, I joined BSH, the Federal Maritime and Hydrographic Agency of Germany, as head of Research and Development in the Nautical Hydrography Department. In this role, the transition from scientific research and development work towards application-specific implementation and practical transfer is of particular importance to me. My professional long-term aim is to bring together the separate disciplines of geosciences, maritime science and technology, and navigation. Only with such synergy, can we turn loose overlaps into living collaborations and thereby meet future challenges. On a more personal level, I live together with my wife and two boys in Northern Germany, a stone's throw from the Baltic Sea. Besides hydrography, I am also active in artistic and cultural interests in my hometown, am interested in photography and traditional photo development, and am passionate about hiking and bicycle tours.

I took on the editorship with the awareness to continue the traditional legacy and the longstanding work of the IHR. In particular, the sympathetic character of the IHR as a publication medium for the entire international hydrographic community should be preserved – including academia, industrial, organizations and agencies. However, this balancing act is not always easy. The hurdles for reports/notes should be kept low. At the same time, the IHR should be an attractive journal for outstanding (scientific) articles. I would like to strengthen the content of the journal, increase the number of high-quality peer-reviewed articles, and increase the visibility and standing of the IHR. My long-term vision: the IHR should be *the* international journal that people with hydrographic background and from neighbouring disciplines think of first when looking for a suitable publication medium to present scientific work, reports from practice, news, and announcements.

To achieve this, we must continue to build bridges with neighbouring disciplines. Disciplines such as geodesy, oceanography, remote sensing, and geoinformation science in which we can find innovative technologies, that are mostly complementary to current hydrographic approaches, for both data acquisition and analysis. Broadening the publication spectrum of the IHR and being open to discussion can act as a catalyst in our own community for further development of existing, and the design and implementation of new, methods, techniques and systems. An equally important place in this journal should be given to the application fields that rely on seabed topography and water level information as well

as on other descriptive features of water bodies. Traditionally, this has always been nautical cartography: providing mariners information to safely, efficiently, and sustainably travel the seas. However, this also includes other applications such as marine geology, physical and biological oceanography, blue economy, environmental science, cultural heritage. Encouraging (end) users of hydrographic data to publish their work in the IHR is motivating for us, Hydrographic Offices, to provide accurate, reliable and up-to-date hydrographic data. Last but not least, the United Nations Decade of Ocean Science for Sustainable Development shows that major challenges and ambitious goals can only be achieved together. I would be very pleased if the IHR can contribute to this.

In the first of a total of five articles in this new edition of the IHR, we already show the many facets of hydrography: Melanie Elias and Hans-Gerd Maas introduce a novel and flexible water gauging technology using smartphones as low-cost measuring devices enabling the crowdsourcing of water levels on demand with accuracies of a few centimetres. Their developments show how, for example, the neighbouring discipline of photogrammetry can contribute to activities of hydrography by providing innovative solutions for monitoring smallest inland waters to improve the prediction quality of flood events.

The second article by Daryl R. Metters also deals with water levels. However, this is not about short-term water level changes caused by climate change, but about tidal levels, which serve as a reference level (chart datum) and are defined on the basis of the astronomical tide over fixed durations at a specific locations. Here, Metters investigates the variance in the accuracy of highest astronomical tide levels with increasing data length.

In our third article, Jean-Guy Nistad and Patrick Westfeld present improved techniques to resolve the water column sound speed structure for multibeam ray-tracing. Their approach proposed here aims to combine measured with synthetic sound speed profiles in order to minimize sound speed errors.

We remain in the hydroacoustic domain and dive, together with Diana María Quintana-Saavedra et al., into the 18th century, when the English Empire carried out a large-scale attack on Cartagena de Indias, a municipality on the Caribbean coast of Colombia. Based on the acquisition and analysis of multibeam bathymetry and sonar imagery, as well as historic documents and cartography, the authors contribute with this fourth article to preserve Columbia's cultural heritage.

The last article examines hydrography from a completely different perspective, namely a linguistic one. The key to successful professional communication is the consistent use of clearly defined technical terms. Lars Schiller answers the questions: Which terms hydrographers use in their communication? Which ones do they use particularly frequently? Which terms exist only because hydrography exists? Schiller also contributes to the debate about the term *hydrospatial*.

From 1971 to 2021 – the East Asia Hydrographic Commission (EAHC) celebrated its 50th anniversary last year. To mark the occasion, Shigeru Nakabayashi presents in this first note comprehensive historical steps and efforts of EAHC in its fifty years of existence.



Editorial

“This is a man’s world”, James Brown already sang in 1966. And amazingly, this has hardly changed in the last decades. The International Hydrographic Organization (IHO) is not satisfied with this and has launched a project in cooperation with Canada to “Empower Women in Hydrography”. The aim is to raise awareness of career opportunities in hydrography and to increase the number of women in leadership positions. In Chile, women are fully represented in all major technical and scientific disciplines of hydrography. Their successful inclusion is presented in the second note by the Hydrographic and Oceanographic Service of the Chilean Navy (SHOA). However, gender equality also means that the working conditions for women have to be adapted. In the third note, Helen Stewart et al. draw our attention to significant deficits in occupational health and safety for women and propose a series of actions and policy changes to address these barriers.

The next two notes deal with research, development and education activities in North America. First, Vincent Lecours et al. give a very interesting and comprehensive overview of the research being done by scientists at the School of Forest, Fisheries, and Geomatics Sciences, University of Florida, in the field of hydrography and marine geomatics. Second, Sylvie Daniel et al. highlight the main facts and outcomes of the International School on Hydrographic Surveying (ISHS), the first hydrospatial training program proposed by the Canadian Ocean Mapping Research and Education Network (COMREN).

This edition closes with a sixth note on the end of traditional paper charts in area of responsibility of the United States’ National Oceanic and Atmospheric Administration (NOAA). Colby A. Harmon and Edward J. Van Den Aemele report on the decision to end the production and the maintenance of paper nautical charts and corresponding raster chart products and services. At the same time, the two authors show the associated gain in higher quality, more up-to-date, more detailed electronic navigational charts (ENC) and other ENC-based products and services.

In this edition, we have tried to highlight the many facets of hydrography in five scientific peer-reviewed articles and six notes. IHO defines Hydrography as “[...] the branch of applied sciences which deals with the measurement and description of the physical features of oceans, seas, coastal areas, lakes and rivers, as well as with the prediction of their change over time, for the primary purpose of safety of navigation and in support of all other marine activities, including economic development, security and defence, scientific research, and environmental protection”. In the future, let us together continue to be open to the entire spectrum that hydrography deals with – namely, *all* large bodies of water, including lakes and rivers. We will not forget our origins, i.e. that hydrography’s primary objective is the safety of navigation. But not exclusively. With a sense of proportion and without compromising the tradition of the IHR, we must also apply the full definition of hydrography to the content of the IHR for this purpose. I believe that this can only be fruitful for everyone in our community.

All this does not happen overnight. What is to be good takes time. And you! Let us develop the IHR together. I am already looking forward to it!

On behalf of the Editorial Board, I hope you enjoy reading this new edition of IHR!

Patrick Westfeld
Chief Editor, IHR