



## EGNOS for Maritime - The use of Portable Pilot Units in the Port of Cadiz

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Credits: Cadiz pilots

At the confluence of the Mediterranean Sea and the Atlantic Ocean lies the Port of Cadiz Bay, one of the busiest maritime traffic points on the planet.

Maritime operations in the port involve a high degree of complexity due to a combination of factors: from the confined entrance channels (250 meters wide, 2,000 meters long, and 13 meters deep) together with large cargo vessels with limited manoeuvrability to the occurrence of strong wind gusts and currents of up to 2 knots (0.5 m/s).

Official figures related to maritime traffic reflect a high occurrence of berthing/unberthing operations throughout the year and a high potential for an increase in the coming years (1,795 port arrivals in 2020, according to official entry declarations; more than 4,000 total vessel movements per year; 110,000 ships crossing the Strait of Gibraltar annually).

With these figures, the role of the pilots, as responsible for the support of berthing operations, becomes crucial to meet the demanding needs of the maritime sector and, at the same time, overcome the environmental factors affecting this relevant European port.

Technology is a crucial part of the pilots' work in this scenario. In that sense, they are well aware of the benefits that the Portable Pilot Unit (PPU), in combination with EGNOS, can bring to plan, monitor and execute manoeuvres accurately and safely throughout the operation.

A great example of the applicability of EGNOS in port operations in the context described above is the complex berthing operation successfully carried out by the team of pilots at the Port of Cadiz Bay, which can be accessed at the following [link](#).

As described by Antonio Sánchez, Pilot Manager of the Port of Cadiz Bay, the specific operation is exceptional in terms of complexity.

A propulsion problem affects the large cargo vessel (176 meters in length, 29.4 meters breadth, 9.80 meters draught), Manta Hatice, when facing the already demanding operation of entering the port and berthing a fully-loaded 31,931 Tonnes bulk carrier. This eventuality results in a notable increase in the difficulty of manoeuvring and the need for highly accurate planning and monitoring support, given the dimensions of the vessel and channel.

Under these exceptional circumstances, the operation requires the activation of the whole Tug ship fleet to support the manoeuvre. The pilots used PPUs configured to process the EGNOS corrections to reach the 50-centimetre position accuracy, as pointed out by Carlos de Bricio, Pilot on the Port of Cadiz Bay and participant in the operation.

The assets that the PPU provides to the Pilots are key to manoeuvring and include, among others, the provision of indication of the rate of turn, position of the pilot and target vessel position, distances to the docks, turning areas, and highly accurate heading and speed.

The EGNOS service is used to improve GNSS reliability and positioning accuracy up to three times the level of demand required by pilots (who need to anticipate manoeuvres and inertia of the target vessel), optimising the use of PPUs at no additional cost, as a major benefit of the service.

All this makes EGNOS the most cost-effective solution to achieve the precision pilots need in day-to-day port operations.