**Table S1.** Typical Concentrations of S Gases in the Remote Troposphere (reprinted from Seinfeld and Pandis, 1998; attributed to Berresheim et al., 1995).

Compound and Location Average Mixing Ratio (pptv)

H2S

Marine surface layer 3.6-7.5

Coastal regions 65

Forests 35-60

Wetlands 450-840

Urban area 365

Free troposphere (2-5 km) 6-8.5

CH3SCH3

Marine surface layer 80-110

Continental surface layer 8-60

Free troposphere (2-5 km) 1.5-15

CS2

Marine surface layer 2-18

Continental surface layer 35-120

Free troposphere (2-5 km) 5-7

OCS

Marine surface layer 500

Continental surface layer 545

Total troposphere 500

SO2

Marine surface layer 20

North America clean continental 160

Coastal Europe 1500

Free troposphere (2-5 km) 50

(Europe/North Sea/Arctic)

**References for Supplemental Material**

Berresheim H. Wine P, Davis D. 1995. Sulfur in the atmosphere. In Singh H,ed., in *Composition Chemistry and Climate of the Atmosphere*. New York: Van Nostrand Reinhold, p. 251-307.

Seinfeld J, Pandis S. 1998. *Atmospheric Chemistry and Physics.* New York: Wiley Interscience.