

## Preliminary Conceptual Model - Causes of Haze in Blue Mounds (BLMO1)

Due to the reason that a whole year of aerosol data is not available, no analysis about the 20% worst haze days can be done. Based on the data available from 6/2002-8/2003, regional nitrate is the major cause of haze except in the summer when sulfate transported from the eastern US is the largest contributor.

In Blue Mounds, the average  $PM_{2.5}$  mass concentration during 6/2002-8/2003 is  $8 \mu\text{g}/\text{m}^3$ , and the average total light extinction coefficient ( $B_{\text{ext}}$ ) is  $74 \text{ Mm}^{-1}$  (Visual Range  $\sim 53 \text{ Km}$ ; Deciview  $\sim 20$ ). Nitrate and sulfate are two of the largest contributors to haze, with an average contribution of 33% and 32%, respectively. Figure 2 indicates that sulfate in the summer from June to September, and nitrate in the rest of year are the major causes of haze. As shown in Figure 3, air usually transports from north and northwest in the winter. Southerly and easterly flows become important in the summer.

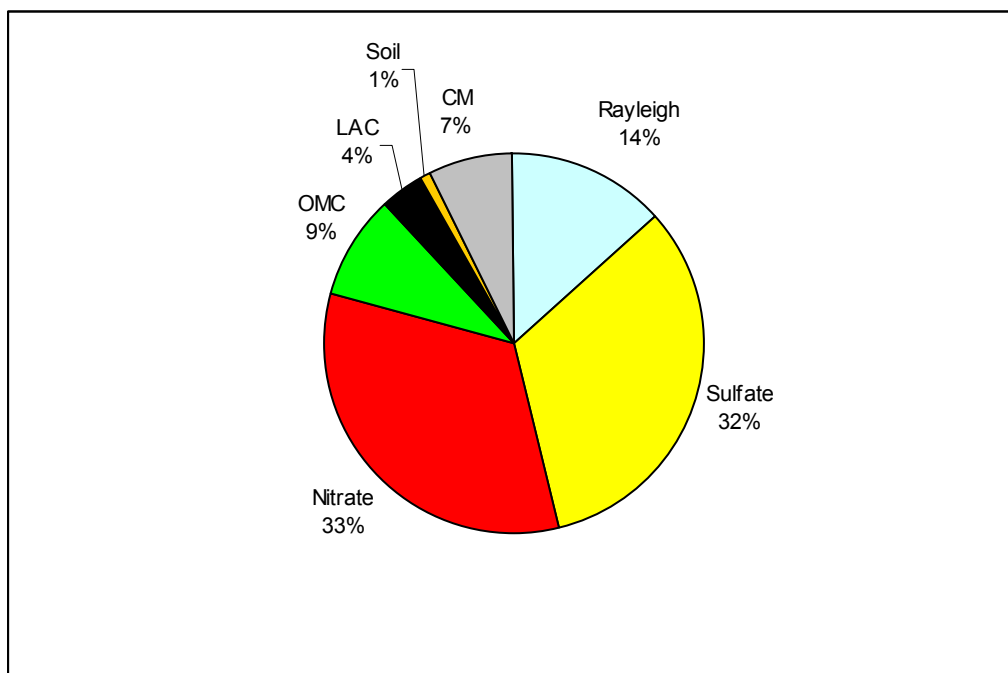


Figure 1. Average contributions of major aerosol chemical components to light extinction

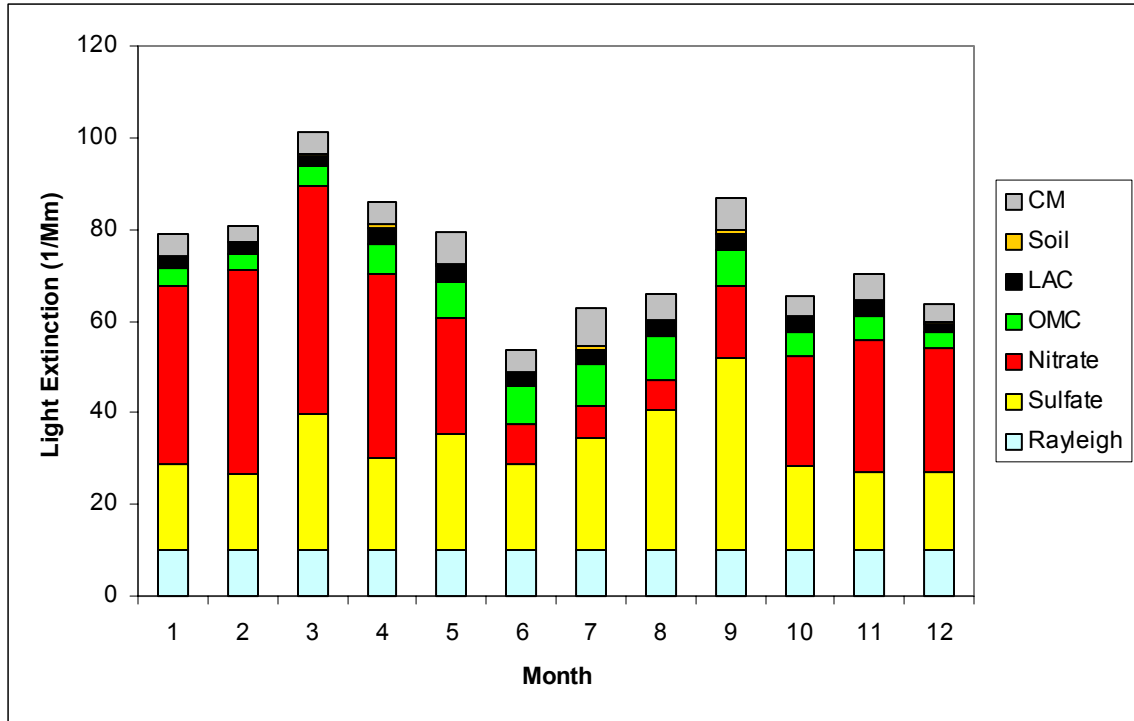


Figure 2. Average contributions of major aerosol chemical components to light extinction in each month

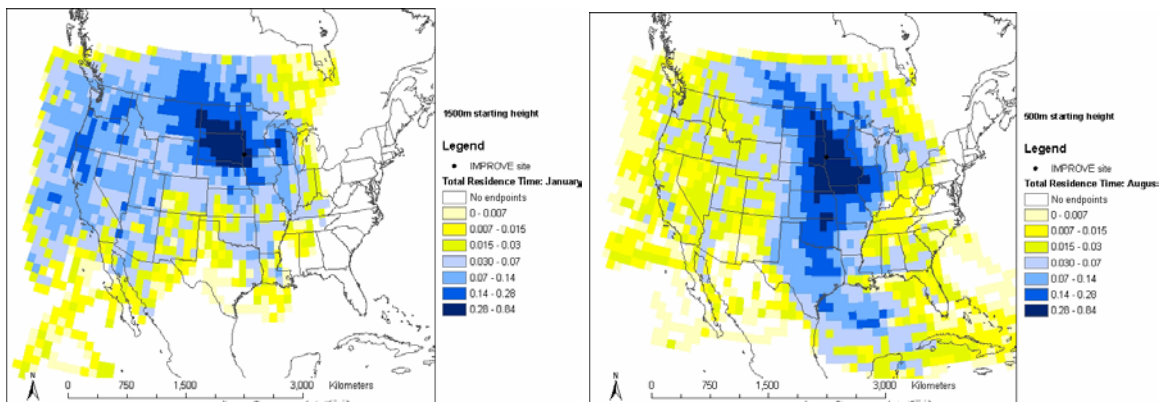


Figure 3. Normalized residence time in January (left) and August (right) (based on data from 2000-2002)