



ADS-C contribution to ground TP enhancement: a few figures

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DIGITS Webinars 1st and 2nd Dec 2020



founding members



Longitudinal accuracy : Huge Step with EPP



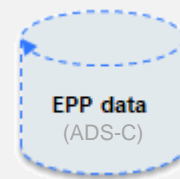
Using QAR data from  , **Full managed sections** of flights can be isolated.
Full managed: Aircraft follows the Flight Management System trajectory (EPP)

BRITISH AIRWAYS
easyJet

AIRFRANCE **WIZZ**
IBERIA
novair



VS



e
EUROCONTROL

- **Time Accuracy:** Time error on a horizon up to 100 minutes remains below 1 minute.
on a horizon of 30 minutes, it remains below 20 seconds.

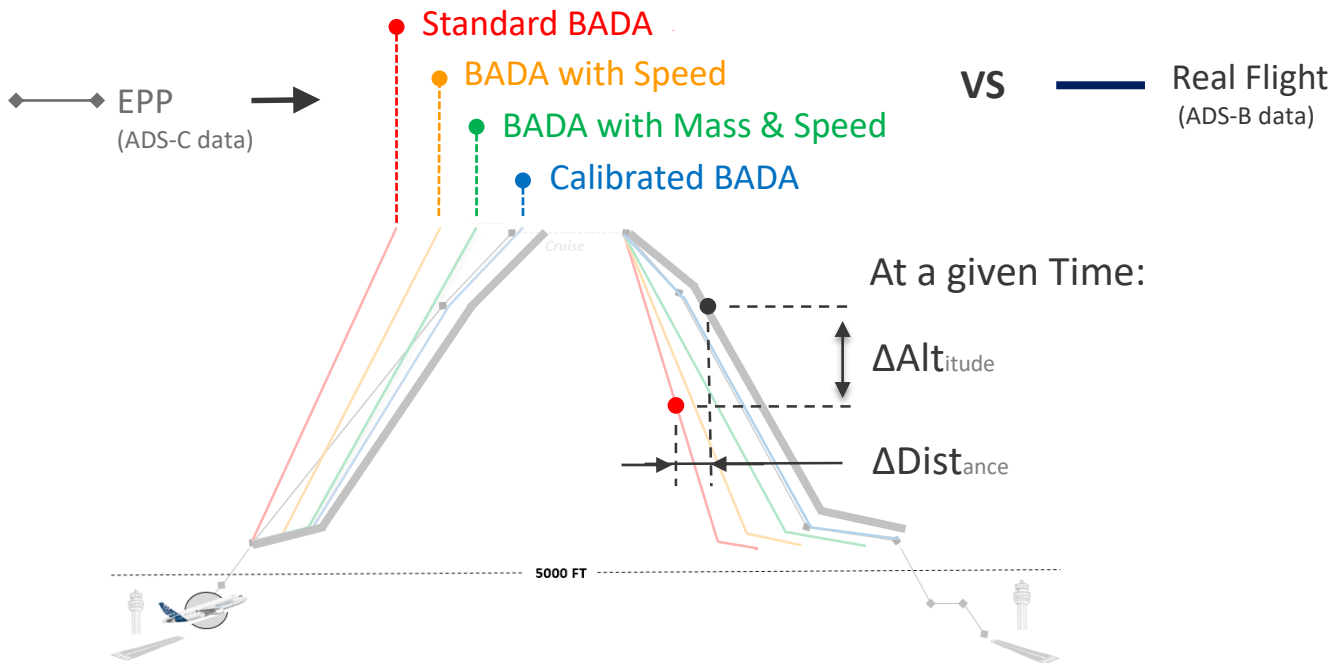
Time error for a prediction in 90% of the analyzed predictions & in absolute value.

- **Position Accuracy:** Longitudinal error on a horizon of 10 minutes remains below 0.3 Nm.
Trajectory drift measured down to 0.03 Nm/min.

Longitudinal error for a prediction in 95% of the analyzed predictions & in absolute value.

Accuracy of the vertical flight path prediction

Comparison between **4 Ground TP solutions**, with different levels of EPP use, versus real flights in **Climb and Descent**.



Statistical Analysis
of

$$\frac{\Delta \text{Alt}}{\Delta \text{Dist}} = f(\text{Time})$$

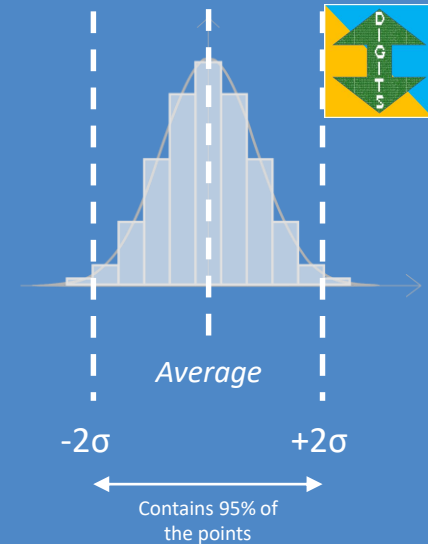
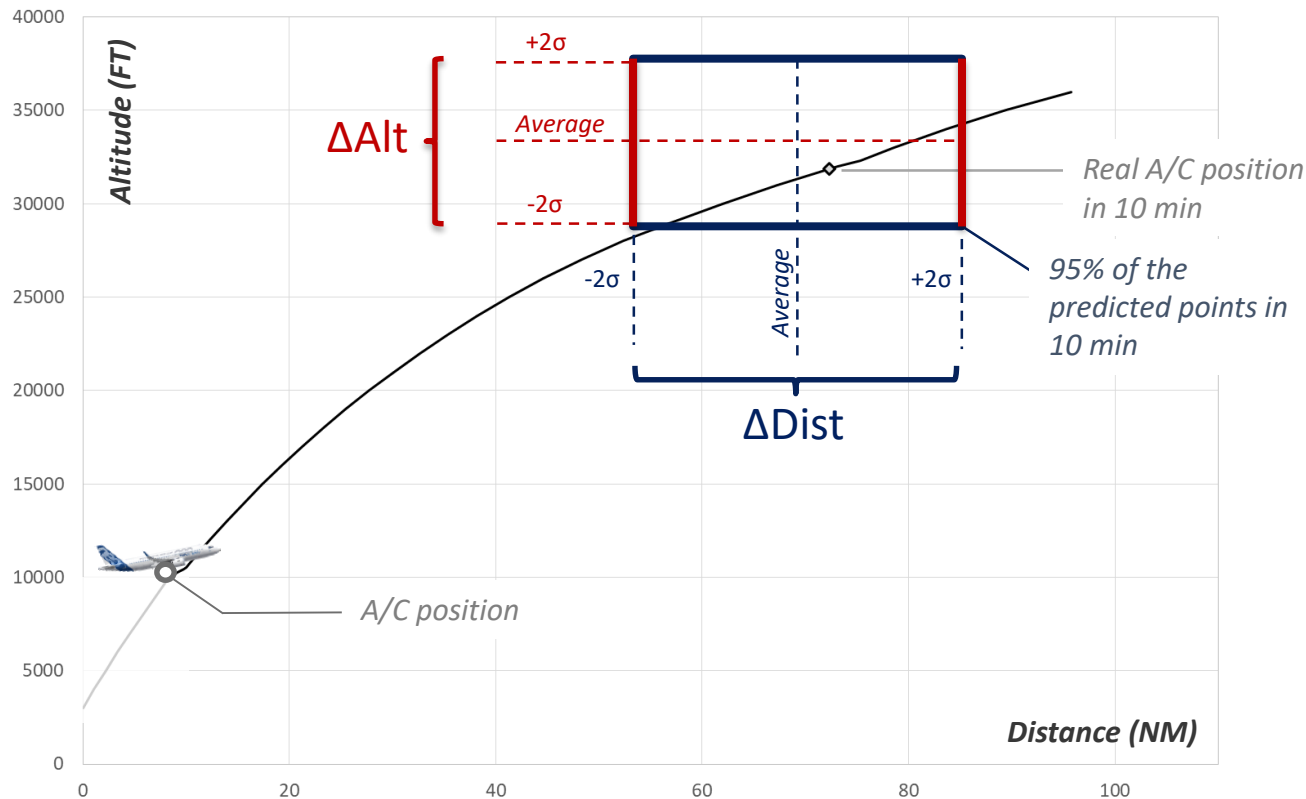
of the prediction

for each solutions

based on

- 3745 Flights for the Climb
- 3804 Flights for the Descent

Result example in Climb



At a given Time,
distributions in ΔAlt & $\Delta Dist$
allow to define a zone
with 95% of the
predicted points

for each
evaluated solutions



Result example in Climb *on A321 Neo*

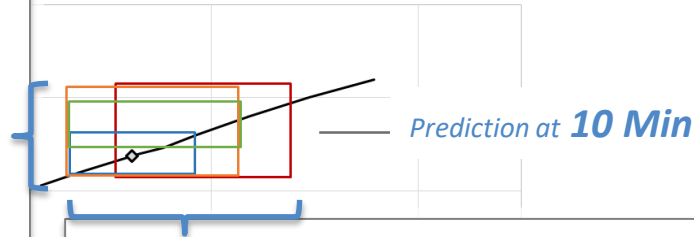
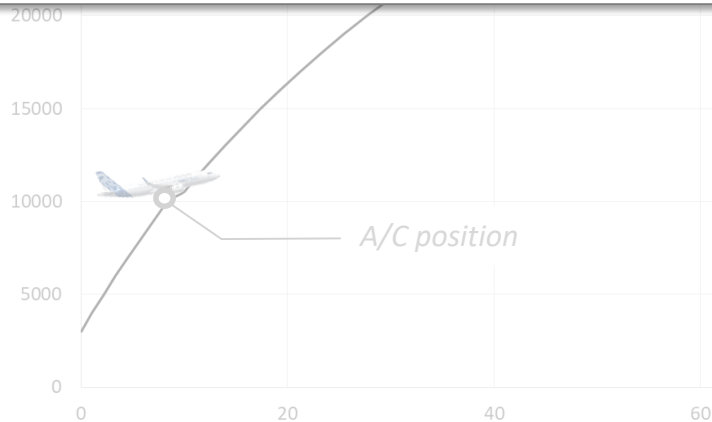
In altitude

Use of Mass

+

A/C Perfo. Calibration

➔ Reduces the uncertainty



In distance

Use of Speed

+

Weather correction

➔ Reduces the uncertainty

Note: Weather model = main source of uncertainty in distance

A/C type :

A321-271 (Neo)

Selection of the predictions
from **10000Ft**
to Top of Climb

Based on
912 EPPs



Accuracy of the vertical flight path prediction: Main Results

Climb

Accuracy
in Altitude

**Uncertainty reduction
of at least 30%**

With Calibrated BADA compared to Standard BADA

Descent

Reduction of the uncertainty
is not demonstrated

*Note: Difficulty to filter segments
out of controllers interventions*

Accuracy
in Distance

Uncertainty reduction of at least 40%

With Calibrated BADA (containing weather correction) compared to solutions with DISA0 & No Wind

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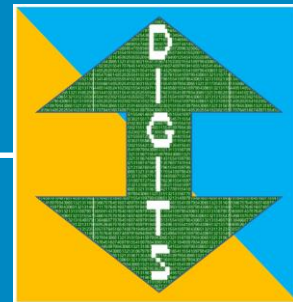
Airlines

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Honeywell

THALES

Airborne
Industry



Thank you very much for your attention!

ANSPs

AIRTEL^{ATN}

indra

LEONARDO

Ground
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enav

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