



Arrivals Noise

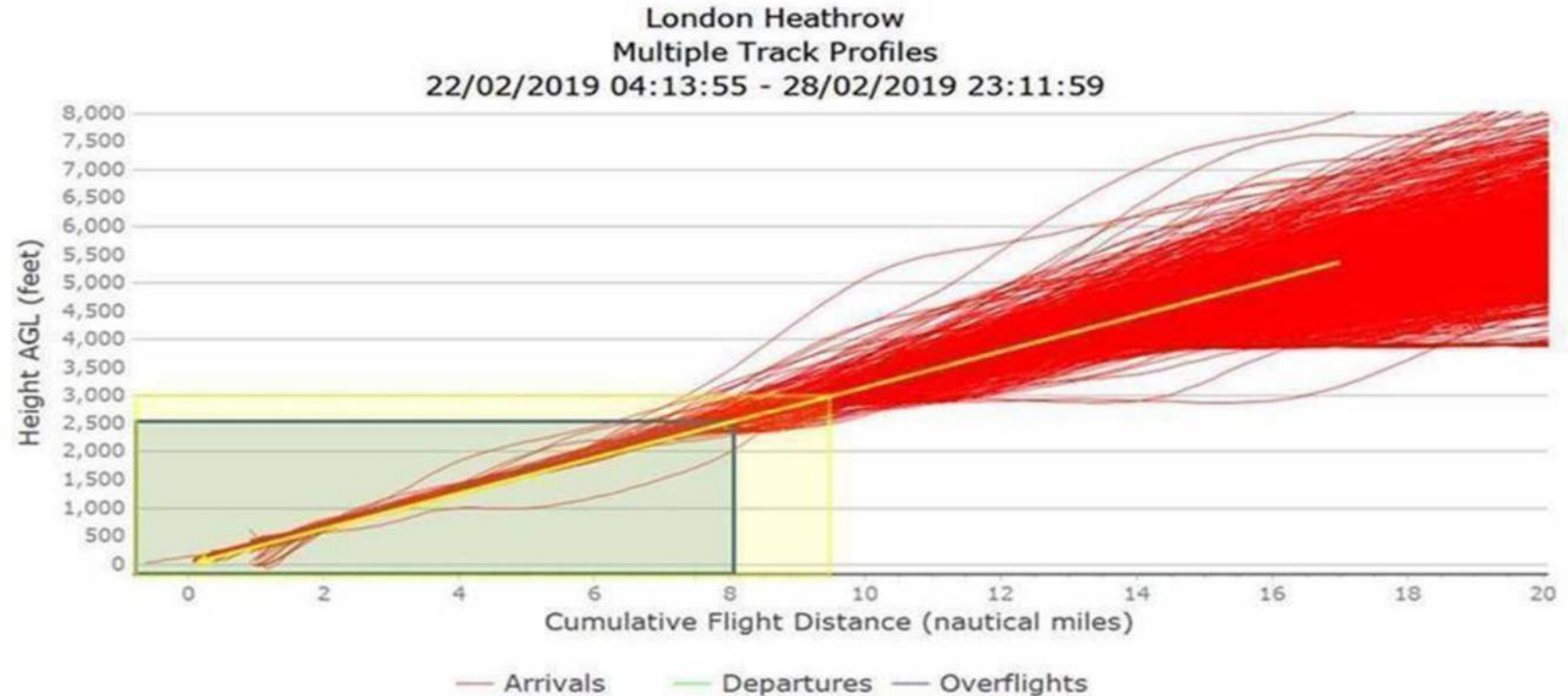
HACAN Presentation to HCNF 26th January 2022



Background

- Concerns around the impact of aircraft noise from arrivals over communities further away from the airport.
- Easterly arrivals over areas like Windlesham (currently no runway alternation – are there plans to introduce this?)
- Operational improvements to westerly arrivals over areas like Lewisham (increased heights, higher departures from stack etc..)
- Impact of airspace change proposals could result in increases in noise for many communities.
- Need to balance noise impacts between all communities. What does a fair balance look like?
- What is Heathrow policy for reducing impact of arrivals noise?

Key Issue



Key Questions

- Graph is for illustrative purposes. So can one be produced using actual data that can be analysed?
- A number of aircraft appear to be below the joining point at both 8nm (day) and 10nm (night) and thus not on a 3-degree angle of descent.
 - Can the number of aircraft be quantified?
 - How many of these are go-arounds?
 - Can data be provided on the individual tracks of these aircraft to see if a common cause can be identified?
 - Are there specific airlines or aircraft types that are consistently under the joining point?
- This discrepancy seems to be larger at night – can night time only data be provided so this can be better understood?
- Adherence to CDA has been high – average of 85% but that still leaves 15% non-compliance – how can this be improved? (ANATM report, 2020)



Key Questions

- Data provided only goes as far as 20nm. Could additional data be provided, perhaps as far out as the stacks at 40/45nm so communities can better understand the operations of aircraft at these distances?
- Beyond 10nm many aircraft appear to be flying below the 3 degree angle of descent.
 - Are there opportunities to reduce noise impacts caused?
 - For example by increasing height, extension of final approach path & ILS joining point, examining use of thrust, turning etc...?
- Some aircraft appear to be flying flat between and 14 and 20nm away from the airport. Is there a reason for this?
- Can CDA performance be regularly reported to HCNF?
- Has any work been undertaken to explore the introduction of LNAS at Heathrow?

Low Noise Augmentation System (LNAS)

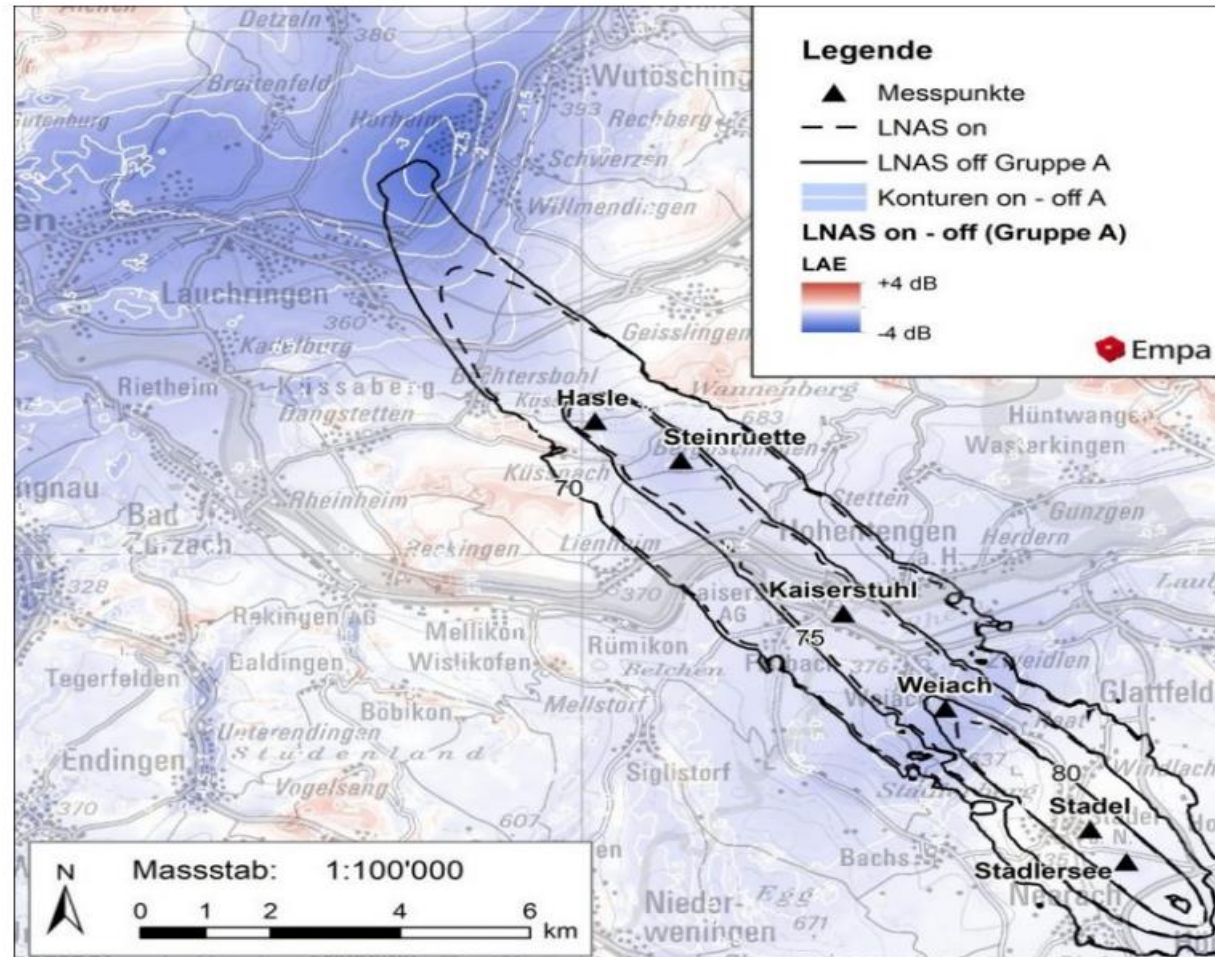


Active management of arrivals has delivered the potential for reductions in arrivals noise & improved fuel efficiency.

- The German Aerospace Centre (DLR) has developed an assistance system for continuous descent that advises pilots on courses of action for an environmentally friendly landing approach. The Low Noise Augmentation System (LNAS) calculates the optimum altitude, sink rate, airspeed, and configuration of the aircraft and dynamically adjusts the recommendations during the approach.
- The flight data evaluated by DLR at Zurich shows that:
 - the pilots using LNAS flew the descent much more uniformly and precisely than the colleagues flying without the assistance system.
 - The changes in airspeed were also significantly smoother when using LNAS.
 - The use of noise-intensive airbrakes was completely eliminated on approaches with LNAS.
- During the last 50km before the runway, the pilots with LNAS needed an average of 8.9kg less kerosene than those flying without LNAS. Extrapolated to all Swiss A320 flights (flight movements in 2017), LNAS could thus save around 500 tonnes of kerosene per year. Since the assistance system can be used at cruising altitude, that is up to 200km before the runway, the potential for savings could amount to 3000 tonnes of kerosene, or about 9000 tonnes of CO₂.

<https://www.skylab.swiss/final-results-from-trilateral-skylab-dlr-empa-project-pilot-assistance-system-lnas-cda/>

Low Noise Augmentation System (LNAS)





Summary

- Data suggest significant opportunities may exist to improve the noise environment for those overflown on arrivals, especially further out.
- Can actual flight data be provided for period 22-28 Feb 2019 for night flights and beyond 20nm?
- Explore opportunities for continuous descent approach to be used further out a to help reduce noise and fuel consumption?
- Regular reporting of CDA performance to HCNF.
- Investigate LNAS system:
 - identify what principles can be immediately applied at Heathrow.
 - consider adoption of such a system.