



Comparison of the stratospheric chlorine and bromine loading in tropic and mid-latitudes derived from balloon-borne observations

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The total stratospheric organic chlorine and bromine burden was derived from balloon-borne measurements. Two balloon flights were carried out – one in the tropics (Teresina, Brazil, 5°04'S, 42°52'W) and one in mid-latitudes (Aire sur l'Adour, 43°42'N, 0°15'W). Whole air samples were collected cryogenically at altitudes between 15 and 35 kilometres. Their content of about 23 species belonging to CFC's, HCFC's, Chlorocarbons, Halons and Bromocarbons was quantified by analysis with a new coupled GC/MS/ECD system. By combining these data with tropospheric reference data and age of air observations, the abundances of total available chlorine and bromine (Cly and Bry) are derived. For the tropical measurements the Bry derived from the observed organic source gases is compared to Bry derived from observed BrO. The sum of bromine observed in organic trace gases in the Tropical Tropopause Layer can not account for the Bry derived from the observed BrO.