**Point Merge principle**

- **Merge point**
- **Sequencing legs** (at iso-distance from the merge point)

**In Paris ACC**

Point Merge is based on a route structure contained in a “triangle-shaped” area, which is made of:

- One point (the Merge Point) used for traffic integration;
- Pre-defined legs (the sequencing legs) equidistant from this point that should be used for path shortening or stretching for each inbound flow.

In Paris ACC, Point Merge is developed in extended-TMA environment (FL250 down to FL100), to feed the TMA at the Initial Approach Fixes (IAF).
Point Merge Concept

Method for sequencing arrival flows

To de-conflict simultaneous arrivals upstream each leg

Point Merge

Designed to replace radar vectoring

Legs are used to delay aircraft when necessary

Sequencing achieved with a “direct-to” instruction to the merge point

Traffic synchronisation

All aspects related to improving arrival / departure management and sequence building in en route and TMA environments

Objective: to achieve an optimum traffic sequence
Objectives

Improve Safety
• with a more structured airspace, controller and pilot situational awareness is enhanced

Increase Predictability
• with standardisation of ATCO methodology
• through improvement in trajectory prediction

Increase Flight efficiency
• Vertical profile improved through continuous descent operations
10 days Live Trials:
- in June 2012: Northwest traffic to Paris CDG
- in Nov-Dec 2012: Northwest and Northeast traffic to Paris CDG (almost 900 commercial flights)

In close cooperation with:
- Neighbouring ACCs (Brest, London, Maastricht, Brussels)
- Airlines involved in the project (Air France, Regional)
- Eurocontrol Brétigny

The exercise was run with:
- No additional ATFCM restrictions due to the live trials
- No additional requirements for airspace users (aircraft equipment or pilot training)
- Only with the support of the current basic AMAN functions (MAESTRO)
Main results and lessons learnt

Objectives confirmed:
- ATCOs: safety is improved
- Less instructions
- More precise adherence to AMAN delays
- Sequence order easily changed to improve runway throughput
- Improved vertical profile
- Positive feedback from pilots and airlines

Lessons learnt during the trial:
Point Merge STARs were 40NM longer than regular, direct STARs meaning:
- More fuel to carry => fuel consumption increased;
- Wrong ETA for most of the flights (+8min), as most flights fly only a small part of the leg.
Deployment: December 2013

Paris Point Merge North-West design implemented on 12th December 2013, with a major modification, in order to address the fuel trip issue, as well as the wrong ETA issue:

• 2 STARs are defined per entry point
  • “direct” STARs, flight planned and used for fuel trip calculation and flown 8 out of 10 times
  • “Point Merge” STARs, given on ATC instruction only, in case of multiple arrivals or AMAN delays.

The SESAR exercise made it possible:
• To validate a concept as well as specific designs
• To identify fields of improvement
• Providing knowledge for successful implementation.
Thank you for your attention...
And see you at the DSNA booth!
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