

# Increase in SO<sub>2</sub> and NO<sub>2</sub> column density during ozone-hole event at Antarctica

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A Brewer spectrophotometer was installed at Maitri (70.7°S, 11.7°E) in the Antarctica in July 1999 by the India Meteorological Department. It began taking routine observations of O<sub>3</sub>, SO<sub>2</sub> and NO<sub>2</sub> column density and UV-flux at ground from September 1999. We present here the results of analysis of these observations made from September 1999 to December 2003 during ozone-hole event. We have chosen two species: SO<sub>2</sub>, which is below the ozone-depleted region and NO<sub>2</sub> which is above the ozone-depleted region. We found an increase in SO<sub>2</sub> column during ozone-hole event. An increase in NO<sub>2</sub> column was also found during this event but not identical with that of SO<sub>2</sub>. The increase in SO<sub>2</sub> was found to be in phase with the increase in UV-flux at the ground level. During ozone-hole event, the SO<sub>2</sub> column increased from a value less than 0.5 to ~2.5 DU, NO<sub>2</sub> column increased from a value less than 0.1 to ~1DU and UV-flux at ground increased from a value less than 40 to ~200mW.m<sup>-2</sup>. SO<sub>2</sub> lies mainly in the upper troposphere. The increase in SO<sub>2</sub> is due to the penetration and increase of UV-B flux in the troposphere under ozone-depleted condition of the stratosphere during ozone-hole event. The increase in NO<sub>2</sub> is due to the seasonal variation of NO in the stratosphere.