The modeling effort has been directed toward sulfur and its compounds because relatively more information is available about sulfur oxides than for other chemical species. Further Work Group 2 has focused its efforts on emissions and depositions encompassing large time and space scales over eastern North America. With regard to other species, atmospheric models have not yet reached a stage of development suitable for application to formulating, or understanding the impact of, control strategies for reducing the long range transport of nitrogen oxides, ozone, toxic organics and heavy metals. Progress in modeling long range transport has been encouraging, in part due to stimulus from the Memorandum of Intent process, but many significant modeling unknowns persist. Vigorous research to overcome these unknowns continues in both countries.

## 11.2 Conclusions

The main conclusions of the Work Group are summarized below:

### 11.2.1 Observations of Deposition

- Monitoring data in North America show a strong geographical correspondence between a large contiguous region of precipitation having low pH (that is, below 4.5) and the region of the most intense emissions of sulfur and nitrogen oxides. The region with low pH also corresponds closely with the region having the highest concentrations and depositions of sulfates and nitrates in precipitation and in both cases the maxima are over and immediately downwind of the major source regions. Maps of sensitive ecosystems produced by Work Group 1 make it apparent that this region of high deposition covers extensive sensitive areas in both eastern Canada and the eastern United States. There is another extensive region of low pH precipitation which can also be geographically associated with a major source of anthropogenic emissions; namely, the highly populated, industrial region of Europe.

- On a global basis, the presence of occasional, very acidic (low pH) rains in extremely remote areas suggest that there are possible