

Case Study

Customer:
Associated British Ports

Project:
Southampton Port Survey

Solution:
Trimble DSM232 and DSM232
Reference Station



▲ Southampton Port Aerial View

Associated British Ports choose Trimble GPS

Covering a water area of 18 square miles, Southampton is the premier port amongst the 21 strong group operated by Associated British Ports and one of the country's busiest and most successful deep-water harbours.

It has long been a gateway to the world and the starting point for many of the great liners including the Queen Mary and ill-fated Titanic. Today it continues to allow unrestricted access to the world's largest vessels including the biggest ever cruise ship, the 160,000 tonne Freedom of the Seas.

This colossal cruise liner- even longer than the Eiffel Tower is high- and others like her, can enjoy safe berthing at Southampton thanks to a rolling schedule of almost daily surveys to ensure sufficient water depth. Under the guidance of Southampton's Hydrographic Manager William Heaps, the surveying team continuously monitor the Bathymetry (seabed topography) within the Port Limits and bring any changes to the attention of all mariners using the port. Frequency of survey depends on the nature of the area, but on average, the

survey of the port alone requires more than 60 charts to be produced each year. Each chart requires a field survey varying from about half a day for the smaller areas to anything up to two or more weeks for the larger areas, which are plotted on a smaller scale. In addition, a large number of interim surveys are carried out each year in connection with dredging projects.

System Evaluation

The survey team use GPS to help with all these surveys and any other tasks where precise marine positioning is required such as special investigations of reported shoal areas or incidents and surveys in connection with engineering projects or proposals.

Towards the end of 2005 it was felt that a new GPS was required to replace time expired equipment and to introduce a new

era of improved differential capabilities. "We were clear in what we required from the new system," explained William. "It had to give the required accuracy consistently, be easy to use and compatible with our existing software and equipment. Cost was also an issue."

"We have been very pleased with the installation and performance achieved by the new Trimble products.."

William evaluated all comparable systems on the market and sought advice from existing users including ABP colleagues at UK Dredging who utilise Trimble DGPS and RTK receivers on their fleet of dredgers and survey vessels. This led to a demonstration from **KOREC**

(Trimble's Authorised UK Distributor), of the Trimble DSM232 and DSM232 Reference Station. This is a high performance

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sub-meter system ideal for tasks such as dredging in ports and navigation channels.

“The Trimble system was particularly selected because it is very easy to use and importantly we can swap between a variety of differential correction sources for improved accuracy and coverage,” explained William. “As well as the Reference station and telemetry system, we are able to easily use public differential corrections (IALA) or even EGNOS WAAS* corrections if operating away from the base station. The ability to seamlessly swap between local and public corrections has proved a great benefit when working in difficult areas (e.g. under cranes and alongside large ships), and noticeably reduced the number of lines which must be resailed due to loss of differential correction.”

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This positional data is used in conjunction with large quantities of time stamped bathymetric data, which is collected with specialised hydrographic software. Data is then taken back to the office ashore where it is processed, quality controlled and presented, usually as paper charts for immediate use by the Pilots bringing large vessels into Southampton. Typically these vessels may



▲ The Freedom of the Seas

sail with as little as 1.5m under their keels so it is vital for William and his team to know precise depths and exactly where any shoals are located so that dredgers may be accurately tasked to maintain advertised depths.

Collected data is also supplied to the UK Hydrographic Office in Taunton for incorporation into their internationally recognised series of ‘Admiralty Charts’.

Round the Clock

The new Trimble DSM232 and DSM232RS will be used for all tasks where precise marine positioning is required, from navigation mark deployment and checking

to incident responses etc. and are generally in use for around 4-6 hours every day. Consequently the base station runs 24 hours a day for use as required and William has discovered some interesting by products of this. “By supplying a constant time string from the second data port which is used to synchronise all the all time clocks on the port computer network, we can now ensure that all computers, radars, Tide and Weather recording systems, and data records are synchronised to within a fraction of a second.”

With the Trimble GPS collected data also being used for other applications including 3D visualisations, numerical modelling and the creation of electronic charts for use aboard dredging vessels, it is vital that the system is reliable and productive. “We have been very pleased with the installation and performance achieved by the new Trimble products,” stated William. “The supplied system combination of the DSM



▲ Southampton Port's Survey Boat

Contact us:

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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