



SWIFTBROADBAND FOR AIRBORNE ISR



INMARSAT GLOBAL GOVERNMENT
COMMUNICATIONS MADE CERTAIN



AIRBORNE ISR SOLUTIONS

Intelligence, Surveillance and Reconnaissance (ISR) systems are integral to the ultimate success of both military and civil defence operations.

The immediate delivery of information gathered by aerial platforms in the field is critical to mission success. Inmarsat's SwiftBroadband service multiplies the value of the ISR gathered by your maritime and land based systems to enable a holistic and immediate operational view to be established and an effective solution to be deployed.

A critical component of your airborne ISR system is the strength of the relationship between the many organisations involved in the design, acquisition and operation of the system. By partnering with Inmarsat for the design and delivery of your airborne ISR architecture, you will have access to a complete solution based on world-class, experienced technology providers.

When coupled with Inmarsat's global broadband network and range of Airborne ISR packages you will have access to a highly reliable service at a surprisingly affordable price.

The benefits of partnering with Inmarsat:

- Global Service
- ICAO Approved Safety Services
- Flexible tariff structures for predictable budgeting
- Scalable, depending upon requirements
- Low cost, easy to fit terminals
- Reliability
- Interoperability between services – air, land and sea
- Security – supports high assurance applications





KEY FACTORS TO CONSIDER

When designing the communications for your Airborne ISR platform:

- Number of users and their requirements e.g. does bandwidth need to be quarantined for key principles?
- Ensuring that applications are optimised for operation over a satellite connection.
- Ensure that the most appropriate antenna system is chosen for the airframe and avionics package so that the aircraft's normal operating characteristics are not compromised.
- Certification requirements.
- Complete system integration needs to be taken into account, maximising connectivity on-board as well as integrating with cockpit and flight management systems.
- On the ground connectivity is as crucial to the efficiency of the ISR platform as the airborne component. A complete telecommunications system

needs to address voice and data services, encryption, acceleration and delivery to on-ground sites.

TYPICAL AREAS OF USE

The Inmarsat network allows all the different users in different paradigms to come together to provide a complete ISR package.

KEY AGENCIES INCLUDE:

- Maritime and fishery patrol
- Police and allied law enforcement
- Border protection and security
- Disaster assessment and aid
- Counter terrorism
- Environmental patrol
- Military and Special forces operations
- Fire fighting and aerial fire scanning

ASSURED ACCESS

Guaranteed grade of service at a known price

The Inmarsat Assured Access option provides a priority access and guaranteed, uncontested connectivity to the Inmarsat global network for your SwiftBroadband services. With an Assured Access service your communications will be delivered at a guaranteed bit rate and known cost – providing a highly reliable, secure communications link to support a range of ISR applications in the air.

- Guaranteed bit rate “pipes” available 24/7
- Purchased in increments of 64kbs and shared across a defined group of users
- Streaming
- Background IP

- Voice
- Typical Assured Access coverage is up to 15 adjacent narrow spot beams across 2 geographic footprints
- When travelling outside your Assured Access footprint, normal service remains

SECURE OPERATIONS

SwiftBroadband supports high-assurance applications, including NATO secret and NSA Type-1 encryption systems providing remote mobile access to classified networks – STU-III/IIb, STE, KIV-7, Brent and HAIPE devices including KG-175 TACLANE, KG-235 Sectera. KG-250 Altasec is subject to verification testing.



INMARSAT SWIFTBROADBAND SERVICE



SwiftBroadband is a UMTS based service provided over the fourth generation of Inmarsat satellites. The SwiftBroadband service is an 'always on' background service which enables broadband speeds to airborne assets. As an IP based packet switched service, SwiftBroadband provides a connection of up to 432kbps throughput per channel on a contended basis.

Up to four channels can be used per aircraft. If an application needs guaranteed bandwidth it can request a streaming class session (available in 8k, 16k, 32k, 64k, 128k and SwiftBroadband X-Stream which offers full channel streaming).

SwiftBroadband will allow for a combination of packet switched services to run concurrently which means a streaming class can be used for video conferencing whilst Internet browsing and email applications are simultaneously occurring in the background over contended IP.

In addition to the packet switched services, a high quality voice channel is also provided which allows the full functionality of traditional phone services. The SwiftBroadband service also provides a circuit switched ISDN line.

PACKAGE OPTIONS

There are many options available to our Airborne ISR customers. These include

- lease type agreements,
- Pay as You Go options
- Assured Access



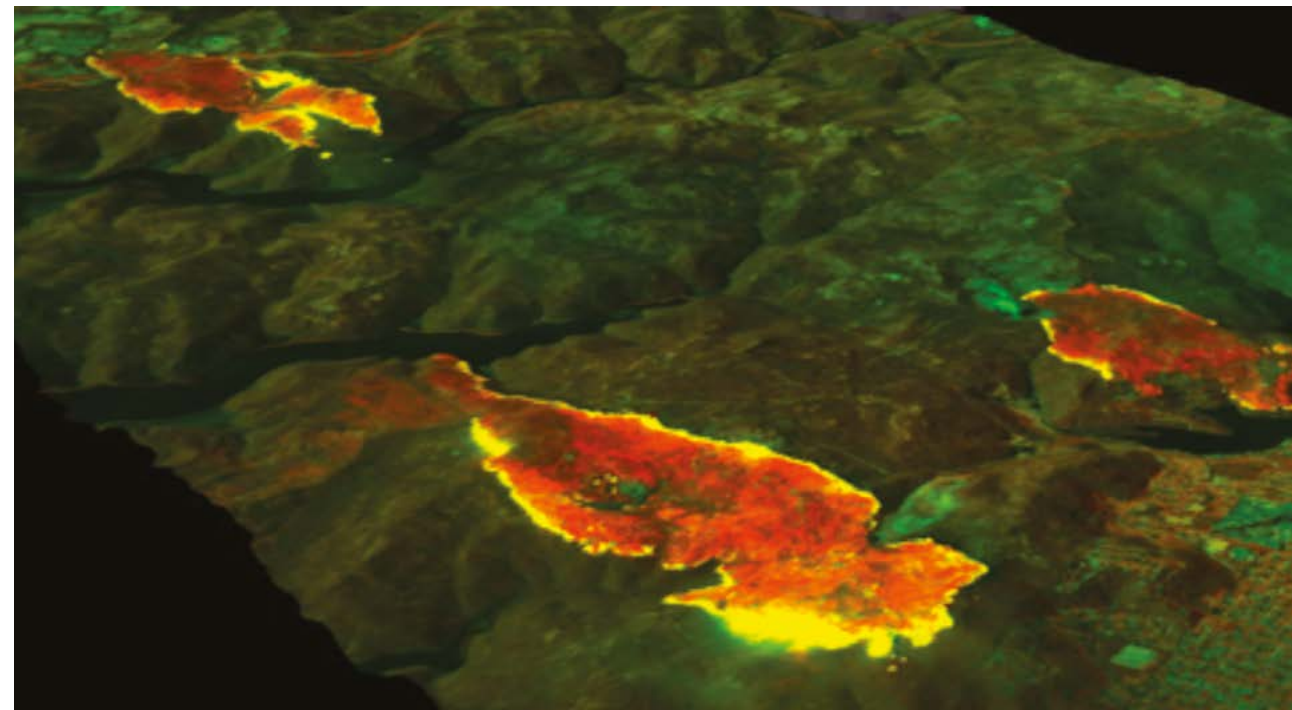
EXAMPLES OF SOLUTIONS UTILISING THE INMARSAT BROADBAND NETWORK:

FIRE FIGHTING OBSERVATIONS SYSTEMS

The proliferation of smaller airframes using civil defence applications requires a far more space and cost efficient solution to fulfil communications requirements. The Inmarsat SwiftBroadband service allows for the implementation of a satcom solution that utilises smaller antennas whilst still delivering efficiency in terms of throughput.

The client required a system that would allow critical fire scanning and situational data to be transmitted directly from a small airframe to incident control and command centres on the ground. A state of the

art solution that exploited SwiftBroadband's smaller aircraft equipment allowed the Rural Fire Service to transmit fire scanning data directly to their incident control centres. This ensured the aircraft could continue on their mission and patrol ever increasing areas without having to stop, or circle, to transmit information. The client reported a healthy reduction in operating expenses and fuel utilisation through the ability to fly further and longer whilst maintaining contact with command and control for mission instructions.

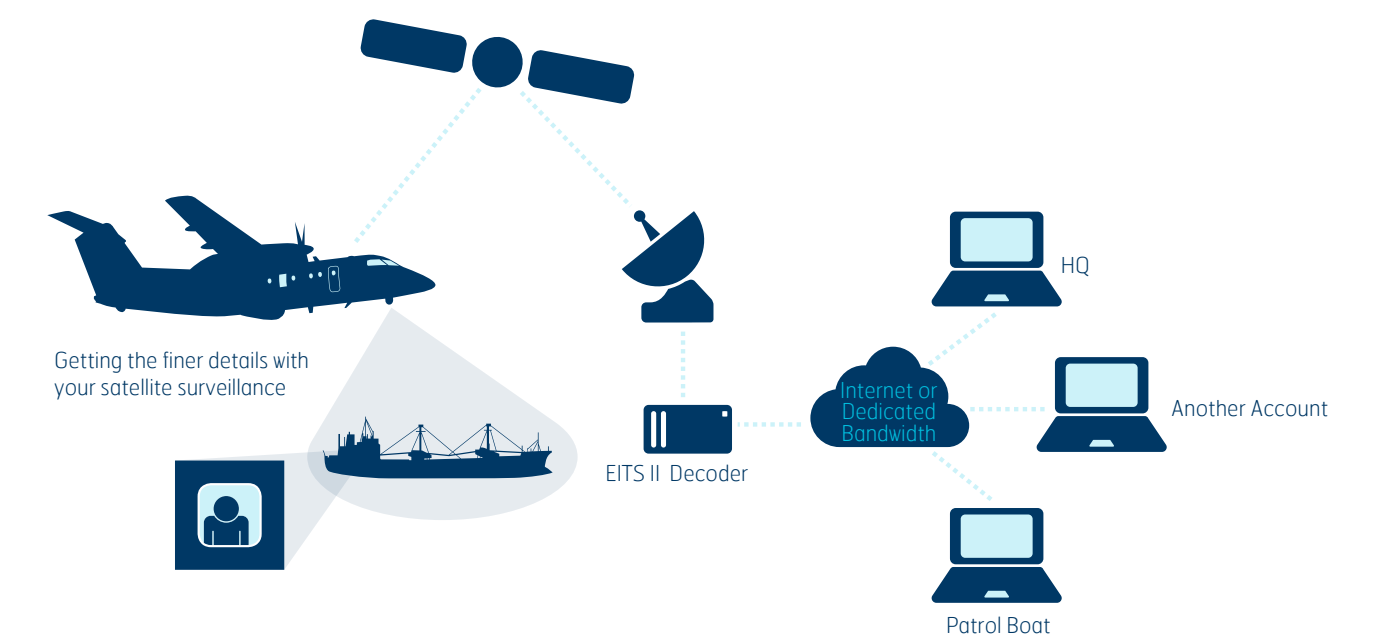


COAST GUARD AND BORDER SECURITY

Australia's Border Protection Command required a real time communication link to provide imagery and other data from multiple aircraft every five minutes. The system needed to operate reliably across Australia's entire exclusive economic zone and provide a link between the fleet of aircraft

patrolling the national borders and headquarters in the nation's capital.

A multi-channel Inmarsat SwiftBroadband system was installed providing a continuous data connection as well as a video link and normal telephone communications.



SOLUTIONS

LIVE VIDEO FROM ROTARY WING AIRCRAFT

The Taiwanese National Fire and Rescue Authority required a live video surveillance solution for use during floods, typhoons & earthquakes. This situational awareness capability would allow them to carry out more efficient search and rescue operations.

This installation was a world first for rotary winged aircraft and had to contend with a range of rotor interference issues as well

as an existing analogue aircraft system. The communications system also needed to be a roll-on/roll-off solution in order to support multi-mission requirements.

The solution saw the development of a digital navigation interface for the satcom system coupled with the provision of low cost aerial video camera as well as a roll on / roll off satcom package.



A ROLL ON-ROLL OFF SOLUTION FOR LARGER FLEETS

The Victorian State Aircraft Unit had a requirement for their fleet of small aircraft to be able to transmit information back to one of 43 incident control centres on the ground. Whilst the aircraft were utilised by the Department of Sustainability and the Environment during the bushfire season, these aircraft were often redeployed for other duties in the off-season. The DSE required a satcom solution that could be taken off the aircraft when they were being used by other departments.

A Roll On/Roll Off SwiftBroadband solution was designed that involved each of the aircraft being fitted with a small, lightweight antenna that remains mounted to the aircraft throughout the year. A rack containing the communications modem and associated equipment can then be rolled on and rolled off individual aircraft as and when needed, considerably reducing the capex compared to fitting every aircraft with it's own individual system.



UAV APPLICATIONS YOUR SATCOM DOESN'T HAVE TO FLY.

The client had an urgent requirement to obtain a video feed off a small UAV whilst in flight in an inhospitable theatre of operations. The airframe was too small to support a traditional aero satcom system due to power and weight requirements.

A solution was developed that could be rapidly relocated and deployed as necessary within a broad area of operations. This solution enabled the client to take a video feed off a microwave system onboard the UAV and deliver the video content back to HQ via BGAN.



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