

Sunninghill Data Analysis

Overall summary

- Aircraft on the easterly departure route (CPT) are flying higher, while aircraft on the westerly departure route (MID) are flying lower.
- The number of departing aircraft through the gate on easterly operations has remained broadly similar over the years, although there's been a slight decrease in more recent years.
- The number of departing aircraft through the gate on westerly operations has reduced since 2005.
- There are now more A380s operating on the MID route than in 2013 (approx. 1% of all departures).
- Flight structures have returned to how they were before the trials.

Westerly departures

Numbers

- The number of departures through the gate per westerly day has reduced from approximately 68 in 2005 to 59 in 2015 which is similar to 2013, slightly higher than 2012 and higher than 2010.
- Traffic shows peaks in 2011 and 2014, probably associated with the operational freedoms trials and departure trials.

Altitude

- There is a downward trend in the height of aircraft from approximately 6000 feet in 2005 to approximately 5400 in 2015 with wide daily variation.
- There is a cyclical pattern in the height of aircraft indicating that flights are lower in summer than in winter.
- The minimum height for westerly departures shows a downward trend for 2005 to 2015 from 3800 feet to 3200 feet.

Distribution

- Other than during the trial period, the average Centre of Gravity for westerly departures is approx. 200m to the south east of the centre of the gate centre. In 2012 there was a shift in the centre of gravity to the south east.
- During the departure trials the traffic was concentrated into four swaths across the gate and a fifth swath at the right hand edge of the gate.
- The traffic intensity in these concentrated swaths was four to six times the intensity of the normal traffic density with reduced levels, compared to other years, in the levels of traffic outside of these swaths.
- Traffic returned to pre-trial structures and levels after the trial.

Aircraft types

- Except during the trial period, the westerly departure traffic mix has remained consistent at approximately 83% medium aircraft and 17% large aircraft, a few of which (1%) are A380s.
- During the trial period in 2014, the proportion of medium aircraft decreased by approximately 3% to be replaced by heavy aircraft, reverting to the normal pattern after the trials ended.
- The destination mix for westerly departures comprises approximately 15% long-haul destinations except during the trial period, when the proportion of long-haul traffic in the mix increased to 18%.

Easterly departures

Numbers

- The average daily volume of easterly departure traffic peaked at 26 flights per easterly day in 2012, reduced to 23 flights per easterly day in 2013 and 2014, and reduced further to 21 flights per easterly day in 2015.

Altitude

- The average height of aircraft through the gate appears to have increased over the period from approximately 6000 feet in 2005 to approximately 7000 feet in 2015.
- The minimum height has increased from 5000ft in 2005 to 6000ft in 2015 although there is considerable daily variation.

Distribution

- The average lateral centre of gravity (CoG) of the easterly departure traffic is near to the centre of the gate, over Sunninghill.
- This appears to be shifting slightly to the north west. However, there is considerable scatter from day-to-day over an extent around 1km wide.

Aircraft types

- The proportion of large aircraft in the easterly departure mix is has increased from 75% in 2012 and 2013 to approximately 77% with A380s making up 2% in 2015.
- The proportion of long-haul and ultra long-haul destinations served by easterly departure traffic is consistent with the proportion of large aircraft in the mix, at around 75%.

Easterly arrivals

Only a very small number of arrivals pass through this gate. The number of arrivals per easterly day shows a general downward trend from 4 flights in 2011 to 3 flights in 2015. Currently an average of one arrival crosses the gate per westerly day.