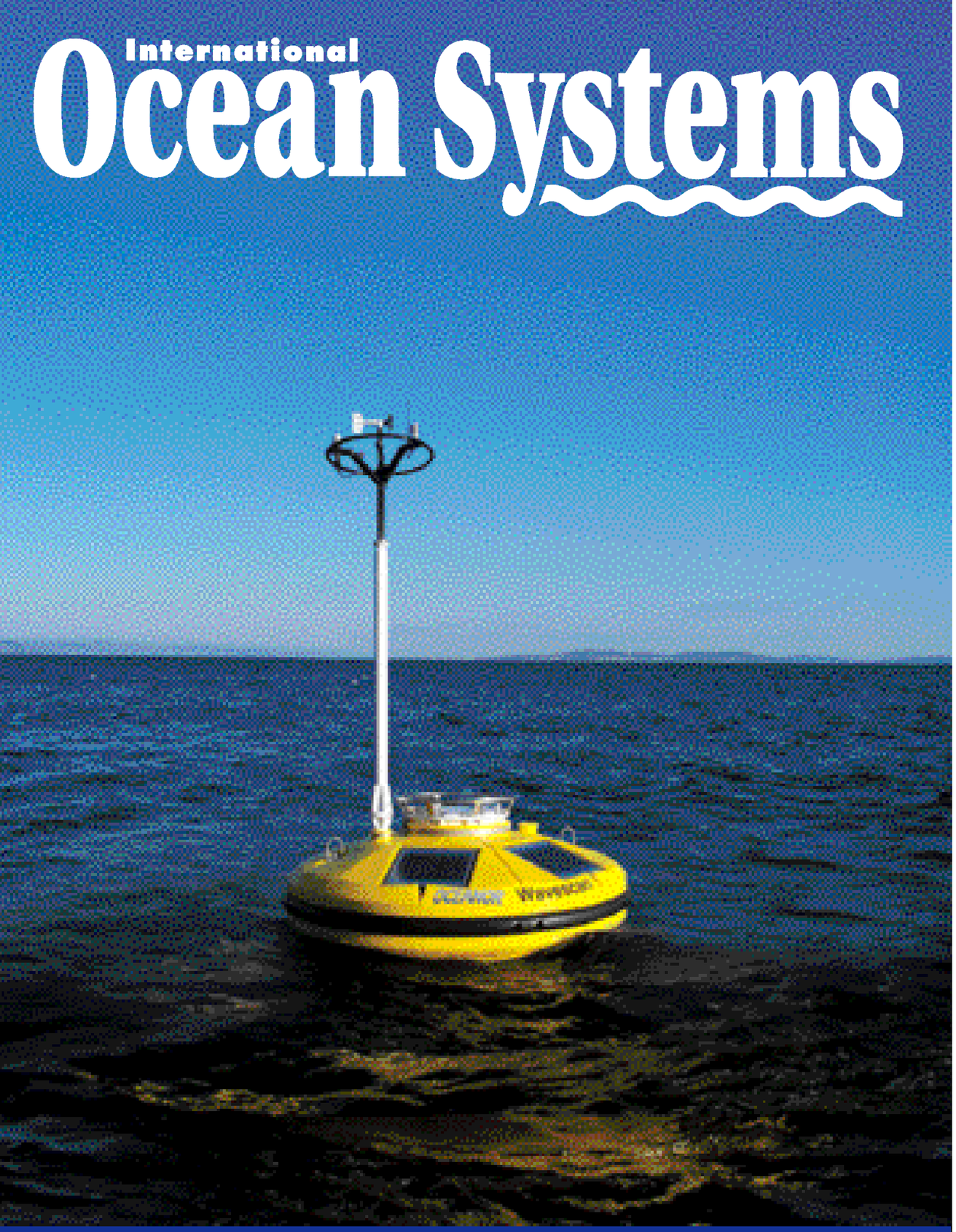
International Ocean Systems



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Ocean measurement – a time of change

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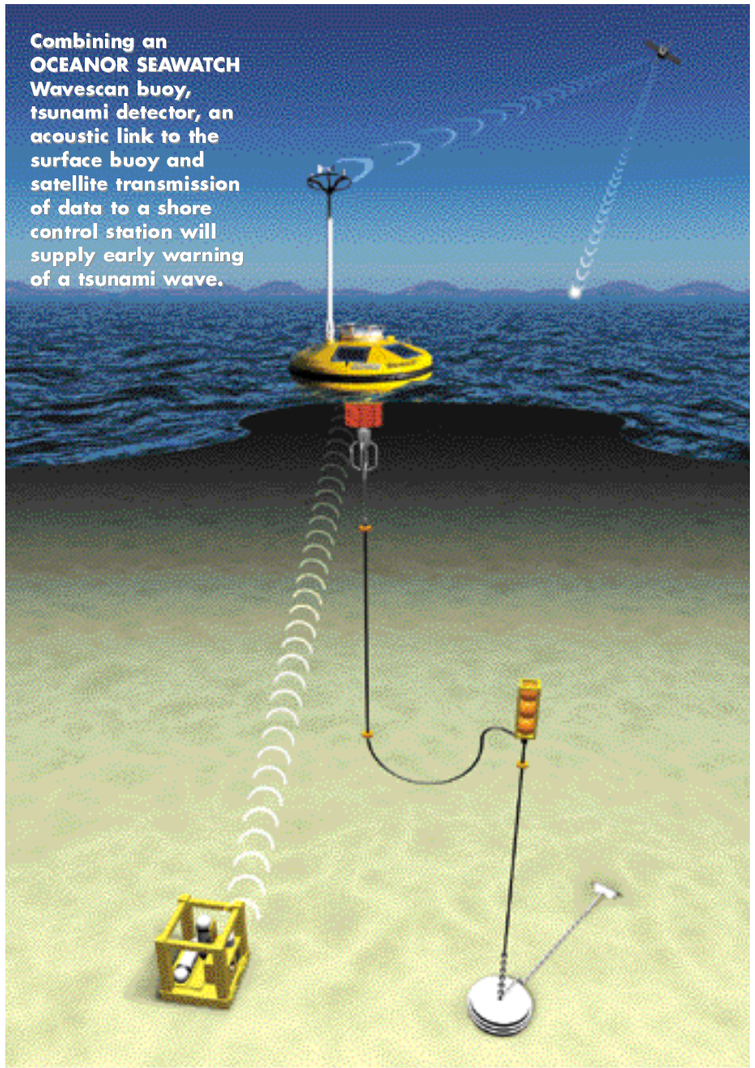
Tsunami, an oceanographic phenomenon previously only half understood by the majority of the world's population, is now a household word following the tragic events in the Indian Ocean in December 2004. The disaster has brought to the world's attention that the power of the sea is immense and unpredictable and that much more has to be done to understand it. Importantly, it has persuaded the United Nations to move ahead with efforts to set up early warning systems in the Indian Ocean and Caribbean and Mediterranean seas similar to the one that already exists for the volcano and earthquake-prone Pacific Rim region. This move brings to the forefront those organisations which devote their energies to researching, measuring and understanding the oceans.

Fugro Global Environmental and Ocean Sciences (GEOS) welcomes the UN's decision, which will help to make sure that lives will be saved in the future. It will also ensure that global funding and interest in the Global Ocean Observing System (GOOS) will be considerably heightened, and that an 'observing system' will in time become a proactive warning system.

Fugro GEOS, with 25 years of experience in a wide range of worldwide meteorological and oceanographic projects, is well placed to play an important role in this exercise. Less than two years ago Fugro GEOS strengthened its position by acquiring the Norwegian metocean services and systems company OCEANOR to form the world's leading commercial oceanographic organisation.

Fugro OCEANOR's real-time marine monitoring and information system, the OCEANOR SEAWATCH system, comprising moored buoys with integrated sensors, is one of the most robust platforms for obtaining metocean data in both deepwater and coastal environments. This data is transmitted to shore for processing, interpretation and integration with other data from satellites, research vessels and forecast models. The processed information is then made web-accessible to subscribers.



Combining an OCEANOR SEAWATCH Wavescan buoy, tsunami detector, an acoustic link to the surface buoy and satellite transmission of data to a shore control station will supply early warning of a tsunami wave.

OCEANOR SEAWATCH buoy systems installed in the waters off countries such as Spain, Greece, Malaysia, Thailand, India, Vietnam, Indonesia, South Africa and Peru have formed part of the regional networks of GOOS for many years. This involvement was strengthened last year when, with the assistance of Fugro OCEANOR, the operators and owners of these SEAWATCH systems formed a forum called the SEAWATCH Partnership. It is through this forum that Fugro OCEANOR is working with India, Malaysia, Thailand, Indonesia and Vietnam to encourage a common working strategy.

For tsunami detection purposes, the current SEAWATCH system is easily upgraded by adding a seabed-mounted pressure sensor with an acoustic transmission link to the existing surface buoy. This upgrade will ensure that the existing SEAWATCH system is ready to detect and measure tsunamis as part of an early warning system.

A time of change

FugroGEOS' Swindon, UK, office will be relocating to new purpose-built premises in Wallingford, Oxfordshire, in March 2005, along with several other Fugro companies, including Fugro Ltd (formerly Hemel Hempstead, Geotechnical Division), Fugro Engineering Services Ltd (Basingstoke, Geotechnical Division), Fugro Multi-Client Services Ltd and Fugro Geoteam AS. The Fugro GEOS Weather Forecasting team, now in Southampton, will move to Wallingford in May 2005.

Bringing a group of Fugro businesses under one roof with outstanding facilities is a strategic move to promote more cohesion between the Fugro Group of companies, to leverage all support services and, above all, to provide a more comprehensive suite of services for clients.

Fugro GEOS is constantly evolving to keep ahead of market needs and client requirements. It aims to provide a professional range of services for ocean engineering and marine environmental protection applications that meet and exceed the exacting requirements of its clients, with the goal of delivering error-free goods and services (zero defects) by doing it right first time. This commitment to quality has rightly earned the company the ISO9001:2000 certification. In parallel with QA, Fugro GEOS is setting the pace in the HSE arena. An active member of the British Safety Council, the company is committed to operating at the highest standards of Health, Safety and Environmental best practice.

Continuing evolution

The time between the inception and completion of coastal or offshore projects is becoming shorter and shorter; in some cases, too short for the development of traditional site-specific metocean measurement programmes. Recognising this, Fugro GEOS scientists proactively develop cost-effective, regional measurement and modelling programmes designed to meet deadlines and data requirements. These include AMMP (Atlantic Margin Metocean Project); CARIMOS (Caribbean Metocean Statistics); and GULL (Gulf Lower Layer Current Measurement Project).

The acquisition of OCEANOR in 2003 marked a major milestone in the continuing evolution of Fugro GEOS. The synergy was obvious and the companies combined to create the world's leading commercial oceanographic organisation. Their combined expertise provided added strength for both – for example, in the offshore oil and gas industry Fugro GEOS provides specialist marine enviro nmental data acquisition systems which have become the industry standard for applications such as new-build platforms, FPSOs and rig refurbishments. Fugro OCEANOR was able to add its experience in helideck motion monitoring, wave measurements systems and CCTV technology. Consequently, since the acquisition there has been an expansion and broadening of activities.

Helideck motion monitoring – real-time data to meet aviation requirements.

Early 2005 has seen a further change. Optimisation of resources at Fugro GEOS has led to the new year move of the SeaSystems Division from Swindon to the Fugro OCEANOR office in Sandnes, Norway. This division, responsible for real-time environmental monitoring systems for existing or new build offshore structures, has strengthened its resources by joining the well-established offshore instrumentation division of Fugro OCEANOR.

Global representation

Fugro GEOS is well-placed to respond to the oceanographic, meteorological and environmental measurement and consultancy needs of its clients. Operating on a global basis, it has offices in Swindon and Southampton (both soon to be relocated to Wallingford) in the UK, Houston (USA), Abu Dhabi (UAE), Kuala Lumpur (Malaysia) and in Singapore. The wider Fugro Group has more than 200 offices covering more than 45 countries.

Fugro GEOS clients are able to capitalise on the talents, experience and specialist consultancy skills of more than 200 staff members (more than half of whom are experienced oceanographers, meteordogists and marine environmental scientists). Fully qualified engineers and workshop, administration, development and information technology staff support them. Additionally, they have the largest commercially available inventory of metocean measurement equipment and a policy of continual investment in new technology.

Measurement	Acquisition of metocean data through measurement programmes.
Consultancy	Oceanographic data interpretation and provision of engineering data.
Monitoring	Design and installation of real-time metocean monitoring systems.
Forecasting	Provision of marine weather and sea-state forecasting services.
Software	Provision of practical and specialised software packages for the analysis, visualisation and management of metocean data.
Systems	SEAWATCH, RIVERWATCH and SOILWATCH systems. Offshore Environmental Monitoring Systems and CCTV systems.
Integrated projects	Initiating and running joint-industry projects to produce large-scale synoptic data sets for different areas of the world's oceans.

Global Environmental and Ocean Sciences (GEOS) business areas.