



Maastricht-UAC ADS-C Set-Up

Noud de Lang
ADS-C Programme Manager Maastricht UAC
DIGITS Webinars 1st and 2nd Dec 2020



founding members



MUAC's ADS-C Set-Up



Cross Boundary Air Traffic Services

- 260,000 km² (above DFL 245) extending over: Belgium, the Netherlands, Luxembourg and north-west Germany
- 1.9M flights controlled in 2019
- Data Link (PETAL I & II) trials since 1995
- Data Link operational since 2001
- SESAR i4D / ADS-C validations since 2010





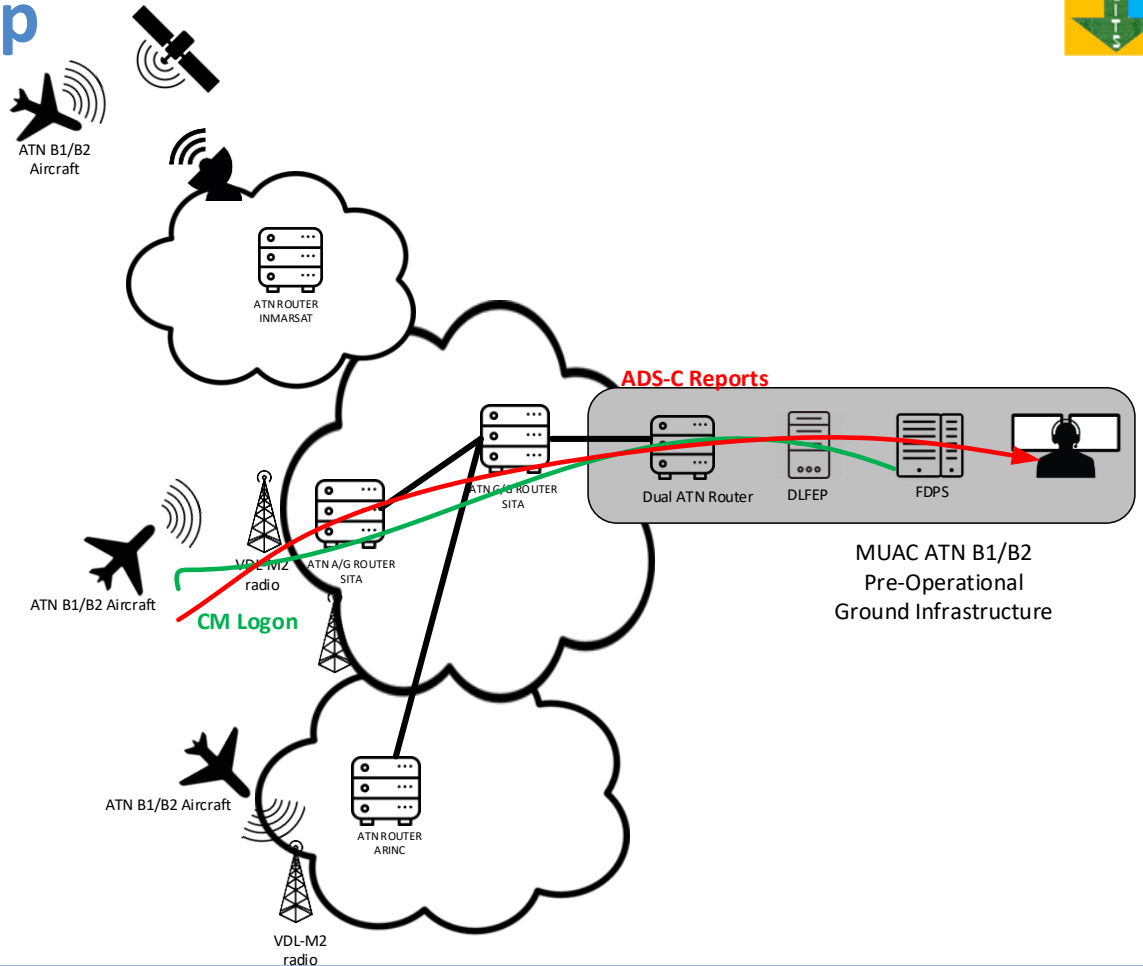
Architectural Set-Up

- The pilots log-on as normally, the aircraft announces itself as ATS-B1 (CPDLC v1) + ATS-B2 (CPDLC v2 and ADS-C v1) capable
- MUAC “enforces” a ATS-B2 from the ground, no action for pilot
 - Local “B2-Approved” list, maintained locally, used to identify participating a/c
 - Pilot does get notification of ADS-C connection
 - CPDLC v2 is used but transparent for Controller, some message has slight different wording
- Pre-Operational use since June 2019 with selected group of Controllers having access to ADS-C data

MUAC's ADS-C Set-Up

Architectural Set-Up

- Today's ground infrastructure relies on VDLm2 (SITA, ARINC)
- IRIS (SATCOM) for the future
- ATN Router and Data Link Front-End (DLFEP) by THALES
- Flight Data Processing System (FDPS) by INDRA
- Controller Working Positions (CWP) an in-house development



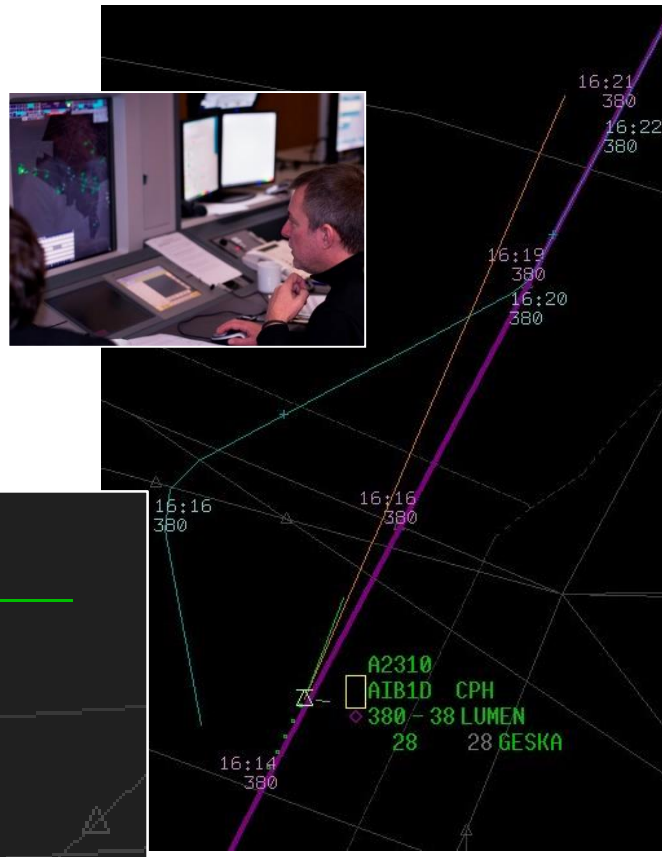
MUAC's ADS-C Set-Up

Objectives of DIGITS @ MUAC



First trial implementations:

- Display the downlinked trajectory
- Generate an automated alert when air and ground are not synchronised
- Enhancements of the Trajectory Prediction by using a first set of downlinked parameters being validated
- Mode S Selected altitude used for vertical clearance check, in combination with EPP used for lateral check results in a **major safety improvement!**



MUAC's ADS-C Set-Up



Types of Reports used

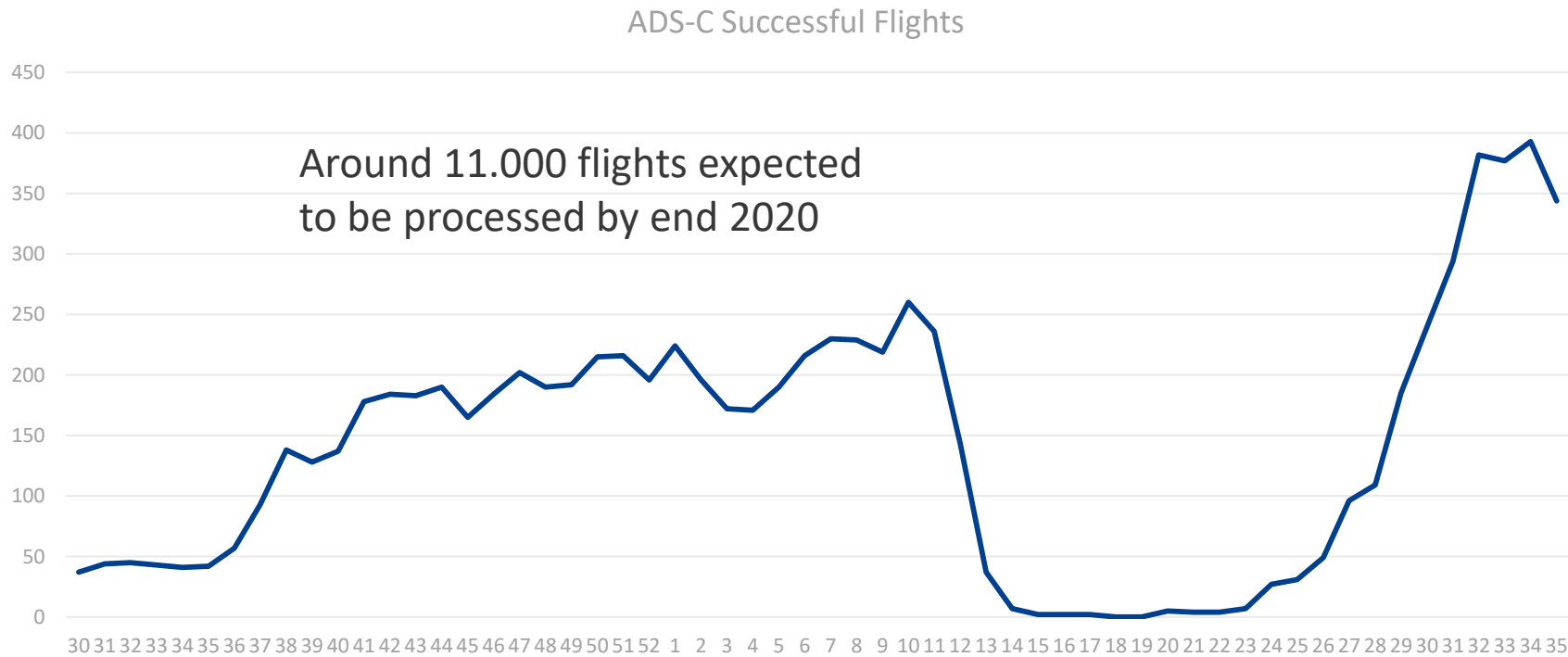
- **Periodic Contract**
 - Every 5 minutes
 - 20 waypoints
 - Including speed schedule
- **Event Contract**
 - 20 waypoints
 - EPP Flight Plan change
- **Demand Contract**
 - Controller request
 - Automatic when waypoint overflown (request to Airbus to enable this as Event)



MUAC's ADS-C Set-Up



Successful Flights (at least one report received)



MUAC's ADS-C Set-Up



MUAC Technical view

- Technical implementation was fairly straightforward, implemented in 1½ year
- MUAC supports with their ATS-B2 system Data Link via Satellite trials (Inmarsat IRIS)
- MUAC will continue under SESAR2020 Wave 2 & Wave 3 to explore more enhancements

AIRFRANCE

BRITISH AIRWAYS

easyJet

IBERIA

novair

WIZZ

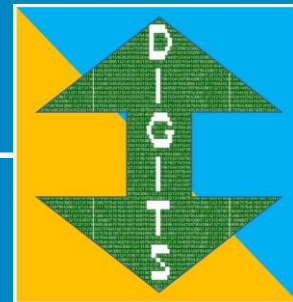
Airlines

AIRBUS

Honeywell

THALES

Airborne
Industry



Thank you very much for your attention!

ANSPs

AIRTEL^{ATN}

indra

LEONARDO

Ground
Industry

DFS Deutsche Flugsicherung

enav

EUROCONTROL

NATS

LFV
AIR NAVIGATION SERVICES
OF SWEDEN

NAVIAIR

SESAR
JOINT UNDERTAKING

founding members

