

and area sources emissions in the eastern United States and Canada. The model results were then compared with measurements from the SURE data network for 1977 and 1978.

RCDM Model

The Regional Climatological Dispersion Model (RCDM) of Teknekron Research, Inc., (TRI) is an application of the basic model developed by Fay and Rosenzweig (1980). Analytical solutions to the coupled diffusion equations for sulfur dioxide and sulfate concentrations are found through the use of simplifying assumptions. The horizontal eddy diffusivity and conversion and removal rates are uniform in space.

The TRI formulation of RCDM attempted to apply temporal and spatial averaging of the wind data sufficient to eliminate most of the detailed fluctuations while preserving the mean transport field that results from a large number of trajectories. The compromise utilized was to create a seasonal and annual resultant wind vector for each emission cell (state, province or subunit thereof) by averaging available upper air wind data for the eastern U.S. and southeastern Canada (Niemann, et al., 1980).

The conversion and removal parameters used in the RCDM are the same as those used by Fay and Rosenzweig from the literature with an annual mixing height of 1000 metres. The RCDM uses a simple deposition velocity technique to calculate dry and wet depositions of sulfur dioxide, sulfate and total