



IAAG Scientific Assembly 2025: Geodesy for a changing environment

Symposium G09: Seafloor Geodesy, Marine Positioning and Undersea Navigation

Conveners: Valérie Ballu, Heidrun Koop

The seafloor geodesy session of the Inter-Commission Committee on Marine Geodesy (ICCM) solicits contributions that report on field observations and technical developments as well as theoretical advances in the field of marine geodesy. With the rising number of completed, ongoing and future planned field studies, the session provides a platform to present recent results, report on challenges and discuss advances in data analysis and modeling. The session encompasses a wide range of topics with the aim to overcome some of the gaps between theory and applications in marine geodesy. Recent developments on the integration of geodetic sensors with geophysical and physical oceanographic instrumentation show encouraging results for multi-purpose missions and for the fusion of multi-parameter marine missions. A further focus of the symposium will be on the establishment of international conventions for marine geodetic data processing, the seafloor reference frame and data standards.

Precise underwater navigation and seafloor positioning is needed for various applications such as evaluating stress building near tectonic plate boundaries, monitoring underwater volcanic activity, precise mapping or seafloor engineering. However, reaching centimeter or sub-centimeter accuracy is still a real challenge. This session of the Inter-Commission Committee on Marine Geodesy (ICCM) solicits contributions that report on field observations and technical developments as well as theoretical advances in the field of marine and seafloor geodesy. With the rising number of completed, ongoing and future planned field studies, the session provides a platform to present recent results, report on challenges and discuss advances in data analysis and modeling. The session encompasses a wide range of topics with the aim to overcome some of the gaps between theory and applications in marine geodesy. Recent developments on the integration of geodetic sensors with geophysical and physical oceanographic instrumentation show encouraging results for multi-purpose missions and for the fusion of multi-parameter marine missions. The session will also give the opportunity to share ideas on data formats and tools for exchanges and international collaboration.