

replaced by logical connections or equations in the mathematical model. The model can be used to study the complex cause-effect relationships by well defined rules of mathematics. The long-range transport (LRT) model is a combination of submodels of the physical and chemical processes involved in long-range transport of various species under consideration. In order to keep the computing effort manageable, the submodels of a LRT model are often simplified by parameterization. This means that the LRT model may not reflect the degree of understanding we actually have of long-range transport. However, it is generally believed that the errors introduced by parameterization are not significant when the model outputs are averaged over time scales of the order of several months.

The basic components of a LRT model are

- (1) A submodel for the transport of pollutants;
- (2) A submodel for the chemical transformations of the pollutants to other (secondary) pollutants; and
- (3) A submodel for the wet and dry removal of primary and secondary pollutants as they are transported.

The main inputs to an LRT model are

- (1) Emission inventory of pollutants;
- (2) Meteorological data such as wind speed, precipitation, boundary layer height and solar radiation;
- (3) Ground cover data on the region of interest. This data might include variables such as surface roughness,