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1) GENERAL OCEAN NEWS

1.a) Survey work on world’s longest subsea interconnector involves MacArtney’s FOCUS 2 underwater vehicles

The first electricity link between the UK and Norway is to interconnect Nordic and British energy markets, the project involving among others MacArtney equipment fitted on board a multipurpose supply vessel.

Successful business partnership between Geomarine, local MacArtney agent in Italy, and end user Next Geosolutions has resulted in provision of a MacArtney FOCUS 2 ROTV system to be applied in a cable route survey job. The purpose of the project is to construct the world’s longest interconnector consisting of approx 720 km of high voltage direct current (HVDC) cable to link the power grids of the United Kingdom and Norway. The giant interconnector designated NSL (North Sea Link) will link their electricity transmission systems via a subsea cable which links to a converter station and an electricity substation in each country.

The MacArtney vehicles are going to deliver high-resolution data for cable route design and engineering as well as subsea asset inspections applying the extensive sensor package.

All the MacArtney scope of supply comprises two FOCUS 2 extended underwater vehicles, one MERMAC S20 winch with 2,000 m of double armoured, combined electrical and fibre optic tow cable, a FOCUS 2 topside control system, an EdgeTech 2200-MP side scan sonar, an Ethernet based camera system, and an EdgeTech DW-216 sub bottom profiler. In addition, free issued dual head R2Sonic multibeam echo sounder systems, combined iXblue PHINS and TRDI DVL INS systems, Valeport sound velocity sensors, Geomatrix G-882 magnetometers in a TVG frame setup, and transponders have been integrated on to the vehicle, as well.

Due to the extensive survey sensor package, the FOCUS vehicles are supplied in an ‘E’ (extended) version which allows for more space to install equipment within the vehicle frame. In addition, the system will be delivered with the newly upgraded MacArtney ROTV flight software.

Taking part in this ambitious project is extremely important to us, says Hans-Jørgen Hansen, Vice President of MacArtney Sales and Marketing. We anticipate that many initiatives will be taken in future to ensure joint goals for optimisation of climate-friendly technologies supporting the integration of more renewable wind and hydro-electric power into the various networks.

For additional information, visit www.macartney.com

1.b) Micro Studio Camera 4K Captures Underwater Footage for BBC and NHK as Part of EagleRay 4K

Blackmagic Design today announced that its Micro Studio Camera 4K was chosen as part of the new EagleRay 4K underwater camera system, which is used to capture 4K footage up to 1,000 meters deep. Lee Frey, co-founder of Arctic Rays and manned submersible pilot for Alucia Productions, used the Micro Studio Camera 4K to capture footage during Antarctic expeditions for the BBC's "Blue Planet II" and the NHK's "Deep Ocean" series.

Alucia Productions is a nonprofit media company that partners with leading broadcasters, scientific institutions, conservation organizations and other production companies to chronicle ocean expeditions aboard its research vessel, the M/V Alucia. In addition to piloting submersibles for the Alucia, Frey founded Arctic Rays with his business partner and co-founder Dirk Fieberg. The company specializes in lighting and imaging for underwater vehicles.

With several expeditions complete, so far the Micro Studio Camera 4K has completed 60 dives and three months of deep sea work in Antarctica.

For further information, visit <https://www.blackmagicdesign.com/media/release/20170620-01>

1.c) Fugro continues inspection, repair and maintenance services for Petrobras in Brazil

Fugro has been awarded a further 2-year contract by Petrobras to provide comprehensive inspection, repair and maintenance (IRM) and pipeline inspection services in Brazil. This new award follows Fugro's successful completion of an initial 12-month contract for the oil major, after taking delivery of the new-build vessel *Fugro Aquarius*.

Built specifically for the Brazilian market by Wilson Sons shipyard in São Paulo, with local content of more than 60%, *Fugro Aquarius* is an 83-metre, DP-2 ROV support vessel. With a deck area of 520 square metres, the vessel is permanently equipped with two Fugro-built 150HP 3,000-metre work class ROVs.

Commenting on the latest award, Andrew Seymour, Fugro's manager for marine business in Brazil said, "As industry leader in ROV IRM, Fugro provides worldwide subsea inspection services in water depths up to 4,000 meters. This new contract strengthens our position in the Brazilian market, despite the challenging market conditions, and reinforces our ability to provide these services to clients such as Petrobras."

Operations commenced in May 2017.

For further information, visit <https://www.fugro.com/>

1.d) STR Increase Rental Inventory with the Applanix POS MV WaveMaster II

Subsea Technology & Rentals Ltd (STR); global specialists in the design, production and rental of advanced subsea technology for the offshore industry continue to grow their rental equipment inventory with the addition of the Applanix POS MV WaveMaster II.

POS MV WaveMaster II is a user-friendly, turnkey system designed and built to provide accurate attitude, heading, heave, position, and velocity data of marine vessel and onboard sensors. POS MV is proven in all conditions, and is a popular georeferencing and motion compensation solution for hydrographic professionals.

POS MV blends GNSS data with angular rate and acceleration data from an IMU and heading from the GPS Azimuth Measurement System (GAMS) to produce a robust and accurate full six degrees-of freedom position and orientation solution.

For further information please visit www.STR-subsea.com.

1.e) Hydrex mobdock reduces Singapore sterntube spill

It is estimated that damaged ship sterntubes are leaking some 57 million tonnes of lubricating oil in to the oceans every year, but by replacing these seals when the damage is first discovered, Hydrex in-situ repairs not only help towards reducing the environmental impact but can also save shipowners time and money.

Using its flexible mobdock technology, damaged aft sterntube seals can be quickly replaced underwater during a vessels port-stay, negating the need for costly drydocking. Even complicated stern tube configurations and liners can be repaired this way.

A recent sterntube seal replacement Hydrex engineers completed in Singapore underscores the commercial and environmental benefits of using the in-situ repair method.

When a 138m long LNG tanker began leaking oil from a damaged sterntube seal during the vessel's port of call, an expedient repair was required to avert any delay to its schedule and prevent further pollution.

Hydrex's local mobdock team was deployed while the company's technical department in Antwerp, Belgium, put forward a detailed repair plan which, once approved, allowed the mobdock team to make all necessary vessel preparations. Within a matter of days diver/technicians were on-site carrying out the seal replacement work.

Working in concert with the original equipment manufacturer, the Hydrex team removed and replaced three damaged seals with new ones. The entire operation was carried out underwater, without the need to drydock the vessel and without disruption to the vessel's schedule.

For further information, visit <http://www.hydrex.be/>

1.f) Aspect assist carrier launch

Aspect Land & Hydrographic Surveys Ltd provided a campaign of dredging support survey services to both UK Dredging and Babcock International Group in readiness for the recent departure of the UK's largest ever warship, HMS Queen Elizabeth, from Rosyth Docks.

The 65,000 ton vessel left Rosyth dockyard and headed into open water through an exit with only 340mm clearance on either side, and only 500mm of water under the keel therefore the requirement for high resolution and extreme accuracy was critical.

Having established a long-term professional relationship with the client, including surveys in 2014 to support the dry dock float-out, Aspect Land & Hydrographic Surveys Ltd were pleased to be entrusted with this critical role.

High resolution multibeam bathymetric surveys were provided on an on-going basis for works both within the inner basin and outer approach channels.

Utilising an R2Sonic 2024 multibeam system integrated with an Applanix WaveMaster INS navigation system, mobilised onto the vessel Coastal Sensor II, survey support was provided on a round-the-clock, seven day week schedule in order that the timescales for the warship's departure were maintained.

For further information please visit www.aspectsurveys.com
Follow on Twitter @aspect_surveys

1.g) JW Fishers' ROVs Used for Tank Inspection Services

Remote Operated Vehicles (ROV) are used throughout the world for a variety of projects by many different entities. JW Fishers' Seaotter-2 and SeaLion-2 are the ROVs that many agencies purchase when they need the right tools for the job. A variety of options are available from a mountable sector scanning sonar (SCAN-650) to a Remote Metal Detector (RMD-1). Using an ROV in tandem with a SCAN-650 allows the end user to drive the vehicle around a target area shooting video while also scanning the area using sonar to create a detailed computer image of the surrounding environment. This proves to be quite useful when operating in dark water where video feed doesn't quite do the job. The RMD-1 is another indispensable accessory that turns an ROV into a metal detecting machine and is interchangeable on ANY manufactures vehicle!

Draining water tanks to inspect or clean them wastes a significant amount of water, time, and money. These by-law inspections are a requirement for local towns or municipalities and, without the proper tools, they must drain the tanks to visually inspect them. A time-saving and cost-effective alternative is the utilization of an ROV. JW Fishers' SeaLion-2 is the perfect tool for water tank inspections. Recently, a tank inspection was completed in Plymouth, MA on a town water supply. The ROV was hoisted up and deployed by the inspection team within a few short minutes. The motorized vehicle was not affected by strong coastal winds and the inspection was completed in a timely fashion. Overseas, our friends at Works of Diving Hong Kong continue to utilize their ROV to perform tank inspections and aid their customers with underwater video when needed.

A few of the many other agencies using JW Fishers search equipment are the FBI, Royal Canadian Mounted Police Underwater Recovery Team, Search & Rescue Society of British Columbia, Summit County Sheriff in Colorado, New Orleans Police Department, Delaware State Police, Oxnard Fire Department in California, Grand Prairie Fire Department in Texas, the Dubai Police, and Indonesia's National Search & Rescue Agency.

For more information, please visit www.JWFishers.com

1.h) Teledyne CARIS reacts to IHO request to support latest ENC Validation Standard

Teledyne CARIS™ is pleased to announce the adoption of Edition 6.0 of IHO Publication S-58 for ENC validation checks, in the latest release of CARIS S-57 Composer™ 3.1.

Now supporting ENC validation based on the new S-58 Edition 6.0 (May 2017) Standard, S-57 Composer's internal and customized quality control tests have been reorganized, rewritten and extended to match the standard. New messages have been added to the tests and the descriptions have been re-worded to add clarity. New test collections have been created to quickly determine if an ENC passes the mandatory Error and Warning checks. S-57 Composer's comprehensive validation reporting tools allow you to evaluate, view and resolve any issues present in an ENC created in CARIS or a third party ENC production software.

Also included in this release is additional functionality to further support the emerging S-100 standard including support for the creation, viewing and editing of S-100 complex attributes and attributes with multiplicity of values. This builds on S-57 Composer's existing support for S-100 product creation, management and viewing of S-101 data and other S-100 products.

Existing users of CARIS S-57 Composer will require an updated license string to run this new version, this is available from our Online Customer Services website. Please note that S-57 Composer is now a 64-bit only application.

To ensure that your ENC's are in compliance with the latest IHO Validation Standards, contact Teledyne CARIS at caris-info@teledyne.com.

1.i) Applanix and the University of Waterloo Collaborate on Advanced Guidance and Control Technologies for Autonomous Vehicles

Applanix, a Trimble Company, announced today that it is collaborating on advanced research for autonomous vehicle guidance and control systems with the University of Waterloo Centre in Ontario, Canada for Automotive Research (WatCAR). Applanix will provide WatCAR with its industry-leading Positioning and Orientation System (POS) for testing autonomous guidance and control systems in real-world conditions. Applanix will also provide the Trimble GNSS-Inertial board set for integration with car systems and sensors to enable precise positioning.

The Applanix POS LV is an industry leader in robust, reliable and repeatable positioning solutions for on- and off-road vehicles. Applanix technology will be used by WatCAR to

assess the performance of the guidance and control systems on board their autonomous vehicles. This testing will take place in challenging weather conditions and environments including on roads under repair, with lane reductions and closures, are wet or covered in snow, and where there is poor visibility.

Applanix will also provide WatCAR with Trimble on-board GNSS-Inertial board set designed for high-performance, high-volume Original Equipment Manufacturer (OEM) applications. These products, currently used in a variety of autonomous vehicle programs, include the Trimble® AP GNSS-Inertial board set that includes a high-precision Inertial Measurement Unit (IMU). Small, rugged and low powered, the AP board sets provide the precise positioning needed for autonomous vehicle applications as they navigate their environment. Ideal for use on all sizes and types of vehicles, the AP boards feature Trimble's high-performance precision GNSS receivers and Applanix' industry-leading IN-Fusion™ GNSS-Inertial integrated technology that produces uninterrupted position, roll, pitch and true heading measurements of moving platforms. Integrating easily with vehicle sensors, the AP board sets are essential for precise vehicle control when interacting with a constantly changing environment.

For further information, visit www.applanix.com

1.j) INNOVATUM Ltd. proves that “magnetisation” of power cables remains long term, in recent testing on a UK East Coast Windfarm Export Cable.

The cable underwent the magnetising process, prior to lay, in April 2011, and was commissioned in 2012 and carries 3 phase power to shore at 132 KV. In 2012 the cable was surveyed, using a passive, magnetic tracking system, post-lay, before power was supplied through the cable.

The latest testing survey, in May 2017, used the same passive magnetic tracking system, and this survey also confirmed the data using the AC tracking method. The data collected in May 2017, was the same as the data acquired in 2012 at the same place. The 2017 testing shows the magnetic signal is not degraded by time or power currents in the cables. Cables may be located, tracked and surveyed using Innovatum methods, AND without the need to de-energise the cable.

Magnetising the cable is a very low cost option, which may be considered as a long-term insurance. The cost of magnetising a cable is much less than the cost of a single day of Cable Maintenance vessel time. Only Innovatum SMARTRAK can be used to locate and survey power cables using both Passive Magnetics, the AC power signal, or tone tracking in one system.

For further information, visit <http://www.innovatum.co.uk/>

1.k) Aberdeen Seafarers Centre Receives £1,000 Boost from Sentinel Marine

Staff from Sentinel Marine's Aberdeen headquarters got their running shoes on to raise much-needed funds for the Aberdeen Seafarers Centre at the recent Bakers Hughes 10k. The five-strong team has collected in their final donations and will now hand over a cheque

for £1,000 to the independent charity which supports seafarers in the north east of Scotland.

Running for Sentinel Marine – which owns and operates offshore support vessels for the oil and gas industry – were Natalie Fitzpatrick, Ashley Coutts, Martin Peters, Craig Barclay and Jonathan Mitchell. The quintet crossed the finish line in a range of times from 1:00:12 to 1:11:00, all while raising funds for the Aberdeen Seafarers Centre.

Jonathan Mitchell, managing director of Sentinel Marine, says, “The Baker Hughes 10k is a staple of the Aberdeen sporting calendar, and everyone involved has a brilliant time running along the beachfront. The event was impeccably organised, and it was great to see so many thousands of people enjoying the great outdoors.

“We are proud to have raised £1,000 for a charity so close to our hearts, that provides a safe and friendly space for seafarers who are visiting Aberdeen. We are also all very pleased with our finishing times, and are already considering a return next year to try and shave off a few seconds!”

Sentinel Marine has offices in Aberdeen and Singapore and owns a fleet of seven vessels, with three new builds on order, providing reliable, disruption-free and safe services to the oil and gas marine industry.

More about Sentinel Marine can be found at www.sentinel-marine.com.

1.1) 1000 days free from LTI-Lost Time Incidents - £1000 for Grimsby & Cleethorpes Sea Cadet Unit I

Mainprize Offshore Ltd has achieved 1000 vessel days free of LTI (lost time incident) while providing services for end client Dong Energy.

Mainprize Offshore Ltd are providing guard vessels direct to Dong Energy and indirect through their sub-contractors. LTI is one of many key point indicators that companies use to determine and analyze a company's performance.

The purpose of the guard vessel is to ensure the safety of all persons in and around the site and to protect the assets of Dong Energy, this involves notifying vessels of the safety zone and any updates on vessel movements, restrictions etc. This is usually undertaken by the guard vessel transmitting security messages on marine radio channels at intervals determined by the level of vessel traffic, it is also to contact vessels and advise of the safety zones and updates.

For further information, visit www.mainprizeoffshore.co.uk

1.m) Sea Cadets visit RFA Argus to mark seafarers awareness week

Sea Cadets from London, Kent and Essex had an amazing opportunity to tour casualty ship RFA Argus at the start of Seafarers Awareness Week (24-30 June), the annual campaign coordinated by maritime charity Seafarers UK.

100 young people and volunteers from Sea Cadets units in Beckenham and Penge, Bexley and Lewisham, Orpington, Southwark, Sutton, Chelmsford, Maldon and District and Thurrock visited the vessel moored at Greenwich on Monday 26 June.

Argus is the Royal Fleet Auxiliary's 'Primary Casualty Receiving Ship' and those on board enjoyed a tour of all areas of the ship, including the bridge, flight deck and armoury, as well as learning about her role in delivering cutting-edge medical treatment while afloat.

The outing was one of a number of events promoted by Seafarers UK to mark Seafarers Awareness Week, which aims to raise public awareness of the UK's ongoing dependence on seafarers and the contribution they make to the UK as an island nation. The week's two themes this year are 'Maritime Jobs at Sea and Ashore' and 'Sea Ports for Prosperity'.

For further information, visit www.sea-cadets.org, www.seafarersweek.uk

1.n) New HYPACK® Sub-bottom software now available!

HYPACK is pleased to announce the release of our new HYPACK® Sub-bottom Profiling Software. This is a software package designed for the Acquisition and Processing of Sub-bottom Profiling Data. The software is used for marine geophysical, engineering & geotechnical site surveys, dredging, mining applications. It's a simple to use, feature-rich software solution for all your sub-bottom profiling survey requirements.

The package has a comprehensive global geodesy model and a simplified hardware setup with the ability to setup up the preferred positioning systems together with numerous analog and digital sub-bottom profiling systems.

Please contact sales@hypack.com for more information on our new Sub-bottom profiling software.

1.o) New Frahm Sediment Sampler available from Aquatec's Sediment? Solved range

Following the successful launch of Aquatec's Sediment? Solved range of products for the collection of suspended, bedload and deposited sediment, Aquatec is pleased to announce the addition of a new corer from MBT GmbH, MacArtney's German subsidiary. The Frahm Sediment Sampler is designed to close the gap between the short cores sampled with multicorers and the longer cores of the gravity corers. In fact, with carefully selected weights, the bottom water can be sampled together with the sediment cores. The sampler was originally developed by the Leibniz-Institut für Ostseeforschung Warnemünde (IOW) and is now manufactured under license by MBT GmbH – MacArtney Germany.

2) EVENTS, TRAINING & DEMONSTRATIONS

2.a) 5 Days to go until the S52 4.0 ECDIS conference, will you be legal after 31st August?

The free event is being held at the eMaritime Group facility in Whiteley, Hampshire, UK and will feature talks from the UKHO (UK Hydrographic Office) and MAIB (Marine Accidents Investigation Branch) as well as attendance from ECDIS manufacturers. A fantastic place to network and also speak to the manufacturers/hydrographic office directly.

For further information, visit <http://www.emaritimeevents.com/conferences/>

2.b) Call for Papers: 'The Leading Edge of Value-Based Subsea Inspection'

The Society for Underwater Technology, The Hydrographic Society in Scotland and The International Marine Contractors Association are holding our popular annual joint seminar on 1st November 2017 in Aberdeen.

Much like other industries we have experienced a tremendous rate of development in technological capability which has enhanced the efficiency of our operations. These include a significant decline in the cost of data processing and storage, miniaturisation of subsea sensors, increased computing capacity, quick, reliable, wireless communications, increased utilization of subsea robotics and sophisticated data analytics and artificial intelligence. However, within a cost constrained environment stakeholders must drive development towards a value based solution.

Therefore, the topic of this seminar: 'The Leading Edge of Value-Based Subsea Inspection' aims at identifying these innovative methods, and sensors that are focused at providing solutions to the challenges of subsea inspection and surveillance.

Abstracts are now being accepted for consideration, which will be of interest to members of all three organizations. These should be approx. 150 words and be for a 20-minute presentation. The seminar is aiming to challenge and educate the attendees on innovative technologies for value based subsea inspection and monitoring.

To this end, abstracts should be submitted to the sub-committee covering such areas as: -

Practices – innovative approaches demonstrating value over existing methods; Sensors & Software – intuitive systems which can prove benefits to the final customer; Robotics – autonomous platforms that can be used to increase reliability, quality or reduce cost to existing subsea surveillance methods; Data analytics – sophisticated algorithms that can be used to increase subsea reliability. Other related topics will also be considered

Abstracts should be submitted to callforpapers@sut.org by 18th August 2017

All submissions will be acknowledged, and speakers advised by end September 2017 if their abstract has been accepted.

2.c) Overseas opportunities for UK firms as Subsea Asia's call for abstracts opens

Identifying new opportunities and understanding regional challenges are set to be key themes at the 2017 Subsea Asia conference and exhibition, as the call for speakers is launched.

Organised by Subsea UK, Subsea Asia will run from 13-16 September alongside the Oil & Gas Indonesia 2017 conference in Jakarta.

Now in its seventh year, Subsea Asia provides a platform for suppliers in the subsea industry to meet potential clients and showcase technology and expertise that can meet the demand in Asia.

Since the inaugural event in 1995, Oil & Gas Indonesia has provided an opportunity for those working in the Indonesian oil fields to meet with local and international suppliers. The Asia subsea hub of Indonesia, Malaysia and Singapore is where the combined activity dominates the Asia Pacific subsea activity and hosts vast industry expertise.

Featured presentation topics include: Market outlook regional and global; Adding value to subsea operations; Pipelines, flowlines and risers; Asset integrity and inspection; Subsea processing and boosting; Cost effective repair and maintenance and Life extension and decommissioning.

The call for speakers is now open and abstracts should be between 200-300 words long. The deadline for submissions is July 14. For more information and to download the submission form, visit: <http://www.subseauk.com/6/events>

3) JOB POSTINGS

3.a) Experienced Geophysicists at EGS International

EGS (International) Ltd are recruiting experienced geophysicists to join the team. The successful applicant will be expected to acquire process interpret and report geophysical data.

As an experienced geophysicist, you will be involved with all aspects of a project to include; tendering, survey planning, vessel mobilisation, equipment calibration/verification, survey acquisition, data QC, data processing, processing QC and final reporting. Working in small survey teams on complex projects, you will be acquiring high quality geophysical data (side scan sonar, sub-bottom profiler, magnetometer, single and multi-channel seismic arrays, CPT, Vibrocore and grab sampling) and be working closely with the engineering department to assist in troubleshooting of any equipment related issues. Experience in online QC to ensure that the data is meeting client specifications is essential. Party Chief duties will be required on occasions.

To Apply for this position:

Please send your CV and covering letter to: The HR Manager, EGS International Ltd, Unit 27 Woolmer Way, Bordon, Hants GU35 9QE or email: humanresources@egssurvey.co.uk