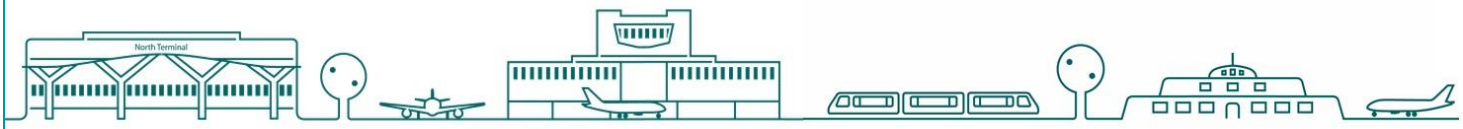
Gatwick Airport
Flight Performance Team
Annual Report 2015

This report covers the period
(1st January 2015 – 31st December 2015)



YOUR LONDON AIRPORT
Gatwick

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About Gatwick Airport

Gatwick is the UK's second busiest airport and the busiest point-to-point airport in Europe, with around 45 airlines flying to more than 200 destinations. Its continued growth has ensured the airport remains a major employer and a cornerstone of the local, regional and national economy. Our ambition is to compete to grow and become London's airport of choice, by delivering great service to passengers and investing in new facilities.

We believe this will enable Gatwick to continue to grow to serve around 40 million passengers each year over the next decade. We also acknowledge that communities close to a busy international airport can be adversely affected by aircraft noise and therefore, where possible, we continue to work to lessen this impact.

Noise matters to us and we aim to be a good neighbour. Gatwick Airport sets noise targets each year to manage noise; these are published in our annual Corporate Responsibility, Decade of Change and Flight Performance Team reports together with our noise related key performance indicators. We have a full and comprehensive range of noise management and mitigation measures already in place.

With the introduction of new aircraft types, the noise footprint generated by aircraft operations has reduced in area as older, noisier types of aircraft have been withdrawn. While Gatwick Airport continues to grow, the airport operation strives to minimise its noise impact on the surrounding area and continues to engage with those affected communities in identifying innovative means of mitigation.

ABOUT THIS REPORT

This report contains information on aircraft activity at the Airport and includes details of our performance against a number of noise mitigation measures detailed in the UK Aeronautical Information Publication (AIP). In addition, it also includes data on airfield performance, a report on night flights, an update on the community noise monitoring programme and an analysis of complaints received during the period.

Gatwick's Framework for Noise Management

REGULATION

Gatwick Airport is a designated airport, so the Government sets the policy framework which influences how the airport responds to aircraft noise issues. In addition, the airport has its own strategy for mitigating the impact of its aircraft operations on the local community.

These restrictions, set by the Department of Transport (DfT), are detailed in the UK Aeronautical Information Publication (AIP). At Gatwick, it is the responsibility of the Flight Performance Team to monitor and report on the adherence to these rules.

The airport also works with in an international framework. The International Civil Aviation Organisation (ICAO) is the international regulator of aviation. One of its main activities is to establish international standards, recommend practices and procedure regarding technical issues of aviation, including noise. ICAO has set progressively tighter certification standards for noise emissions and aircraft operating in member states must conform to these standards.

FLIGHT PERFORMANCE TEAM

This Flight Performance Team (FPT) monitors operational performance for all Gatwick traffic on issues such as noise, track keeping and continuous descent operations (CDO).

The team is also responsible for recording investigating and responding to aircraft noise complaints as well as monitoring airline compliance against noise mitigation measures as detailed in the UK (AIP). In order to facilitate this work, the airport

invests over £200,000 a year on noise monitoring. This includes a sophisticated Noise and Track keeping system called CASPER that combines radar input from Air traffic Control with data from our noise detection network of fixed and mobile monitors placed around the airport. The FPT actively engages with our airlines to improve their adherence to the noise mitigation measures and, in addition, manages the night-time restrictions on flying at Gatwick. The team regularly reports to the airport's Flight Operations Performance and Safety Committee (FLOPSC) and to the airport's Noise and Track Advisory Monitoring Group (NATMAG).

NOISE AND TRACK KEEPING SYSTEM

The CASPER Noise and Track Keeping system monitors all aircraft traffic within a 30 miles radius of the airport, up to 40,000 feet, and automatically records any infringements of the departure noise limits, deviations from the departure flightpaths, as well as monitoring adherence to our other noise mitigation measures.

In 2014, we introduced a new tool called Noise Lab which provides data on aircraft noise recorded at a wide range of sites around the airport. It also has an animation that illustrates the complexity of aircraft routes throughout Western Europe and the UK and includes a flight tracking tool for Gatwick aircraft. All this can be found on our website www.gatwickairport/noise.

FLOPSC

FLOPSC is made up of representatives from the airport's operations team, the Flight Performance Team, our airlines, the Department for Transport (DfT), and NATS. It meets on a bi-monthly basis throughout the year to review operational performance, adherence to noise and track keeping rules and to share best practice.

FLY QUIET AND CLEAN

As part of the Fly Quiet and Clean Programme, we publish our major airlines' performance against our key environmental metrics. These tables can be found in the later pages of this report. Airlines are an essential part of the Fly Quiet and Clean Programme and through collaborative working; we are constantly striving to improve performance across the board.

NATMAG

This committee includes representatives from the airports Consultative Committee, local councils, the DfT, NATS, airlines and the airport. It meets every quarter to discuss the airport's performance against the range of rules and regulations pertaining to aircraft operations. It gives an opportunity for representatives of local communities to scrutinise the airport's reports and to discuss things that may be a cause of concern.

SUSTAINABLE AVIATION

Gatwick Airport Limited is a member of Sustainable Aviation, whose long term strategy sets out the collective approach of UK aviation to tackling the challenge of ensuring a sustainable future for our industry. Sustainable Aviation was launched in 2005 and brings together the main players from UK airlines, airports, manufacturers and air navigation service providers.

The Flight Performance Team has worked throughout the year with the Sustainable Aviation Improvements Group. The 'mission statement' of this group is *"Working with the industry in the UK and internationally to trial & implement innovative low noise and emission procedures."*

Sustainable Aviation have produced a Road Noise map which outlines the future aspirations of the industry to reduce the impact of aircraft noise over the coming years. For more information visit: www.sustainableaviation.co.uk

Air Traffic Data

This section details how the airport is performing in conjunction with its Key Performance Indicators (KPIs), the change in traffic numbers over the course of the year, and provides information of the types of aircraft and airlines which operate at the airport.

FIGURE 1 – KEY PERFORMANCE INDICATORS (KPIs) 2015

Parameter		12 Month Performance averages*			
		2015	2014	2011	2006
Track keeping performance (% on track)	▲	99.71%	99.28%	97.47%	98.17%**
24hr CDO (% achievement)	▼	89.75%	92.61%	90.49%	80.79%
Day/Shoulder CDO (% achievement)	▼	89.21%	92.43%	90.19%	79.9%
Core night CDO (% achievement)	▲	95.32%	95.25%	93.96%	89.6%
1000ft Infringements (No.)	▼	0	0	3	11
1000ft Infringements (No. below 900ft)	▼	0	0	1	6
Departure Noise Infringements (Day)	-	0	0	0	10
Departure Noise Infringements (Night/Shoulder)	▼	0	0	4	2
Callers	▲	1746	3366	343	587
Noise complaints* **	▲	15230	21712	2673	4791
Enquiry response performance target is 95% within 8 days	▼	93.89%	73.39%	KPI 95%	
West/East Runway Split (%)	-	70/30	67/33	67/33	68/32

*The colours indicate the most recent 12 month performance compared to 2011, with green showing an improvement and red a decline in performance.
**This figure did not include deviations from prop types or those due to weather.
***Complaints are recorded in line with our published complaints handling policy. The revised policy, published in November 2014, advises that only one complaint per day is recorded per individual.

FIGURE 2 - THE AVERAGE NUMBER OF AIRCRAFT MOVEMENTS PER DAY IN 2015

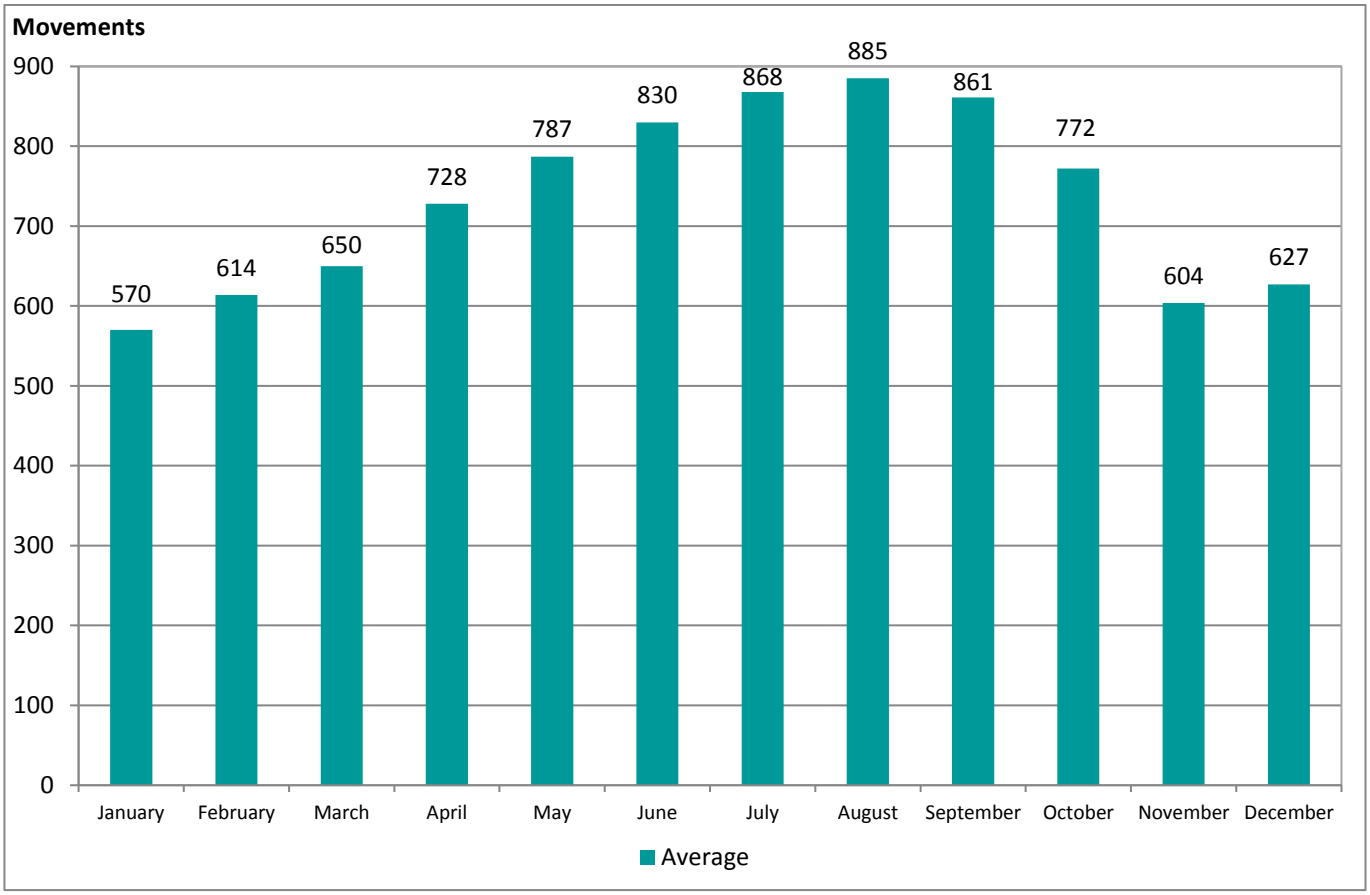


FIGURE 3 - THE TOTAL AIRCRAFT MOVEMENTS PER YEAR (2006-2015)

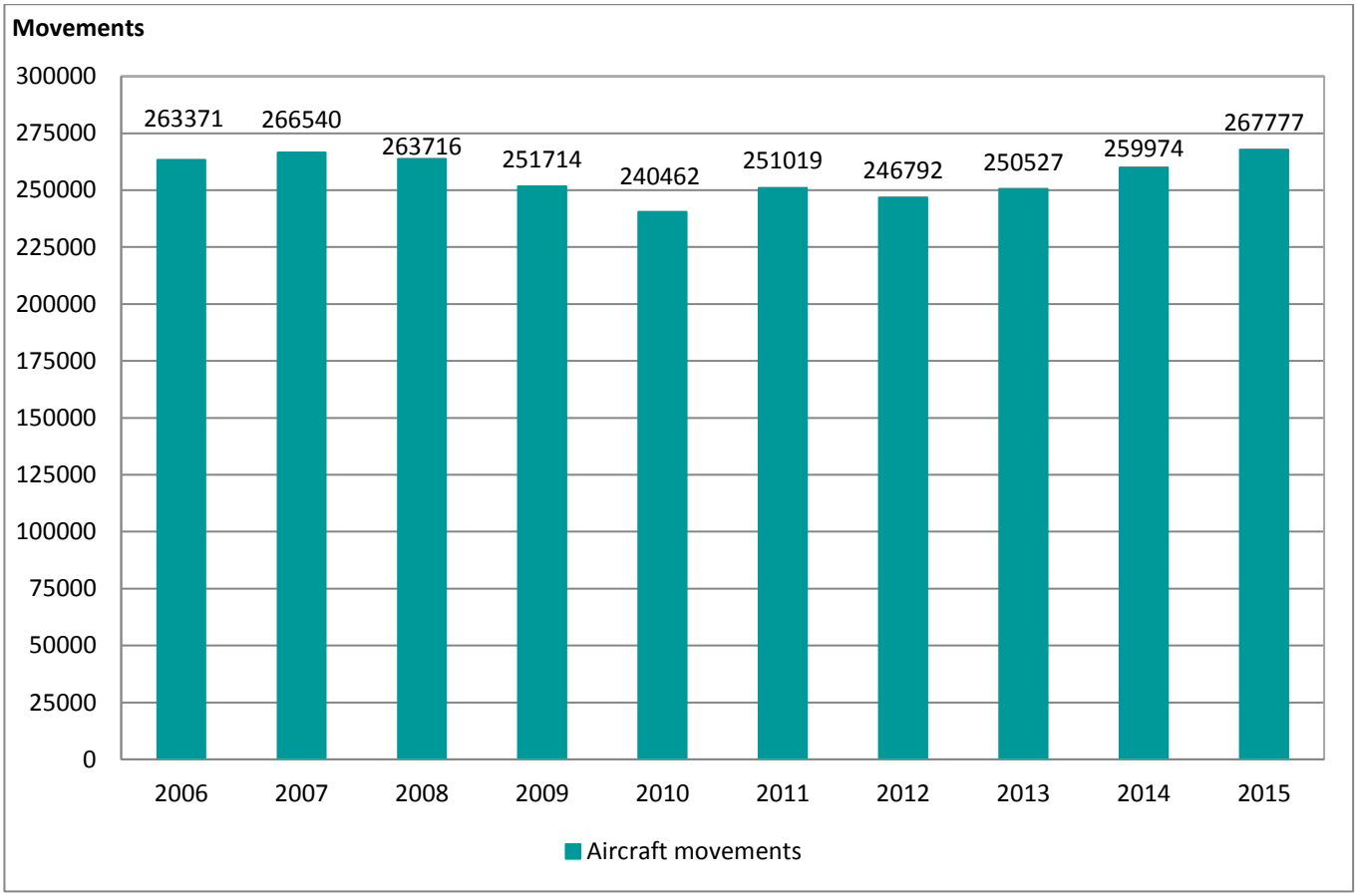


Figure 2 shows the average number of air traffic movements per day over the year. This illustrates that the peak months at Gatwick are during the summer with over 900 flights recorded on some of our busiest days.

In 2015, there was an increase of about 1% in overall movements compared to 2014. **Figure 3** shows the changes in traffic figures over the past several years. This year has been the busiest year in terms of passenger numbers and also 2015 has seen the greatest number of aircraft movements since 2007.

FLEET MIX

The mix of aircraft types that operate at Gatwick continues to evolve with airlines introducing newer, more efficient and quieter types.

Both Thomson Airways and Norwegian Air Shuttle have a regular Boeing 787 Dreamliner service operating from Gatwick. Gatwick Airport has also invested in dedicated infrastructure upgrades to allow the Airbus A380 to operate. The A380 is significantly more fuel efficient and quieter than the first generation 4-engine jumbos it replaces. Emirates Airlines operates a daily A380 service between Gatwick and Dubai.

The Airbus A319 continues to be the most numerous aircraft type operated at Gatwick as this type makes up a large part of the easyJet fleet, who remain Gatwick's biggest operator. The airport operates a differential charging structure based on an aircraft noise footprint and Nitrous oxide (NO_X) emissions to encourage airlines to use the quietest and most fuel efficient aircraft.

FIGURE 4 - THE TOTAL NUMBER OF AIRCRAFT MOVEMENTS BY TYPE IN 2015 AND 2014 WITH PERCENTAGE CHANGE

Aircraft Type	2015	2014	+/-
Airbus A319	97931	94204	+3.8%
Airbus A320	73451	55935	+23.9%
Boeing 737	47253	57748	-18.2%
Airbus A321	13540	9480	+29.9%
Boeing 777	7916	8642	-8.4%
Boeing 757	5944	10788	-44.9%
Boeing 787	3945	2367	+40.0%
Embraer Regional Jet	3852	4255	-9.4%
Airbus A330	3445	4256	-19.1%
Boeing 747	2870	2882	-0.4%
Dash 8-400 Prop	1960	3509	-44.1%
Airbus A380	1332	556	+58.3%
ATR 72	1202	1744	-31.1%
Boeing 767	1008	1066	-5.4%
Other Small Jets	292	584	-50.0%
Canadair Jet	288	96	+66.7%
Cessna Citation	280	300	-6.7%
Airbus A310	208	208	0%
Fokker 100	183	205	-10.7%
Dassault Falcon	164	252	-34.9%
Gulfstream	142	146	-2.7%
Bombardier Challenger	138	214	-35.5%
Learjet	63	160	-60.6%
Airbus A300	0	174	-100.0%

WIND DIRECTION

South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time. Changes in the direction of operation will influence overflight of areas as sometimes aircraft are only apparent when the airfield is operating in one direction or another.

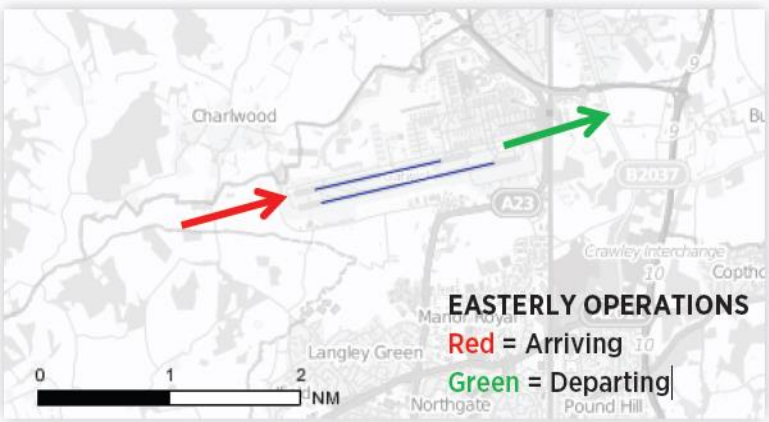
The direction of operation is determined by NATS, who monitor wind speed and direction on the airfield and at different levels up to 3,000ft. The position of the wind is under constant review, which is why the operation can change direction more than once in a day. The weather forecast made by the Met Office is not always a reliable indicator of what is happening at Gatwick, since the Met Office forecast for the public relates to wind speeds at ground level.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level.

In any given month, the direction of runway operation can vary dramatically, with no set seasonal pattern which mirrors the unpredictability of the UK's weather.

It is not unusual for the runway to operate in the same direction for several weeks, and this can be very noticeable to communities underneath the normal flight routes when the airport switches direction. Conversely, it is not uncommon for the runway direction to change several times in a 24 hour period.

FIGURE 5 – THE MAPS SHOW THE DIRECTION OF RUNWAY USE DURING EASTERLY AND WESTERLY OPERATIONS



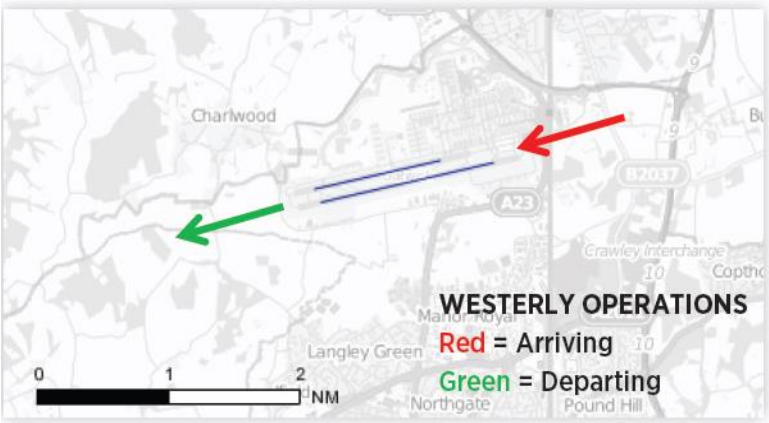


FIGURE 6 – THE SPLIT IN RUNWAY DIRECTION FOR 2015

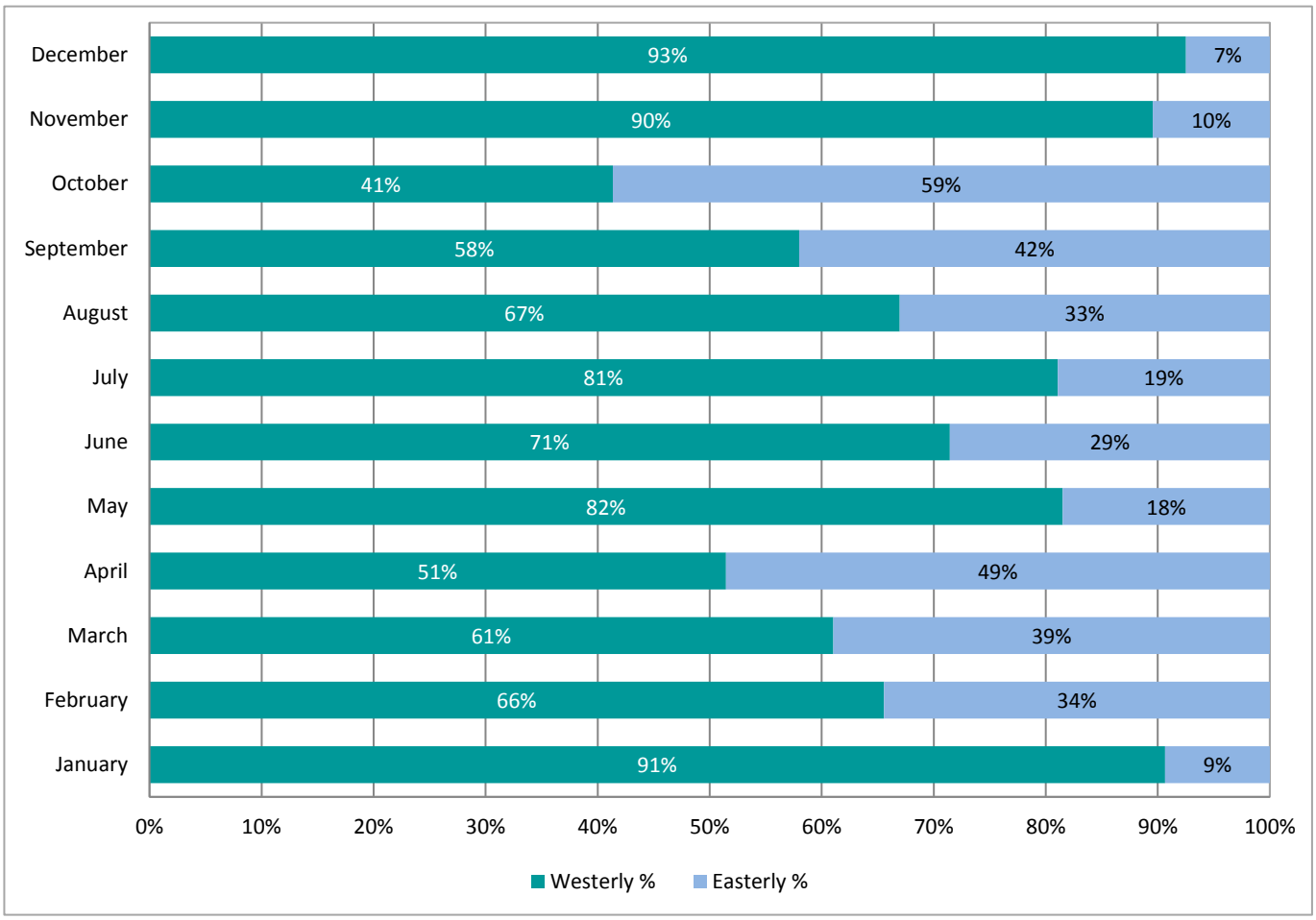


FIGURE 7 - THE TIME PERIODS WITH THE HIGHEST AND LOWEST EASTERLY AND WESTERLY OPERATIONS

Month	Highest Westerly		Lowest Westerly	
January	2015	90.7%	2006	43.1%
February	2000	97.9%	2013	44.0%
March	1999	84.9%	2013	19.7%
April	2001	82.9%	2007	36.3%
May	2003	86.9%	**2008**	**15.1%**
June	2002	89.9%	2014	51.4%
July	2010	96.9%	2013	51.1%
August	2009	93.2%	2003	50.4%
September	2012	87.7%	2002	32.0%
October	2000	93.1%	2015	41.4%
November	2006	92.1%	2014	49.5%
December	**2011**	**98.8%**	2001	48.5%

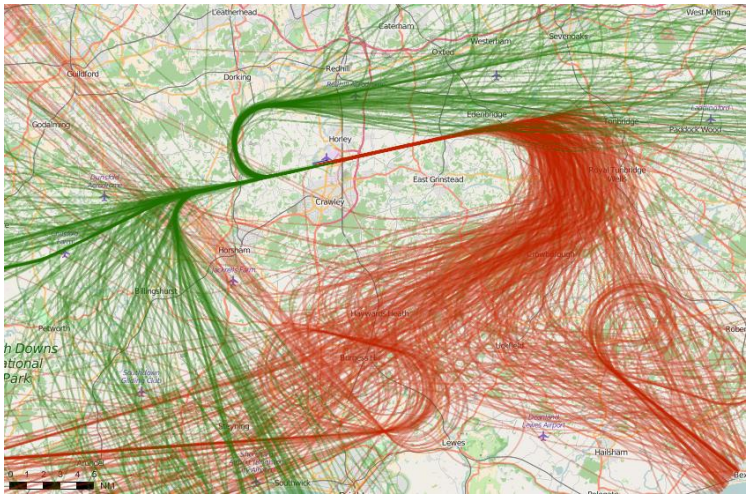
WHERE AIRCRAFT FLY

Large parts of Kent, Surrey and Sussex are overflown by Gatwick traffic as they may be beneath the departure routes or arrival swathes. However, those towns and villages further away from the airfield will experience overflight from Gatwick aircraft at relatively higher altitudes. Gatwick does not operate in isolation; the south east corner of the UK is one of the world's busiest sectors of airspace and Gatwick's own aircraft movements need to be integrated with traffic travelling to and from other airports in the region.

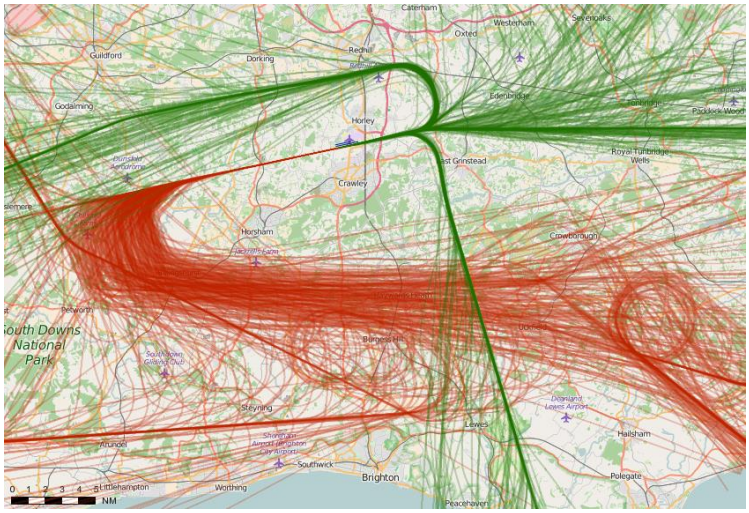
Aircraft are required to take off and land into the wind and therefore the prevailing wind direction determines the direction of airfield operation. When the wind is coming from the west, aircraft will depart towards the west and arrive from the east (westerly operations). During these times aircraft will arrive over East Sussex and West Kent. Conversely, winds from the east mean that aircraft take off to the east and arrive from the west (easterly operations), thus arriving aircraft pass over West Sussex.

FIGURE 8 - THE FOLLOWING MAPS SHOW A TYPICAL DAY OF WESTERLY OPERATIONS AND A TYPICAL DAY OF EASTERLY OPERATIONS

WESTERLY OPERATIONS



EASTERLY OPERATIONS

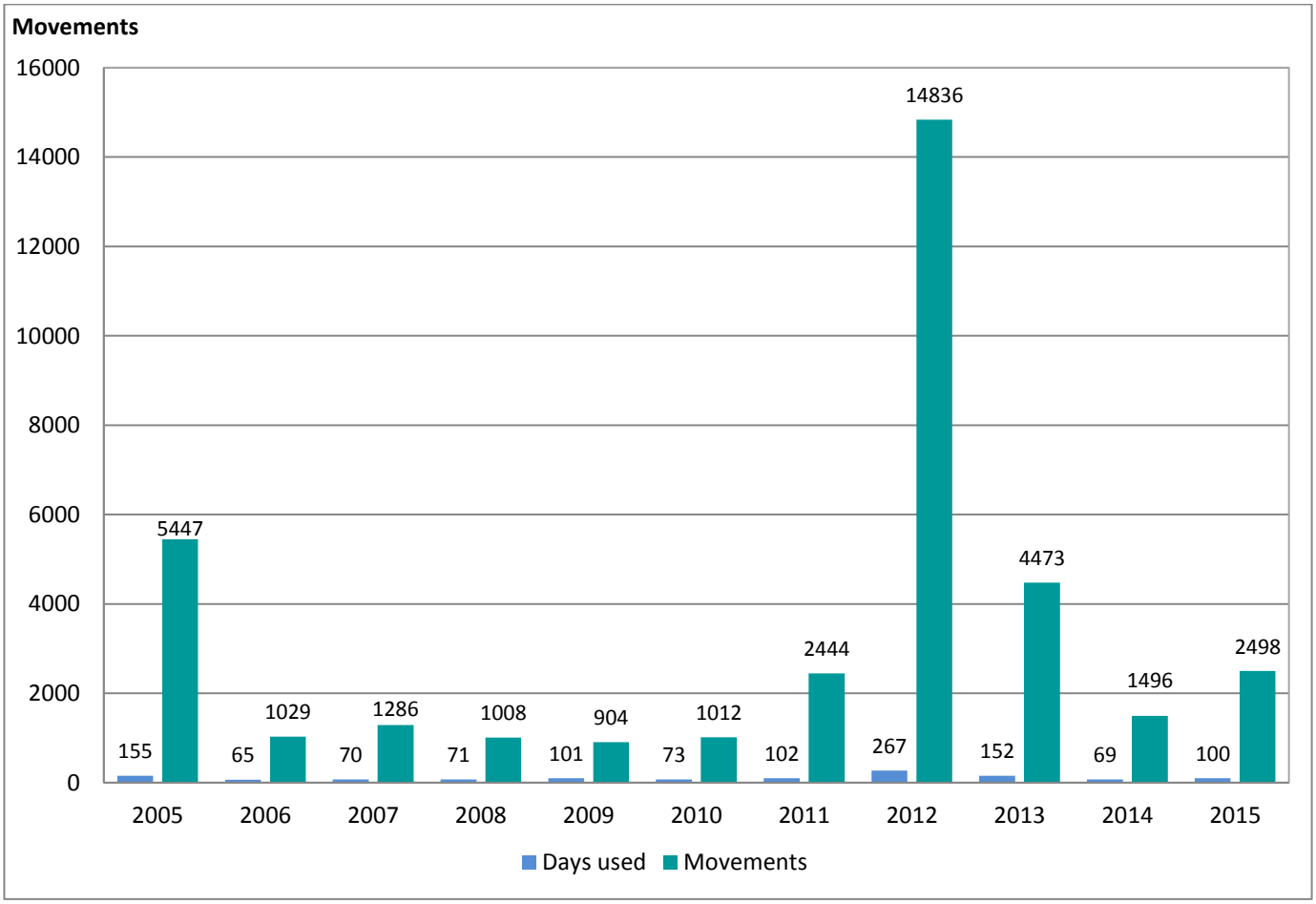


NORTHERN RUNWAY

Gatwick Airport has only one main runway. In case the main runway is out of operation, there is a reserve runway adjacent to the main runway that can be used. This runway is shorter than the main runway and is not equipped with an Instrument Landing System and because of its proximity to the main runway; it cannot be used at the same time.

The northern runway is normally only used during periods of essential maintenance on the main runway and this is normally carried out during night time when it is not as busy. As the runway is constantly in use, it requires frequent inspections and a maintenance programme to ensure the surface and all lighting fixtures remain in a fully operational and safe condition.

FIGURE 9 – THE USE OF THE NORTHERN RUNWAY COMPARED TO PREVIOUS YEARS



Airspace Changes

FUTURE AIRSPACE STRATEGY

Worldwide, work is underway to harmonize and modernize the way airspace is used. One of the means by which this will be achieved is referred to as Precision Based Navigation (PBN). This is also known as area navigation, R-NAV or P-RNAV. This means aircraft changing from navigating by traditional ground based beacons to satellite navigation systems.

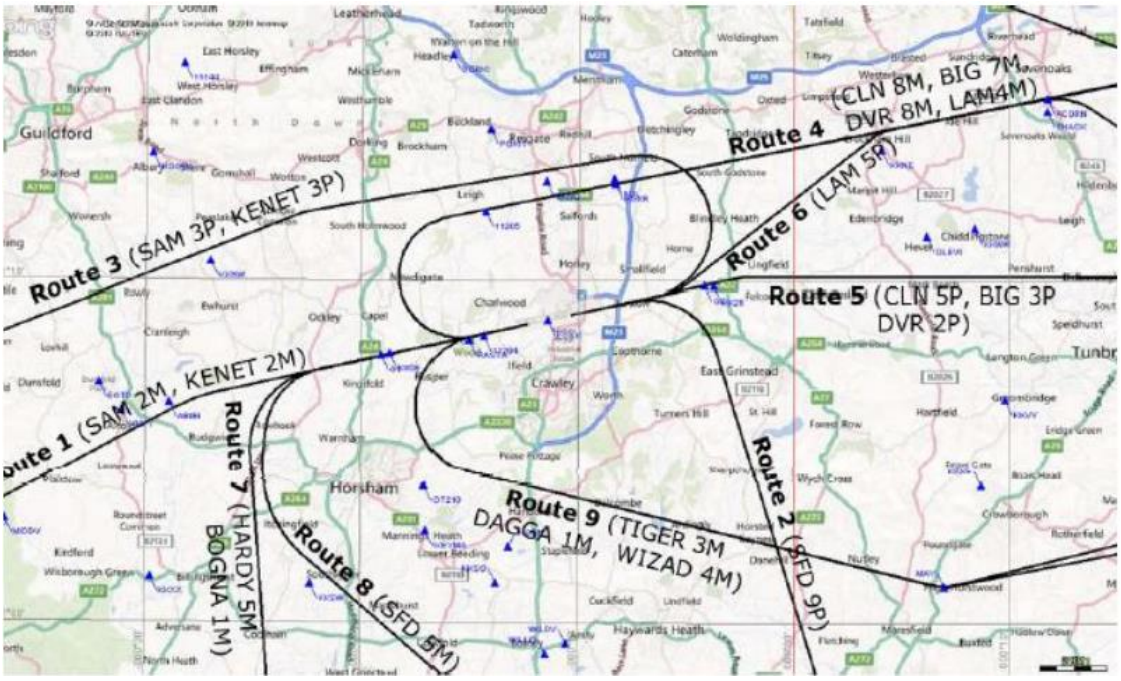
The introduction of PBN will allow for more efficient use of limited airspace resource and reduce aircraft fuel consumption and therefore CO_2 emissions as more direct routings of aircraft will be possible and aircraft will be held on the ground for less time. It can also improve the noise environment as aircraft will be able to climb and descend more efficiently near airports (rather than perform a series of stepped climbs or descents) and aircraft will ordinarily no longer need to enter holding patterns or stacks. This objective is known as continuous climb and continuous descent.

CAA POST IMPLEMENTATION REVIEW (PIR)

Following the implementation of P-RNAV on all of our departure routes, the CAA began a review process called a Post-Implementation Review (PIR) which is standard practice following an airspace change. This began in November 2014 and was published on 11th November 2015. The purpose of the review was to ensure that the tracks flown by aircraft were compliant with regulations and an accurate representation against those shown within Gatwick's consultation material prior to the implementation. The PIR outlined that six out of nine routes were fully compliant and approved, however three routes would require some amendment.

The Review concluded that aircraft departing on Route 4, also known as 26LAM, were not compliant as they regularly fly outside of the route and this would require some modifications to achieve compliance. Route 2 and Route 5 were also identified as requiring a minor change so as to better replicate the original Standard Instrument Departure (SID) as consulted on. The Airport is currently working towards solutions on all of the identified Routes.

FIGURE 10 – CAA (2015) PIR MAP SHOWING THE GATWICK DEPARTURE ROUTES AND CONVENTIONAL SID's



Departing Aircraft

NOISE PREFERENTIAL ROUTES (NPR's)

Aircraft departing Gatwick Airport are required to follow specific departure flight paths, the Noise Preferential Route (NPRs). The nine NPR's at Gatwick were designed to avoid overflight of built-up areas where possible.

An NPR consists of a 'centreline' and an associate compliance monitoring swathe (3km across, i.e. 1.5km either side of the NPR centreline). These NPR's are mapped overleaf in **Figure 11**. As long as aircraft remain within the corridor boundaries, they are deemed to be on-track. A map illustrating the Noise Preferential Routes at Gatwick is available on our website: **www.gatwickairport.com/noise**

Air Traffic Control are responsible for the routing of aircraft once they are airborne and each departure will be assigned a route to follow, however once aircraft reach an altitude of 4,000ft (or 3,000ft dependent on departure route and time) at any point along an NPR, they may be vectored off the route by ATC onto more direct headings to their destinations.

There are also occasions when Air Traffic Control direct aircraft off of NPRs for safety reasons, such as to avoid adverse weather conditions along the intended route or to maintain safe separation from other traffic.

Aircraft that leave the NPR before the required minimum altitude are classified as track deviations. Track keeping performance at Gatwick is generally very good, however the westerly wrap around route designated 26LAM has always presented a challenge for modern aircraft to fly as the tight turn was designed in 1968 when very different types of aircraft types were in operation. Flights leaving the route below the required height are automatically tagged and details are sent to the airline for investigation. Our Flight Operations Performance & Safety Committee (FLOPSC) regularly review track keeping performance. Our track keeping performance is detailed later in the report.

PRECISION NAVIGATION

The basic structure of the UK's airspace was developed over 40 years ago and has changed relatively little since. Since then there have been huge changes, including radical technological changes in the design of aircraft and the navigational aids used by pilots and air traffic controllers to direct or route aircraft through the airspace together with a hundred fold increase in demand for aviation.

Europe's entire airspace needs modernization. It was designed decades ago in the late 1960s and early 1970s when there were far fewer aircraft in the sky and the systems used for navigation were much less sophisticated. In the UK, for example, flightpaths have barely changed in 40 years, yet we have twice as many aircraft in the air. It is the public demand for air travel that has driven this increase in aircraft traffic and therefore explains why 2015 has been our busiest year in terms of passenger numbers and air traffic movements.

There is probably no other industry or infrastructure system in the UK which has remained unchanged for such a long time.

Precision Navigation technology is a more precise navigation method that allows aircraft to navigate using GPS coordinates rather than traditional ground-based navigational aids. This will result in aircraft having a track keeping accuracy of ±1 nautical miles for 95% of its flight time.

This should result in several important advantages:

- Greater certainty of what areas will be overflown, thereby reducing noise in certain areas.
- Environmental benefits include reduced fuel burn and associated reduction in CO_2 and NO_x emissions.
- Air traffic controllers and flight crew can plan their routes more easily and with greater precision.

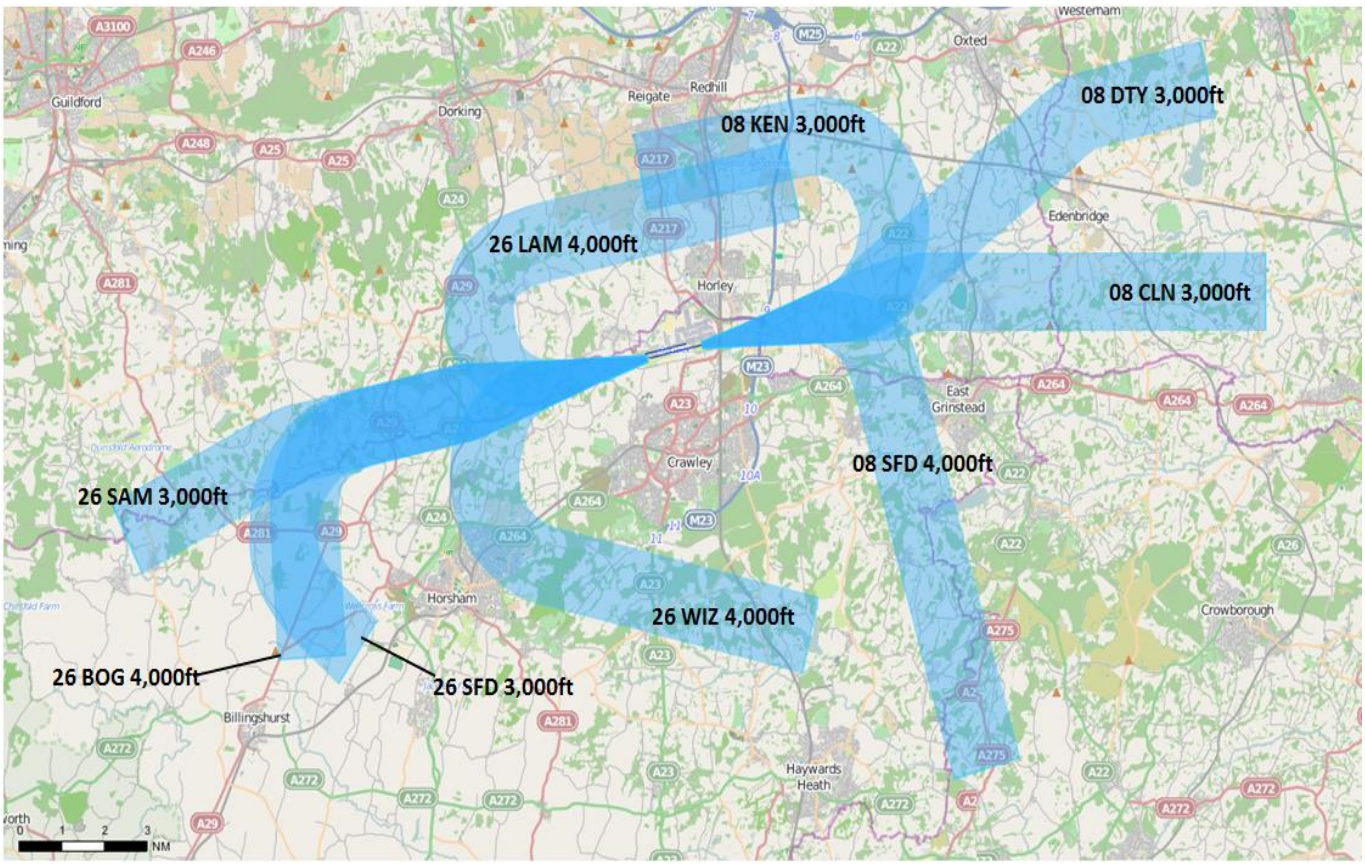
- Better arrival routing and management reduces fuel burnt in stack holds and enables more continuous descents.
- Noise reductions from less aircraft holding at low levels are also expected.

In 2014, Gatwick Airport became the UK's first airport to introduce Precision Area Navigation (P-RNAV) on all departure routes.

The advent of Precision Navigation has resulted in the tracks of departing aircraft being more concentrated within the boundaries of the current NPRs and a subsequent improvement in track keeping performance on all the published departure routes with one exception. This is the wrap around route that initially heads west, then turns back on itself 180^0 and passes to the north of the airfield.

This route, known as 26LAM, has always presented a challenge for modern jets as it was designed to accommodate propeller-driven aircraft and early jets that were around in the late 1960s. Implementing P-RNAV on this route now requires aircraft to fly outside of the current NPR, as approved by the Civil Aviation Authority; aircraft on a P-RNAV departure on this route are not currently classified as off-track as they are following the published route.

FIGURE 11 – MAP OF THE NOISE PREFERENTIAL ROUTES AT GATWICK AIRPORT USED BY DEPARTING AIRCRAFT WITH MINUMUM ALTITUDE FIGURES.



Departures - Track Keeping

Track deviations tend to occur for larger aircraft types which are slower to climb and turn. These tend to take longer to reach their designated minimum heights, as discussed above. There are also other factors which can affect track keeping such as weather avoidances, particularly during the winter months. Details of track keeping performance by aircraft type are shown in **Figure 12.** The A319 is the most widely used aircraft type at Gatwick and has an excellent record for track keeping.

FIGURE 12 – TRACK KEEPING PERFORMANCE BY AIRCRAFT TYPE 2015

Aircraft Type	Total Departures	Percentage On Track
Airbus A319	48961	99.75%
Airbus A320	36725	99.72%
Boeing 737	23628	99.82%
Airbus A321	6769	99.81%
Boeing 777	3958	99.47%
Boeing 757	2972	99.76%
Boeing 787	1972	99.70%
Embraer	1926	97.40%
Airbus A330	1724	99.77%
Boeing 747	1435	98.61%
Dash 8-400 prop	980	99.59%
Airbus A380	666	100.00%
ATR 72	601	98.34%
Boeing 767	504	100.00%
Others	500	97.20%
Canadair Jet	141	97.16%
Cessna Citation	140	95.00%
Airbus 310	104	100.00%
Fokker 100	92	98.91%
Dassault Falcon	83	98.80%

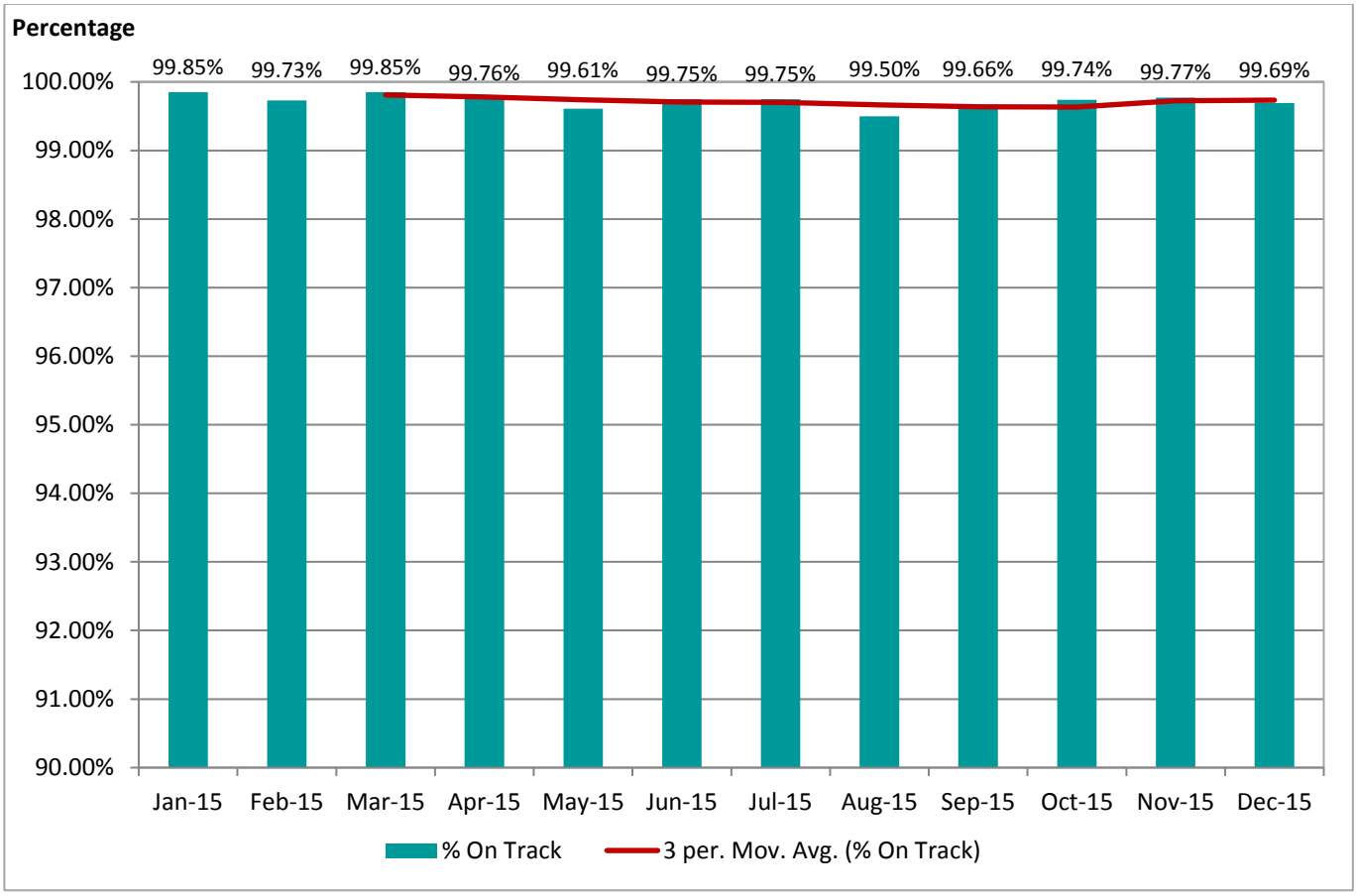
FIGURE 13 – AIRLINE TRACK KEEPING PERFORMANCE

Airline	Total Departures	Percentage On Track
EasyJet	57147	99.80%
British Airways	21575	99.75%
Norwegian	11849	99.86%
Thomson Airlines	6466	99.80%
Monarch Airlines	5361	99.78%
Aer Lingus	3428	98.42%
Thomas Cook	3163	99.78%
Ryanair	2772	99.78%
Vueling Airlines	2156	99.54%
Virgin Atlantic	2125	98.92%
Aurigny Air Services	1991	99.35%
easyJet Switzerland	1470	99.86%
Turkish Airlines	1452	99.93%
TAP Portugal	1215	99.92%
Emirates Airlines	1097	100.00%
Flybe	973	99.59%
Air Europa	730	100.00%
Germania	676	99.56%
Air Transat	594	100.00%
Iberia Express	558	100.00%
Ukraine Intl. Airlines	546	100.00%
WOW Air	516	100.00%
Small Planet Airlines	459	100.00%
AirBaltic	426	99.77%
Air Malta	364	98.63%
Meridiana	351	99.15%
Icelandair	339	100.00%
Royal Air Maroc	311	100.00%
Pegasus Airlines	287	99.65%
Iraqi Airways	230	99.13%

FIGURE 14 – TRACK KEEPING PERFORMANCE IN 2015

	Total			Westerly			Easterly		
Month	Deviations	Departures	% Deviations	Deviations	Departures	% Deviations	Deviations	Departures	% Deviations
Jan-15	13	8849	0.15%	13	8030	0.16%	0	819	0.00%
Feb-15	23	8584	0.27%	14	5601	0.25%	9	2983	0.30%
Mar-15	15	10075	0.15%	7	3962	0.18%	8	6104	0.13%
Apr-15	26	10916	0.24%	16	5610	0.29%	10	5306	0.19%
May-15	47	12206	0.39%	46	10001	0.46%	1	2205	0.05%
Jun-15	31	12440	0.25%	19	8910	0.21%	12	3530	0.34%
Jul-15	34	13448	0.25%	26	10843	0.24%	8	2605	0.31%
Aug-15	68	13718	0.50%	31	9158	0.34%	37	4558	0.81%
Sep-15	44	12904	0.34%	34	7505	0.45%	10	5399	0.19%
Oct-15	31	11960	0.26%	19	6941	0.27%	12	5019	0.24%
Nov-15	21	9057	0.23%	19	8100	0.23%	2	957	0.21%
Dec-15	30	9704	0.31%	27	8873	0.30%	3	831	0.36%

FIGURE 15 – TRACK KEEPING PERFORMANCE BY MONTH IN 2015



Airfield Noise

Gatwick Airport is committed to mitigating and reducing noise disturbance caused by aircraft operating on the ground. This includes aircraft on stand, taxiing to and from the runway and during the landing and take-off phases of flight. Gatwick is a signatory to the Departure Code of Practice published in association with Sustainable Aviation.

THERE ARE FOUR PRIMARY ELEMENTS WHICH MAKE UP THE DEPARTURES CODE OF PRACTICE:

1. REDUCING NOISE ON THE GROUND

In the past, when on stand, aircraft were reliant on Auxiliary Power Units (APU) for electrical supply. APUs are small jet engines, usually in the tail of the aircraft, which produce a significant amount of noise. In order to minimise the time that APUs are operated, Gatwick Airport provides a system of Fixed Electrical Ground Power (FEGP) on all aircraft stands. FEGP provides aircraft with the necessary power to operate its electrical and air conditioning systems. The availability of FEGP is measured each month and is consistently close to 100% for most months.

2. REDUCING NOISE AND FUEL EMISSIONS IN THE TAXI STAGE

Aircraft taxiing to or from the runway would normally use all engines, however by only starting all engines close to a point when cleared for take-off, this has the potential to reduce noise, save fuel and reduce emissions.

3. AIRPORT COLLABORATIVE DECISION MAKING (ACDM)

This aims to create a more efficient operation to reduce the amount of time aircraft spend holding on taxiways, in stacks and on the runway. This will be achieved by the introduction of new technology and the integration of some airport systems so that airport operator, airlines, ground handlers and NATS work closely together to achieve optimum performance.

4. CONTINUOUS CLIMB OPERATIONS

Rather than flight stages of level flight, aircraft that can climb to their cruise altitude will use less fuel and emit less greenhouse gases. This will require close co-ordination between Air Traffic Control sectors to maintain the climb.

ENGINE RUNS

The Airfield Team at Gatwick conducts regular audits of the airfield and they are specifically concerned with reducing noise from aircraft operating on the ground.

As is common at major airports throughout the world, some maintenance and servicing work is conducted at Gatwick Airport. Both British Airways and Virgin Atlantic have hangers and operate major repair centres at the airport.

It is therefore a necessity that there is some engine testing conducted at Gatwick. However, there are limits in place concerning the maximum number of tests that can be conducted and there are strict regulations regarding when and where testing can be conducted. All testing must be authorised in advance by the airfield operations team and there is a ban on testing during the night-time.

Figure 16 illustrates the number of engine runs conducted during 2015 by month. Typically, there are more instances during the winter months when fleets are more likely to receive their regular servicing.

FIGURE 16 – THE NUMBER OF ENGINE RUNS CONDUCTED DURING 2015 PER MONTH

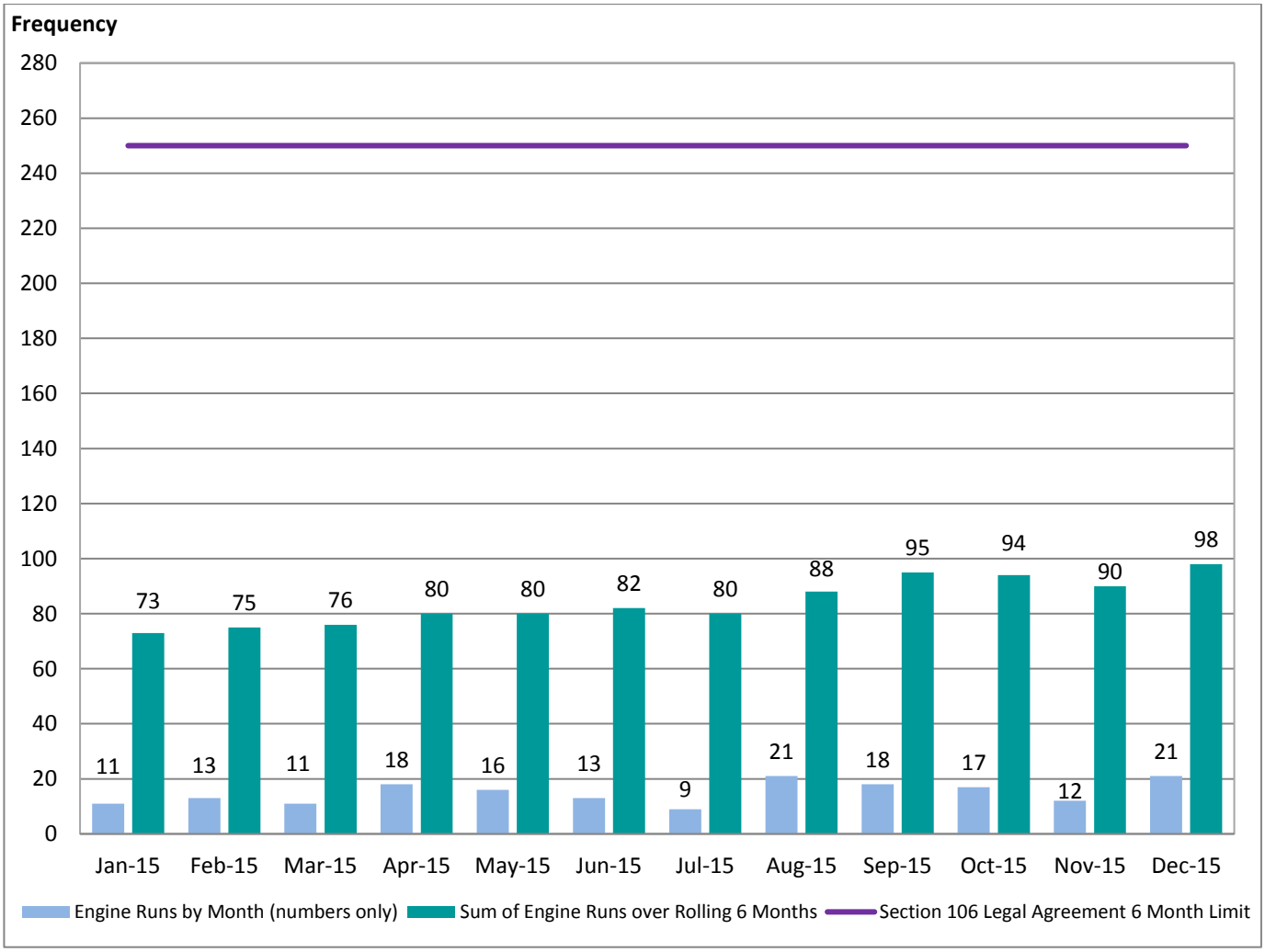
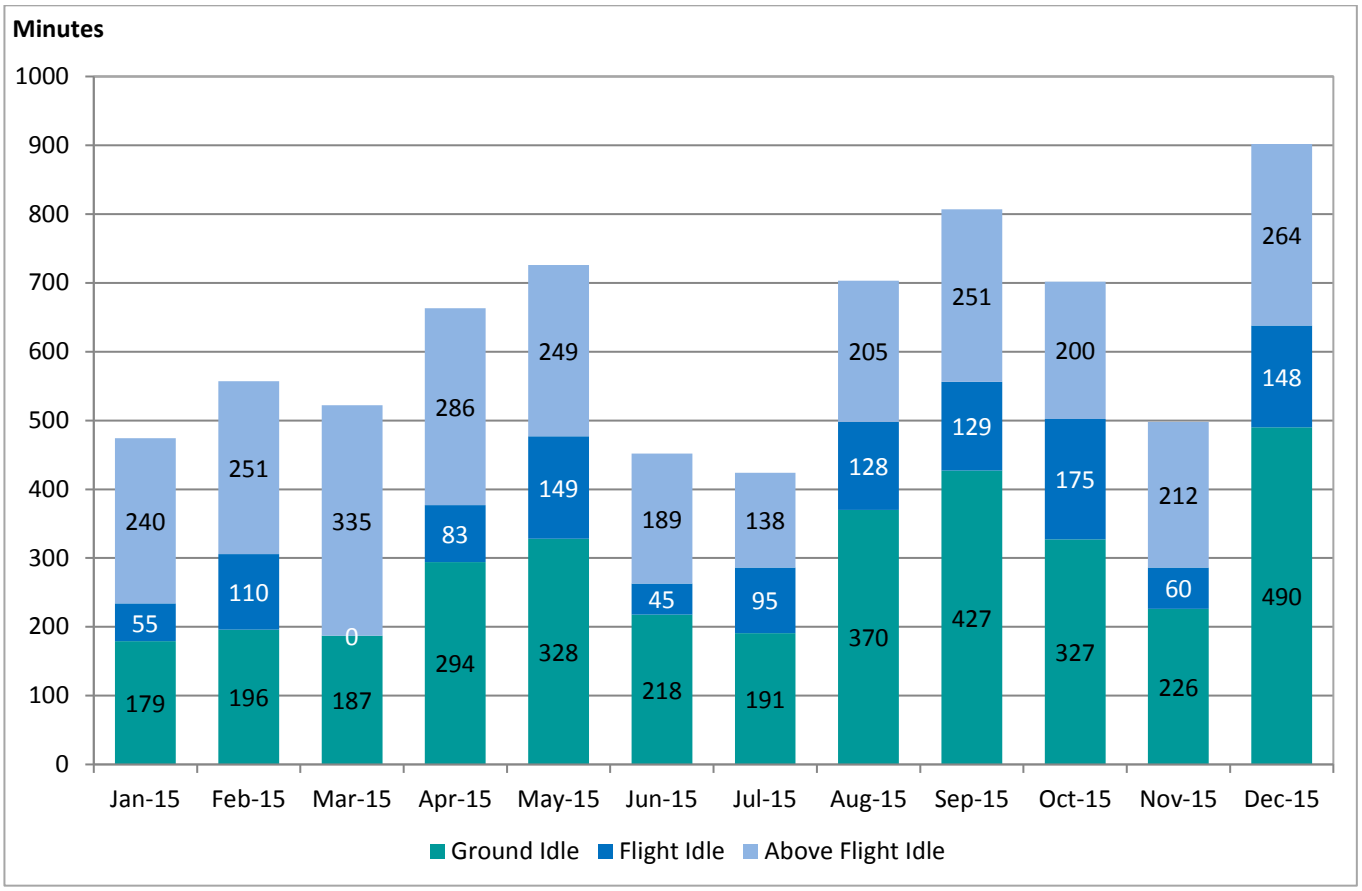


FIGURE 17 - THE ENGINE RUNNING DURATIONS PER MONTH IN 2015



AUXILIARY POWER UNITS

In some cases, aircraft may need to receive power from an external power source called Ground Power Units (GPU). The operation of GPUs are strictly controlled and only allowed when the FEGP system is unavailable, or where there is a particular reason why an aircraft cannot utilise the FEGP.

Auxiliary Power Units (APUs) are small jet engines normally located in the tail of an aircraft that provide electrical power to the aircraft's systems when the main engines are off. When operating they can generate unnecessary noise. Gatwick Airport has a statutory duty to protect the surrounding community from noise generated by aircraft operations and equipment on the ground. It is the Policy of Gatwick Airport to ensure that Auxiliary Power Unit (APU) running and other activities generating ground noise are carried out in a manner which will cause least disturbance to the surrounding community, consistent with maintaining a safe and efficient airfield operation.

In order to limit the use of APUs, there are restrictions on the duration they are allowed to operate. Fixed Electrical Ground Power (FEGP) is provided on all stands at Gatwick so APU usage should be kept to a minimum. In order to enforce these restrictions, the airfield team regularly conducts audits of the whole airfield. APUs are normally shut down as soon as the aircraft is plugged into the FEGP system, however aircraft may be allowed for limited durations during periods of very hot or cold weather to ensure passenger comfort.

Not all aircraft have APUs. Propeller driven aircraft, which also operate at Gatwick, need an alternative power source if the FEGP should become unavailable. In these instances, Ground Power Units (GPUs) are utilised and like APUs, there use is strictly controlled.

FIGURE 18 - THE RESULTS OF THE AUXILIARY POWER UNIT AUDITS IN 2015

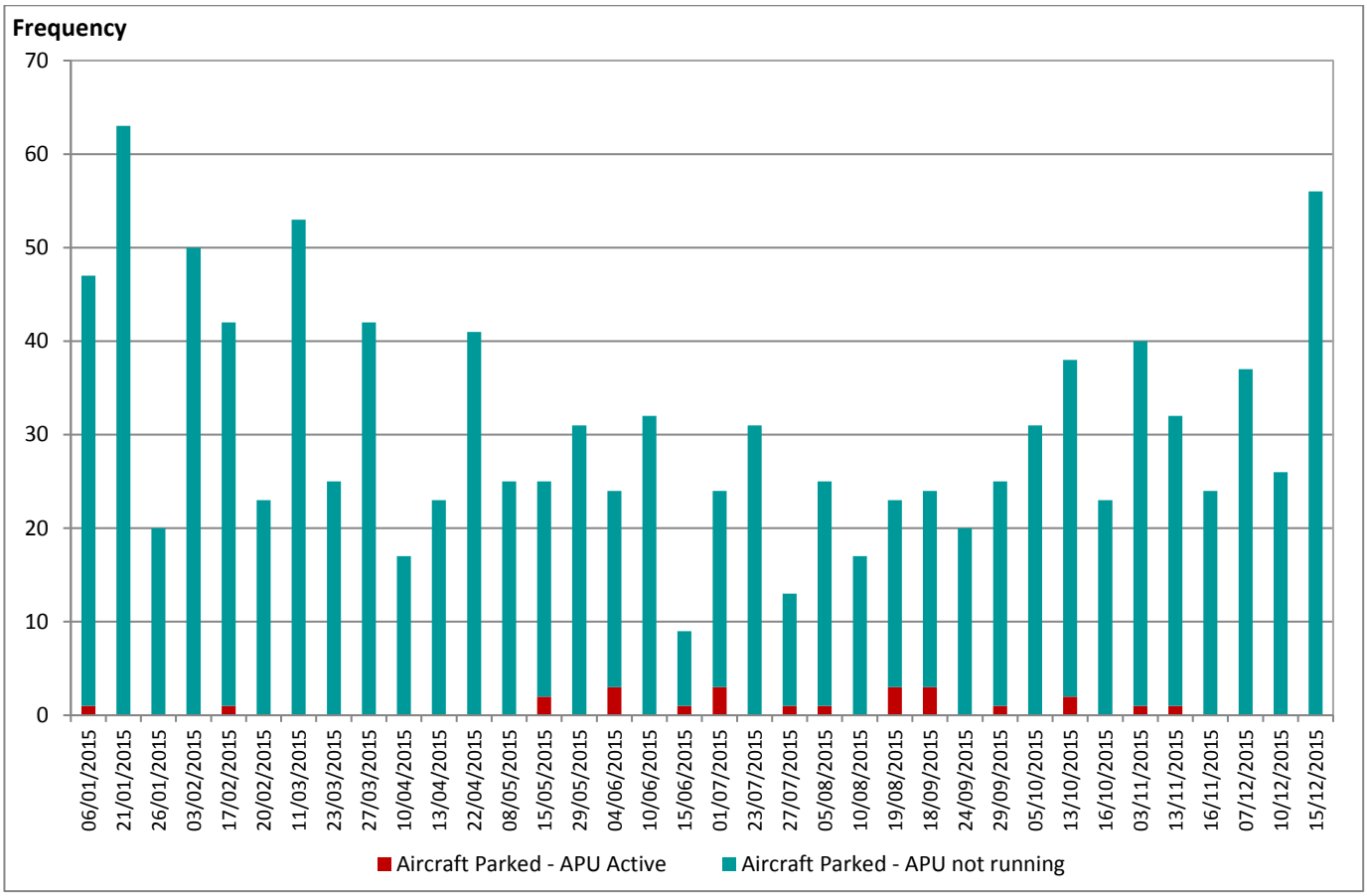
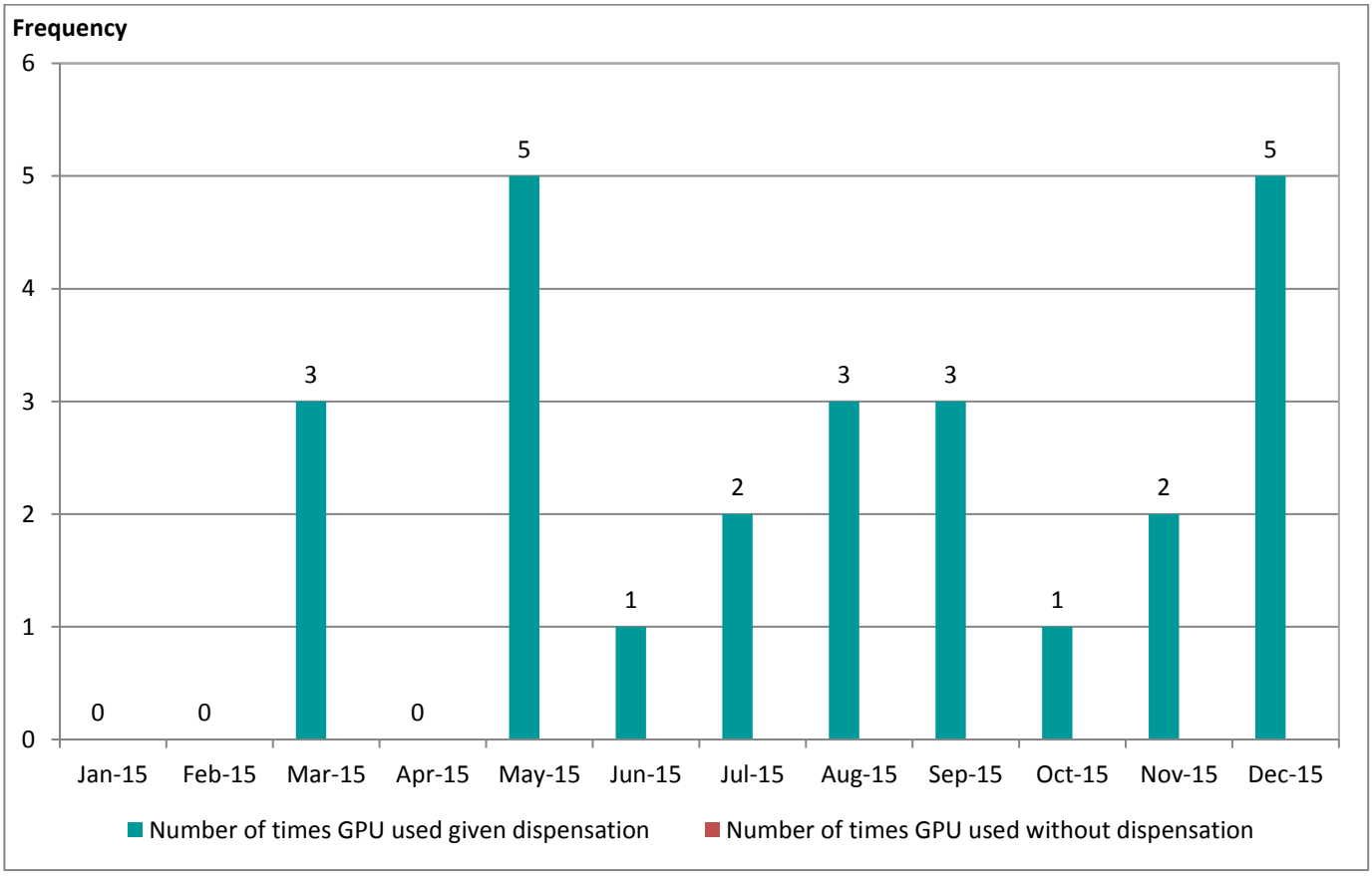


FIGURE 19 - THE USE OF GROUND POWER UNITS IN 2015



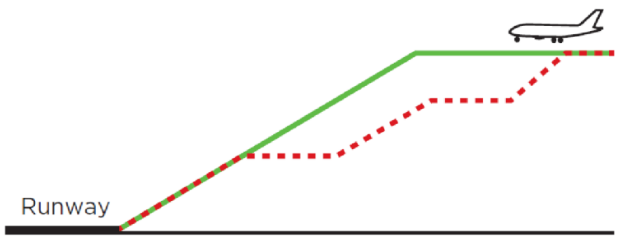
Arriving aircraft

Unlike take-off, where the majority of the noise is generated by an aircraft's engines, noise generated by arriving aircraft is a product of both airframe and engine noise. Airframe noise is produced by the airflow passing over the wings and control surfaces and also by aircraft undercarriage.

Although there are no set routes for arriving aircraft, there are long established procedures to mitigate the disturbance that they can cause on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Operations (CDO).

Figure 20 below illustrates how this type of approach differs from the traditional stepped approach.

FIGURE 20 – DIAGRAM OF HOW CDO IS PERFORMED



Aircraft engines produce more noise during level flight than in a shallow glide of a CDO and also by avoiding steep changes in height, this reduces airframe noise considerably.

In simple terms, CDO keeps aircraft higher for longer and reduces periods of prolonged level flight at lower altitudes. As CDO is dependent on factors outside of the pilot's control, such as weather and air traffic conditions, it is not compulsory. Gatwick Airport has one of the highest CDO achievement rates in Europe, especially during the sensitive night time period.

In addition to the noise benefit, the use of CDO techniques also reduces fuel burn and hence CO_2 and nitrous oxide emissions, thereby producing an environmental benefit for air quality.

Figure 21 compares the level of CDO performance by our airline operators for 2015, with our top operators by aircraft movements having above average levels of achievement.

FIGURE 21 – CDO PERFORMANCE BY AIRLINE 2015

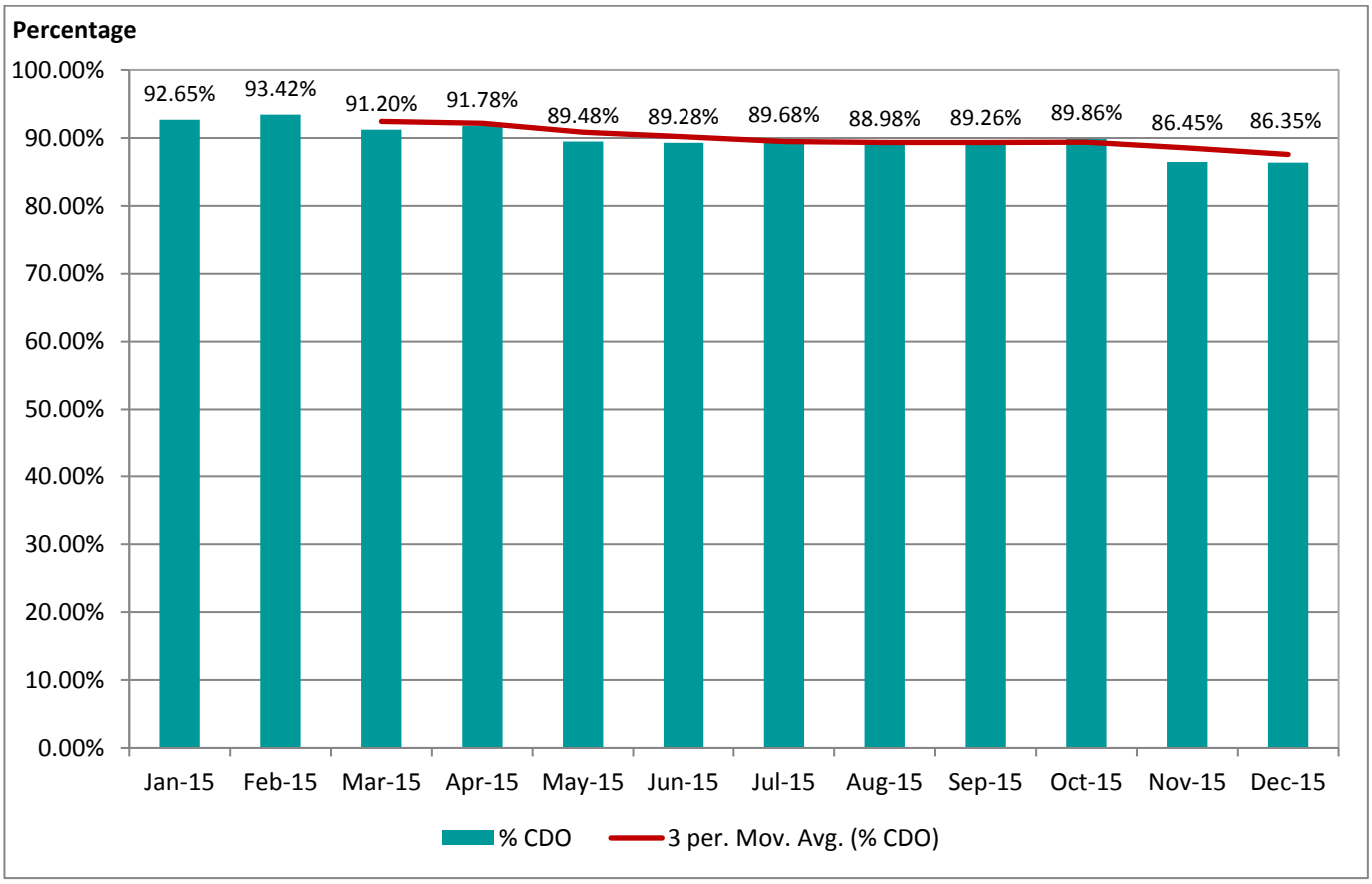
Airline	Arrivals	CDO Performance
EasyJet	57149	95.83%
British Airways	21612	93.08%
Norwegian Air Shuttle	11898	92.85%
Thomson Airways	6505	95.59%
Monarch Airlines	5401	94.00%
Aer Lingus	3428	90.67%
Thomas Cook Airlines	3182	89.94%
Ryanair	2773	93.65%
Vueling Airlines	2159	50.95%
Virgin Atlantic Airways	2126	92.10%
Aurigny Air Services	1998	86.84%
easyJet Switzerland	1467	87.25%
Turkish Airlines	1456	53.16%
TAP Portugal	1227	70.58%
Flybe	978	73.72%
Emirates Airline	957	81.40%
Air Europa	731	60.19%
Germania	678	42.92%
Air Transat	605	64.63%
Iberia Express	558	39.14%
Ukraine Intl. Airlines	547	61.97%
WOW Air	519	60.89%
Small Planet Airlines	464	74.73%
AirBaltic	445	53.93%
Air Malta	366	88.80%
Meridiana	349	42.98%
Icelandair	339	64.90%
Royal Air Maroc	312	31.73%
Pegasus Airlines	291	25.77%
Iraqi Airways	230	47.39%
Garuda Indonesia	205	37.56%
Titan Airways	191	85.34%
Aegean Airlines	189	58.20%
Travel Service Airlines	184	46.20%
Belavia	171	35.67%
Caribbean Airlines	168	35.12%
Emirates	138	76.09%
Tunisair	130	29.23%
Air Arabia Maroc	103	18.45%
NetJets Europe	101	40.59%

24 HOUR CDO ACHIEVEMENT

FIGURE 22 – THE SUMMARY OF CDO ACHIEVEMENT FOR THE 24 HOUR PERIOD IN 2015

	All Arrivals			08 Easterly Arrivals			26 Westerly Arrivals		
Month	Total	Non CDO	% CDO	Total	Non CDO	% CDO	Total	Non CDO	% CDO
Jan-15	8811	648	92.65%	831	85	89.77%	7980	563	92.94%
Feb-15	8558	563	93.42%	2912	208	92.86%	5646	355	93.71%
Mar-15	10019	882	91.20%	3866	445	88.49%	6153	437	92.90%
Apr-15	10875	894	91.78%	5257	482	90.83%	5608	467	91.67%
May-15	12122	1275	89.48%	2294	257	88.80%	9828	1018	89.64%
Jun-15	12371	1326	89.28%	3523	391	88.90%	8848	789	91.08%
Jul-15	13405	1383	89.68%	2492	304	87.80%	10913	1079	90.11%
Aug-15	13671	1507	88.98%	4493	557	87.60%	9178	950	89.65%
Sep-15	12885	1384	89.26%	5424	600	88.94%	7461	784	89.49%
Oct-15	11940	1211	89.86%	7085	745	89.48%	4855	466	90.40%
Nov-15	9034	1224	86.45%	929	148	84.07%	8105	1076	86.72%
Dec-15	9682	1322	86.35%	626	110	82.43%	9056	1212	86.62%

FIGURE 23 – CDO ACHIEVEMENT DURING THE 24 HOUR PERIOD PER MONTH WITH A TRENDLINE

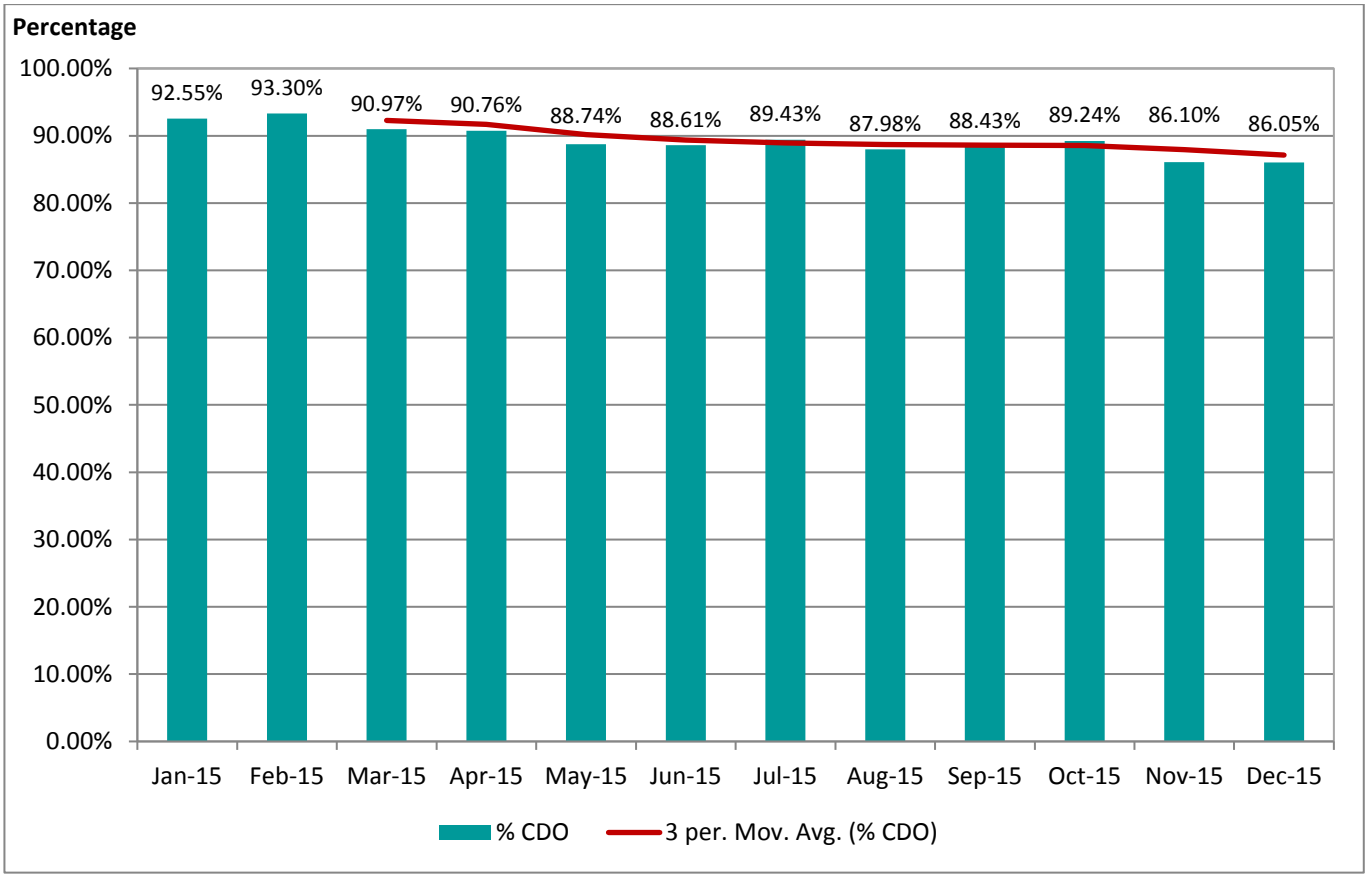


DAYTIME AND SHOULDER PERIOD CDO ACHIEVEMENT (0600-2330)

FIGURE 24 - THE SUMMARY OF CDO ACHIEVEMENT FOR THE DAYTIME AND SHOULDER PERIOD IN 2015

Month	All Arrivals			08 Easterly Arrivals			26 Westerly Arrivals		
	Total	Non CDO	% CDO	Total	Non CDO	% CDO	Total	Non CDO	% CDO
Jan-15	8487	632	92.55%	811	84	89.64%	7676	548	92.86%
Feb-15	8278	555	93.30%	2635	207	92.14%	5436	348	93.60%
Mar-15	9633	870	90.97%	3731	442	88.15%	5902	428	92.75%
Apr-15	10028	927	90.76%	4849	475	90.20%	5179	452	91.27%
May-15	10825	1219	88.74%	1999	237	88.14%	8826	982	88.87%
Jun-15	10802	1230	88.61%	3107	402	87.06%	7695	828	89.24%
Jul-15	11518	1218	89.43%	2132	286	86.59%	9386	995	89.40%
Aug-15	11822	1421	87.98%	3914	521	86.69%	7908	900	88.62%
Sep-15	11284	1306	88.43%	4687	543	88.41%	6597	763	88.43%
Oct-15	10879	1171	89.24%	6434	720	88.81%	4445	451	89.85%
Nov-15	8695	1209	86.10%	805	144	82.11%	7890	1065	86.50%
Dec-15	9321	1300	86.05%	615	110	82.11%	8706	1190	86.33%

FIGURE 25 - CDO ACHIEVEMENT DURING THE DAYTIME AND SHOULDER PERIOD PER MONTH WITH A TRENDLINE

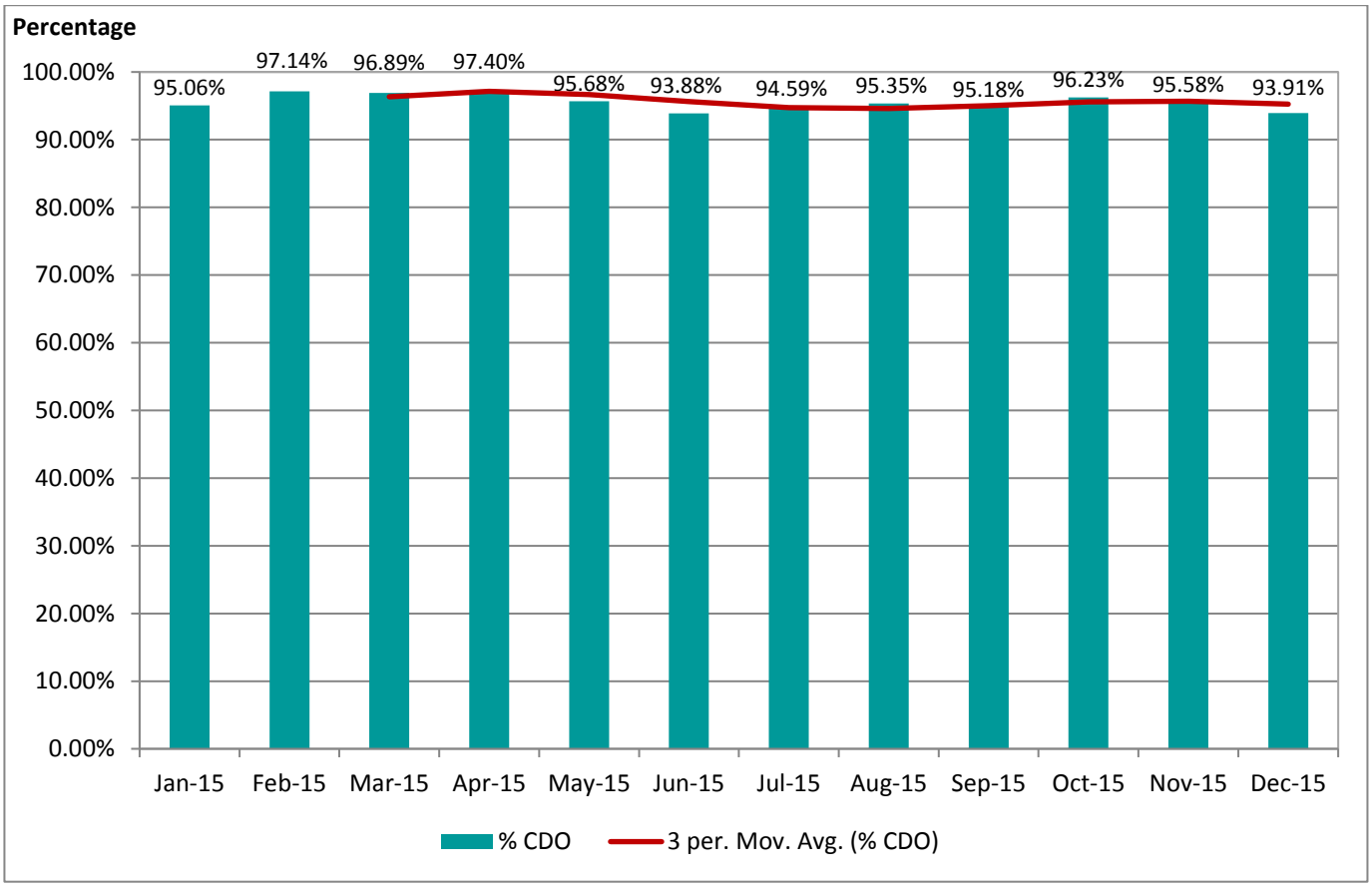


CORE NIGHT CDO ACHIEVEMENT (2330-0600)

FIGURE 26 - THE SUMMARY OF CDO ACHIEVEMENT FOR THE CORE NIGHT PERIOD IN 2015

Month	All Arrivals			08 Easterly Arrivals			26 Westerly Arrivals		
	Total	Non CDO	% CDO	Total	Non CDO	% CDO	Total	Non CDO	% CDO
Jan-15	324	16	95.06%	20	1	95.00%	289	15	94.81%
Feb-15	280	8	97.14%	70	1	98.57%	210	7	96.67%
Mar-15	386	12	96.89%	135	3	97.78%	242	9	96.28%
Apr-15	847	22	97.40%	408	7	98.28%	439	15	96.58%
May-15	1397	56	95.68%	295	20	93.22%	1002	36	96.41%
Jun-15	1569	96	93.88%	416	22	93.58%	1153	74	93.58%
Jul-15	1887	102	94.59%	360	18	94.50%	1527	84	94.50%
Aug-15	1849	86	95.35%	579	36	96.06%	1270	50	96.06%
Sept-15	1597	77	95.18%	737	57	97.67%	860	20	97.67%
Oct-15	1061	40	96.23%	651	25	96.34%	410	15	96.34%
Nov-15	339	15	95.58%	124	4	94.88%	215	11	94.88%
Dec-15	361	22	93.91%	11	0	93.71%	350	22	93.71%

FIGURE 27 - CDO ACHIEVEMENT DURING THE CORE NIGHT PERIOD PER MONTH WITH A TRENDLINE



Operations at Night

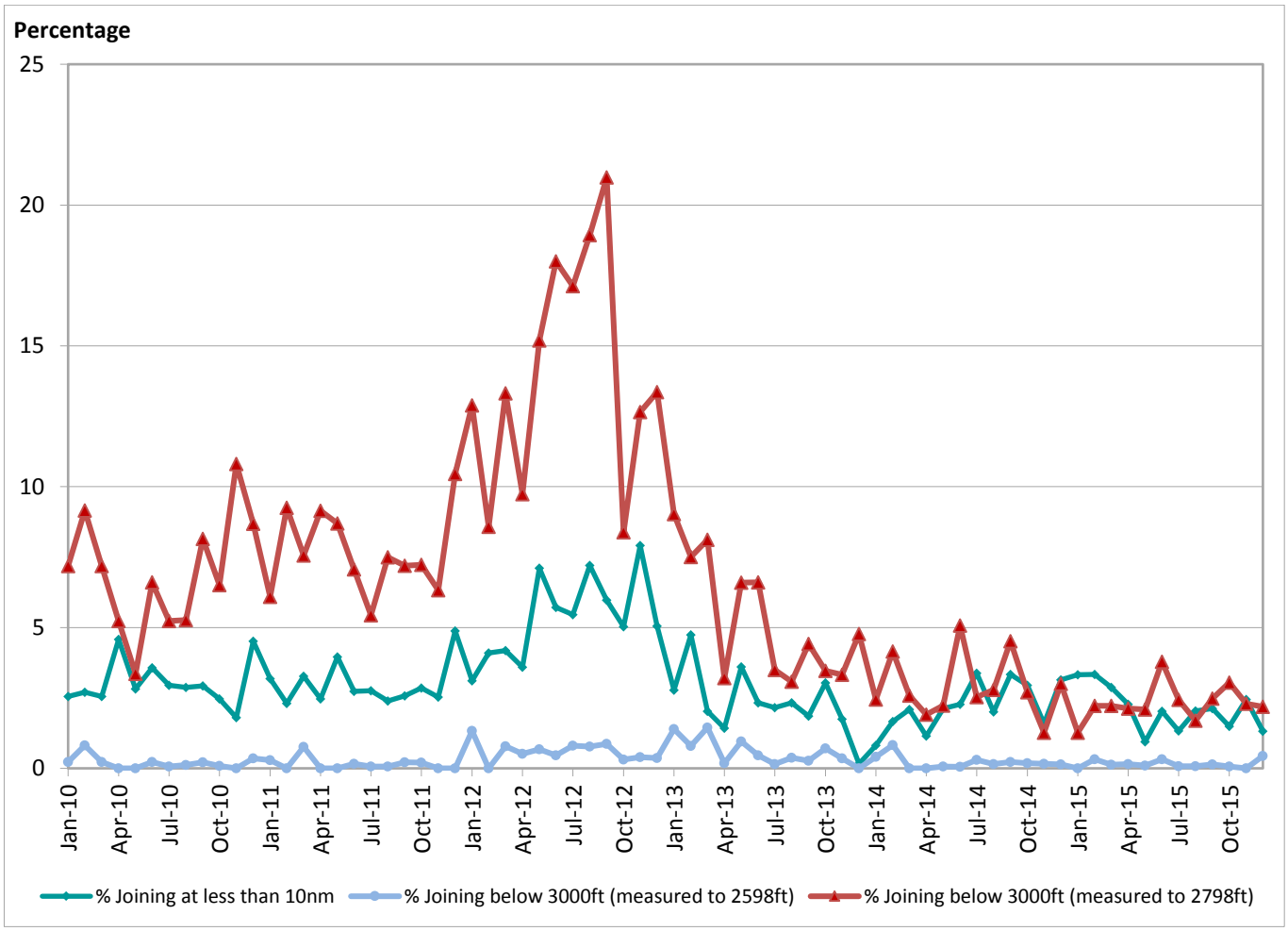
NIGHT-TIME JOINING POINT

There are also rules that instruct arriving aircraft to avoid the overflight of some nearby towns, below 3,000 feet, thus mitigating the noise impact over these built up areas.

There is also a specific rule regarding restricting aircraft to at least 2,000 feet as they pass the town of Lingfield, which is under the final approach path.

For some people, it is night flights that cause the most disturbance and therefore, in order to mitigate the impact of arriving aircraft, there are a number of rules that apply during the night period designed to keep aircraft as high as possible for as long as possible. These relate to the height and distance at which they can join the centreline for final approach, or Instrument Landing System (ILS). Collectively, these minimum heights and distances are known as the joining point criteria.

FIGURE 28 - THE NIGHT TIME JOINING POINTS (2010 – 2015)



Night Flights

Night flights are classified as those which take off and land between 23:00 and 07:00, when restrictions on the types of aircraft can operate come in to force. Further restrictions apply during the core night period (between 23:30 and 06:00) when there is a limit on the number of flights that can operate. This is supplemented by a noise quota system designed to encourage the use of quieter types during the night.

The current restrictions on night flying came into force in 2006, and initially were meant to remain in force until 2012. These restrictions were subsequently extended into autumn 2014. In the autumn of 2013, the Department for Transport announced the launch of the second stage of the consultation into night flying restrictions for the regulated London airports. Simultaneously, they announced that the current restrictions will remain in force until 2017 to allow for the final conclusions from the Airports Commission to be fully considered. These are due to be reviewed by the DfT in 2017.

The noise quota of an individual aircraft is based on its official noise certification data, with separate classifications for take-off and landing in the form of quota count (QC) values. **Figure 28** shows the different QC categories. In general terms, the smaller or newer the aircraft, the lower its QC value will be. For each aircraft type the departure QC value tends to be higher than that for arrivals.

FIGURE 29 - THE CLASSIFICATION OF QC VALUES

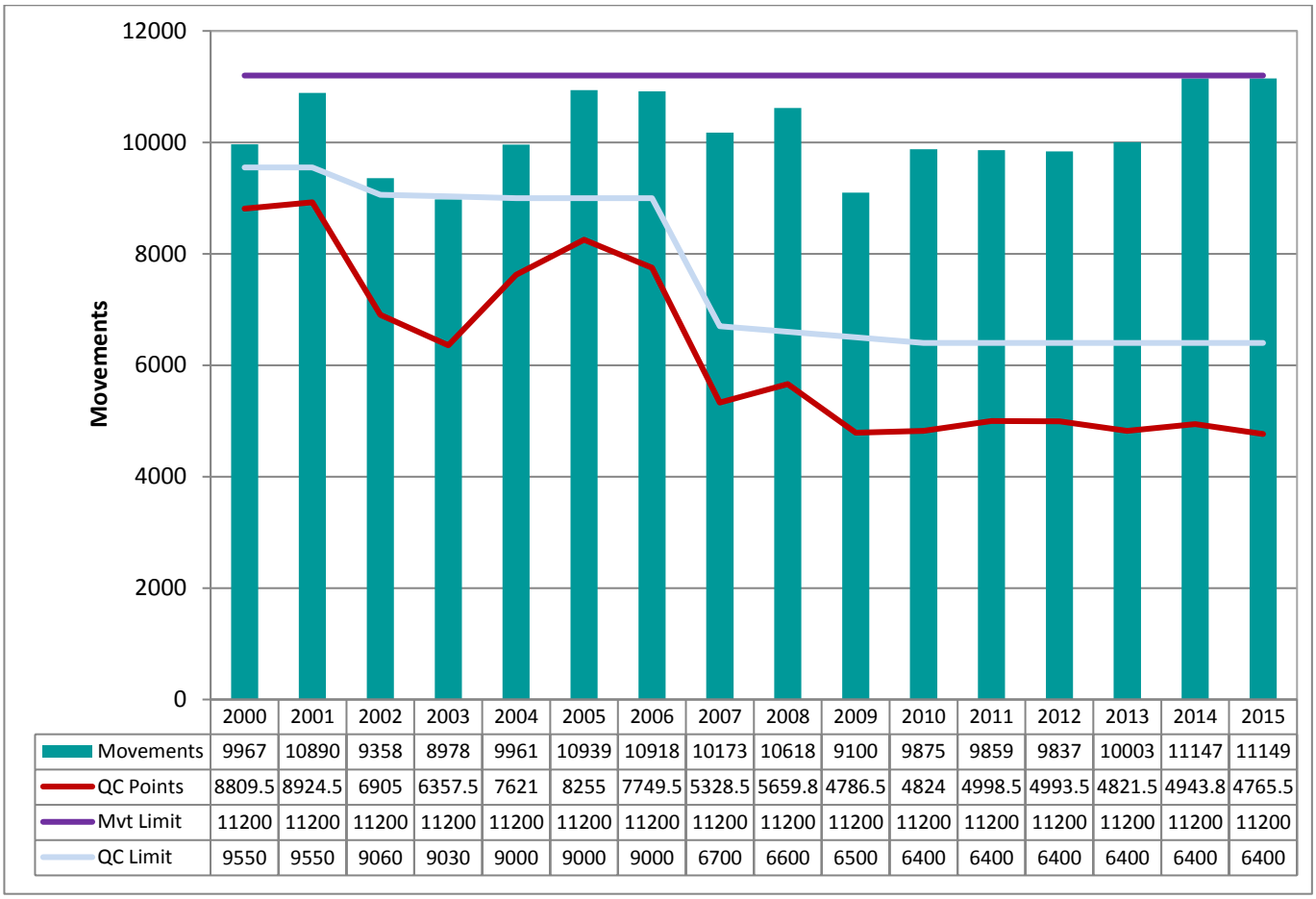
Certificated noise level (EPNdB)	Quota count
Less than 84	0
84 to 86.9	0.25
87 to 89.9	0.5
90 to 92.9	1
93 to 95.9	2
96 to 98.9	4
99 to 101.9	8
Greater than 101.9	16

FIGURE 30 - THE MOVEMENT AND QC LIMITS UP TO AUTUMN 2017

Winter	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Movements Limits	3250	3250	3250	3250	3250	3250	3250
Quota Points	2060	2000	2000	2000	2000	2000	2000

Summer	2010	2011	2012	2013	2014	2015	2016
Movements Limits	11200	11200	11200	11200	11200	11200	11200
Quota Points	6400	6300	6200	6200	6200	6200	6200

FIGURE 31 – A SUMMARY OF NIGHT QUOTA QC MOVEMENT USAGE FOR THE SUMMER SEASON 2000-2015



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Movements	9967	10890	9358	8978	9961	10939	10918	10173	10618	9100	9875	9859	9837	10003	11147	11149
QC Points	8809.5	8924.5	6905	6357.5	7621	8255	7749.5	5328.5	5659.8	4786.5	4824	4998.5	4993.5	4821.5	4943.8	4765.5
Mvt Limit	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200	11200
QC Limit	9550	9550	9060	9030	9000	9000	9000	6700	6600	6500	6400	6400	6400	6400	6400	6400

SEASON FLEXIBILITY

The night flight restrictions allow a carry-over facility to provide flexibility between seasons. Any unused allowance (up to 10% of the total allowance) from a preceding season can be carried over to next to allow some additional usage.

Under the current restrictions, the loudest aircraft types with a QC classification of QC 8 or QC 16 are not allowed to operate during the night quota period. Although aircraft with a value of QC4 are allowed to operate, they cannot be scheduled during the night period, therefore those that do take off or land are late departures or early arrivals.

Due to Gatwick's strict scheduling rules, no QC4 aircraft operated during this period.

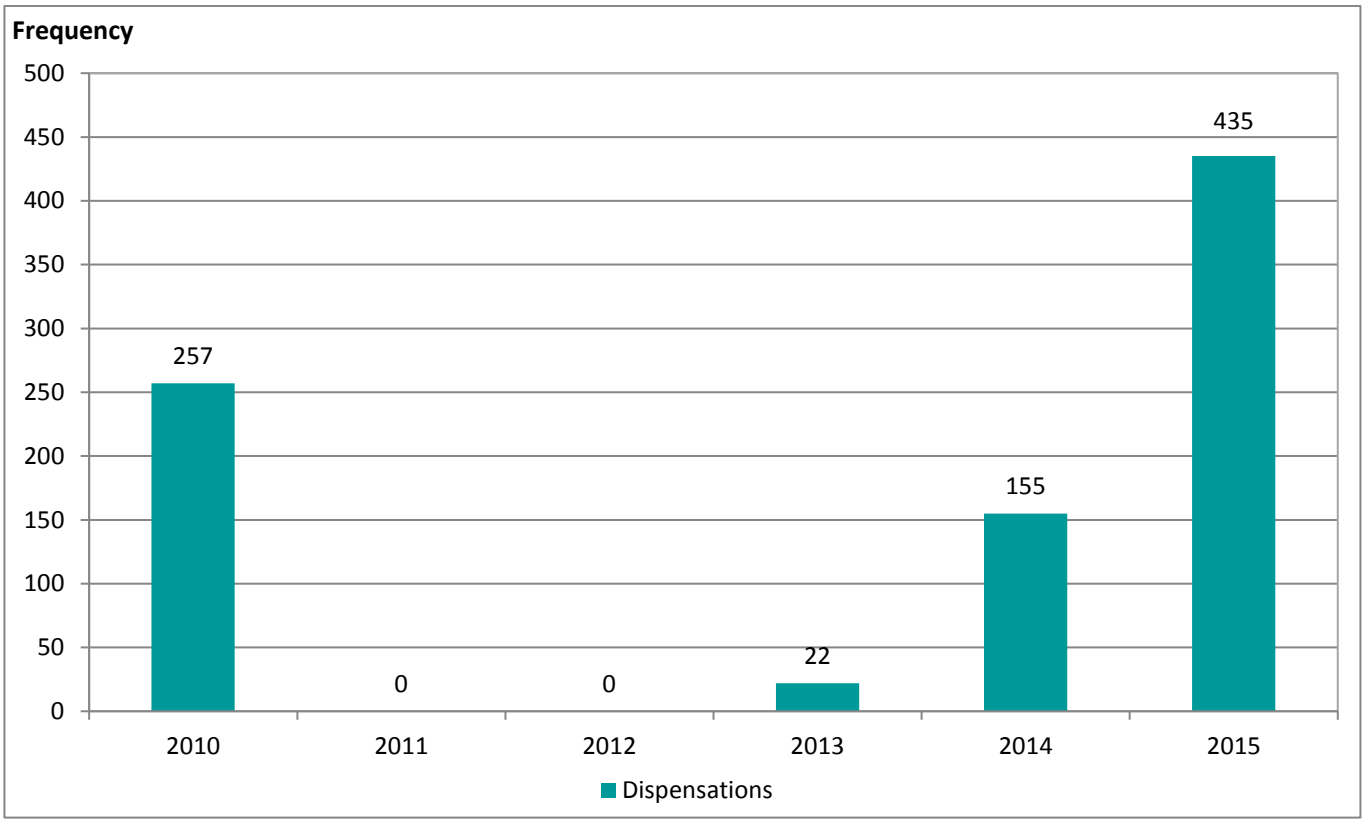
Planes with a QC 0.0 classification are those which for noise classification purposes are treated as exempt from the night flying regulations. Examples of this aircraft type are some small executive jets and small propeller aircraft. Very few aircraft fall under this category at Gatwick.

DISPENSATIONS

Aircraft can also be granted a dispensation to operate during the night quota period in exceptional circumstances, based on DfT guidelines. Examples of such circumstances are:

- Medical emergencies
- Humanitarian flights
- Aircraft carrying heads of state or royal families
- To alleviate terminal overcrowding/situations where significant distress may be caused to humans or animals.
- Non-scheduled movements as a result of major Air Traffic disruption.

FIGURE 32 – THE NUMBER OF DISPENSATIONS GIVEN (2010 – 2015)



REASONS FOR DISPENSATIONS 2015

FIGURE 33 – A SUMMARY OF THE REASONS FOR GIVEN DISPENSATIONS DURING 2015

Reason	Frequency
Disruption caused by severe weather conditions	192
Arrivals Flow Rate Restrictions	135
Spanish ATC Strike on the 11th and 25th July 2015	83
French ATC Strike on the 9th April 2015	17
North Terminal temporary closure following security incident on the 14th November 2015.	4
Knock on delays due to localised bush fire at FCO Airport on the 29th July 2015.	3
Greek ATC Strike on the 5th August 2015	1

FIGURE 34 - THE QUOTA COUNT USED DURING THE SUMMER SEASON 2005 - 2016

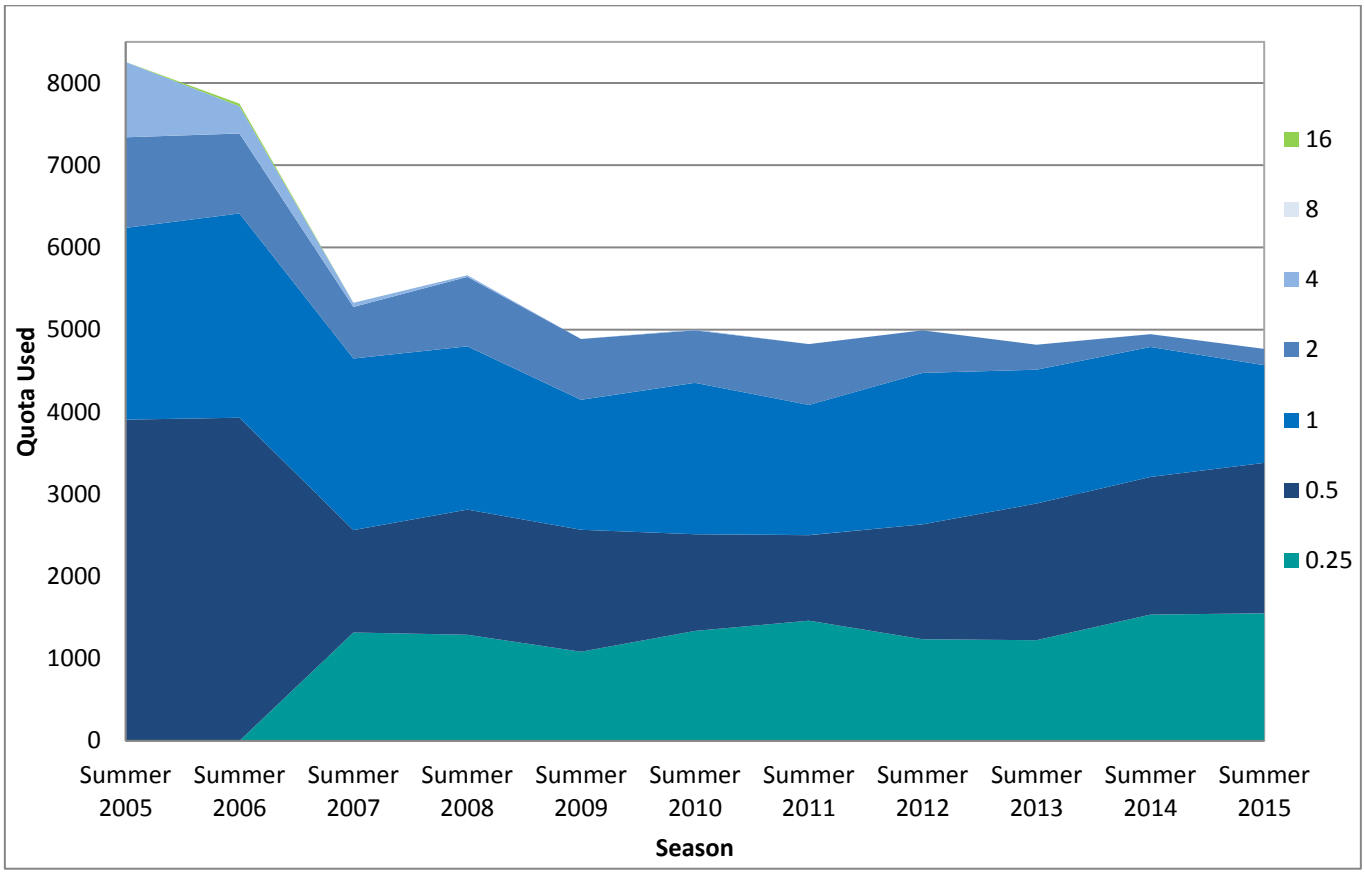
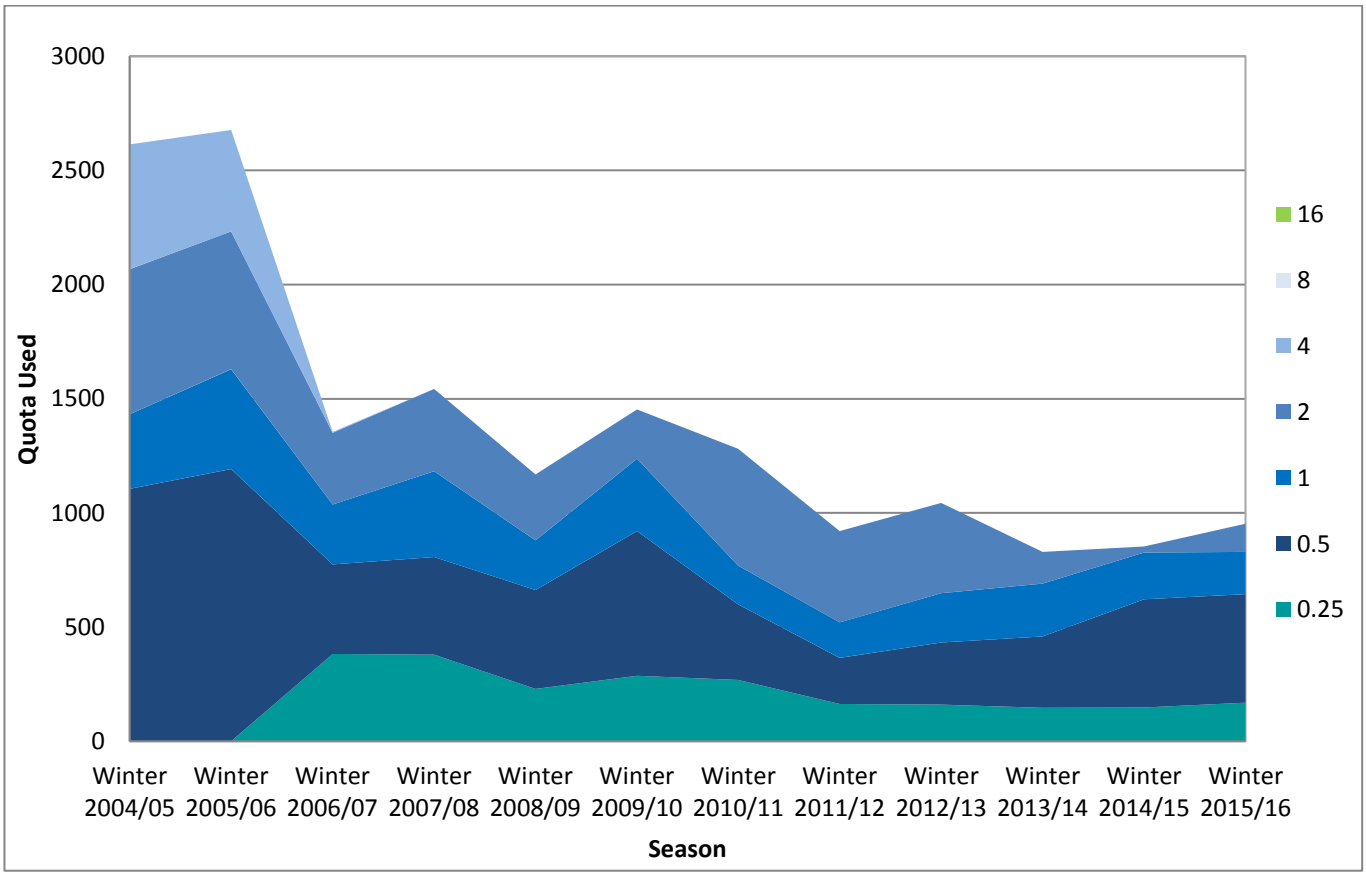


FIGURE 35 - THE QUOTA COUNT USED DURING THE WINTER SEASON 2004/5 – 2015/16



Aircraft Noise and Community Monitoring

Aircraft noise is assessed in three different ways:

1. Departure Noise Limits
2. Local community noise studies
3. Annual Noise Contours

DEPARTURE NOISE LIMITS

Departure noise limits are based on the assumption that the noise monitors are exactly 6.5km from the start of roll point on the runway and at the same elevation as the airfield. In practice, this is seldom possible and adjustments are made to the limits to account for any variances in the monitor position. There is also a margin of error taken into account for the microphone of +/- 0.7dB. Details of the limits that apply to departing aircraft are shown below.

In light of the more noise sensitive period, a lower noise limit applies during the night-time hours, which restricts the types of aircraft that can operate during this time.

FIGURE 36 - THE NOISE LIMITS AS ADJUSTED FOR INDIVIDUAL MONITORING SITES

Site	Adjustments specific to monitoring sites			Adjusted Limit values at monitoring sites		
	Positional	Equipment	Total	Day	Shoulder	Night
1	+5.0	+0.7	+5.7	99.7	94.7	92.7
3	+1.9	+0.7	+2.6	96.6	91.6	89.6
5	+1.9	+0.7	+2.6	96.6	91.6	89.6
4	0.0	+0.7	+0.7	94.7	89.7	87.7
6	-0.2	+0.7	+0.5	94.5	89.5	87.5

NOISE PENALTIES

Financial penalties are applied to aircraft that exceed the following noise levels on departure (monitored at 6.5km from the start of roll):

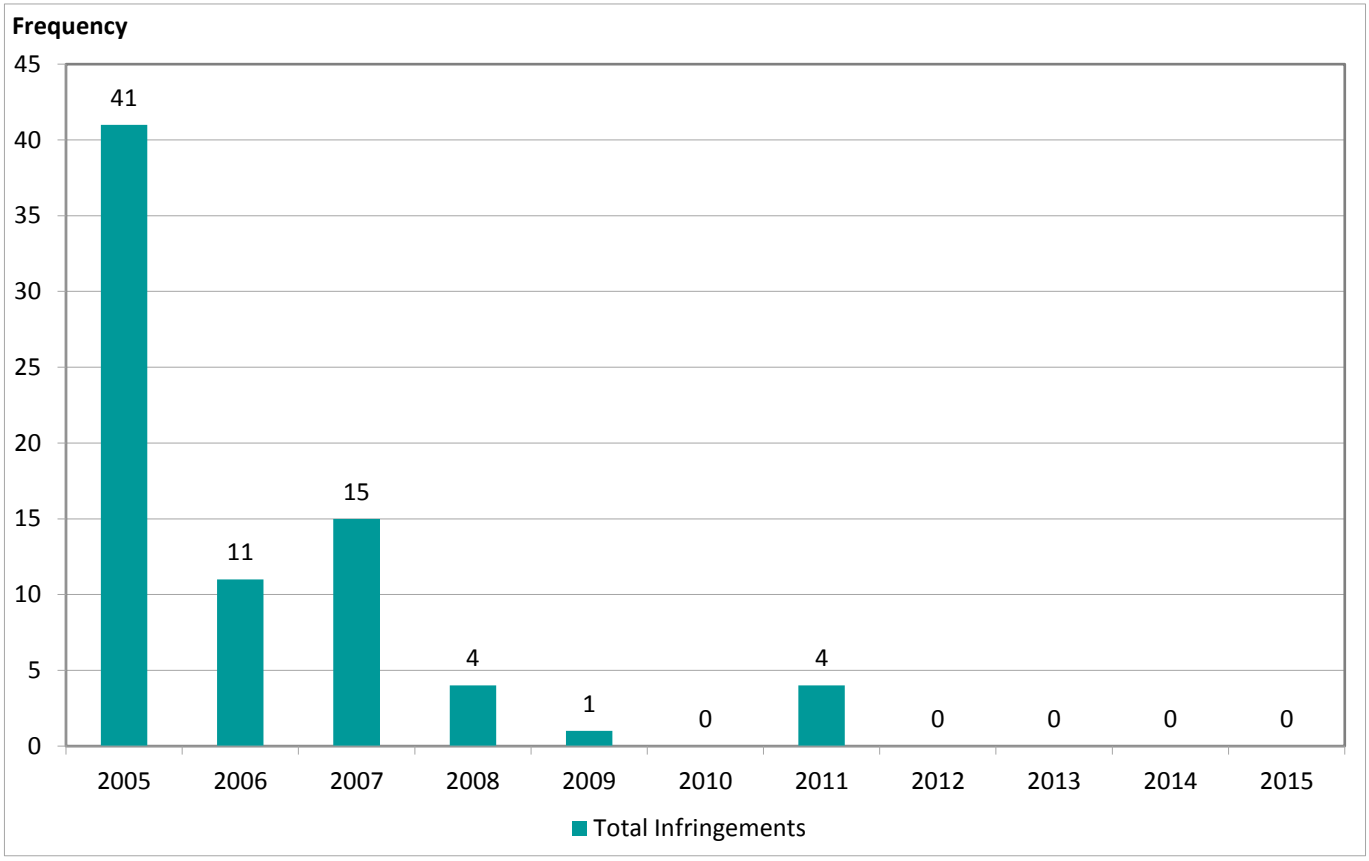
A minimum penalty of £500 will be applied for any departing flight that exceeds the above noise limits. For any departure that exceeds the limit by 5 decibels or more, a fine of £1,000 is applied.

All proceeds from noise fines are passed to the independently run Gatwick Airport Community Trust (GACT). The trust also receives £194,000 (2015) per annum from the airport and distributes grants to local charities and community projects.

Details of the work carried out by the GACT are available at www.gact.org.uk

During 2015, there were no recorded noise infringements at Gatwick for the fourth consecutive year running. The absence of noise infringements over the past few years, compared to the period 2005-2011, reflects Gatwick's continuing work with our airline partners to encourage the best practice in noise management and the continuing introduction of more modern types operating at the airport in recent years, including the Thomson and Norwegian Boeing 787-800 Dreamliner's.

FIGURE 37 - THE GRAPH BELOW SHOWS THE DEPARTURE NOISE INFRINGEMENTS PER YEAR 2005 – 2015



NOISE CONTOURS

In the UK, Government research indicates that people start being concerned by aircraft noise at 57dB, averaged over 16 hours (57dB LAeq). They use this as the starting point in airport and aircraft noise policies.

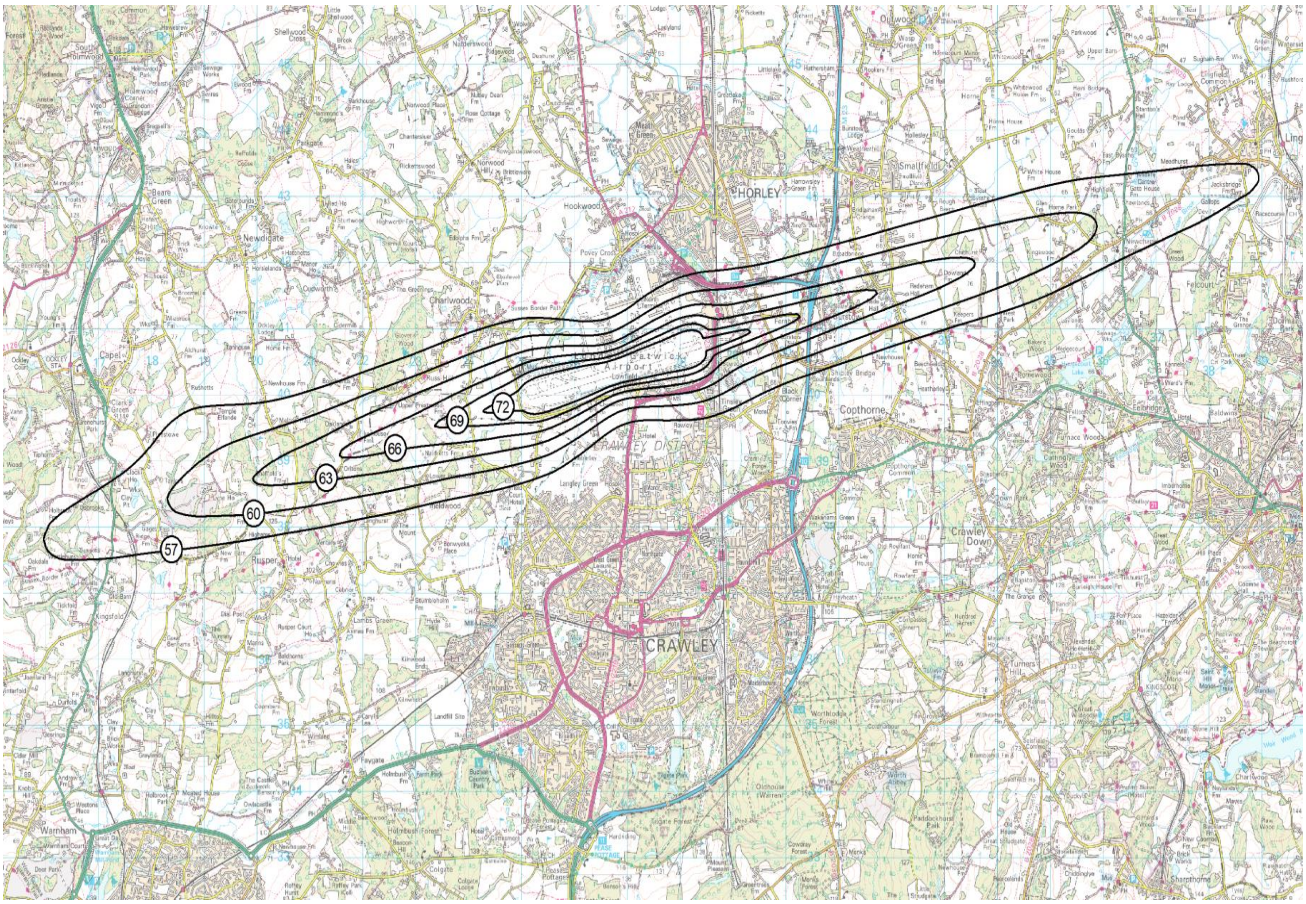
To show where the different average noise levels are located around the airport, the Government has developed maps showing 'noise contours'. Below is the 'noise contour map' for the area around Gatwick Airport. The contours are an irregular shape because typically people experience a greater amount noise at the ends of the runway (where planes take off and land) than along the sides of the runway.

The 57 dBA Leq day contour area for 2013 based on the actual runway modal split was calculated to be 40.9km^2, 1% lower than in 2012. The population enclosed within the actual 57 dBA Leq day contour decreased by 11% to 3,250.

FIGURE 38 - THE GATWICK DAY STANDARD CONTOURS – AREAS AND POPULATIONS FOR 2012 AND 2013

Leq (dBA)	2012 Area (km^2)	2013 Area (km^2)	Area change (%)	2012 Population	2013 Population	Population change (%)
> 57	41.2	40.9	-1%	3,650	3,250	-11%
> 60	23.3	23.1	-1%	1,150	1,250	+9%
> 63	12.8	12.5	-2%	400	350	-13%
> 66	6.9	6.7	-3%	150	150	0%
> 69	3.7	3.5	-5%	< 50	0	(n/a)
> 72	2.0	1.9	-5%	0	0	(n/a)

FIGURE 39 - THE NOISE EXPOSURE CONTOURS 2013



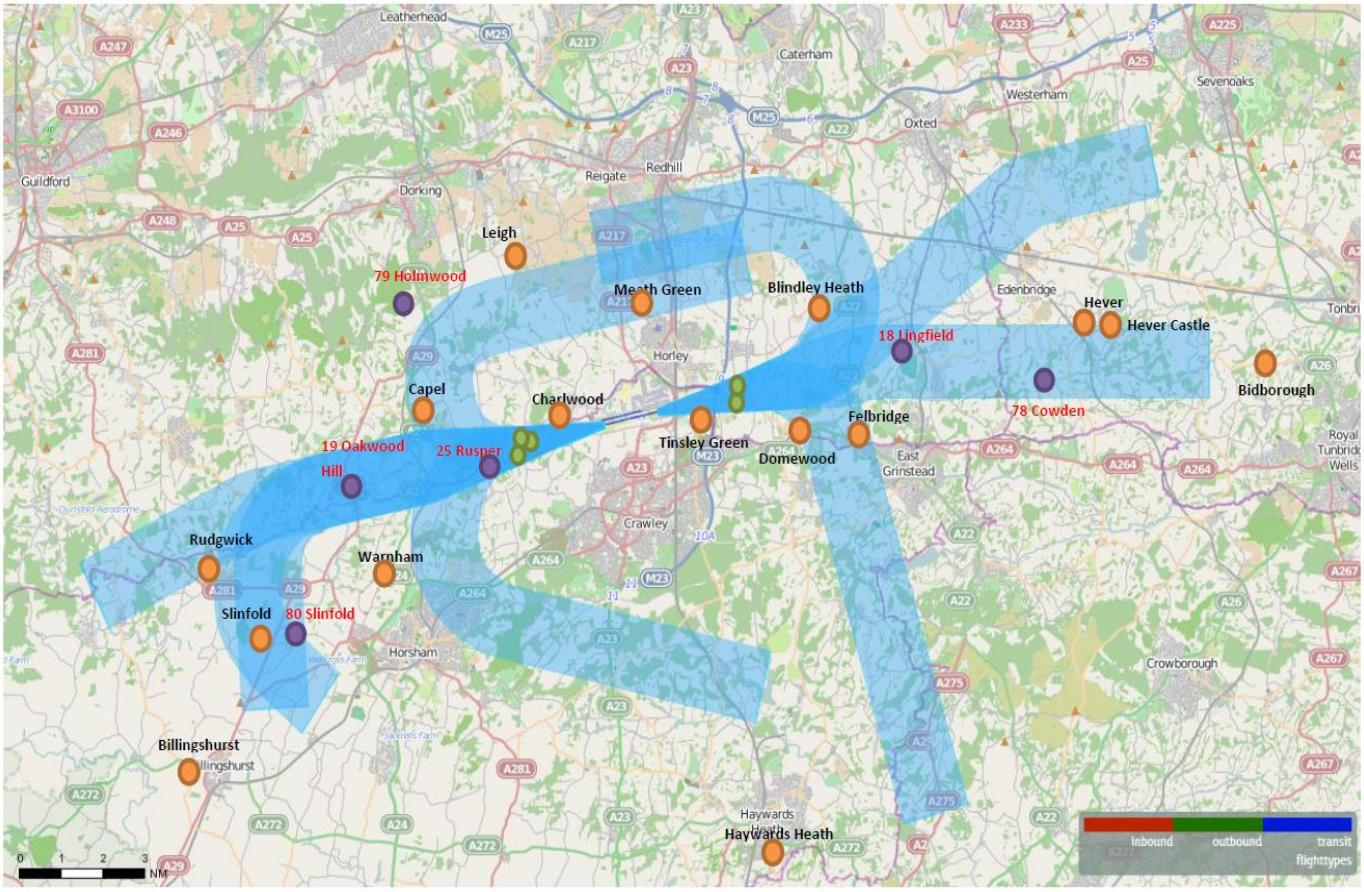
GATWICK NOISE MONITORING GROUP

Gatwick Airport funds and co-ordinates a community noise monitoring programme in conjunction with local Environmental Health Officers and the Airport's Consultative Committee. Noise monitors are located throughout local communities in Sussex, Surrey and Kent in order to develop an understanding of the noise environment and assess the impact of aircraft noise on those areas.

Following a study period of 12 months, so as to capture the seasonal differences in aircraft traffic, the airport instructs an independent noise consultant to produce reports on the noise climate in the study area and these are now available on our noise website at **www.gatwickairport.com/noise**.

Figure 40 below illustrates the location of current and historical noise monitor sites. The sites cover a large geographic area therefore benefitting many communities even those that are overflown at relatively high altitudes.

FIGURE 40 - THE LOCATION OF THE CURRENT AND HISTORICAL NOISE MONITORS 2015



Location of current and historical noise monitors and NPRs – December 2015 Current sites Historical sites Fixed sites

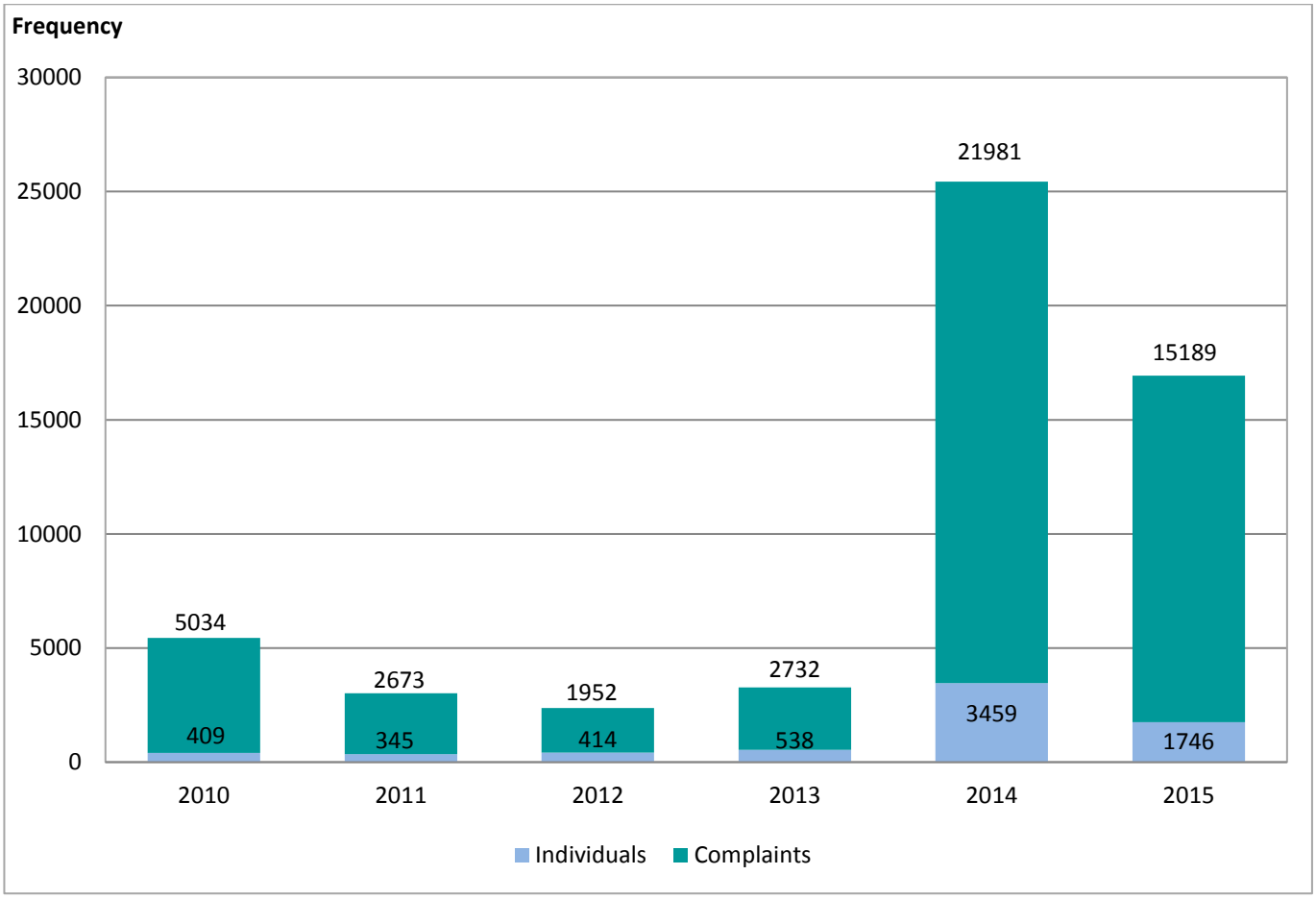
Complaints

Airports bring positive economic and social benefits as well as environmental impacts. They are important to the economy, providing jobs, encouraging inward investment, and boosting local tourism. However, they can also have an impact for those communities that exist around airports. Noise remains a significant issue for people living or working close to airports or under flight paths.

Complaint statistics can be extremely difficult to interpret as a large proportion of all our complaints originate from a very small group of individuals. **Figure 41** below shows the number of individual callers compared to the number of complaints made in 2015. This illustrates one of the difficulties in studying the effects of noise, as people's tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs not only between neighbours, but also between socio-economic groups. The last UK study on aviation noise **Attitudes to Noise from Aviation Sources in England (ANASE)** concluded that:

'There is common agreement that people today have higher expectations of a peaceful living environment, are less tolerant of environmental intrusion, and might consequently be less accepting of aircraft noise. This view is supported by social trend data. While both income and taste effects are likely to be important, it is not possible to identify relative strength.'

FIGURE 41 - THE NUMBER OF INDIVIDUAL CALLERS AND RECORDED COMPLAINT NUMBERS IN 2015



CALLER LOCATIONS

FIGURE 42 - THE LOCATIONS OF COMPLAINTS RECORDED IN 2015

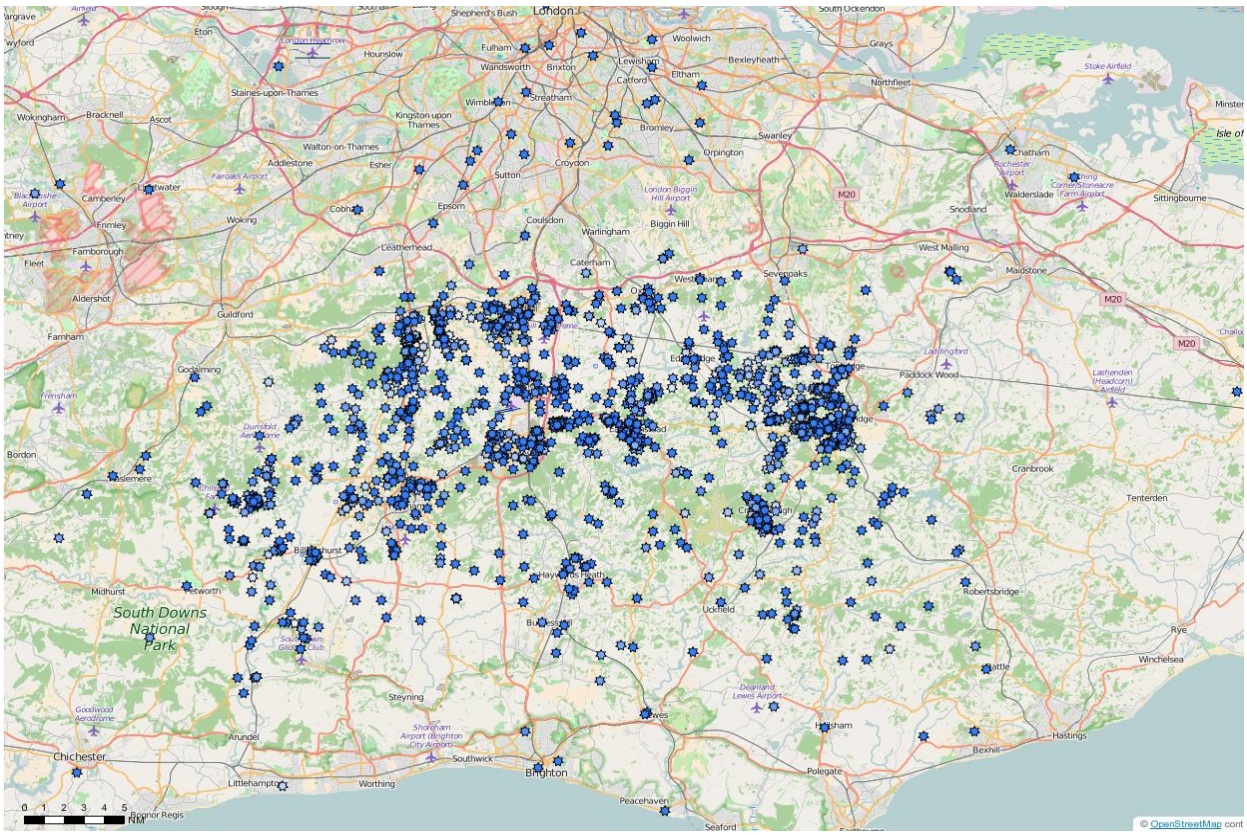
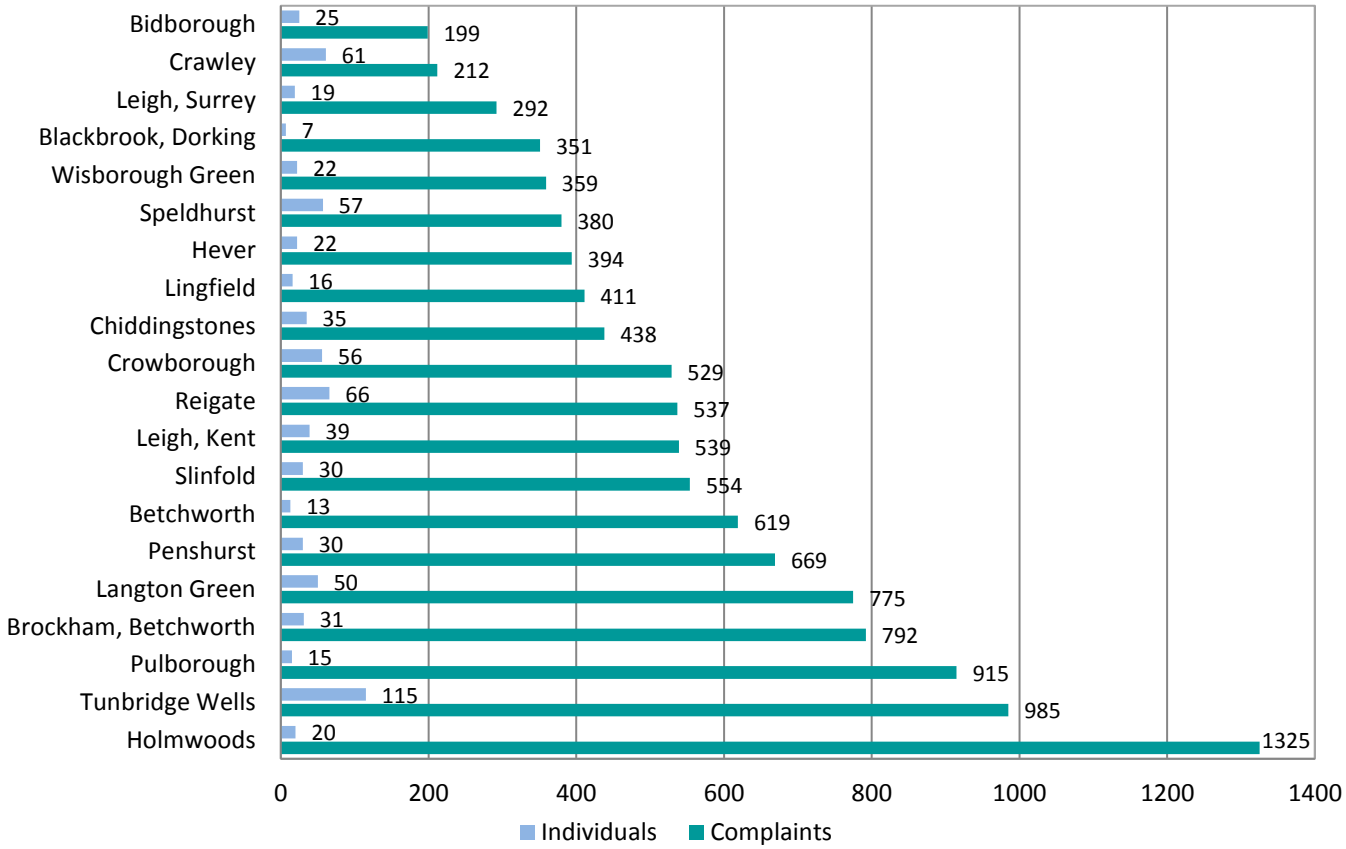


FIGURE 43 - THE TOP 20 LOCATIONS FOR COMPLAINTS IN 2015



NOISE AND TRACK KEEPING SYSTEM

The Noise and Track Keeping system automatically correlates aircraft to specific complaints, thereby allowing comprehensive analysis of the flights that are a causing concern for local communities.

Our Noise and Track Keeping software can also automatically assign a particular aircraft operation with a complaint and therefore enable us to provide statistics on whether departing or arriving aircraft are the cause for complaint. The system can also analyse the types of aircraft that have caused concern. These statistics are provided below in **Figure 44** and **Figure 45.**

FIGURE 44 - THE ANALYSIS OF THE DISTRIBUTION OF COMPLAINTS AGAINST AIRCRAFT TYPES COMPARED TO TOTAL MOVEMENTS 2015

Type	Number of Complaints	Total Movements	% Complaints	% Movements
Airbus A319	2275	97931	26.42%	36.57%
Airbus A320	1959	73451	22.75%	27.43%
Boeing 737	1048	47253	12.17%	17.65%
Airbus A321	497	13540	5.77%	5.06%
Boeing 757	189	5944	2.20%	2.22%
Boeing 777	532	7916	6.18%	2.96%
Boeing 787	208	3945	2.42%	1.47%
Embraer	46	3852	0.53%	1.44%
Airbus A330	379	3445	4.40%	1.29%
Boeing 747	639	2870	7.42%	1.07%
Dash 8 Prop	17	1960	0.20%	0.73%
ATR Prop	8	1202	0.09%	0.45%
Boeing 767	81	1008	0.94%	0.38%
Airbus A340	21	160	0.24%	0.06%
Airbus A380	321	1332	3.73%	0.50%
Other Small Jets	313	292	3.64%	0.11%
Canadair Jet	0	288	0.00%	0.11%
Airbus A310	26	208	0.30%	0.08%
Fokker	1	183	0.01%	0.07%
Cessna Citation	18	280	0.21%	0.10%
Dassault Falcon	8	164	0.09%	0.06%
Gulfstream	2	142	0.02%	0.05%
Bombardier	1	138	0.01%	0.05%
McDonnell Douglas	5	120	0.06%	0.04%
Hawker	15	80	0.17%	0.03%
Learjet	1	63	0.01%	0.02%

Study of these figures would suggest that aircraft noise is not always the primary issue as it appears it is the frequency of the aircraft that provokes more complaints. The most common aircraft types operating at Gatwick receive the most complaints.

Figure 45 overleaf shows aircraft types classified by their comparable size and the percentage of complaints received per movement.

FIGURE 45 - THE ANALYSIS OF COMPLAINTS AGAINST AIRCRAFT TYPE BY COMPARATIVE SIZE 2015

Class	Type	Number of Complaints	Total Movements	% Complaints	% Movements
Large	Boeing 777	532	7916	6.42%	2.97%
Large	Boeing 747	639	2870	7.72%	1.08%
Large	Airbus A380	321	1332	3.88%	0.50%
Large	Airbus A330	379	3445	4.58%	1.29%
Large	Boeing 787	208	3945	2.51%	1.48%
Large	Airbus A340	21	160	0.25%	0.06%
Large	Airbus A310	26	208	0.31%	0.08%
Medium	Airbus A319	2275	97931	27.47%	36.72%
Medium	Boeing 737	1048	47253	12.65%	17.72%
Medium	Airbus A320	1959	73451	23.65%	27.54%
Medium	Boeing 757	189	5944	2.28%	2.23%
Medium	Airbus A321	497	13540	6.00%	5.08%
Medium	Boeing 767	81	1008	0.98%	0.38%
Small	Gulfstream	2	142	0.02%	0.05%
Small	Hawker	15	80	0.18%	0.03%
Small	Embraer	46	3852	0.56%	1.44%
Small	Dash 8 prop	17	1960	0.21%	0.73%
Small	ATR prop	8	1202	0.10%	0.45%
Small	Cessna Citation	18	280	0.22%	0.10%
Small	Fokker	1	183	0.01%	0.07%

Figure 45 also confirms that there are more complaints for the more common aircraft types at Gatwick rather than related to the size of the aircraft. The aircraft with the greatest numbers of movements are classed as medium sized aircraft and these appear to have the greatest number of complaints.

We should point out that helicopters are also a source of complaint, however very few operate from Gatwick, and all of our complaints on this subject relate to either police/air ambulance flights from Redhill Aerodrome or military flights.

Gatwick Airport remains dedicated to reducing the noise impact of its operations on local communities.

In line with current Government guidance, we are actively looking at new innovative ways of reducing the number of people impacted by Gatwick traffic.

To this end, we will continue to work with our airlines, Air Traffic Control and local community representatives to continue to improve the noise environment in and around the airport.

If you would like to find out more information about Gatwick aircraft and noise in your area you can visit our website **www.gatwickairport.com/noise**. Also available on this site is our Noise Lab which includes a free to use flight tracking tool which allows the public to track movements of Gatwick aircraft.

Glossary

Gatwick Airport Limited (GAL) is the company licensed to operate Gatwick Airport by the Civil Aviation Authority. Gatwick is wholly-owned by Ivy Bidco Limited (Ivy), a company formed to undertake the acquisition of Gatwick. Ivy is ultimately controlled by funds managed by Global Infrastructure Management, LLC, part of Global Infrastructure Partners (GIP).

Department for Transport (DfT) is the government department responsible for the English transport network and a limited number of transport matters in Scotland, Wales and Northern Ireland which are not devolved. The department is run by the Secretary of State for Transport.

Civil Aviation Authority (CAA) is the UK's independent specialist aviation regulator. Its activities include economic regulation, airspace policy, safety regulation and consumer protection.

Air Traffic Control (ATC): See NATS below

NATS (Formerly National Air Traffic Services) is the main air navigation service provider in the United Kingdom. It provides en-route air traffic control services to flights within the UK Flight Information Regions and the Swanwick Oceanic Control Area, and provides air traffic control services to fifteen UK airports and Gibraltar Airport.

Flight Performance Team (FPT) is responsible for recording, investigating and responding to aircraft noise enquiries as well as to monitor and report airline compliance to noise mitigation measures as detailed in the UK Aeronautical Information Publication. The FEU also manages a number of fixed and mobile noise monitors within the local area. They are regularly relocated, the data analysed and the findings reported.

Gatwick Airport Consultative Committee (GATCOM) is a committee set up in 1956 in order to meet statutory requirements for public consultation. GATCOM discusses issues relating to employment, surface access and resource use as well as aircraft performance. It is comprised of members of local authorities, local interest groups, business and airline representatives and the DfT and is advised by senior managers from GAL.

Noise and Track Monitoring Advisory Group (NaTMAG) is chaired by GAL with membership drawn from DfT, NATS, GATCOM, the airline industry, local Environmental Health Officers and GAL's acoustic consultants. It oversees the administration of the environmental monitoring systems used by the FEU and discusses local issues concerning aircraft noise and track keeping.

Flight Operations Performance and Safety Committee (FLOPSC). This Committee ensures the development of best practice in flight operations by all airlines using Gatwick Airport in order to minimise their effect on the local community. Matters discussed include departure track keeping, continuous descent operations and noise infringements. FLOPSC meets bi monthly and is chaired by GAL and is attended by the FEU, DfT, NATS, Airlines and a representative of GATCOM.

Decibels (dBA): Noise measurement that takes closest account of human hearing. It is used to measure aircraft noise.

Leq - Equivalent Continuous Sound Level: The notional sound pressure level which, if maintained constant over a given time, delivers the same amount of acoustic energy at some point as the time-varying sound pressure level would deliver at the same point and over the same period of time.

Noise monitors (fixed): Sited at either end of the runway to measure the noise of departing aircraft. The readings from these are the only ones that can determine a noise infringement.

Noise monitors (mobile): Sited in various locations around Gatwick to aid studies into the local noise climate.

Noise limits: Levels fixed by the Department for Transport which should not be exceeded by departing aircraft.

Noise infringements: If the above level is exceeded, the airline concerned receives a financial surcharge.

Start of roll: Point where a departing aircraft releases its parking brakes to commence take off roll.

Noise Preferential Route (NPR): It consists of a 'centreline' and an associate compliance monitoring swathe (3km across, i.e. 1.5km either side of the NPR centreline) in which departing aircraft must remain to an altitude of 3,000 or 4,000ft. These are used to provide set routes aircraft must follow and so provide some certainty as to which areas will be over flown by departing aircraft.

Standard Instrument Departure (SID): This is a published flight procedures followed by aircraft on an Instrument Flight Rules flight plan immediately after take-off from an airport. The first section of a SID is an NPR.

Vectoring: Air Traffic Control procedure turning a departing aircraft off an NPR on to a more direct heading to its' destination.

Holding stack: The area where aircraft circle at a minimum 7,000ft, awaiting approach instructions during busy periods.

Instrument Landing System (ILS): Precision approach aid consisting of a number of elements, principally a localiser radio beam and glide path aerials. It guides aircraft through final approach to touchdown.

Continuous Descent Operations (CDO): A noise abatement procedure for arrivals. It avoids periods of level flight, reducing noise and emissions. It is advisory, but not compulsory.

Reverse thrust: A braking procedure used by older landing aircraft. Noisy, so use is discouraged at night.

Go-around: An aborted landing of an aircraft that is on final approach. The aircraft turns and gets back in the queue to land.

Restrictions: Formulated by the Department for Transport relating to types of aircraft that can fly at night and placing limits on movements. It is strictly monitored by Gatwick Airport Limited.

Night period is the period from 23:00 to 07:00

Night quota period is the period from 23:30 to 06:00

Quota count - QC: Points ranging from 0.25 to 16, allocated to aircraft types. The quieter the type, the lower the quota count. Aircraft with a rating of QC4, 8 or 16 may not be scheduled to take off or land during the night quota period. QC8 and 16 types may not be scheduled to take off or land in the night period.

Movements limits: The number of movements permitted during the night period, differing between seasons.

Seasons: There are two seasons, winter and summer. It is determined by use of GMT/BST.

Dispensations: Granted to aircraft not normally permitted to fly during the night. Exceptional circumstances are (a) delays likely to lead to serious congestion at the airport or serious hardship or suffering to passengers or animals and (b) delays resulting from widespread and prolonged disruption to Air Traffic Control. Further dispensations may be granted in respect of VIP flights, relief flights carrying supplies, military aircraft operations in the event of war and civil aircraft affected by hostilities.

08R: Main runway used when aircraft are departing towards the east and arriving from the west.

26L: Main runway used when aircraft are departing towards the west and arriving from the east.

08L: Northern or standby runway used when aircraft are departing towards the east and arriving from the west.

26R: Northern or standby runway used when aircraft are departing towards the west and arriving from the east.

Altitude: The distance of an aircraft above sea level (asl).

Height: The distance of an aircraft above airfield level (aal). Gatwick is 202ft asl.

Nm: Nautical Mile

NRP: Night Restrictions Period

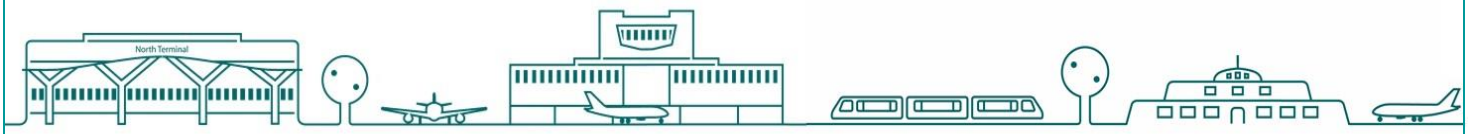
NTK: Noise and Track Keeping System - See ANOMS below

ANOMS: Airport Noise and Operations Management System. Used for accurate monitoring and management airport operations and the associated noise.

REFERENCES

MVA Consultancy (2007) Attitudes to Noise from Aviation Sources in England (ANASE): Final Report for Department for Transport.

For further reading on the subject of noise you can access our latest reports on our dedicated website **www.gatwickairport/noise**



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