the least of which is whether or not dry and wet deposition is occurring. If precipitation is not occurring, the rate of dry deposition by diffusion to the surface will depend upon the nature and roughness of the surface, the height at which pollutants are emitted into the atmosphere, the height to which they are mixed into the atmosphere, and the form (species) of the sulfur. The last point is important because the rate of dry deposition of sulfur dioxide is greater than that for sulfate. The more quickly the sulfur dioxide is converted to sulfate, the lesser is the fraction of emitted sulfur that will be deposited locally in the absence of precipitation. Processes that control the rate of conversion to sulfate will be described in detail in Subgroup Report 2F - A.

When cloud and rain water are present, the rate of conversion and deposition of emitted sulfur dioxide may be much more rapid than under dry conditions and, therefore, the influence of local emissions may be relatively large. The conversion of SO_2 to sulfate will depend upon the chemical makeup of the cloud and rain water including the concentration of oxidants and catalysts, and the fraction of time that the polluted air parcel spends in a cloud. The rate of removal of sulfur by precipitation will, in addition, depend upon the frequency and intensity of the precipitation.

Despite the possible variability in the relative influence of local sources, enough evidence now exists of the rapid conversion and deposition of local SO_2 emissions to warrant further research and analysis into the important factors governing deposition close to a source. Furthermore, models capable of accounting for local deposition should be applied, tested, and further improved.

(b) Nitrogen Compounds

Nitrogen oxides are transformed to nitrate more quickly than sulfur dioxide is transformed to sulfate. Furthermore, a large fraction of these nitrogen oxides are emitted close to the ground (from vehicles) greatly enhancing the potential for near-source deposition. One might expect, therefore, that the local deposition of nitrogen oxides will be more pronounced than that for sulfur dioxides. However, less information exists