



## C-Scope Vessel Traffic Service System for the World's Busiest Port

Kongsberg Norcontrol IT's C-Scope Vessel Traffic Service (VTS) system has been selected by the Maritime and Port Authority of Singapore (MPA). The contract, which was awarded June 2009, reflects the strength of Kongsberg Norcontrol IT as the leading supplier of maritime domain awareness solutions worldwide.

"At its narrowest point, the Singapore Strait is only 1.5 nautical miles wide. Providing a Vessel Traffic Information Service (VTIS) on a 24/7 basis to both transiting vessels and vessels bound for the Port of Singapore in a clear and unambiguous manner presents challenges," states Steve Guest, Managing Director of Kongsberg Norcontrol IT's office in Singapore.

The project, valued at approximately SGD 25.5 million (circa €12.5 million), is extensive and encompasses a core C-Scope VTS system with maritime communications, AIS, CCTV, RDF and GMDSS with multiple interfaces to enable interoperability. The entire system will be set up at a new Port Operation Control Centre (POCC) in Changi.

"The C-Scope VTS system provides significant decision support tools in an ergonomic way including VTS Operator prompts to ensure that vessels are managed in accordance with applicable Collision Regulations and the Authority's in-house standard operating procedures," continues Steve.

"We are delighted that we have once again been entrusted to deliver the best solution to ensure safety and efficiency in the Singapore Strait and the approaches to the Port of Singapore," comments Inge Flaten, President, Kongsberg Norcontrol IT. "MPA is wisely using the present slowdown to upgrade its infrastructure, so as to ensure the Port of Singapore continues to be safe and efficient when vessel traffic picks up."

Having recently moved from Europe to Singapore, Steve Guest observes: "It is interesting to see the similarities between the Changi C2 Centre joint operations model and the research work we've recently completed as part of the EU MarNIS project. In MarNIS the joint operations model is centered on a Maritime Operations Service (MOS) Centre. This research project was only completed in late 2008, so it is really pleasing to already be under contract to deliver a key element for such a joint operation system."

The core technology for the Project is the C-Scope VTS system, which has advanced features such as:

- VTS Operator Client with enhanced visualisation including 3D Views
- Decision support functions to dynamically identify contraventions, congestion and risk
- Embedded Search And Rescue (SAR) and Traffic Analysis tools
- Radar Video Web Map Service
- Web based viewing
- Interoperability module.

"MPA is world-renowned for its capability to manage vessels and be at the forefront in accepting and utilising technology," says Steve. "C-Scope had to meet challenging technology requirements specifically for MPA and yet be low-risk since efficient, safe and secure maritime transportation is a top priority for the Project."



"An extremely important work package for the Project is to ensure all this technical wizardry is delivered in an ergonomic and user-friendly manner," says Fred Fredriksen, Kongsberg Norcontrol IT's Project Manager. "We went right back to the drawing boards and really challenged conventional methods of presenting the right data at the right time to different user groups. C-Scope's VTS Operator Client will be an essential component of the Project."

C-Scope is Kongsberg Norcontrol IT's 7th generation maritime domain awareness system and is already in use by the Norwegian Coastal Administration, the UK's Maritime & Coastguard Agency, and customers in the Middle East and Americas.

### Welcome...

...to the September 2009 edition of the Kongsberg Norcontrol IT newsletter.

We are delighted this month to announce a number of exciting new projects that will challenge our technical knowledge and skills, including an extensive upgrade of the VTS in Singapore, a Control Centre upgrade at Algeciras in Spain and the implementation of underwater surveillance for the Port of Long Beach by the Naval Systems and Surveillance division, Kongsberg Defence Systems.

These projects signify our ability to handle large turnkey installations and to integrate sophisticated technology across different sub-systems; however, as one of the leading providers of maritime surveillance we are dedicated to applying our expertise and our solutions to ports and maritime domains of all sizes, anywhere in the world.

We hope our extensive list of completed projects from the last two decades reflects this and we are positive that the next two decades will bring a similarly eclectic mix of projects. For now though, we hope you enjoy reading about what's happening at Kongsberg Norcontrol IT, and if you feel that any of the technology or applications in this newsletter could benefit you, then we are happy to talk!



Inge Flaten, President,  
Kongsberg Norcontrol IT



KONGSBERG



## C-Scope Underwater Surveillance System for Port of Long Beach

Kongsberg Defence & Aerospace AS (KDA), parent company to Kongsberg Norcontrol IT, has been awarded a contract between its fully owned U.S. subsidiary – Kongsberg Defence Corporation, (located in Johnstown, Pennsylvania) and the Port of Long Beach (POLB) for delivery of the ‘C-Scope Underwater Surveillance System’ (USS). The contract was unanimously approved by the POLB’s Board of Harbor Commissioners on June 15, 2009.

KONGSBERG’s  
DDS 9000 diver  
detection system



The C-Scope USS project will provide unprecedented underwater surveillance and protection for the main waterways and prime marine terminal facilities at the POLB, which is America’s biggest and busiest container port complex. The USS combines a number of DDS 9000 diver detection sonar heads from another Kongsberg subsidiary, Kongsberg Mesotech (located in Vancouver, BC, Canada), into an integrated surveillance system, which will provide the POLB with a highly advanced and automated system for underwater surveillance of all the covered areas of interest.

“We are very pleased and proud to be the first U.S. port to actively pursue a sophisticated underwater surveillance system to enhance our maritime domain awareness capabilities and to improve our port security protocols,” said Cosmo

Perrone, the Director of Port Security for the Port of Long Beach. “KONGSBERG’s underwater surveillance system, coupled with their C-Scope multi-sensor integration platform (MSI), will give us state-of-the-art detection and response capabilities for small craft, swimmers and divers that may invade our waters with hostile intent – thereby making our harbor safer and more secure for the future.”

Kongsberg Norcontrol IT is already well represented at Los Angeles/Long Beach Harbor, having provided all of the cutting-edge equipment and systems for the Vessel Traffic System (VTS) located at the Marine Exchange’s Vessel Traffic & Information Center in San Pedro, going back to late 1993. Kongsberg Norcontrol IT equipment and systems are today the principal source for all radar, AIS, and other important ‘Maritime Domain Awareness’ (MDA) data feeds at the POLB – providing vital and important vessel movement and ship location data going to the U.S. Coast Guard Sector Command for LA/LB Harbor, as well as to the two port authorities, the two harbor pilot stations, and other important agencies.

“This contract is the first of its kind by KDA for commercial ports, and it is the result of long and strategic efforts by KONGSBERG in pursuing the surveillance market in the USA,” said KDA Executive Vice President, Nils-Oddvar Hagen.

## Search and Rescue Control Centre Upgrades for SASEMAR

Kongsberg Norcontrol IT has been awarded the contract to provide upgrades to the SASEMAR (Sociedad de Salvamento y Seguridad Marítima) Control Centre at Algeciras in Spain. The Control Centre is responsible for SAR and traffic management in order to have a complete domain awareness view for waters three miles out from Algeciras Port, which is Spain’s largest port, having accounted for over 25% of the country’s tonnage in 2008.

In addition to three Kongsberg Norcontrol IT VOC5060 Operator Workstations, recording & replay functionality and a sensor server, the delivery will include a Kongsberg Seatex AIS base station and the innovative C-Scope Radar Extractor and Tracker in addition to operator and maintenance training.

The VOC5060 Operator Workstation application is the primary user interface for the Kongsberg Norcontrol IT VTMISS060 platform, which already forms the basis of VTS systems for many of the world’s busiest ports and maritime domains. It provides operators with access to all the information in the system, and the ability to control system functions, with features including:



- Electronic map of the coverage area, with overlays
- Digitised radar video
- Radar target tracks (symbol, vector and ID tag depicting a target’s position, course, speed and identity)
- Transponder target tracks
- Bearing lines from VHF Direction Finders (VHF/DF)
- Target track data & detailed vessel data (database)
- Target, buoy & system warnings
- Status and controls for VTS sensors
- Data from sensors such as Meteorological/Hydrological (Met/Hyd), Closed Circuit Television (CCTV) and Supervisory Control And Data Acquisition (SCADA).

C-Scope Radar Extractor and Tracker is a sophisticated solution that uses advanced signal processing techniques to extrapolate an even clearer image from the raw radar signal without the need for expensive new hardware. It enables high-resolution real-time vessel tracking, higher performance out of existing radar sites and improvements to sites already using the best antennas and transceivers.

“We have a very positive relationship with SASEMAR and are committed to ensuring our systems can meet, and exceed their very high standards,” comments Roberto Gonzalez, Business Development Manager, Kongsberg Norcontrol IT. “We are proud to once again provide solutions to enhance safety and efficiency for SASEMAR and the upgrade to the Algeciras Port SAR Control Centre is expected to be completed by early 2010.”

## CRIADS Lifecycle Upgrade Successfully Completed

In the latter part of 2007 Kongsberg Norcontrol IT entered into a four year service program for the Norwegian Defence Coastal Radar Integration and Display System, which is also known as CRIADS. A milestone in this project was completed late June 2009, with the completion of the hardware lifecycle upgrade at the Surveillance Headquarters in Bodø, Norway.



AIS-Sea picture in the upgraded CRIADS application

CRIADS provides control and monitoring facilities for sensors such as AIS, coastal radars, radio direction finders, ESM equipment, CCTV systems, and interfaces to tactical links. It merges the data inputs to one complete Recognised Sea Picture (RSP), a high quality picture compilation that may be distributed further to other agencies and operatives.

The lifecycle upgrade was completed by a small team of Kongsberg Norcontrol IT personnel over a period of eight months. It included the implementation of an updated Windows operating platform. The system is designed to handle and protect data classified to NATO Confidential so is therefore designated a 'safe platform' with respect to HW, SW and OS. National Security Policies are implemented to satisfy the security requirements.

"The upgraded CRIADS has now successfully been operating for a few months, and is a very stable system, that among other improved functionality, can handle a considerably increased numbers of tracks," says Dagfinn Østbye, CRIADS Project Manager, Kongsberg Norcontrol IT. "We have regular, direct contact with the end users and the administrative project manager in the Norwegian Defence Logistic Organisation and the feedback is that they are very happy with the system."

CRIADS has the capability and capacity for producing an unambiguous, real-time, tactical RSP at Surveillance Headquarters. The capabilities include the control and monitoring of coastal radars, advanced track correlation and alarm handling, multi-sensor input and control including radar video fusion and monitoring, and control of other sensors such as RDF and cameras. At the Surveillance Headquarters the RSP is also prepared for distribution and exchange on NATO defined tactical data links.

The Kongsberg Norcontrol IT CRIADS project group covers all actual fields to effectively maintain, support and develop new features to the system. The CRIADS personnel improve and maintain competence within, among others, the following areas:

- Track management
- Radar, extractor and tracker
- Misc. binary and text based interfaces
- Microsoft OS/MS Server/MS.Net
- System hardware
- Databases
- Network/network monitoring
- Data security

"Our work with CRIADS is on an ongoing basis and we have several new features in development for implementation in the near future, which will make it a safe platform for handling multiple levels of security," continues Østbye. "This reflects the fact that CRIADS is an extremely flexible system that can be developed exclusively to any country's specific requirements."

## C-Scope Radar Extractor Supports Sandbank Study

The Port of Liverpool (POL) and the Proudman Oceanographic Laboratory have initiated a new study that uses the C-Scope Radar Extractor from Kongsberg Norcontrol IT in a unique fashion. Marine physicist Dr. Paul S. Bell is developing a monitoring technique based on the interaction of tidal currents with large-scale bedforms as seen in the radar images, which produces an easily interpreted map identifying the location and shape of submarine sand wave and dune features. Essentially, the project is aimed at defining a method to track the movement of sandbanks at the POL.

The C-Scope Radar Extractor has been attached to the Eastham radar at the entrance to the Manchester Ship Canal in the Mersey Estuary for a trial period to investigate the viability of the new technique at this location.

Although analysis of the data captured using the C-Scope Radar Extractor is in its early stages, initial indications are encouraging. The picture shown (fig. 1) is a snapshot of raw, unprocessed data, which clearly shows signatures of submarine sand wave and dune features in the estuary. The resonant echo visible in the image is related to an unfortunately placed metal lamp-post, which has now been removed, clearing the contamination from subsequent radar data.

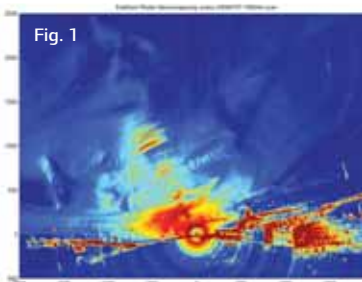


Fig. 1

"The C-Scope Radar Extractor and Tracker is designed to provide better control and performance of radar hardware and was originally designed as a tool to enhance the robustness of VTS systems and to overcome clutter and noise challenges in busy areas or when tracking small targets," explains Dr. José Navarro, Chief Scientist, Kongsberg Norcontrol IT. "However, it's exciting to see the C-Scope Radar Extractor part of the system used for such a unique project, that if proven successful could be implemented at other ports and maritime domains around the world for improved safety in shallow waters."

## Events & Exhibitions

Kongsberg Norcontrol IT will be exhibiting at or attending the following events in 2009.

- 4th Southern Asia Ports, Logistics and Shipping, Chennai, India, Sept 24-25
- INMEX 2009, Mumbai, India Sept 24-26
- Int. Port Security, Barcelona, Spain, Sept 30 – Oct 1
- Maritime Security Expo 2009, Long Beach, CA, Oct 20 – 21
- MAST 2009, Stockholm, Oct 21 – 23
- 5th Thai Ports and Shipping 2009, Bangkok, Oct 29 – 30
- 17th IALA Congress, Cape Town, March 22 – 27 2010

If you would like to organise a meeting to discuss specific issues, please contact your local Kongsberg Norcontrol IT office or KONGSBERG company prior to the event.





## It's Safe Up North

As a technology focused company, Kongsberg Norcontrol IT has key roles in several Research & Development projects. One such project is MarSafe North; Maritime Safety Management in the High North, which is dedicated to improving maritime safety management through the use of advanced communication and surveillance technologies in the High North, i.e. the Arctic area - including the Barents Sea.

There are several unique challenges for the maritime industries - fishing, oil & gas, and extensive shipping traffic, as well as the responsible authorities in the High North - including;

- Extreme climate and seasonal variations, cold & dark
- Vulnerable natural resources
- Lack of infrastructure, long distances - a vessel in the Arctic is really on its own
- New corridors and new business to monitor.

Because of the vast geographic distances and the economic importance of activities at sea and in remote areas, there is a high demand for innovative radio and satellite based solutions for efficient safety management.

MarSafe's goal is to contribute to creating the necessary technical specifications and procedures for enabling safe, secure and efficient operations, which will in turn also be an important component in the assessment of operational constraints for actors in this area. The project, which includes several high profile members such as Marintek, SatoilHydro and Telenor is made up of eight work packages (WP). Kongsberg Norcontrol IT is responsible for WP4: Supervision, Monitoring and Control.

User needs, visions and technical specifications in relation to state-of-the-art technology will be documented - and in some cases - illustrated by demonstrations within WP4. These criteria will cover the whole range of technology that Kongsberg Norcontrol IT works with and harnesses on a daily basis for users of its VTS systems worldwide, including communications, surveillance & sensing and radio navigation and tracking. There are many consequences of the challenges in the High North that must be considered, for instance ice-drift and route planning in ice-covered areas - where a vessel may see its destination, but may need to take a long, indirect trip around the ice to reach it.

A MarSafe seminar was held in Vardø, close to Vardø VTS on 8 - 9 September. The participants, in addition to interesting presentations and discussions, were also given important information and insight by the personnel managing and operating the Vardø VTS. In parallel a field trial featuring various satellite and terrestrial communication and navigational solutions was performed, using a Norwegian navy vessel sailing from Svalbard to Kirkenes.



Kongsberg Norcontrol IT has already supplied an extensive VTS solution at Vardø.

It is a pleasure for Kongsberg Norcontrol IT to be a MarSafe WP leader, working with a team of experts from some of the world's leading technology and maritime companies and institutions, including: MARINTEK, SINTEF ICT, Kongsberg Seatex, KSAT, The Norwegian Coastal Administration, RCC Bodø, FFI, the Norwegian Space Centre, NTNU, StatoilHydro, UniS and Wracklaw University of Technology.

## CONTACT US...

### Norway

#### Kongsberg Norcontrol IT AS

(Main Office) Bromsveien 17  
PO Box 1024  
N-3194, Horten  
Tel: +47 33 08 48 00

### China

#### Control IT Xiamen

C1 Unit, 21 Floor  
Yuanyang building Lujiangdao #268  
Xiamen City 361 001  
P.R. China  
Tel: +86 592 5031095

### India

#### Aatash Norcontrol Ltd.

C14, Vishal Tower  
Ramdevnagar Satellite Road  
Ahmedabad - 380051  
Tel. +91 99099 03749

### Korea

#### Chang San IT

9th Floor Busan Sangrok B/D  
#828-9 Beomil-dong, Dong-gu  
Busan  
Tel. +82 51 637 8932

### Singapore

#### Kongsberg Norcontrol IT Pte. Ltd.

3 Loyang Way, Singapore 508719  
Tel: +656 545 7375

### South Africa

#### Kongsberg Norcontrol IT Pty., Ltd.

P.O. Box 1519  
Hillcrest, 3650  
Tel. +27 31 767 8150

### South Africa

#### Marine Data Solutions (Pty) Ltd

P.O. Box 51680  
Waterfront 8002  
Cape Town  
Tel. +27 21 386 8517

### UAE

#### Kongsberg Middle East

P.O. Box 5250, Abu Dhabi  
Tel. +971 2 4451-956

### UK

#### Kongsberg Norcontrol IT Ltd.

12 High Street  
Winterbourne,  
Bristol BS36 1JN  
Tel: +44 1454 774466

