

- (iii) the efficiency of removal processes (that is, chemical transformation, precipitation scavenging and dry deposition) as reflected by the residence time of the pollutant in the atmosphere; and
- (iv) in the case of particles and soluble gases, the precipitation patterns near and downwind of the sources.

The configuration of pollutant sources in North America for sulfur dioxide is discussed in Chapter 2. A more complete description of other pollutants, such as primary sulfate and nitrogen oxides, can be found in the final report of Work Group 3B. In eastern North America man-made sources of sulfur dioxide exceed natural sources by at least a factor 10. Although less is known about natural sources of nitrogen oxides, they also are believed to be substantially less than man-made. However, on a global basis natural and man-made emission for both sulfur dioxide and nitrogen oxides are estimated to be of roughly equal magnitude.

While the natural emissions tend to be widely distributed around the globe (with low emission density), the man-made emissions are strongly concentrated in a few highly industrialized regions in eastern North America and Eurasia. On a global basis the distribution of acidity of precipitation shows that the regions of lowest pH occur over and immediately downwind of these industrial regions, indicating a strong causal relationship.

### 6.2.1 Global Variations

Some observations from remote stations around the world indicate that at remote oceanic sites, exposed west coasts and in the polar