Welcome to the 25th Salt Water Intrusion Meeting (SWIM), being held from 17 to 22 June 2018 in Gdańsk, Poland. It is our great honor and pleasure to celebrate with you a round anniversary of the SWIM conferences, the first one of which was held in Hannover, Germany, 50 years ago. SWIM was born as an initiative of scientists from Germany, the Netherlands and Denmark concerned about increased groundwater salinity caused by abstraction of fresh groundwater adjacent to the sea. Over the years, the scope of the meetings extended to cover a wider range of theoretical and applied research topics related to coastal aquifers, including management practices, protection of groundwater resources, submarine groundwater discharge, methodology of field investigations and modeling techniques. Groundwater salinity originating from processes other than seawater encroachment was also considered. The first meetings have been organized, mostly on a biennial basis, in different European countries, with an increasing number of participants.

In 2008 SWIM merged with SWICA (Saltwater Intrusion and Coastal Aquifers) conferences. Starting from that year, every second SWIM is held outside Europe - the most recent one took place in Cairns, Australia in 2016, as a joint event with Asia-Pacific Coastal Aquifer Management Meeting (APCAMM), which is an initiative with similar aims as SWIM, but focused on a specific region.

The continuous success of SWIM stems from the fact that a significant proportion of the world’s population lives on the shores of oceans and seas. It is estimated that about 30% of the people on Earth inhabit the first 100 km from the coast, and they increasingly depend on groundwater supply.

Many communities and whole nations have to cope with rising demand for water due to economic development and population growth, which in turn causes over-exploitation of water resources and deterioration of their quality. The problem is amplified by expected changes in precipitation patterns and sea level rise. Such challenges require close cooperation between scientists, engineers, water resource managers and policy makers. In this regard SWIM conferences provide a forum bringing together participants from academia, private consulting firms, local, state, and national government agencies, and giving them a possibility to interact in an informal and relaxed environment.

The proceedings book of 25th SWIM contains over 130 papers and abstracts submitted by
participants from more than 20 countries. Besides European and American countries, having been the mainstay of SWIM for a long time, there are attendees from Middle East, Africa, Asia and Pacific region, which reflects the global relevance of SWIM themes. Presentations have been grouped around several topics: case studies of saltwater intrusion, approaches to coastal aquifer management, submarine groundwater discharge, application of geophysical methods, geochemistry, hydrogeology of islands and modeling studies, including numerical, analytical and physical models.

This is the third SWIM organized in Poland, after the one held in 1990 in Sopot (close to Gdańsk) and another one in 2000 in Międzyzdroje on Wolin Island near Szczecin. Despite relatively low salinity of the Baltic sea, saltwater intrusion has been extensively studied in the Baltic countries, in hydrogeological settings varying from sandy spits to deltaic areas to crystalline bedrock islands. The whole Tri-city agglomeration of Gdańsk, Sopot and Gdynia relies almost exclusively on groundwater resources, from Quarternary, Tertiary and Cretaceous unconsolidated aquifers. A large proportion of water is obtained from wells located in close vicinity of the sea, which were particularly vulnerable to increasing salinity in 1980’s. Since that time, great political, social and economic changes occurred in Poland and the whole Eastern Europe - regular SWIM participants have certainly noted the effects. The transformation also modified groundwater usage patterns, reducing the abstraction for both industrial and domestic purposes. Consequently, gradual freshening of groundwater is observed in Gdańsk aquifers. On the other hand, submarine groundwater discharge is increasingly studied as a potentially important process leading to contamination of the Baltic sea, particularly by nutrients originating from agricultural practices, at least at the local scale. These issues are reflected in several contributions submitted to the conference.

The 25th SWIM is organized by several institutions: Gdańsk University of Technology, Polish Geological Institute - National Research Institute, University of Nicolas Copernicus in Toruń and three institutes of the Polish Academy of Sciences: Institute of Hydraulic Engineering in Gdańsk, Institute of Oceanology in Sopot and Institute of Geophysics in Warsaw.

We owe sincere gratitude to our sponsor, KGHM Polska Miedź company. The support from the members of the Advisory Committee and the Scientific Committee is highly appreciated. Special thanks are to Christian Langvin, Frans Schaars and Mark Bakker, who volunteered to organize a pre-conference short course on groundwater modeling in coastal aquifers.

Last but not least we would like to thank all SWIM participants. This conference is for you and would not be possible without your support. We do hope that you will enjoy scientific discussions, exchange experiences and develop new ideas, at the same time discovering beautiful nature and rich cultural heritage of the Gdańsk region.

Adam Szymkiewicz, Andrzej Sadurski, Beata Jaworska-Szulc