

# Asia-Pacific **Airborne** Survei



# Balance



*High-Altitude Long-Endurance (HALE) unmanned aerial vehicles such as the navalised Global Hawk shown here probably represent a significant element of future airborne surveillance provision within the Asia-Pacific region. To-date, Australia, Japan and South Korea have all shown interest in the RQ-4 for just such a role © Northrop Grumman*

**In a region that contains three indigenous nuclear powers, at least one regional super power, three of the world's economic super powers, is bordered by the world's only global super power and is largely oceanic, it would indeed be surprising if the Asian-Pacific regions did not take airborne surveillance seriously. While maritime patrol provision can be taken as a given, the nations of the region have also equipped themselves with photo reconnaissance, ground surveillance and SIGINT platforms and it is with this last trio of capabilities that this article concerns itself.**

*by Martin Streetly*

**T**aking these in order, AMR identifies Australia, the People's Republic of China (PRC), India, Japan, the Republic of Korea (South Korea), Malaysia and Pakistan as all operating land-based photo reconnaissance aircraft. In more detail, the Australian capability is vested in a small number of RF-111C aircraft which will (if not already) have been withdrawn from service by the end of 2010. The PRC capability is vested in the JZ-8 fast jet which is equipped with a centreline equipment pod that probably contains cameras and/or a Side-Looking Airborne Radar (SLAR). For its part, India's secretive Research and Analysis Wing (RAW) is known to operate a Gulfstream business jet that is equipped with a Long-Range Oblique Photography (LOROP) sensor for stand-off reconnaissance duties. Elsewhere, the Japanese Air Self-Defence Force (JASDF) operates a mixed fleet of RF-

4EJ and RF-4EJKai tactical reconnaissance aircraft. Of the two, the RF-4EJKai is probably the more interesting as it is a conversion of the standard F-4EJ fighter and is capable of carrying a series of podded reconnaissance systems, with the range including a LOROP camera, the Analyseur de Signaux TACTiques (ASTAC) SIGINT system and the X-band (8 to 12.5 GHz) SLAR-2000 SLAR. Of these, ASTAC and SLAR-2000 are Thales France products, with the JASDF's ASTAC pods having been produced under licence by Japanese contractor Mitsubishi. Moving north, South Korea flies a mixture of RF-4C and RF-5A tactical reconnaissance jets, with the F-5 also providing Malaysia with its capability in the form of the RF-4E. Last but not least, the Pakistan Air Force continues to operate a number of Mirage IIIRP (and, possibly, Mirage 5DR) aircraft in the role.

Moving on to ground surveillance (which in this context can be taken to mean Electro-Optical (EO) or radar-based over-land surveillance, with the latter dividing into Synthetic Aperture Radar (SAR - imaging) and Ground Moving Target Indicator (GMTI) modes), the inherent EO capability of Australia's AP-3C maritime patrol fleet has been used extensively in support of land operations in Iraq and Afghanistan. Within

***The JMSDF's fleet of five OP-3C surveillance aircraft are used to "image" surface vessels and to transmit the acquired data to end users in "near" real-time © JMSDF***

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the PRC orbit, a group of four Tu-154M/D aircraft hold out the intriguing prospect of a Chinese Joint Surveillance Target Attack Radar System (Joint STARS) type capability. All four aircraft are equipped with a canoe-shaped radome beneath their forward fuselages which is identical in configuration to that illustrated in promotional literature for a locally produced SAR that is known to have definitely been installed aboard one such platform (aircraft B-4029). As with many things PRC, whether the described aircraft are equipped with such a sensor, whether or not the noted SAR is an experimental or operational system and whether or not it incorporates a GMTI capability remains enigmatic.

Mention of GMTI brings the reader neatly to a second Chinese programme that centres on a sensor-equipped variant of the Z-8 helicopter. Here, a single example equipped with a large deployable sensor head at the rear of its main cabin has been identified. Frequently identified as being an airborne early warning platform, this analyst believes that the type is more likely to be a battlefield surveillance

aircraft that is equipped with a GMTI radar along the lines of the French Army's now retired HORIZON helicopter system.

Alongside these Australian and Chinese applications, the Republic of Korea Air Force (RoKAF) operates four Hawker Beechcraft Hawker 800XP business jets that have been modified to Hawker 800RA radar surveillance configuration under the 'Peace Krypton' programme. Produced by a consortium of L-3 Communications Integrated Systems (formerly E-Systems) and Lockheed Martin, the 'Peace Krypton' aircraft are equipped with a SAR that is believed to be a variant of the Lockheed Martin Advanced Imaging Radar System (LAIRS) and to offer GMTI, navigation and SAR operating modes out to ranges of 185 km. Used for border surveillance between the two Koreas (and as a means of reducing the Republic's dependence on the United States to defend itself), AMR believes that the four Hawker 800RAs are assigned to the RoKAF's 39th Tactical Reconnaissance Group based at Seongnam.

At this point, attention is turned to Japan's OP-3C multi-sensor ocean surveillance platform which is an intelligence gatherer rather than a maritime patrol aircraft. Operated by the Japanese Maritime Self-Defence Force's (JMSDF) 81st Kokutai (Air Squadron) out of Iwakuni, the four OP-3Cs have all been converted from 'line' P-3C maritime patrol aircraft and are equipped with a sensor suite that includes a SLAR, a Goodrich Reconnaissance Systems DB-110



*The importance of the Pacific region to the US is emphasised by the USAF's stationing of its 82nd Reconnaissance Squadron at Kadena on Okinawa to support RC-135 'Rivet Joint' signals intelligence aircraft operating in the region © USAF*

EO/Infra-Red (IR) camera system, an IR search and track system, a Global Positioning System-based navigation capability and satellite communications. Functionally, AMR understands that the OP-3C is used to "image" surface ship targets-of-interest, process acquired data in-flight and transmit imagery and data in near real-time to "command posts and friendly ships".

While all of the foregoing represent interesting capabilities, the region's airborne SIGINT platforms are perhaps the most beguiling not least because of their generally low profile. Indeed, so low is that of Australia's supposed 'Peace Mate' P-3C aircraft that the country's government vehemently denies its existence! Despite this, usually reliable sources suggest that United States (US) contractor E-Systems modified a single Australian P-3C for COMmunications INTelligence (COMINT) collection within the 3 to 300 MHz band under the 'Peace Mate' programme and that the capability has been used operationally in connection with the East Timor crisis. 'Peace Mate' is also supposed to have included a modified C-130 that was developed by Tenex Systems and was equipped with predominantly US-sourced SIGINT equipment. As to whether or not 'Peace Mate' exists or is but a figment of fevered journalistic imagination, AMR can only report that the Royal Australian Air Force does retain a single P-3C for "test and trials" work and that the aircraft is based at Edinburgh in New South Wales alongside the Service's Information Warfare Wing.

Equally enigmatic is Singapore's reported use of both the C-130 and the Fokker 50 in the SIGINT role. In order, the Republic of Singapore Air Force (RoSAF) is understood to have acquired a single C-130 that has been outfitted with at least a 3 to 300 MHz band COMINT capability (probably sourced from Israel) and is operated in concert with the service's Fokker 50 maritime patrol aircraft. In terms of operational usage, this aircraft is said to have flown patrols along the Thai and Malay coasts and to have regularly monitored activity in the Bay of Bengal. The RoSAF's use of the Fokker 50 in the SIGINT role is far more tenuous and rests on circumstantial evidence that ties Fokker's sale of a



*The JMSDF's Iwakuni-based 81st Kokutai is equipped with five examples of the EP-3 SIGINT aircraft shown here © JMSDF*

'Black Crow' Fokker 50 electronic reconnaissance aircraft to an unidentified customer to the RoSAF's Fokker 50UTA transport aircraft serial number 713. If 713 is the described 'Black Crow' SIGINT platform, it may have been equipped with an ARGOSystems AR-7000 mission suite that is capable of both COMINT and ELeCtronic INTElligence (ELINT) collection. Intriguing though the above may seem, it must be stressed that as with the 'Peace Mate' programme, the evidence for such an RoSAF capability is at best tenuous and the reader must make up their

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mind as to the truth or otherwise of the foregoing reports.

On much more solid ground is PRC contractor CETC's Shaanxi Y-8 based SIGINT platform that was first publicised during the 2008 Defence Services Asia trade show in Kuala Lumpur. Here, the capability was based around the KZ800 ELINT suite which has been described as being able to detect, analyse, identify and locate land-based and shipboard radars operating within the 1 to 18 GHz frequency range. Elsewhere within the PRC orbit, the Air Force of the People's Liberation Army is known to operate at least single examples of at least three other SIGINT systems based on the Y-8 together with at least one Tu-154M/D SIGINT platform. All of the Y-8 systems have been associated with the 'Gaoxin' ('High New') programme and have (respectively) been assigned the designations Y-8CB, Y-8 (DZ) and Y-8T designations by Western sources. Again, all three types were first identified

during the 2004 to 2007 period, with the Tu-154M/D platform believed to have entered service during 1998.

On the other side of the Chinese coin, the Republic of China Air Force (RoCAF) is known to operate a single C-130H transport that has been modified for SIGINT collection under the designation C-130HE. As such, the platform is equipped with an Airborne Electronic Surveillance System (AESS) and was role modified jointly by Lockheed Martin and Taiwan's Chung Shan Institute of Science and Technology. Over time, the RoCAF C-130HE aircraft has been operated under the umbrella of the Service's 6th Combined Wing and is home-based at Pingtung.

Moving north, India's RAW organisation includes in its inventory a Boeing 707-337C airliner that is equipped for SIGINT collection. Here, the platform was almost certainly fitted out by US contractor E-Systems, features large antenna 'cheek' fairings on both sides of its forward fuselage and was most recently based at Indra Gandhi/Palam International Airport near Delhi. It is perhaps worth noting that some or all of RAW's An-

**One of the few known pictures that shows the Arava 201 transport aircraft in SIGINT configuration. Thailand currently operates two such aircraft © IAI**



**The Hawker 800SIG SIGINT aircraft is operated by the RoCAF's 39th Tactical Reconnaissance Group and is used to monitor activity along the border between the two Koreas © L-3 Communications**



**Despite its poor quality, this is one of the few photographs of a Chinese SIGINT-configured Tu-154M/D known to exist © Chinese Internet**

32 and Il-76MD transports may also have been SIGINT modified, a proposition that can not be currently confirmed.

Within the Japanese military, both the JASDF and the JMSDF feature SIGINT aircraft within their inventories. In order (and aside from the already described RF-4J/Kai/ASTAC combination), the JASDF is reported to operate a fleet of up to four YS-11EB (YS-11EL according to some sources) SIGINT platforms that, at sometime in their careers, were equipped with the J/ALR-2 mission suite. As of the period November 2009 to April 2010, all four of these aircraft were being reported as being assigned to the service's Denshi Hiko Sokuteitai (Electronic Intelligence Squadron) at Iruma. For its part, the JMSDF's Iwakuni-based 81st Kokutai operates a fleet of five Kawasaki EP-3 SIG-

INT platforms in addition to the already described OP-3Cs. As such, the EP-3 is equipped with 'low' and 'high' band collection sub-systems that have been developed by Japanese contractors NEC and Mitsubishi respectively. Readers should note that in the EP-3 mission suite context, the equipment designations NH/LR-107 and NH/LR-108 have been mentioned.

Of the two remaining identified regional SIGINT aircraft operators (South Korea and Thailand), the RoKAF's 39th Tactical Reconnaissance Group operates a quartet of Hawker Beechcraft Hawker 800SIG SIGINT

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platforms alongside its Hawker 800RA radar surveillance aircraft. Developed under the 'Paekdu/Peace Pioneer' programme, the Hawker 800SIG is equipped with an E-Systems developed mission suite that is reported to be both COMINT and ELINT capable and as offering a frequency coverage that has an upper limit within the Ka-band (26.5 to 40 GHz). Last but not least, The Royal Thai Air Force's Takhli-based 402 Squadron operate a pair of Israel Aerospace Industries Arava 201 transports that have been fitted out for SIGINT collection. As such, the pair may be equipped with the Elta Systems EL/L-8310 ELINT sub-system and a COMINT capability built around the company's EL/K-1xxx series receivers, with the whole being packaged as a roll-on/roll-off capability. [AMR](#)