its scavenging characteristics once a storm is encountered. Thus, while the storm-pollutant intermixing process is not usually considered totally within the realm of wet removal, it is a highly important determinant of scavenging time and distance scales and the resulting chemical composition of precipitation.

Estimates of time scales for the storm-pollutant intermixing processes can be obtained from airflow, storm-frequency and budget analyses using a variety of methods. Several statistical-climatological characterizations of these processes are available in the current literature.

The actual physical attachment of pollutant to condensed water elements (ice, cloud droplets, rain) is highly dependent upon both the physical and chemical states of the pollutant. For aerosol particles any or all of the following collection mechanisms may be active:

- nucleation of cloud droplets on the pollutant particles,
- electrical attachment,
- diffusiophoretic and thermophoretic attachment,
- Brownian motion, and
- inertial attachment.

All mechanisms in the above list are dependent upon particle size, and usually several mechanisms operate simultaneously to provide a composite capture process in given situations.

Diffusional and convective transport are the primary attachment mechanisms for gaseous pollutants. Gas scavenging differs from aerosol scavenging in the important respect that gases may desorb from as well as absorb in cloud particles and hydrometeors. Thus relative rates of absorption and desorption often determine to a large extent the net efficiency of attachment, and for this reason gas solubility emerges as an important factor in the scavenging process.

The current section deals only briefly with the aqueous-phase reaction step, owing to the fact that it is treated elsewhere within this document