

North Sea oil rig, North-west coast of the Netherlands

MSS system - the coverage of helicopter traffic to oil platforms for LVNL

Introduction:

Air Traffic Control, the Netherlands (LVNL) provides flight information services for helicopters to support their operations in the North Sea. They were in need of a surveillance and tracking system to increase the safety of helicopters flying to oil and gas platforms in the area and also for other operations like VFR-flights, windmill maintenance etc.

Challenge:

A large portion of the off-shore airspace surrounding the oil platforms is beyond radar coverage, and installing traditional radar would not have been effective or economical. LVNL required an innovative solution to maintain surveillance in the harsh North Sea environment.

ERA's composed multilateration and ADS-B system uses multiple low-maintenance, non-rotating stations to obtain aircraft location based on reception of transponder signals. This provides Flight Information Officers with precise aircraft position and identification information. Thus LVNL awarded the contract to former HITT (now defence and security company Saab) and ERA as its subcontractor to deliver a solution for FIC controllers with accurate surveillance of flights operating over the sea.



CHALLENGES:

- Increasing number of helicopter flights
- Lack of radar equipment
- Visual surveillance and radio communication only
- Harsh weather conditions

SOLUTIONS:

- MSS by ERA system - unique MLAT usage for off-shore area
- Coverage of an area of 30 thousand sq miles
- Traffic monitored from the level 500 ft
- Identification and positional data

BENEFITS:

- Surveillance in an area not covered by radar
- Increasing safety
- All-weather functionality
- Minimal impact on the environment

STANDARD:

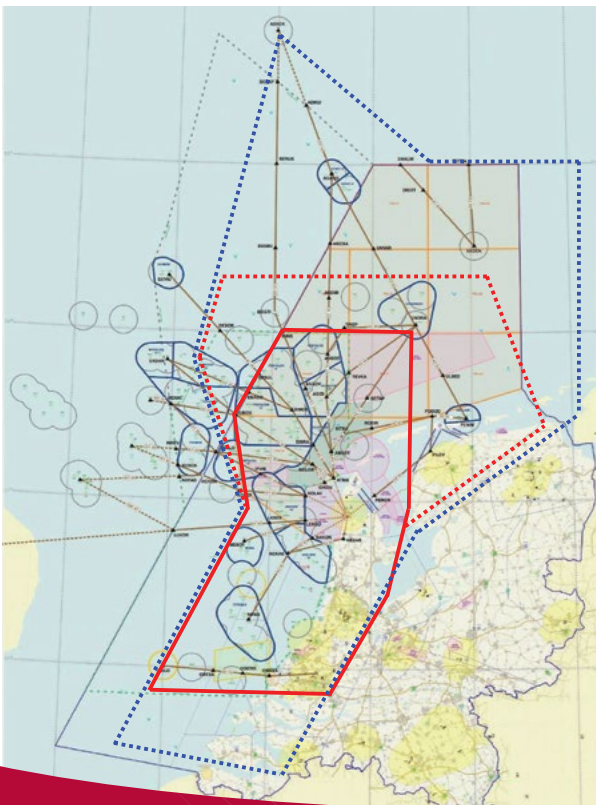
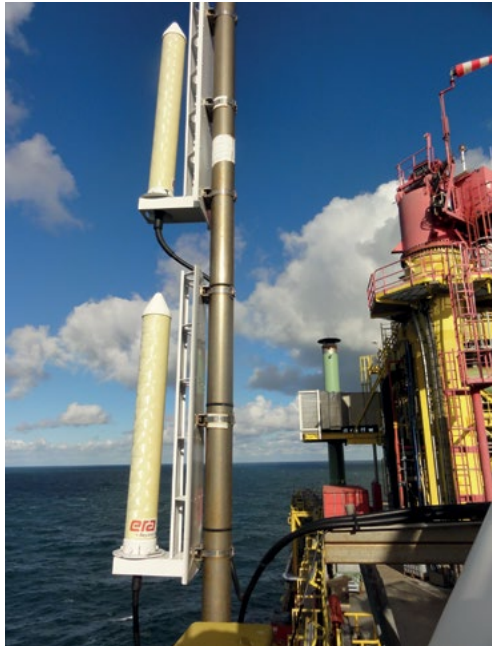
- ICAO standard Annex 10, Volume IV
- RTCA DO 260A

Solution:

ERA and former HITT used sensors deployed along the north-west coast of the Netherlands to create a single multi-sensor surveillance system. Multi-sensor surveillance system (MSS) covers the complete area to provide seamless surveillance. The system supports safety of helicopter operations between the shore and oil fields.

The system is capable of detection of ADS-B and Mode S equipped aircraft to provide identification and positional data within an area of more than 30 thousand square miles.

As part of the project, 17 sites were installed on oil platforms and 3 on onshore locations or islands in close vicinity. All sensors are connected to a Central Processing Station, which is located at the LVNL headquarters in Schiphol, Amsterdam. The output of the system in ASTERIX format is integrated into the multi-sensor data fusion system ARTAS.



The area is covered from 1,500 ft till 45,000 ft except the Main Helicopter routes and Helicopter protection zone's which are covered from 500 ft. ADS-B covers the area from 100 ft till 45,000 ft. The system has already passed a one year long successful trial and was officially accepted as operational.

The system provides identification and positional data within an area of more than 30 thousand square miles. The stations are installed on oil platforms, on onshore locations and on islands in close vicinity.

PARTNER:

Air Traffic Control the Netherlands (LVNL)

LVNL provides air traffic services and flight information in the Dutch civil airspace. LVNL's area control unit handles approximately 550,000 flights yearly and its TWR and APP control units handle around 450,000 flights each year.

"With this system helicopters flying over an oil rig in the North Sea are tracked as low as a level of 500 ft. This greatly enhances the situational awareness of the Flight Information Center Controllers and increases the safety of operations in the North Sea area."

Jurgen van Avermaete,
general manager
Procedures, Air Traffic
Control the Netherlands.

