

Dstl brings cutting edge science to large NATO 'at sea' exercise

At-Sea Demonstration Formidable Shield 21 (ASD/FS-21) is a live 2-week exercise bringing together Allied nations in UK waters to demonstrate effective integrated air and missile defence, including interoperability and command and control.

The Defence Science and Technology Laboratory (Dstl) is bringing its world-leading scientific expertise to the exercise – a culmination of almost 10 years of research and collaboration with industry partners. Dstl has enabled the latest artificial intelligence (AI) to be brought into the command spaces on a Type 45 destroyer (HMS Dragon) and Type 23 frigate (HMS Lancaster) for the first time, improving the ability to detect threats earlier and providing advice to operators. This will crucially increase engagement timelines and provide the Commanders with tools to support operational decision making.

The exercise is designed to improve allied interoperability in a live-fire joint integrated air and missile defence (IAMD) environment, using NATO command and control reporting structures. Ten nations are participating by sending ships, aircraft, ground assets, and embarked staff in Task Group IAMD, including Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, the United Kingdom, and the United States.

ASD/FS-21 is a significant exercise, with 15 ships, more than 10 aircraft, and around 3,300 military personnel involved. The exercise is taking place at MOD Hebrides Range in Scotland which is managed by QinetiQ. The range complex occupies 115,000km² of sanitised airspace with unlimited altitude and can be extended for specific trials. This large area makes it ideal for air-launched weapons operations and is a fully instrumented controlled environment which enables the test and evaluation of land, air and sea weapons, systems and training for UK forces and its allies.

Jayne Adamson, Dstl Principal Advisor for Maritime Information Systems and the MTMD Forum's Lead Systems Engineer, said:

A number of key scientists and military advisors will be on board a number ships checking that systems work together with command and control, both tactical and technically. The data will be gathered and used to refine future capabilities' responsiveness to threat, evaluation and weapon assignment.

Dstl has worked closely with BAE Systems and their radar and combat systems, and CGI and Roke who provide the AI threat monitoring systems.

Robin Abbot, Programme Manager, BAE Systems Naval Ships Combat Systems, said:

As a member of the UK Mission Systems Enterprise, we are incredibly proud to support At-Sea Demonstration/Formidable Shield 21. The exercise helps to stress test our integrated combat systems against new and evolving above water threats in a challenging environment. We are delighted to work with Dstl, Roke and CGI to demonstrate the benefits of novel tactical decision aids integrated with an open Combat Management System, deriving requirements for the next generation of operational systems.

Colin Sanderson, Senior Vice President for UK and Australia Secure Operational Systems at CGI, commented:

Automation and AI will help to improve the quality of information presented and support decision making for our Armed Forces in increasingly complex environments. Through our enduring relationship with Dstl we are excited to be taking part in the Formidable Shield exercise to prove the benefits of our applications integrated with open architecture combat systems in a realistic maritime environment.

Roke Managing Director, Paul MacGregor, added:

Roke is proud to support Dstl during the At Sea Demonstration Formidable Shield 21. This exercise presents an exciting opportunity to further prove our AI threat monitoring system, STARTLE® in a complex operational environment. It will test and enhance our ability to put real-time situational awareness into the hands of the Royal Navy crew, and help to ensure that NATO allied nations are well-equipped to anticipate, prevent and respond to new and emerging threats.

Dstl's ultimate ambition is to develop systems that are complementary and can be integrated with its partner nations' armed forces.