



Improved SO₂ measurements in the troposphere and lower stratosphere: deployment of a novel aircraft-based ion trap CIMS-instrument

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Improved measurements of atmospheric SO₂ have been made at altitudes between ground level and 12000 m in the troposphere and lower stratosphere. The measurements covering the altitude range from ground level to 12000 m took place within the framework of the ITOP (Intercontinental Transport of Ozone and Precursors) campaign in summer 2004 above Europe and the Eastern Atlantic. They were made using a novel very sensitive and fast-response aircraft-based ion trap CIMS-instrument (ITCIMS; CIMS=chemical ionisation mass spectrometry). During flight the ITCIMS was continuously calibrated using isotopically labelled SO₂. A total of 7 flights were carried on board of the research aircraft FALCON and air masses of different origins and different degree of pollution indicated by elevated atmospheric SO₂ mole fractions were intercepted. Often elevated SO₂ was observed which stemmed from North America.