EGNOS Success Story

EGNOS contribution to INFOMAR surveys

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Credits: Infomar

INFOMAR is Ireland's national marine mapping programme, a joint programme funded by the Department of Environment, Climate and Communication between the Geological Survey of Ireland and the Marine Institute, whose objective is to map the physical, chemical, Hand biological features of Ireland's seabed.

INFOMAR surveys primarily collect bathymetry data using multibeam echosounders. The surveys are performed as part of an ongoing effort (over 20 years) to map Ireland's seabed and are currently set to continue until 2026. Surveys are conducted throughout the year, with the greatest effort during summer, when weather conditions are most favourable. They also collect 'backscatter' information from these instruments, enabling them to infer the types of seabed encountered. Additionally, several of the vessels used are fitted with sub-bottom Profilers, geophysical instruments that provide information on the composition and structure of the sub-seafloor. Where required, seabed samples and other measurements are taken.

EGNOS has been utilised on INFOMAR vessels since 2011 when receiving hardware capable of decoding the signals. According to David Hardy, Geologist with the Geological Survey Ireland, "EGNOS has replaced beacon DGPS sources and reduced the number and range of equipment required on our vessels; therefore, it reduced system complexity and potential points of failure". The aim of the surveys is to provide a modern, high-quality baseline dataset. The data are then post-processed and made available to a wide range of users; who use them for hydrographic products, environmental studies, fisheries, renewable energy, oil exploration, marine tourism, aquaculture, regulatory & educational purposes. All data is available free of charge and can be commonly accessed through their website.

All coastal vessels operated by the Geological Survey of Ireland use EGNOS to support real-time navigation within Irish waters, up to 30nm offshore. EGNOS corrections are received, decoded, and applied to improve positional accuracy significantly beyond stand-alone GNSS. Following the acquisition, additional post-processing is performed to improve the navigation solution further, but this is primarily driven by their need to use the Inertial Navigation System (INS) height readings to correct tidal effects (requiring accuracy of <10cm).

Vessel positioning is achieved with Applanix POS MV systems, which utilise Trimble GNSS receivers with an integrated ability to decode and use EGNOS signals. Stand-alone terrestrial GNSS systems from Leica and Trimble are used to support operations.

Mr Hardy emphasizes the advantages of EGNOS since "it is of significant value to our work and a very clear benefit to us. The improved positional quality it provides (beyond bare GNSS) supports the efficiency and safety of our operations. The increased positional certainty allows us to improve our line-keeping and sonar coverage efficiency throughout operations. The improved positioning accuracy also allows us to operate in areas of critical depths with confidence".