During the 1978-80 period, yearly SO_2 emissions in North America (i.e. both U.S. and Canada) have amounted to close to 29 million tonnes. In eastern North America the total is close to 25 million tonnes, and the ratio of U.S. to Canadian emissions is 5.3 to 1.

Thermal power plants are the primary source of anthropogenic SO_2 emissions and contribute about 57% of the combined U.S.-Canada nation-wide emissions. This sector is followed by the industrial, commercial and residential fuel combustion category at about 14% of the combined nation-wide emissions. Then, at about 12%, are the emissions of SO_2 from non-ferrous smelters with all other industrial processes contributing about 13%. The primary contributor to present domestic SO_2 emissions differs in the U.S. and Canada. In the U.S. about two-thirds of the total domestic emissions comes from power plants, while in Canada more than 40% comes from non-ferrous smelters. About 16 million tonnes of SO_2 come from American power plants, about 2 million tonnes of SO_2 come from Canadian non-ferrous smelters. Only about 15% of the SO_2 generated in Canada comes from thermal power plants.

Yearly NO_x emissions in North America during the same period have amounted to about 21 million tonnes. In eastern North-America the total is about 16 million tonnes, while the ratio of U.S. to Canadian emissions in the east is roughly 15 to 1. About 45% of the combined nation-wide emissions comes from the transportation sector, about one quarter from power plants and about 20% from other combustion processes (industrial, commercial, residential, fuel combustion).

An analysis was performed to estimate the probable error inherent in the current emission estimates of SO_2 and NO_x. The probable errors are approximations derived through a combination of statistical theory and engineering judgement and do not represent true error values obtained through the application of rigorous statistical procedures.

The probable error in the national U.S. SO_2 emissions is estimated to be 2.3% and for NO_x, 2.0%. For Canada, the precision of the national SO_2 inventory was found to be 6.3% and for NO_x, 10.3%. For individual states or small regions, the probable error is higher.

In the next two decades total U.S. SO_2 emissions are projected to decrease slightly by 1990 to about 23 million tonnes from about 24 million tonnes in 1980 and then increase to about 27 million tonnes by the year 2000. Emissions from power plants are projected to remain roughly constant at about 16 million tonnes while emissions from the combustion of fuel in residential, commercial and industrial sectors is projected to increase from 3.2 million tonnes (1980) to 7.4 million tonnes (2000) or roughly 130%. The increase in emissions from the industrial sector is based on the assumption that there will be large increases in coal usage in industrial boilers. Emissions of SO_2 from U.S. non-