It should be noted that the following descriptions of the model input data requirements, model parameterizations, and model outputs address specific Work Group 2 applications. Over a series of applications, the nature of the available input data, the time and cost constraints, and the desired model output often dictate the form of the model parameterizations. Thus the constants used in the Work Group 2 model parameterizations, and presented in Table 7.2, may differ from those used in previous phases and are subject to change for subsequent applications.

Each of the models simulates the transport, dispersion, transformation and deposition of sulfur compounds. Monthly-averaged concentrations and depositions, as well as monthly source-receptor relationships, are generated by most of these models for central and eastern North America. The ASTRAP, CAPITA, ENAMAP-1, MEP, RCDM-3, and MOE models are source-oriented which facilitates generation of concentration and deposition fields, while the AES and UMACID models are receptor oriented. The AES, ASTRAP, CAPITA, MOE, and RCDM-3 models have included various parts of western North America in the modeling domain.

7.2.1 Input Data Requirements

Most models utilize gridded sulfur dioxide point and area source emissions as input and, with the exception of the ASTRAP and MEP models, treat the total emissions within a given grid cell as one virtual point source emitting pollutants at one level or within one layer (Table 7.2). The emission grid resolution varies from model to model within the range of 70 to 190 kilometers. The MOE model incorporates individual point sources and area emissions totalled by county as effective point sources. The ASTRAP and MEP models distribute the emissions vertically as a function of the stack characteristics. In addition to sulfur dioxide, the AES, ASTRAP, CAPITA, ENAMAP-1, MOE, and UMACID models are capable of including primary sulfate emissions. The MOE model assumes a constant