(a) long-range transport and transformation of pollutants thought to be involved in acid precipitation,

(b) dispersion in regions of mountainous terrain,

(c) modeling of chemically reactive pollutants of concern to the formation of ozone and other important atmospheric materials,

(d) modeling of the atmospheric transport, deposition, and ultimate fate of toxic materials in the ecosystem, and

(e) identification of representative meteorological information for consideration of long-term off-site climatology and local short-term meteorology;

and (3) that EPA adopt a specific set of measures to evaluate the performance of new and existing models statistically.

3.2   Mesoscale Models

A survey of dispersion models considered appropriate for the intermediate range, 50-300 km, is provided in the following sections of this report. Systems Applications, Incorporated (SAI) surveyed 42 regional-scale models for the National Park Service (Stewart et al., 1982) that may be appropriate for use in this intermediate range. In addition to the more common basic attributes of long-range transport models, i.e., transport and diffusion, physical and chemical transformation, and wet and dry deposition, SAI considered other features important for intermediate-range regional models in their model survey. These other significant features include model capability of: (1) resolving vertical pollutant distributions, (2) accommodating urban emissions, and (3) simulating detailed chemistry. A discussion of these attributes and the 42 models surveyed follows with tables included for easy comparisons of the various models and their particular attributes. Additional attributes of these models may be important to consider in assessing their suitability for particular applications. These include input data requirements (meteorology, terrain, emission source details), computer requirements, resolution of predicted concentration and deposition fields. These attributes were not considered here because the details of intended applications are not known.