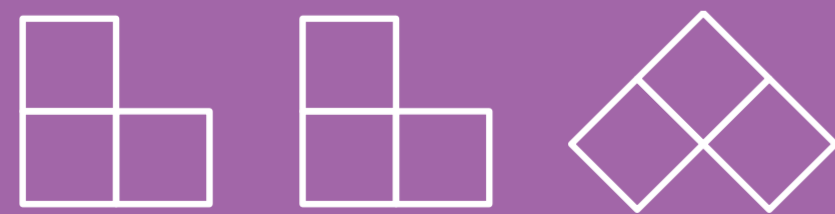


# Community Noise Report

Gamlingay

March – May 2023



London Luton Airport

# Introduction

As part of the ongoing noise monitoring programme, London Luton Airport deployed a portable noise monitoring terminal in Gamlingay.

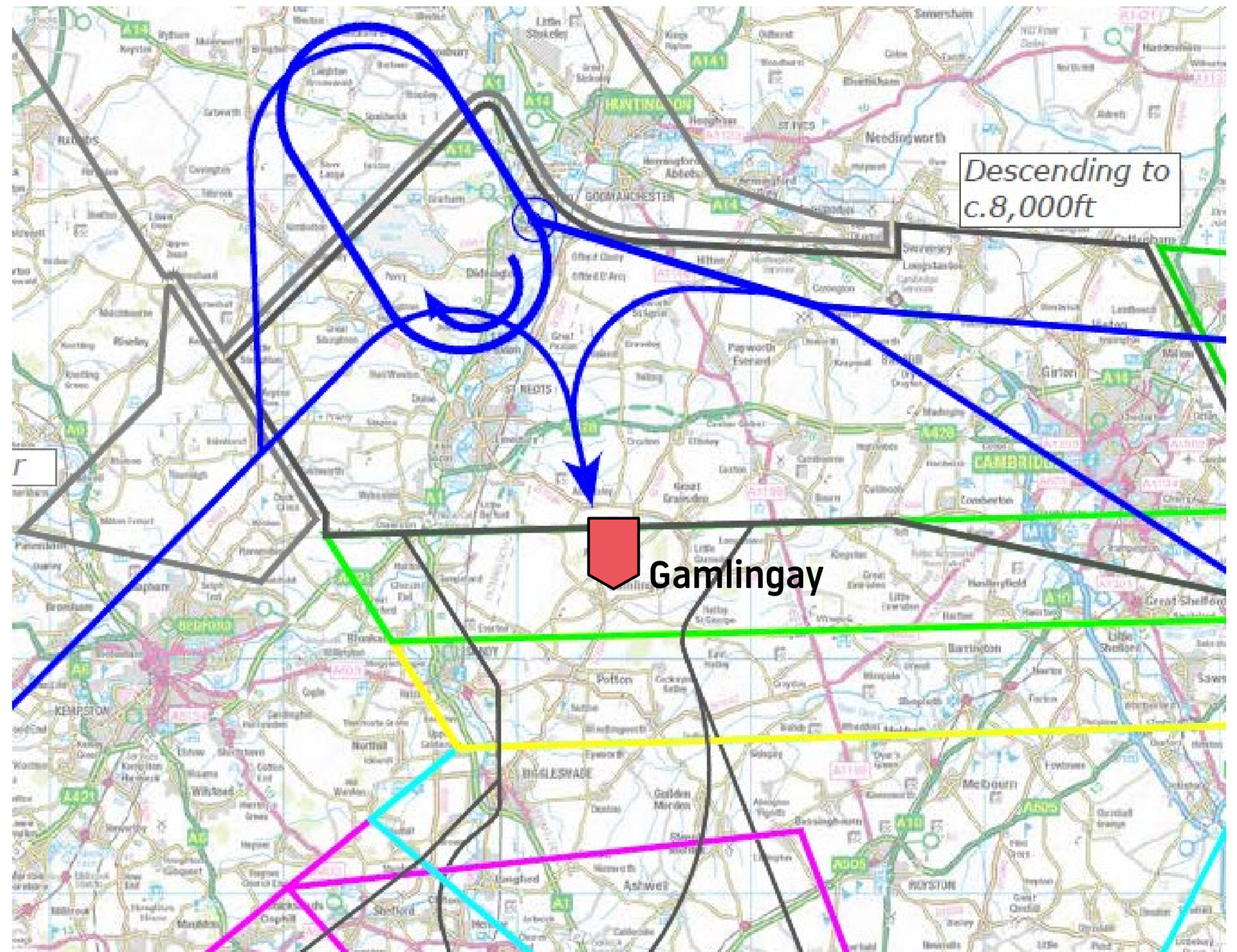
The purpose of the monitoring in Gamlingay is to understand the typical noise levels created in the local community. For Gamlingay, it specifically related to the Luton arrivals. The arrival vectoring area is shown on the map. Aircraft tend to fly at approx. 7,000ft in this area.

In February 2022, an airspace change was implemented in this area, this was a co-sponsored proposal from both NATS and London Luton Airport. The aim of this airspace change was to separate Luton's arrival routes from Stansted's arrival routes.

The noise monitor was located at a property on Heath Road, underneath the arrival vectoring area where aircraft will fly near or over Gamlingay. The red pinpoint on the map shows the noise monitor location, at an altitude of 147 feet above sea level.

The noise monitor in Gamlingay was in place between 24<sup>th</sup> March and 11<sup>st</sup> May 2023.

Aircraft noise and tracks recorded were extracted from LLA's noise and track-keeping system. This document evaluates the lateral and vertical positioning of aircraft near the monitor as well as the noise recorded at ground level.

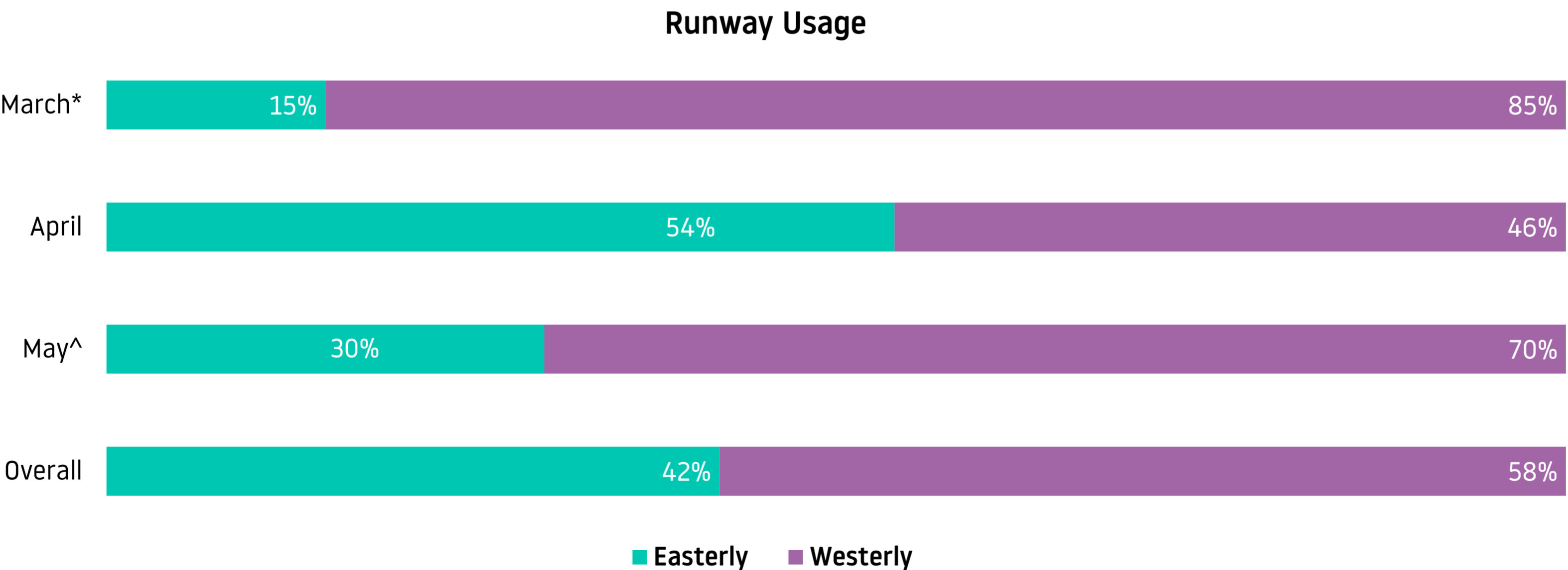


# LLA Operations

There are two operating directions at LLA. The operating direction depends on the wind direction as aircraft are required to take off and land into the wind for aircraft performance and safety reasons. These are known as easterly operations and westerly operations and can change the aircraft tracks nearby specific areas. The split in operating direction varies from year to year and month to month. The amount of time that the runway operates in one direction depends on the wind direction.

During the monitoring period, the direction of operation was 42% easterly and 58% westerly. The five-year average for this time of year is 53% easterly vs 47% westerly.

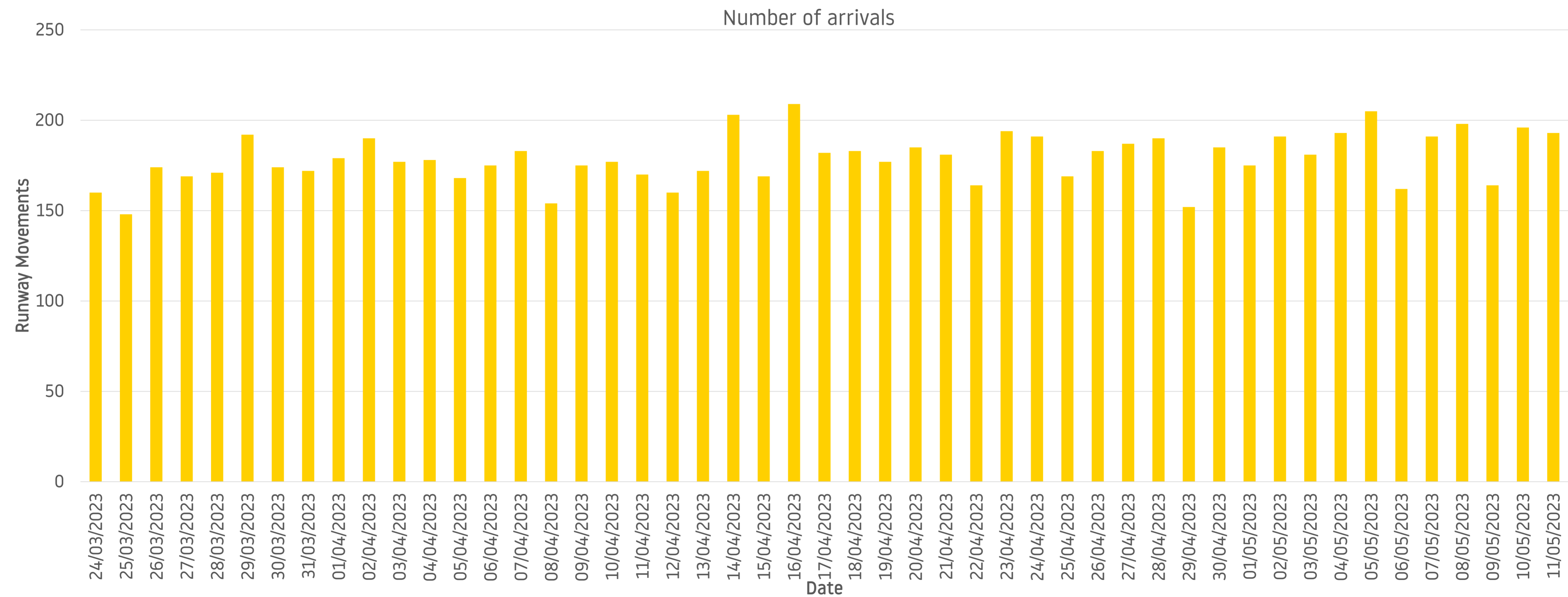
There were 8,794 aircraft arrivals whilst the noise monitor was located in Gamlingay. In terms of total air transport movements, LLA was operating at 91% of pre-pandemic level.



\*24<sup>th</sup> – 31<sup>st</sup> March 2023  
^1<sup>st</sup> – 11<sup>th</sup> May 2023

# Daily Movements

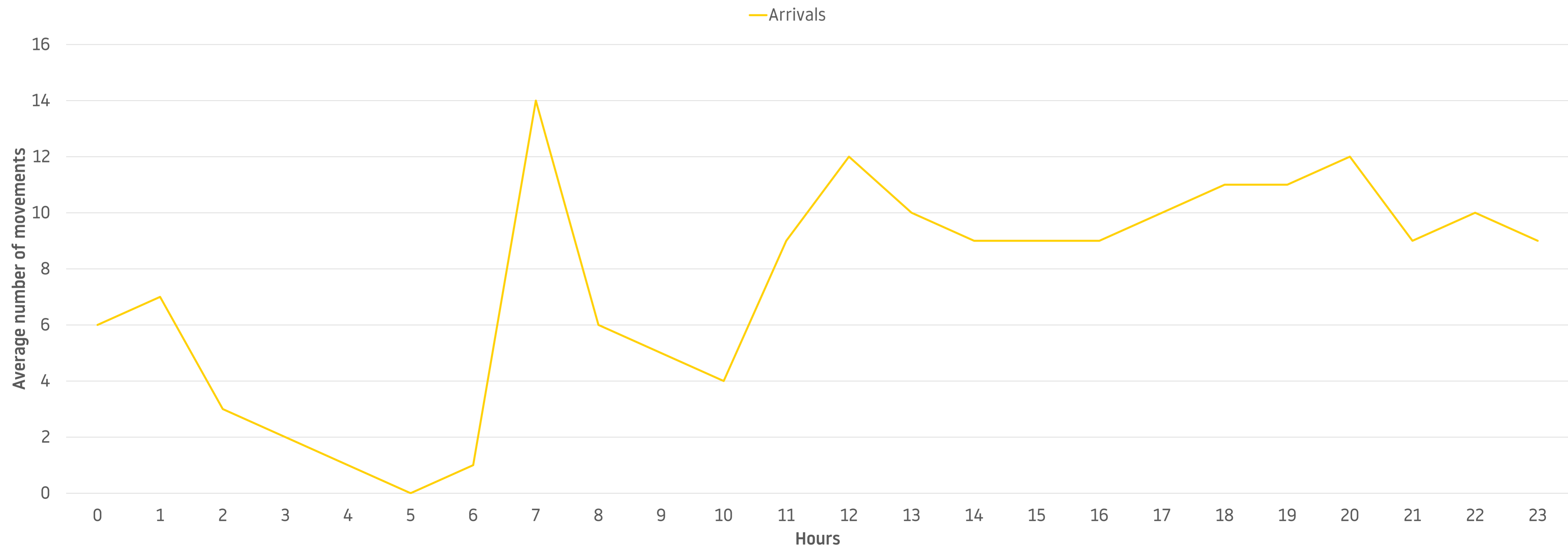
The chart below shows the number of daily arrivals that passed over the noise monitor. Due to the location of the noise monitor, some flights on arrival into Luton would have passed Gamlingay.



# Operations

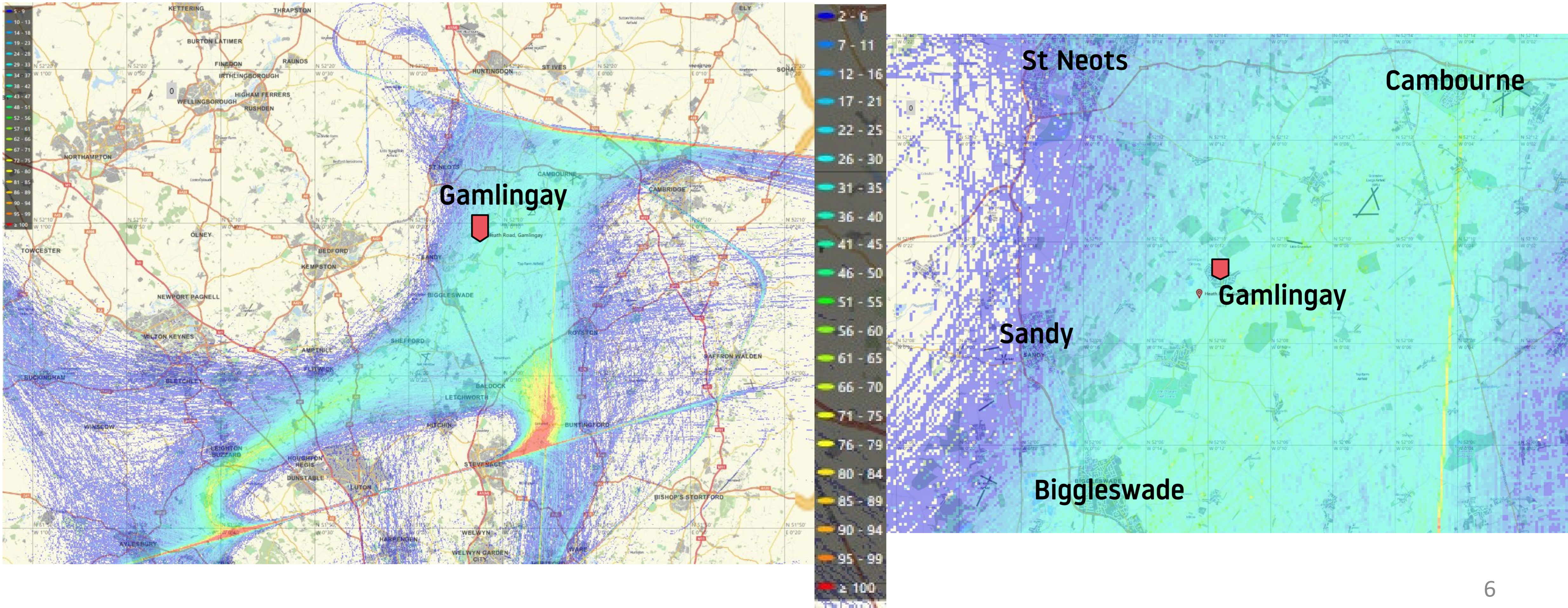
The graph below represents the average aircraft movement by hours during the monitoring period. Depending on the operating direction on the day, residents in Gamlingay may experience different flight patterns. During the peak periods, local residents of Gamlingay may notice more frequent aircraft movements. The graph below shows the peak times periods, during a 24hr period over the noise monitor terminal. Residents will notice the morning peak begin at 07:00 and another peak at 12:00 and 20:00.

During the night period of 23:00 – 06:59 in the monitoring period, there were average of 29 arrivals during this period.



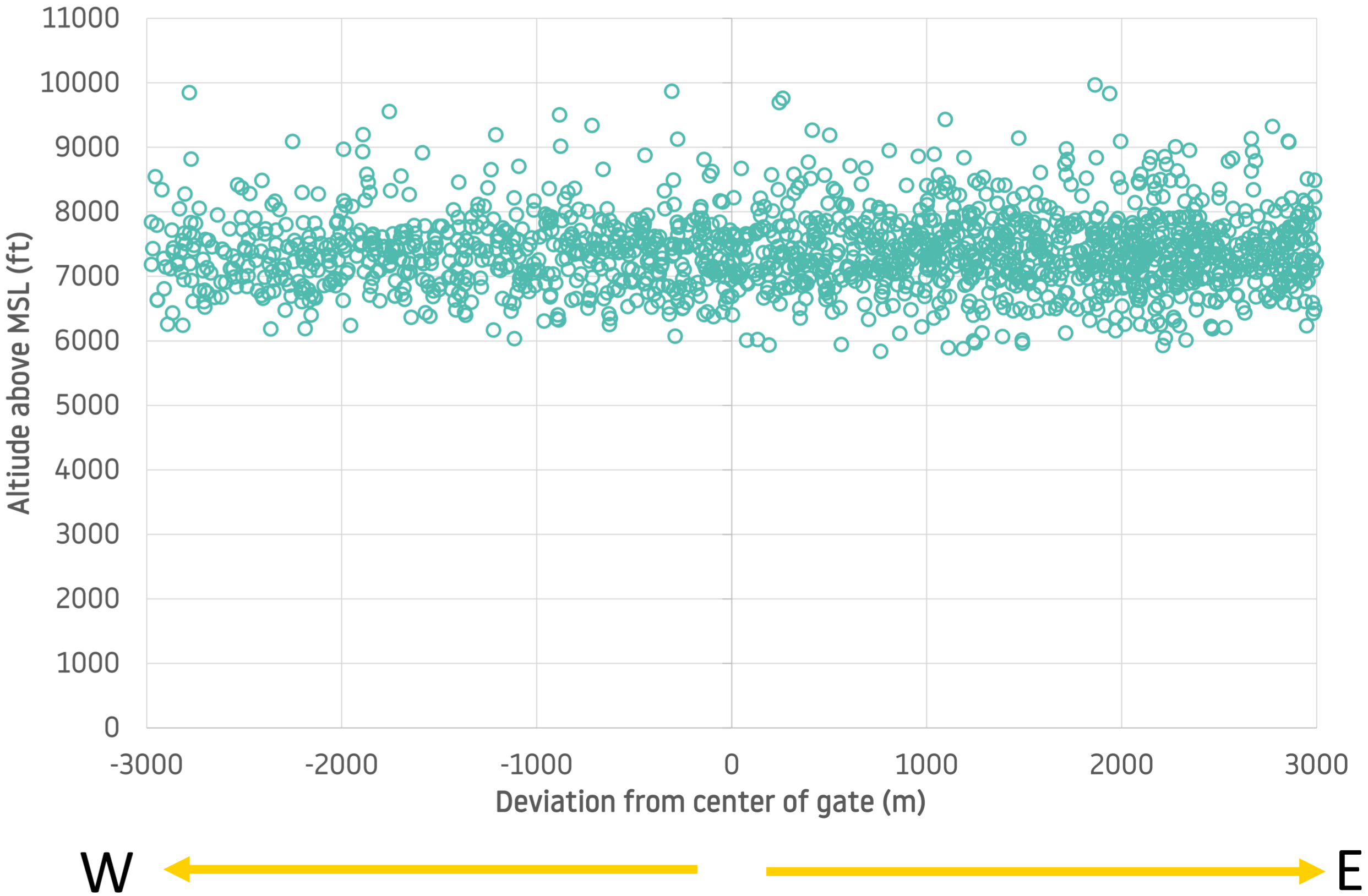
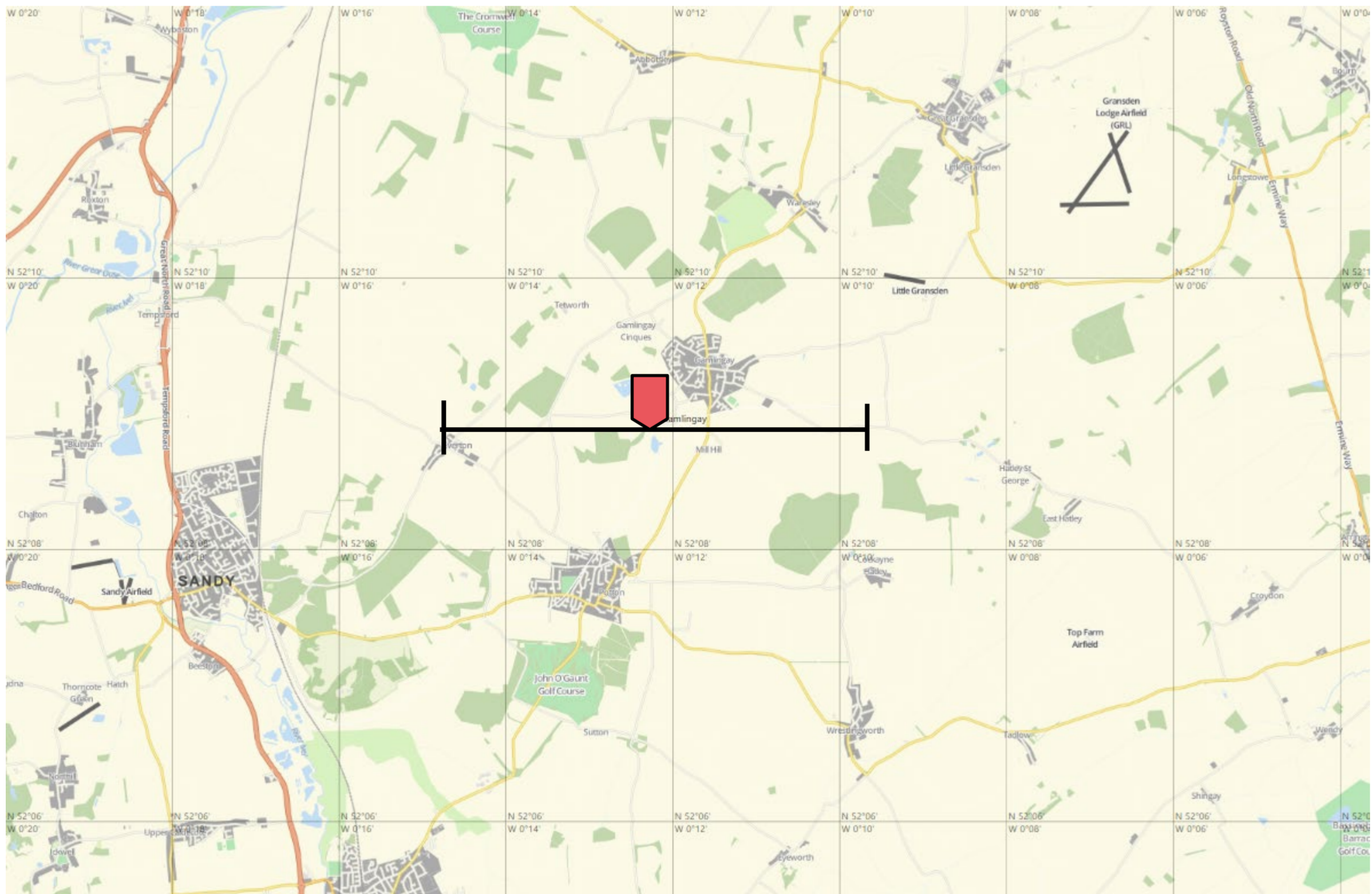
# Aircraft Tracks

The heat map below show the representative flight tracks that passed near the noise monitor terminals during the monitoring period. The red pinpoint indicates the location of the noise monitor in Gamlingay. At this location, it is affected by arrivals. The maps below highlight the density of flights.



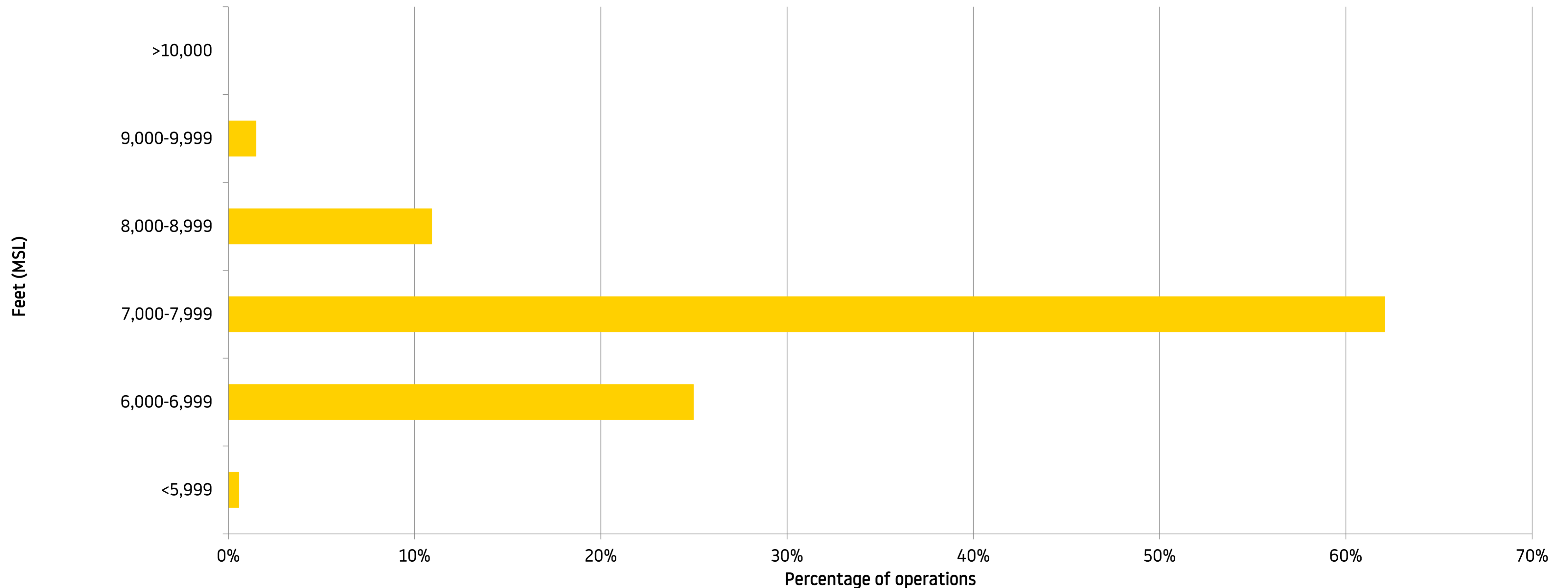
# Altitude Gate Analysis

The altitude analysis for Gamlingay shows the vertical and lateral dispersion of aircraft 3km either side of the noise monitor. The map below shows the 6km gate which is drawn west to east and it gathered information of every aircraft passing through the gate area. The scatter graph below shows the distance and altitude of aircraft from the noise monitor during the monitoring period. Local residents may see aircraft flying above Gamlingay at altitude above 6,000ft.



# Altitude Gate Analysis – Arrivals

The altitude analysis shows arriving aircraft that flew close or over Gamlingay. The bar charts in this section shows the concentration of the aircraft when aircraft reach the noise monitor in Gamlingay. For arrivals, aircraft tend to be above 7,000 feet. The analysis shows that 74% of aircraft fly above 7,000 feet when arriving aircraft reach Gamlingay. The average altitude of aircraft in this area was 7,385 feet AMSL (7,238 feet AGL). About a quarter aircraft flew between 6,000 and 6,999 ft. This could be caused by the change in air pressure setting at transition altitude.



# How Do We Analyse the Noise Data

Following the noise monitoring period, we collate the data taken from our Noise and Track Keeping system and analyse the noise reading samples.

During the monitoring period in Gamlingay, the noise monitoring terminal collected readings from 1,622 arriving aircraft. During the period, there were 8,794 arrivals.

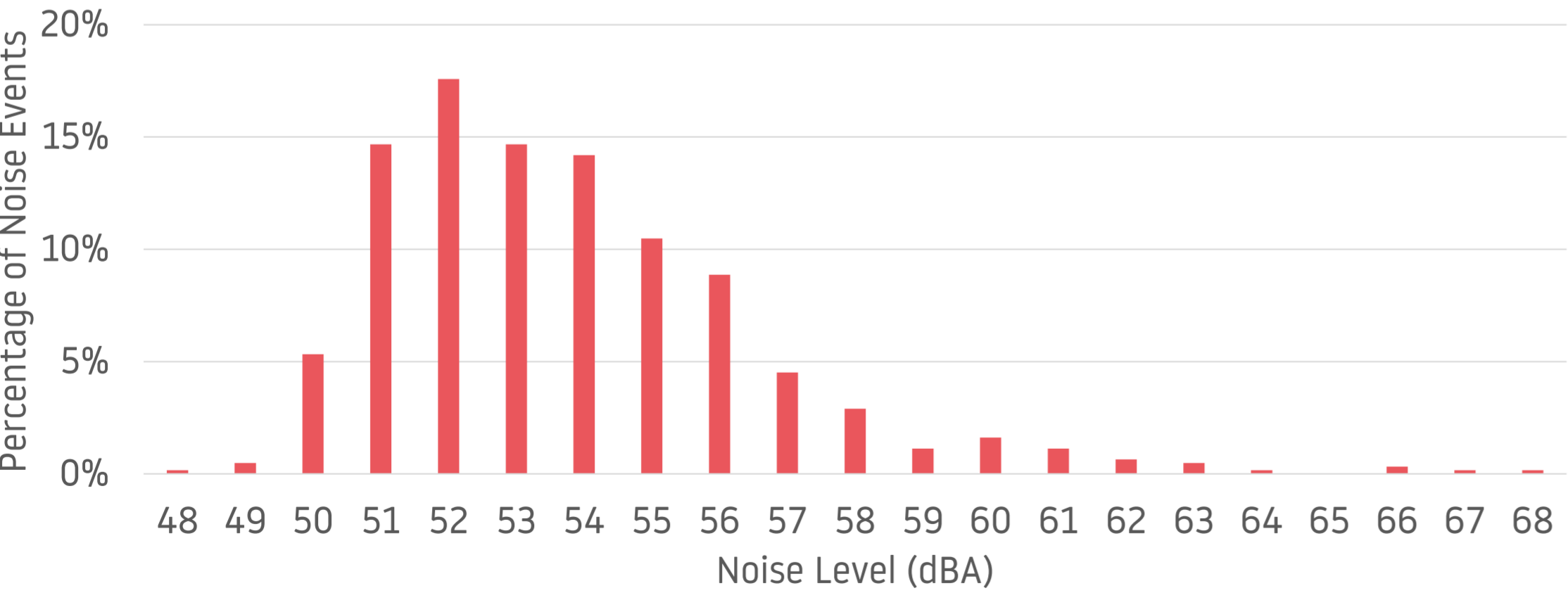
It is noteworthy that the noise monitor may not be able to record every aircraft noise event if the aircraft noise level is below ambient background noise. In addition, not all aircraft flew near the noise monitor. Therefore, there may be a difference between the number of actual air transport movements and number of aircraft noise events collected during the monitoring period.

The weather also plays a big part in the data recorded and in periods of extreme weather i.e (very strong winds) the equipment can record noise incorrectly so we exclude samples from the analysis during these weather conditions. When analysing the samples, it was ensured that there is no unusual noise event present which might not be caused by aircraft (i.e. vehicles or wildlife). No recording was excluded from the analysis for the above reasons despite some of the higher reading recordings were unable to verify that the source of sound was from aircraft.

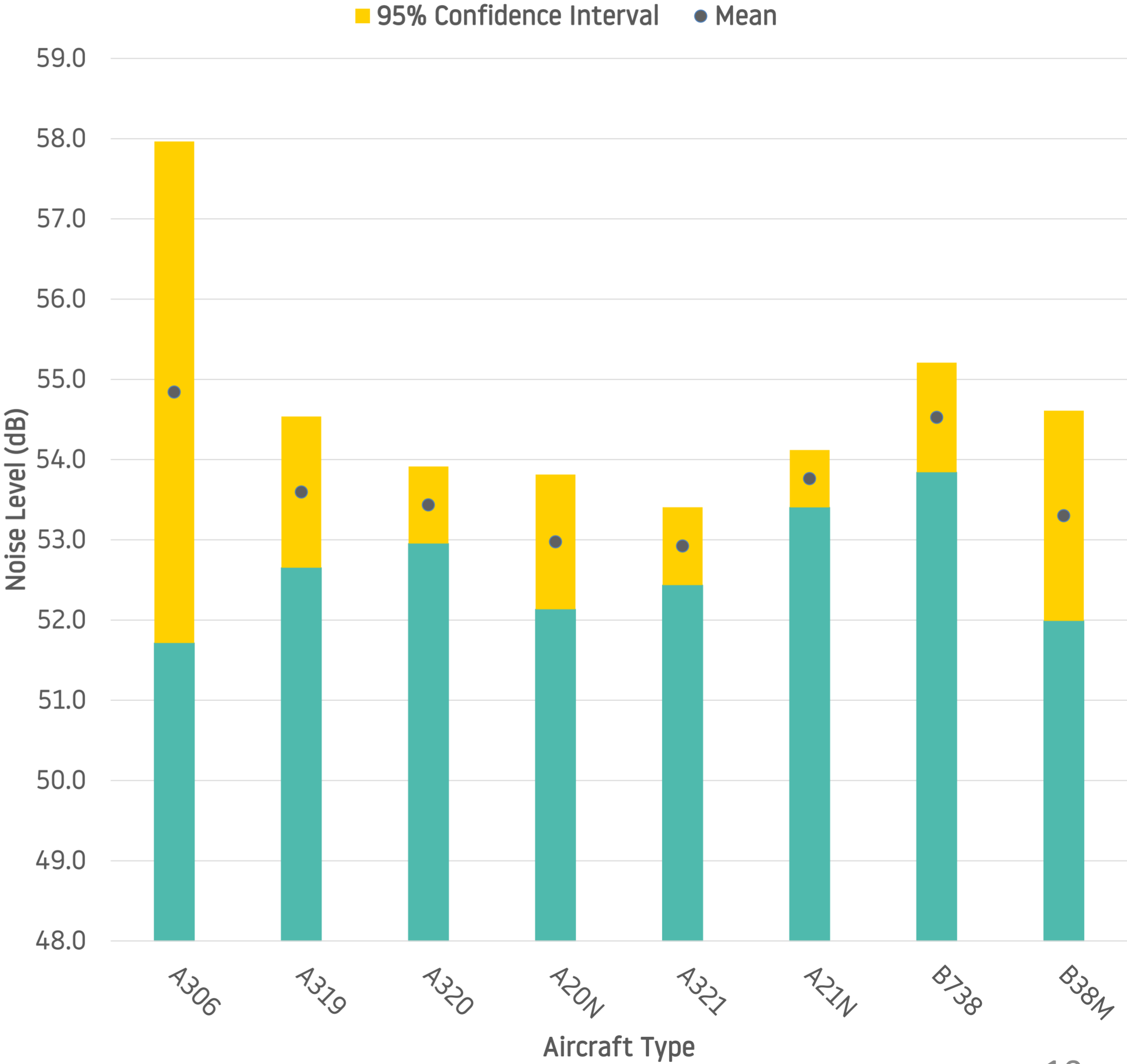
# Noise Results – Arrivals

During the monitoring period, the noise recording samples were gathered from the most popular aircraft types at London Luton Airport\*. The summary of the noise results is shown in this section. The tables show the average noise by aircraft type and the bar chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval).

Aircraft Type	Number of movements	Average Noise (dB)
A306	5	54.8
A319	43	53.6
A320 CEO	126	53.4
A320 NEO (A20N)	54	53.0
A321 CEO	83	52.9
A321 NEO (A21N)	137	53.8
B737-800 NG (B738)	75	54.5
B737 Max 8 (B38M)	5	53.3
All Aircraft	620	53.7



\*The noise results shown in the analysis are only for those aircraft types that recorded more than 25 events per aircraft. (A306 and B737 Max 8 included for comparison)



# Noise Results - Summary

- In Gamlingay, residents may experience aircraft noise as Gamlingay is underneath the AD6 arrival vectoring area.
- The average easterly arrival noise in Gamlingay was 53.7dB, based on a sample size of 620.
- During the monitoring period, the noise monitor was only able to capture 620 aircraft sound events from 1,622 movements passing through the gate as shown in the previous section. This is due to the high altitude of aircraft and the ambient background noise.
- From the results, Luton's most popular aircraft type by operators, Airbus A320 CEO, had an average noise of 53.4dB.
- The departure noise from the newer generation aircraft, A320 NEO, produced slightly less noise than A320 CEOs, at an average of 0.4dB quieter. The true average might be lower because some of the aircraft sound events could not be captured by the noise monitor due to the ambient background sound level and the aircraft altitude. However, the A321 NEO was found noisier than the A321 CEO when the noise monitor was in place at Gamlingay.
- The A306 freight was the noisiest aircraft type at Gamlingay, at average of 54.8dB.
- In Q2 2022, LLA recorded 20% of all transport movements were the newer generation aircraft which are more fuel efficient and quieter. This will continue to increase as operators at LLA operate more greener aircrafts into and out of Luton.

# Conclusion

- A mobile noise monitor was installed at a residential property on Heath Road for 12-week period.
- For Gamlingay, it specifically related to the new Luton arrival route over Cambridgeshire.
- The average altitude of arriving aircraft in Gamlingay is 7,385 feet above mean sea level (AMSL), and as Gamlingay is already approximately 147 feet AMSL, aircraft will typically be at 7,238 feet above ground level (AGL) in this area. Due to the location of the noise monitor, the altitude from arriving aircraft will be at 6,000 feet or higher, nearly 75% of aircraft arriving flew above 6,000 feet when they reach Gamlingay.
- The main aircraft type operating at London Luton Airport is the Airbus A320 CEO which produced an average noise of 53.4dB.
- 11% of the noise events recorded in Gamlingay were created by the newer generation aircraft, A320 NEO. The A320 NEO registered average departing noise of 53.0dB, 0.4dB lower than A320 CEOs. The noise reduction achieved provide noise and fuel benefit to the community. Operators at LLA will continue to utilise more greener aircrafts into and out of Luton as they expand their greener fleet in LLA.
- The A321 NEO aircraft, however, registered slightly higher arrival noise level than the A321 CEO. The average noise was 0.8dB higher at 53.8dB.
- LLA publish other monitoring reports on a regular basis. These reports can be viewed and downloaded from the Noise webpage on the [LLA website](#).
- For more details of the AD6 Airspace change, please visit the [CAA Airspace Change Portal](#).

# Glossary of Terms

**AD6 Airspace Change:** This was a co-sponsored airspace change proposal from both NATS and London Luton Airport. The aim of this airspace change was to separate Luton's arrival routes from Stansted's arrival routes. The new routes were consulted upon from October 2020 – February 2021. We then submitted the airspace change proposal to the Civil Aviation Authority (CAA) in June 2021 with them granting approval in November 2021. More details can be found in the [CAA Airspace Change Portal](#).

**Aircraft Movement:** A single aircraft departing or arriving at the airport.

**Altitude Gate Analysis:** A gate which is drawn across an area and will gather flight data about every aircraft passing through the gate area.

**Noise Event:** A single event is the period from when an aircraft approaches the monitor until when the aircraft is leaving the area.

**Decibel (dB):** The unit used to measure noise (typically 50-60dB is equivalent to a normal conversation level).

**LasMax:** A unit of measure and is the maximum noise level from a single aircraft passing over the noise monitor.

**95% Confidence Interval:** A range of values that you can be 95% certain contains the population mean.

