

## CORRESPONDENCE

### BLACK CARBON IN THE ATMOSPHERE OF LJUBLJANA DURING MILITARY ACTION BY THE YUGOSLAV ARMY IN SLOVENIA

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**Abstract**—Aerosol black carbon (BC) is monitored on a timebase of 30 min at a location in the city centre of Ljubljana, the capital city of the Republic of Slovenia, during military action by the Yugoslav army. Methods and instrumentation are described in another paper (Bizjak *et al.*, 1992, submitted to *Atmospheric Environment*).

**Key word index:** Black carbon, aerosols.

#### INTRODUCTION

The declaration of independence of Slovenia was accepted in parliament on Tuesday 25 June 1991, and publicly proclaimed on Wednesday 26 June 1991. Early in the morning of Thursday 27 June, forces of the Yugoslav National Army were deployed within Slovenia. By Friday 28 June, all main roads in the city of Ljubljana were blocked by barricades to restrict access to the city centre. Traffic was greatly reduced, public transportation was halted, and the number of vehicles on the city streets was very low, while the number of bicycles drastically increased. During this situation, the atmospheric monitoring station was operating continuously and being checked every few hours.

#### RESULTS

Figure 1 shows the effect of the reduction of traffic on the concentration of aerosol black carbon in the city centre. Each line represents one 30-min measurement. Large peaks in BC, frequently indicative of local heavy-vehicle emissions, are almost completely absent during the "war" period. Although this period spanned a weekend when concentrations are often lower, the difference in pattern is obvious. After 10 days, military action ceased and both traffic and air pollution began to return to normal in the city. Figure 2 shows BC data at the start of this period; even on weekend days, sharp BC peaks are seen.

With regard to the above results, I would like to point out

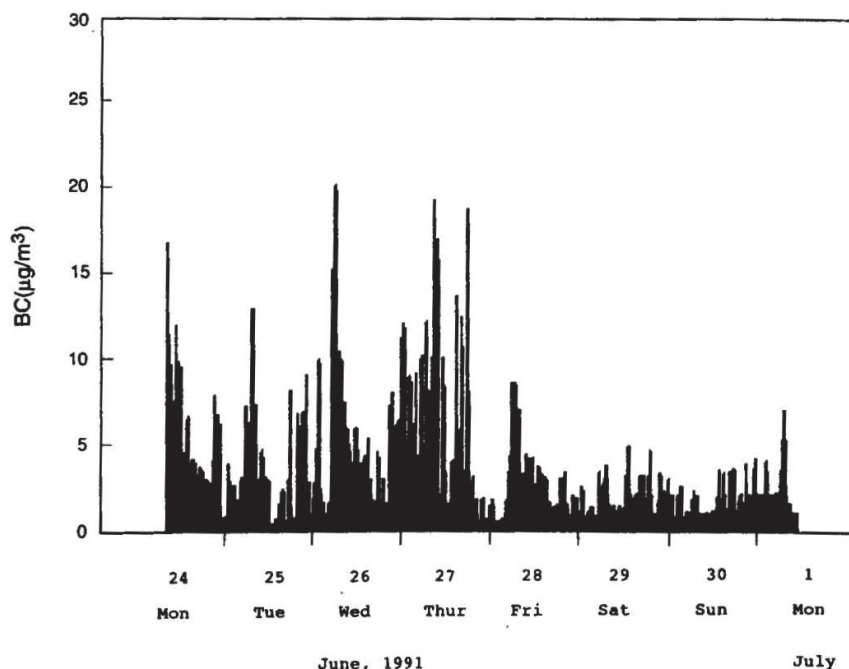


Fig. 1. BC concentrations in the city centre of Ljubljana before and during the military action in Slovenia.