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IMPROVING

FLIGHT EFFICIENCY AND ARRIVAL CAPACITY

DURING PEAK HOURS AT PARIS-CDG

Delivering a cross-border solution to improve air traffic arrival flows. DSNNA and its partners led live trials in Paris ACC for Paris-CDG arrivals in summer 2018 up to 350 nautical miles from the destination airport to explore further the benefits of extended AMAN. Initial feedback is largely positive!



SESAR 2020 Project



This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement 734139.



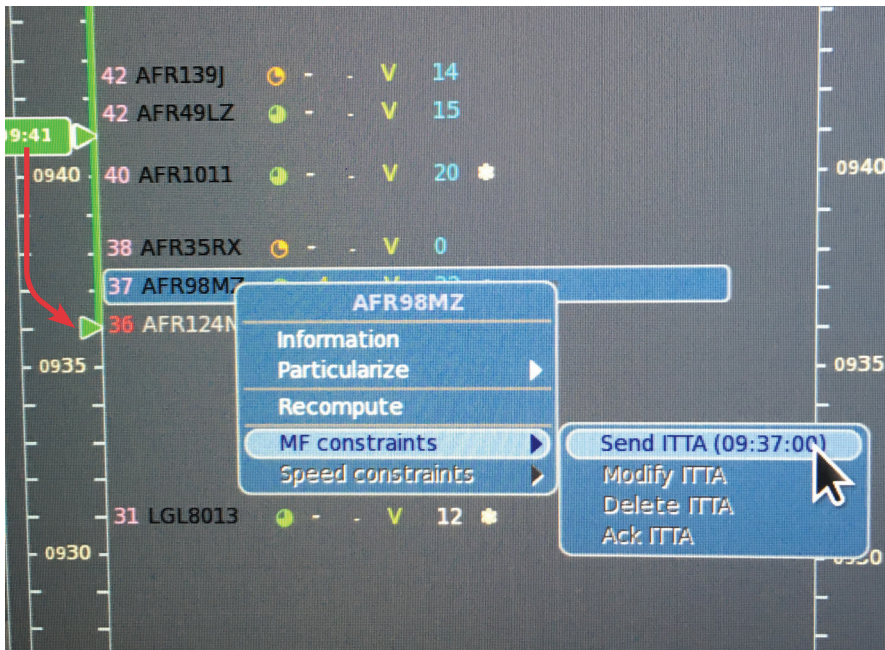
IMPROVING ARRIVAL PLANNING MANAGEMENT AT PARIS-CDG USING TARGET TIMES

From May to October 2018, trials were performed in Paris ACC to further explore the benefits of optimising **target time of arrival (TTA)** at Paris-CDG airport.

Built on a web service based on system-wide information management (SWIM) developed by the Network Manager (NM), DSNA developed its own experimental management tool to automatically send and coordinate TTA requests between Paris Flow Manager and NM to op-

timise air traffic flows and capacity management (ATFCM) constraints for CDG arrivals. This new process was tried according to both ATFCM and Mandatory Cherry-Picking (MCP) regulations. By better matching traffic demand with local constraints, ATFCM delays for CDG arrival flows were reduced in Paris by 5% without impact on safety management by controllers. This demonstrated how a better collaboration between ACCs and NM can benefit arrival flow management.

Paris FMP assigns TTA to flights departing from European airports to optimise arrival management for Paris-CDG airport. In the sequencing below, the flight AFR98MZ receives a new TTA at 09:37, improving its ATFM delay by 4 minutes.



ARRIVAL FLEXIBILITY

With this procedure, airlines may also apply the concept of flight priorities (Arrival Flexibility) at departure.

Through this process, airlines are able to express their business needs and Paris FMP can take them into account to build the arrival sequence in consequence.



Better use of capacity



Reduced ATFCM delays



CROSS-BORDER ARRIVAL MANAGEMENT FOR SOUTH-EAST PARIS-CDG INBOUND FLOWS

From March to October 2018, during CDG arrival peaks, more than 50 commercial flights inbound to Paris-CDG airport successfully tested the xStream arrival management procedure at **a horizon up to 350 nautical miles**.

Supported by the same experimental sequencing tool, a collaborative process was implemented between Paris, Reims, Geneva, Zurich and Milan ACCs to smooth arrival traffic peaks and mitigate controllers' workload in the extended terminal sectors in Paris ACC. With greater

predictability of the arrival sequence, the objective for Paris ACC was to initiate pre-sequencing of arrivals ahead of a detected congestion in Paris Extended-TMA.

This process enabled delay absorption earlier in the flight, at the cruise altitude, up to two ACCs ahead of Paris terminal sectors, improving the arrivals' flight efficiency in terms of fuel consumption and flight profile, and increasing capacity in extended terminal sectors.



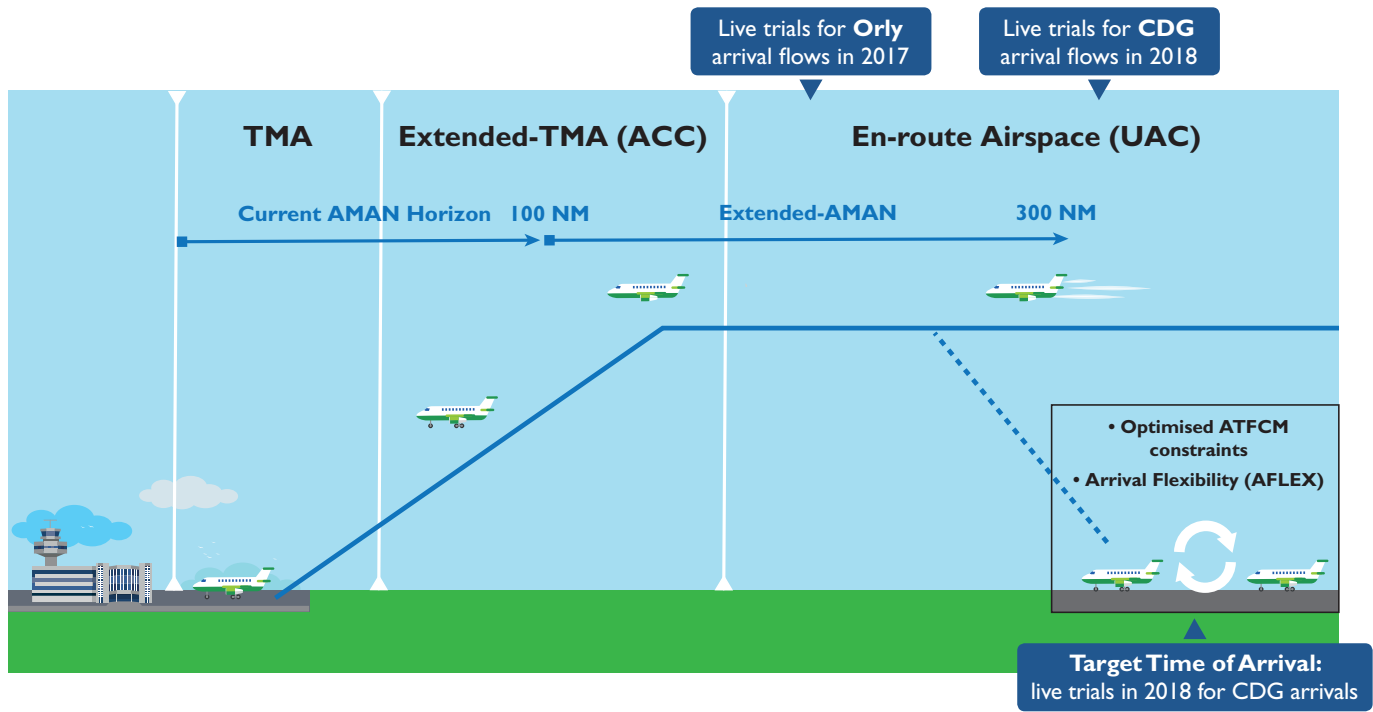
- Optimal feeding of Extended-TMA
- Lowered ATC workload in Paris TMA



- Reduction of fuel consumption
- Better flight efficiency



How to optimise capacity to improve arrival flows to a congested airport



A greater anticipation and predictability of arrival sequences is a key-element of the first modernisation package of ATM in Europe (Pilot Common Project).

xStream is a project led by DSNA, the French air navigation service provider, in collaboration with its partners: COOPANS, DFS, EUROCONTROL, NATS, skyguide; SEAC (SESAR European Airports Consortium); AT-One and Indra. xStream is one of several large-scale demonstration activities of SESAR 2020, aiming at delivering ready-to-be operational, innovative solutions. **Demonstrations consist in flight trials in Paris, Zurich, London and Frankfurt areas**, and involve the largest number of upstream ACCs. The project is co-funded by the SESAR JU within the framework of Horizon 2020).

