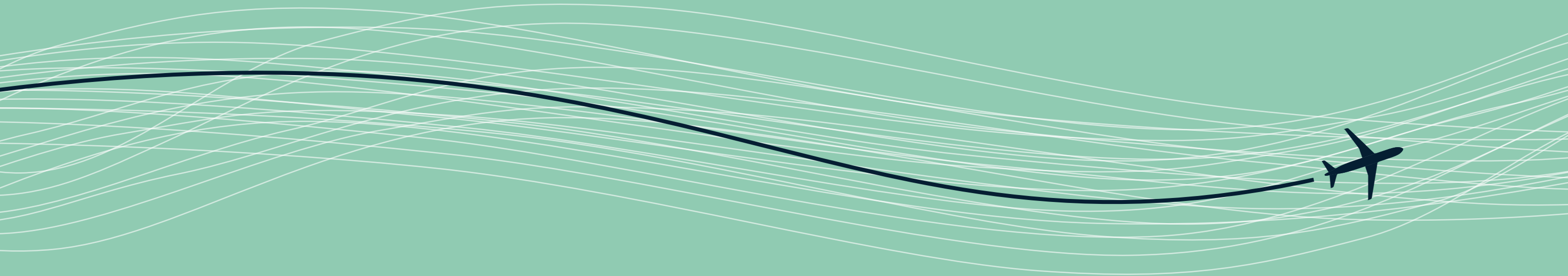




**Noise Monitoring** Aston-on-Trent 2025

**DRAFT FOR COMMENT**



## Key Facts and Figures

Summary information from the Aston-on-Trent noise monitoring position (M117), which monitored for 92 days between 16<sup>th</sup> June and 15<sup>th</sup> September 2025. Data presented is a summary of, and should be read in conjunction with, this report. Noise data presented on this page is assessed to be from aircraft only, with noise from other sources having been excluded.

### Aircraft Noise Levels

See Table 6 and Section 6 for more information

#### Aston-on-Trent

**35 dB** during the daytime  
( $L_{Aeq,16\text{ hour}}$ )

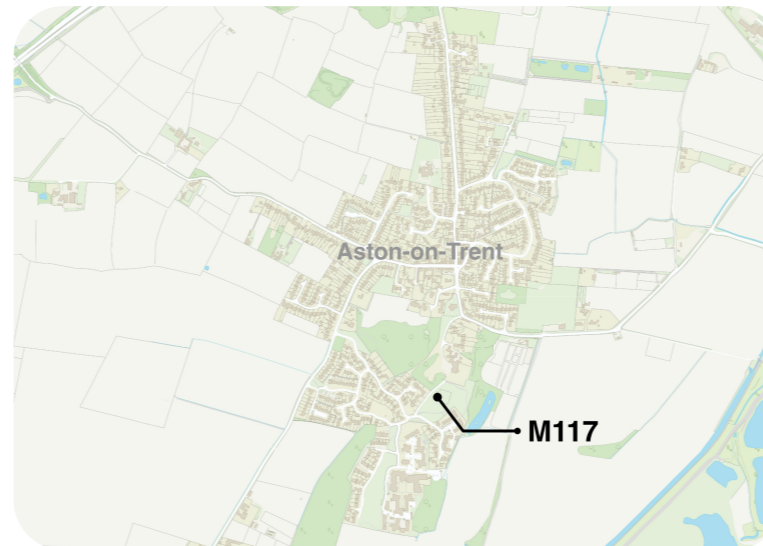
**34 dB** during the night-time  
( $L_{Aeq,8\text{ hour}}$ )

#### Weston-on-Trent

**45 dB** during the daytime  
( $L_{Aeq,16\text{ hour}}$ )

**51 dB** during the night-time  
( $L_{Aeq,8\text{ hour}}$ )

### Position of Aston-on-Trent Noise Monitor



### Number of Aircraft Noise Events during the 92-day summer period

See Section 2.0 and Section 4.0 for more information

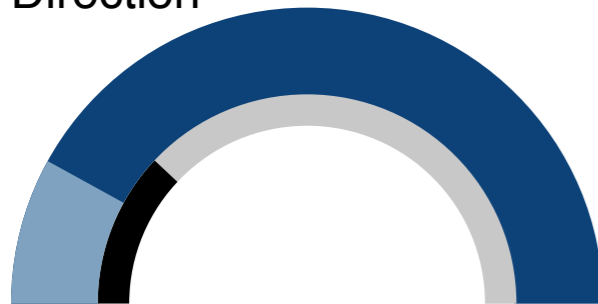
**273** total measured events

**9** daytime events above 70dB  $L_{Amax}$

**76** daytime events above 65dB  $L_{Amax}$

**8** night-time events above 60dB  $L_{Amax}$

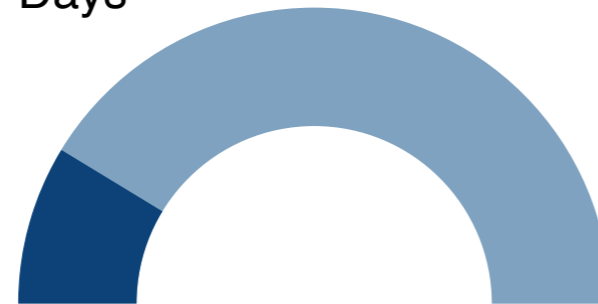
### Operating Direction



Detail	Easterly	Westerly
Monitoring period	● 20%	● 80%
Last 5 years	● 24%	● 76%

See Section 2.0 for more information

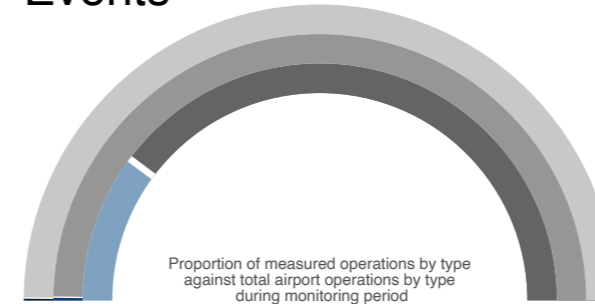
### Training Circuit Days



Detail	With Circuits	Without Circuits
Days during monitoring	● 16	● 76

See Section 2.0 for more information

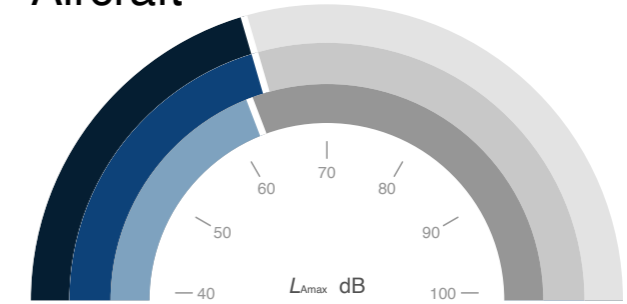
### Measured Events



Detail	Arrival	Departure	"T" Movements
Movements Measured	● 24	● 34	● 114
Total Airport Movements	● 8,496	● 8,486	● 563

See Section 2.0 for more information

### Noisiest Aircraft



Detail	Arrival	Departure	Circuit
Average $L_{Amax}$	● 65 dB	● 65 dB	● 63 dB
	Cessna 152	Vulcanair P.68R	Boeing 737-800

See Section 5.0 for more information



# Noise Monitoring Aston-on-Trent 2025

prepared for East Midlands Airport, Castle Donington, Derby DE74 2SA

## Document Details

<b>Title</b>	Aston-on-Trent 2025
<b>Project</b>	Noise Monitoring
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Revision	Date	Author(s)	Reviewer
1 <sup>st</sup> DRAFT	12 December 2025	FD	BHo
2 <sup>nd</sup> DRAFT	26 January 2026	FD	BHo

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## Report Summary

This is an A3 sized report and is intended to be read on a computer screen or on A3 sized paper.

### Section 1: Introduction

**Section 1** provides information on the temporary noise monitoring location which this report focuses on, the reasons for the report and context on the monitoring location in relation to East Midlands Airport and the surrounding area.

### Section 2: Number and Location of Aircraft Movements

**Section 2** sets out the number of movements over Aston-on-Trent and displays where movements are located in relation to the noise monitor and Aston-on-Trent.

### Section 3: Aircraft Types and Operators

**Section 3** discusses the different aircraft types and operators using East Midlands Airport over Aston-on-Trent.

### Section 4: Measured Noise Levels

**Section 4** sets out ambient noise analysis at Aston-on-Trent and investigates number above analysis.

### Section 5: Maximum Noise Levels

**Section 5** displays maximum noise levels from aircraft over Aston-on-Trent and breaks down the aircraft types producing the highest noise levels.

### Section 6: Weston-on-Trent Comparison

**Section 6** makes comparisons against monitoring undertaken during the same period at the Airport’s permanent noise monitor on the outskirts of Weston-on-Trent.

### Appendix A and B

**Appendix A** is a glossary of acoustic aviation terms to assist the reader. **Appendix B** summarises the raw noise data recorded for the entire monitoring period and an analysis of the weather conditions.

## 1.0 Introduction

1.1 East Midlands Airport has undertaken noise monitoring at location M117 in Aston-on-Trent which is approximately 3.5 km to the northwest of East Midlands Airport.

1.2 From analysis of the measured data, key noise metrics and information have been calculated and are presented in this report.

1.3 Monitoring covers the full 92-day summer period which runs from the 16<sup>th</sup> June to the 15<sup>th</sup> September 2025. This allows for comparison against annually produced noise contours.

1.4 The most up to date noise contours of the Airport can be seen on the community noise portal at [Our current noise contour – East Midlands Insightfull](#). Other information and explanations on airport operations can also be found via this website.

1.5 Monitoring was undertaken to gain a better understanding on aviation activity affecting the noise climate of the area and to compare to monitoring undertaken during the same period at one of the Airport’s permanent noise monitors located in Weston-on-Trent.

1.6 A separate monitoring report has been produced for Weston-on-Trent and the position can also be seen via WebTrak at [WebTrak : East Midlands Airport](#).

1.7 **Image 1** shows the location of M117 in Aston-on-Trent.

1.8 M117 predominately recorded training flights on the northern training circuits, with some light aircraft operations including departures from runway 27 and arrivals to either runway end also recorded.

1.9 A representation of the Airport’s runway can be seen in **Image 2** indicating the direction of departures and arrivals.

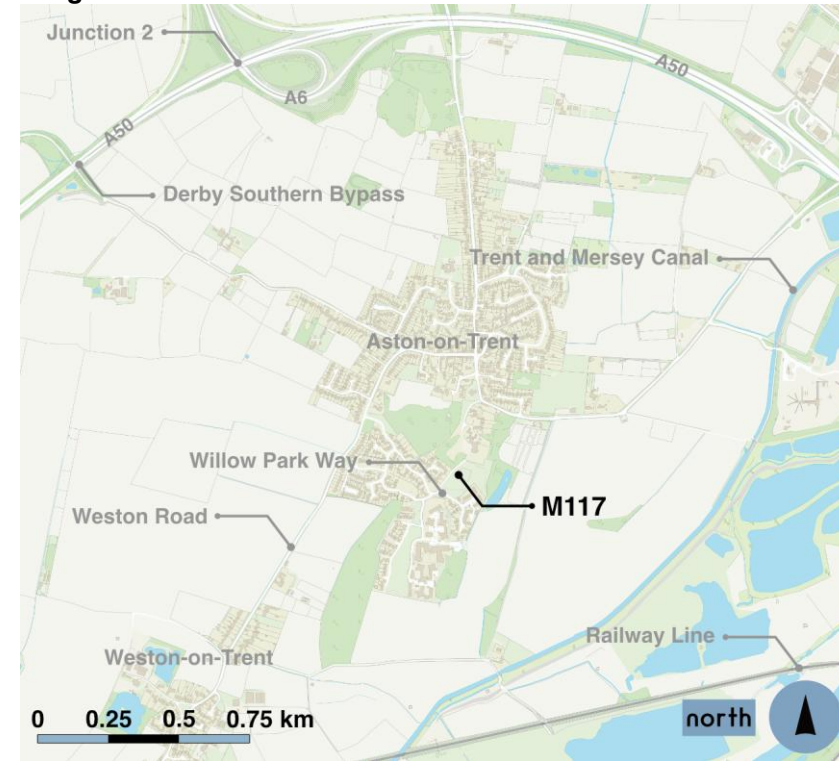
1.10 For the summer period, runway usage was split as follows due to wind conditions:

- **Runway 09 (easterly direction): 20 % of the time**
- **Runway 27 (westerly direction): 80% of the time**

1.11 Over the past 5 years, this split has been 24% / 76% on average meaning the 2025 summer period was broadly comparable with a slightly lower percentage in the easterly direction.

1.12 **Image 3** shows the location of Aston-on-Trent and M117 in relation to the Airport as well as the. Two indicative training circuit routes can also be seen on this image. More detail on training circuits can be found on page 3 of this report.

**Image 1.** Location of M117 in Aston-on-Trent



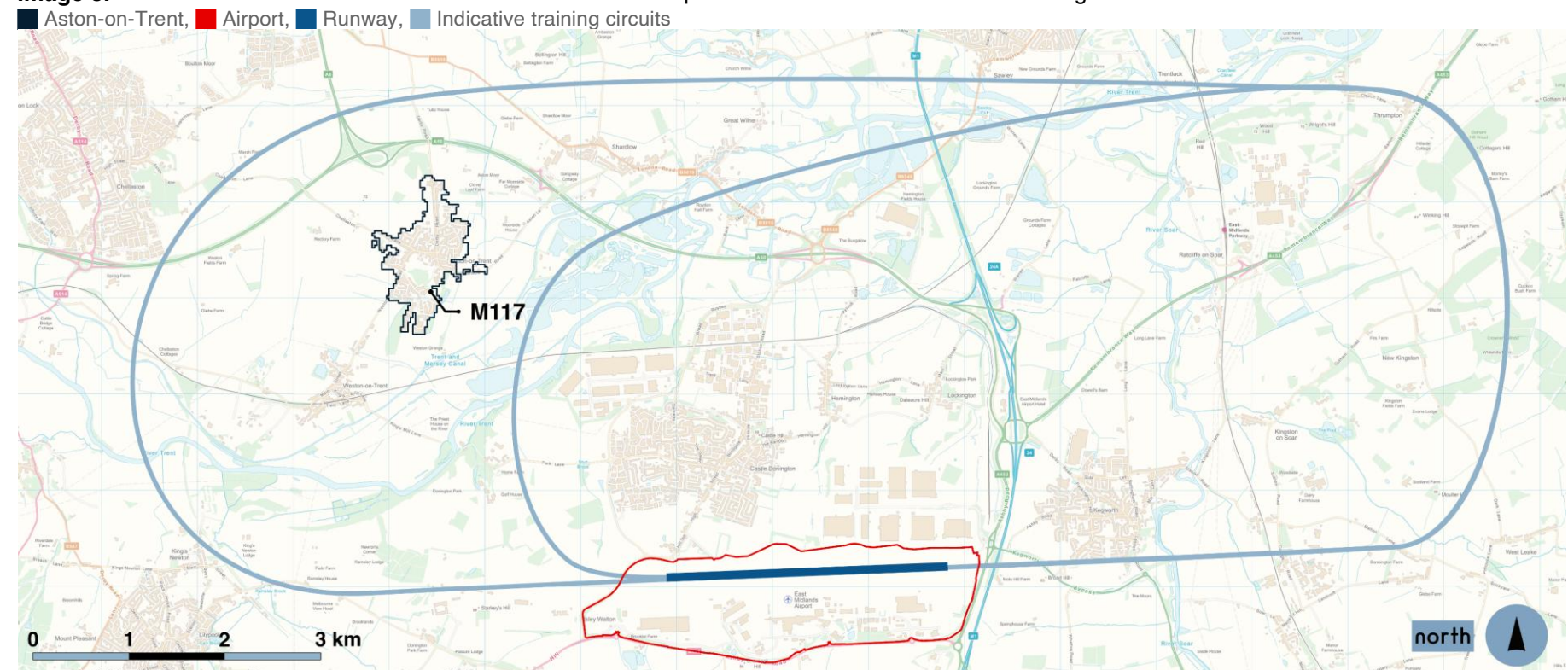
Background map courtesy of Ordnance Survey

**Image 2.** East Midlands Airport runway



Background map courtesy of Ordnance Survey

**Image 3.** Location of Aston-on-Trent and M117 relative to the Airport and the indicative northern training circuits



Background map courtesy of Ordnance Survey

## 2.0 Number and Location of Aircraft Movements

2.1 During the summer period, a total of 17,545 movements occurred at the Airport as shown in **Table 1**.

**Table 1** Total East Midlands movements

Departures	Arrivals	“T” Movements
8,486	8,496	563

2.2 The noise monitor measured noise levels for 172 of these movements as split in **Table 2** using a virtual ‘gate’ located above the monitor in combination with the Airport Noise and Operations Monitoring System (ANOMS). The gate is a virtual rectangular shape stretching from ground level up to 7,000 ft and is three nautical miles wide.

**Table 2** Movements that triggered the noise monitor

Departures	Arrivals	“T” Movements
34	24	114

2.3 “T” movements are those that depart and arrive to the Airport during the same operation. This can include ‘Touch and Gos’, training flights or police operations as examples.

### Arrivals, Departures and Non-East Midlands Movements

2.4 The 34 departures resulted in 35 discrete noise events, the 24 arrivals resulted in 41 discrete noise events and the monitor measured levels from 99 aircraft that were not associated with East Midlands. **Image 4** to **Image 6** show how these movements were split over each hour of the day.

2.5 **Image 7** to **Image 9** show the locations of separate noise events through the gate in relation to the noise monitor. The number of noise events is greater than the number of movements as some operations passed the monitor multiple times.

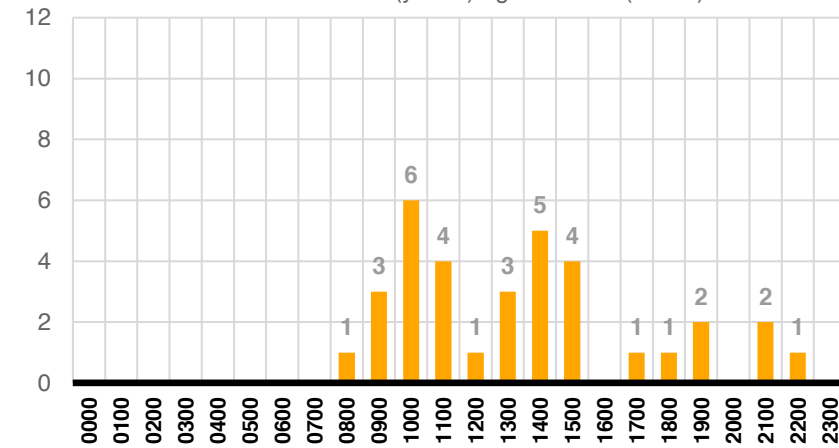
2.6 **Table 3** shows the number of days where none of the respective operations were measured, out of a maximum of 92 days.

**Table 3** Number of days with no movements measured

Departures	Arrivals	Non-East Midlands Movements
65	71	37

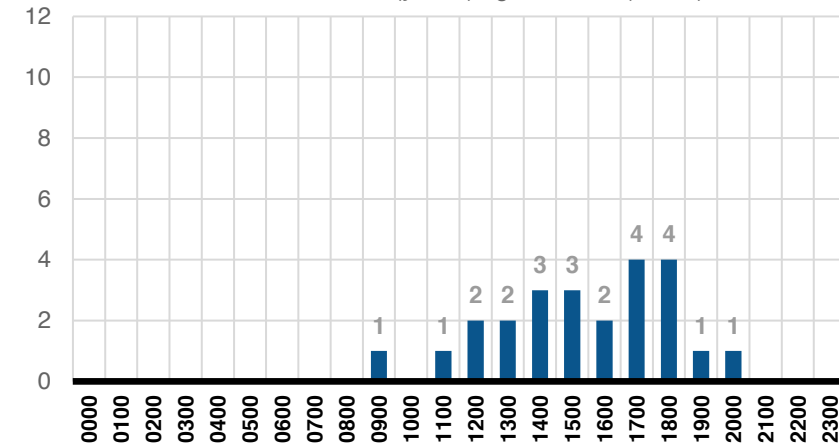
**Image 4.** Departures by hour

In terms of number of movements (y-axis) against hour (x-axis)



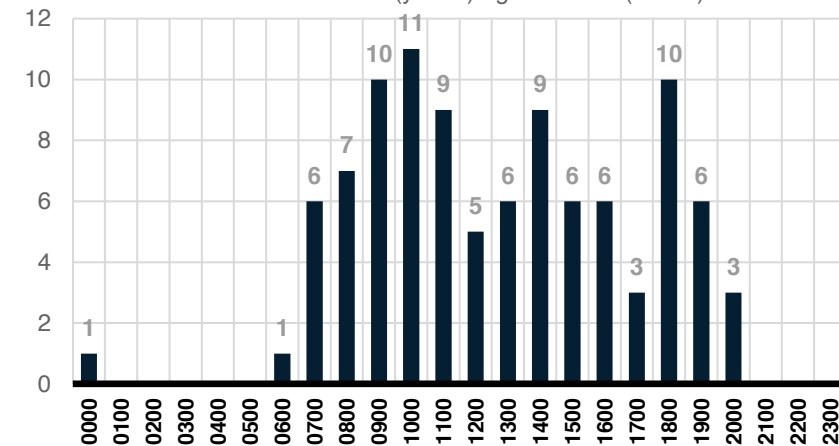
**Image 5.** Arrivals by hour

In terms of number of movements (y-axis) against hour (x-axis)



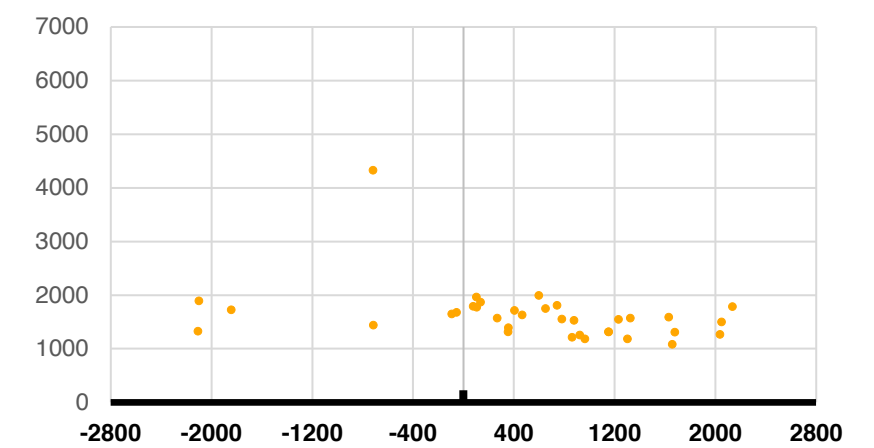
**Image 6.** Movements not associated with East Midlands by hour

In terms of number of movements (y-axis) against hour (x-axis)



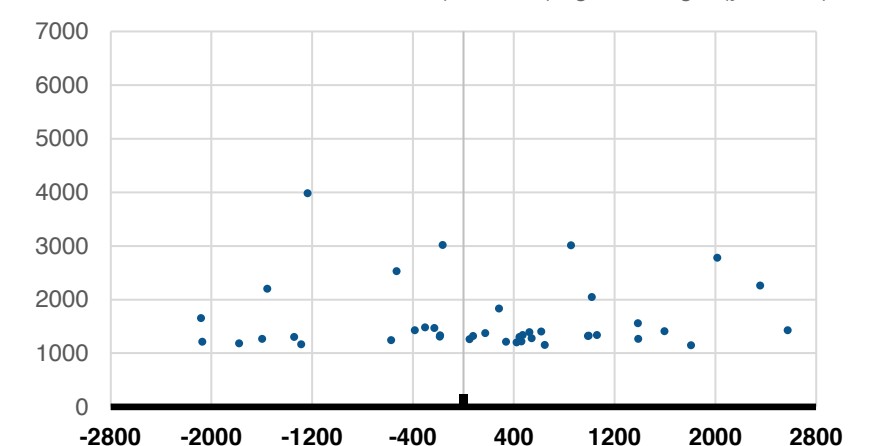
**Image 7.** Height and lateral distance of departures from M117

35 events in terms of lateral distance (x-axis, m) against height (y-axis, ft)



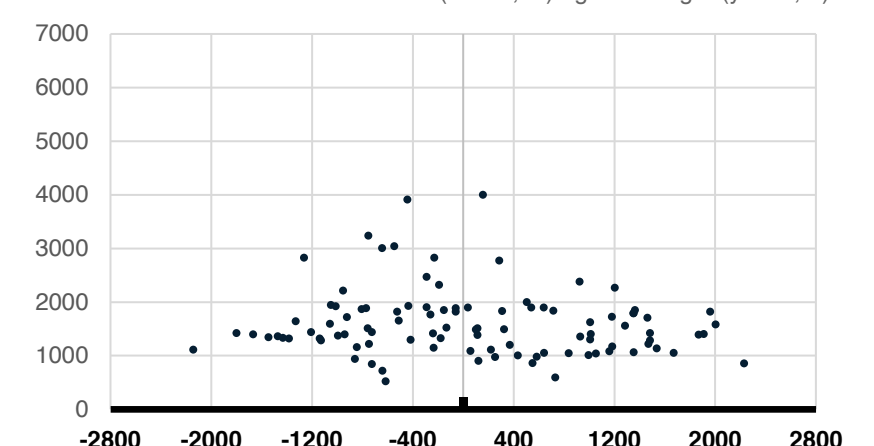
**Image 8.** Height and lateral distance of arrivals from M117

41 events in terms of lateral distance (x-axis, m) against height (y-axis, ft)

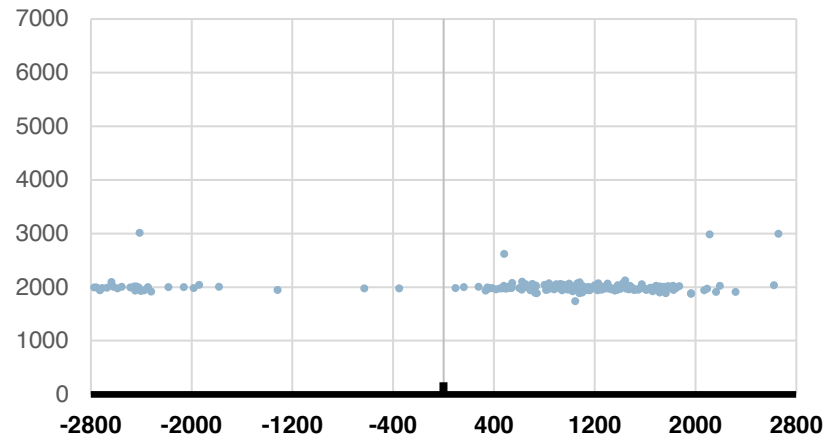


**Image 9.** Locations relative to M117 of non-East Midlands events

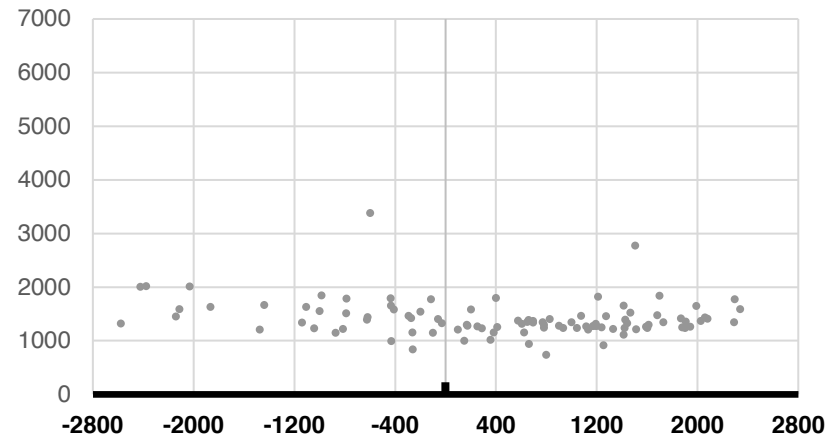
99 events in terms of lateral distance (x-axis, m) against height (y-axis, ft)



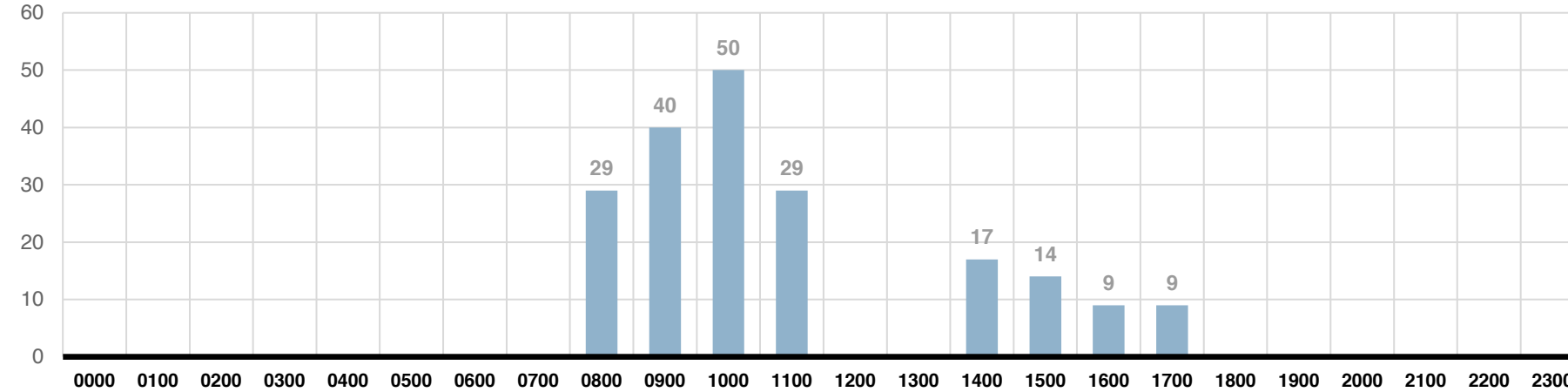
**Image 10.** Height and lateral distance of training circuits from M117  
197 events in terms of lateral distance (x-axis, m) against height (y-axis, ft)



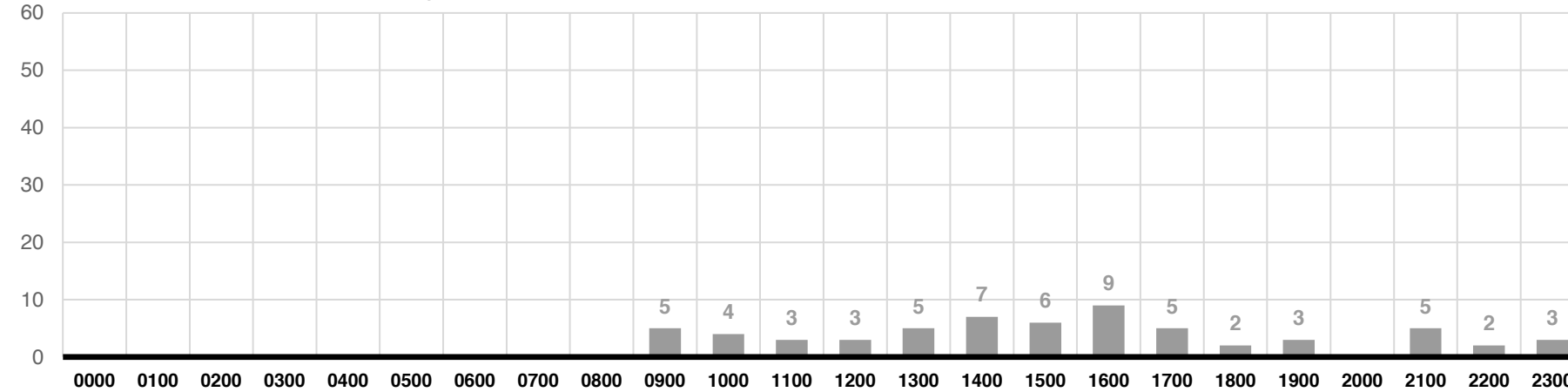
**Image 13.** Height and lateral distance of other “T” events from M117  
100 events in terms of lateral distance (x-axis, m) against height (y-axis, ft)



**Image 11.** Training circuits by hour  
In terms of number of movements (y-axis) against hour (x-axis)



**Image 12.** Other “T” movements by hour  
In terms of number of movements (y-axis) against hour (x-axis)



## “T” Movements

2.7 Training of aircrew is sometimes undertaken at East Midlands Airport. Aircrew training is vital for airlines and whilst most training is undertaken using flight simulators, some flying is mandatory to meet Civil Aviation Authority (CAA) standards.

2.8 The final part of a pilot’s training is to complete a number of training circuits which repeat take-off and landing procedures. Locally based jet operators and some light aircraft operators sometimes complete this type of operation at East Midlands Airport.

2.9 Of the “T” movements detailed in **Table 2**, 52 were jet engine aircraft training flights. These 52 training flights carried out a total of 197 training circuits.

2.10 **Image 10** shows the locations of these circuits through the gate in relation to the noise monitor and **Image 11** shows how they were split over each hour of the day.

2.11 There were 76 days throughout the monitoring period where no training flights were captured.

2.12 Training circuits occur between the hours of 0800 to 1200 and 1400 to 1800 only as is mandated by East Midlands Airport.

2.13 How the other 62 “T” movements were split over each hour of the day can be seen in **Image 12**. These movements led to 100 discrete noise events at the monitor and the locations of these events through the gate can be seen in **Image 13**.

2.14 Other “T” movements included the following:

- Operations from a flying club based at East Midlands,
- Private flights,
- Surveying services, and
- Police flights.

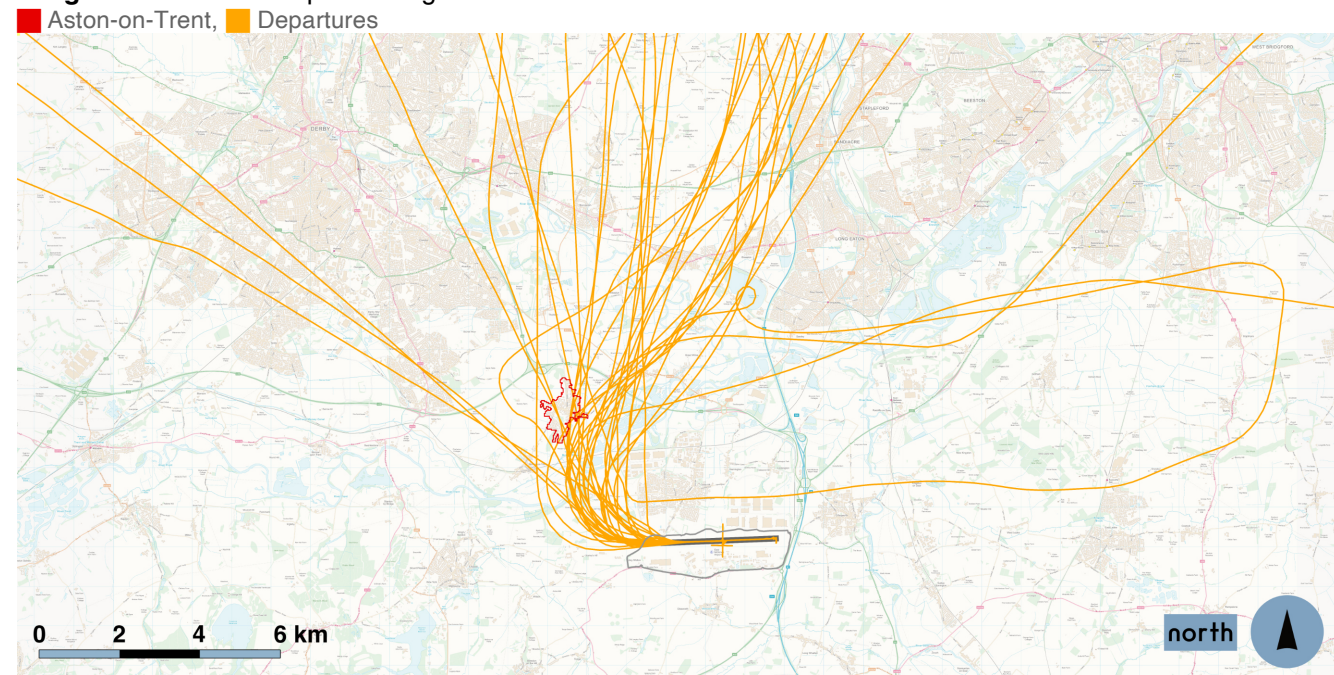
2.15 All these movements were by small aircraft types.

2.16 The only “T” movements that occurred during the night-time period (2300 – 0700) were police flights.

## Aircraft Density Plots

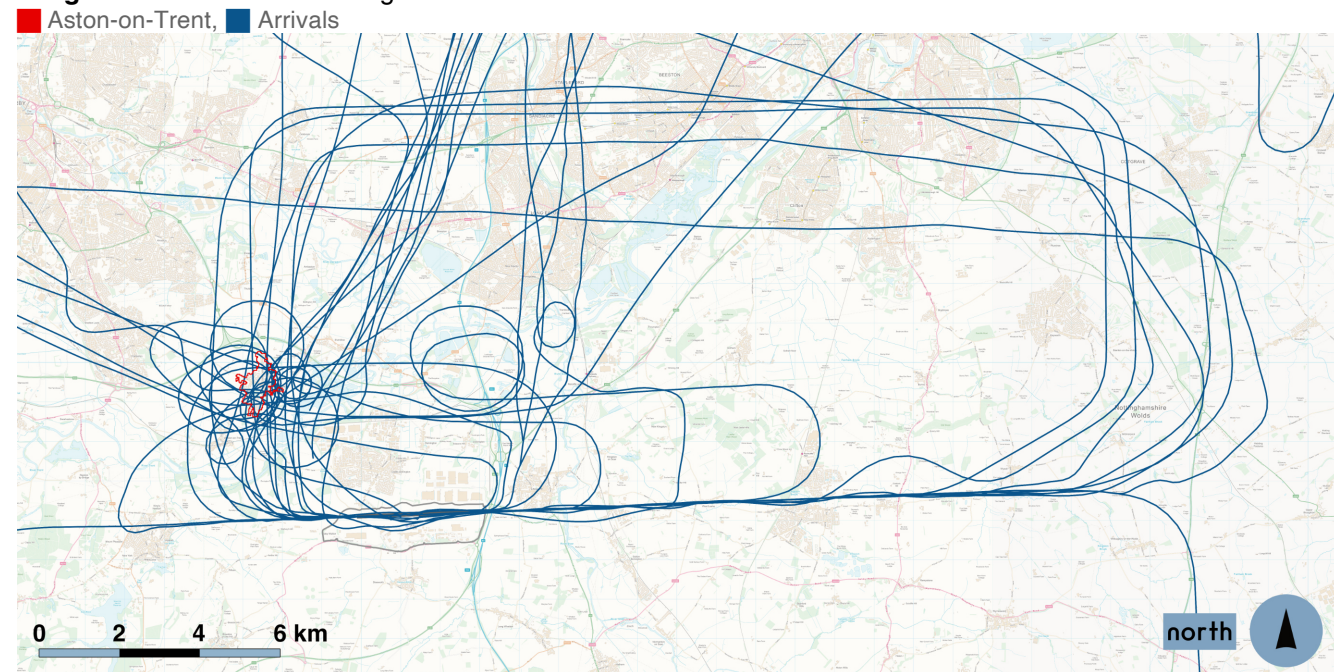
2.17 Flight tracks for the measured departures and arrivals can be seen in **Image 14** and **Image 15**.

**Image 14.** Measured departure flight tracks



Background map courtesy of Ordnance Survey

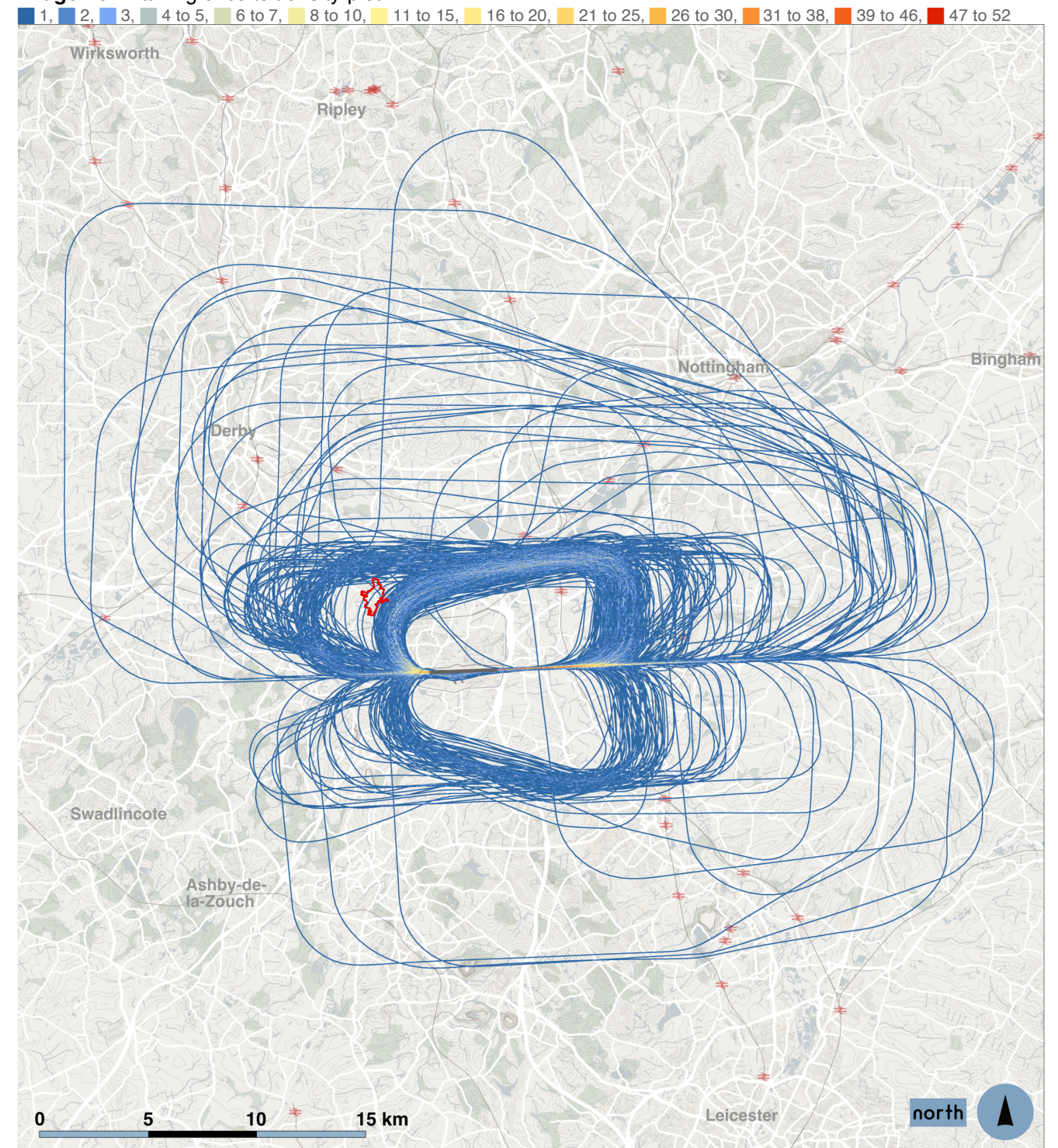
**Image 15.** Measured arrival flight tracks



Background map courtesy of Ordnance Survey

2.18 A density plot derived from flight track data for measured training flights can be seen in **Image 16**. These were derived by counting the number of flight tracks in cells of a 10x10 m grid.

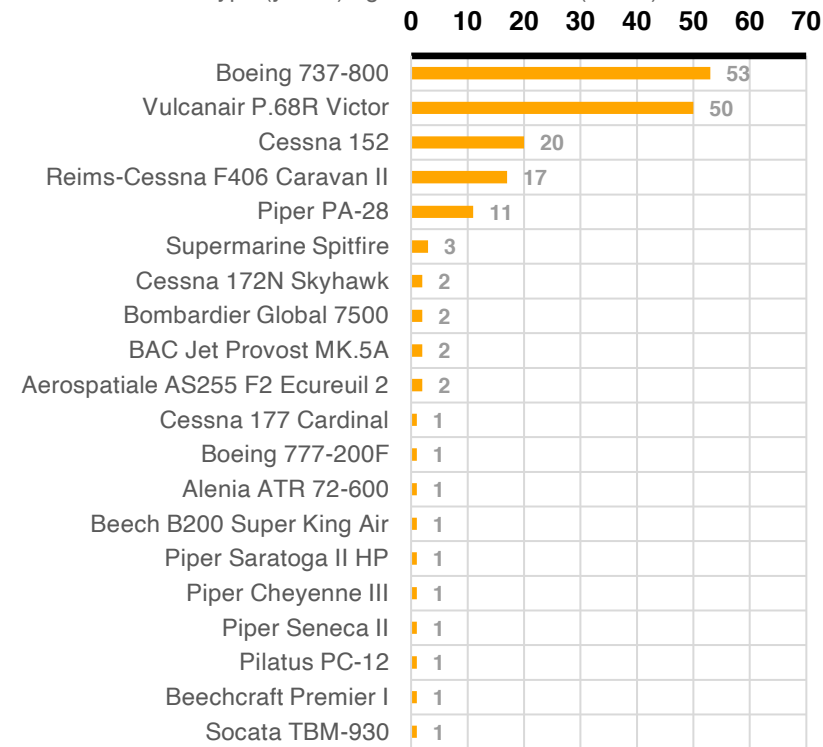
**Image 16.** Training circuits density plot



Background map courtesy of Ordnance Survey

**Image 17. Aircraft types**

In terms of aircraft type (y-axis) against occurrences (x-axis)



## 3.0 Aircraft Types and Operators

3.1 The aircraft types and operators measured by the monitor operating to and from East Midlands can be seen in **Image 17** and **Image 18** respectively. The number of different aircraft types and operators measured were as follows:

- Aircraft types: **21 different aircraft types**
- Operators: **13 different operators**

3.2 The main aircraft type and operator were as follows:

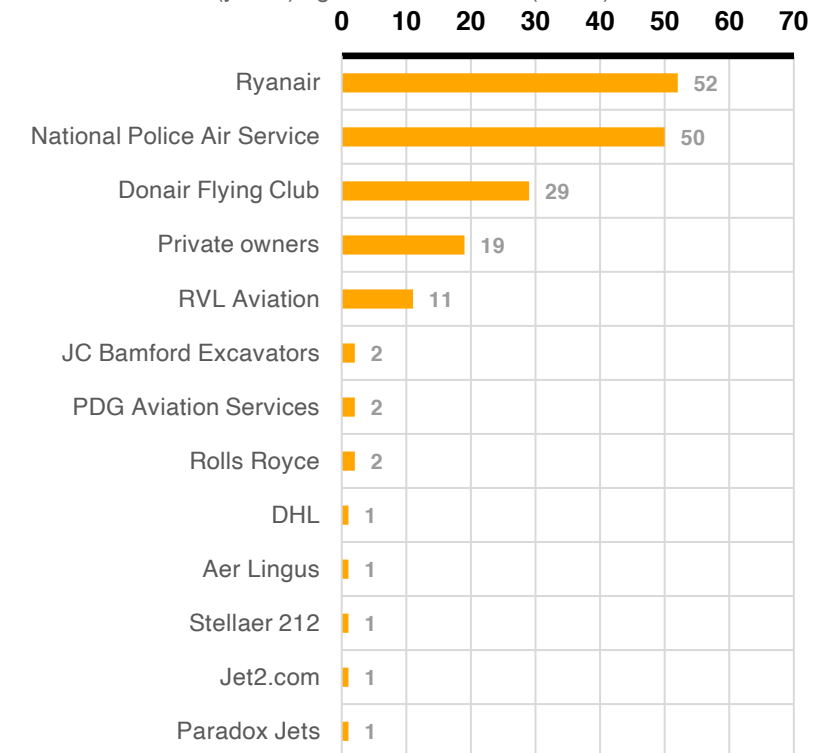
- Main aircraft: **Boeing 737-800**, 31% of movements.
- Main operator: **Ryanair**, 30 % of movements.

3.3 The *National Police Air Service* were the second most measured operator with 29% of movements. *Donair Flying Club* made up 17% of movements.

3.4 Three jet engine aircraft not undertaking training flights but captured by the monitor are expected to be go arounds. These movements were operated by *DHL*, *Aer Lingus* and *Jet2.com*. The flight paths can be seen in **Image 19**, **Image 20** and **Image 21**.

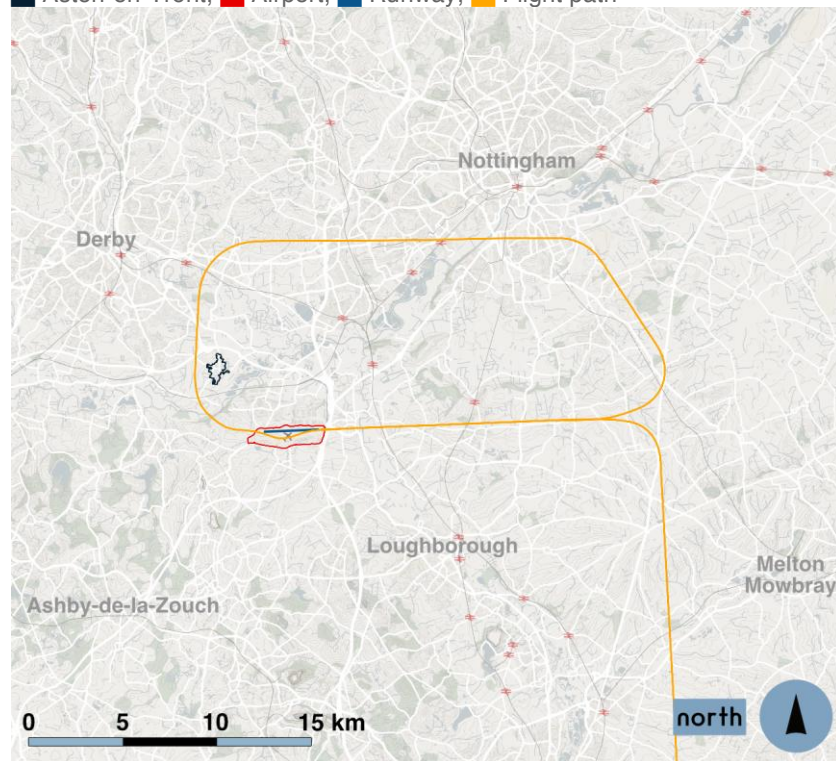
**Image 18. Aircraft operators**

In terms of airline (y-axis) against occurrences (x-axis)



**Image 19. Boeing 737-800 flight path operated by Jet2.com**

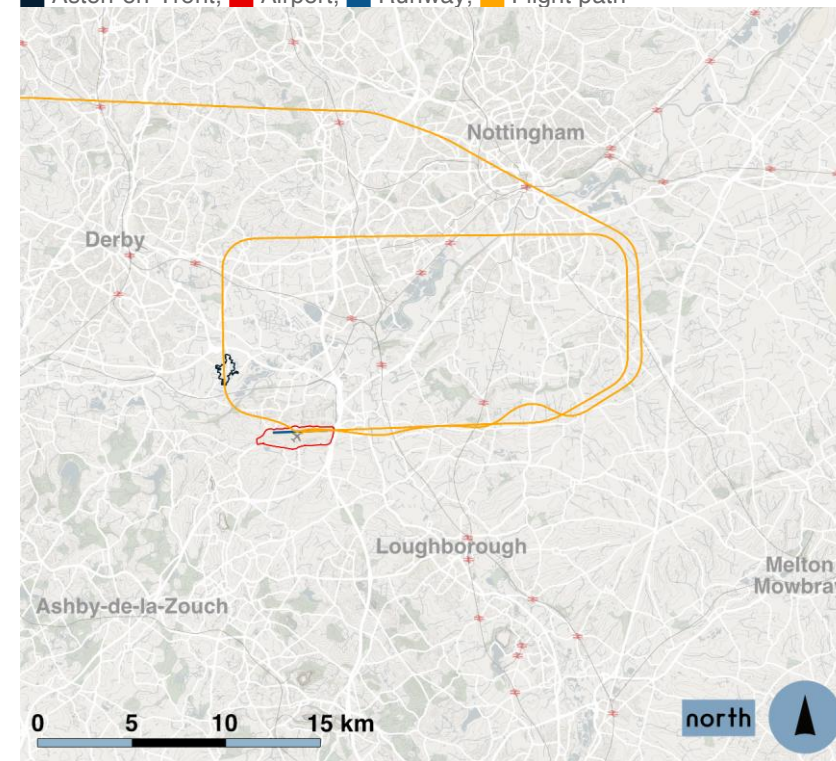
Legend: Aston-on-Trent, Airport, Runway, Flight path



Background map courtesy of Ordnance Survey

**Image 20. Alenia ATR 72-600 flight path operated by Aer Lingus**

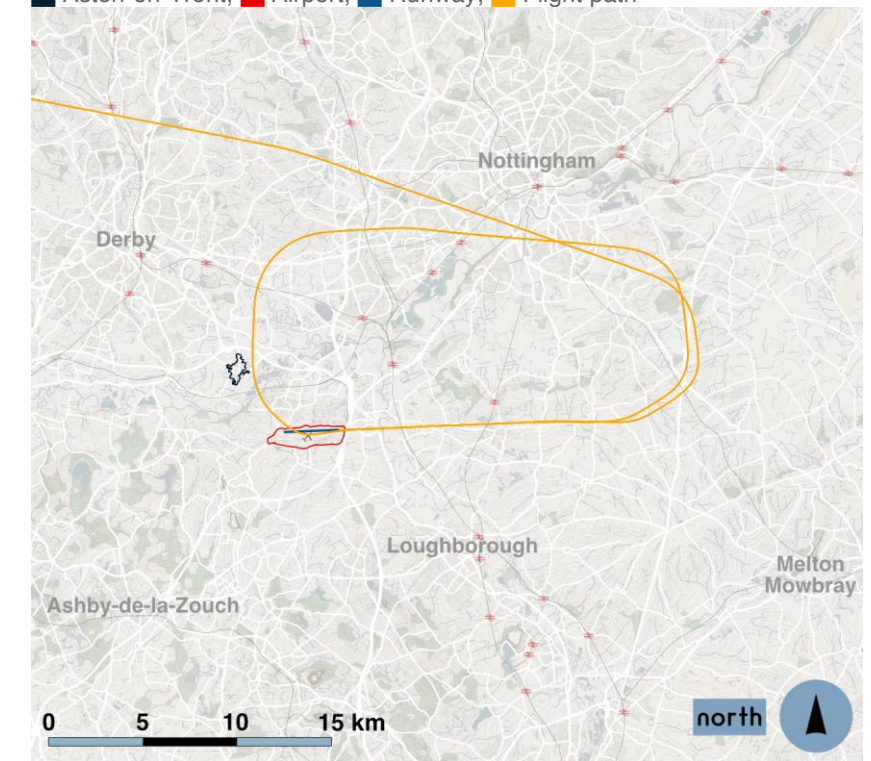
Legend: Aston-on-Trent, Airport, Runway, Flight path



Background map courtesy of Ordnance Survey

**Image 21. Boeing 777-200F flight path operated by DHL**

Legend: Aston-on-Trent, Airport, Runway, Flight path



Background map courtesy of Ordnance Survey

## 4.0 Measured Noise Levels

4.1 Results on this page omit movements during periods of adverse weather conditions and noise events that were identified as not being aircraft using audio recordings, as is described in **Appendix B**. Non-East Midlands movements are also not included.

### Ambient Noise Analysis

4.2 **Table 4** indicates the ambient noise levels over the monitoring period averaged over the whole summer period for both the daytime (0700-2300) and night-time (2300-0700).

4.3 Aircraft only noise levels:

- **35 dB(A) during the daytime**
- **34 dB(A) during the night-time**

4.4 Aircraft only noise levels are significantly less than ambient noise levels at the monitoring position and have negligible impact on the day and night-time noise levels in the area.

### Number Above Analysis

4.5 The N70, N65 and N60 Number Above contours relate to different noise impacts and simply apply when a maximum  $L_{Amax}$  noise level of an aircraft passby is registered as being above 70 dB(A), 65 dB(A) or 60 dB(A) respectively.

4.6 N70 and N65 apply during the daytime only and N60 applies during the night-time only.

4.7 The following number of events meeting or exceeding the relevant thresholds were measured:

- N70: **9 events** (2% of daytime movements)
- N65: **76 events** (18% of daytime movements)
- N60: **8 events** (80% of night-time movements)

4.8 **Table 5** shows these metrics over the summer period.

4.9 How these three metrics were spread across the summer period can be seen in **Image 22**, **Image 23** and **Image 24** as stacked bar graphs.

**Table 4** Aviation noise metrics, dB

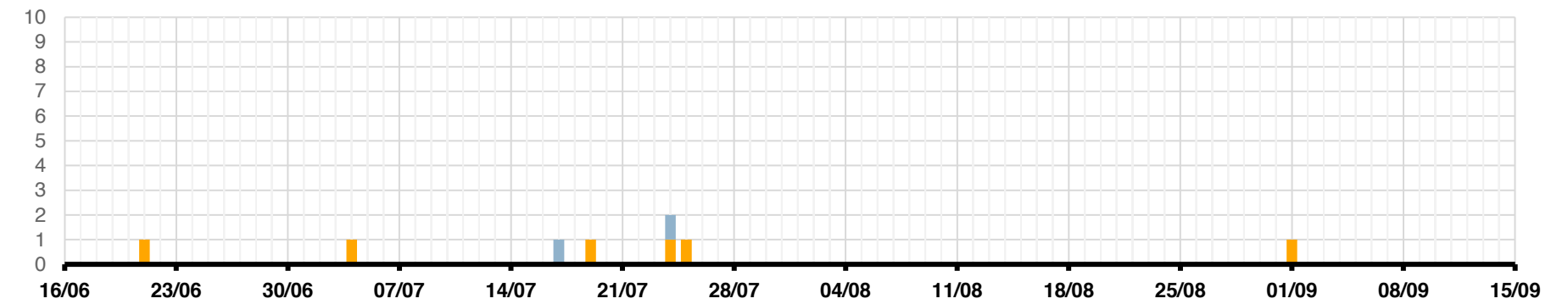
Metric	Measured Results	Without Aircraft	Aircraft Only
Daytime, $L_{Aeq,16hour}$	52	52	35
Night-time, $L_{Aeq,8hour}$	45	45	34

**Table 5** Number Above metrics

Metric	Daily Range
N70 (day)	0-2
N65 (day)	0-10
N60 (night)	0-6

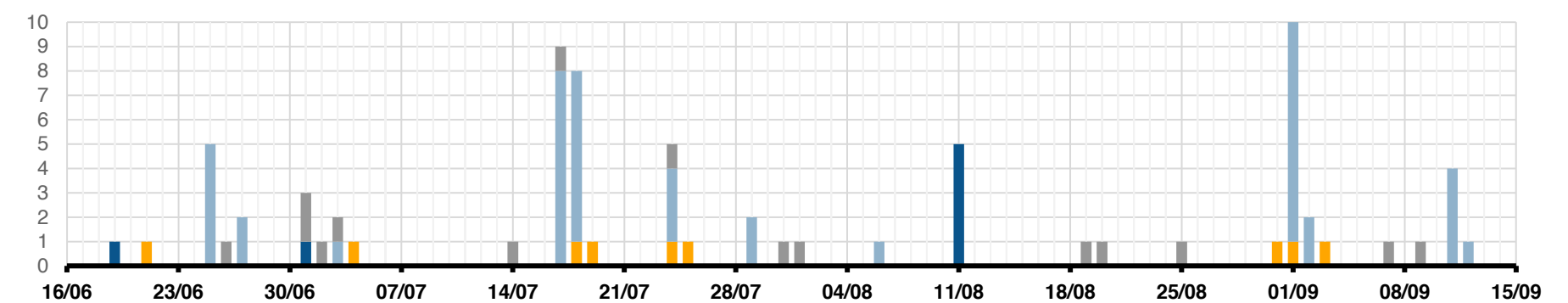
**Image 22.** N70 by day

Departures, Circuits in terms of occurrences (y-axis) per day (x-axis)



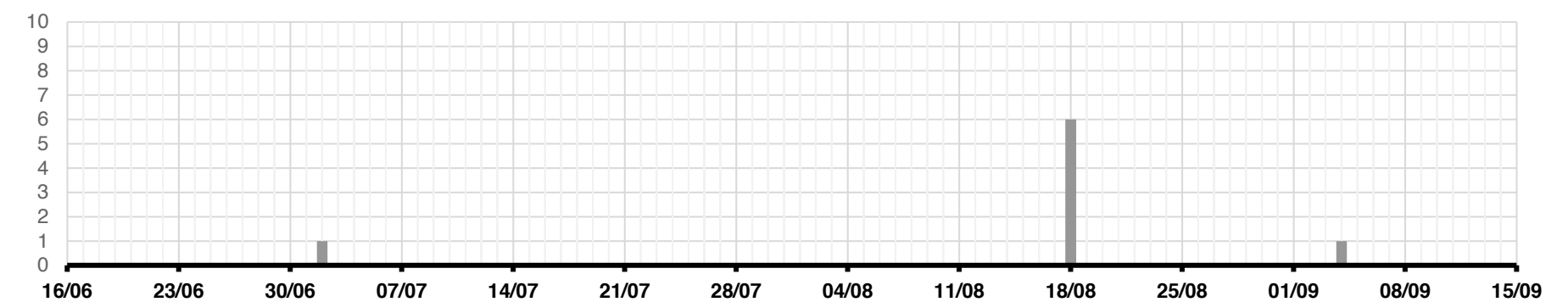
**Image 23.** N65 by day

Departures, Arrivals, Circuits, Other "T" movements in terms of occurrences (y-axis) per day (x-axis)



**Image 24.** N60 by night

Other "T" movements in terms of occurrences (y-axis) per day (x-axis)



## 5.0 Maximum Noise Levels

5.1 Results on this page omit movements during periods of adverse weather conditions and noise events that were identified as not being aircraft using audio recordings, as is described in **Appendix B**. Non-East Midlands movements are also not included.

5.2 The aircraft type with the highest noise levels on average are as follows along with the number of occurrences in brackets:

- **Departure,  $L_{Amax}$ :** 65 dB, Vulcanair P.68R (13)
- **Arrival,  $L_{Amax}$ :** 68 dB, Cessna 152 (8)
- **Circuit,  $L_{Amax}$ :** 63 dB, Boeing 737-800 (187)

5.3 All the above movements occurred during the daytime period.

5.4 Aircraft types that were captured less than five times throughout the summer period have not been considered within the above analysis.

5.5 The Boeing 737-800 was the only jet engine aircraft measured on the training circuits.

5.6 The single movement that produced the highest noise level over the monitoring period is as follows:

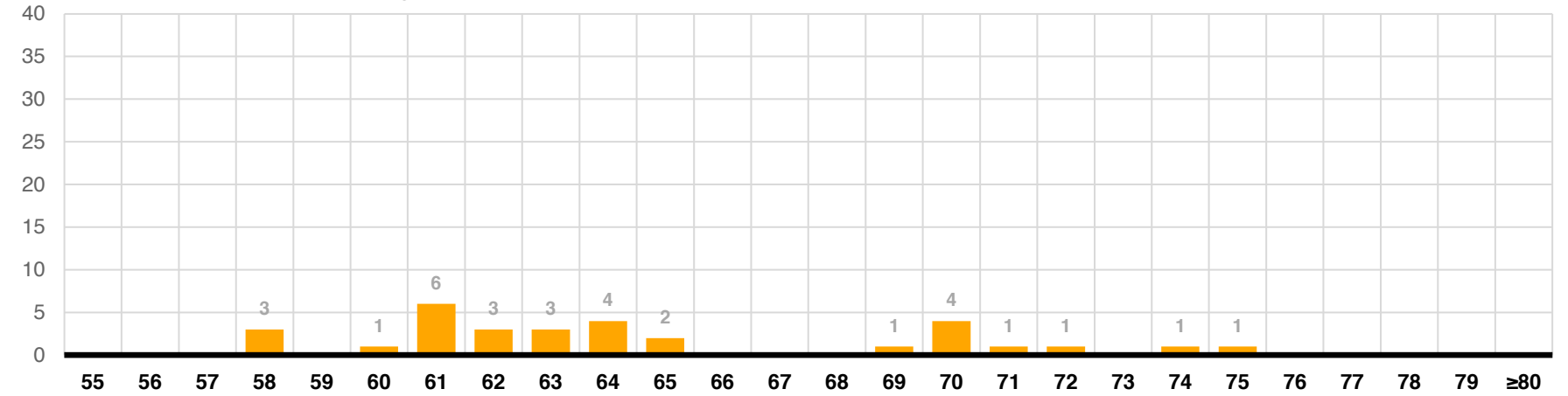
- **Departure,  $L_{Amax}$ :** 75 dB, Supermarine Spitfire
- **Arrival,  $L_{Amax}$ :** 68 dB, Cessna 152
- **Circuit,  $L_{Amax}$ :** 74 dB, Boeing 737-800

5.7 The above movements occurred during the daytime period.

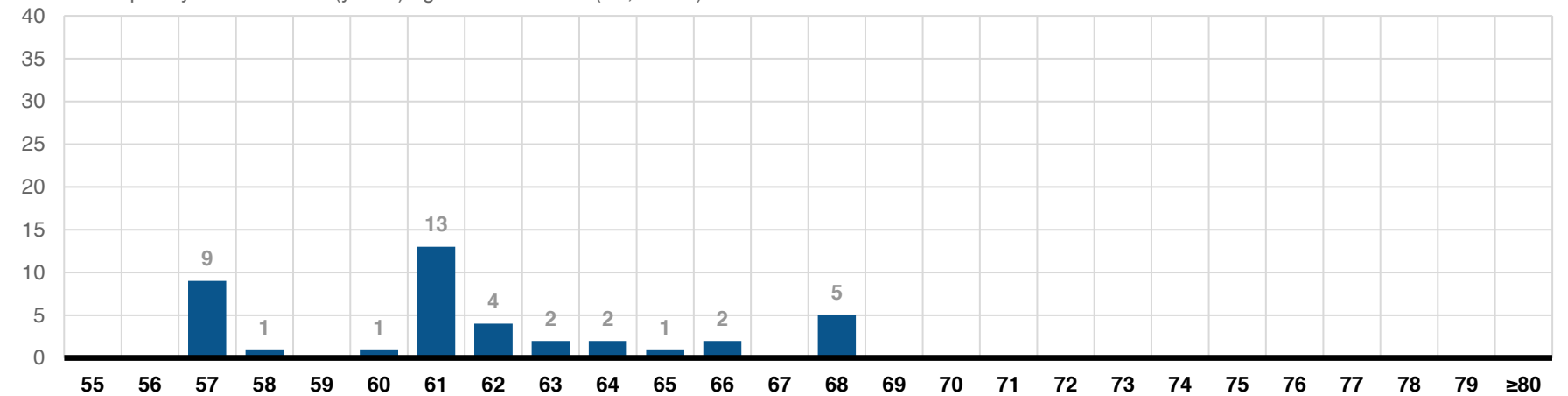
5.8 The Cessna 152 generating the highest noise level on arrival manoeuvred above the monitor for approximately five minutes before landing which generated five separate noise events.

5.9 **Image 25 to Image 27** show the distribution of departure, arrival and training circuit  $L_{Amax}$  noise events respectively throughout the 92-day summer period.

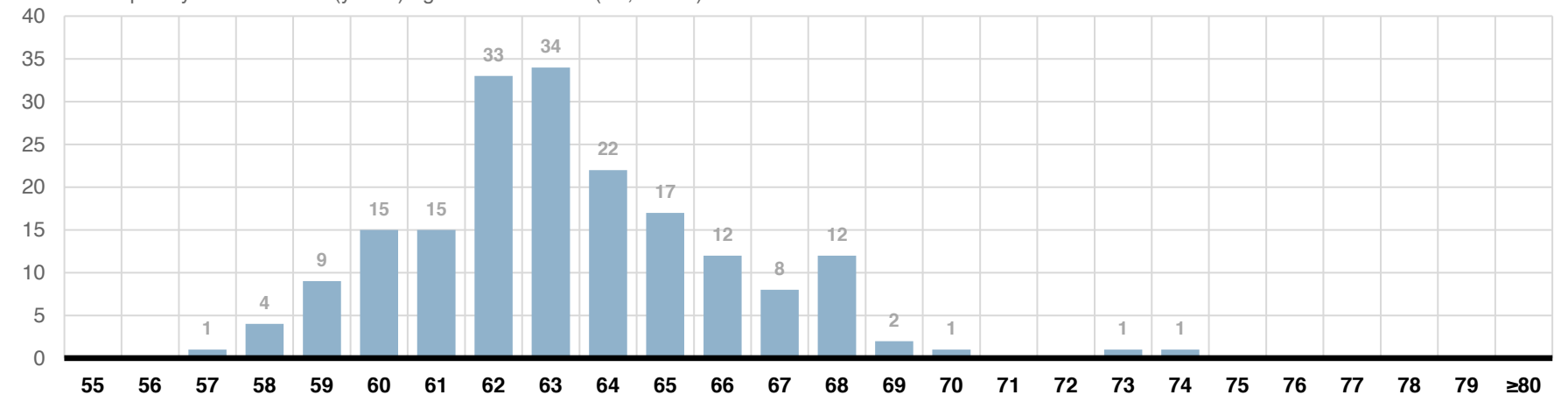
**Image 25.** Distribution of departure maximum noise events  
In terms of frequency occurrence (y-axis) against noise level (dB, x-axis)



**Image 26.** Distribution of arrival maximum noise events  
In terms of frequency of occurrence (y-axis) against noise level (dB, x-axis)



**Image 27.** Distribution of training circuit maximum noise events  
In terms of frequency of occurrence (y-axis) against noise level (dB, x-axis)

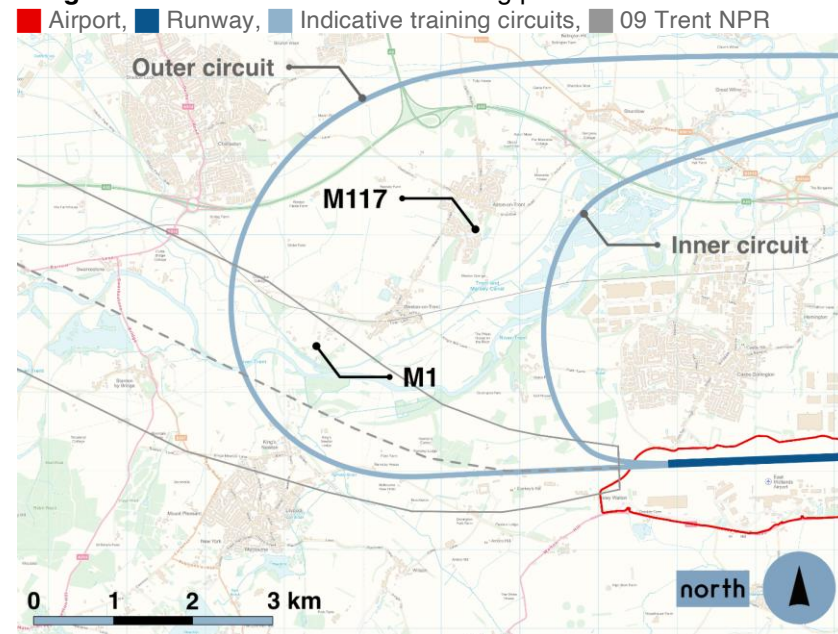


## 6.0 Weston-on-Trent Comparison

### Summary

6.1 East Midlands Airport has a permanent noise monitor, labelled as M1, in Weston-on-Trent approximately 2.5 km to the southwest of M117. The locations of M1 and M117 in relation to each other and the Airport can be seen in **Image 28**.

**Image 28.** Location of the two monitoring positions



6.2 Suono report 27BA.RP.12 provides further details on noise monitoring undertaken during the summer period at M1 in Weston-on-Trent. This page provides a comparison between noise levels monitored at positions M1 and M117.

6.3 The following list provides a summary of the comparisons:

- Aston-on-Trent experienced fewer movements, but more training circuits compared to Weston-on-Trent.
- Aircraft only noise levels are materially lower in Aston-on-Trent compared to Weston-on-Trent.

### Movements Comparison

6.4 **Table 6** compares the number of movements recorded by both monitors.

**Table 6** Comparison between number of movements

Departures	Arrivals	“T Movements”	Circuits
<i>M117, Aston-on-Trent</i>			
34	24	114	197
<i>M1, Weston-on-Trent</i>			
1,579	87	77	147

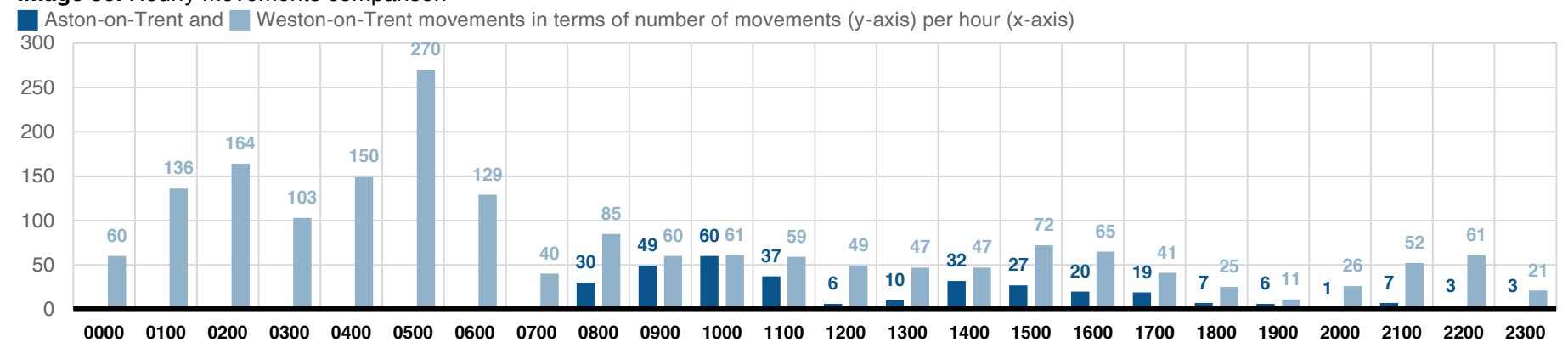
6.5 Training circuits was the main operation over Aston-on-Trent. 25% fewer training circuits flew over Weston-on-Trent which is demonstrated on the training circuits density plot in the previous **Image 16** on page 4.

6.6 The main operation over Weston-on-Trent was departures. This is due to the location of the Trent Noise Preferential Route (NPR) which is shown on **Image 28**. The indicative northern training circuits are also shown.

6.7 The following comparisons of aircraft types and airlines can be drawn:

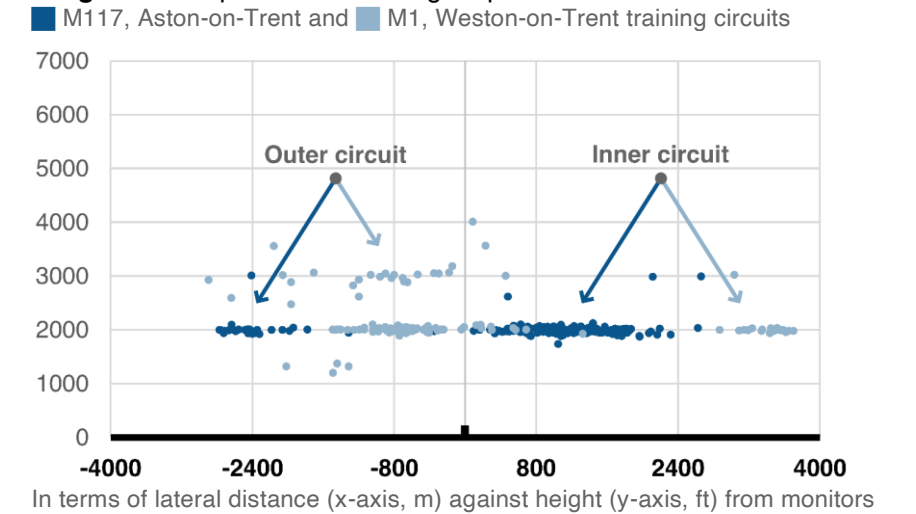
- **Measured aircraft types**  
21 over Aston-on-Trent compared with 73 over Weston-on-Trent
- **Measured operators**  
13 over Aston-on-Trent compared with 75 over Weston-on-Trent

**Image 30.** Hourly movements comparison



6.8 A comparison between the locations of training circuits through the gates in relation to the noise monitors can be seen in **Image 29**.

**Image 29.** Comparison between gate penetration location



6.9 M117 measured more movements on the inner training circuit compared to the outer circuit and M1 measured more movements on the outer circuit compared to the inner circuit.

6.10 Jet engined aircraft on the training circuits were predominantly measured at approximately 2000 ft above both M1 and M117.

6.11 **Image 30** provides a comparison of hourly movements between the two locations.

6.12 There are much more night-time operations over Weston-on-Trent compared to Aston-on-Trent due to departures on the 09 Trent NPR.

## Measured Noise Level Comparison

6.13 A comparison of measured noise levels is shown in **Table 7**.

**Table 7** Noise level comparison

Location	Measured Results	Without Aircraft	Aircraft Only
<i>Daytime, <math>L_{Aeq,16hour}</math></i>			
<b>M117, Aston-on-Trent</b>	52	52	35
<b>M1, Weston-on-Trent</b>	53	52	45
<i>Night-time, <math>L_{Aeq,8hour}</math></i>			
<b>M117, Aston-on-Trent</b>	45	45	34
<b>M1, Weston-on-Trent</b>	52	45	51

6.14 'Without aircraft' noise levels are the same at both M1 and M117.

6.15 During the daytime, 'aircraft only' noise levels are comfortably lower than other sources affecting the noise climate at both positions on average over the summer period.

6.16 During the night-time, 'aircraft only' noise levels are again comfortably lower than other sources affecting the noise climate at M117 and are the dominant source affecting the noise climate at M1 due to night-time departures over the Weston-on-Trent monitor.

6.17 This material difference in aircraft only noise levels between the two positions demonstrates the positive impact that the 09 Trent NPR has by avoiding built up areas as much as possible.

## Aircraft Noise Level Comparison

6.18 A comparison between number above metrics can be seen in **Table 8**.

**Table 8** Number above metric daily range comparison

Location	N70 (Day)	N65 (Day)	N60 (Night)
<b>M117, Aston-on-Trent</b>	0-2	0-10	0-6
<b>M1, Weston-on-Trent</b>	0-11	0-26	0-20

6.19 The Number Above values are elevated over Weston-on-Trent compared to Aston-on-Trent which is consistent with the number of movements above each location.

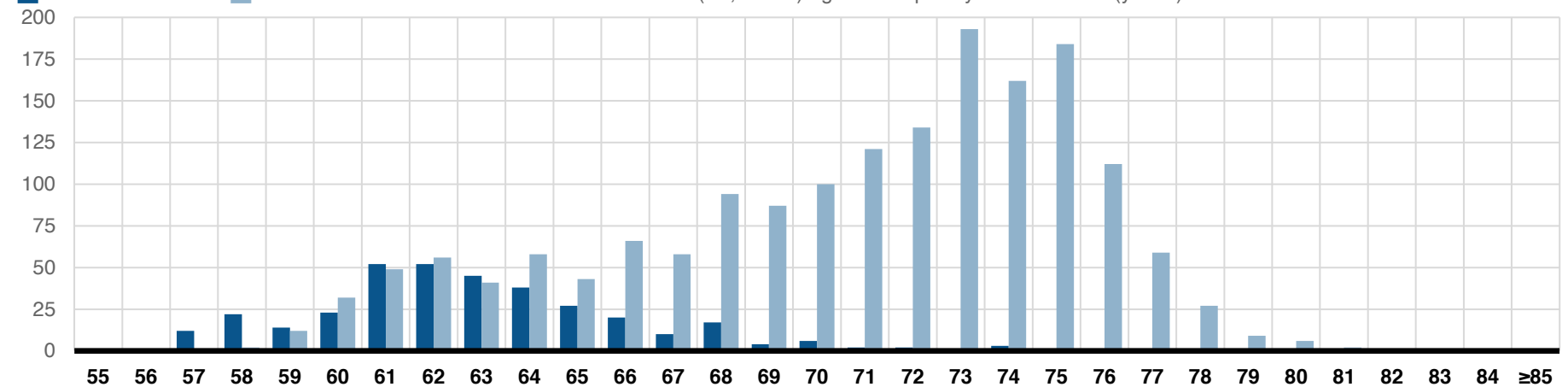
6.20 A comparison between the distribution of aircraft  $L_{Amax}$  noise levels for all measured movements excluding those not associated with East Midlands Airport can be seen in **Image 31**.

6.21 **Image 32** provides a comparison between the distribution of aircraft  $L_{Amax}$  noise level for training circuits only. It is important to note the difference in y-axis scales across the two graphs on this page.

6.22 Overall, training circuit noise levels are slightly lower at the monitor in Aston-on-Trent compared with those at the monitor in Weston-on-Trent. This slight difference is due to the monitors proximities to the circuit routes; M117 is approximately 1.1 km to the nearest indicative circuit loop centre (the inner loop) whilst M1 is approximately 1.0 km to the nearest indicative circuit loop centre (the outer loop).

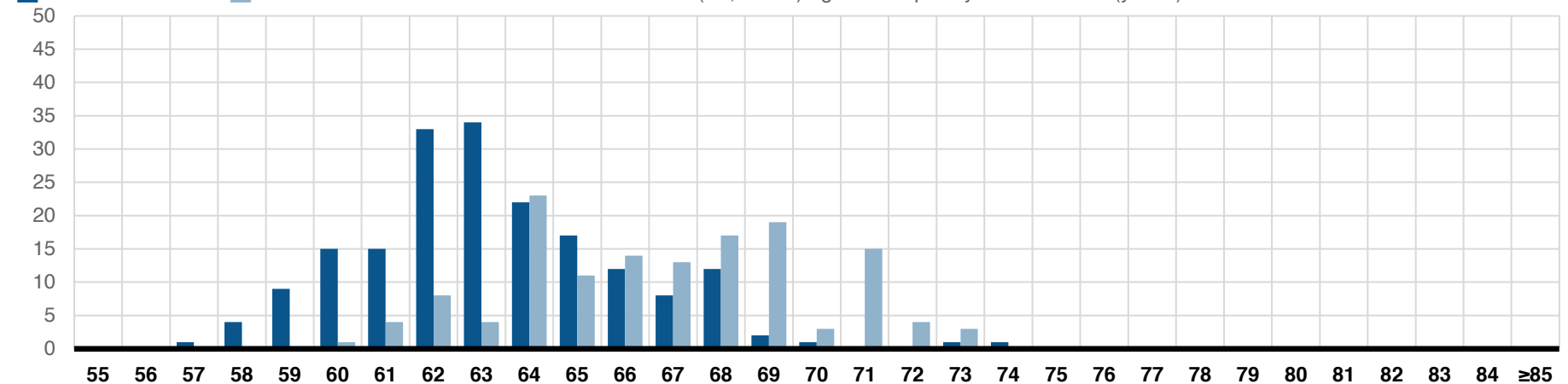
**Image 31.** Comparison between  $L_{Amax}$  noise level distribution of all movements

■ Aston-on-Trent and ■ Weston-on-Trent events in terms of noise level (dB, x-axis) against frequency of occurrence (y-axis)



**Image 32.** Comparison between  $L_{Amax}$  noise level distribution of training circuits only

■ Aston-on-Trent and ■ Weston-on-Trent events in terms of noise level (dB, x-axis) against frequency of occurrence (y-axis)



## Appendix A: Glossary

### Acoustic Aviation Terms

#### Annoyance

The principal health effect relating to daytime (7 am to 11 pm) aircraft noise, where someone is to some extent bothered, annoyed or disturbed.

#### Sleep disturbance

The health effect relating to night-time (11 pm to 7 am) aircraft noise, usually taken to be where someone experiences an awakening.

#### Summer 92-day period

16<sup>th</sup> June to 15<sup>th</sup> September inclusive, representing the busiest period of activity at UK airports.

#### Shoulder periods

The time period either immediately before (6 am to 7 am) or after (11 pm to 11:30 pm) the daytime.

#### Noise contour

A line around an airport where all points on the line have the same noise level, representing a particular metric.

#### ANOMS

The Airport Noise and Operations Monitoring System. ANOMS collects data from the airport's noise monitors and radar systems to correlate noise levels and physical locations for individual flights. Weather and flight data are also collected.

#### NPR

Noise Preferential Routes are established departure routings that aircraft must follow, unless extenuating circumstances apply (such as being instructed otherwise by Air Traffic Control for safety reasons or due to inclement weather).

#### 'Touch and Go' or 'Go Around'

A manoeuvre where an aircraft lands on the runway and then takes back off again in one motion. It is typically undertaken in training but can also be used during an aborted landing.

#### Training flights

Training flights are the operation of an aircraft for training purposes, this can be one training circuit or many circuits.

#### Training circuit

A singular loop of the track flown that is usually repeated a number of times to make up a training flight.

### Noise Metrics and Indices

#### $L_{Aeq,T}$

The hypothetical steady sound, containing (or equivalent to) the same sound energy as the actual fluctuating sound over the chosen measurement period,  $T$ .

#### $L_{Aeq,16hour}$

The equivalent sound level over a 16-hour day (7 am to 11 pm) calculated using the average movements over the daytime summer 92-day period. The metric recognised by the UK government for making evidence-based decisions, due to it correlating best with annoyance.

#### $L_{Aeq,8hour}$

The equivalent sound level over an 8-hour night (11 pm to 7 am) calculated using the average movements over the night-time summer 92-day period.

#### Number Above (Nx)

The number of aircraft events generating noise levels above  $x$  dB  $L_{Amax,s}$  (typically 65 or 70 dB during the day and 60 dB at night). A useful communication metric as it correlates well to annoyance.

#### $L_{Amax,s}$

Simply the highest measured noise level during an aircraft event, with the sound monitoring equipment taking a measurement every one second (known as a slow response). All references to  $L_{Amax}$  in this report refer to  $L_{Amax,s}$ , unless otherwise stated.

### Other Terms

#### CAA

The UK Civil Aviation Authority.

#### ERCD

The Environmental Research and Consultancy Department of the CAA.

#### ERCD Report 0904

Metrics for Aircraft Noise, published by CAA, 2009.

#### CAP1506

Survey of Noise Attitudes (SoNA), published by CAA, 2021.

#### ANIS1982

A previous study comparable to that in CAP1506, and is useful for showing how UK noise attitudes have changed over time.

#### CAP2161

Survey of Noise Attitudes: Aircraft noise and sleep disturbance, published by CAA, 2021.

#### CAP1767

An investigation into the influence of background ambient noise levels on attitudes to aircraft noise, published by CAA, 2019.

#### Noise Action Plan

East Midlands Airport Noise Action Plan 2024-2028.

## Appendix B: Survey Data

### Noise Data

Noise data collected by the monitoring position is presented in this appendix using the  $L_{Aeq,1hour}$  metric. A 1-hour period shows how noise levels change hour by hour, allowing for greater inspection than longer period metrics.

Three values are presented, all of which are calculated by the monitoring equipment software. All are measured in dB  $L_{Aeq,1hour}$  and are:

- Total noise level – all noise measured by the monitoring position uncorrected. Presented as continuous black line.
- Without aircraft noise level – total noise level minus any influence from correlated aircraft events. Representative of community noise levels if aircraft noise was not present. Presented as dashed grey line.
- Aircraft only noise level – the difference between total and community noise levels. Representative of noise purely from correlated aircraft events. Presented as continuous orange line.

### Weather Data and Omitted Data

Weather data has been provided alongside the noise data. East Midlands Airport has two weather monitors, with data provided being that from Weather Monitor 2, as this station measures rainfall.

Wind speed (knots), wind direction (degrees) and rainfall (inches) have been provided for the survey duration for every 15-minute period.

We have condensed this data down into 3-hourly periods, by averaging the wind speed and direction and summing the rain.

Multiple periods of data have been omitted from noise analysis due to weather, where material rainfall or wind speeds are present and had the potential to contaminate the data.

Using audio recordings of each measured event, data has been omitted from noise analysis where the event was not caused by aircraft such as lawn mowers.

### Correlated Event Data

Correlated aircraft events are those where an increase in noise level corresponds to a movement passing through the gate.

The noise monitor in Aston-on-Trent was triggered when levels met or exceeded 55 dB(A).

The data presented below shows the number of correlated events that have occurred in each hour of monitoring, split by arrivals and departures.

Non-East Midlands activity has also been included to provide context where there is an increase in 'aircraft only' noise levels with no East Midlands movement present.

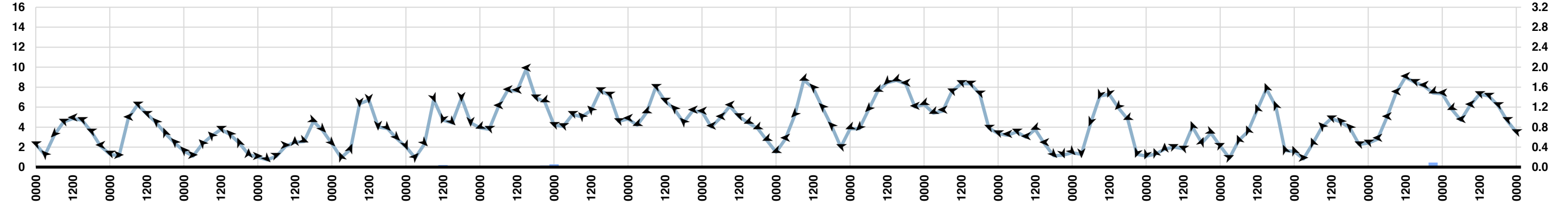
Inclusion of these correlated events allows for the weather and noise data to be compared, when looking at which direction the runway is operating in, as well as how movements are split by hour and day.

## Survey Data: 16 June to 5 July 2025

Data presented at intervals available against date and time (hhmm, x-axis)

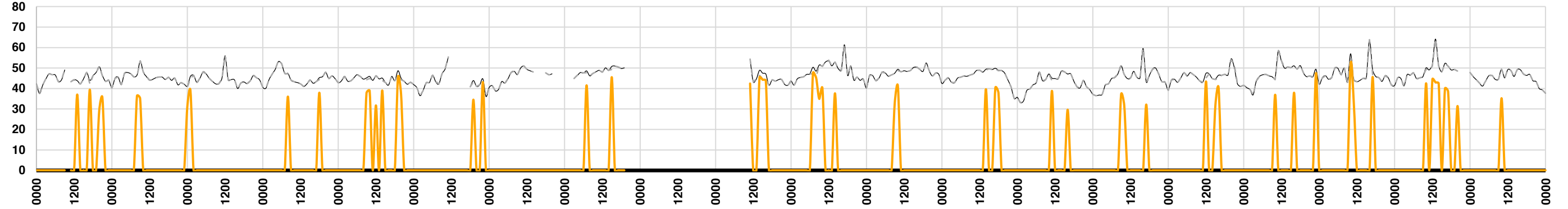
### Weather Data

^ Wind direction (with top of page being north), Wind Speed (knots, left y-axis), Rainfall (inches, right y-axis)



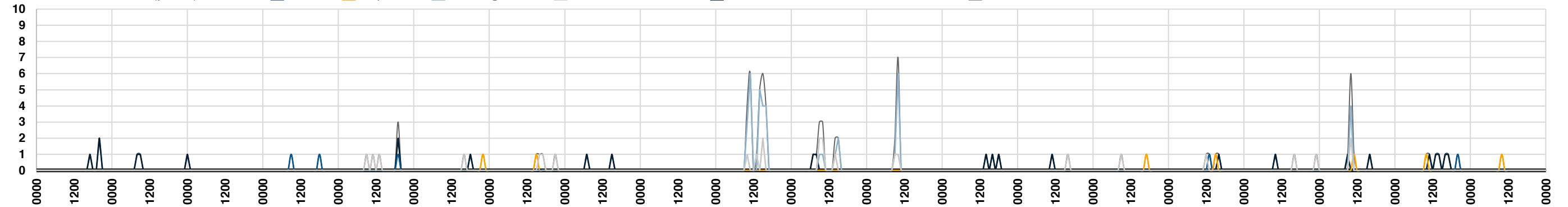
### Noise at Monitoring Position (117)

Sound pressure level (dB, y-axis) in terms of total  $L_{Aeq,1hour}$ , without aircraft  $L_{Aeq,1hour}$ , and aircraft only  $L_{Aeq,1hour}$



### Correlated Aircraft Events

Number of movements (y-axis) in terms of Arrivals, Departures, Training circuits, Other "T" movements, Not associated with East Midlands and All movements

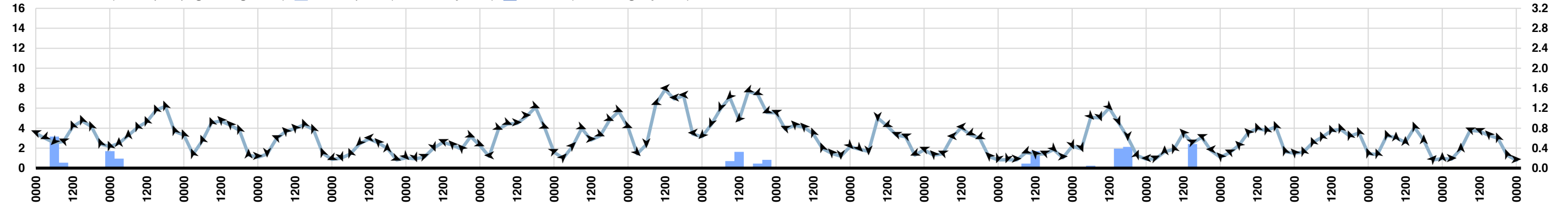


## Survey Data: 6 July to 25 July 2025

Data presented at intervals available against date and time (hhmm, x-axis)

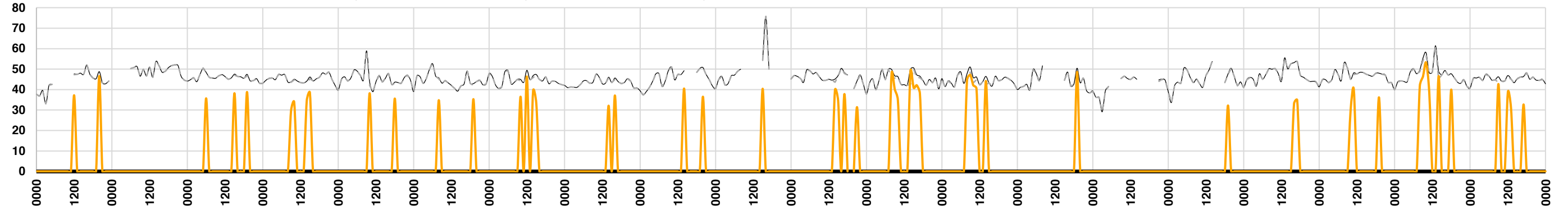
### Weather Data

^ Wind direction (with top of page being north), Wind Speed (knots, left y-axis), Rainfall (inches, right y-axis)



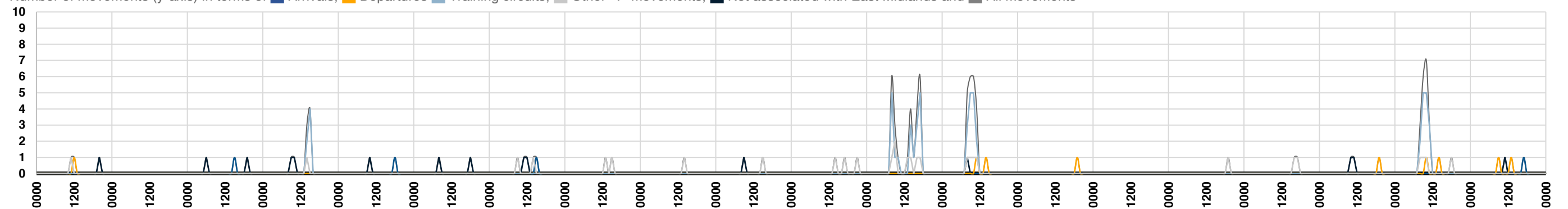
### Noise at Monitoring Position (117)

Sound pressure level (dB, y-axis) in terms of total  $L_{Aeq,1hour}$ , without aircraft  $L_{Aeq,1hour}$ , and aircraft only  $L_{Aeq,1hour}$



### Correlated Aircraft Events

Number of movements (y-axis) in terms of Arrivals, Departures, Training circuits, Other "T" movements, Not associated with East Midlands and All movements

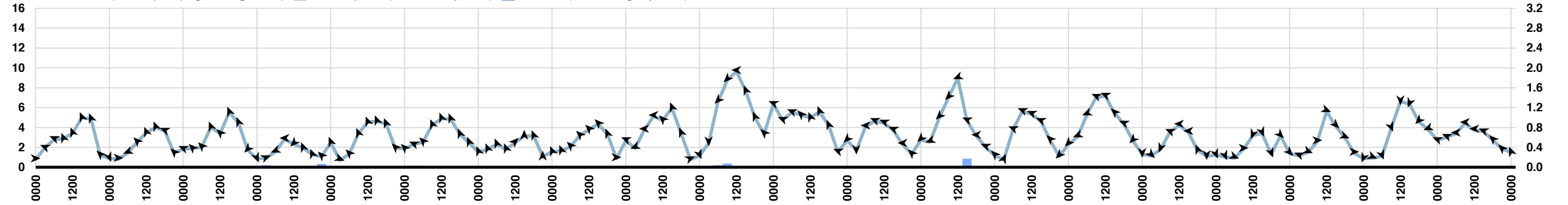


## Survey Data: 26 July to 14 August 2025

Data presented at intervals available against date and time (hhmm, x-axis)

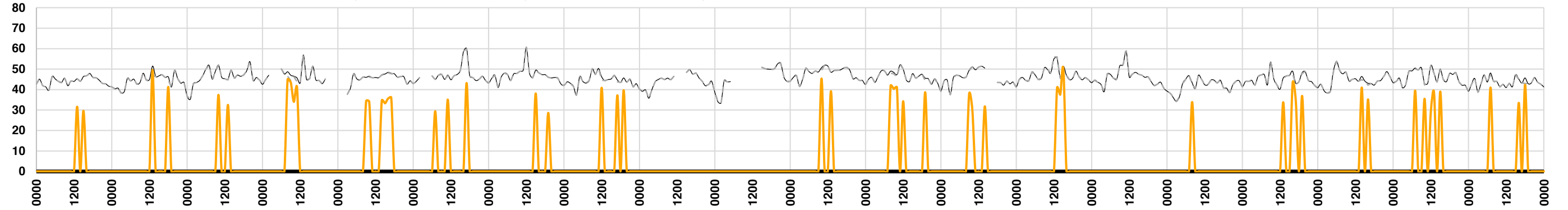
### Weather Data

^ Wind direction (with top of page being north), Wind Speed (knots, left y-axis), Rainfall (inches, right y-axis)



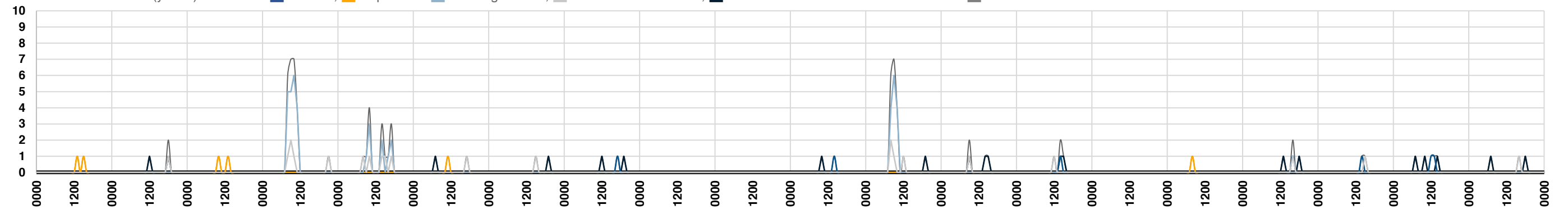
### Noise at Monitoring Position (117)

Sound pressure level (dB, y-axis) in terms of total  $L_{Aeq,1hour}$ , without aircraft  $L_{Aeq,1hour}$ , and aircraft only  $L_{Aeq,1hour}$



### Correlated Aircraft Events

Number of movements (y-axis) in terms of Arrivals, Departures, Training circuits, Other "T" movements, Not associated with East Midlands and All movements

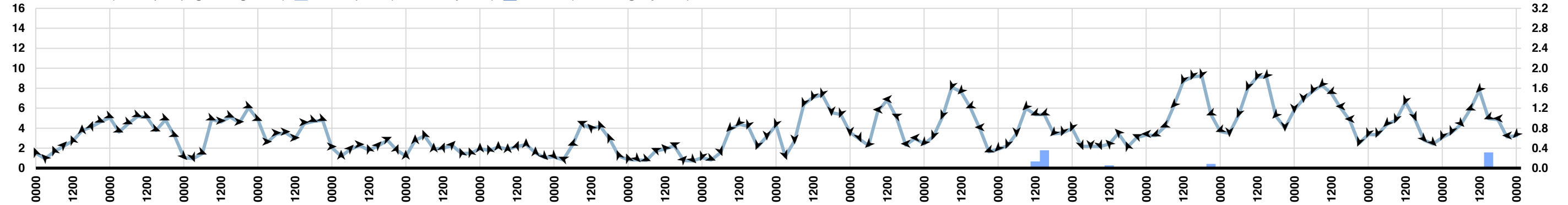


## Survey Data: 15 August to 3 September 2025

Data presented at intervals available against date and time (hhmm, x-axis)

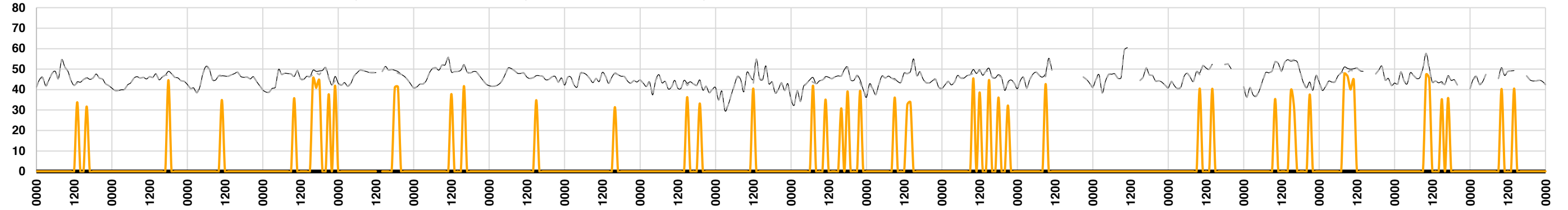
### Weather Data

^ Wind direction (with top of page being north), Wind Speed (knots, left y-axis), Rainfall (inches, right y-axis)



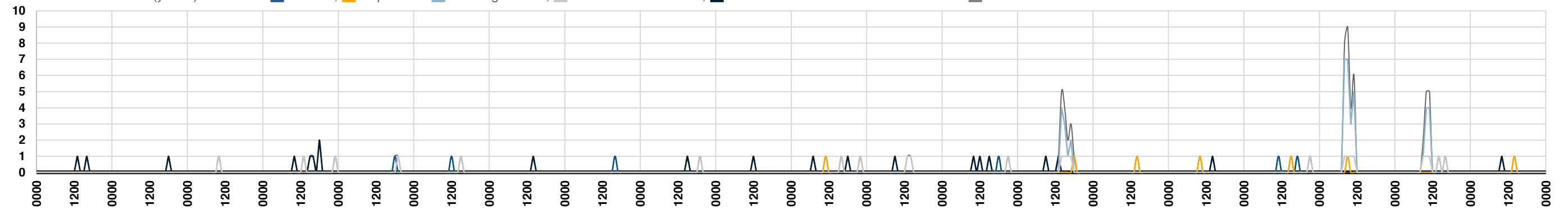
### Noise at Monitoring Position (117)

Sound pressure level (dB, y-axis) in terms of total  $L_{Aeq,1hour}$ , without aircraft  $L_{Aeq,1hour}$ , and aircraft only  $L_{Aeq,1hour}$



### Correlated Aircraft Events

Number of movements (y-axis) in terms of Arrivals, Departures, Training circuits, Other "T" movements, Not associated with East Midlands and All movements

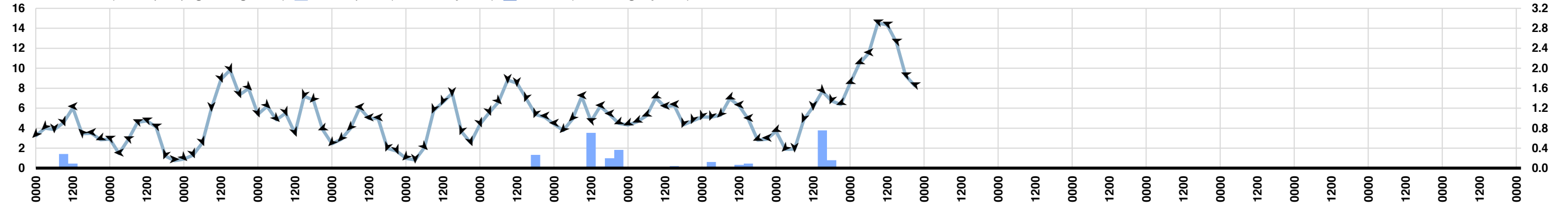


## Survey Data: 4 September to 15 September 2025

Data presented at intervals available against date and time (hhmm, x-axis)

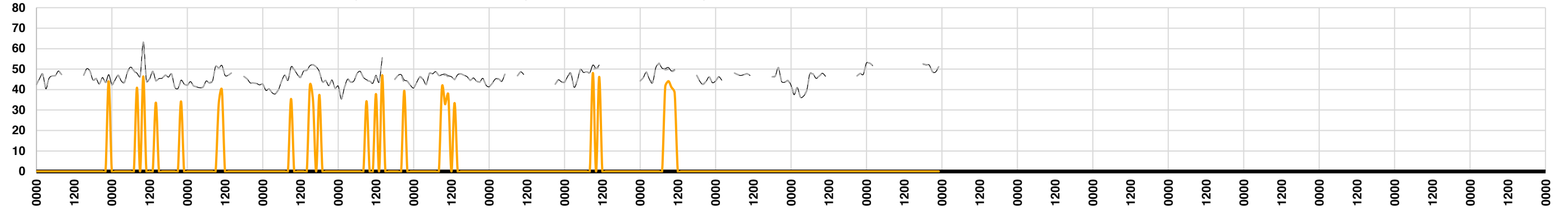
### Weather Data

^ Wind direction (with top of page being north), Wind Speed (knots, left y-axis), Rainfall (inches, right y-axis)



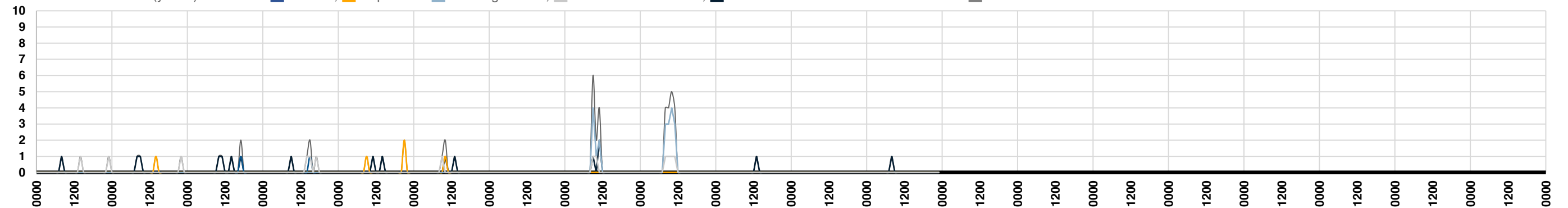
### Noise at Monitoring Position (117)

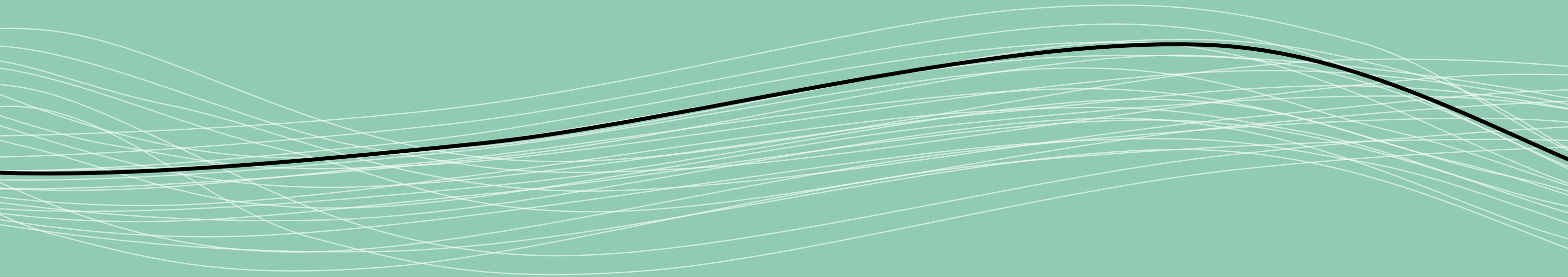
Sound pressure level (dB, y-axis) in terms of total  $L_{Aeq,1hour}$ , without aircraft  $L_{Aeq,1hour}$ , and aircraft only  $L_{Aeq,1hour}$



### Correlated Aircraft Events

Number of movements (y-axis) in terms of Arrivals, Departures, Training circuits, Other "T" movements, Not associated with East Midlands and All movements





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