Flight Tracking

The Inmarsat view – and proposal

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Inmarsat - The mobile satellite company

- Founded 34 years ago by 88 countries under UN Charter to save and serve lives at sea
- A global communications capability
- A network built for mobility
- Global operator with network performance required at 99.9% - monitored by IMSO on behalf of IMO members
- An outstanding innovation record
- Deep security & safety heritage
  - Unique Maritime and Aviation Safety and Distress services
  - Mission-critical end-user needs
  - Highly secure
- Fully-funded far into the future
Inmarsat is fully funded and invests

- **I2 (x4) Classic Aero Swift64**
  - 1990-92
- **I3 (x5) Classic Aero SwiftBroadband**
  - 1996-98
- **I4 (x3) Classic Aero SwiftBroadband**
  - 2005-2008
- **I5 (x4) Global Xpress (Ka-Band)**
  - 2013-2014
  - $1.6B USD
- **Alphasat (x1) Classic Aero SwiftBroadband**
  - 2013
  - $350M USD
## Inmarsat in Air Traffic Management

### The three Air Traffic Management pillars: CNS

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<th>Communication</th>
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| • Voice over satcom  
• ...to FANS1/A digital data-link: | • Supporting satellite-based navigation aids  
  ➢ Already over oceans (Classic Aero, soon SB-Safety) | • From ground radars over land, HF over oceans...  
  ➢ Coming to continents (CPDLC over IRIS) |

*: **Automatic Dependent Surveillance-Contract**
Flight Tracking issues

▷ Main issue in *oceanic airspace*, no ground surveillance means

▷ Commercial aviation: mostly *wide body aircraft*

▷ Need for an *affordable* solution:
  
  • to locate the aircraft in distress in a more systematic way, with more accuracy than with existing procedures / systems
  
  • To increase the reactivity in case of abnormal route deviation or event
Surveillance pillar – FANS / ADS-C

› **ADS-C**: an *existing, robust* service *to track* aircraft -
  • Concept developed by ICAO
  • Regular position reports at pre-set frequencies (Periodic Contract).
  • Automatically Triggered Deviation reports (Event).
  • Increased rate of Periodic Contract in case of Event
  • Alert in case of position report being not submitted within time limits.
  • Possibility of up to five contracts in parallel

› Number of FANS *capable* Wide-Body aircraft flying oceanic routes is *already nearing 80%*.
  • New Wide-Body aircraft are all FANS
FANS / ADS-C coverage from ATSPs

Mostly all oceanic areas covered
Geographical coverage is expanding
Possible “contract” with airline’s own ground systems

...but usage is not systematic – except over dense routes
ADS-C: a key element of ATM evolution

Available now and cost-effective

- **Free** of charge for basic Tracking
  - One free ADS-C Position Reporting every 15’ offered by Inmarsat to the 80% of wide-body transoceanic aircraft that are FANS equipped.

- **Improved separation** for dense oceanic routes:
  - Increased reporting (every 5-10’) to reduce separation
  - Minimal cost to airline (~$10 per flight), far below potential fuel savings.

A key element of the **evolution of ATM**

- Tested and proven for i4D
- 4D trajectory in the future
- Open room for more parameters and more triggering Events
...and Black Box in the Cloud

“Available” now

- Few solutions from different suppliers
- Operating on Inmarsat Classic Aero would make them even more efficient (higher data rate – still “Black & White”)
- But not standardised

Tomorrow:

- Need for Industry to define the requirement
- No technology limitation expected thanks to SB Safety (“In Colour”)
How Inmarsat Enhances Aircraft Safety

**Challenge 1: Aircraft Equipage**
- 11,000+ active aircraft - virtually all WB aircraft

**Challenge 2: Cockpit Connection**
- Global Aviation Safety Services

**Today**
- Increased Position Reporting via ADS-C – Basic reporting for free
- Supports transmission of flight data recorder and cockpit voice recorder data

**Tomorrow**
- Investing in Safety Services over SwiftBroadband - the Future of Aircraft Safety Communications
- Includes Position reporting base functionality built-in
- Includes Prioritised IP link to stream FDR & CVR data if requested
Thank you