As a result of the increased activity in monitoring during the last five years, a combined set of data for North America is now emerging from the Canadian and U.S. networks. Combining several network data sets from 1976 to 1979, Figure 6.1 shows a map of hydrogen ion (H^+) deposition over the North American continent (Wisniewski and Keitz, 1980). The 50 and 10 mg m^{-2} lines represent approximately 4.3 and 5.0 pH lines, respectively. The map shows large acidic deposition in the northeastern part of the United States and southeastern part of Canada. It has been postulated that the geographic extent of increasing rain acidity is spreading toward the southeast and midwest with all states east of the Mississippi River now receiving some degree of rain acidity. Some west-coast sites in both countries also show relatively large hydrogen ion deposition based on recent measurements.

Since it will be some time before models will be able to calculate hydrogen ion deposition, the sulfur deposition values in precipitation may be the best data for comparison with model results. A map of the wet deposition values of sulfur for 1977 in eastern North America is given in Figure 6.2. (Galloway and Whelpdale, 1980). The problem of comparing model results with such data is obvious in view of the complexity of the deposition field. Deposition fields of other substances (e.g., nitrate and ammonium ion) are also necessary for a more complete description of the acid deposition phenomenon. In