

**Compilation of Global Inventories of Anthropogenic Emissions:  
Sulfur Dioxide and Nitrogen Oxides**

C.M.Benkovitz, M.A. Mubarak and S.E. Schwartz (All at:  
Department of Applied Science, Brookhaven National Laboratory,  
Upton, NY, USA; 516-344-4135; e-mail: cmb@bnl.gov); J. J.M.  
Berdowski (Department of Emission Assessment, IMW-TNO,  
Apeldoorn, The Netherlands; 31 15 696237; e-mail:  
berdw@mep.tno.nl); J.G.J. Olivier (RIVM, Bilthoven, The  
Netherlands; 31-30-743035; e-mail: Jos.Olivier@rivm.nl)

To be presented at the AGU Fall 1997 Conference  
San Francisco, CA December 8-12, 1997

Global gridded inventories of anthropogenic emissions of sulfur dioxide (SO<sub>2</sub>) and oxides of nitrogen (NO<sub>x</sub>) are needed as input for modeling studies of the tropospheric chemistry of those species and are also pertinent to climate change and acid deposition. Global inventories of these species are being compiled under the umbrella of the Global Emissions Inventory Activity (GEIA) of the International Global Atmospheric Chemistry (IGAC) Program. The GEIA inventories are compiled using default data sets of global emissions that are refined via the use of more detailed regional data sets. The default global emissions were estimated using unified methodologies and data sets; these emissions have been allocated to a 1°×1° grid using surrogates such as population and industrial activity maps. The resulting global emissions for 1990 are 74 Tg S yr<sup>-1</sup> and 31 Tg N yr<sup>-1</sup>. The 1990 gridded inventories are being compared to the GEIA 1985 inventories, for which global emissions are 65 Tg S yr<sup>-1</sup> and 21 Tg N yr<sup>-1</sup>. The differences in these totals are due mainly to the more comprehensive list of sources, such as biomass burning and international shipping, which are included in the 1990 inventories; the estimated change in emissions will be derived in this comparison. Initial speciations to (SO<sub>2</sub> and sulfate) and (NO and NO<sub>2</sub>), and two-height vertical resolution have been applied to the 1990 inventories based on proportions derived from the GEIA 1985 inventories. As with the GEIA 1985 inventories, the 1990 inventories will be available through the GEIA Data Management center (web site: <http://blueskies.sprl.umich.edu/geia/>).