

# **CARTOGRAPHY AND GEO-INFORMATION SCIENCES - INTRODUCTION**

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The 9th edition of the International Conference on Cartography and GIS (9ICC&GIS) took place in Nessebar, Bulgaria. The conference is organized by the Bulgarian Cartographic Association and the University of Architecture, Civil Engineering and Geodesy in Sofia. It is endorsed by the International Cartographic Association (ICA). The event is organized with the support of the Bulgarian Science Fund and the Municipality of Nessebar, Bulgaria.

For the third time in the Conference's history, the ancient seaside town of Nessebar hosted the Conference from June 16th until June 21th, 2024. It is one of the major seaside cities on the southern Bulgarian Black Sea coast. Due to the city's abundance of historic buildings, UNESCO included Nessebar in its list of World Heritage Sites in 1983.

The organizers aim to share knowledge and experience regarding the latest achievements in Cartography and GIS with a special focus on the Balkan Peninsula, Europe and global affairs. In the Proceedings, you could find various topics such as the development of cartography as a science and practice: from history of cartographic education to sustainable development, from BIM to GNSS and Lidar technologies, from geoscientific communications and geodiversity to velocity and dynamic maps. You will find more topics related to web-based maps and information systems, digital twins, mapping for natural disasters, earth observation, GIS, 3D cartography, and smart cities.

The conference oral technical sessions covered the following topics:

- Map design and production;
- Cartography and GIS in education;
- GIS technologies and related disciplines;
- 3D cartographic modelling;
- Cartographic visualization;
- WEB cartography and digital atlases;
- Digital transformation and digital twins;
- Geoinformation for smart cities;
- Geospatial analysis and data mining;
- Photogrammetry and remote sensing technologies;
- UAV applications and new trends;
- Map projections and geodetic coordinate systems;
- GIS for geology, natural sciences and ecosystems.

31 posters distributed in 5 poster sessions represented the papers, additionally, on above mentioned topics. The useful discussions were done during the coffee breaks and the time for the poster exhibition.

In the recent years marked by social and natural crises, these topics allow us to fulfill our users' desire for cartography achievements. They also prove to businessmen, government representatives and scientists the need for real-time cartographic representations and better SDI, GPS and GIS solutions. To deliver them, we need the support and cooperation of domain specialists in different branches of the Earth sciences.

During the conference, four ICA commissions had their annual meetings:

- Commission on Cartography in Early Warning and Crisis Management;
- Commission on Cartography and Children;
- Commission on Maps and the Internet;
- Commission on Map Projections.

A Seminar on Disaster Risk Reduction – Solutions and Innovations was organized by the Commission on Cartography in Early Warning and Crisis Management, ICA. The Faculty of Science, Masaryk University, Brno, Czech Republic was a co-organizer of the Seminar.

A special ISDE plenary session “Digital Earth: Geospatial Sources, Technologies and Visualization” was organized by the International Society for Digital Earth.

The workshop on Collaborative Immersive Virtual Environments as a Tool for Enhancing Social Cohesion: Studium Terra Incognita aroused great interest among the participants of the conference.

The Conference was supported by different ministries and governmental institutions that expect significant results to be achieved and new projects to be started at the event. As a NATO member since 2004, and an EU member since 2007, Bulgaria welcomes all ideas for collaboration in the field of Earth sciences. An example of such cooperation is the above-mentioned Seminar that combined Bulgarian and Czech efforts and was recognized by the EU. Among the members of the Local Organizing Committee, numerous universities that specialize in the field of Cartography and GIS can be distinguished.

The organizers are proud to announce that ESRI - a leader in geo-informatics and cartography domains - participated as a gold sponsor of the event. Alan Devenish from ESRI Europe, The Netherlands, was one of the keynote speakers. He held a presentation on the topic: Cartography for Climate Communication. HERE Technologies Ltd. is also a regular sponsor of the conference.

The 9ICC&GIS media partner was Geomedia.

The main international supporter of 9ICC&GIS was the ICA with exclusive support from the President of ICA Prof. Georg Gartner, a vice-President, and several chairs of ICA Commissions. The keynote speech of Prof. Gartner was titled “About the default nature of maps”. The sister organization of ICA, ISPRS was represented by its president Prof. Lena Halounova. Her keynote speech was titled “Earth Observation and its Challenges”. One more keynote speech came by the president of the International Society for Digital Earth titled “Exploring Digital Earth and the Metaverse”. This strong cooperation draws interest among 140 participants across 28 countries.