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Atmospheric chemistry and lifetime of a "new" Greenhouse Gas, NF3

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Recent measurement and model studies indicate that nitrogen trifluoride, NF3, used extensively in the electronics industry, is accumulating in the atmosphere. There are large uncertainties however in the emissions, atmospheric lifetime and global warming potential of this compound, which despite not being included in the Kyoto protocol is an efficient greenhouse gas.

In this work a variety of laboratory techniques were used to study the atmospheric chemistry of NF3. Absorption cross-sections and quantum yields were measured, confirming photolysis as an important loss process. Other processes investigated were gas-phase reactions with OH, O3 and O(1D), and heterogeneous reactions eg. with ice, liquid H2O, and H2SO4 surfaces.