



Sulfur Dioxide Pollution of the Upper Troposphere over Brazil

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Aircraft-based measurements of sulfur dioxide were performed in local summer 2005 over southern Brazil at altitudes between 1 and 13 km. Mole fractions up to 700 pptV were measured in the free troposphere showing a high degree of spatial variability. Between 4 and 12 km altitude distinct layers of SO₂-rich air were observed. The maximum values of the SO₂ mole fraction seen in those layers are comparable to the values measured in the local planetary boundary layer. SO₂ from ground sources seems to be effectively transported by convection into the upper troposphere. Model calculations performed with the FLEXPART model indicate long-range transport across the South American continent.