

## Atlas SEAWOLF tracing volcanic Activity

**Bremen/Koblenz.** Not even 13,000 years have passed since the last volcano spewed lava in Germany's mountainous Eifel region, devastating large parts of the landscape in the process. Within only a few days, enormous quantities of volcanic ash and pumice were hurled out, covering an area that extends as far as the Rhine valley with a layer up to seven metres thick. The finer deposits of the explosion can also be found in Sweden and Northern Italy as a thin tephra horizon. The most visible remnant of this volcanic eruption is the Laacher See ("Laach Lake") near the City of Koblenz. From the geological standpoint, the Eifel is still volcanically active, a fact which is noticeable through the multitude of microquakes in this region. Reputed volcanologists believe there is a high probability of eruptions occurring here again. Therefore, scientists have repeatedly called for the installation of a system for monitoring the geological processes, but for cost reasons such a project has not yet been implemented.

To investigate the usefulness of autonomous underwater vehicles for geological examinations, a two-day exploration of the Laacher See was conducted at the end of April in cooperation with the University of Duisburg-Essen. The goal of the mission was to find zones in the lake, from which carbon dioxide is bubbling up from the bottom. Owing to the great depth of the water – as much as 56 metres – the gas bubbles do not reach the surface of the lake, because they disintegrate during the as-

cent. As a result, the extent of volcanic activity below the sea is not known with any accuracy.

The SEAWOLF underwater vehicle used for this purpose is a diving robot, about two metres in length, that is able to carry out its mission fully automatically, i.e. without needing a connection to the outside world. The vehicle moves at a distance of about five metres above the bottom of the lake, using sonar equipment to map the bottom surfaces laterally to the left and right. The task was completed in only a few hours, yielding data recordings that impressed the experts. In addition to charting the gas discharge points, the sonar images revealed crater-shaped structures that had been entirely unknown thus far. On the strength of these initial recordings, a more intensive examination of the caldera's topology is planned for next year.

## CHARLY Programme Advances

**Fürstenfeldbruck.** In order to provide soldiers with better protection against extreme stress, ESG Elektroniksystem- und Logistik-GmbH has successfully developed and tested a training platform for psychosocial support. A prototype of CHARLY has been developed on behalf of the Psychological Office of the Bundeswehr and in close cooperation with the Bundeswehr's Centre for Weapons Disposal. CHARLY assists in the primary prevention of possible psychological trauma and helps to avoid or mitigates post-traumatic stress disorders. ESG has now been commissioned to further develop the prototype and bring it to serial production, adapt it to the new target group, the Medical Services Rapid Deployment Forces (Schnelle Einsatzkräfte Sanitätsdienst – SES), execute practical tests and evaluation, and prepare a concept for the adaptation to other target groups.

The ESG method of pre-deployment training with CHARLY is currently a unique approach to emergency psychosocial care and the primary prevention of PTSD (Post Traumatic Stress Disorder). With the help of the training platform, the participants will be able to identify the causes and symptoms of acute stress disorder. In addition, coping mechanisms are taught and trained. The course contents are thereby specifically tailored to the respective target group.

CHARLY uses the "blended learning" approach. This is an

integrated training concept which uses a combination of modern Internet- or intranet-based networking possibilities and conventional training methods and media to provide the optimum appropriate training structure. CHARLY is also useful for police forces, fire services and technical relief agencies – especially considering the increasing numbers of these forces deployed on missions abroad.

## German Navy: New CNO



RADM Manfred Nielson is the new Commander of the German Navy's Fleet Command at Glücksburg on the Danish border. Photo: FMO

**Glücksburg.** Effective 1 July 2010 Vice-Admiral Hans-Joachim Stricker has retired from his position as Chief of Naval Operations/Commander of the German Navy's Fleet Command. He has been succeeded by Rear-Admiral Manfred Nielson, previously Director of the Armed Forces Staff in the Federal Ministry of Defence in Bonn.

## Mercedes-Benz with four "Firsts" at EUROSATORY 2010

**Paris.** At this year's EUROSATORY exhibition Mercedes-Benz introduced four world premiers: The ACTROS 4151 AK 8x8 recovery vehicle (4151 = 41 tons gross weight, 51 = 510 HP power) was presented with a protection level thus far not accomplished. According to STANAG 4569 the vehicle features level 4 ballistic protection and level 4b mine protection. Based on year-long experiences with vehicles introduced with by Canadian and Australian forces the systems of the highly protected ACTROSs 4151 AK 8x8 have been continuously optimised. The FGA-14.5 chassis was another new development on display, representing the most recent and most powerful platform for protected command and utility vehicles. With this chassis Mercedes-Benz is offering manufacturers of military and commercial vehicles a newly developed vehicle platform that



The SEAWOLF UUV on the Laach Lake near the German City of Koblenz. Photo: Atlas Elektronik



In response to an urgent operational requirement for the troops in Afghanistan the Bundeswehr is considering the procurement of eight to ten ACTROS 8x8 recovery vehicles. Photo: Daimler

is based on the proven UNIMOG concept. The type FGA 12.5 special chassis has successfully been used in various military missions for years with the KMW DINGO 2 protected vehicle. Lessons learned from these operations as well as changing mission requirements with regard to payload capacity, mobility and reliability have formed the basis for the new development of the FGA 14.5 special chassis. Third, there was the LAPV 6.X concept, which complements the highly protected and highly mobile LAPV 5.4 light armoured patrol vehicles of the G-Class, the Bundeswehr series production of which commenced in parallel with the exhibition. The LAPV 6.x vehicle concept extends the LAPV 5.4 in terms of protection modularity (level 3), offroad capabilities and agility in particular, while using the G-Class modules. As the fourth new development the LAPV 7.X concept vehicle represents the symbiosis of two of Mercedes-Benz type model characteristics. Like with the two lighter LAPV types the engine/transmission and cockpit are derived from the G-Class, chassis and axles have been adopted from the UNIMOG series. With that the company aims at providing an entirely new dimension in patrol vehicles' cross-country capabilities.

## EADS DS investing in Leading-Edge Technology

Ulm. EADS Defence & Security (DS) is investing in the extension of its Ulm-based Mi-

cro Wave Factory (MWF), thus bringing its high-tech capability for the manufacturing of specialised high-performance electronics – like for new generation radar systems – to globally recognised top performance levels. With an investment of some 1.5 million Euros the business unit “Defence Electronics” broadens its capabilities and capacities in clean-factory production for high-frequency modules by more than 30%. Since the beginning of the year the Micro Wave Factory has had some 2,000 m<sup>2</sup> of clean factory space, with almost 200 employees in the development and production of high-frequency and microwave elements for the self-protection system of the EUROFIGHTER or the TerraSAR-X satellite radar. For the series production of the TR modules for the new active phased array electronic radars the Micro Wave Factory is considered world class. These key

components contribute a thus far unknown performance capability to the radars. They are produced in Ulm with extreme superior quality and in high quantities, which – among oth-



With an investment of 1.5 million Euros EADS Defence & Security has extended the clean factory assets of its Ulm-based Micro Wave Factory for the production of microwave modules. Photo: EADS

ers – is underscored by the major order for 30,000 modules for the MEADS (Medium Extended Air Defence System).

## Cécile Vion-Lanctuit new VP Communications at Eurocopter

Marignane. Cécile Vion-Lanctuit has been appointed as Eurocopter Group's Vice President of Corporate Communications. In her new role, Vion-Lanctuit reports to CEO Lutz Bertling and oversees all internal and external communications for Eurocopter. Prior to this new position, Vion-Lanctuit, 43, was Eurocopter's Head of International Media Relations



Cécile Vion-Lanctuit new VP Communications at Eurocopter. Photo: Eurocopter

since January 2007, and previously worked as one of the company's press officers. She came to Eurocopter in April 2006 from parent company EADS, where she worked at the Munich Headquarters during four years as Senior Manager Media Monitoring and Impact Control in charge of the EADS Group's image. She joined the company in Paris as a Corporate Auditor in late 1999. Her other career experience includes 10 years in communications and marketing in the real estate field in Canada, where she gained Canadian nationality in addition to her French citizenship. Vion-Lanctuit is a graduate of the Ecole Supérieure de Commerce de Lille in France. As Eurocopter's new Vice President of Corporate Communications, she succeeds Olivier Blain, who will assume other duties within the Eurocopter Group.

## Rheinmetall and KMW bidding for GCV Programme of the US Army

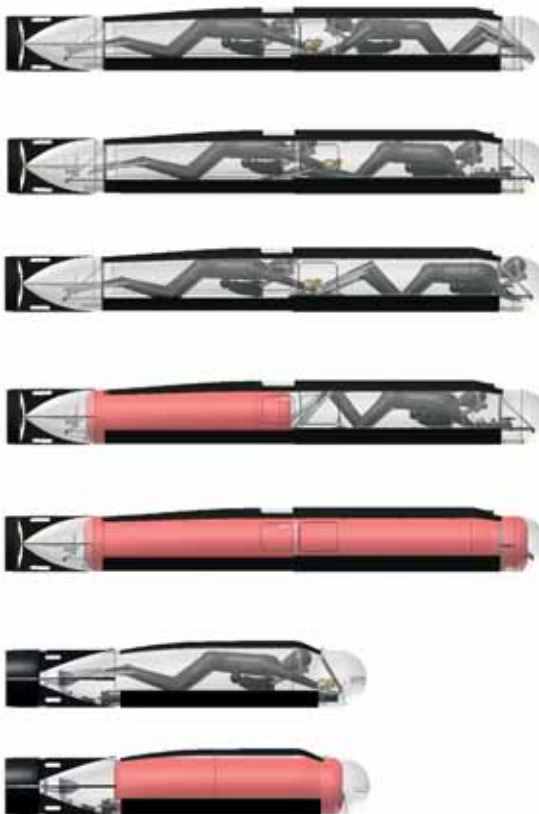
Düsseldorf/Munich. Rheinmetall and Krauss-Maffei Wegmann (KMW) have concluded a cooperation agreement with the American companies Science Applications International Corporation (SAIC) and Boeing in order to tender a joint bid for the development contract for the Ground Combat Vehicle (GCV) programme of the U.S. Army. Under the terms of the agreement Rheinmetall and KMW are subcontractors to Boeing, with SAIC acting as the prime contractor with for the procuring agencies.

As the manufacturers of the PUMA infantry fighting vehicle of the German Armed Forces, Rheinmetall and KMW will be contributing

their highly advanced expertise to this transatlantic team. The objective of the cooperation is to provide the U.S. Army with state-of-the-art technology, like it is being implemented with the PUMA programme. The team will be bidding for the contract for the first of four phases of the GCV programme. During the development phase, the U.S. Army intends to award up to three contracts to different contenders before drawing up a short list for the final RfP. The PUMA, which Rheinmetall and KMW have jointly developed for the German Armed Forces with deliveries scheduled to commence from late-2010, offers the level of series maturity that is expected by the U.S. Army. In virtually every category the PUMA conforms with the technical requirements of the GCV programme, even exceeding these significantly in key areas. Besides, the system will be further developed for the U.S. Army in order to accommodate a total crew size of three, plus nine soldiers, a 40mm gun, with a gross weight of around 50 tons.

## Submarine suitable Propulsion Vehicle for Combat Divers

**Hamburg.** At this year's Undersea Defence Technology Conference and Exhibition (UDT) in Hamburg Gabler Maschinenbau GmbH introduced a new propulsion vehicle ("Unterwasserschwimmhilfe" – UWSH) for the specialised diver task groups of the German Navy. Divers deployed from submarines have a wide scope of tasks, with the area of operations often located several miles away from the submarine. However, the physical range of divers is limited. That is why the BWB's Test Centre for Ships and Naval Weapons at Eckernförde (WTD 71) in the framework of a research and technology programme commissioned Gabler with the development of a fully encapsulated, self-propelled transport system. With the new propulsion vehicle the divers can operate over longer distances and with higher speed while conserving strength and energy during the transition to the area of operation. The vehicle can be transported in and launched from the submarine's torpedo tubes, is easy to handle, has a long range, and its acoustic signature is lower than that of the submarine. Each vehicle serves a diver group of two, who can leave the vehicle at all times. After boarding the folding walls are locked from the inside, the command and control electronics are engaged within seconds and the vehicle starts to move immediately. In standard arrangement the divers travel in a head-to-head position, which ensures mutual control and supervision. With this arrangement both divers have access to the control panel in the centre of the vehicle. Alternatively, both divers can travel looking forward and one after the other.



Travelling and transport modes for divers and material.

Photo: Gabler

Two vehicles can be fitted in one torpedo tube, using a combined telescopic and folding mechanism for the hull. In the transport mode the diameter of the vehicle matches exactly that of a torpedo, namely 533 mm. The transport length does not exceed 3.4 m. In the operating mode the vehicle unfolds to a length of 5 m and an inner diameter of 700 mm, which

enables a relatively comfortable position for both divers over a longer period of time.

For special missions, there is an additional payload capacity of 300l. Navigation is provided by the divers regular navigation pad with gyro, bathometer and diver watch.

The vehicle consists of lightweight materials. The frame and telescopic mechanism are made of light but stable aluminium. For the hull-shaping parts sandwich construction composites have been used. The control panel serves for the operation of the driving and control elements. These include the power control of the electric motor engaging a centrally positioned propeller mounted on the aft, as well as the side and hydroplane rudders, which are mounted in the water stream directly behind the propeller. The rudders are operated by means of a joystick-controlled servo motor. All control functions can thus be carried out with only one hand on one control element. Energy is supplied by a compact lithium-ion battery.

## EADS Lightweight Transponders for Helicopters

**Ulm/Donauwörth.** The newly developed LTR 400 transponder from EADS Defence &



26 of Eurocopter's type EC-635 helicopters will be equipped with LTR400-A transponders from EADS.

Photo: EADS

Security (DS) significantly improves safety in air traffic while at the same time saving weight in helicopters. Eurocopter Germany is the first customer to exploit these advantages by ordering 26 systems for integration in their EC-635 helicopters. The systems will be delivered before end of this year. At 2.8 kilograms, the LTR 400-A is currently the worldwide smallest and lightest transponder which can be used both for military applications to identify friendly units, as well as in civilian air traffic control. This unit operates to the latest civilian air traffic control standard, Mode S "Enhanced Surveillance", and, together with the QRTK3-NG encryption and decryption computer from DS, can also be used in all military modes. Due to its low weight, the LTR 400-A is particularly suitable for use on board helicopters. After its successful qualification, the civil and military certification by the European Aviation Safety Agency (EASA), which is planned for this summer, will also allow the LTR 400-A to be used on board civilian passenger aircraft and unmanned aerial vehicles.

Transponders are a crucial element to ensure safety in air traffic. As part of air traffic control, interrogators – which are also called "secondary radars" – emit signals to request flight data from individual aircraft, e.g. on their origin, course or speed. These requests are then automatically answered by transponders located on board the approaching aircraft, so that the position of each individual aircraft can always be reliably identified. Military aircraft also respond to these non-military requests. They even transmit additional data in an encrypted mode, allowing all aircraft to be unmistakably identified, e.g. during military operations, thus preventing inadvertent friendly attacks. For this reason, military aircraft require transponders with both civil and military functions.

## Rohde & Schwarz presents Radio Access Point System

**Paris.** At the EUROSATORY Exhibition Rohde & Schwarz presented its Radio Access Point system. With this solution different radio infrastructures of the branches of the forces, forces of different nations and authorities and organisations with security duties can be networked. In multinational missions or in humanitarian deployments the Radio Access Point provides interoperability between Rohde & Schwarz radios, respectively the legacy radios of coalition partners. A network with TETRA-based security radio nets can be generated, too. As a result information of relevance for a common operational picture can be exchanged between all involved. Otherwise this would only be available in fragments. To create the network, the Radio Access Points are emplaced in suitable positions in the theatre of operation. With radios from Rohde &

Schwarz even the remote-controlled generation of radio connections is possible. At the EUROSATORY Exhibition a Radio Access Point with two radios as counterpart was demonstrated. One of the radios was equipped with a camera, the images of which were forwarded to a smart board in real time. The second radio from the tactical R&S M3TR radio family was used to establish a connection with a TETRA network via the Radio Access Point.



Type M3TR (Multiband, Multimode, Multirole Tactical Radios) radios are software-controlled HF-VHF/FM and VHF/UHF band communication systems.

Photo: Rohde & Schwarz

## Rheinmetall introduces „MBT Revolution“

**Paris.** The changed mission spectrum of today's armed forces has significantly influenced the requirements imposed on modern main battle tanks. Obviously, MBTs will continue to play an important role in current and future conflicts. But in the vast majority of missions, winning tank battles will be a subordinate priority to supporting positive outcomes in asymmetric scenarios. Against this background Rheinmetall introduced at EUROSATORY 2010 the "MBT Revolution" modular upgrade package for the fleet of more than 5,000 LEOPARD type MBTs currently in global use. The "Toolbox Principle" ensures the flexible adaptation of the modules to the users' individual requirements. Elements of the Rheinmetall concept include, in particular, a force protection package as well as an extensive array of reconnaissance systems with a comparatively modest increase in weight. Moreover, an optimised stowage concept limits the alterations of the vehicle's signatures to a minimum.

In detail "MBT Revolution" provides improvement of the performance spectrum in the following segments: Protection: Comprehensive protection against all current threats, including RPG 7, land mines, IEDs, bomblets, large-calibre KE ammunition and EO-, IR- and laser-guided weapons; Digital turret core system: Fully integrated network capabilities,

fully interoperable subsystems and components, with significantly shorter reaction times and smaller space requirements; Fire control: Improved first round hit probability, especially when firing on the move. New commander's periscope: Night fighting and observation capabilities, improved range and higher elevation angles (up to 70°); Situational awareness: 360° day and night near-field view of the vehicle's immediate surroundings, with automatic alarm and target-tracking functions; Command and control: New capabilities include real-time blue force tracking and red force visualisation, augmented reality and MIP-DEM-based interoperability; Commander's brake: An innovation that enables the commander to stop the tank if the driver is incapacitated; Secondary armament: State-of-the-art remote control weapon station, fully stabilised and flexibly configurable; Fire power: The world's first temperature-independent KE tank round and the latest generation of programmable HE ammunition; Climate control: High performance air conditioning coupled with a new insulation concept in the fighting compartment, improved ventilation and thermal protection for the magazine; Auxiliary power: High electric power generation (17 kW) and intelligent energy balance of the vehicle. External two-way communications system: Enables the crew to communicate with persons outside of the tank. Embedded logistics: Provides comprehensive monitoring of vehicle- and weapon system-relevant logistical data; linked with a central logistical information and evaluation system. Weight class: MLC 70.



Part of "MBT Revolution" is the new ROSY smoke/obscurant system providing 360° protection against TV-, EO-, IR-, IIR-, laser- und SACLOS guided weapons. Photo: Rheinmetall

## Success in Two-Shaft Engine Research Programme

**Dahlewitz.** Rolls-Royce has completed the successful running of the latest core engine build in its E3E (efficiency, environment,



Test run of the E3E core engine.

Photo: Rolls-Royce

economy) two-shaft research programme. E3E is developing leading-edge technologies which increase engine temperature, pressure ratio and component efficiencies, together with a 25 per cent-plus increase in thrust to weight ratios.

These technologies are designed to reduce fuel burn and CO<sub>2</sub> emissions by 15 per cent, compared to similar engines currently in service. E3E lean-burn will also reduce NO<sub>x</sub> emissions as part of the company's drive to meet ACARE (Advisory Council for Aeronautics Research in Europe) targets of a 60 per cent reduction by 2020. The programme is designed to address future customer needs in the corporate and narrowbody sectors

The latest Core, 3/2b, has produced excellent results during 40 hours of running at Stuttgart University altitude test facility, far exceeding flight envelope requirements. Rolls-Royce started design of the engine in 2003 and continues to run intensive HPC, combustor and high pressure turbine rig programmes to support the Core 3/2b demonstrator. Further builds of Core 3/2 will be tested in 2011 and 2012 and will include 1,200 cycles of endurance testing representative of maximum take-off conditions.

## Bundeswehr orders portable All-in-One Power Solution from SFC

**Brunnthal/Munich.** SFC Smart Fuel Cell AG has received another order by the German Bundeswehr for autonomous power generating

systems for Bundeswehr operations abroad. The energy solution ordered is based on the portable JENNY fuel cell which has been in the defence market as a mobile off-grid power source for more than a year, deployed in support of various international military operations worldwide. In combination with the SFC Power Manager, an intelligent converter, which provides for the optimal performance of the energy consuming subsystems, it builds a strong energy network for power supply in the field. The volume of the Bundeswehr order is in excess of 220,000 Euro. The systems will be delivered this year.



The Power Manager provides for optimal performance of the power consuming subsystems. Photo: SFC

The portable JENNY fuel cell is a small, under 2 kg lightweight power generator for the individual soldier and military applications in the field. Because of its outstanding performance parameters it has repeatedly been subject to international quality awards, most recently it was

awarded the "Wearable Power Prize" of the US DoD and the "Technology Innovation Award" of the Wall Street Journal. In combination with the SFC Power Manager it provides a weight reduction up to 80 per cent compared to conventional energy supply such as batteries. Power generation inside the JENNY fuel cell is silent, non-detectable without harmful fumes. The energy is generated fully automatic.

## Foundation of Sofrelog Atlas Maritime Security

**Somewhere.** EADS Defence & Security (DS) and Atlas Elektronik (AE) have decided to consolidate their position in the maritime safety and security market by merging their subsidiaries Sofrelog, acquired by DS in 2006, and Atlas Maritime Security, a spin-off of AE. This joint venture will take the form of a strong and flexible SME tailored to meet specific customer needs in this market. Named Sofrelog Atlas Maritime Security (SA Maritime Security), the new company will be co-owned by EADS Defence & Security (60%) and Atlas Elektronik (40%). The merger will be closed and implemented subject to clearance decisions by the competent anti-trust authorities expected in the course of 2010.

By combining the activities of Atlas Maritime Security and Sofrelog, DS and AE intend to create a company that possesses all the assets needed to become a leader in the provision of maritime safety and security systems. It will draw on the long-standing expertise of Atlas Maritime Security and Sofrelog in Vessel Traffic Service (VTS) systems and Coastal Surveillance Systems (CSS).

The new company will rely on a total workforce of over 170 highly skilled maritime surveillance specialists in Germany and France, as well as on its large customer base with more than 210 VTS and CSS systems in use in some 50 countries. It will have the required financial strength to deliver the large-scale security solutions required by governments and maritime users throughout the world. SA Maritime Security will address markets worldwide with innovative, reliable and cost effective products ranging from small-scale vessel traffic service systems to high-performance coastal surveillance solutions. It will also provide solutions for harbour security, port management and information systems and other related radar processing applications. SA Maritime Security will benefit from its capability to integrate the latest sensor systems, communications and data processing technologies. Significant investments in cutting-edge technologies and in developing markets for surveillance systems will ensure that the new company meets its customers' high expectations at all times.