

Preliminary Conceptual Model - Causes of Haze in Nebraska National Forest (NEBR1)

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, sulfate transported from the east in the warm season and regional nitrate in the cool season are believed to be the important causes of haze. Organics, most likely from forest fires, also has a significant contribution to haze in July and August.

In Nebraska National Forest, the average $PM_{2.5}$ mass concentration during 6/2002-8/2003 is $5 \mu\text{g}/\text{m}^3$, and the average total light extinction coefficient (B_{ext}) is 43 Mm^{-1} (Visual Range $\sim 90 \text{ Km}$; Deciview ~ 15). Sulfate and nitrate are two of the largest contributors to haze, with an average contribution of 32% and 20%, respectively. Figure 2 indicates that sulfate in the warm season and nitrate in the cool season are the major causes of haze. Organics is important in July and August.

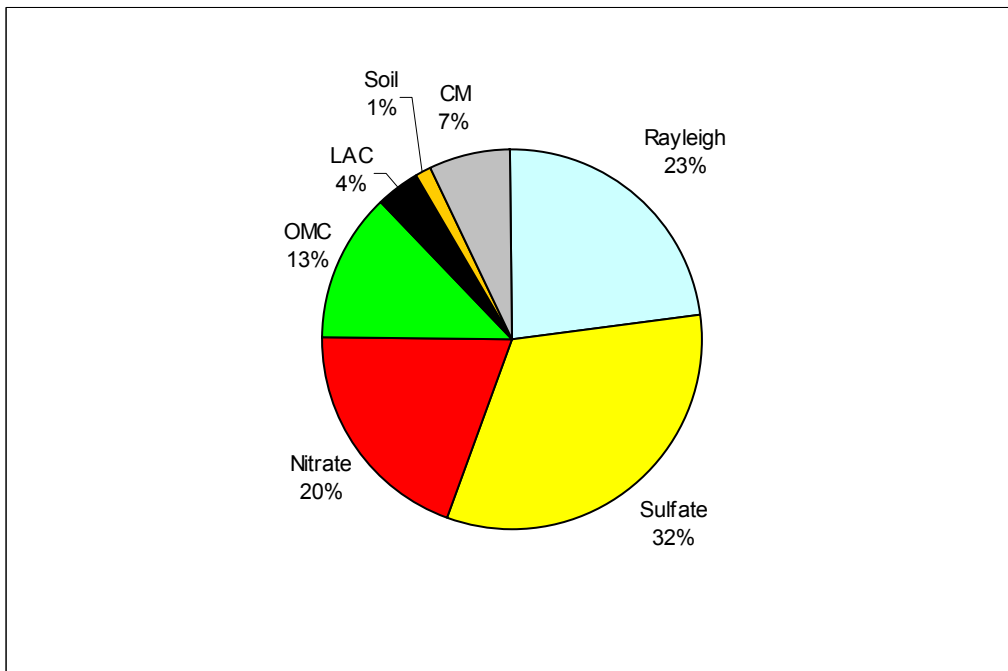


Figure 1. Average contributions of major aerosol chemical components to light extinction

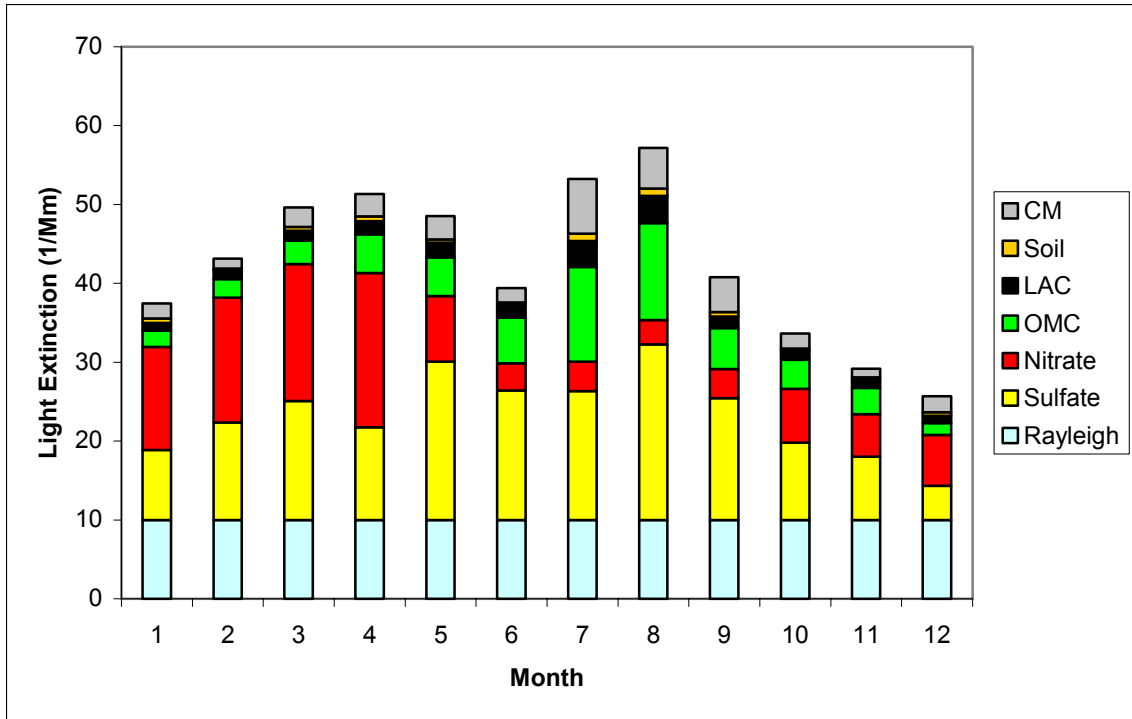


Figure 2. Average contributions of major aerosol chemical components to light extinction in each month