

PATHFINDER

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WHAT IS ISR? CHALLENGING TRADITIONAL PARADIGMS

Surveillance and reconnaissance have been important air power missions ever since the beginning of military aviation. In recent years, the traditional understanding of surveillance and reconnaissance has been challenged by the emergence of the concept of *Intelligence, Surveillance and Reconnaissance*—or *ISR*—as a single integrated activity and the resultant convergence of tactical and strategic missions. Recent operational experience indicates that *ISR* is now a critical air power role that incorporates both the traditional and singular aspects of surveillance and reconnaissance. The modern requirement is to not maintain separate tactical or strategic, or surveillance or reconnaissance, capabilities but instead to have a singular and holistic *ISR* capability that operates across the spectrum of conflict and levels of war.

AAP 1000-D—*The Air Power Manual* defines surveillance as the ‘systematic observation of air, space, surface or sub-surface areas, places, persons, or things, by visual, aural, electronic, photographic or other means.’ It also states that ‘reconnaissance is undertaken to obtain information about the activities and resources of a designated enemy, or to secure data concerning the meteorological, hydrographic or geographic characteristics of a particular area.’

Therefore, surveillance is systematic observation while reconnaissance is observation of a specific place at a specific time. The two air power missions have in the past been complimentary, but now as *ISR* they allow the *Kill Chain* to be synergistically completed by Finding, Fixing and Tracking targets so they can be Targeted, Engaged and Assessed (F2T2EA). Together, surveillance and reconnaissance provide information that is transformed into intelligence by processing, exploitation and dissemination (PED) capabilities. The characteristics of air power such as perspective, reach, penetration, responsiveness, versatility and flexibility make *ISR* very effective when conducted in the air environment and as such, there is a particularly strong relationship between air power and *ISR*.



The Heron UAV, recently deployed into Afghanistan, is the RAAF's latest *ISR* capability.

This relationship is clearly reflected by the fact that observation, or surveillance, was the first air power mission developed in air power thinking. It was first used in the Napoleonic Wars where the French established balloon contingents to observe the enemy. Reconnaissance developed into a key air power role during World War I where it was critical in both the ground and maritime environments for identifying and assessing the enemy. While airborne surveillance and reconnaissance developed further during World War II, it was in the Cold War environment where surveillance and reconnaissance became critical at the strategic level where they developed into sensitive national intelligence collection activities. Accordingly, there emerged a strong demarcation between strategic reconnaissance (missions undertaken to obtain information for strategic

planning and targeting purposes such as infrastructure, industry, nuclear forces, etc) and tactical reconnaissance (missions undertaken to secure information for use on the battlefield such as orders of battle, force disposition, etc).

Recent operations have reinforced the importance of airborne *ISR* particularly in providing time-critical intelligence for targeting

and force protection related situational awareness. While traditionally the RF-111C provided the RAAF its reconnaissance capability (see *Pathfinder 128*) and the AP-3C its maritime surveillance capability, recent RAAF AP-3C and Heron UAV missions have become synonymous with *ISR*. Whilst the term ‘Overland *ISR*’ (OISR) has come into common use since the RAAF started to use the AP-3C away from its traditional maritime surveillance activities against land based targets in the Middle East, it is not a useful delineation as all AP-3C activities to find, fix and track targets—regardless of whether they are on or below the ocean’s surface, or on land—are *ISR*.

Indeed, RAAF operations in the Middle East have seen the AP-3C aircraft become the ADF’s primary airborne *ISR* platform. RAAF AP-3C aircraft have become important *ISR*

platforms where their flexibility and responsiveness enables the aircraft to perform a range of ISR tasks against a range of targets. In 2006 an Australian AP-3C was tasked to conduct a mission in support of a counter-IED mission by surface forces. An hour prior to take-off the aircraft was urgently re-tasked to provide support over a city where coalition troops had been killed by an RPG, the local population had rioted and a curfew had been established. Towards the end of the on-task period the AP-3C was requested to provide route clearance for coalition forces exiting the area by road. On completing the route clearance, the crew were further tasked to provide route clearance for a coalition command element exiting the area over water. The AP-3C crew provided the necessary surveillance and clearance and also advised the command element of suspicious activity both on the water and on the land in the vicinity of their watercraft. After ensuring that the command element had safely reached their destination, the aircraft was again tasked to provide support to coalition surface forces that were under fire in a city about 50 miles away. On their transit back to base the crew imaged a static maritime rig to ensure that there were no vessels threatening the maritime task force. During this single mission the AP-3C undertook several 'Overland ISR' activities and maritime surveillance activities—both sequentially and simultaneously. Indeed, the AP-3C undertook a single ISR mission from takeoff to landing—against different targets and for different requirements. Such mission flexibility will become the new norm, is already evident in RAAF Heron UAV operations over Afghanistan, and will become more evident when the Wedgetail AEW&C enters service. The Jindalee Operational Radar Network (JORN) also operates in a similar manner now.

The traditional labelling of strategic or tactical missions subject to where the platform is operating and what information it is collecting is equally outdated. Surveillance and reconnaissance are now effectively ISR and are not inherently strategic, operational or tactical. ISR is used to satisfy the information requirements of commanders at all levels irrespective of whether the platform/sensor is thought of as a tactical or strategic asset. What has become particularly important, however, is the requirement to clearly synchronise and deconflict the command and control of the asset and its ISR mission with other activities across the battlespace. Recent operations have highlighted the potential for platforms under the control of disparate elements to unnecessarily duplicate collection efforts thus wasting precious collection capability as well as very limited exploitation and dissemination capacity.

Within Air Force the tenet of *centralised control and decentralised execution* as applied to all air operations by an air component commander within an Air and Space Operations Centre (AOC) allows a theatre wide perspective to be applied thus maximising the airborne ISR capabilities of the joint force. Indeed, in the modern battlespace, there is no such thing as 'Air Force' targets—just 'joint' targets—whether they are kinetic, non-kinetic or ISR. Optimisation of the employment of the ADF's limited airborne ISR capabilities can only be achieved when they are coordinated, synchronised and planned at AOC level.

In the past surveillance and reconnaissance have been key air power missions. However, in recent years their character has evolved to a point where traditional definitions are no longer relevant. Doctrinally, surveillance and reconnaissance now have diminishing relevance as discrete terms and there is greater value in collectively referring to them simply as ISR, which better reflects the capacity of air power to conduct intelligence focused multi-role missions. Likewise, ISR missions are neither strategic nor tactical—they are simply ISR missions with different commander's requirements. While ISR challenges many traditional air power paradigms, the inherent characteristics and joint focus of air power make it particularly well suited to conducting airborne ISR—a synchronised and integrated air power role.

- *The individual terms of 'surveillance' and 'reconnaissance' are no longer that relevant and are best captured by the term ISR.*
- *ISR is not inherently strategic, operational or tactical—its output may be used at all levels depending on the commander's requirements.*
- *The AOC has a unique and valuable capacity to plan, synchronise and coordinate theatre-wide airborne ISR activities in support of the joint commander.*

'Our photo reconnaissance pilots were instructed to fly on the theory that fighter planes win battles while camera planes win wars.'

General Henry H. 'Hap' Arnold,
US Army Air Forces



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