

- o Areas in eastern North America experiencing high wet deposition are generally situated in the vicinity (less than 300 kilometers) of non-negligible sources of emissions, while, at greater distances, lesser wet deposition rates occur over wider areas. In the context of the acid rain issue both scales must be considered.
- o The proportion of emitted material deposited in the first 50-100 kilometers is highly variable.

11.2.4 Atmospheric Transformations and Depositions of Sulfur Compounds

- o Sulfur compounds can be transported and transformed by a variety of chemical and physical processes. As a result of these processes, a number of different sulfur compounds are deposited. Our understanding of these processes varies depending upon the compound under consideration and the manner in which it is deposited.
- o The transformation of sulfur dioxide to sulfate aerosol and/or sulfuric acid in the atmosphere is a key aspect of the acid deposition problem.
- o Over the shorter time and space scales, all of the important sulfur dioxide chemical conversion processes are non-linear. Current long range transport model studies by the Work Group make linear approximation of these various chemical processes and may be subject to error in the prediction of the depositions of individual sulfur species (e.g., sulfates). Such modeling errors would also apply to predictions of the change in deposition of individual sulfur species that would result from a change in emissions. Because of the lack of scientific information on some of the conversion reactions, an estimate of the magnitude of errors due to non-linear processes is unavailable.
- o Applications of present models to the prediction of total sulfur, rather than individual species, deposition may reduce the importance