Department of Transport

Bureau of Air Safety Investigation

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Violations of Controlled Airspace: A Review of Occurrences January 1991 – June 1994

BASI
Bureau of Air Safety Investigation

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ABBREVIATIONS

ACT	Australian Capital Territory
AMATS	Airspace management and air traffic services
ATS	Air traffic services
AWK	Aerial work
BUS	Business
CAA	Civil Aviation Authority
CHTR	Charter
CTA	Control area
CTR	Control zone
ft	feet
HIGH	High capacity RPT
IFR	Instrument flight rules
LOW	Low capacity RPT
NT	Northern Territory
NSW	New South Wales
PVT	Private
Qld	Queensland
RPT	Regular passenger transport
SA	South Australia
Tas.	Tasmania
TRG	Training
U/K	Unknown
VCA	Violations of controlled airspace
Vic.	Victoria
VFR	Visual flight rules
WA	Western Australia

VIOLATIONS OF CONTROLLED AIRSPACE

1. BACKGROUND

In 1992 a study (RP/92/10) was performed to examine VCA occurrences. The report found that VCAs had increased sharply following the introduction of the AMATS system in late 1991. The report revealed several system problems, namely that:

1. A significant proportion of pilots were confused by charts.
2. Many private pilots did not subscribe to a document amendment service and hence may not have had access to up-to-date charts.
3. The CAA had not evaluated the AMATS pilot education program which ceased in December 1991.
4. The publicity which accompanied the changes to the airspace system may not have reached all target groups.

2. AIM

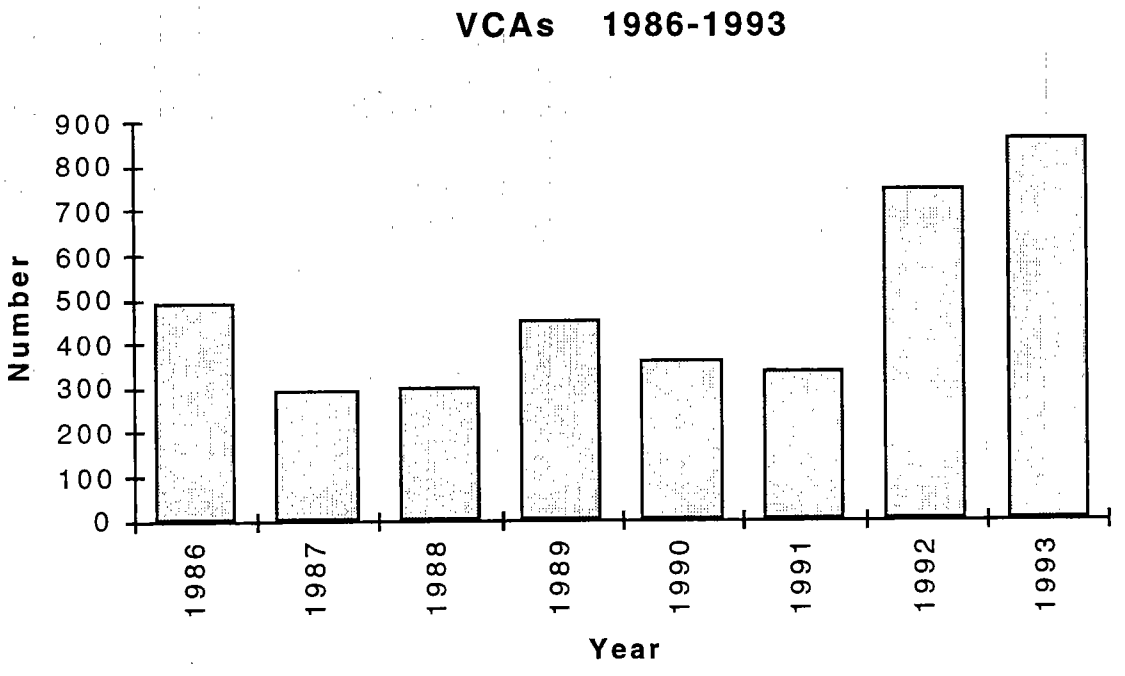
The aim of this report is to provide updated information on the VCA situation.

As an update on the 1992 VCA report, the most recent six-month period, January to June 1994, will be examined in close detail.

3. RESULTS

In fig.1, annual VCA occurrences since 1986 are illustrated. It demonstrates that a relatively large number of VCAs occurred in 1992 and 1993, compared to the preceding six-year period 1986-1991.

Figure 1



In fig. 2 monthly VCA totals for the period January 1991 to June 1994 are illustrated. Following the introduction of the AMATS system in December 1991, a sharp increase in the number of occurrences was experienced. However, an overall downward trend since about mid-1993 seems to be evident. While this may be an indication that there is a recent overall decline in occurrences, VCAs remained at higher levels than during the period immediately prior to AMATS introduction.

Figure 2

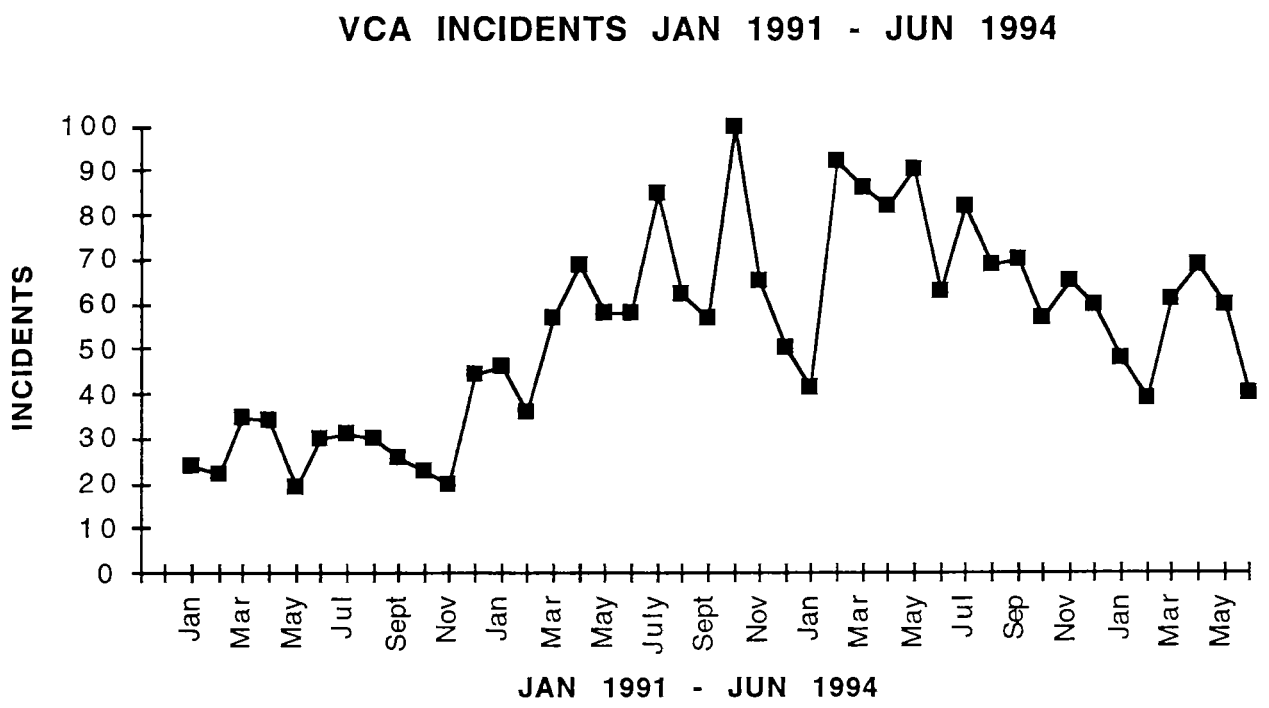


Fig. 3 illustrates the proportion of VFR violations compared to IFR violations. It indicates that most occurrences throughout the period July 1991 to June 1994 involved VFR flight.

Figure 3

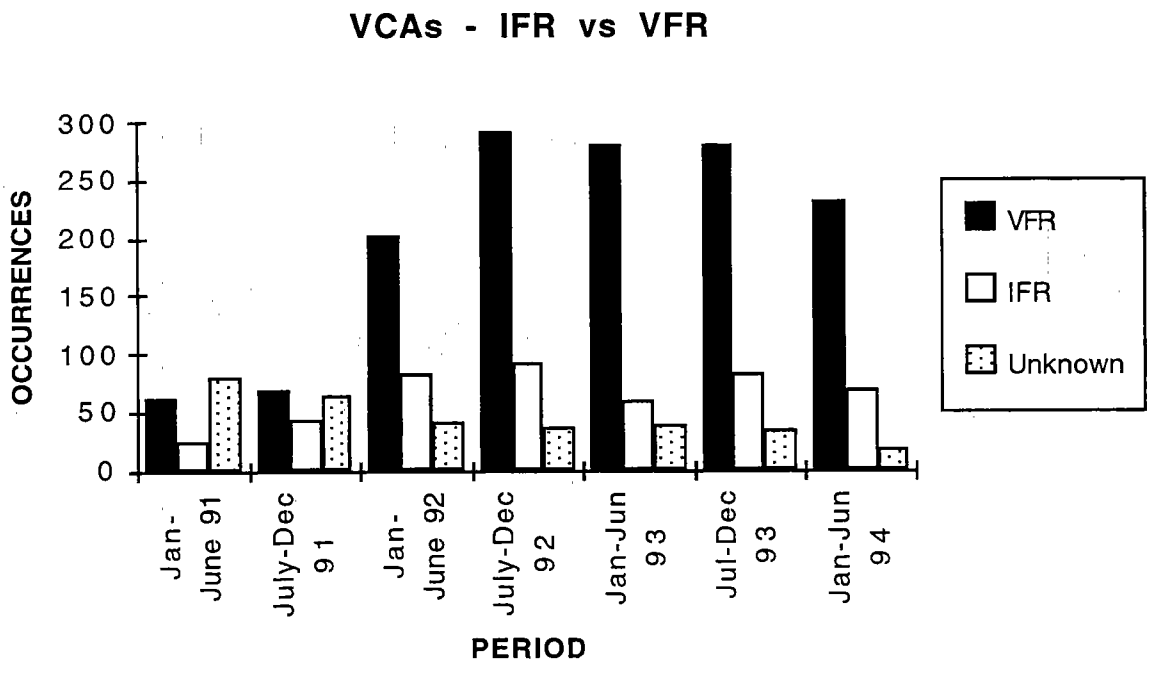


Fig. 4 illustrates that, as in previous years, most occurrences during the period January to June 1994 took place in CTAs as opposed to CTRs. The least number of VCAs occurred in restricted airspace.

Figure 4

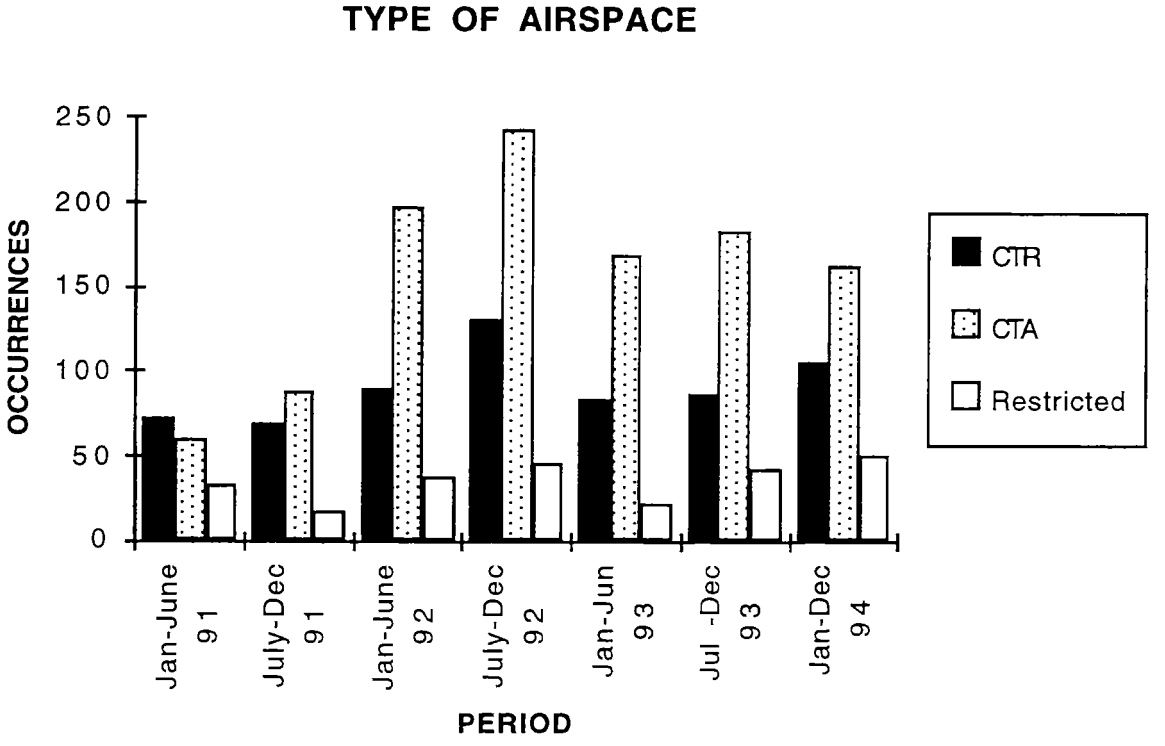
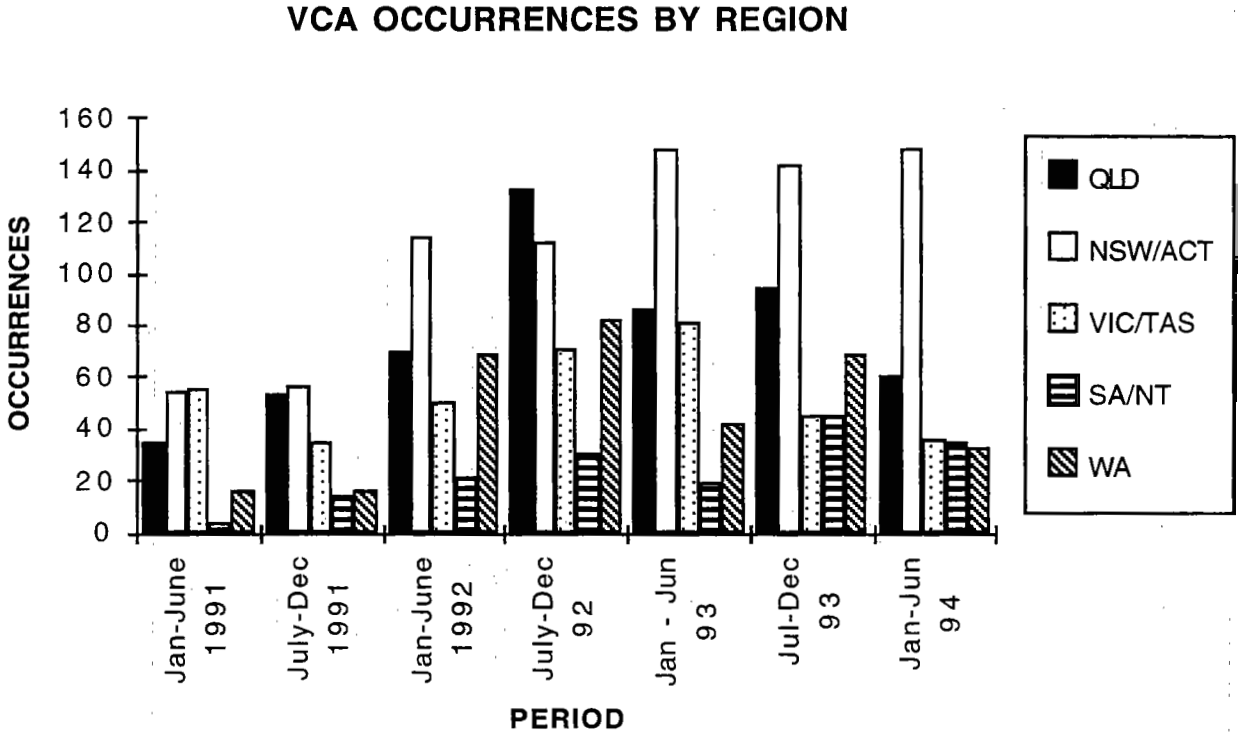


Fig. 5 illustrates that during the period January to June 1994 VCA occurrences were most often reported in NSW/ACT, followed by Qld. Vic./Tas., SA/NT and WA followed, each demonstrating similar totals.

Figure 5



For ease of readability, VCAs by controlling agency are divided into two graphs (figs. 6 and 7 overleaf).

When these data are examined, it is apparent that during the period January to June 1994, Sydney reported the largest number of occurrences, followed by Melbourne. Note that some controlling agencies have airspace which covers large areas, and a VCA may have occurred some distance from the actual location of the ATS facility.

Some controlling agencies experienced an increase in VCAs in the period January to June 1994 compared to the period July to December 1993. These agencies were Wagga, Sydney, Richmond, Melbourne, Coolangatta, Coffs Harbour, Brisbane, Amberley and Adelaide.

Figure 6

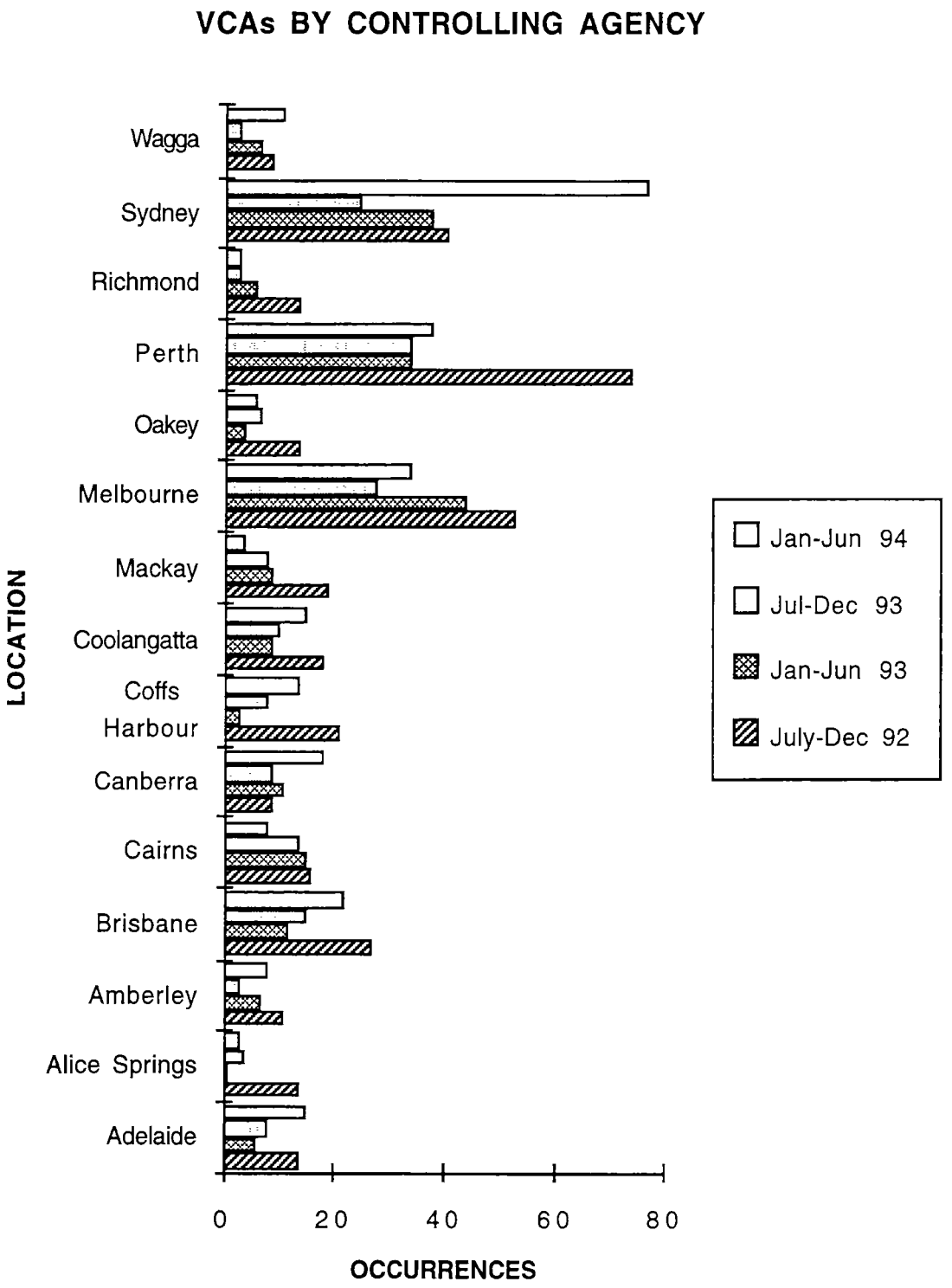
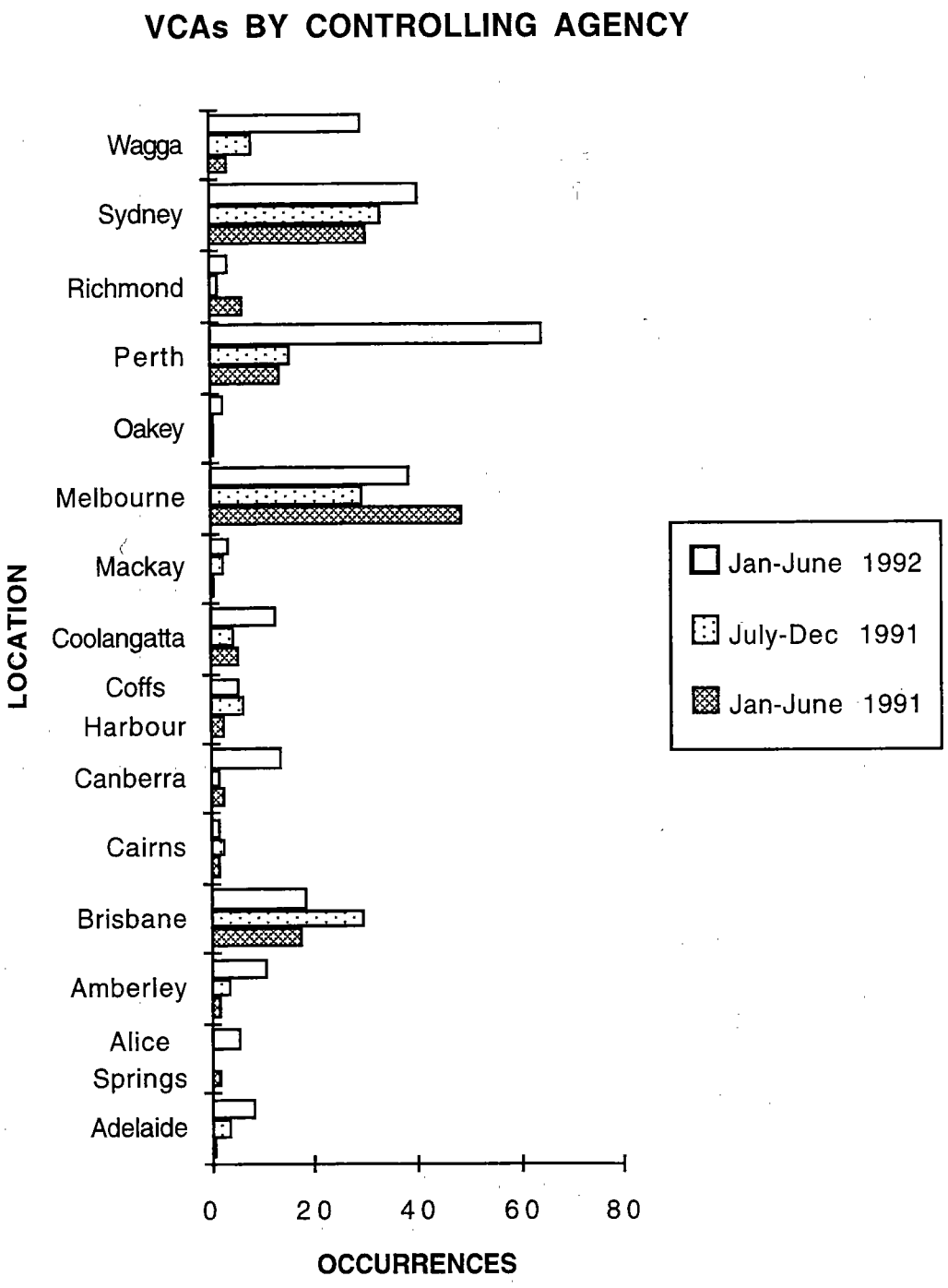
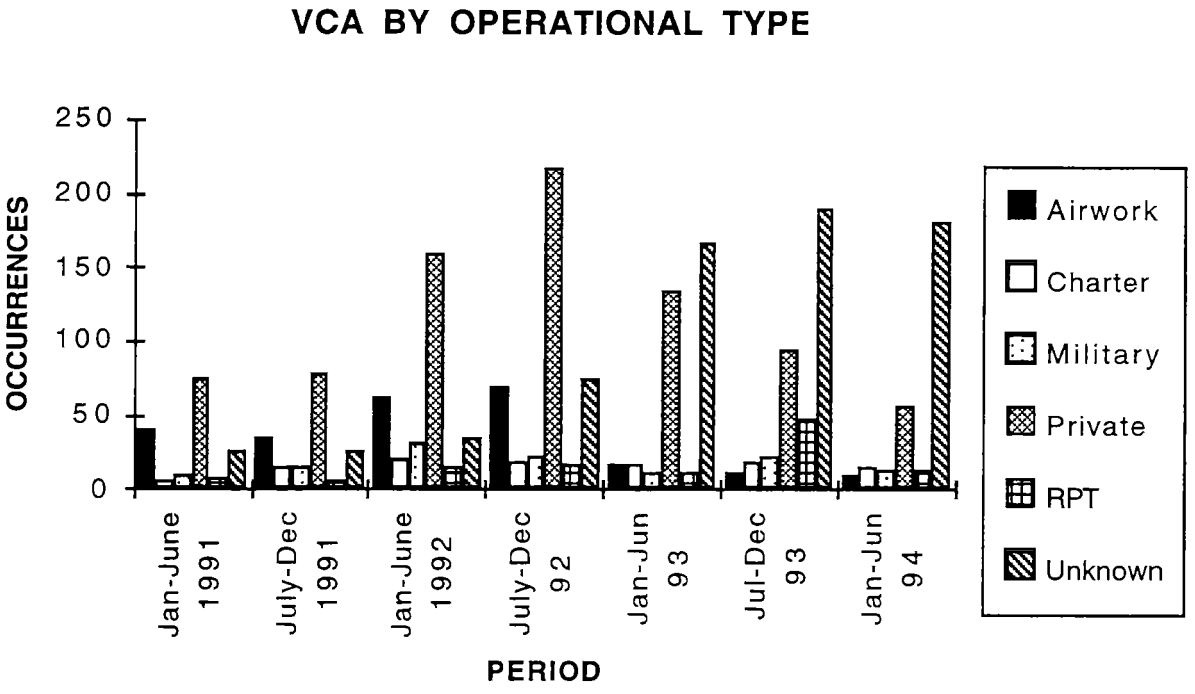

VCAs BY CONTROLLING AGENCY
Wagga
Sydney
Richmond
Perth
Oakey
Melbourne
Mackay
Coolangatta
Coffs Harbour
Canberra
Cairns
Brisbane
Amberley
Alice Springs
Adelaide
LOCATION
0
20
40
60
80
OCCURRENCES
Jan-Jun 94
Jul-Dec 93
Jan-Jun 93
July-Dec 92

Figure 7


VCAs BY CONTROLLING AGENCY
Wagga
Sydney
Richmond
Perth
Oakey
Melbourne
Mackay
Coolangatta
Coffs Harbour
Canberra
Cairns
Brisbane
Amberley
Alice Springs
Adelaide
LOCATION
0
20
40
60
80
OCCURRENCES
Jan-June 1992
July-Dec 1991
Jan-June 1991

Occurrences by category of operation are illustrated in fig. 8.

Figure 8



The largest number of occurrences were classified as 'unknown', followed by private operational types. These proportions have remained stable since the period July to December 1992.

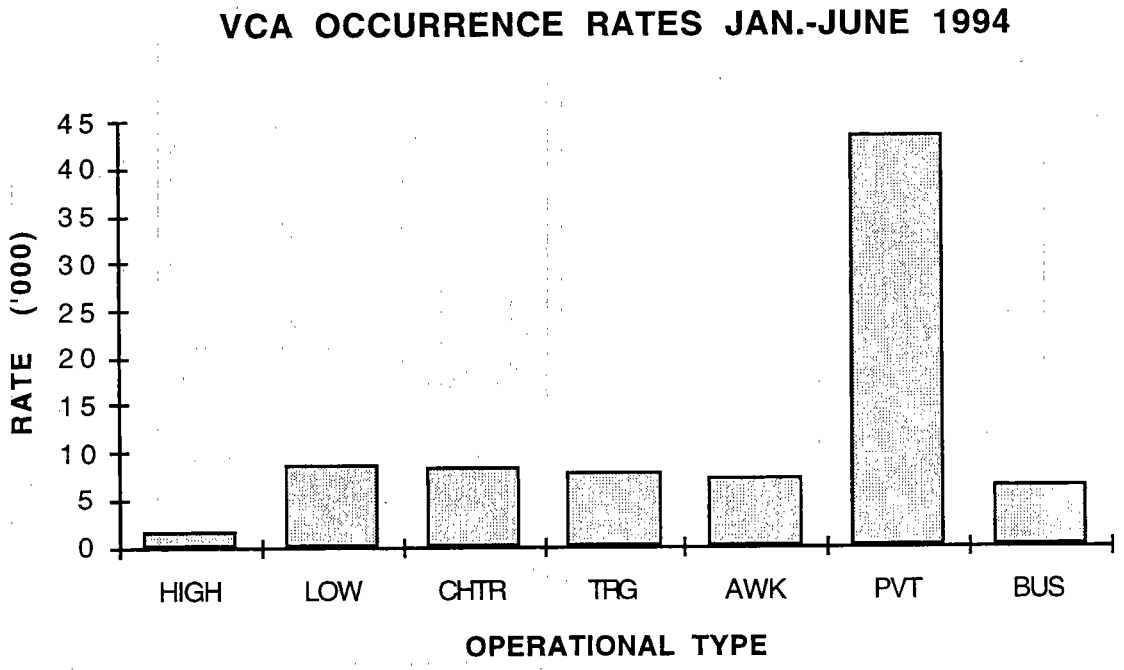
The disproportionably large number of 'unknown' incidents may reflect a deficiency in the reporting of VCAs and thus the quality of data entered into the OASIS database system.

Rate data is a more realistic representation of the breakdown of VCAs according to operation. This is accomplished by dividing the total number of occurrences by the total number of flying hours or departures for each of the operational types.

Unfortunately, data representing the total number of flying hours for the period January to June 1994 was not yet available for use in this analysis. Departure information for each category of operation was also not accessible. Flying hour data for the period January to June 1993 was substituted, the assumption being that the relative number of hours flown in each category does not vary considerably from year to year and that 1993 flying hours are representative of 1994 flying hours.

In fig. 9 occurrence rates (i.e. the number of occurrences per 100,000 flying hours) are illustrated for each of the operational types for the period January to June 1994.

Figure 9

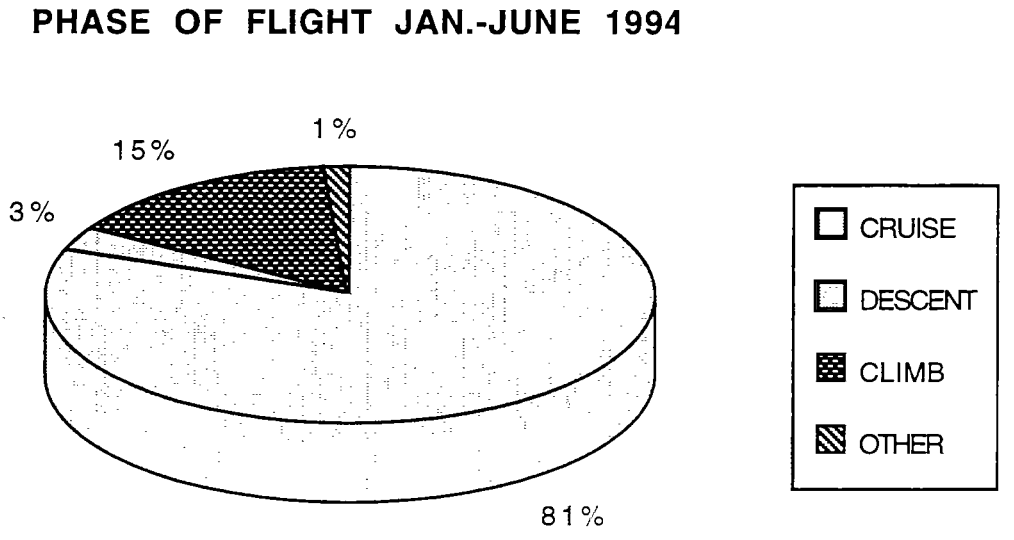


Flying hour data were not available for the 'sport', 'military' and 'unknown' categories. There were no occurrences reported in 'gliding' and 'agricultural' operations. These categories are therefore not represented in the above graph.

The highest rate of VCAs was associated with private operations. Low capacity, charter, training, airwork and business operations follow, all demonstrating similar rates of VCA occurrence. However, the above occurrence rates must be viewed with caution because of the disproportionably high number of occurrences in the 'unknown' category of operations (see fig. 8). It is likely that occurrences have been under-reported among private and airwork operations. Their respective occurrence rates are therefore likely to be much higher than is apparent in figure nine. Private operation rates are already very high and are in particular likely to be significantly higher than is apparent in fig. 9.

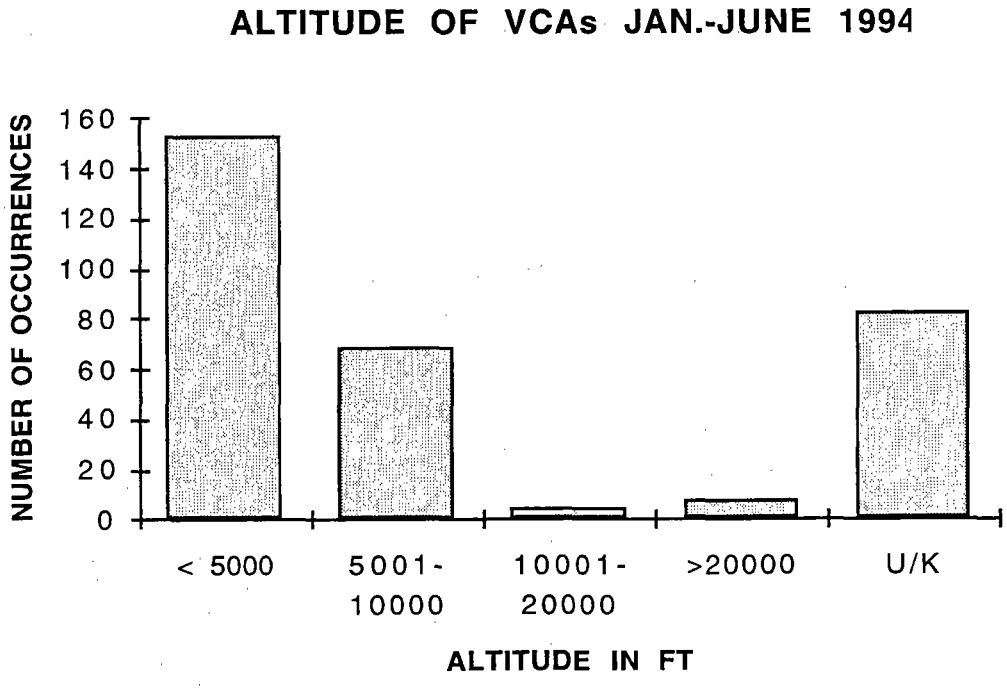
In fig. 10 the phase of flight during which VCAs occurred is illustrated for the period January to June 1994. The majority (81%) of VCAs occurred during the cruise segment of flight. During the period July to December 1992, VCAs were also most often occurring during the 'cruise' segment of flight (VCA report RP/92/10, p. 15).

Figure 10



In fig. 11 (overleaf), the altitudes at which these VCAs occurred during the period January to June 1994 are illustrated. VCAs during the period July to December 1992 period were most often reported at altitudes of between 5,001 and 10,000 feet (VCA report RP/92/10, p. 13), whereas during the January to June 1994, VCA altitudes were most often at less than 5,000 ft.

Figure 11



4. SUMMARY

There is some indication that the number of VCAs may in fact be decreasing overall since its peak in 1992-1993. However, VCAs remain at levels higher than during the period prior to AMATS introduction.

The VCA situation for the period January to June 1994 is similar to that reported in the BASI report RP/92/10 for July to December 1992. That is, most VCAs are occurring:

- during VFR flight;
- in CTAs;
- in the NSW/ACT and Qld regions;
- by "private" aircraft operators; and
- during the cruise segment of flight.

In the period July to December 1992, most VCAs occurred in the Perth and Melbourne controlling agency regions. In the period January to June 1994, however, most VCAs occurred in the Sydney and Melbourne controlling agency regions.

5. SAFETY ACTION

BASI will continue to monitor the VCAs over the next 12-month period to determine whether the downward trend continues.