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## UNDERCURRENTS

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Issue 2, September 2004

Welcome to the 2<sup>nd</sup> issue of our newsletter, Undercurrents. It's been 6 months since issue no. 1 and in that time we've been actively promoting our services on a worldwide basis. Our efforts are paying off and we are pleased to announce that we have recently successfully mobilised a number of projects, amongst which were projects for major oil companies in Nigeria and Russia.

In this issue we've included some details on recent projects, formally announce a new collaboration agreement which will allow us to bid and conduct projects in the United Arab Emirates and describe our real-time current profile data acquisition software. For more information on these articles or any other aspect of our business, please see our contact details at the end of the newsletter.

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### *Bonny Channel Deepening Project*

Nigeria is a country of vast natural oil and gas reserves. In order to maximize the production and export of these gas reserves, Nigeria LNG Limited (NLNG) has established its LNG Plant on the western coast of Bonny Island, approximately 40 km south of Port Harcourt, Nigeria. In order to expand the current capacity of this facility and to accommodate more and larger LNG carriers, NLNG appointed its Technical Advisor, Shell Gas Nigeria B.V., to commission a complete technical, environmental and metocean study of the riverine and off-shore area. The results of these studies will be used as the basis for the widening and deepening of the approach channel, which will remove the current tidal restrictions. The field work to facilitate this comprises several distinct measurement programs, including:



- physical and chemical characteristics of the seabed,
- physical, chemical and biological characteristics of the water column,
- benthos (animals and plants living in and on the seabed), and
- metocean conditions, particularly current profile, turbidity and tide measurements in the Bonny and New Calabar Rivers, current profile transects along 4 lines within the rivers and tide measurements at the LNG / LPG terminal.



Last month MSI mobilised the metocean component of the project. Equipment and personnel were mobilised to Onne Port (Port Harcourt) to join the vessel R/V GeoExplorer (pictured above right), owned and operated by TDI-Brooks, Inc who are undertaking all other components of the study. For the current transects, MSI installed an RD Instruments 600kHz acoustic doppler current profiler (ADCP) deployed on a pole through the vessel's moon pool and the data was displayed in real-time and logged onto a pc in the navigation room.



Once the current transects were completed, two trawl resistant seabed frames were assembled (pictured left) and into each was fitted a 600kHz ADCP and Valeport CTD probe with turbidity sensor. The frames were then deployed, one in each of the Bonny and New Calabar Rivers.

Finally, a Valeport 710 tide gauge was deployed on the LNG / LPG jetty and surveyed in to the local datum. The project commenced in June this year and is expected to be completed in the first quarter of 2005

### *New collaboration agreement signed*



MSI and Emdad LLC have signed an agreement whereby Emdad will represent MSI and promote our services within the United Arab Emirates.

Since 1979, Emdad LLC has served as a vital source for the burgeoning Oil and Gas sector in the UAE. Emdad represents over one hundred companies worldwide, bringing state-of-the-art technology to serve the expanding needs of the energy sector. With in-depth knowledge of the region, relentless commitment to quality standards and the extension of effective pre-sales, sales and post sales support, Emdad has established rewarding relationships over the years making it a perfect partner for success in the Middle East. The company's years of experience in the industry, market savvy, strong relationships, wide range of offerings, excellent resources, qualified personnel and business practices has truly set it apart and distinguished it as a world class organization.

Recognising this, MSI have chosen Emdad to represent them in the UAE. This collaboration expands the range of services which Emdad can offer to its existing clients and enables MSI to increase the geographical extent of our services. Whilst maintaining full technical and commercial control of all projects in the region, MSI will utilise Emdad's vast network of contacts and established logistical arrangements to ensure efficient delivery of services to the clients.

### *Equipment sales*

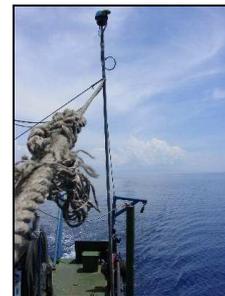
MSI, through our local partner Lwandle Technologies, is able to provide a comprehensive solution for all your equipment requirements from a number of major manufacturers:



### *Current measurements in Indonesia*

MSI has completed a deepwater current measurement programme with P.T. Calmarine off Sulawesi, Eastern Indonesia from their survey vessel Ocean Rajawali. The scope of work called for current measurements at two locations, with subsequent data quality control, processing and extreme value analysis in order to present preliminary design criteria for current speed modelling.

Current measurements were collected throughout the water column at both locations using a combination of RD Instruments 300kHz and 75kHz Acoustic Doppler Current Profilers (ADCPs). The instruments were mounted on the vessel using over-the-side pole mounts and cabled to personal computers running RD Instruments software.



**Cnav DGPS installed next to over-the-side ADCP mount**

Vessel heading was input to the software from a gyrocompass and positional data from the vessels Cnav DGPS system. The navigation data was used to complement the data collected by the ADCP for the motion of the vessel.

An important facet of this project was the familiarization of PTC personnel in this downward-looking doppler, operational mode of the ADCPs and associated software in a deepwater environment.



**Calmarine oceanographer monitoring the status of incoming data**

*MSI celebrates 1<sup>st</sup> birthday*

This issue of Undercurrents coincides with the company's 1<sup>st</sup> birthday. The company was launched on 1 September 2003 and in the past year has been through all the ups and downs expected from a fledgling business.

The first part of the year was spent actively marketing our services to potential clients, forging relationships with strategic partners and putting into place all the necessary administration procedures.

The extent of our success in only the 1<sup>st</sup> year of operation is evidenced by the range of projects, both technically and geographically, that we have already undertaken. These include measurement programmes for oil and survey companies, port authorities and consulting engineers in areas as widespread as Nigeria, UK, Indonesia, Russia, the middle East and South Africa.

During this time the directors have collectively travelled over 200,000km establishing our position in the marketplace. We have also put into place our QC and HSE management systems and all other necessary documentation enabling us to work efficiently and safely.

Now that the foundations have been laid, our plan for the next year is to increase the volume of work being undertaken and to take on additional staff. This will be accompanied by our moving to larger premises when time permits!

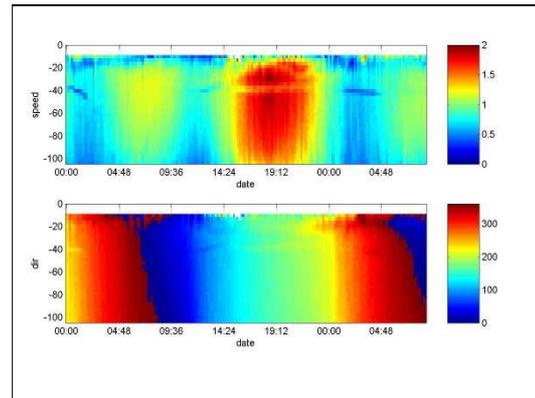
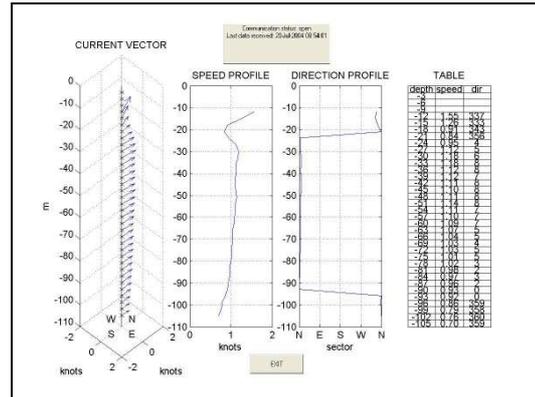
We would like to thank everyone who has supported us during the past year and look forward to forging new relationships and building on the existing ones.

*MSI real-time display software*

MSI has written Matlab<sup>®</sup>-based real-time current profile display software to supplement that supplied by the manufacturers. This software is currently being used to display data from a 300kHz ADCP installed on a rig offshore Sakhalin. The software has been designed around a number of Graphical User Interfaces (GUIs) which allow the rig personnel to view the data in different formats without making any changes to the raw data itself.

Examples include:

- Profile of current speed and direction vs depth
- Time series of speed and direction at user-selected depths
- Time series contour plots of speed and direction against depth
- Output of data in various graphical and tabular formats



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