

High-Resolution Shipwreck Surveys

ADUS has set a new benchmark in wreck surveying by developing innovative solutions to some of the inherent problems of multi-beam surveying and data visualisation. This has been achieved by combining academic skills with practical knowledge.

ADUS' (web reference 1) core business is the survey of shipwrecks that are an environmental hazard because they contain oil, chemicals or nuclear components, or because they are a navigational hazard (Figure 1). A public-private partnership has recently been agreed with Salvage and Marine Operations of the UK's Ministry of Defence to extend surveys into deeper water using their ROVs.

Origins

ADUS was originally set up at the University of St Andrews to exploit the potential of 'off-the-shelf' multi-beam systems principally for surveying historic shipwrecks. The team then expanded to include digital imaging expertise from the University of Dundee. Collaborative research between the two universities not only improved the quality of the data but, by using techniques developed in the computer games and CGI industries, also dramatically enhanced visualisation of that data. The commercial potential of these advances resulted in ADUS being incorporated as a limited company (Advanced Underwater Surveys Ltd).

Capabilities

ADUS is able to collect the highest quality, very detailed multi-beam wreck data (Figure 2) and then, by using its own WreckSight software, produce outstanding interactive 3D images that help make complex structures comprehensible, even to non-specialists. ADUS also has the ability to undertake detailed forensic analysis of wrecks using multi-beam data. These combined skills have been utilised recently during the investigation of wrecks in the Arctic, the Far East and in UK waters (Figure 3).

The Future

Research on data acquisition and visualisation methodologies continues to underpin the work of ADUS. Combining this with - exploitation of more advanced multi-beam systems as they become available will help keep the company at the forefront of shipwreck investigations. A steady increase in demand for detailed wreck surveys is anticipated as governments begin to recognise that they have a responsibility for hazardous shipwrecks in their seas and that to manage them effectively it is essential to have good data and clear visualisations.