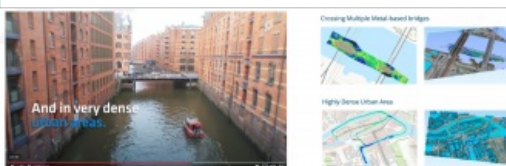
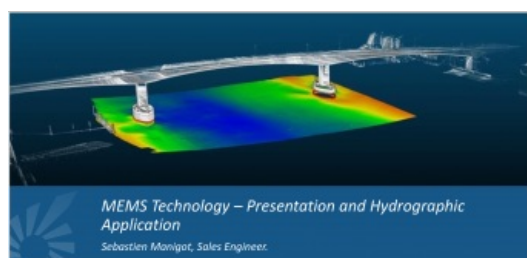


# MEMS Technology – Applications in the Field of Hydrography



Even in the difficult times facing society today, training does not stop, as demonstrated by the 'MEMS Technology – Presentation and Hydrographic Application' conference held by video conference on 26 May on the GoToMeeting platform. The conference was organized by SBG Systems, Institute Nautical ITTL Luigi Rizzo di Riposto (CT), and IHS Italian Hydrographic Society.

MEMS stands for Micro Electro-Mechanical Systems and indicates a technology that integrates mechanical elements, sensors, actuators and electronics located at the level of a silicon substrate.

The conference was attended by many experts from the hydrographic sector: Rear Admiral Luigi Sinapi, director of the Italian Hydrographic Institute of the Navy, Vincenzo Crupi, coordinator of the courses in Science and Technologies of Navigation of the University of Messina, Giorgio Budillon, director of the Department of Oceanography of the Parthenope University of Naples, Salvatore Troisi and Pina Prezioso of the Parthenope University of Naples, and many maritime navigation teachers from different Italian nautical institutes.

## The Importance of Hydrography and Oceanography

Dr Maria Catena Trovato, principal of the Nautical High School of Riposto "Luigi Rizzo", first welcomed participants to the conference, which was moderated by Aldo Monaca, professor of Navigation Sciences at the same school. Rear Admiral Sinapi then talked about the importance of hydrography worldwide and of the organization of the conference, as it constitutes an important step in spreading knowledge in the field of hydrography and in providing job opportunities for future generations. The importance of oceanography was also highlighted by Giorgio Budillon, together with the opportunity that an online conference provides for the exchange of knowledge.



The peculiarities of MEMS technology and its use in the field of hydrography were the topic of the conference, discussed in the speech by Sebastien Manigot, sales engineer EMEA, SBG Systems.

## MEMS Technology

The peculiarities of MEMS technology and its use in the field of hydrography were the topic of the conference, as discussed in the speech by Sebastien Manigot, EMEA Sales Engineer, SBG Systems. MEMS applications in hydrography could be a key technology for underwater and surface drone developments. The advantages of MEMS technology lie in the possibility of building miniature devices. Other benefits include lower energy consumption, lower costs, greater reliability and robustness. MEMS sensors are widely used in consumer applications, such as smartphones and gaming devices, but there is also a large market for superior quality MEMS devices, developed for automotive, aerospace and underwater navigation applications.

For inertial devices, this classification is based on drift in 'g' for accelerometers and in degrees per second for gyroscopes. In the fields of hydrography, mobile cartography or remote sensing, MEMS technology combines robustness, simplicity and high performance. The wide range of inertial solutions, from miniature to high precision combined with advanced calibration techniques and advanced integrated algorithms, make MEMS technology ideal for industrial and research projects. Examples could be the control of unmanned vehicles such as unmanned ships, AUVs, ROVs and submarines, the stabilization of cameras for 3D surveys and applications for surface and seabed detection.

At the end of the conference, Rosalba Bonanni of MIUR remarked on the appreciable collaboration between the nautical institutes and the Hydrographic Institute of the Navy, and thanked the virtual audience for their participation in the conference. Participants included companies operating in the field of oceanography, for which hydrography represents an important aid for marine constructions and installations, freelancers, and staff working in nautical institutes, both as teachers and as students, in a collaboration between the academic, industrial and military worlds.



MEMS applications in hydrography have shown that this can be a key technology for underwater and surface drone developments.

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