



*Airborne Integrated Systems for Safety Improvement,
Flight Hazard Protection and All Weather Operations*

FLYSAFE
FORUM N° 01
Operational Processes
affected by FLYSAFE

27 – 06 - 2006

EUROCONTROL Brussels



Topics



■ Current operational processes

- Role of Air Traffic Control
- Role of Air Traffic Management
- Role of Flight crews
- Communication aspects

■ Future operational processes

- Future Air Traffic Control
 - ◆ ASAS, RIAS
- Future Air Traffic Management
- Improvement of the communication flow

■ Benefits

- How could FLYSAFE offer benefits in operations



Today's ATC



■ Role of Air Traffic Control

- Safe and reliable Air Traffic
- Strategic planning
 - ◆ Managing traffic in own sector
 - ◆ Monitoring traffic arriving from adjacent sectors



■ Views and Tools

- Complete overview of the airspace
 - ◆ Area of responsibility and adjacent areas
- Focus: The whole airspace



Today's ATM



■ Role of ATM

- **Guaranteeing safe and efficient movement of aircraft during all operational phases**
- **Covers**
 - ◆ **Air Space Management**
 - ◆ **Air Traffic Flow Management**
 - ◆ **Air Traffic Services**
- **Single European Sky**





Today's Flight Crews



- **Role of Flight Crews**
 - **Safe, on-time and economic flight**
 - **Aviate, Navigate, Communicate**

- **Views and Tools**
 - **Overview of the surrounding airspace**
 - **PFD, ND, ...**
 - **Focus: own aircraft**





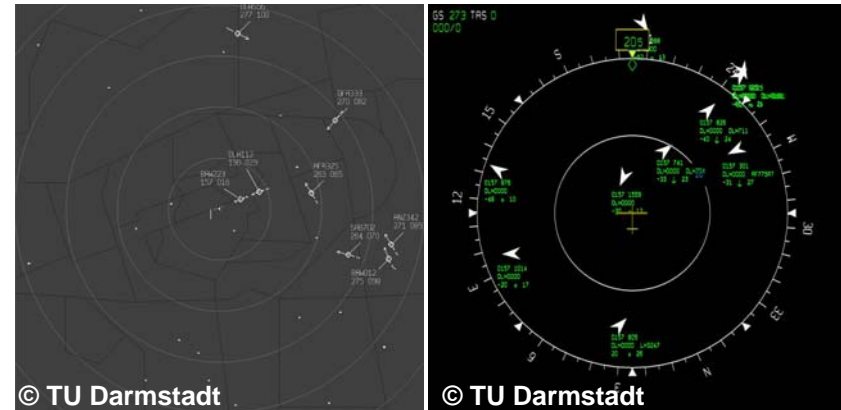
Communication aspects



- **ATC ⇔ Flight Crew**
 - **Share similar pictures, but not the same**

- **ATC ⇔ Meteorologists**
 - **ATC has access to accurate Met data**
 - ◆ **Regularly transmitted by small percentage of aircraft**
 - ◆ **Limited area of the world (e.g. AMDAR)**
 - ◆ **Regional met data (e.g. WRX data for approach)**

- **Meteorologists ⇔ Flight Crews**
 - **Flight crews inform themselves of current met conditions and forecasts during briefing phase**
 - **After entering the flight deck, amount/quality of information degrade**
 - **Limited exchange of atmospheric data**





Future ATC



■ ASAS

- Helps managing specific sector
- Requires sophisticated interaction between ATC ↔ Aircraft and Aircraft ↔ Aircraft

■ Weather

- More accurate data through fusion from different sources such as different aircraft
 - ◆ increased use of downlinking actual atmospheric data to the weather centres
- Distribution of high quality and up to date weather data to the aircraft

■ Share of a common picture

- ATC and Flight Crews need to share a common and comparable picture of the hazard situation





Future ATM



- **Increase of Safety**
 - **Areas with unreliable ATC**
 - ◆ **IFBP area**
 - ◆ **Information exchange between AC**

- **Enhancing capacity of the airspace**
 - **US & European airspace**

- **Allowing more economic flights**
 - **One step towards more autonomous flight**
 - ◆ **e.g. level change over oceanic areas**





Communication improvement



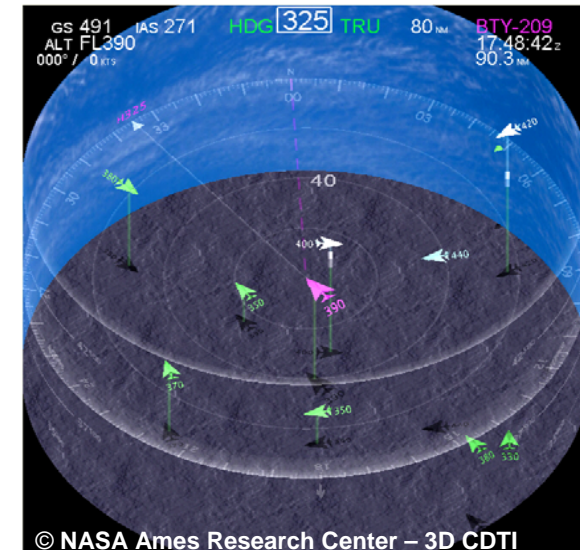
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■ ATC ⇔ Aircraft

- ATC receives accurate data from aircraft
 - ◆ Intended Flight path
- Flight deck crew may estimate impact of changes better
- Support for ASAS applications

■ Aircraft ⇔ Aircraft

- Standardized ASAS application interface
 - ◆ Participating AC share the same view
- Enhanced situational awareness
 - ◆ Intent of other aircraft becomes visible on request or when mandatory



■ Flight Crew ⇔ Meteorologists

- Met offices receive accurate data from “new” sensors
- Fused weather data shared between participating ACs
 - ◆ “No go” areas



Benefits



- **More accurate ETOs**
 - Detect delays earlier
 - Evaluate impact on flight time
 - Enhance sector planning

- **Sharing of the same “picture”**
 - Enhancement of communication flow
 - ◆ “We talk about the same”
 - Uplink of taxi routes
 - ◆ Ease navigation while taxiing to gate
 - ◆ Inclusion / Consideration of NOTAMs

- **Each aircraft is and additional “eye” for ATC**
 - AC collects sensor data

