

Air Force Intelligence, Surveillance, and Reconnaissance

Success in current and future military engagements requires significant investment in intelligence, surveillance, and reconnaissance (ISR) capabilities. During the Cold War Air Force ISR systems were utilized as support assets to monitor facilities around the world whose respective locations were largely predictable and fixed. After the fall of the Iron Curtain new variables such as non-state actors, the spread of radical extremism, and the mass proliferation of advanced technology made the global threat environment far more complex and unstable. Robust intelligence data, much of it gathered by ISR platforms, is the key to success in this new paradigm—enabling the joint team to find, fix, track, target, and assess items of interest around the globe.

Air Force ISR operations span all domains—land, sea, air, space, and cyberspace—and can be divided up into three primary categories—imagery intelligence (IMINT), collecting and analyzing visual data; signals intelligence (SIGINT), collecting and analyzing various forms of electronic communications data; and electromagnetic intelligence (ELINT), intercepting and analyzing radar, radio, telephony, and microwave transmissions. These missions are undertaken by a variety of platforms—ranging from satellites to RC-135s, JSTARS, U-2s, and unmanned aerial systems (UAS) like Predator and Global Hawk.

Recent operations in Iraq and Afghanistan have generated an incredible demand for ISR assets, especially the new UASs like Predator and Reaper. These systems radically redefine the role of an ISR platform because they can undertake both reconnaissance and strike missions. This notion of integrated strike is valuable because it “shortens the kill chain,” allowing UAS operators to locate a target and immediately destroy it with onboard weaponry. In order to satisfy the nearly insatiable demand for these capabilities, the Air Force has been standing up record levels of new Predator and Reaper units, leading to a 520% increase in combat air patrols—going from 5 orbits in 2004 to 31 in 2008. Additionally, the Air Force has also developed a remote concept of operations (CONOPS) whereby airmen fly the UASs from facilities located in the United States via satellite links. This operating paradigm allows the service to station 85% of its Predators and Reapers in the theater, as opposed to the forward deployed CONOPS utilized by other service branches that only allow them to deploy 35% of their assets in theater at a given time.

Looking ahead, the Air Force must continue to invest in its ISR portfolio. Recent technological developments have improved many of its systems, but it is important to highlight that several of the ISR platforms are aging rapidly, with many dating back to the Kennedy Administration. For example, the RC-135 fleet, which performs much of the SIGINT mission, was acquired between 1962 and 1965. The point will come when these aircraft are simply not airworthy and will need replacement. On the modern end of the spectrum, platforms like Predator, Reaper, and Global Hawk have been incredibly useful in current operations. However, it is important to highlight that they are not survivable in contested airspace. The Air Force needs to balance its ISR acquisition portfolio for a full spectrum of operations, ensuring that intelligence can be gathered even when air supremacy does not exist. New aircraft designs, such as the F-22 and F-35, are making strides in this direction through the integration of advanced ISR sensors into their airframes. This development not only harnesses operating efficiencies, but is also enables Air Force ISR platforms to penetrate heavily defended airspace. Finally, regardless of the capabilities of the individual ISR assets, it is critical the Air Force utilizes CONOPS that maximize efficiency to yield the greatest effect for the joint team. Remote UAS CONOPS have made great strides in this direction and this sort of innovative thinking needs to be implemented across the board.