



Data composite of airborne in-situ sulfur dioxide measurements

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We present sulfur dioxide (SO₂) data summaries from a large number of aircraft campaigns performed during the years 2004 to 2014 covering a geographical range from 83°N to 65°S and 105°W to 135°E. The SO₂ data have been sampled from the Falcon and Halo research aircraft by the Deutsches Zentrum für Luft- und Raumfahrt, Oberpfaffenhofen and the Max-Planck-Institut für Kernphysik, Heidelberg using chemical ionization mass spectrometry and cover altitudes up to 15 km. The SO₂ measurements were gridded onto a 5° latitude by 5° longitude horizontal grid with a 1-km vertical resolution. For selected regions with sufficient data also averaged vertical profiles were generated. The maps and profiles provide information about the SO₂ distribution at mid-latitudes, tropical and polar regions for different seasons and are very valuable for comparison with model and satellite data. Median SO₂ mixing ratios measured in the different regions will be presented. We also discuss emission sources and transport pathways for specific observations in the upper troposphere and lower stratosphere with strongly enhanced SO₂ mixing ratios.