

# **ADDITIONAL ANALYSIS OF DURATIONS FOR OZONE DATA ANALYSIS**

prepared for

National Environment Protection Council  
– Ozone Standards Review

by

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Report C1017

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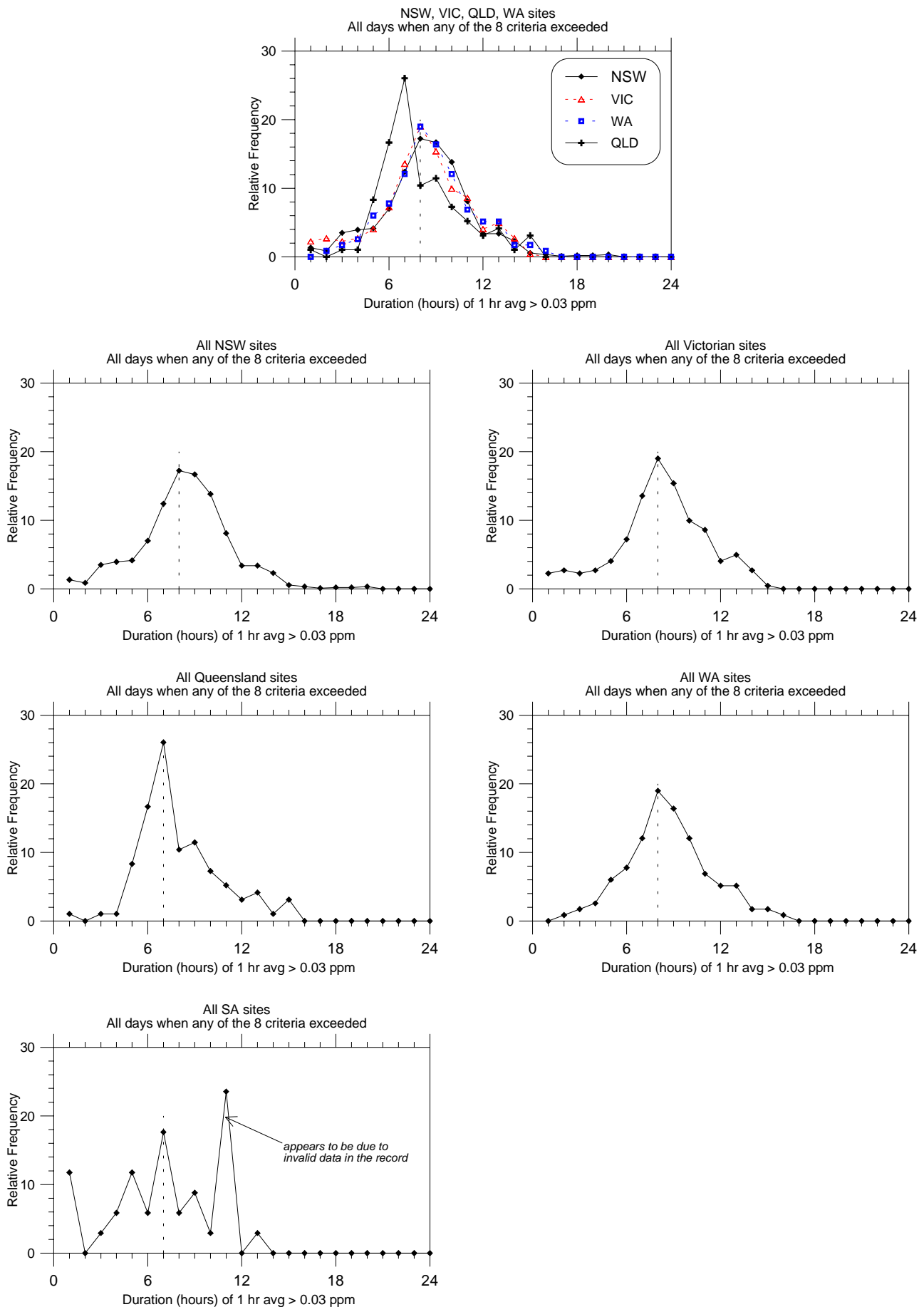
## **Task 4 – Durations when concentrations > 0.03 ppm**

The aim of this task was to look at the duration of periods with ozone concentrations above 0.03ppm. The exceedence criteria used in the main report were used to select the days analysed.

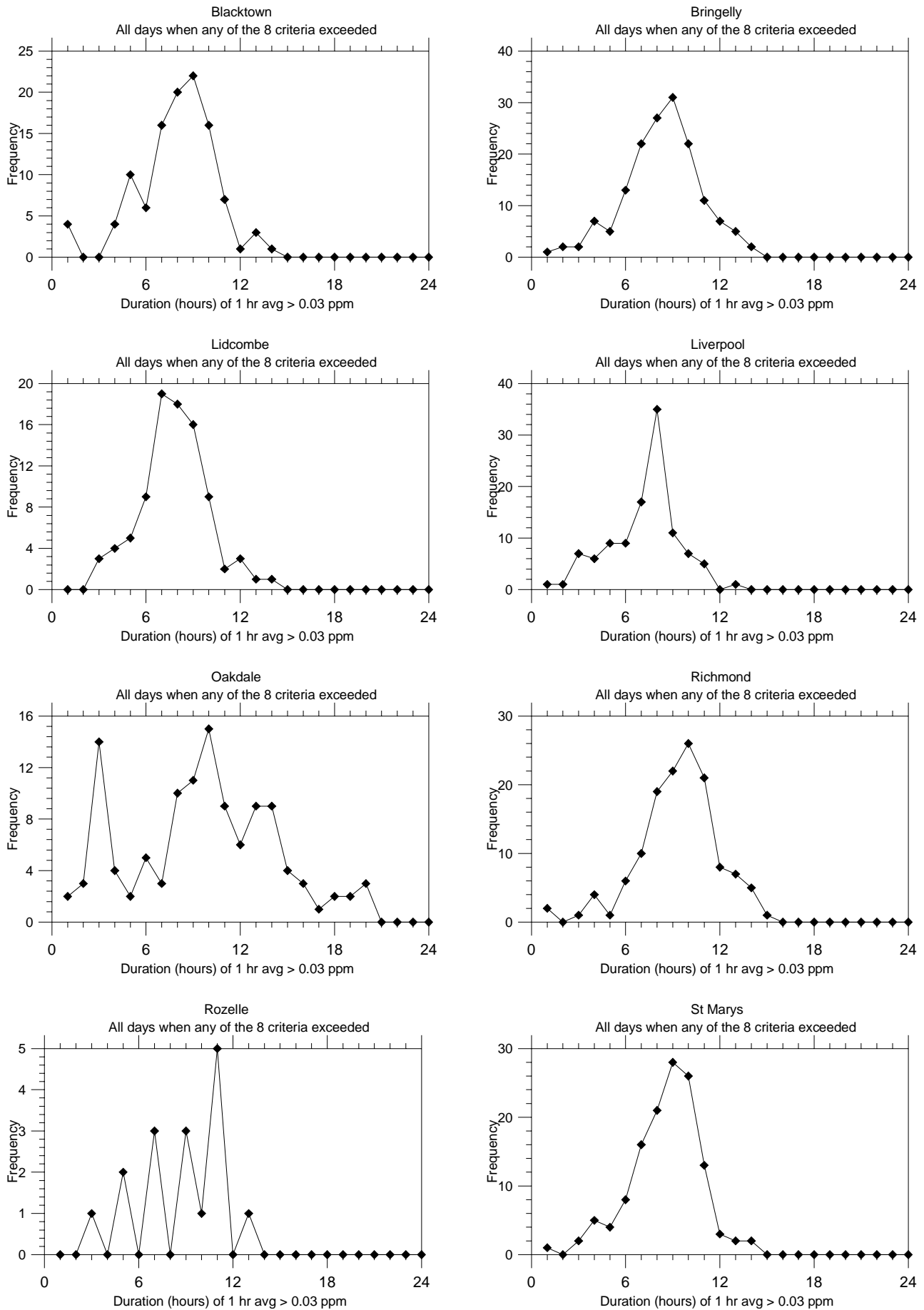
The presentation of the data as bar charts did not convey the results clearly, so that graphs showing the distribution of durations have been prepared.

Figure 12 shows the durations of 1-hour average concentrations greater than 0.03 ppm on all the days when any of the 8 criteria was exceeded. It summarises the data from each state and shows that the most common duration is between 7 and 8 hours and that most exceedences of 0.03 ppm last between 5 and 12 hours. Figure 13 shows this data for each site.

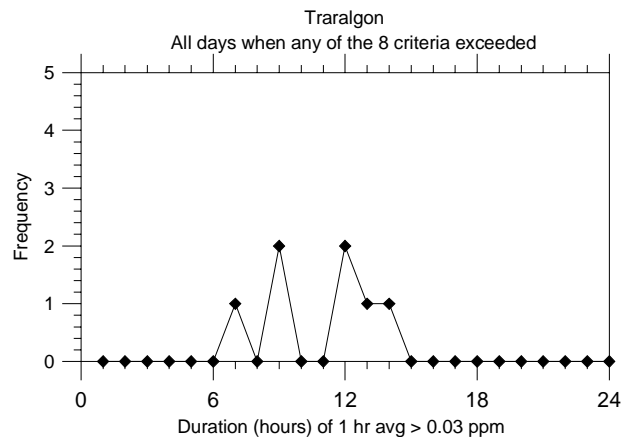
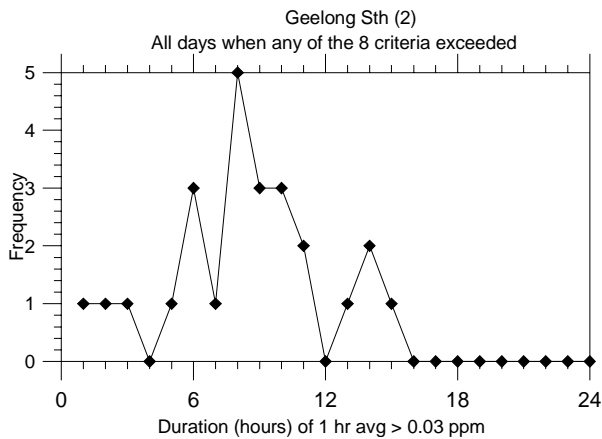
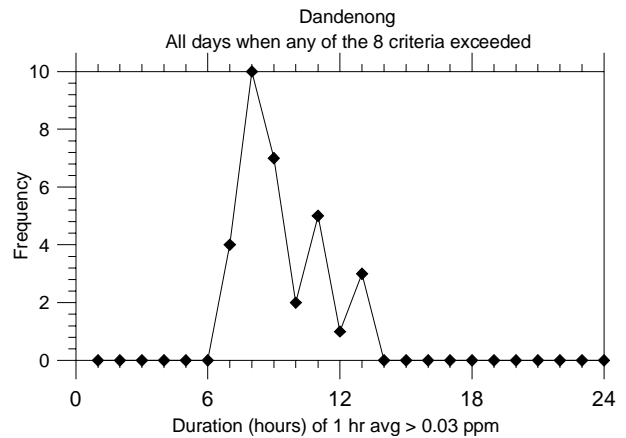
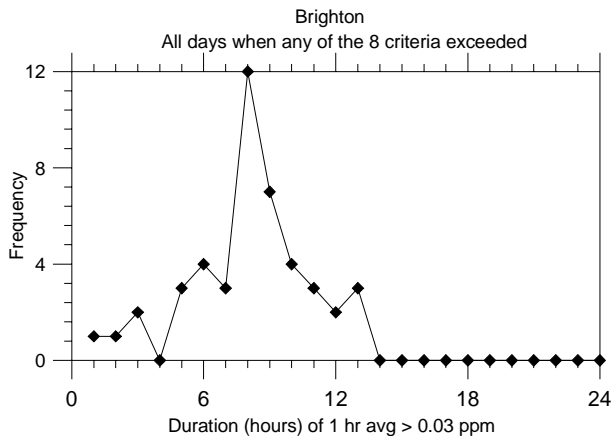
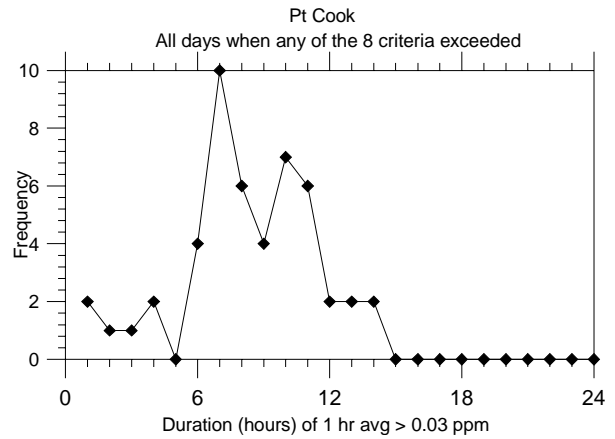
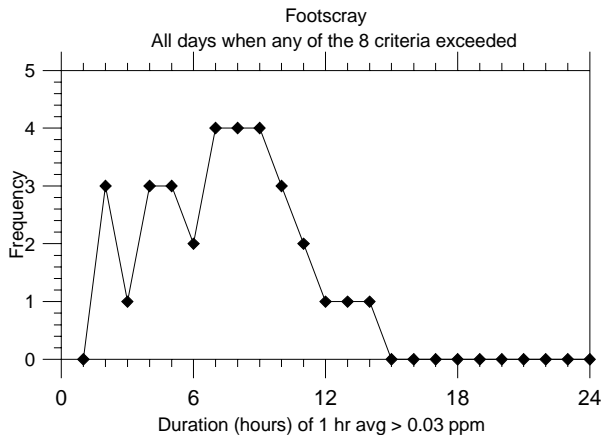
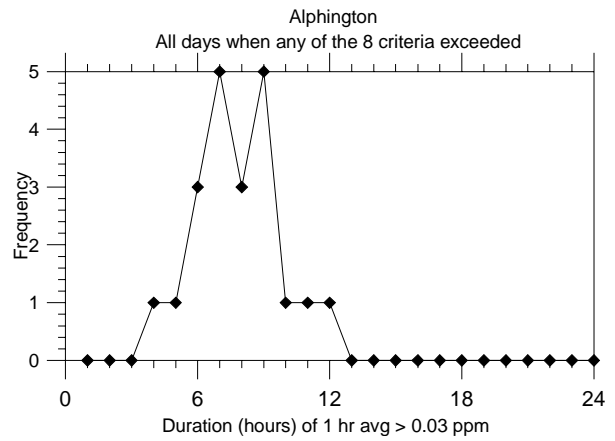
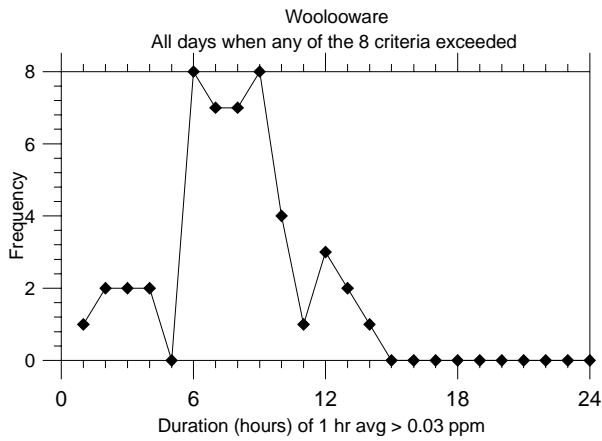
Figures 14 to 21 show the results for days when each of the criteria was exceeded with the corresponding averaging period used when determining the durations. Thus for example for the criterion 4-hour average > 0.08 ppm, the duration of 4-hour averages greater than 0.03 ppm is shown.



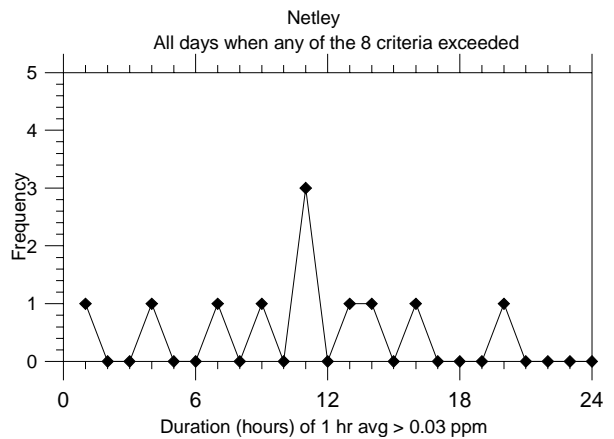
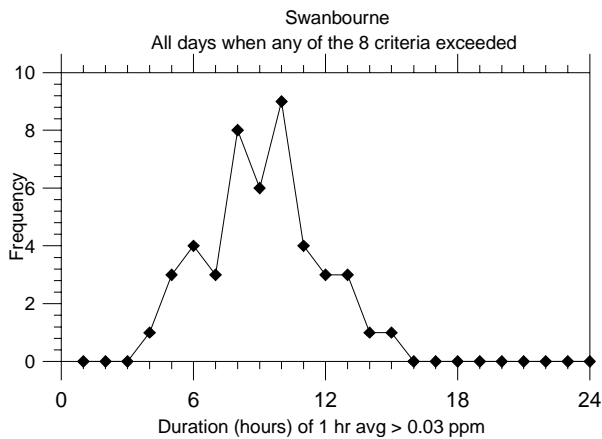
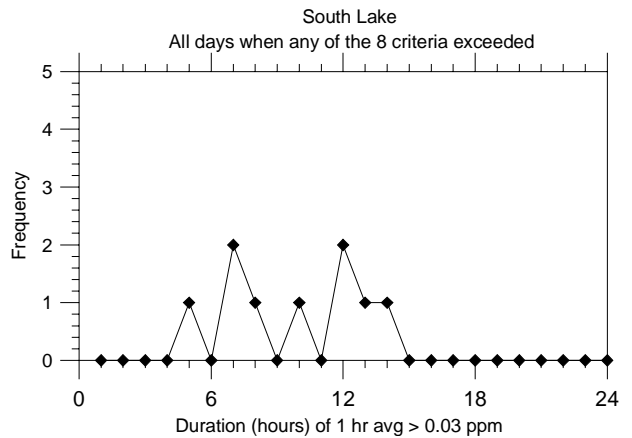
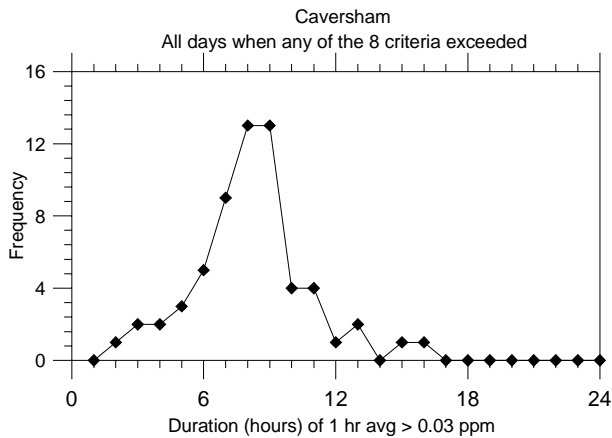
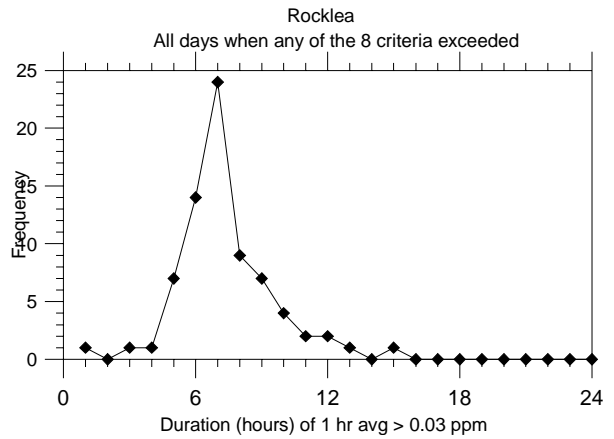
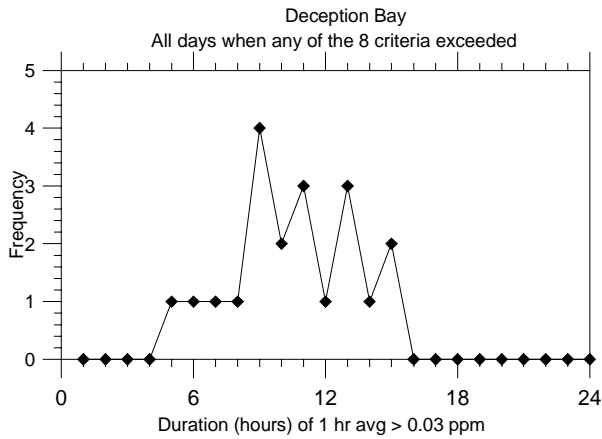
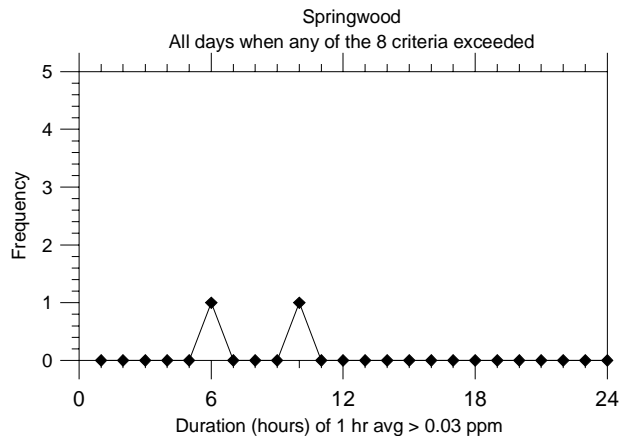
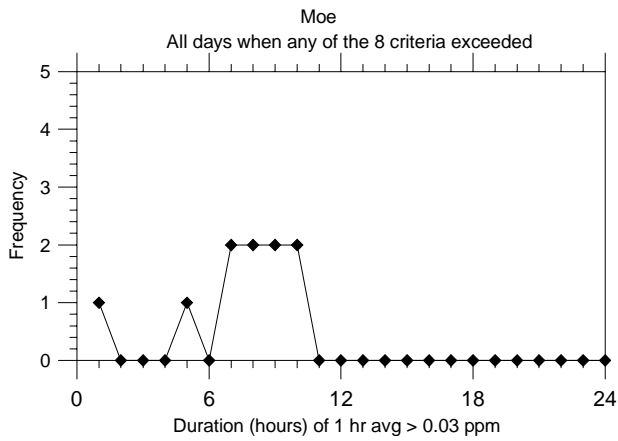
**Figure 12.** Summary for each state of the distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when any of the 8 criteria was exceeded.



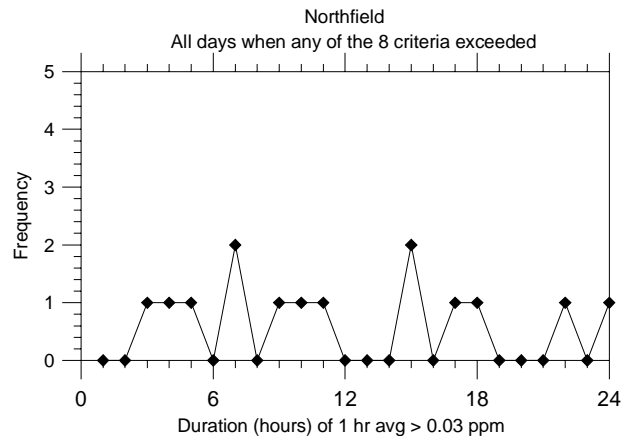
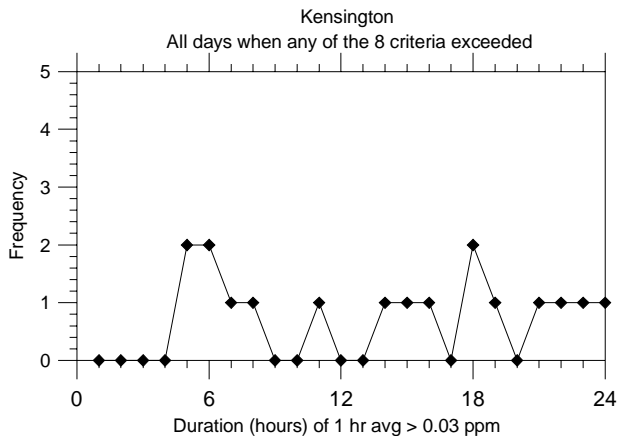
**Figure 13.** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when any of the 8 criteria was exceeded.



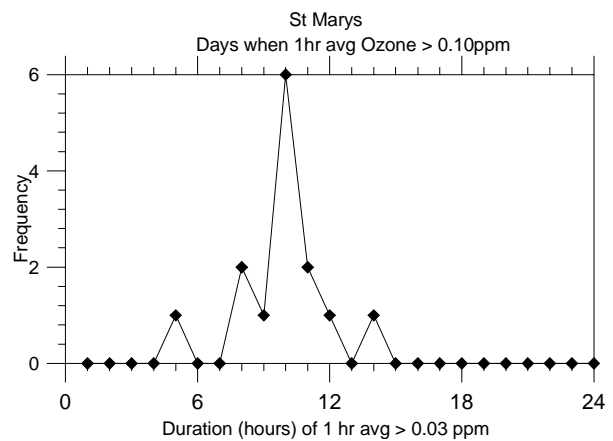
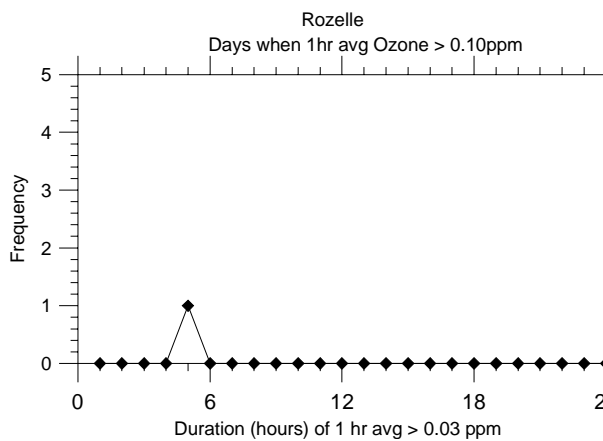
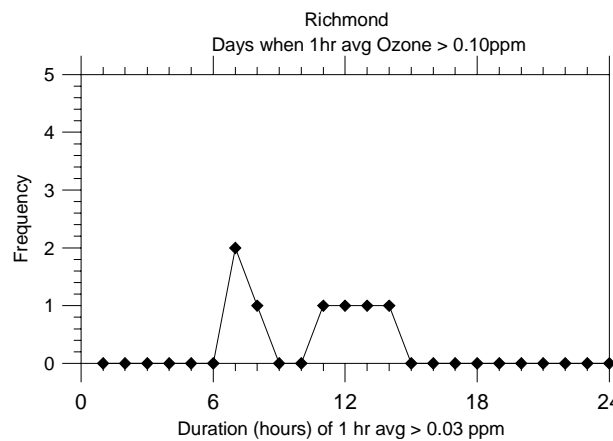
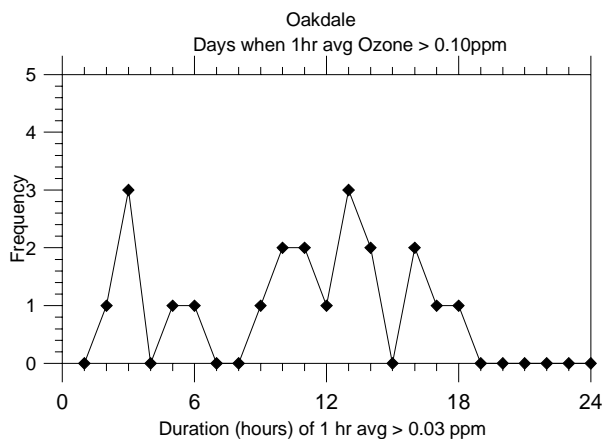
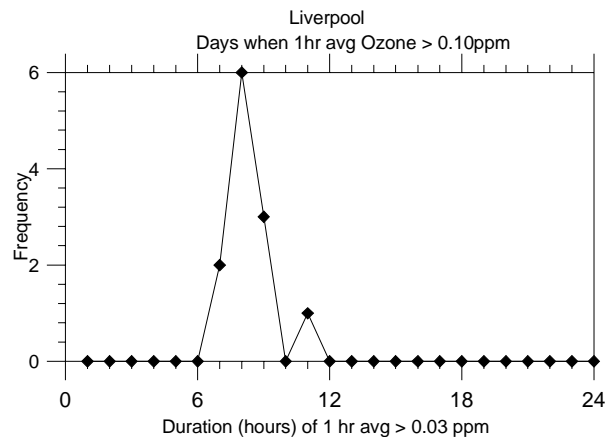
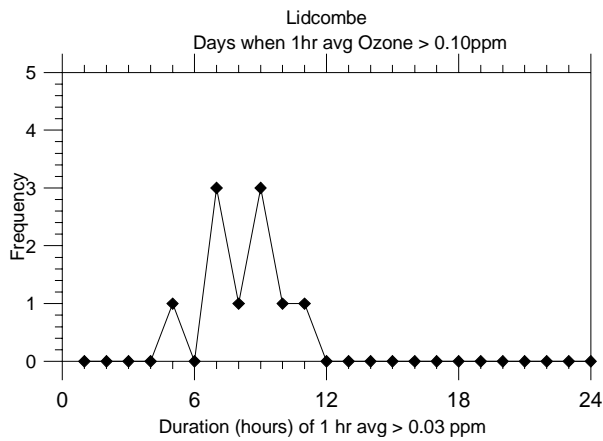
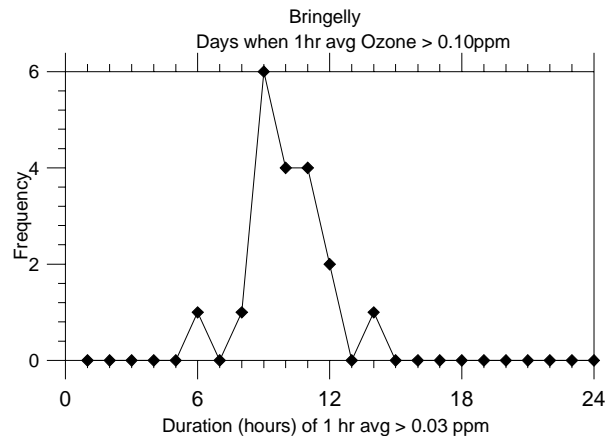
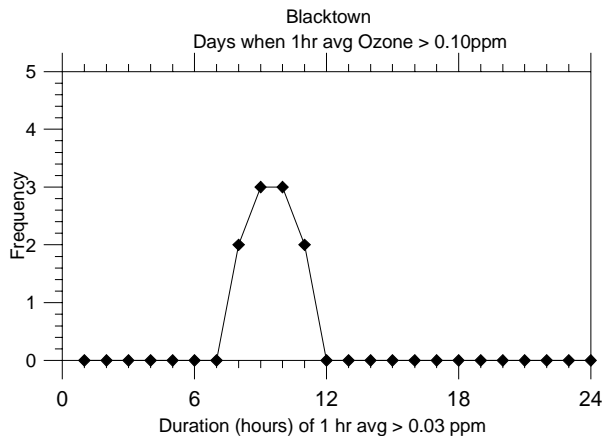
**Figure 13 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when any of the 8 criteria was exceeded.



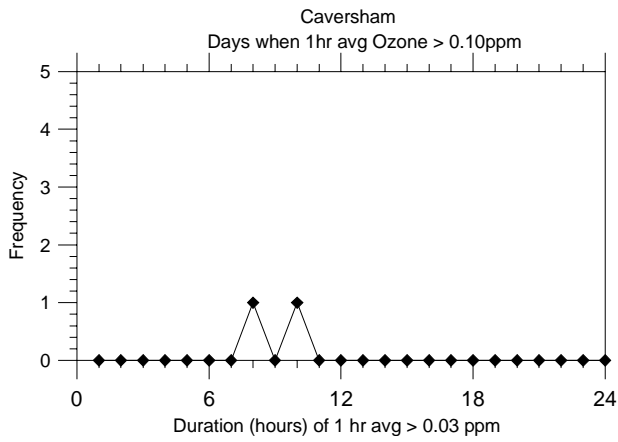
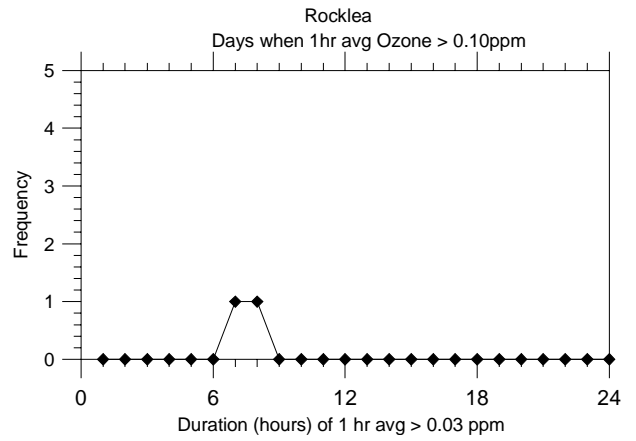
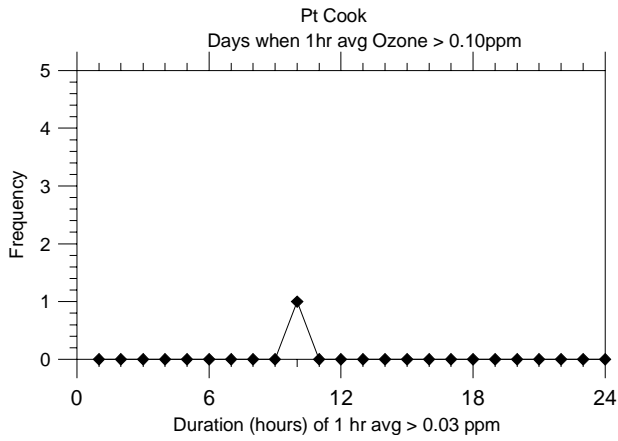
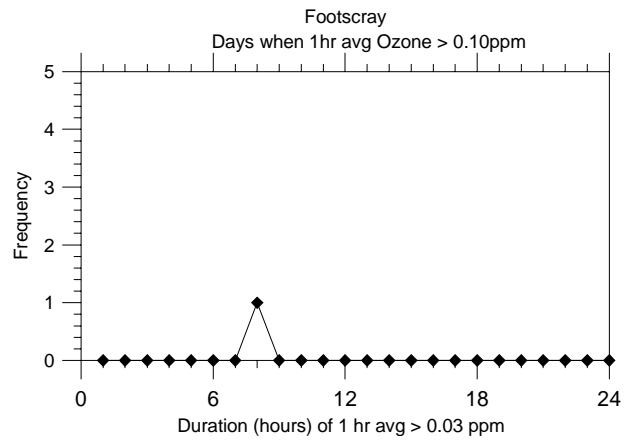
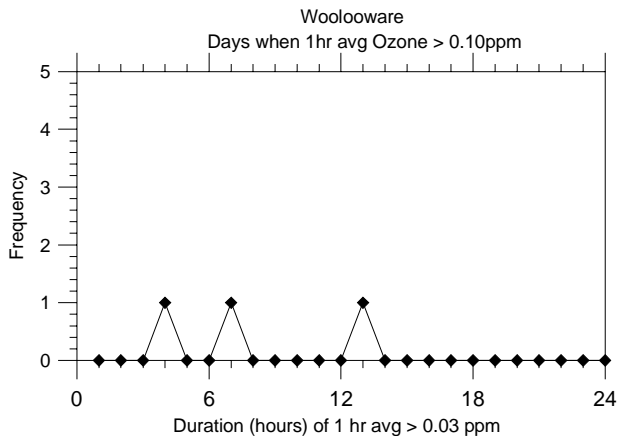
**Figure 13 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when any of the 8 criteria was exceeded.



**Figure 13 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when any of the 8 criteria was exceeded.

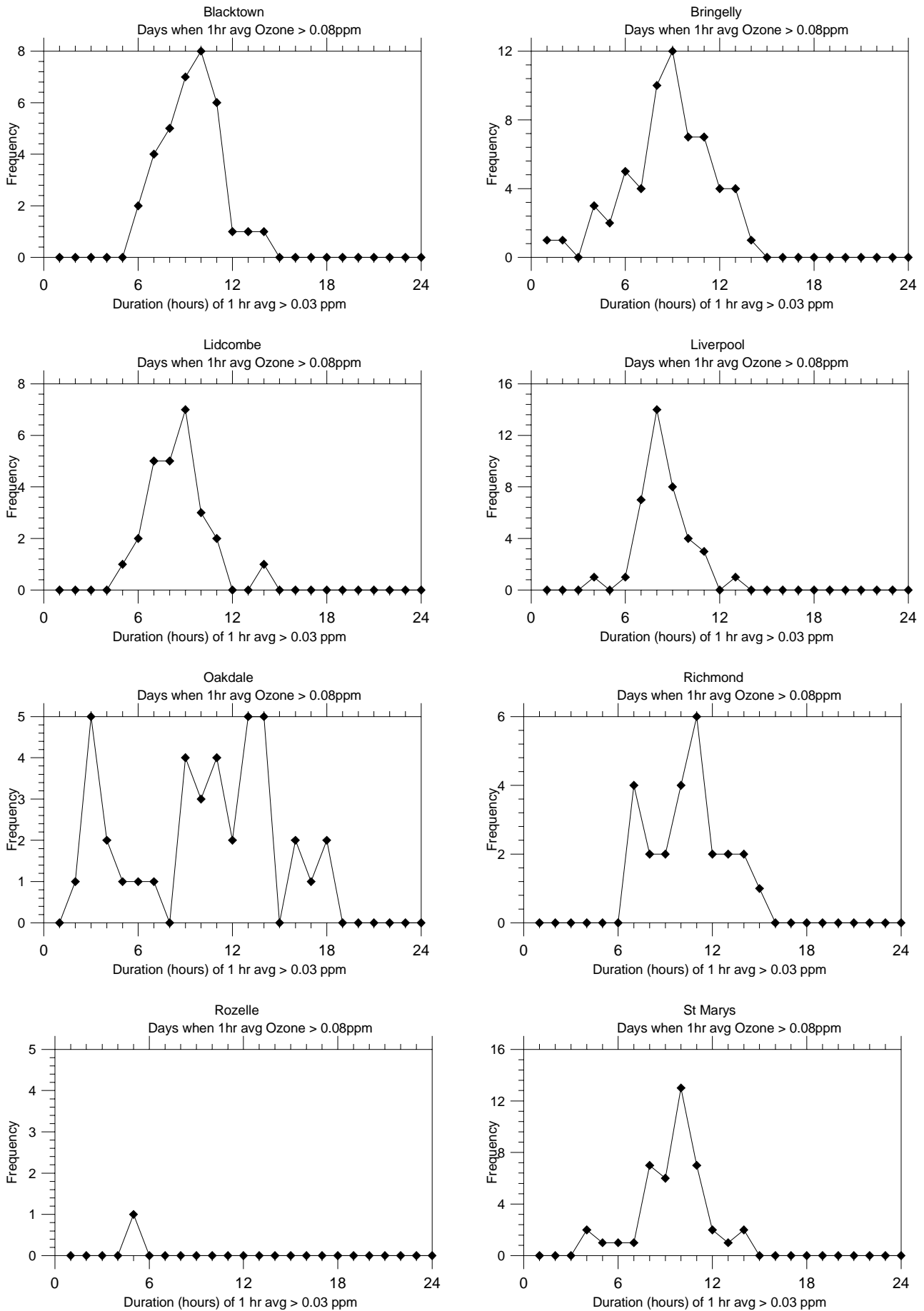


**Figure 14.** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.10 ppm criterion was exceeded.

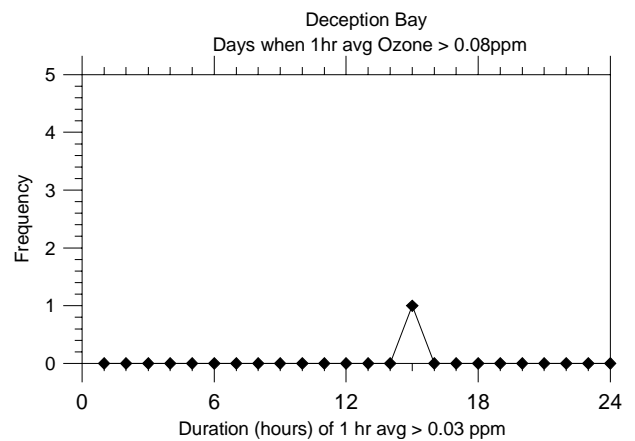
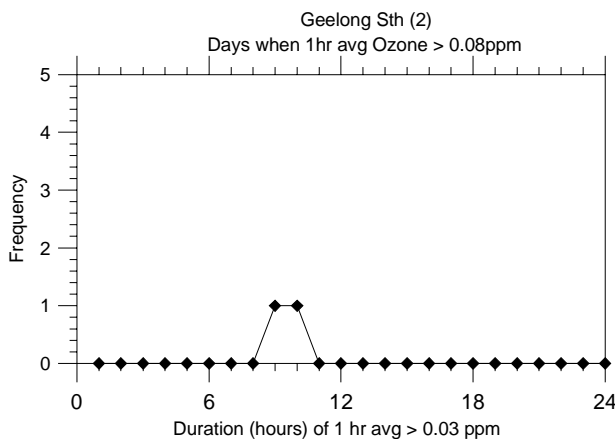
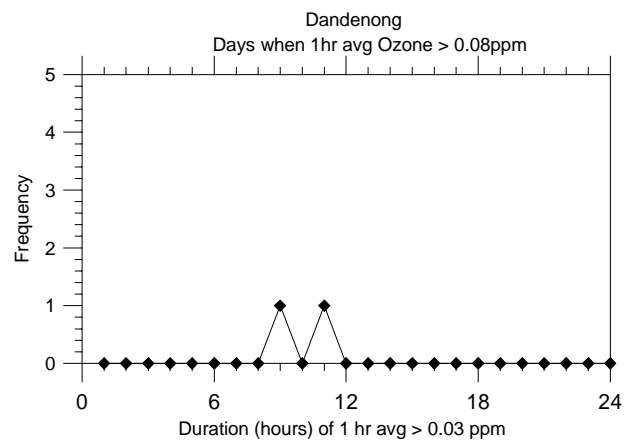
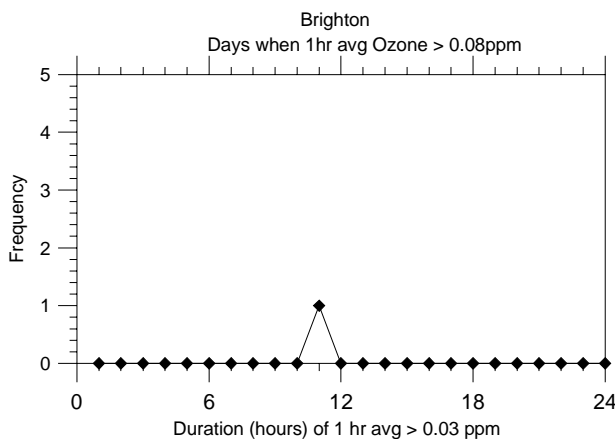
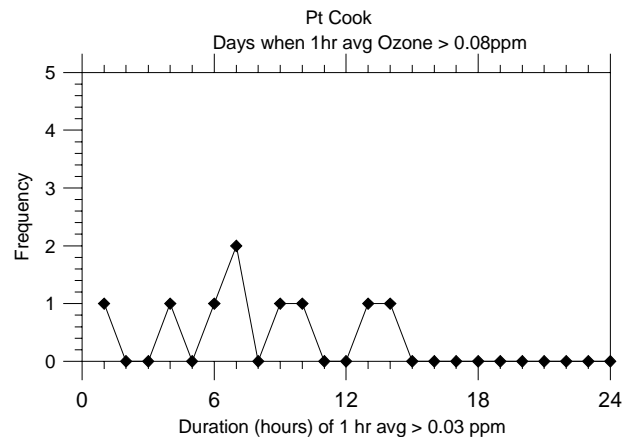
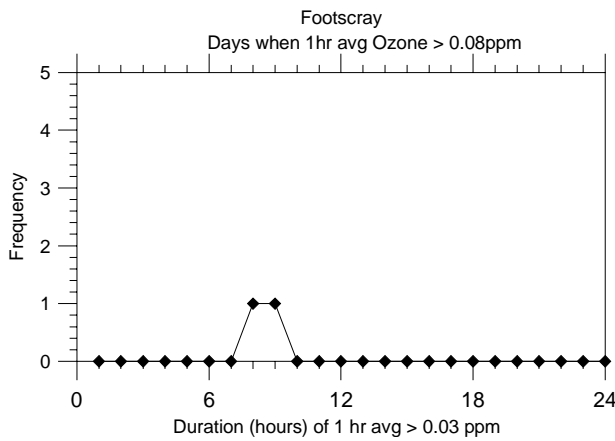
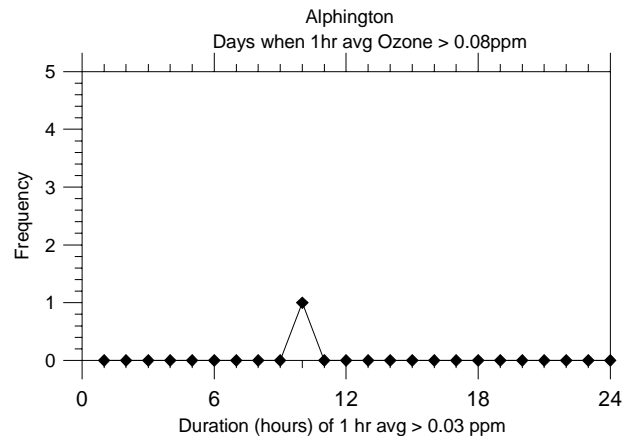
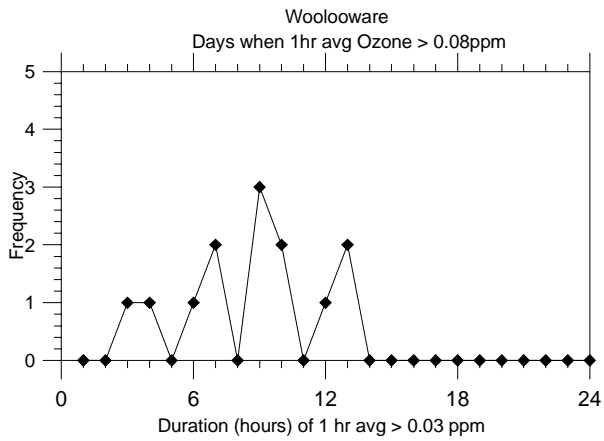


**Figure 14 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.10 ppm criterion was exceeded.

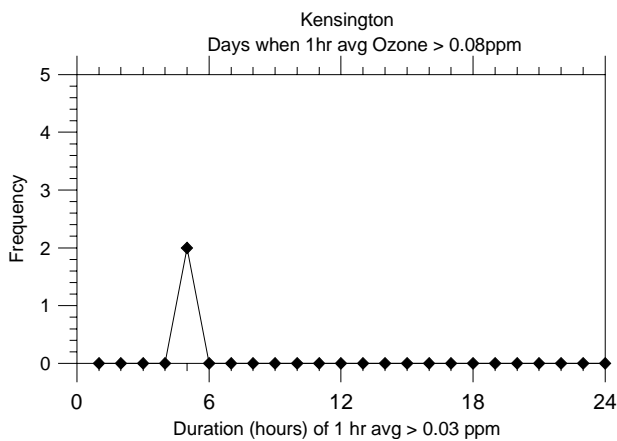
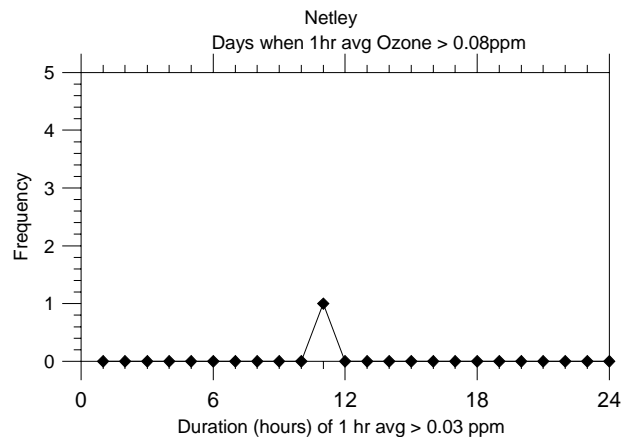
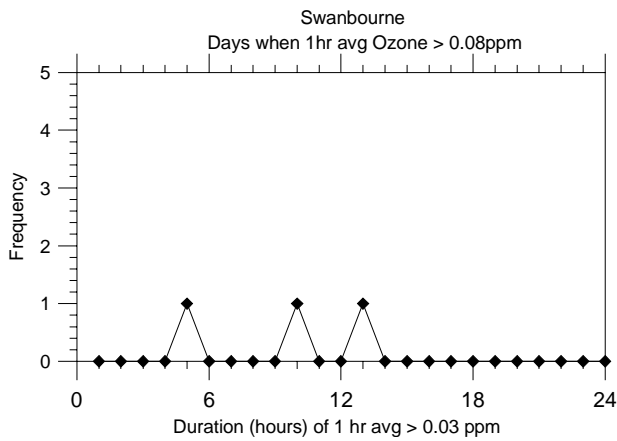
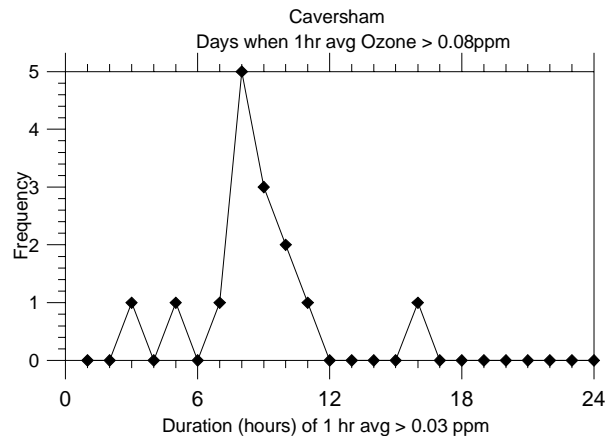
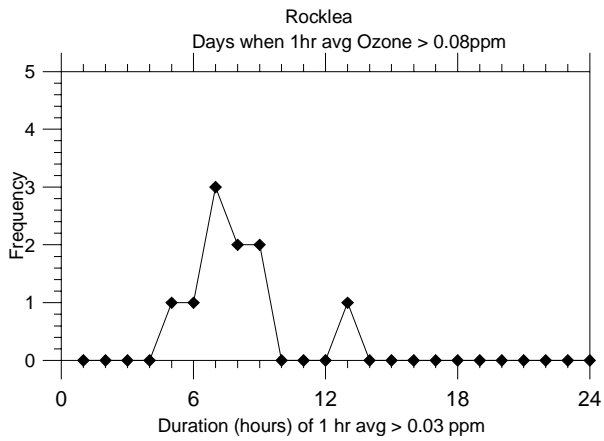




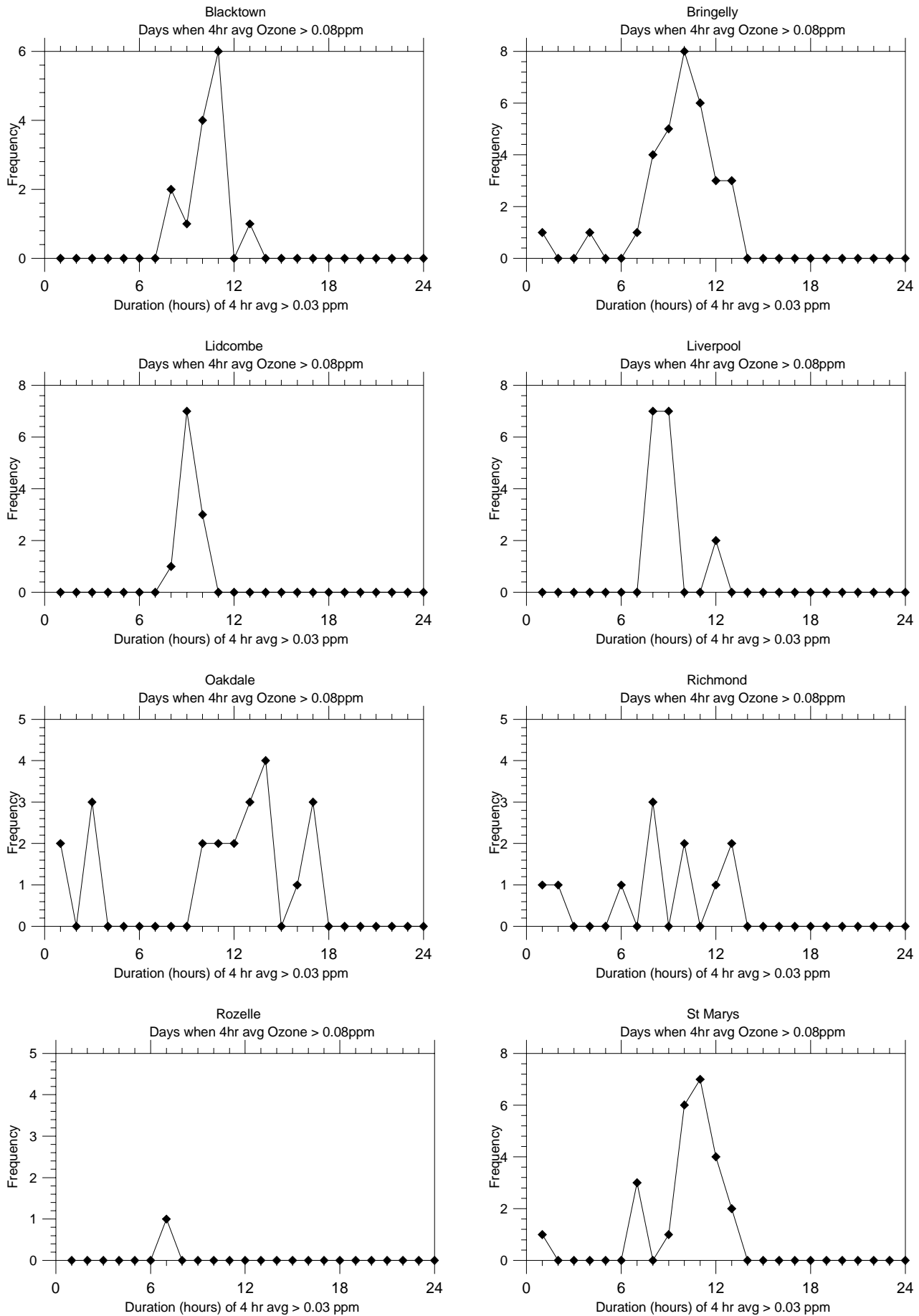
**Figure 15.** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.08 ppm criterion was exceeded.



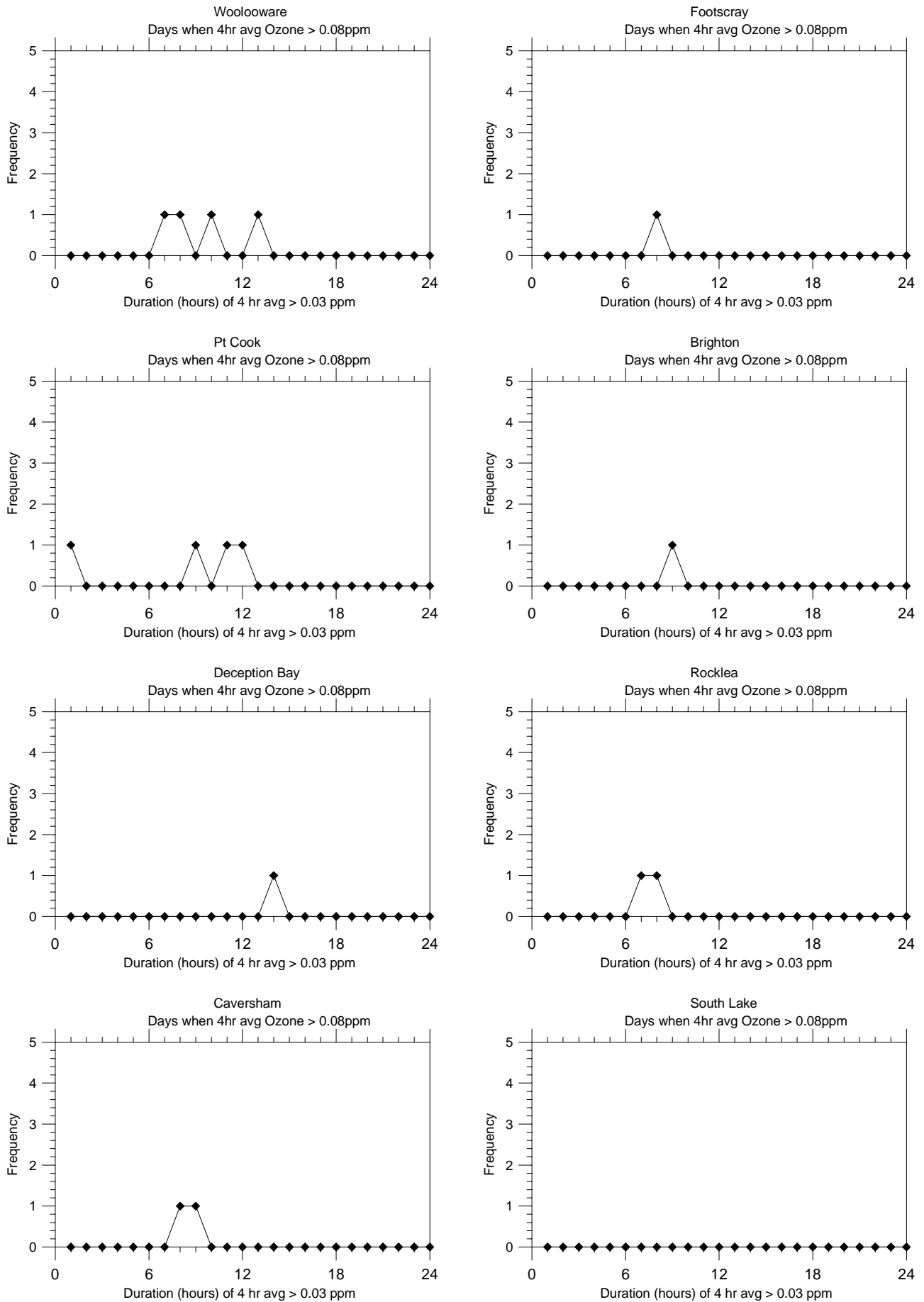
**Figure 15 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.08 ppm criterion was exceeded.



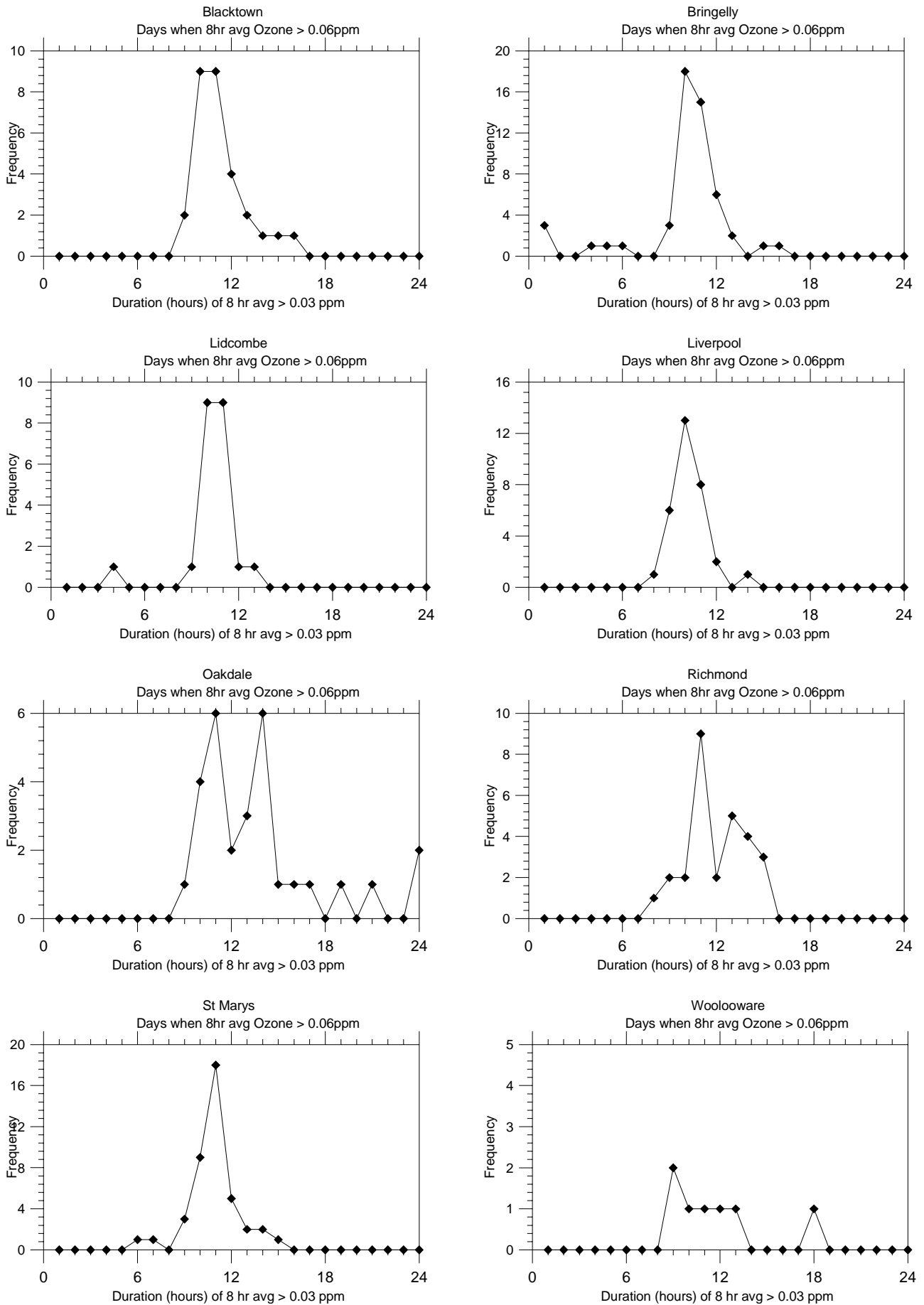
**Figure 15 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.08 ppm criterion was exceeded.



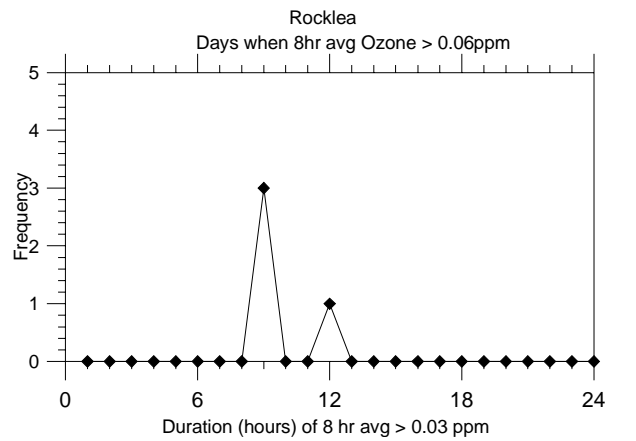
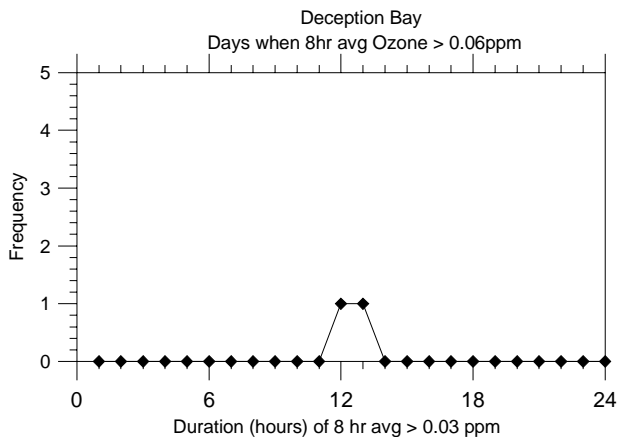
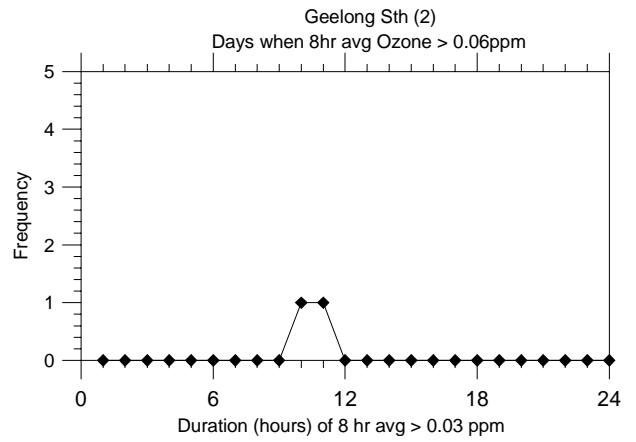
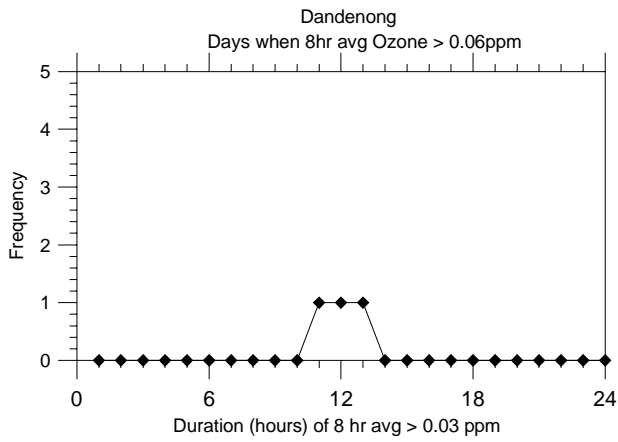
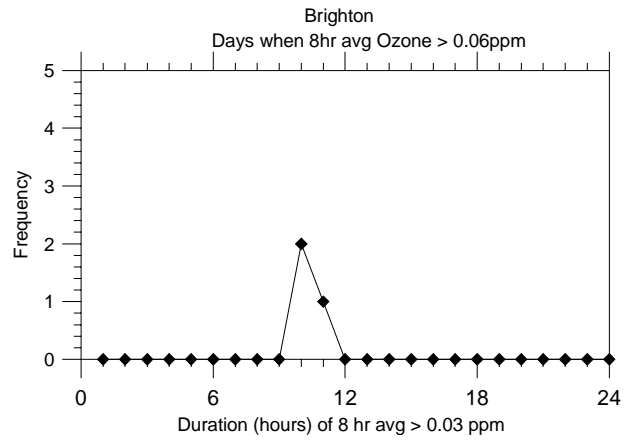
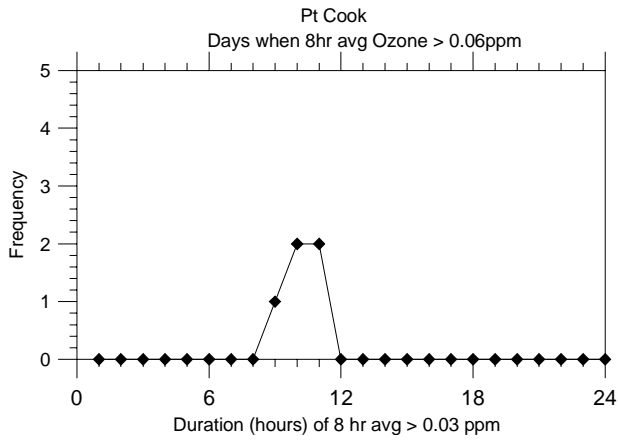
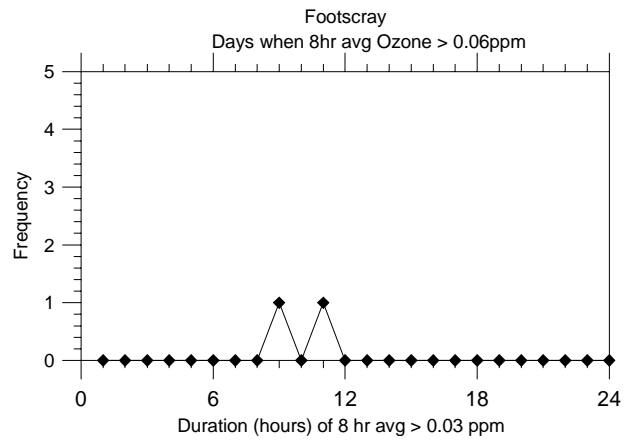
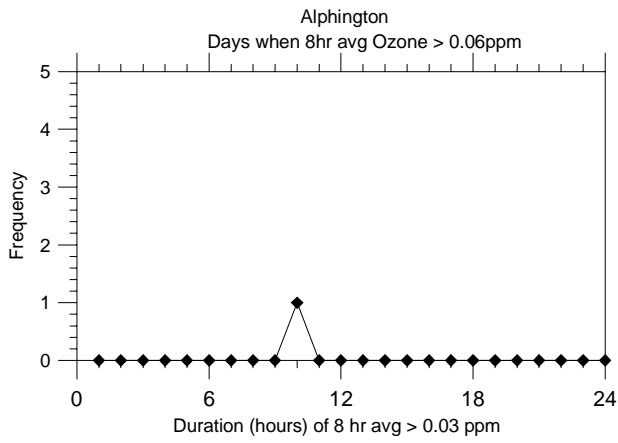
**Figure 16.** Distribution of durations of 4-hr average ozone concentrations greater than 0.03 ppm on the days when the 4-hr avg > 0.08 ppm criterion was exceeded.



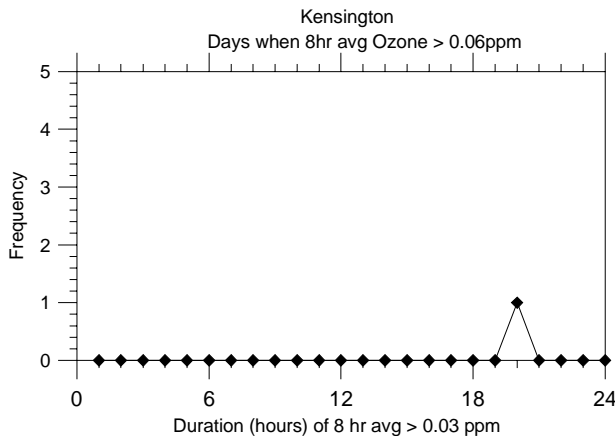
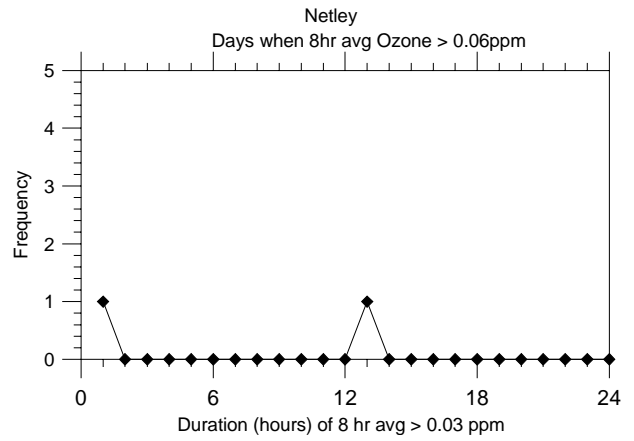
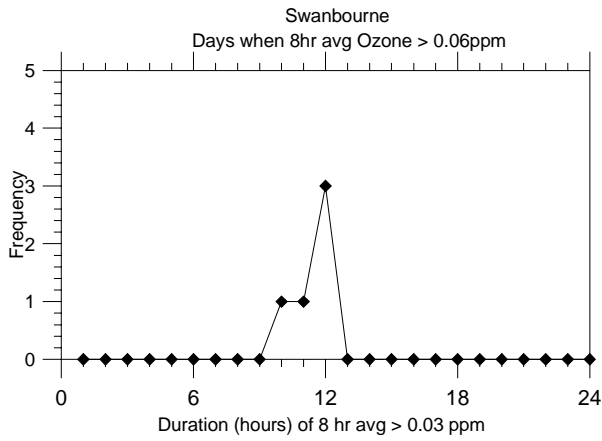
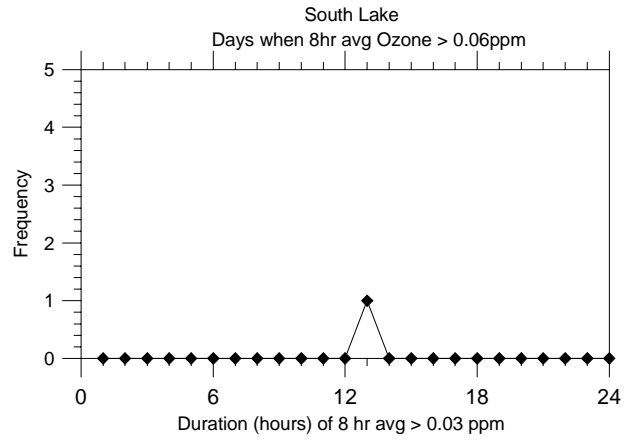
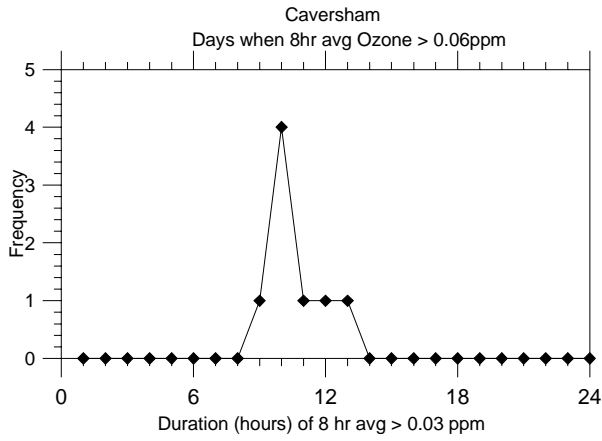
**Figure 16 (continued).** Distribution of durations of 4-hr average ozone concentrations greater than 0.03 ppm on the days when the 4-hr avg > 0.08 ppm criterion was exceeded.



**Figure 17.** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.06 ppm criterion was exceeded.

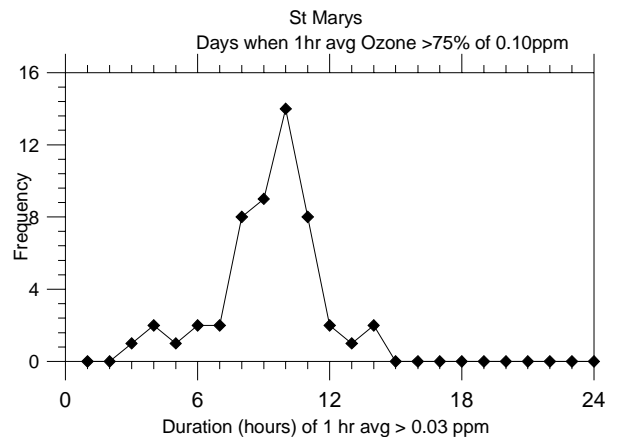
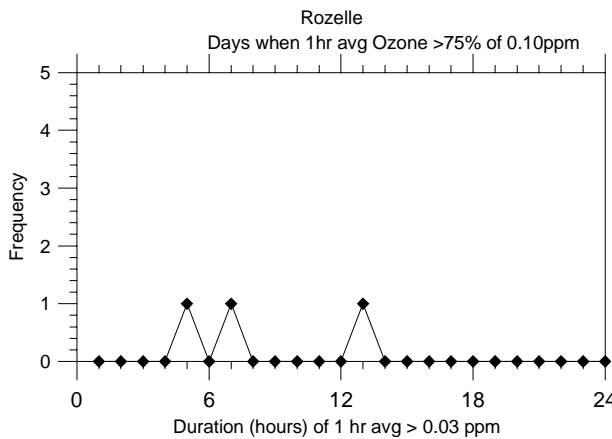
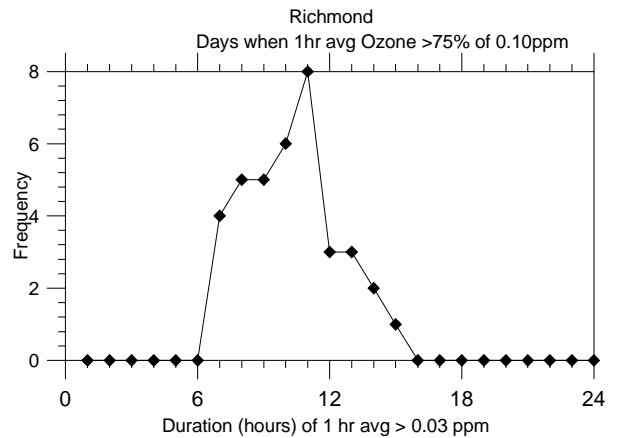
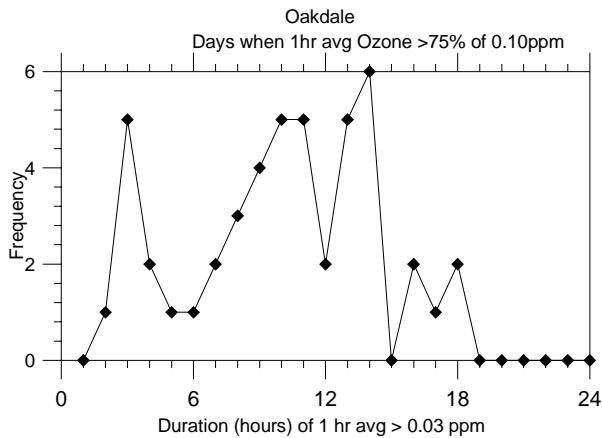
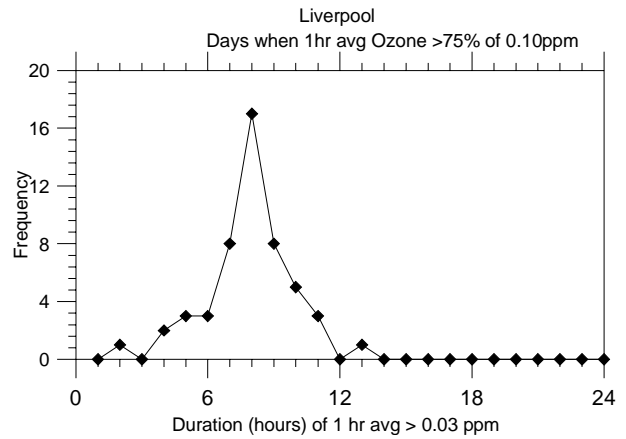
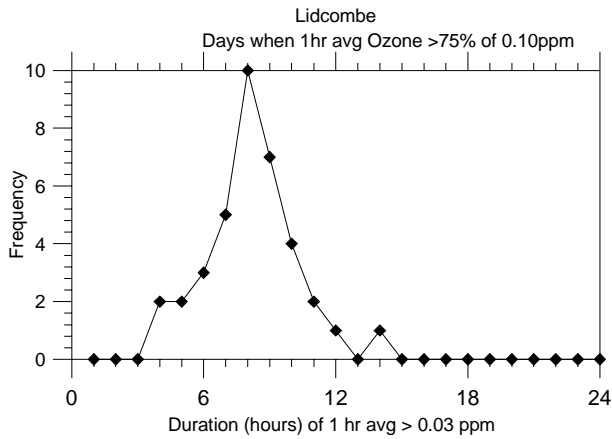
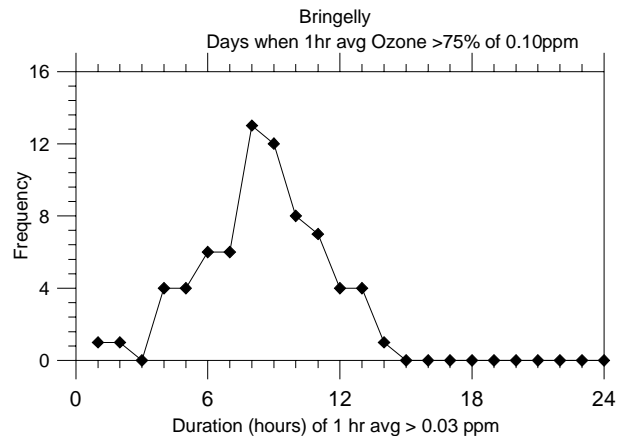
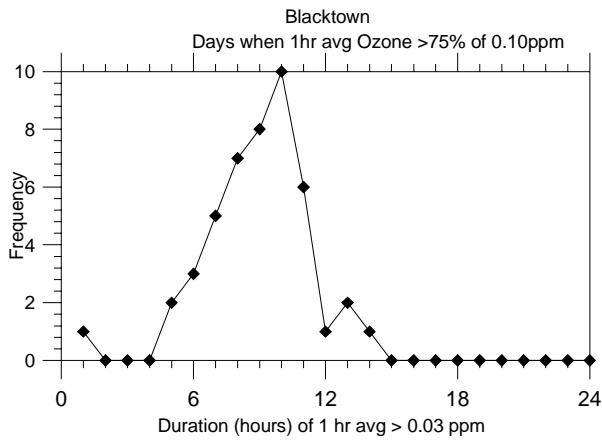


**Figure 17 (continued).** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.06 ppm criterion was exceeded.

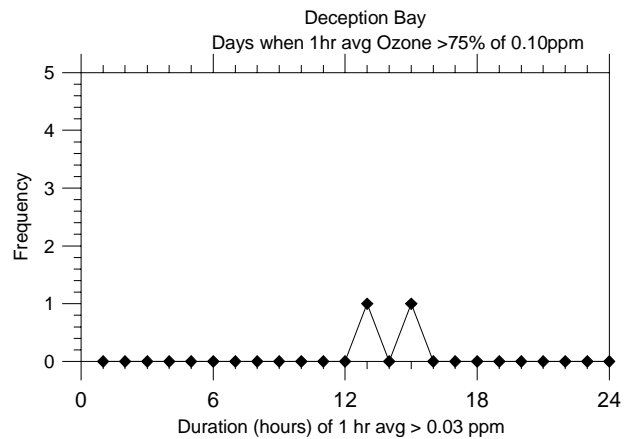
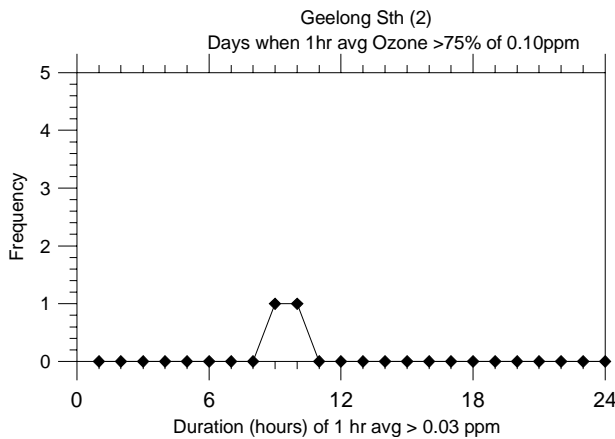
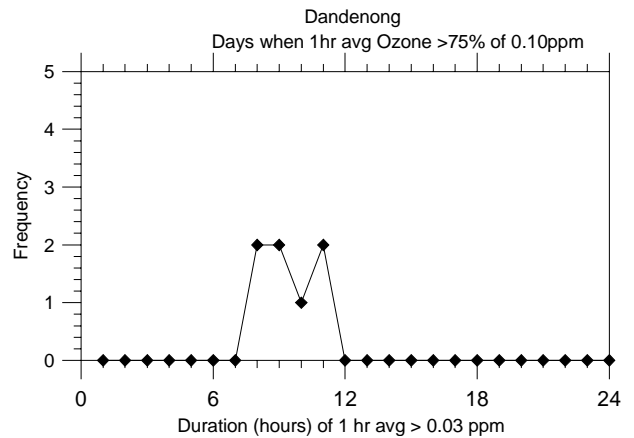
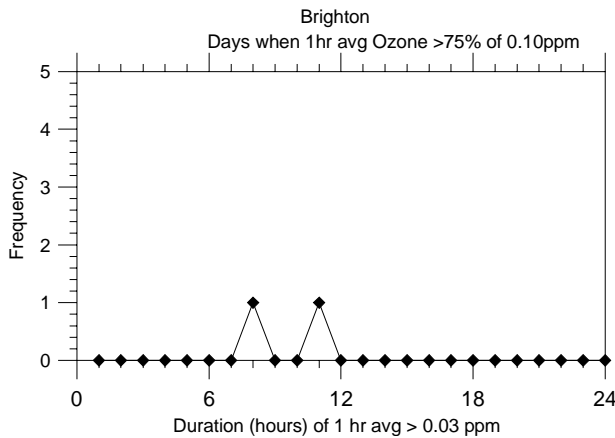
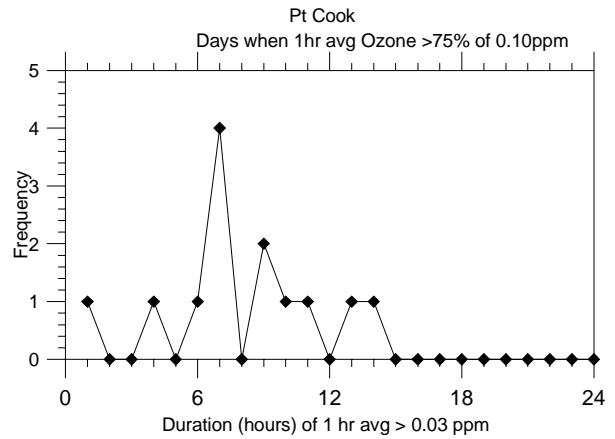
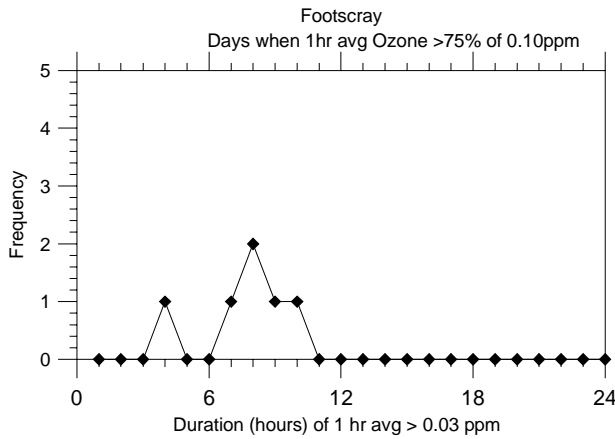
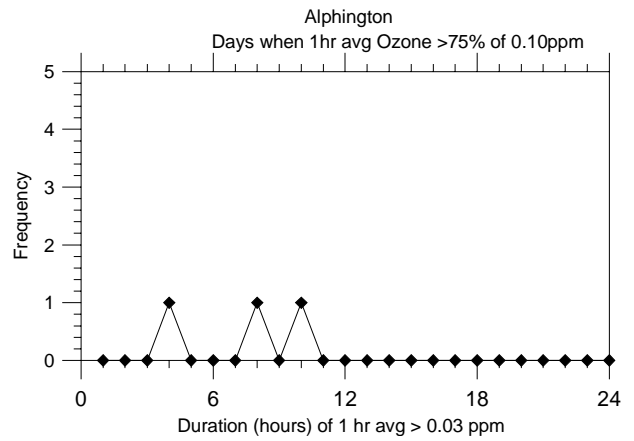
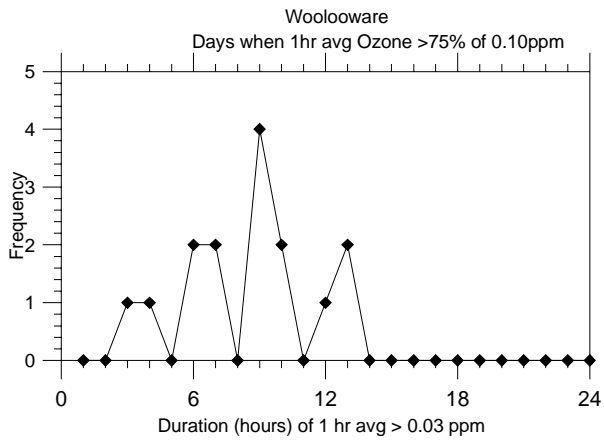


**Figure 17 (continued).** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.06 ppm criterion was exceeded.

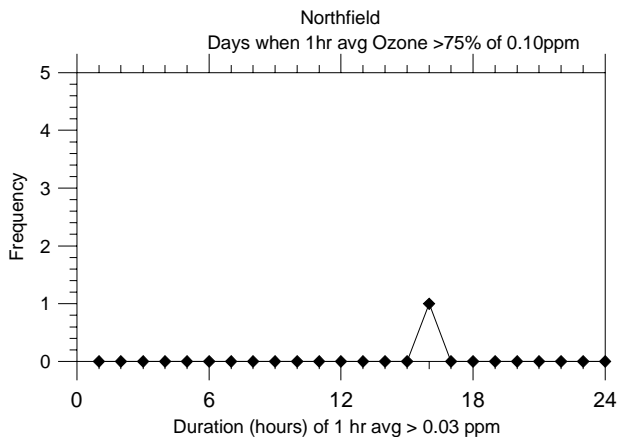
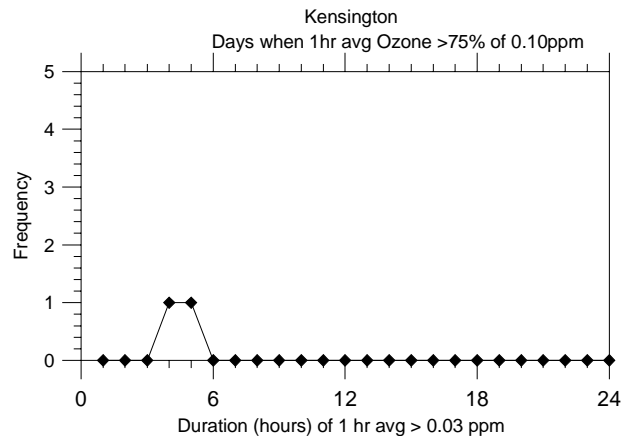
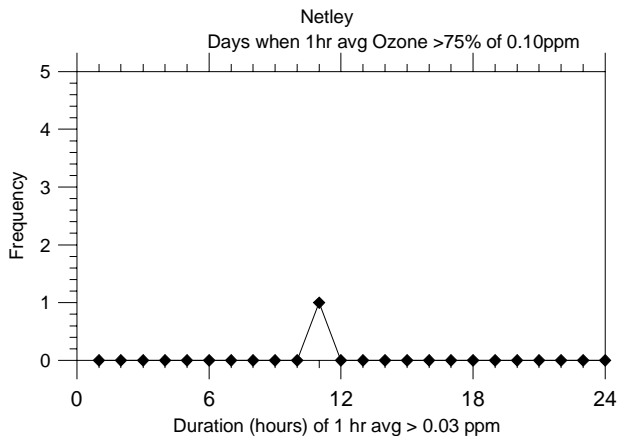
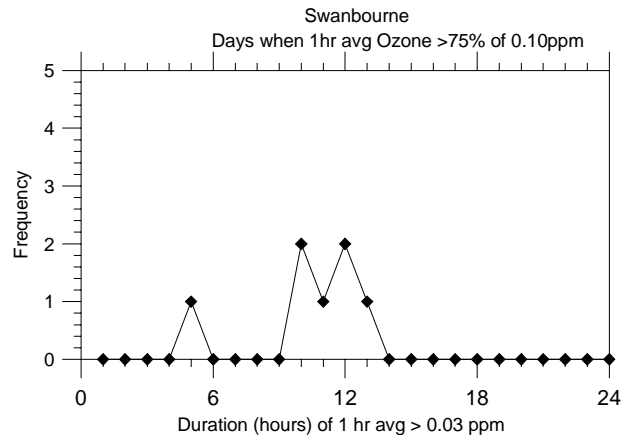
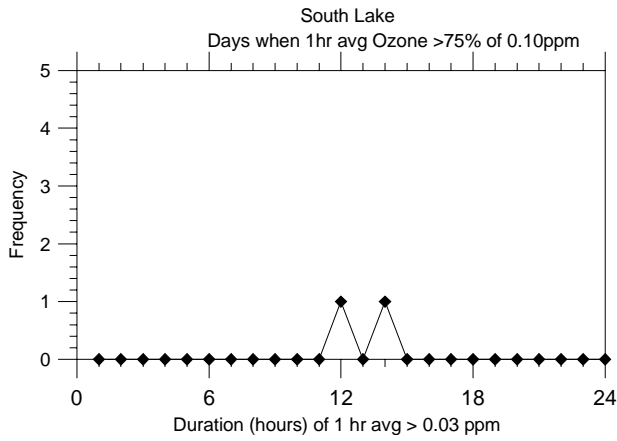
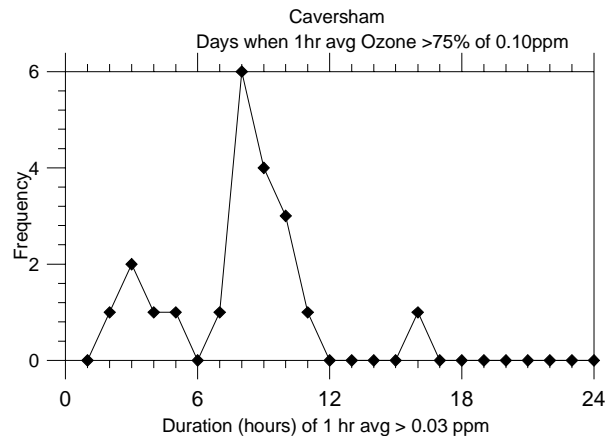
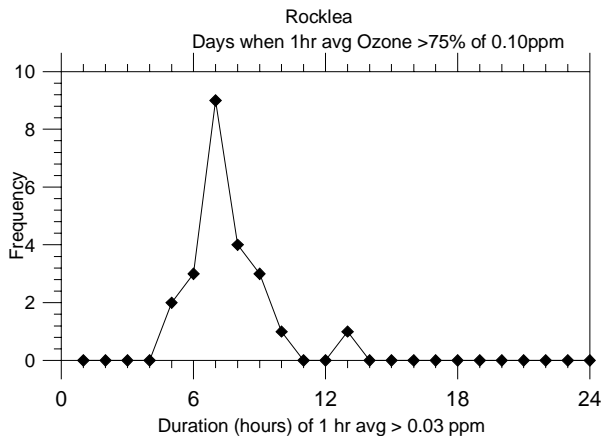




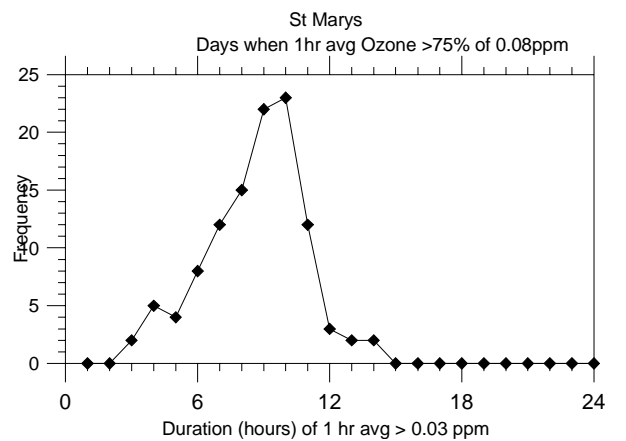
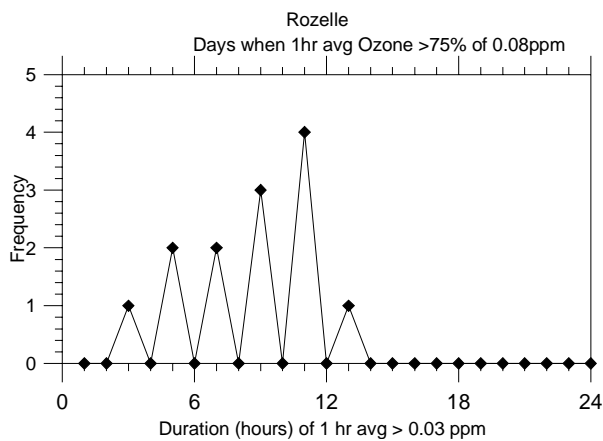
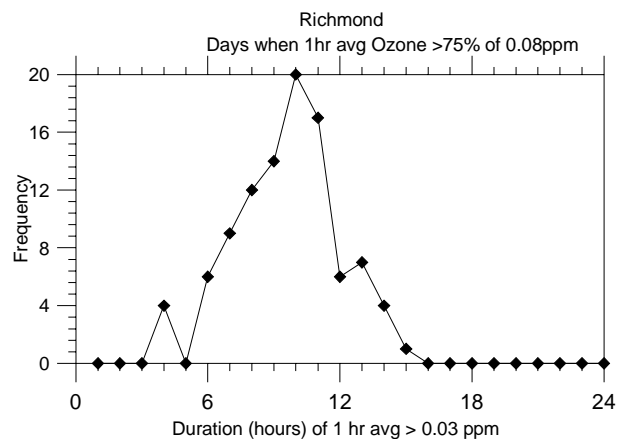
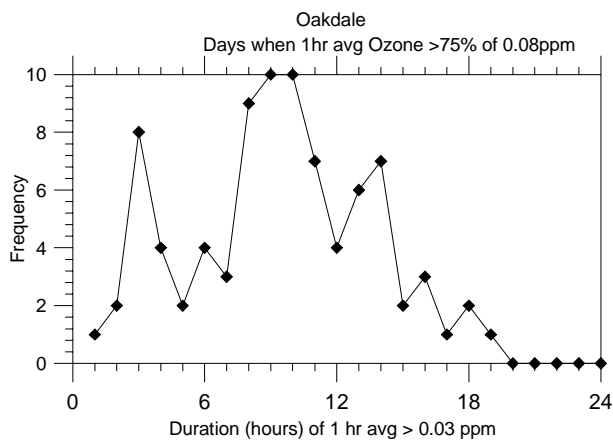
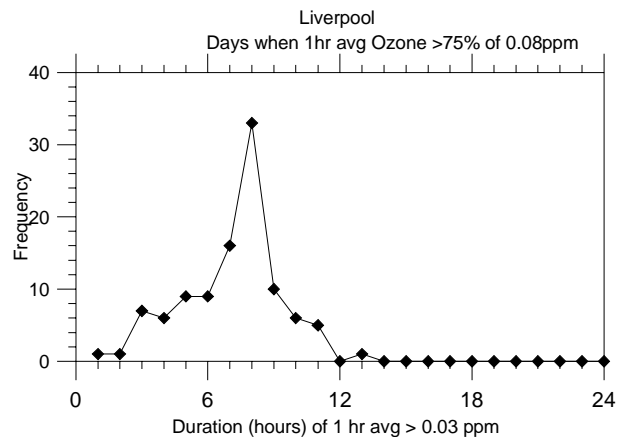
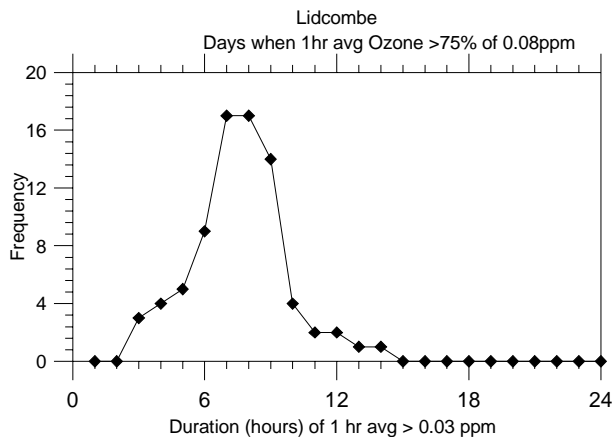
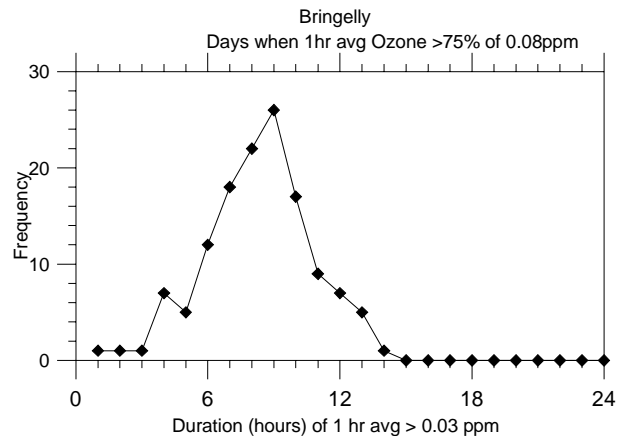
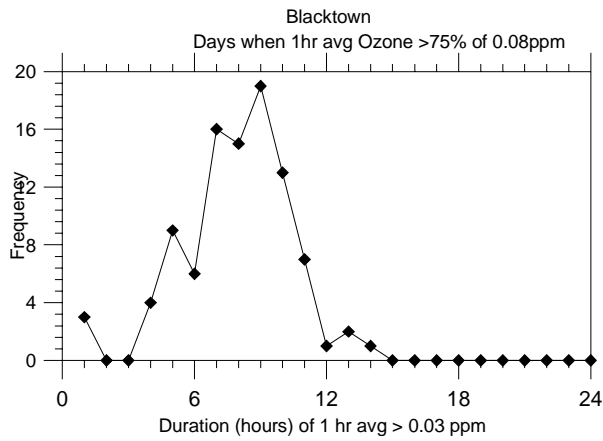
**Figure 18.** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.075 ppm criterion was exceeded.



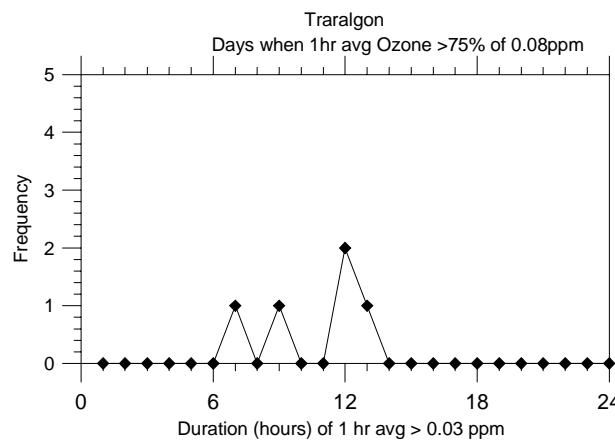
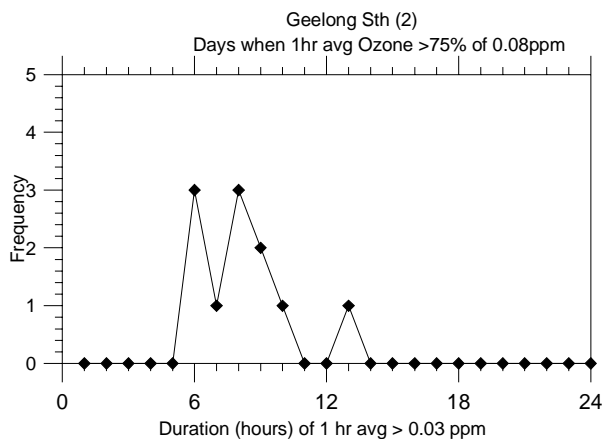
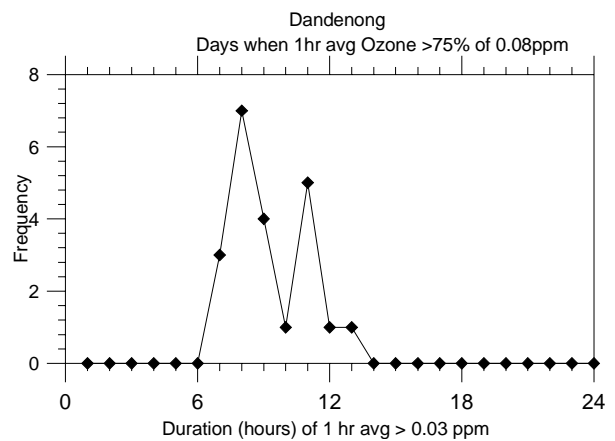
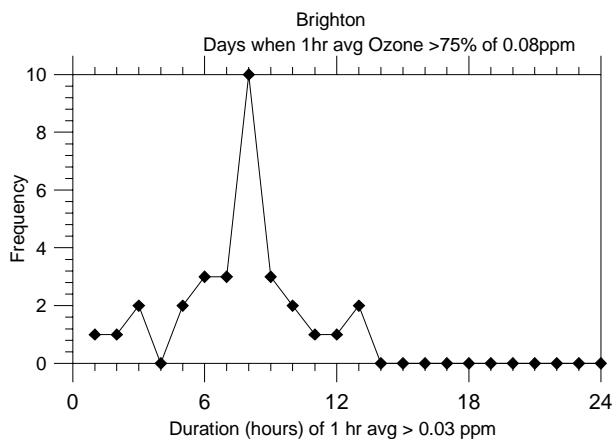
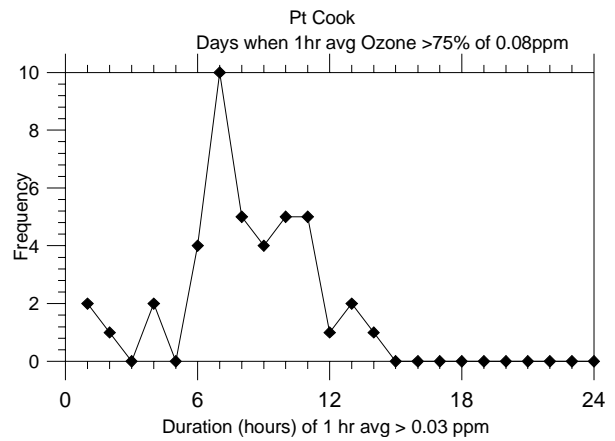
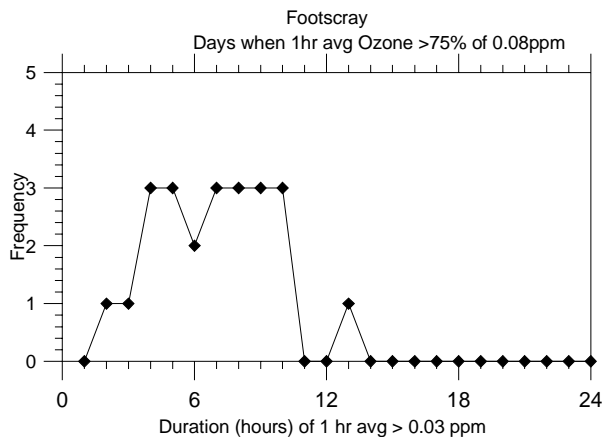
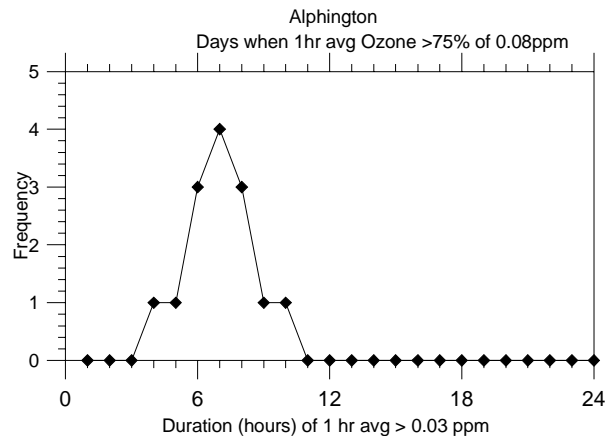
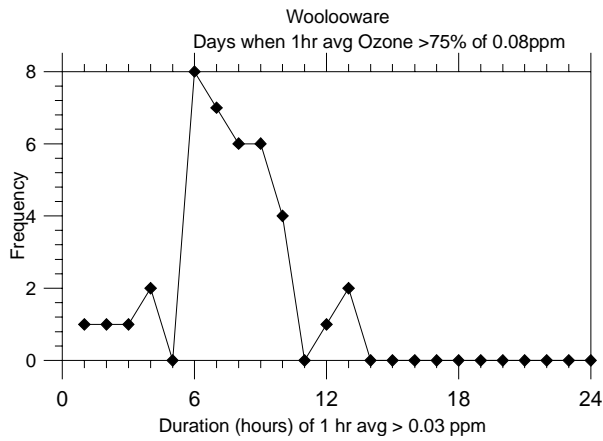
**Figure 18 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.075 ppm criterion was exceeded.



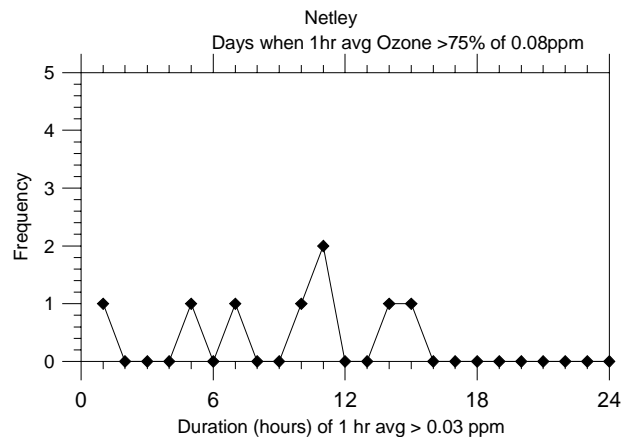
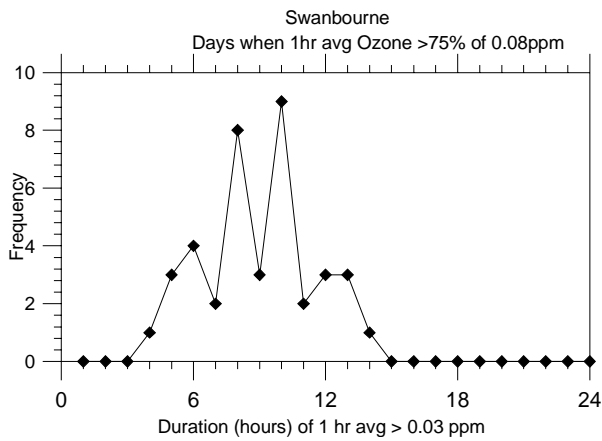
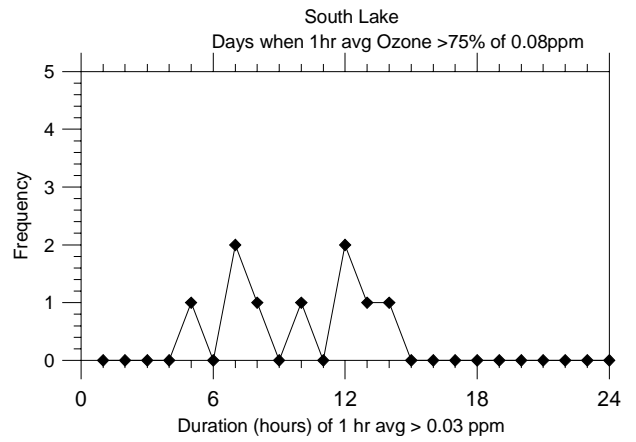
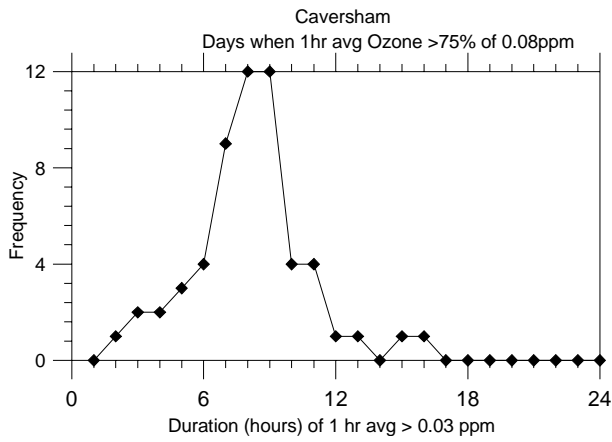
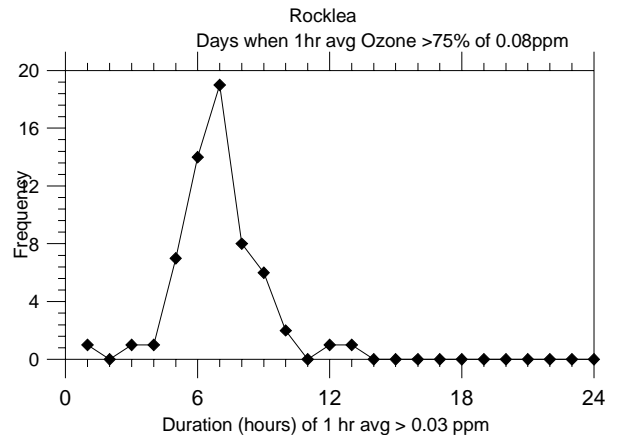
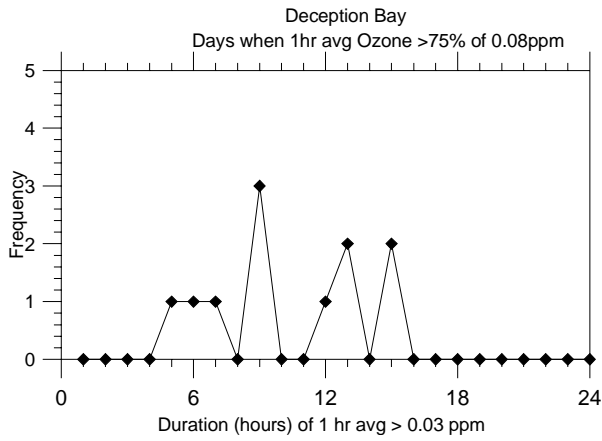
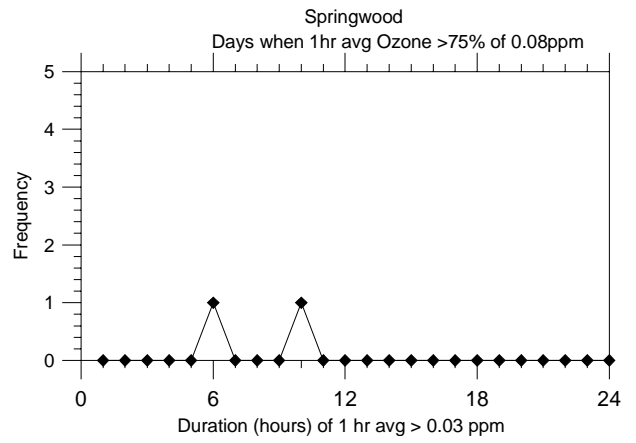
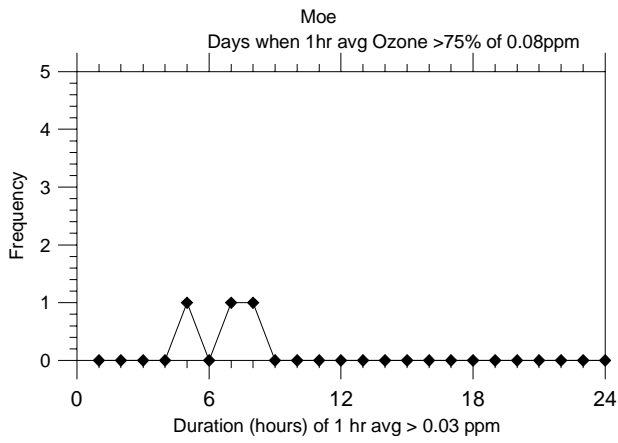
**Figure 18 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.075 ppm criterion was exceeded.



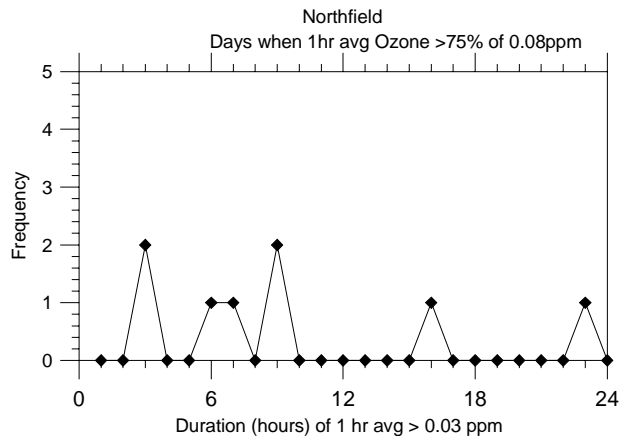
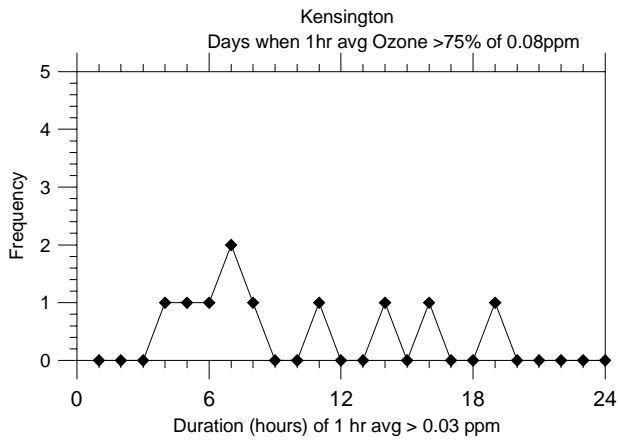
**Figure 19.** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.06 ppm criterion was exceeded.



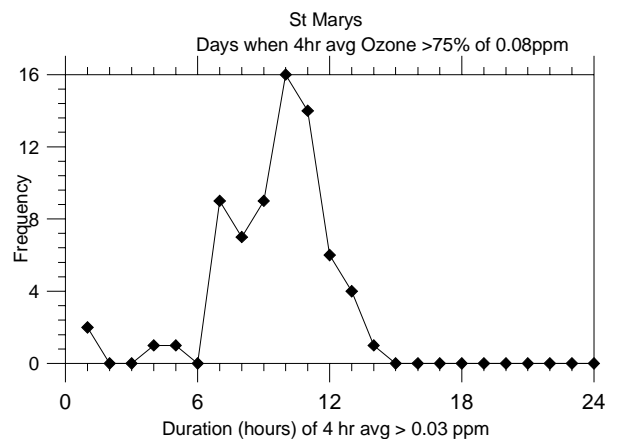
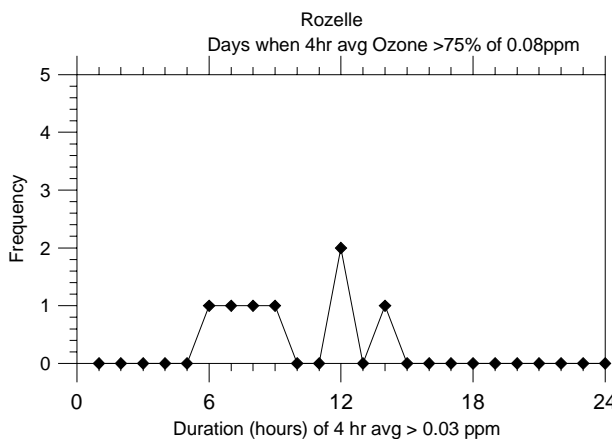
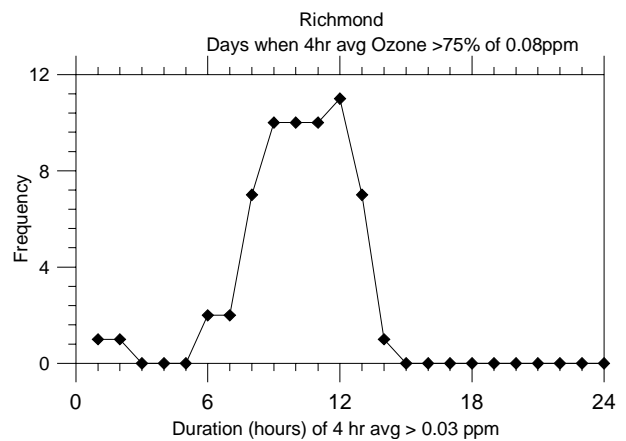
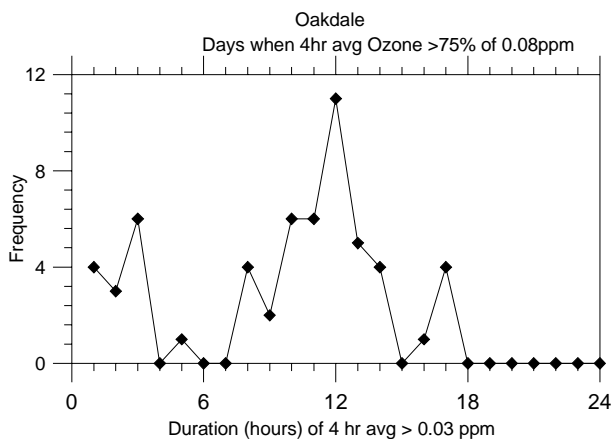
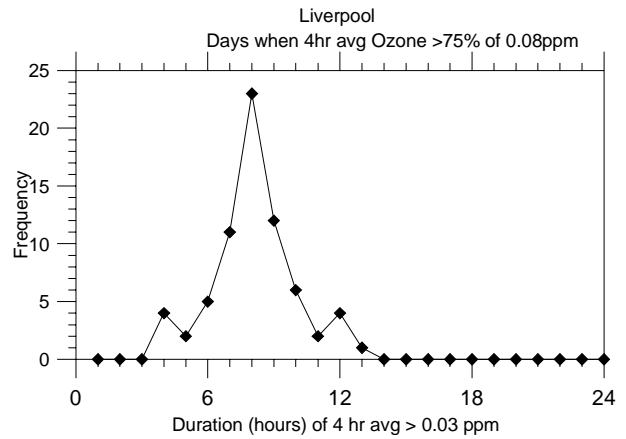
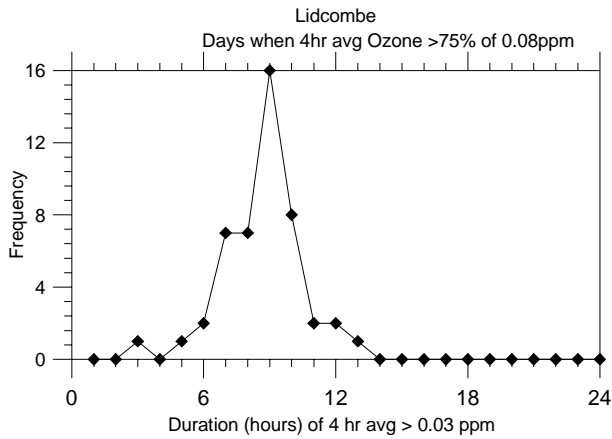
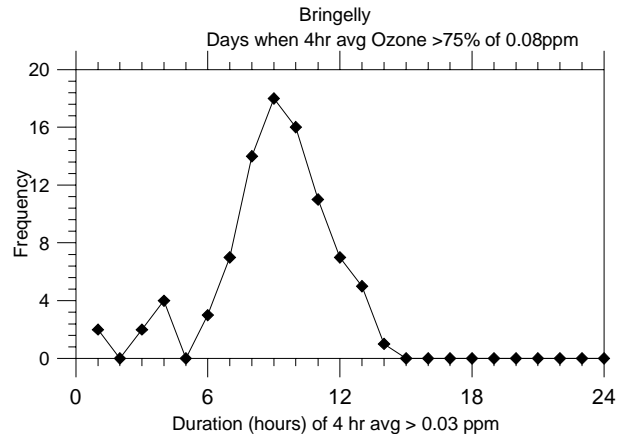
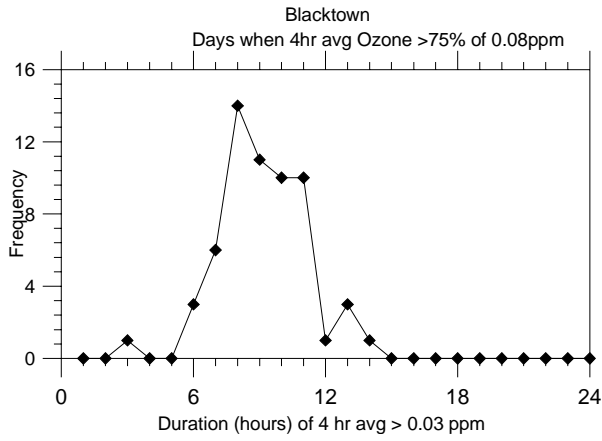
**Figure 19 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.06 ppm criterion was exceeded.



**Figure 19 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.06 ppm criterion was exceeded.

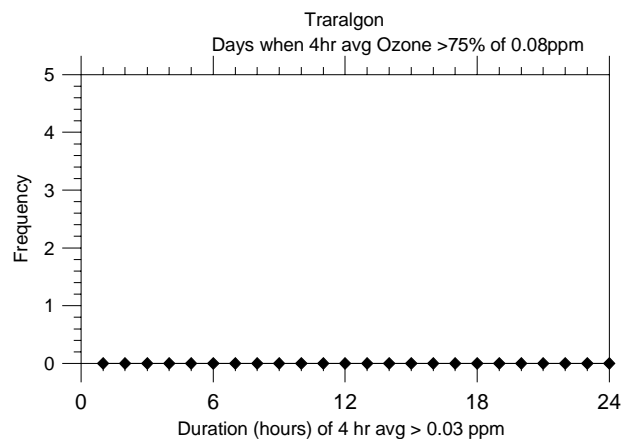
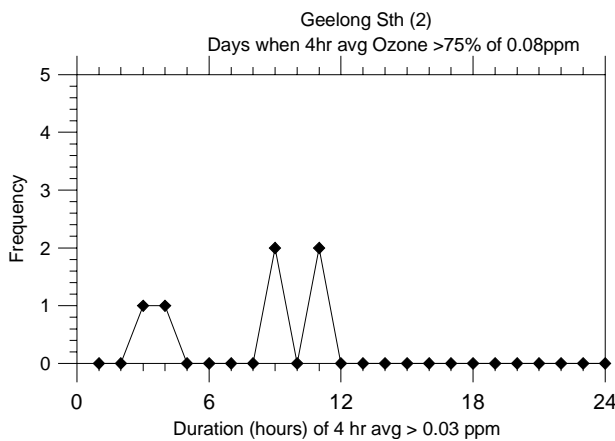
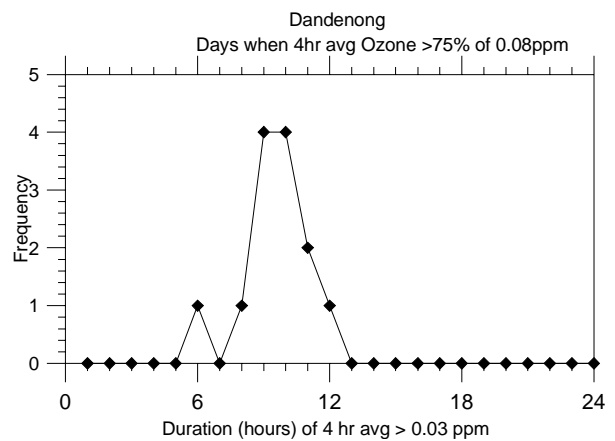
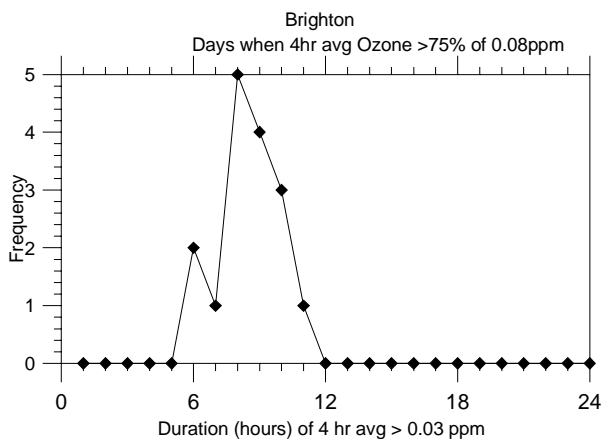
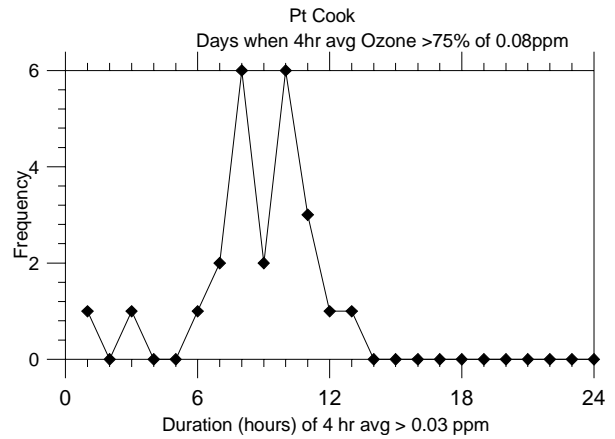
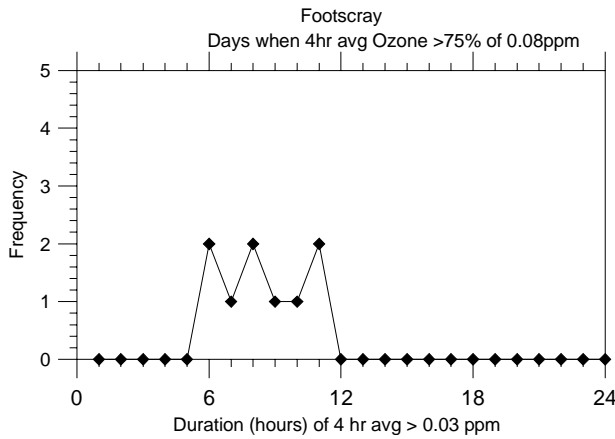
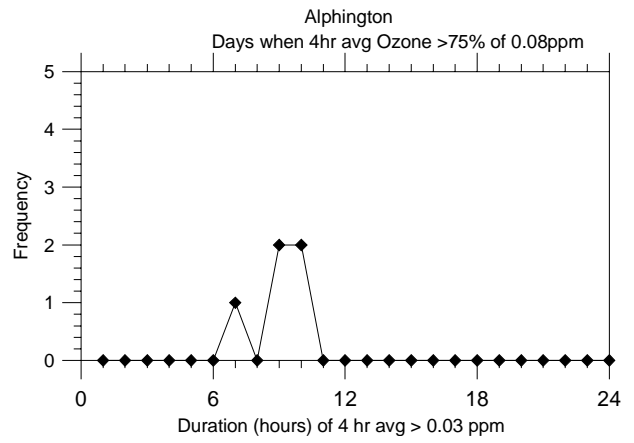
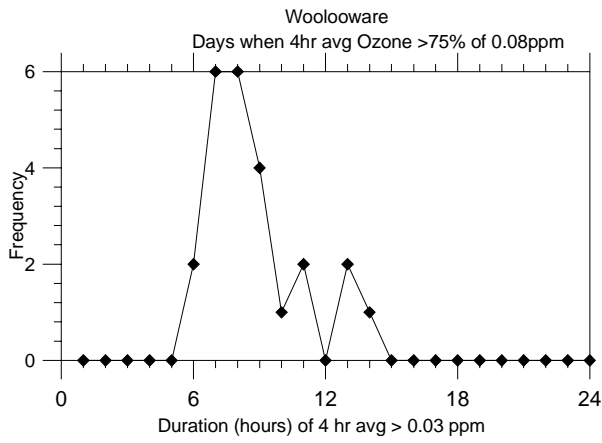


**Figure 19 (continued).** Distribution of durations of 1-hr average ozone concentrations greater than 0.03 ppm on the days when the 1-hr avg > 0.06 ppm criterion was exceeded.

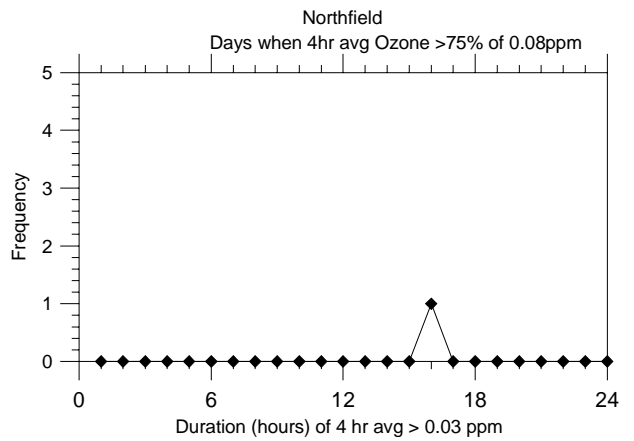
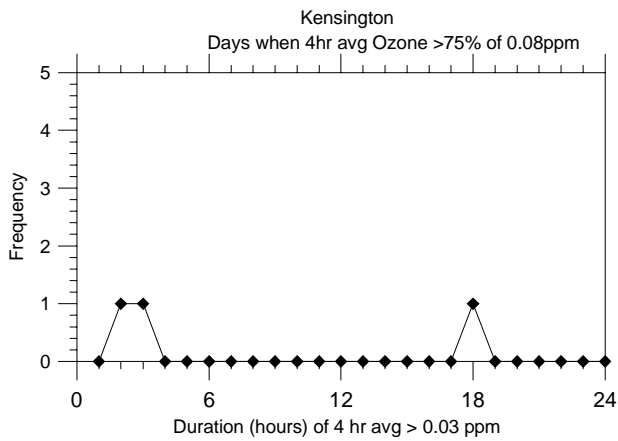
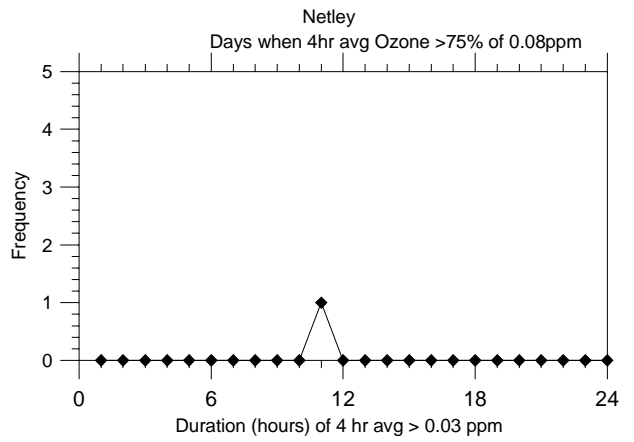
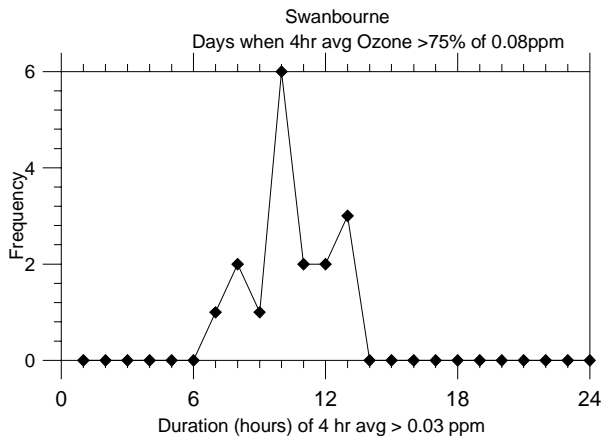
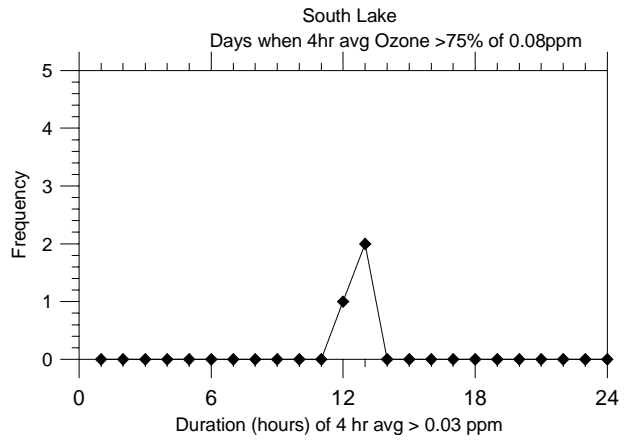
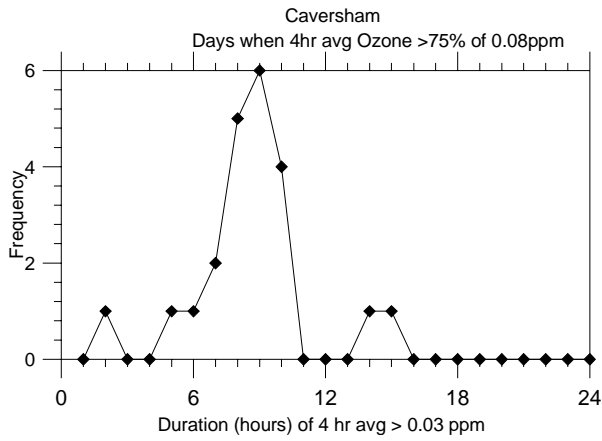
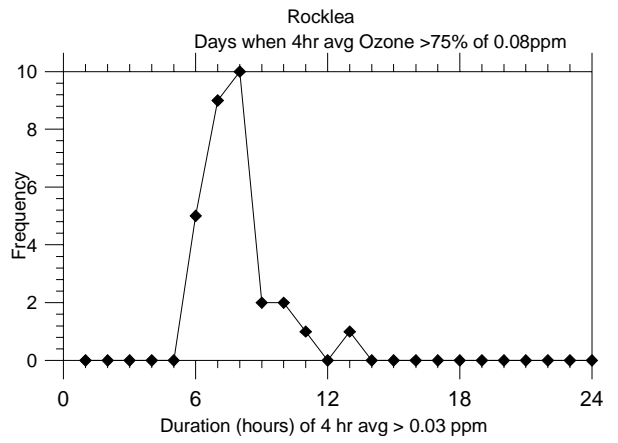
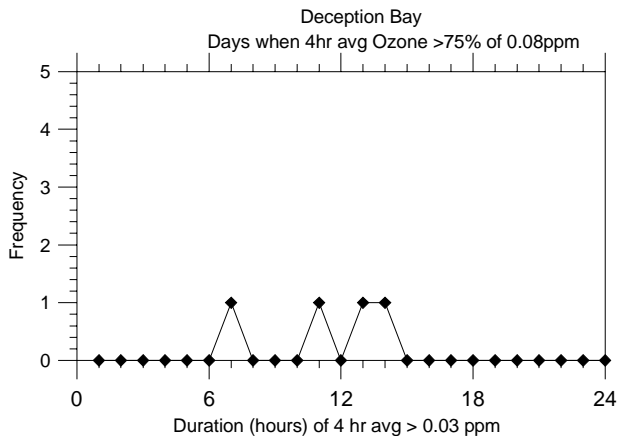


**Figure 20.** Distribution of durations of 4-hr average ozone concentrations greater than 0.03 ppm on the days when the 4-hr avg > 0.06 ppm criterion was exceeded.

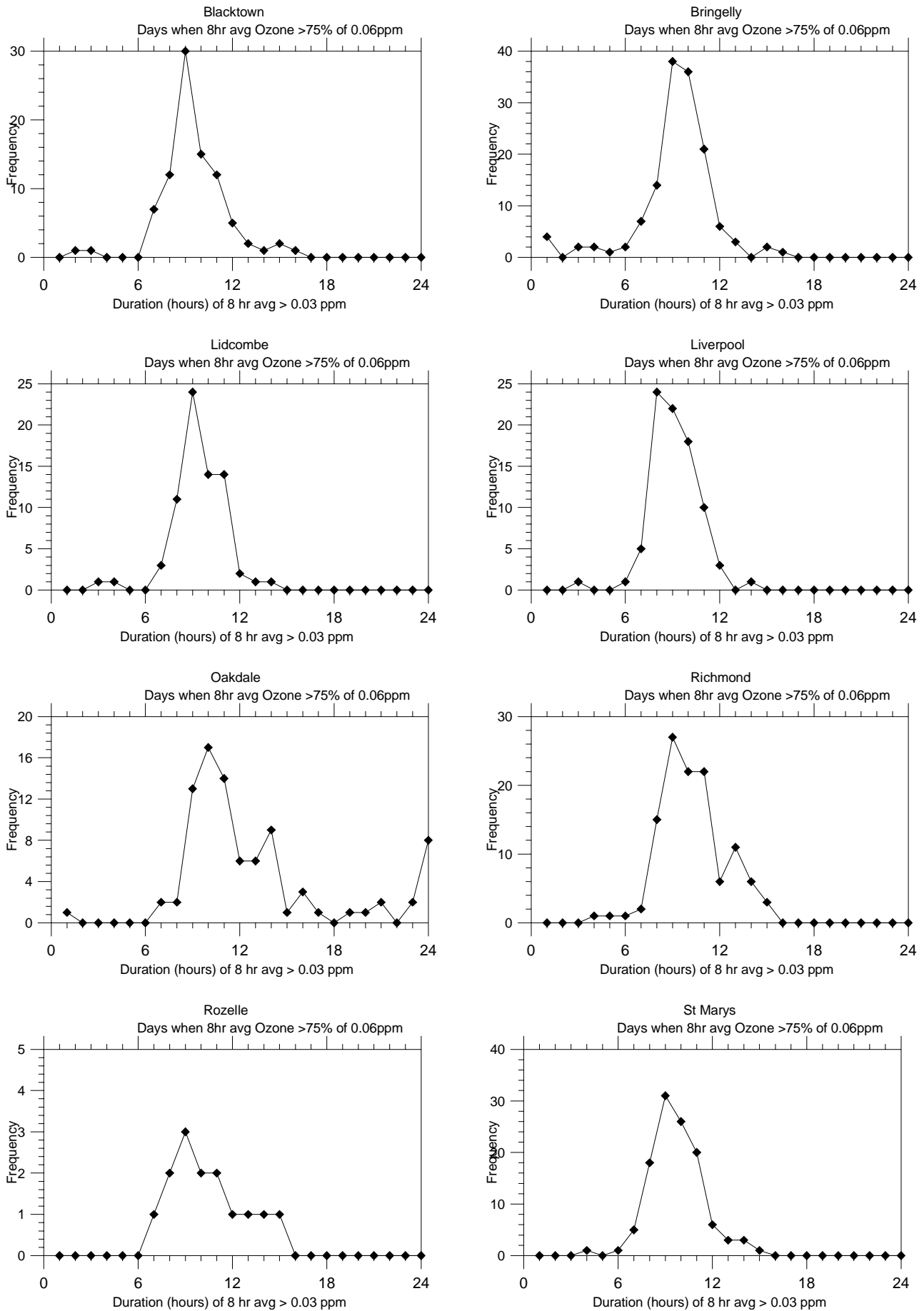




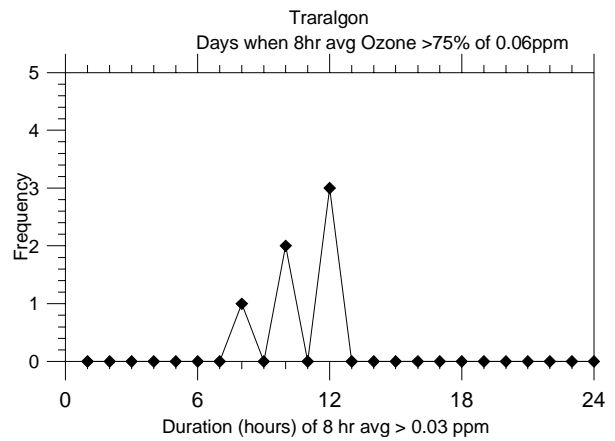
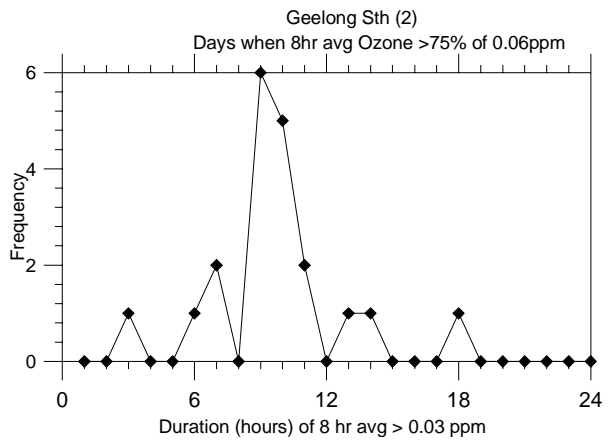
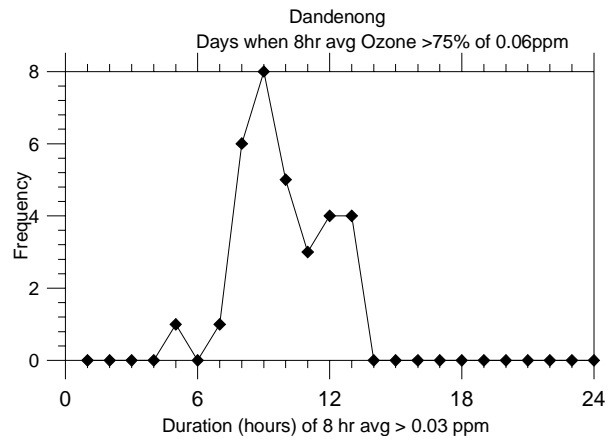
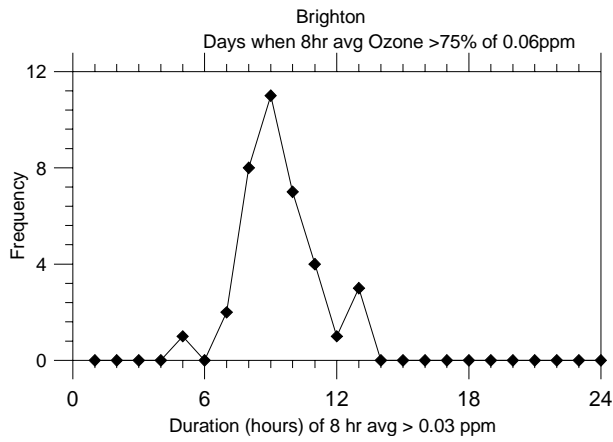
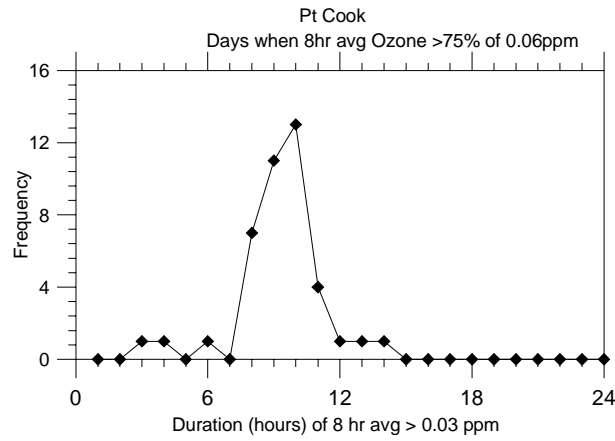
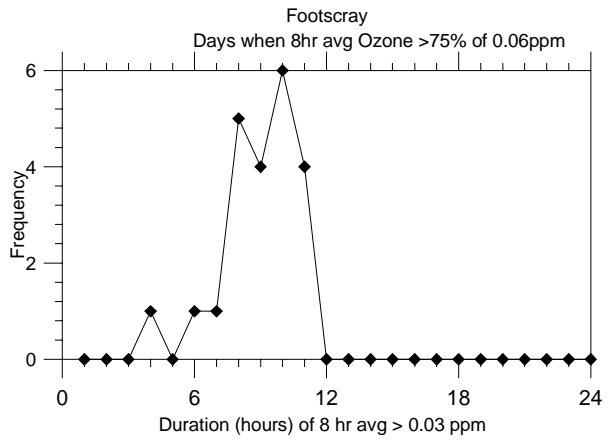
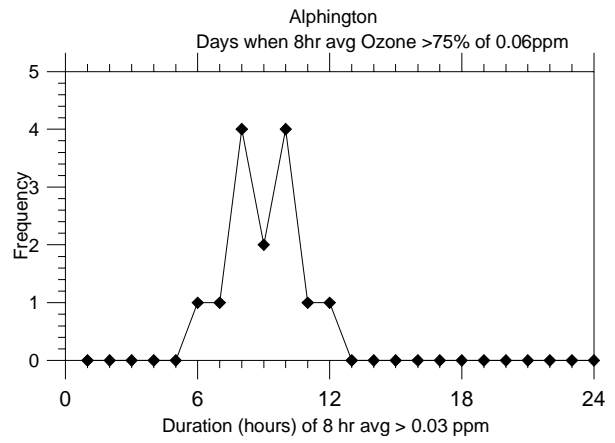
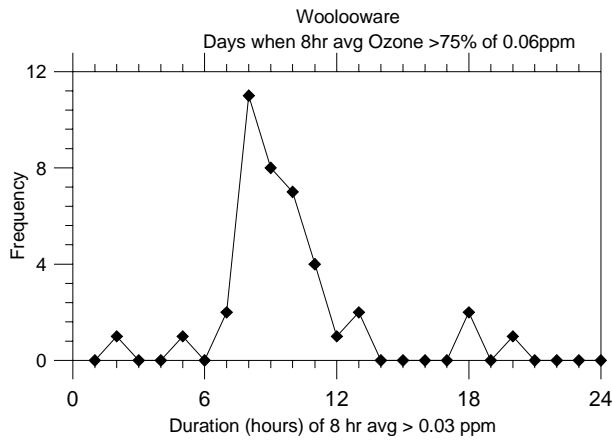
**Figure 20 (continued).** Distribution of durations of 4-hr average ozone concentrations greater than 0.03 ppm on the days when the 4-hr avg > 0.06 ppm criterion was exceeded.



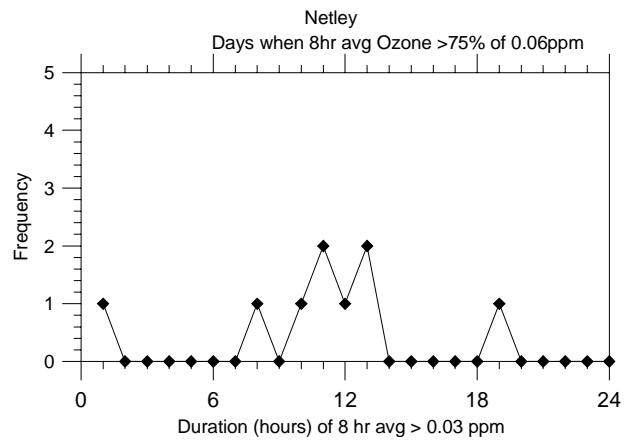
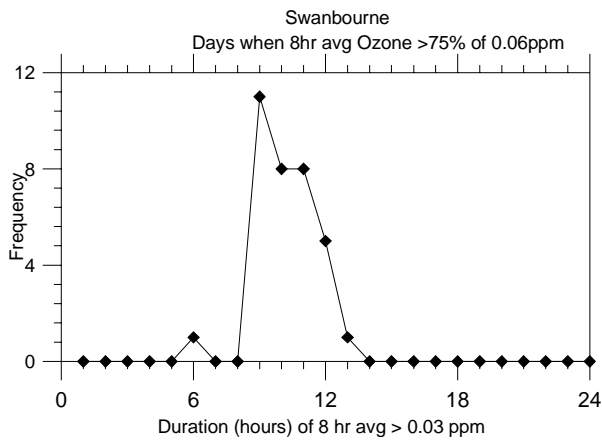
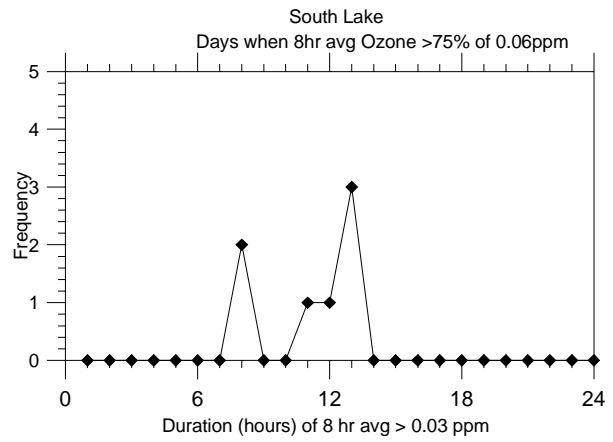
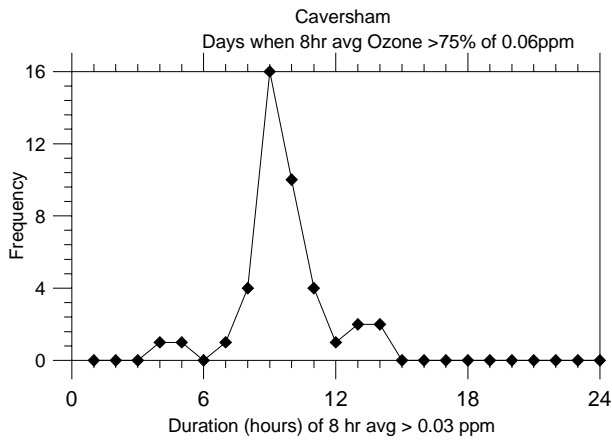
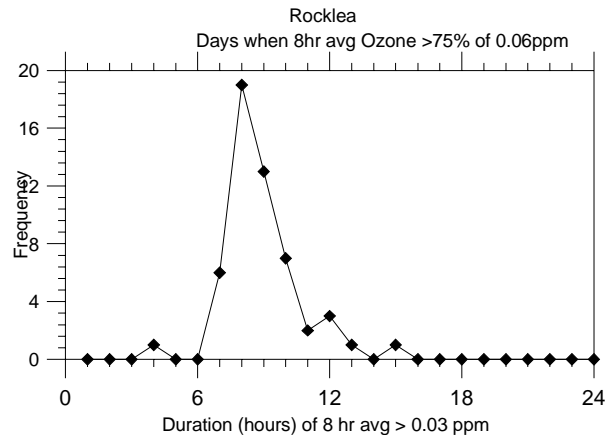
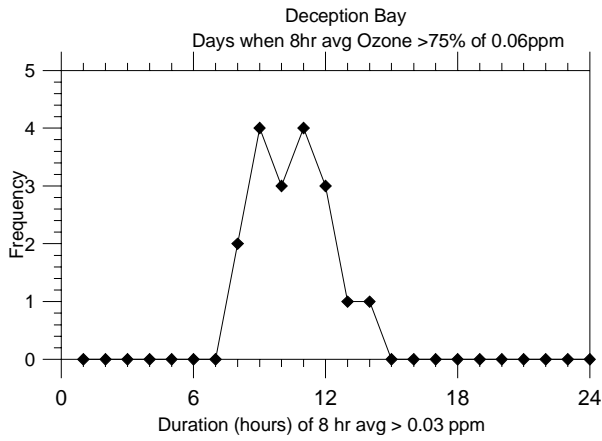
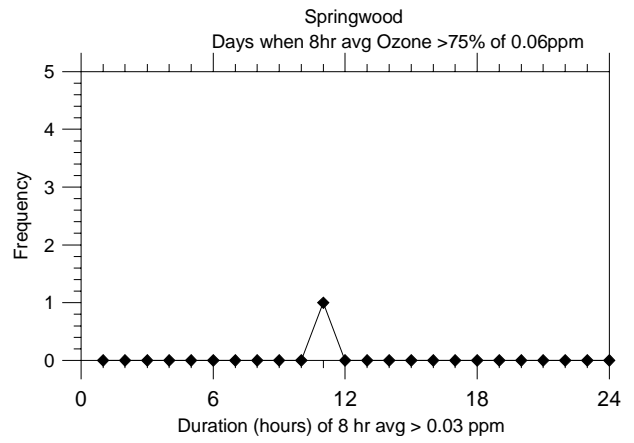
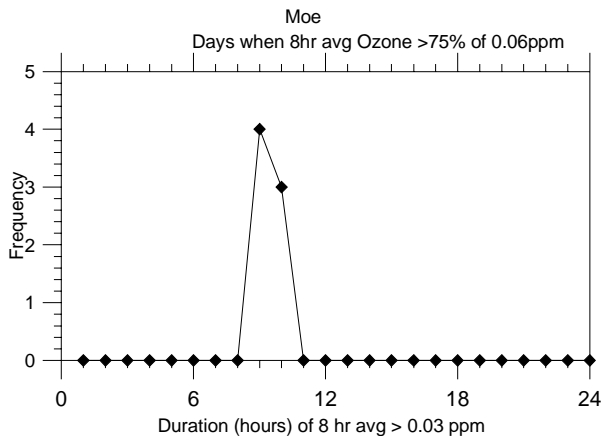
**Figure 20 (continued).** Distribution of durations of 4-hr average ozone concentrations greater than 0.03 ppm on the days when the 4-hr avg > 0.06 ppm criterion was exceeded.



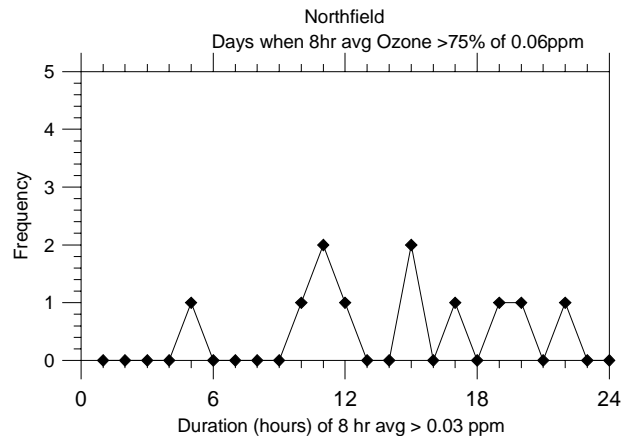
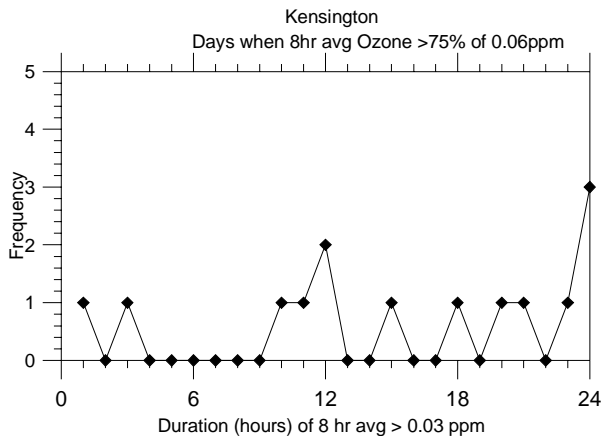
**Figure 21.** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.045 ppm criterion was exceeded.



**Figure 21 (continued).** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.045 ppm criterion was exceeded.



**Figure 21 (continued).** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.045 ppm criterion was exceeded.



**Figure 21 (continued).** Distribution of durations of 8-hr average ozone concentrations greater than 0.03 ppm on the days when the 8-hr avg > 0.045 ppm criterion was exceeded.