ASMT
Automatic Safety Monitoring Tool

What is ASMT (Automatic Safety Monitoring Tool)

The **A**utomatic **S**afety **M**onitoring **T**ool – ASMT - is EUROCONTROL's unique tool which monitors safety and safety performance and supports identifying systemic issues and operational risks.

Operational added value & Opportunities

ASMT is designed to support the enhancement of safety of the overall ATM system. The information obtained can help ANSPs gain a broader and more objective perspective of the current safety issues, like airspace/routes structure, hotspots and weak signals by, for instance:

➤ Understanding an event in full, related to the same pair of aircraft such as multiple triggering STCA-SMI-ACAS RA recordings

➤ Pointing at systemic safety issues and concerns through HOTSPOTS map (technical analyses, airspace design & procedure, airspace management, operational practices, training issues)

➤ Deriving lessons learned for training purposes or operational awareness

➤ Feeding Safety Performance Indicators

➤ Contributing to SMS effectiveness (e.g. reporting process efficiency)

➤ Identification of operational performance (analyses of best practices)

Detection Capabilities

➤ **Internal modules**

- **Separation Minima Infringement** - infringements of separation minima between aircraft
- **Altitude Deviation** - detection of aircraft which do not comply with the cleared flight level (e.g. Level Bust)
- **Airspace Infringement** - detection of unauthorized penetrations of a segregated airspace
- **Go-around** to detect of missed approaches for the identification of safety performance issues related to approach procedures.
- **Separation Minima Infringement in approach** to detect parallel approach overshoots and WTC events
- **Expected Minimum Separation** for predicted infringement of separation minima
- **Time To Conflict** to detect potential infringement of separation minima based on the time to the predicted Closest Point of Approach.
- **Quasi-SMI** for detection of pairs of aircraft close to infringe separation minima
- **Minimum Safe Altitude** for actual infringement of minimum sector altitude

➤ **External modules**

- **Short Term Conflict Alert** for predicted infringement of separation minima triggered by the reception of an STCA message from the ATC system
- **Area Proximity Warning** for predicted infringement of segregated airspace

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- **Minimum Safe Altitude Warning** for predicted infringement of minimum sector altitude
- **Airborne Collision Avoidance System (ACAS) Resolution Advisory** triggered by the reception of Mode-S downlink data from conflicting traffic

User-friendly features

➤ Provides a complete picture of all safety-related events occurring in the local airspace by automatic recording and storing of all relevant data
➤ Built-in dashboard that provide an overview of all collected data that is immediately exploitable for internal use
➤ Easy access to recorded data, providing instantaneous understanding of the situation, by means of a quick replay tool
➤ Easy data export using the built-in query tool

Immediate benefits

By gathering and storing an impressive set of safety data, ANSPs can base their safety decisions on several useful ASMT outputs, such as:

➤ Geographical and density maps of safety occurrences distribution (fig 1);
➤ Time based series and distributions to monitor variations in safety levels (fig 2 and 3);
➤ Dashboard to get an overview of the safety performance in the local area (fig 4);
➤ Statistics to analyze the correlation between different metrics, e.g. Risk of Collision and Flight Level, Risk of Collision and geographical position (fig 5).

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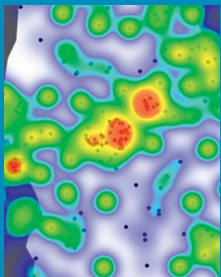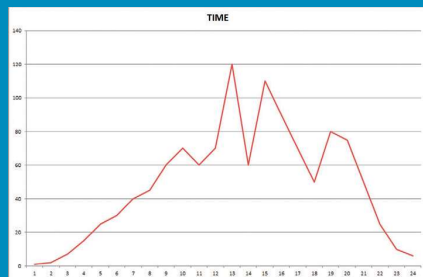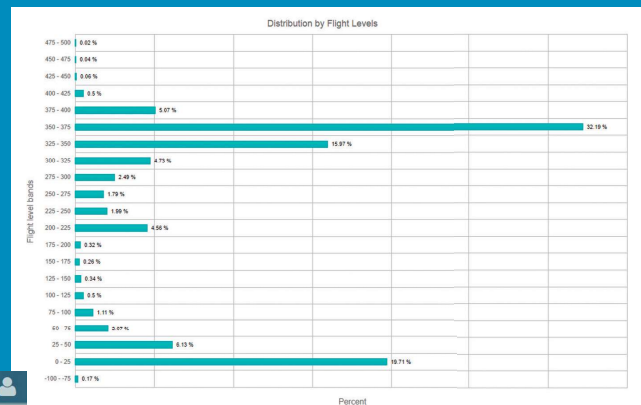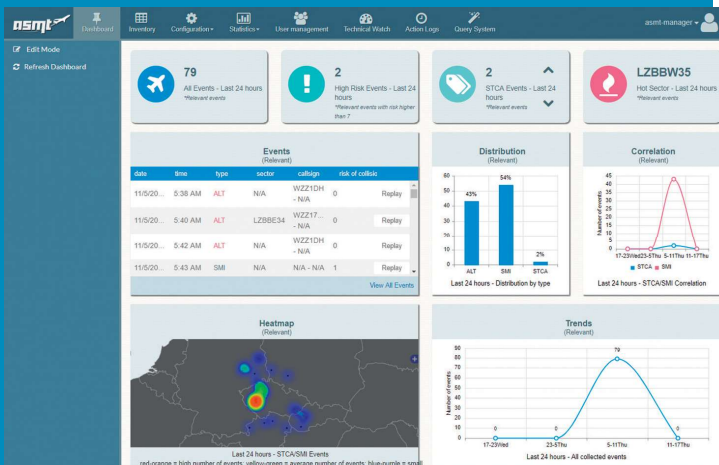

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Contact persons

Frederic Lieutaud
ASMT project Manager
frederic.lieutaud@eurocontrol.int

Antonio Licu
Head of Operational Safety Unit and Chairman of CCB Safety Tool
antonio.licu@eurocontrol.int