

**Table S2: Summary of literature estimates assigned to GFED categories**

<b>GFED Category</b>	<b>Primary Data mol OCS / mol CO</b>	<b>Primary Data mol OCS / mol CO<sub>2</sub></b>	<b>Estimates from Akagi 2011 and/or Andreae 2001</b>
Savanna (SAVA)	Andreae 1996: $1.61 \times 10^{-4}$ Lacaux 1993: $2.79 \times 10^{-5}$ Meinardi 2003: $5.2 \times 10^{-5}$ Nguyen 1995: $8.5 \times 10^{-5}$ Friedli 2001: $9.0 \times 10^{-5}$ (scrub) Tereszchuk 2011: $2.0 \times 10^{-4}$  Average: $1.03 \times 10^{-4}$ SD: $6.56 \times 10^{-5}$	Andreae 1996: $1 \times 10^{-5}$ Lacaux 1993: $1.7 \times 10^{-6}$ Nguyen 1995: $11.4 \times 10^{-6}$  Average: $7.70 \times 10^{-6}$ SD: $5.24 \times 10^{-6}$	Andreae: $1.08 \times 10^{-4}$ mol OCS / mol CO  Andreae: $6.82 \times 10^{-6}$ mol OCS / mol CO <sub>2</sub>
Boreal Forest (BORF)	Blake 2008: $9 \times 10^{-5}$ (7-11) Rinsland 2007: $2.9 \pm 0.8 \times 10^{-4}$ Simpson 2011: $1.2 \pm 0.2 \times 10^{-4}$ Tereszchuk 2011: $2.1 \times 10^{-4}$  Average: $1.78 \times 10^{-4}$ SD: $9.07 \times 10^{-5}$	Blake 2008: $16$ (12-20) $\times 10^{-6}$ Simpson 2011: $1.32 \times 10^{-5}$  Average: $1.46 \times 10^{-5}$ SD: $1.98 \times 10^{-6}$	Andreae: $1.44 \times 10^{-4}$ mol OCS / mol CO “Extratropical” Akagi: $1.69 \times 10^{-3}$ mol OCS / mol CO Average: $9.17 \times 10^{-4}$ mol OCS / mol CO  Andreae: $1.54 \times 10^{-5}$ mol OCS / mol CO <sub>2</sub> “Extratropical” Akagi: $2.27 \times 10^{-4}$ mol OCS / mol CO <sub>2</sub> Average: $1.21 \times 10^{-4}$ mol OCS / mol CO <sub>2</sub>
Temperate Forest (TEMF)	Akagi 2013: $3.29 \times 10^{-4}$ (ground) Akagi 2013: $5.91 \times 10^{-45}$ (air) Crutzen 1979: $7.94 \times 10^{-5}$ Liu 2017: $3.50 \times 10^{-5}$ Friedli 2001: $1.23 \times 10^{-4}$ (temp) Balachandran 2013: $4.78 \times 10^{-5}$ (60/40)  Average: $1.12 \times 10^{-4}$ SD: $1.11 \times 10^{-4}$	Akagi 2013: $6.16 \times 10^{-5}$ (ground) Akagi 2013: $4.38 \times 10^{-6}$ (air) Crutzen 1979: $15.8 \times 10^{-6}$ Liu 2017: $2.93 \times 10^{-6}$ Balachandran 2013: $3.83 \times 10^{-6}$ (60/40)  Average: $1.77 \times 10^{-5}$ SD: $2.51 \times 10^{-5}$	Andreae: $1.44 \times 10^{-4}$ mol OCS / mol CO “Extratropical” Akagi: $1.76 \times 10^{-3}$ mol OCS / mol CO “Extratropical” Average: $9.52 \times 10^{-4}$ mol OCS / mol CO  Andreae: $1.54 \times 10^{-5}$ mol OCS / mol CO <sub>2</sub> “Extratropical” Akagi: $2.24 \times 10^{-4}$ mol OCS / mol CO <sub>2</sub> “Extratropical” Average: $1.20 \times 10^{-4}$ mol OCS / mol CO <sub>2</sub>
Tropical Forest (DEFO)	Crutzen 1985: $5.32 \times 10^{-5}$ Yokelson 2007: $1.92 \times 10^{-4}$ Tereszchuk 2011: $3.3 \times 10^{-4}$	Bingemer 1992: $6.1 - 41 \times 10^{-6}$ (avg $2.355 \times 10^{-5}$ ) Crutzen 1985: $8.2 \times 10^{-6}$	Andreae: $1.79 \times 10^{-4}$ mol OCS / mol CO Akagi: $1.25 \times 10^{-4}$ mol OCS /

	<p>(Amazon) Tereszchuk 2011: <math>8.0 \times 10^{-5}</math> (Congo)</p> <p>Average: <math>1.64 \times 10^{-4}</math> SD: <math>1.26 \times 10^{-4}</math></p>	<p>Thornton 1996: <math>13 \times 10^{-6}</math> Yokelson 2007: <math>1.08 \times 10^{-5}</math></p> <p>Average: <math>1.39 \times 10^{-5}</math> SD: <math>6.73 \times 10^{-6}</math></p>	<p>mol CO Average: <math>1.52 \times 10^{-4}</math> mol OCS / mol CO</p> <p>Andreae: <math>1.85 \times 10^{-5}</math> mol OCS / mol CO<sub>2</sub> Akagi: <math>1.12 \times 10^{-5}</math> mol OCS / mol CO<sub>2</sub> Average: <math>1.49 \times 10^{-5}</math> mol OCS / mol CO<sub>2</sub></p>
Peatland (PEAT)	<p>Yokelson 1997 AK: <math>2.37 \times 10^{-4}</math> Stockwell 2016b: <math>1.76 \times 10^{-4}</math></p> <p>Avg: <math>2.07 \times 10^{-4}</math> with Yokelson AK and Stockwell SD: <math>4.31 \times 10^{-5}</math></p> <p>Excludes: Yokelson 1997 MN: <math>8.36 \times 10^{-3}</math> FLAME4 Canada: <math>1.36 \times 10^{-4}</math> FLAME4 Indonesia: <math>9.68 \times 10^{-6}</math></p>	<p>Yokelson 1997 AK: <math>6.61 \times 10^{-5}</math> Stockwell 2016b: <math>5.16 \times 10^{-5}</math></p> <p>Avg: <math>5.89 \times 10^{-5}</math> with Yokelson AK and Stockwell SD: <math>1.03 \times 10^{-5}</math></p> <p>Excludes: Yokelson 1997 MN: <math>1.62 \times 10^{-3}</math> FLAME4 Canada: <math>3.32 \times 10^{-5}</math> FLAME4 Indonesia: <math>2.79 \times 10^{-6}</math></p>	<p>Akagi: <math>3.08 \times 10^{-3}</math> mol OCS / mol CO</p> <p>Akagi: <math>5.6 \times 10^{-4}</math> mol OCS / mol CO<sub>2</sub></p>
Ag Waste (AGRI)	<p>Nguyen 1994: <math>2.83 \times 10^{-4}</math> Stockwell 2016a: <math>3.18 \times 10^{-4}</math></p> <p>Average: <math>3.01 \times 10^{-4}</math> SD: <math>2.47 \times 10^{-5}</math></p>	<p>Nguyen 1994: <math>5.78 \times 10^{-5}</math> Stockwell 2016a: <math>2.58 \times 10^{-5}</math></p> <p>Average: <math>4.18 \times 10^{-5}</math> SD: <math>2.26 \times 10^{-5}</math></p>	<p>Andreae: <math>3.30 \times 10^{-4}</math> mol OCS / mol CO</p> <p>Andreae: <math>3.15 \times 10^{-5}</math> mol OCS / mol CO<sub>2</sub></p>