

STRATOSPHERIC NO₂ AT MID AND HIGH LATITUDES BY GROUND-BASED OBSERVATIONS IN EUROPE AFTER THE Mt PINATUBO ERUPTION.

M. Van Roozendael¹, M. De Maziere¹, C. Hermans¹, P.C. Simon¹,
J-P. Pommereau², F. Goutail², X. Tie³, G. Brasseur³, C. Granier³

¹ Belgian Institute for Space Aeronomy, 3 Av. Circulaire, B1180 Brussels,
Belgium

² Service d'Aéronomie du CNRS, Verrières-le-Buisson, France

³ National Center for Atmospheric Research, Boulder CO, USA

Nitrogen dioxide has been monitored both at the International Scientific Station of the Jungfraujoch (45°N, 8°E) and at Sodankyla (67°N, 27°E) for several years. Its vertical column abundances are measured during the morning and evening twilights by application of the differential absorption method using the sunlight scattered at the zenith in the visible range. The available time series shows a significant reduction of NO₂ in winter, spring and summer 1992, after the eruption of the Pinatubo volcano, with a maximum decrease of 30% occurring in winter 1992. The effect is likely to be due to heterogeneous conversion of NO₂O₅ into HNO₃ on the volcanic aerosols. The continued series of observations shows the recovery of the NO₂ column. The differences observed between the two sites are discussed in terms of the stratospheric conditions prevailing at these specific northern latitudes. The results are compared with 2D-model calculations for mid and high latitudes.