



## UNDERCURRENTS

Issue 7, September 2007

Regular readers will have noticed a larger than normal gap between issues - we apologise for this but it is a reflection on how busy we have been this year which can also be seen from the articles in this edition. This, the 7<sup>th</sup> issue of our newsletter, profiles projects in Ghana, Uganda, Angola, Nigeria, Madagascar and Russia. It also includes details of recent sales by our Australian office in Tasmania of RBR sensors, and highlights some additions to our engineer and data processing staff. Please don't forget to check our website [www.metoceanservices.com](http://www.metoceanservices.com) for regular updates and send any comments or suggestions you may have to [info@metoceanservices.com](mailto:info@metoceanservices.com).

### *MSI delivers real-time tide / current measurement system - Nigeria*

Through Muir Matheson (Aberdeen, UK), MSI has supplied two real-time tide / current measurement systems to Shell Nigeria Exploration Company (SNEPCO).

The systems each comprise an RBR Ltd data buoy controller, Druck pressure sensor and Nortek Aquadopp current meter.

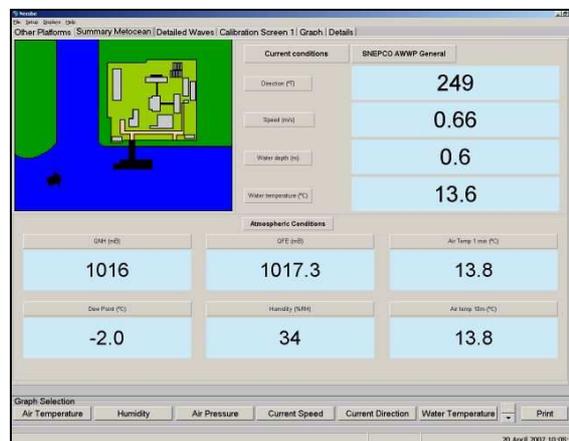
The 1<sup>st</sup> system will be installed on a jetty at the Nembe Creek flow station, Nigeria (see picture below), and will be integrated into a meteorological measurement system.



Data collected will be used as input into an oil spill model which will assist with contingency planning etc.

Bruce Spolander, from MSI, travelled to Aberdeen earlier this year to attend the factory acceptance test for the system. Nigerian engineers were present and were trained in the use of the system as they will install the system with support from Muir Matheson and MSI.

All the data from the system will be logged and displayed in real-time in the flow station control room on a pc loaded with Muir Matheson's customised software (see below).

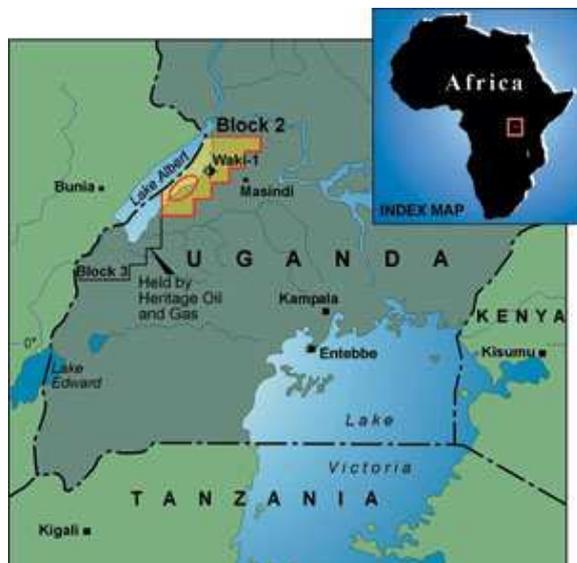


Once the 1<sup>st</sup> system is installed and operational, the 2<sup>nd</sup> will be installed at the Cawthorne Channel flow station.

It is hoped that ultimately these systems will be installed at numerous locations throughout the Delta.

## *Metocean systems for Lake Albert - Uganda*

MSI is pleased to announce the successful mobilisation of metocean systems for Tullow Oil in Lake Albert, Uganda.



For the project, MSI has provided current / wave / tide and meteorological measurement systems. The former comprises a Nortek 600kHz Acoustic Wave and Current Gauge (AWAC) and the latter a Campbell Scientific weather station fitted with a host of meteorological sensors and transmitting data in real-time.

Two engineers from MSI mobilised to Entebbe, Uganda, from where they were transported by light aircraft to Lake Albert. The AWAC system was installed in approx. 37m water depth from a barge provided by the National Lake Rescue Institute (NLRI) – see picture below.



The AWAC system has been fitted with dual Sonardyne lightweight acoustic release transponders that will allow its recovery at 2 monthly intervals for data download and processing. A Seimac Novatech AS900A satellite locator beacons has also been fitted to the system to allow its location in the event that the system is recovered by a 3<sup>rd</sup> party.

The meteorological station (pictured below), comprising wind speed / direction, air pressure, air temperature, relative humidity and rainfall sensors, was installed on top of a 10 foot container.



As part of this same project, ZLH Consulting Engineers are undertaking 3D hydrodynamic modeling of the lake, and the data collected will be used to calibrate and fine-tune the model.

Additional meteorological data for the lake is being provided by the Uganda Meteorology Department (UMD) and MSI is providing funding for a number of students to digitise data which is currently only available in hard copy format.

### *MSI awarded deepwater metocean contract in Angola*

In June 2007, MSI deployed 2 deepwater current measurement moorings in Block 31 offshore Angola for BP Exploration (Angola) Ltd. BP has a requirement to monitor the currents in the block in order to provide information suitable for designing field developments and establishing operational current statistics. A short mooring, comprising 2 TRDI ADCPs, Nortek Aquadopp current meter and RBR CTD, was deployed in approx. 1650m water depth in a marked channel feature in the south east of the block. A longer mooring, comprising 3 TRDI ADCPs, Nortek Aquadopp current meter and RBR CTD was deployed in about 1470m at a designated location away from the channel ("farfield"). The channel may be the result of current processes active at the present time or in geological time and one of the objectives of the survey is to try and establish if "strong" near seabed currents are active in the channel and to contrast the channel currents with those in the "far field" away from the channel.



Deployment of the moorings was conducted from the Sonatide vessel Russell Tide (below right). Due to the high accuracy requirements in terms of mooring positioning, both moorings are fitted with Sonardyne mini transponder beacons and the channel mooring was lowered anchor first to the seabed using the vessel's A-frame and winch (pictured on left). Once on the seabed the mooring was inspected by ROV to ensure it was located in the centre of the channel.



The entire mobilisation was conducted smoothly and without any HSE incidents, and thanks must go in this regard to all the BP personnel and vessel crew for their assistance.

### *Metocean measurements for Port of Ehoala Development, Madagascar*

MSI has been selected to install and service a range of metocean equipment, as well as analyse the data, for Daiho Corporation in Madagascar. As part of the Port of Ehoala development project in the south east of the island, Daiho has purchased a range of metocean equipment which will provide data for engineering design over a period of 2 years.

This equipment comprises Nortek Aquadopp current profilers, a Datawell waverider, RBR tide and wave gauges and Columbia Systems weather stations.

MSI is also providing technical advice, procedures and ancillary equipment, such as deployment frames and consumables for the duration of the project.

All equipment was installed in August / September 2007 and will be serviced every 1 to 2 months for the duration of the project.



*Focus on MSI Australia*

**MSI Australia Moves in to New Offices**

Following the establishment of MSI's Australasian office in Hobart last year, we are pleased to advise that we have moved into a new office situated in the Sandy Bay suburb of Hobart in Tasmania (see below).

The office is centrally located for supporting the local scientific and government organisations also situated in Hobart, whilst excellent air links both out of Tasmania and mainland Australia allow us to easily support our projects in Australia and Asia.



The new office address is 16 Gregory Street, Sandy Bay, Tasmania 7005, Australia. The phone number is: +61 3 62240788

**RBR Sales for June / July**

As you may remember from earlier editions of Undercurrents, MSI's Australian office has been appointed exclusive Australian agents for the Canadian instrument manufacturer RBR Ltd. RBR design and manufacture a wide range of high accuracy instrumentation including CTD's, wave gauges, tide gauges, thermistor chains and multi-channel data loggers, etc. June and July proved to be bumper months with confirmed orders placed for RBR instruments in excess of A\$60,000 to be delivered all over Australia.



*MSI continues to expand its personnel numbers*

MSI is pleased to announce that Simon Wijnberg (pictured on right), joined the company from the beginning of July 2007.

Simon is a highly experienced engineer, having previously worked in the metocean divisions of Thales GeoSolutions and before that Racal Survey and more recently for MSI on a contract basis. His appointment strengthens our in-house capability and the decision to offer him permanent employment was an easy one for the company.





Also joining the company on a full time basis is Lionel Delaney (pictured left). Lionel joins us from the University of Cape Town (UCT) where he is finalising his M.Sc. He will be focusing on data processing, analysis and reporting and since joining the company he has already started working on processing the data from our 3 projects in Sakhalin, Russia and, under the guidance of Bruce Spolander, Lionel will take increasing responsibility for the day to day processing and software development. MSI has a longstanding relationship with UCT and is pleased to be able to offer employment to recently graduated students.

### *MSI's 2007 Sakhalin programme*

2007 sees MSI involved in 3 separate projects in Sakhalin, Russia, working for BP Rosneft and Saipem on behalf of Romona, Inc.

#### **Real-time measurements for Saipem**

In July / August 2007, MSI provided equipment and an engineer for real-time wave, current, tide and wind measurements for Saipem in connection with the the PA-B Platform installation in the Piltun Field, approximately 20km to the east of the Sakhalin Island coast, in 30m water depth. In addition, MSI facilitated weather forecasting services that were provided by Aerospace & Marine International (AMI) from the UK.

Equipment was mobilised from Canada (Axys triaxys directional wave buoys – pictured below) and the UK (wind, current and tide measurement systems) and showcased MSI's ability to source the most appropriate equipment for a complex project from various locations.



#### **Ongoing metocean programme for BP Rosneft**

2007 is the 4<sup>th</sup> year in which MSI / Romona have been jointly providing metocean measurement services for BP Rosneft in Sakhalin in a programme that expands each year.

During July, MSI and Romona engineers recovered 3 current / ice profiling moorings which had been deployed under the ice since October 2006, and redeployed these plus an additional 4 moorings for the summer season.



Along with the current / ice profiling moorings, the engineers installed 3 Datawell waverider buoys and 2 meteorological buoys.

Data from the waveriders is being transmitted via Argos in real-time to the office so that the status of the buoys can be monitored.



Equipment for this project was mobilised from Canada, UK, South Africa and Australia and all recoveries and deployments were conducted from the MV Rubin.



#### Real-time measurements during drilling

For the 4<sup>th</sup> year in a row, MSI and Romona installed real-time current measurement systems

onboard the rig Transocean Legend to provide real-time current profile measurements during the 2007 summer season drilling campaign.

For this year's programme MSI supplied 2 TRDI 150kHz Quartermaster ADCPs and 2 Nortek Aquadopp current meters. Data from these instruments were transmitted via cable in real-time to computers running MSI's real-time display software.



#### *Current and wave measurements for SBM design - Ghana*



TEMA offshore imports petroleum products via a Conventional Buoy Mooring (CBM) system into Ghana (see picture on left). The existing system comprises an 18" pipeline between the CBM and Tema Oil Refinery.

However, the system suffers from low operability and shows damage to mooring equipment and so TOML commissioned Project Management International (PMI), in combination with ZLH Consulting Engineers, to carry out a study on the existing system and to propose measures to improve the system.

One of the measures proposed to improve the design of the system was the collection of current and wave data, which was contracted by PMI to MSI.

In March of this year, MSI installed a TRDI 300kHz Acoustic Doppler Current Profiler (ADCP) fitted with wave firmware. The unit has also been fitted with a double external battery canister to allow for at least 2 months uninterrupted data collection and all instruments are moored inside a gimballed stainless steel bottom frame (pictured on right).



Since April this year 4 service visits have already been undertaken to collect data for preliminary design.

Sakkie le Roux from PMI commented: "MSI has provided a very reliable and recommended service. The data collected enables the engineers to confirm that the wave direction as derived from the refraction modelling agrees reasonably well with the measured wave direction.

The current measurements showed that the direction varies more frequently than expected from previous available data. The measured data provided valuable information for the optimisation of the CBM orientation.

Provisional analysis of the recorded data shows a possibility that long waves may also be partly responsible for some of the problems experienced at the CBM."

The measurement campaign is currently ongoing.