

Operational use of DAPs.

An ATC perspective

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Surveillance

“... provides aircraft position and other related information to ATM and/or airborne users”

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Types

- Non-Cooperative (PSR)
- Cooperative (SSR, ADS-B)
- Independent (PSR, SSR, MLAT)
- Dependent (ADS-B)

Evolution

Cooperative Dependent Surveillance

“... data obtained directly from aircraft registers and downlinked to the ground”

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EHS and ADS-B

Situation in Europe

- Implementing Rule EU1207/2011 as amended by EU1028/2014
- EHS is mandated today in designated airspace

Aircraft Data

- MCP/FCU Selected Altitude
 - Roll Angle
 - True Track Angle
 - Ground Speed
 - Magnetic Heading
 - Indicated Airspeed / Mach Number
 - Vertical Rate
 - Barometric Pressure Setting (BPS)
 - Track Angle Rate or True Airspeed if track angle is not available
 - ACAS active resolution advisories (ELS/ADS-B)
- And for ADS-B*
- Geodetic Horizontal Position
 - Geometric Altitude
 - Quality Indicators

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Use in real operations

- Lack of legislation
- Availability in safety critical operations
- Accuracy & Integrity not always guaranteed
- Integration with existing ground automation

Potential use in Operational Research

- Transmission of DAPs not encrypted and not require authentication
- Acquisition and Processing made accessible by cheap receivers
- Restricted availability of radar data

Opportunity

“DAPs could expand current ATM data repositories and enable a variety of applications in Air Traffic Operations Research”

Some applications

- Analysis of “potential” safety incidents
- Optimization of flight routes (wind profiles, ToD)
- Derive enhanced algorithms (load balancing, AMAN sequencing)

Challenges

- Public network of receivers
- Data Sharing philosophy
- Standard Data Models
- ATM performance requirements
- Legal Issues

“The only reason for time is so that everything
doesn't happen at once”

– Albert Einstein