

Several figures illustrating examples of the time variability determined from observations of concentrations of major ions in precipitation and of sulfur dioxide and sulfate in air are given in Report 2F-I. From these, typical ranges of variability can be summarized as shown in Table 6.1. The variability in measured concentrations is much larger than the variability of the emissions over the same time scale and must, therefore, be due mainly to the other contributing factors listed above.

TABLE 6.1 Typical ranges of variability of hydrogen ion, sulfate, nitrate and ammonia for various time scales in polluted regions at a single observing station.

Time scales of variation	Typical range of variability about average
minutes to hours	factor of 10
day to day	factor of 5
month to month	factor of 2
year to year	factor of 1.5
decade to decade	unknown

6.3.1

Time Trends

Several authors have attempted to use historical monitoring data in Europe and North America to establish trends in deposition with varying and sometimes conflicting results or interpretations. For instance, one group of researchers claim that, when the deposition patterns in North America are examined over a decade (1955-1965), there is some evidence of a trend in the shape and size of the various deposition contours. For example, while the value of the lowest pH at the centre has not changed much over a decade, the surrounding region of moderate acidity has expanded outwards especially to the south and southwest. This is a source of continuing controversy. The general conclusion is that historical air and precipitation data have