Timothy Compston warns that the lack of an effective maritime patrol aircraft has compromised the UK's security and asks what options, if any, are available to plug this critical surveillance gap

PLUGGING THE SURVEILLANCE

Since the long-serving Nimrod maritime patrol aircraft (MPA) last flew, the sad fact is that the UK, so often a leader in maritime matters, has had to soldier on with a major shortfall in its over-water surveillance capability. Five years later, land and ship-based helicopters, and other aerial assets, are still struggling to address the shortfall.

Few would argue with the notion that, at the time of its demise, the Nimrod MRA4 upgrade programme had become very much a "white elephant", with mistakes and overruns the order of the day. Not surprisingly, this placed it firmly in the sights of a cash-strapped government dealing with the aftermath of the global banking crisis. But, whatever the financial imperatives might have been, it is still debatable whether the scrapping of these aircraft as part of the 2010 Strategic Defence and Security Review – so close to their in-service date – was the correct solution in the absence of an alternative that could, potentially, take to the skies.

The impact the continued absence of a maritime patrol aircraft is having on the UK's security operation was brought into sharp relief in November 2014, when a number of allies – including France, the US and Canada – had to fly in maritime patrol aircraft to help Britain search for a suspected Russian submarine off the west coast of Scotland. Some may counter that Nato allies regularly share resources but, for an island nation dependent on the safety and security of sea lanes, the lack a viable maritime surveillance asset that can range far out into the Atlantic and cover large areas of the North Sea has to be a real concern. The reality is that we live in a fast-changing world where, for example, a resurgent Russia is more than willing to flex its muscles on land, in the air and, crucially, at sea.

In May 2015, the growing unease in military circles over the current state of the UK's maritime surveillance was reiterated by five retired senior officers – air marshal Sir John Harris, air-vice marshal George Chesworth, air-vice marshal David Emmerson, air-vice marshal Andrew Roberts and air commodore Andrew Neal – when they made public their concerns through a letter to the Daily Telegraph newspaper. The officers expressed the view that the lack of a maritime patrol aircraft was unlocking opportunities for Russia to gather intelligence, especially where the UK's Trident submarine-based nuclear deterrent was concerned. In a letter which didn't pull its punches they said: "It would be surprising if valuable intelligence had not already been acquired by the Russian Navy since the Nimrod force was grounded". They also spelt out their opinion that: "The need to reintroduce maritime patrol aircraft (MPA) into the British frontline is now widely recognised."

The Daily Telegraph letter was just the latest in a succession of commentaries and reports that have created waves about the surveillance deficit left by the demise of Nimrod. Back in September 2012, the UK's well-respected House of Commons Defence Select Committee, for example, commented: "Although the MoD's [Ministry of Defence's] own capability investigations have concluded that an MPA is the solution to the UK's maritime surveillance requirements over the next 20 years, the MoD has postponed any decision on the subject until at least the next SDSR [Strategic Defence and Security Review] in 2015." The Committee went on to say that: "The UK therefore now has no current or planned sovereign MPA capability and the MoD has acknowledged that the resultant capability gap cannot be completely covered by existing assets or a combination of assets."

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The MQ-4C Triton long-endurance naval surveillance UAV

So what are some of the potential options that the British armed forces could turn to, especially given the likelihood of a constrained defence budget in the years ahead? One route would be to simply work in a more joined-up way with what is already in place. We could rely on a mixture of helicopters like the Merlin and Lynx and small UAVs flying from Royal Navy escort ships, such as the Type 23 frigate and Type 45 destroyer, the new Queen Elizabeth aircraft carriers and other Navy and Royal Fleet Auxiliary vessels. These could be used alongside small UAVs and RAF assets such as the Sentinel R1 – which is more suited to over-land surveillance – transport aircraft such as the Hercules, and larger UAVs which are not optimised for this task. Sadly, as many commentators, politicians, and those with military and security connections, have reflected over the past five years, this is far from an ideal or sustainable position.

Looking at what some of Britain's allies are doing to fulfil their own maritime patrol requirements, the Royal Canadian Air Force (RCAF) is in the throes of an upgrade programme for its Lockheed CP-140 Aurora aircraft. Major James Simiana, who works in Air Public Affairs for the RCAF, confirmed that, as a strategic maritime patrol aircraft, the CP-140 Aurora is tasked with conducting four key maritime missions, specifically: anti-submarine warfare (ASW), anti-surface warfare (ASuW), maritime surveillance and miscellaneous maritime missions such as search and rescue (SAR). Simiana was keen to emphasise the ongoing importance of the CP-140 Aurora: "In a country as vast as Canada touching three oceans, a maritime surveillance capability has particular security interest to Canadians. Recently reported submarine incursions in Europe remind us all of the value of long-range patrol," he said.

Pressed on whether drones, and even satellites, are likely to replace manned aircraft any time soon, Major Simiana responded they all have roles to play. "The Canadian armed forces' perspective is that drones (unmanned aircraft), satellites and manned surveillance aircraft together form the "surveillance system of systems"," he said. "The satellite component [RADARSAT] will act as the cueing platform. The unmanned platform will be utilised where long-endurance and on-station persistence is required. The manned platform will take over the prosecution when the military is required to act on a contact or a manned platform is in a better position to gather the intelligence."

A wide range of options are open should the UK choose to select an alternate maritime patrol aircraft. The P-8A Poseidon from Boeing, which is a derivative of the next-generation 737-800, is certainly gaining traction. The aircraft has been "militarised" with maritime weapons and features a bomb bay, two pylons on each wing, and what Boeing refers to as a "modern open mission architecture". The company has already delivered 25 production models to the US Navy, and the Australian government has followed suit by announcing approval of the acquisition of eight P-8A aircraft, with the first scheduled for delivery in 2017. Alongside this, Boeing is under contract to build eight P-8I variants for India, with six having been supplied and the last two expected to be completed by the end of this year.

For its part, Saab is bringing to market Swordfish MPA which, although smaller in scale than the P-8A, is positioned as a strategic surveillance and command control platform, offering long-range, high-dash speed, and significant on-scene endurance. According to Jonas Härmä, Saab's head of sales and marketing for Airborne ISR, the Swordfish MPA is a "high end" asset. "It is capable of delivering, for example, anti-submarine

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warfare, anti-surface unit warfare, long-range search and rescue capabilities alongside multi-role ISR [Intelligence, Surveillance and Reconnaissance]," he said. Härmä also revealed that the nerve centre of the Swordfish MPA is the C4I Mission Management System (MMS). Härmä said that the modularised approach and standardised interfaces in the C4I MMS cater for the "flexible" integration of sensors and equipment such as active/passive sonar buoys. He stressed that the Swordfish MPA not only has the potential to detect but can also engage targets via torpedoes or anti-ship missiles.

Regarding the performance of any MPA, Härmä spotlighted the need for low-level and low-speed tactics, and said any platform decision should be based on flight characteristics and fuel consumption/endurance, as well as the ability to carry a "useful and powerful" payload. Given the complexity of the scenarios likely to be encountered, Härmä reported that Saab believes that there is still a requirement for the human element – "the man in the loop and eyes on the target".

Of course while manned aircraft may still provide the bulk of the world's maritime surveillance assets, platforms like the unmanned MQ-4C Triton from Northrop Grumman are now flying high by offering a level of endurance way beyond that of more conventional approaches. Mike Mackey, programme manager for Triton, explained the project's genesis. "Triton came about 12 years ago when the Navy [US Navy] wanted to look at unmanned aviation for maritime surveillance in a programme called BAMS-D [Broad Area Maritime Surveillance – Demonstration] and we built two jets for them," he said. "They were going to do a six-month deployment and I think that we are now in the 75th month."

Mackey added that lessons learned from the demonstrators were then brought into Triton. "We came on contract in around 2008 and developed the Triton with a specific eye on maritime surveillance with the MFAS [Multi-Function Active Sensor] that has a full 360-degree scan ability, so we don't have to manoeuvre to get that," he said. The MFAS, according to Mackey, is an active radar which is the primary detection or scan mode for Triton. "The normal mode of operation is a 24-hour mission where the aeroplane will go to altitude at the 50,000 feet area and begin to use the MFAS to scan," he said. "Once I have a target of interest I have the ability to dip the aeroplane. Other high altitude long endurance platforms don't do that. I can come down to a much lower level – say 10,000 feet – to use an EOIR [electro optical infra-red] to do fine detection."

Mackey also revealed that the Triton's wings, its airframe structure, and vertical tails are all strengthened to take on the challenges of this environment. To put some figures on the sort of area Triton can cover in a single mission, Mackey said this can amount to as much as 8,200 square nautical miles. "We can fly deep blue water and the littorals," he said.

Whatever the future holds for the UK's approach to maritime surveillance, there appears to be a growing realisation that something needs to be done to regenerate this capability. As we have seen there are a number of platforms – manned and unmanned – out there that could do the job. It is now really a question of whether there is the political will and funding to deliver the right solution.

Timothy Compston is a journalist and PR professional who specialises in security issues. He studied International Relations and Strategic Studies at Lancaster University, is PR director of Compston PR and a previous chairman of both the National PR Committee and CCTV PR Committee of the British Security Industry Association (BSIA).

Trials of the CP-140 Aurora maritime surveillance aircraft formed part of February's Operation IMPACT in Iraq, demonstrating the versatility of the platform