

AIRSPACE INFRINGEMENTS – BACKGROUND STATISTICS

What is an airspace infringement?

A flight into a notified airspace that has not been subject to approval by the designated controlling authority of that

airspace in accordance with international and national regulations. Such airspace is considered to be:

- Controlled airspace, including ICAO airspace classes A to E.

Note: *VFR traffic cannot infringe Class E airspace because under ICAO rules neither an ATC clearance nor a radio communication is required to enter or operate within it, unless filed national differences call for one or the other (or both). IFR traffic can infringe Class E airspace when not in receipt of a clearance to enter it.*

- Aerodrome Traffic Zones, where these exist in Class G airspace.
- Airspace restrictions, such as: Prohibited, Restricted and Dangers Areas, Temporary Reserved Airspaces or airspace notified by a restriction of flying in accordance with national requirements.

Who infringes?

All sectors of the aviation community- commercial, military and GA - are guilty of committing airspace infringements. Infringement reports - through the Mandatory Occurrence Reporting (MOR) scheme (see below) – which tend to be filed by air traffic control units - form the basis of infringement statistics to which the CAA and the Airspace Infringement Working Group will refer in the course of their work. Although it is recognised that many infringements are resolved ‘on the spot’, these mostly go unreported and therefore may not form part of the official statistics.

How often do infringements occur?

Statistically, roughly five infringements occur every three days. The majority are attributable to GA pilots and most, but not all, involve controlled airspace - primarily Control Zones serving airports and also Control Areas and Airways. Those occurring outside controlled airspace tend to involve Aerodrome Traffic Zones (ATZs) and Danger Areas. Infringements of Restricted Airspace (Temporary) (RA(T)) associated with air shows or Red Arrows displays (often both) also feature.

Infringements occur throughout the year, but there is a clear cyclical pattern to when they occur. Unsurprisingly, peaks are traditionally reached during the summer months – good VFR conditions encouraging more pilots to fly, sheer numbers alone increasing the probability of infringement – with troughs emerging with the onset of autumn and winter. The arrival of spring brings with it a steady monthly rise in reported infringements, leading to again to the annual summer peak.

Where do infringements occur?

Some airspaces are more infringed than others. Why? Several factors come into play. Firstly, most infringements occur in southern England and so can be attributed to more congested skies and a complex airspace structure. Secondly, the statistical evidence the CAA has to hand can be affected by aggressive reporting regimes at particular airfields, although conversely a reluctance by many ATC units to formally report infringements can hide true occurrence levels and patterns. Another factor which should not be overlooked is the impact major air events can have on the scale and pattern of infringements; RA(T)s protecting these are infringed despite the best efforts of event organisers and the aviation community in

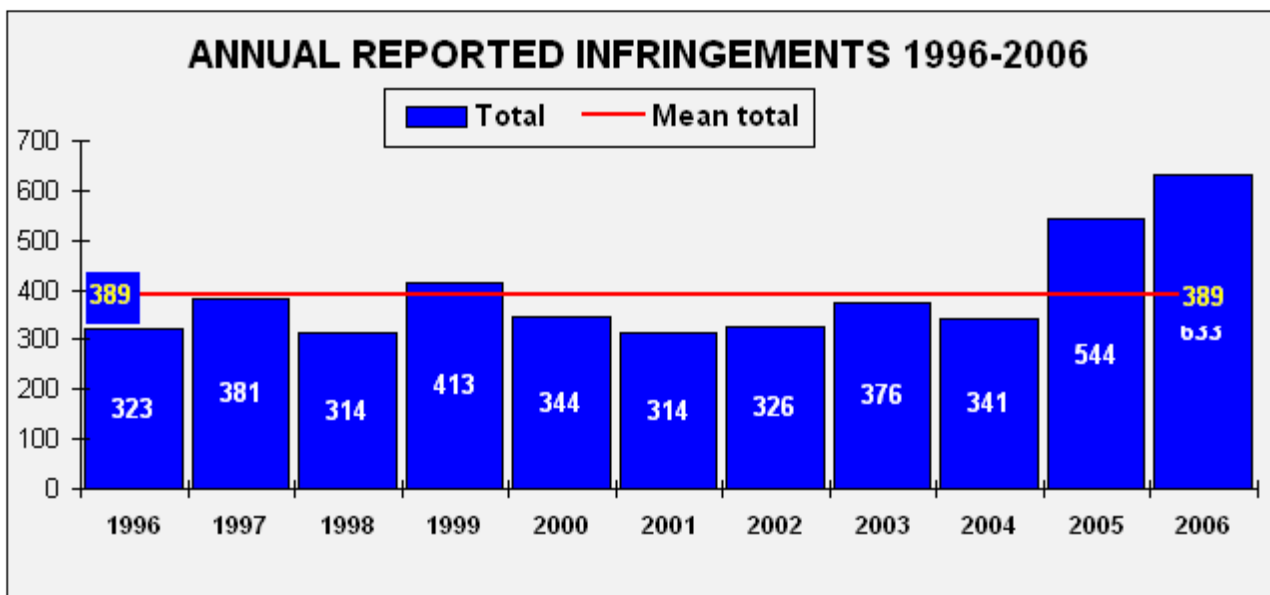
general to make pilots aware of their establishment. Sheer weight of numbers of VFR aircraft flying to and from such an event can lead to a number of infringements of adjacent controlled airspace, danger areas and the like by participating aircraft. Furthermore, external factors such as the 2001 foot and mouth crisis and the immediate effects of September 11 2001 can curtail aerial activity (and thus the probability of infringement) or heighten awareness and observation of infringements from a security perspective.

Finally, the number of infringements attributed to GA pilots must be considered within the context of the number of GA pilots and aircraft, and the number of flights and hours flown by them. BBGA, on their website www.bbga.aero, state that there are over 8,000 GA aircraft in the UK, representing more than 90% of UK-registered civil aircraft. No statistics are available to show exactly how many GA flights are undertaken and how many hours are flown in any given year, but it is probably safe to say that those flights resulting in an airspace infringement represent a small proportion of these. That does not suggest there is not a problem, as each infringement will carry with it some degree of flight safety risk. Infringements are caused by all sectors of the aviation community and every effort should be made to reduce the number of occurrences.

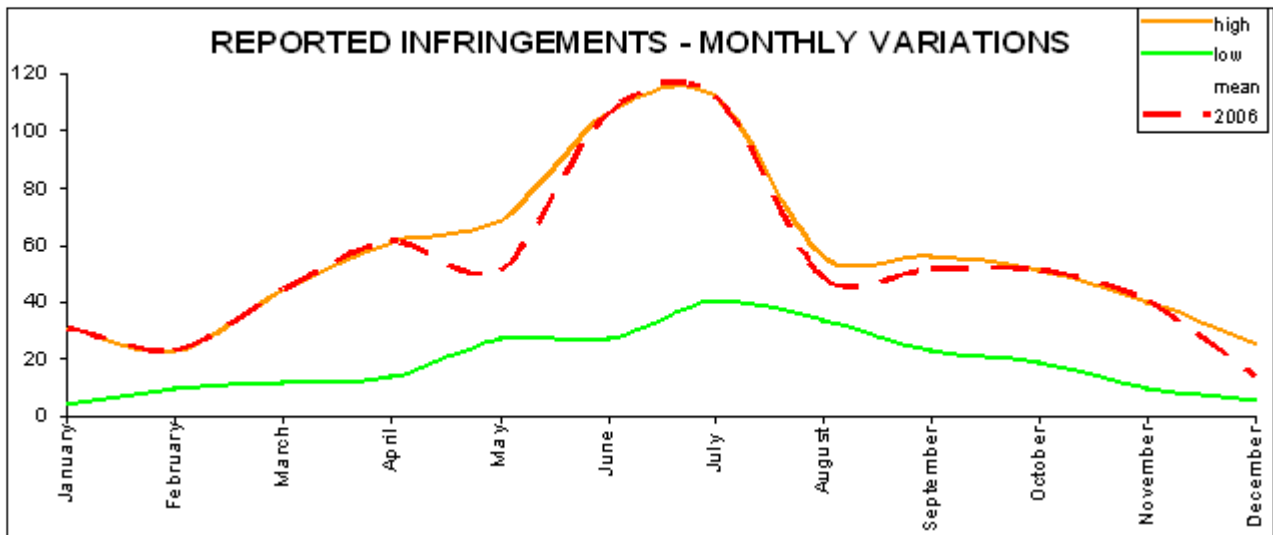
Supporting Graphs

The following graphs have been constructed using MOR data held by the CAA. MORs are submitted in accordance with the requirements of CAP 382 'The Mandatory Occurrence Reporting Scheme'.

The objective of the MOR Scheme is to contribute to the improvement of air safety by ensuring that relevant information on safety is reported, collected, stored, protected and disseminated. The sole objective of occurrence reporting is the prevention of accidents and incidents and not to attribute blame or liability.

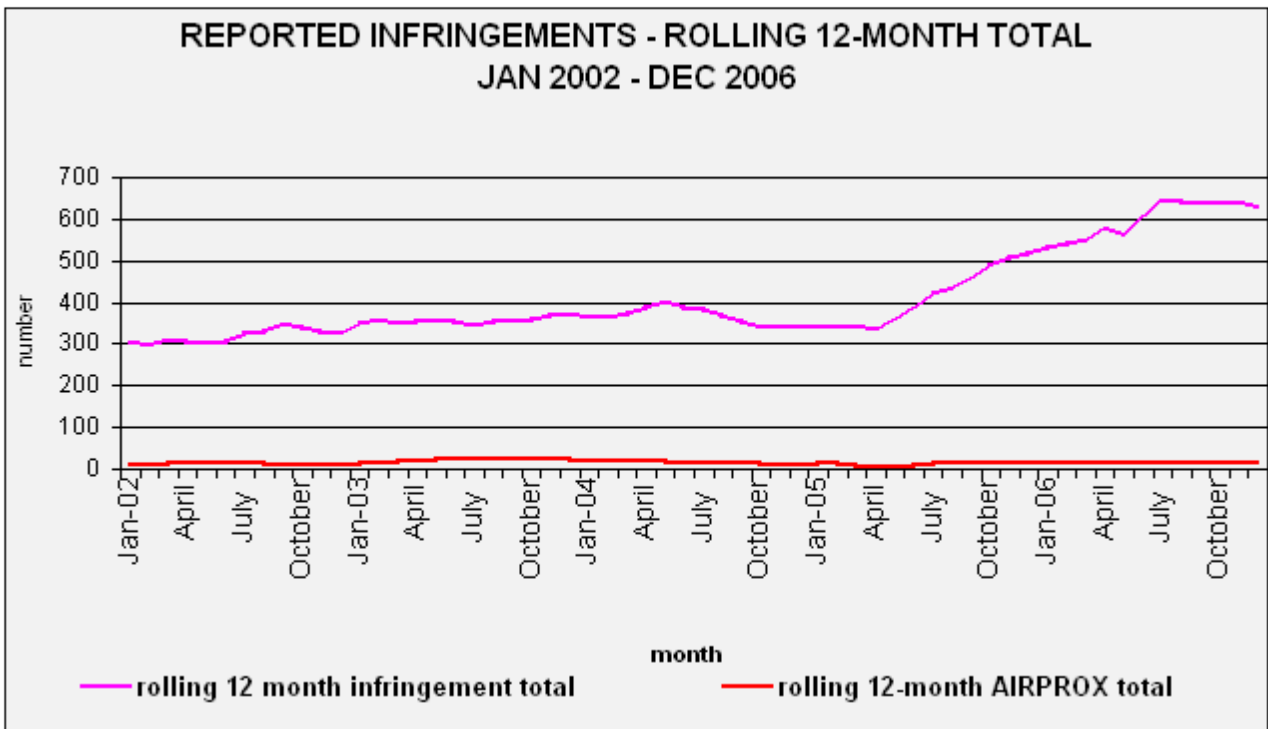


The graph above shows the total number of reported airspace infringements per calendar year from 1996 to 2006. The increases in 2005 and 2006 are believed to be attributable to stricter infringement reporting requirements arising from the NATS infringement 'Destination', rather than an increase in the actual numbers.

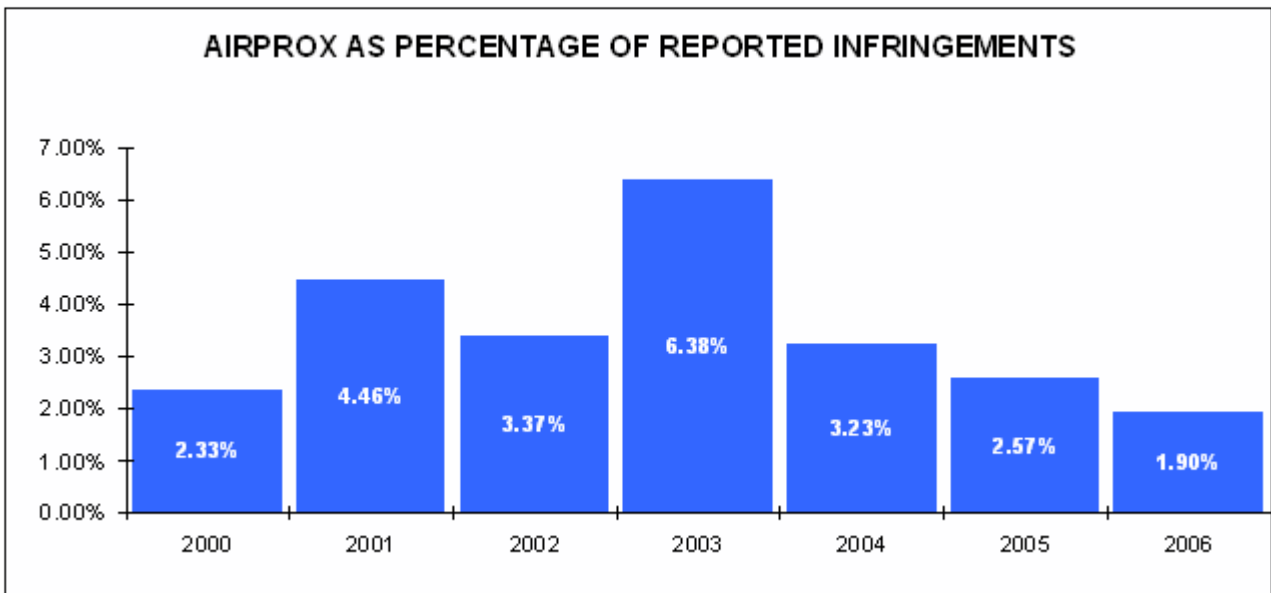


The number of reported infringements is seasonal in nature – the better the weather (traditionally during the summer) the greater number of aircraft flying at any time. Therefore the possibility of an airspace infringement increases. The previous graph shows the highest, lowest and mean number of reported infringements per calendar month from January 1996 to December 2006, plus monthly values for 2006

NATS infringement
 'Destination'
 launched June 2005

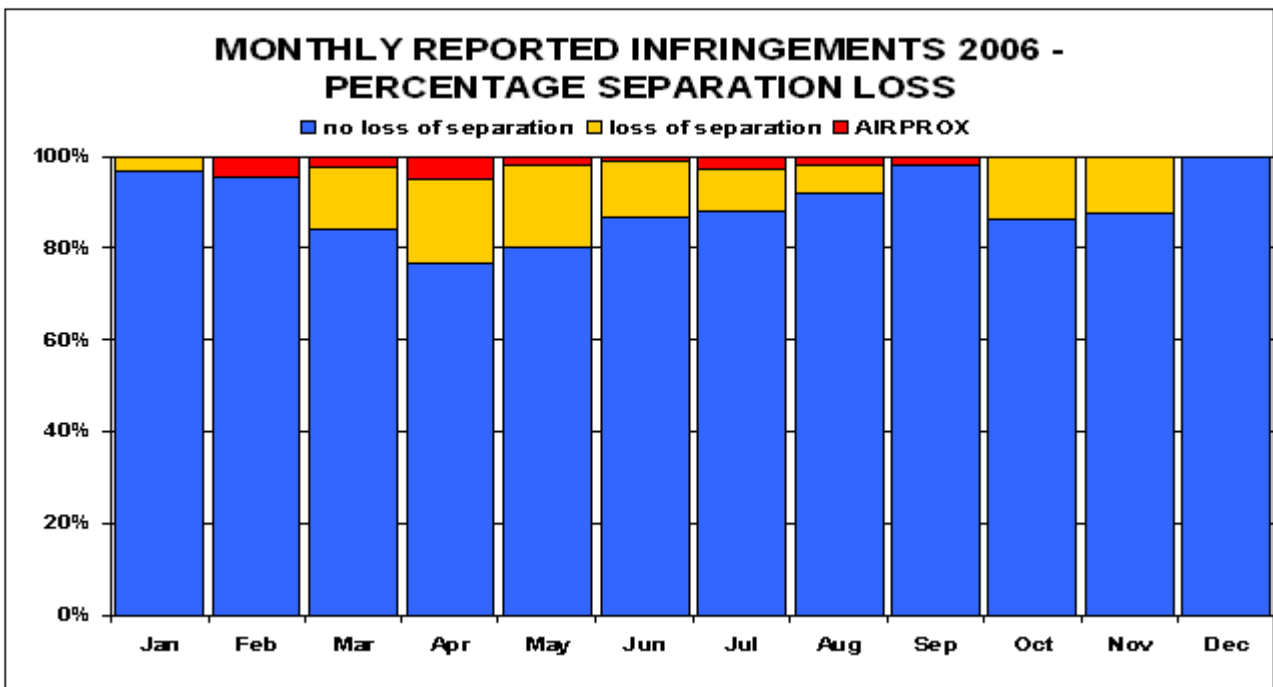


The rolling 12-month total helps to illustrate the impact of the NATS infringement 'Destination' reporting requirements, the introduction of these coincided with 2005's emerging summer increase. Of note is the relative consistency in the number of Airproxes over any given 12 month period, and what appears to be an emerging 'plateau' in the latter part of 2006. This may indicate the true scale of the infringement problem; it has long been accepted that the number of reported infringements did not necessarily reflect the actual number of occurrences (ie pre-'Destination').



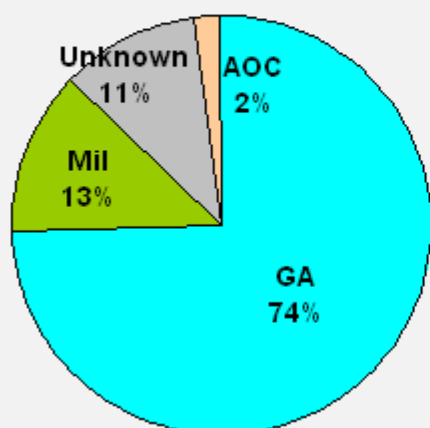
Of significant concern is the safety impact of infringements. Infringements represent a major collision risk, and each year a number of Airproxes and losses of separation arise from them. The percentage rates shown above have been obtained by dividing the number of Airproxes resulting from an airspace infringement divided by the number of reported infringements. A further 10% of reported infringements result in a loss of standard separation.

While approximately 84% of reported infringements reported in 2006 were classed by the CAA as having a low Airprox risk, represented a technical loss of separation and/or resulted in a slight



increase in ATC workload, the remainder carried a higher risk (plus associated impact). 15.5% of reported infringements resulted in an Airprox or actual loss of separation plus a significant increase in ATC workload. The remaining 0.5% resulted in what CAP 382 refers to as a 'Serious Airprox', in which there was a large reduction in safety margins associated with a serious loss of separation.

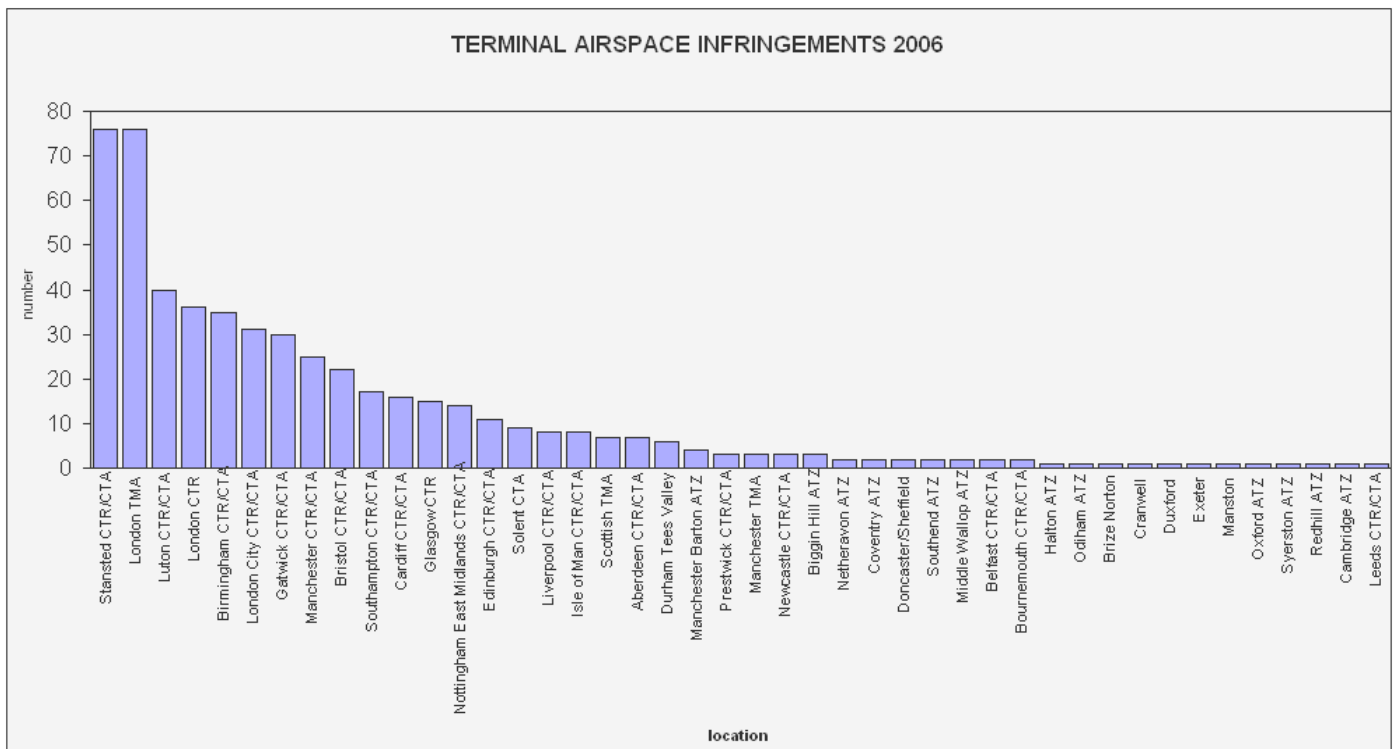
PERCENTAGE NUMBER OF INFRINGEMENTS BY AIRCRAFT OPERATOR



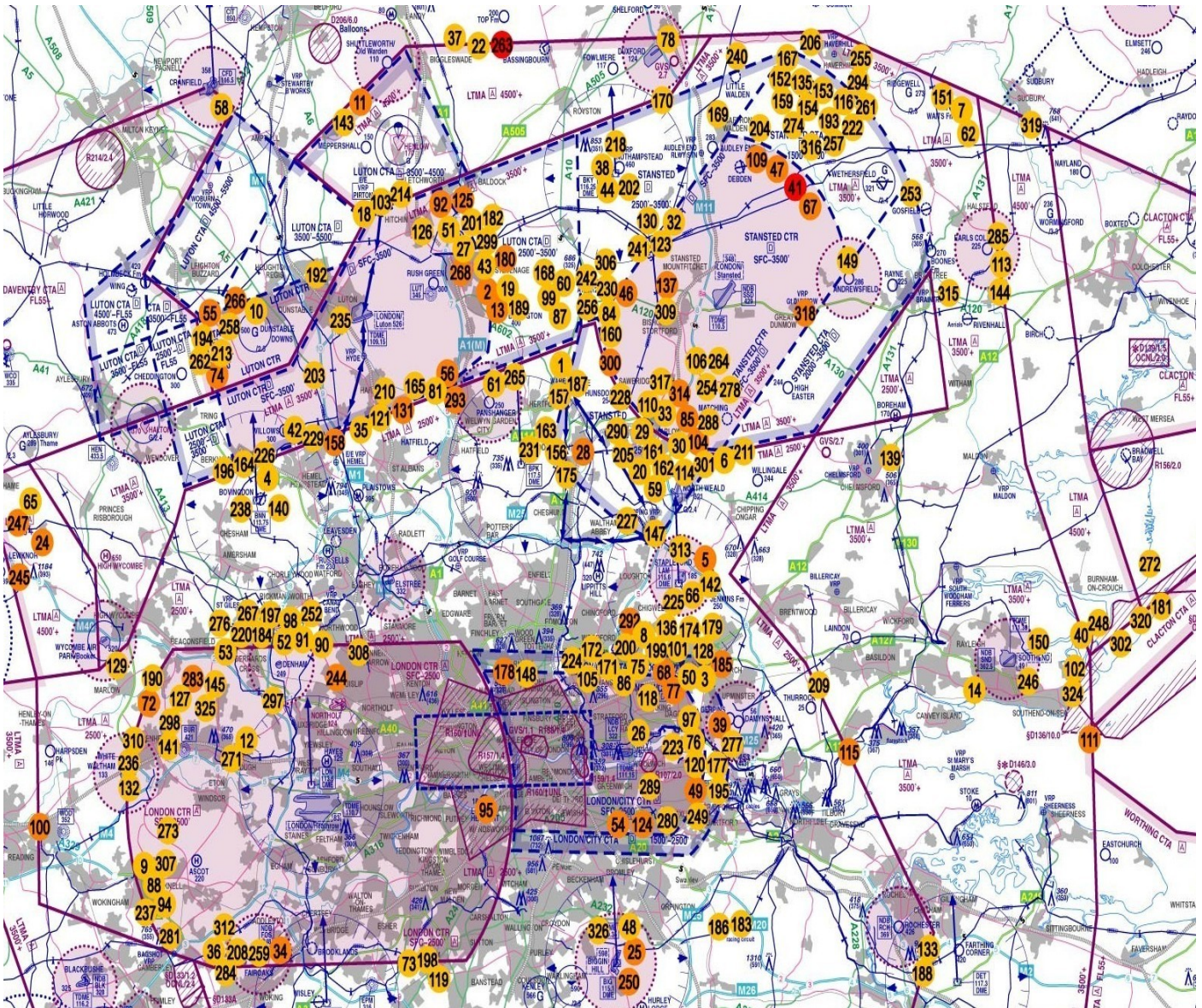
Approximately three quarters of all reported infringements were attributable to General Aviation pilots during 2006. Whilst there are annual variations, the 2006 values have been broadly consistent since at least 2000.

Of the various kinds of airspace structures (Control Zone, Control Area, airway, Danger Area, ATZ, etc), those associated with airfields – ‘terminal airspace’ – are most often infringed. Each year around 85% of all reported infringements will occur in airspace established to protect aircraft at the critical stages of flight – landing and taking off. As can be seen in the following graph, the majority of these occur in the South East of England – in or beneath the London TMA.

GA = General Aviation
AOC = Aircraft Operators Certificate (ie airlines)
Mil = Military
Unknown = not identifiable, could be any of the categories above



The London TMA 'hot spots' in the Stansted and Luton areas are shown in the map extract below. Each numbered circle represents an infringement – red for Airprox and orange for loss of separation; all others are shown in yellow. Note also the number of infringements occurring in the westerly portion of the London Control Zone – the can seriously impact upon Heathrow operations and in the most severe of cases can curtail Heathrow arrivals and departures, affecting dozens of aircraft in the air and on the ground, and thousands of passengers. The resultant delays and avoidable fuel burn will often have significant operational, economic and environmental impacts.



Prosecutions

An airspace infringement may result in prosecution, however the CAA views this as an option of last resort. As can be seen from the supporting data, infringements leading to prosecutions represent a very small proportion of the overall number of reported occurrences. The number of prosecutions has progressively diminished, whilst the award of other measures such as 'Formal Conditional Cautions' has increased.

year (note 1)	infringers (note 2)	ARE investigations (note 3, note 4)	as % of MOR infringements (note 5)	Formal Caution (note 4, note 6, note 7)	Prosecutions (note 7, note 8)
2000	344	9	2.62%	0	5
2001	314	13	4.14%	0	9
2002	326	44	13.50%	4	17
2003	376	51	13.56%	15	10
2004	341	45	13.20%	15	8
2005	517	52	10.06%	22	5
2006	630	40	6.35%	19	5
2007	267	3	1.12%	4	1

2000-2006 (note 8)

year (note 1)	infringers (note 2)	ARE investigations (note 3)	as % of MOR infringements (note 4)	Formal Caution (note 5, note 6)	Prosecutions (note 6)	total Cautions/ Prosecutions
total	2848	254	8.92%	75	59	134

NOTES

1. Calendar year.
2. Source: CAA MOR Database.
3. May include investigations into infringements not subject to MOR, eg on the basis of police report(s).
4. ARE data correct to 24 April 2007
5. As % subject to MOR.
6. 'Formal Cautions' and 'Formal Conditional Cautions'. Latter may include recommendation for further training
7. May include cautions/prosecutions arising from investigations conducting during previous calendar year.
8. May include cautions/prosecutions arising from investigations conducting during 1999.

The Airspace Infringement Working Group (AIWG)

The AIWG is a CAA-sponsored industry working group established to monitor airspace infringement data and identify trends in order to instigate remedial action through the appropriate regulatory or industry body in order to minimise the incidence of, and risks associated with, airspace infringements. In particular AIWG will consider whether airspace design or pilot awareness are features of the pattern of infringements.

In fulfilling its functions, AIWG will consider infringements of all types of airspace by all categories of pilot. In addition, it will carry forward the findings and recommendations of the SRG-led study into identifying the causes of infringements by GA pilots (the 'ON TRACK' project).

Having considered statistical or other evidence, AIWG will make recommendations and take action through its members to alleviate potential problem areas. These recommendations may be UK-wide, site-specific, or user-specific.

Finally, AIWG is responsible for the establishment and management of the 'Flyontrack' website, the purpose of which is to encourage the aviation community to post comments and suggestions associated with GA-related airspace infringements for the CAA's consideration and subsequent action.

The following organisations are represented on AIWG: the CAA Directorate of Airspace Policy and the Safety Regulation Group (Flight Operations Inspectorate (General Aviation), Personnel Licensing Department; Air Traffic Standards Department) and the Corporate Communications Department; NATS Ltd, Ministry of Defence, Airport Operators Association, GASCo, GATCO, invited representative(s) of GA community (including PPL-IR), a member of the 'On Track' project team and other invited participants as required for specific issues.