



To minimise risk, Northrop Grumman's Fire Scout vertical take-off and landing tactical UAV, under development for the US Navy, is built around Schweizer's proven Model 330 light helicopter

monitored by nations interested in deploying maritime systems, including the long-standing NATO Project Group 35 effort exploring options for a potential common UAV solution for allied navies. While extensively delayed because of technical difficulties with the demonstration air vehicle, sea-based trials of the European Aeronautic Defence and Space (EADS) Seamos VTUAV are expected to proceed over the next two years.

Depending on the respective maturity demonstrated by both Firescout and Seamos, a market for maritime VTUAVs could emerge around 2005, providing a much needed boost for other vertical take-off and landing (VTOL) programmes, including Bell Helicopter's Eagle Eye tilt rotor, Sikorsky's Cypher and Boeing's Canard Rotor Wing.

Broader NATO interest in developing a co-ordinated approach between member nation programmes is also expected to shape market directions in the medium to long term, although key decisions on common requirements could be made between April and August. Lead project activities are expected to emphasise high-altitude endurance (HAE) UAVs.

The NATO effort is likely to act as a focal point for a range of potential HAE programmes in France, Germany and the UK during the second half of the decade. Germany has been actively

exploring the potential of both manned and unmanned endurance systems since the late 1980s, with current research and planning activities expected to shift into a definition and development phase late next year or in early 2003.

French interest in both MAE and HAE UAVs was significantly stepped up by lessons learned in operations over Kosovo. The French air force is preparing to select an MAE system in the first half of this year. The competition pits the EADS Eagle, a variant of the Israel Aircraft Industries (IAI) Heron, against Sagem's Horus; a modified General Atomics Predator; and Silver Arrow's Hermes 1500. The requirement calls for a total of five systems to enter operational service late next year.

UK interest in long-endurance systems is still being defined as part of ongoing Project Extender studies but may impact the emerging Watchkeeper requirement, with a number of contenders having previously flagged interest in offering MAE solutions. The Watchkeeper system is intended to enter service in the 2006-8 timeframe, with consideration also being given to a maritime surveillance role.

Broader markets

Outside of NATO, attention will focus less on endurance capability and more on new tactical-level programmes, particularly for first time UAV

users. Such programmes are also likely to include strong requirements for domestic development, with UAVs seen as a comparatively low-cost way for many nations to enter the aerospace sector.

Israeli UAV manufacturers have dominated these markets for more than a decade, with nations benefiting from commercial and government-to-government links including India, Singapore and South Africa. In the case of India, the Israeli relationship has evolved to include exploration of medium- and medium/high-altitude endurance systems based around IAI's Heron. India signed a combined Searcher and Heron purchase deal last June.

Israel itself continues to explore a range of future applications for vehicles in the Heron class and above, particularly to tackle the continuing problem of locating and destroying mobile missile launchers. Key areas of technology development include airborne radar surveillance, low-observable features and on-board artificial intelligence systems. The costs associated with their development are likely to drive Israeli firms into seeking longer term international relationships to offset costs. France's looming MAE decision has particular significance in this respect.

Israel's technical co-operation activities with China have previously been identified as potentially including UAVs, though no firm evidence has yet emerged. China continues to explore