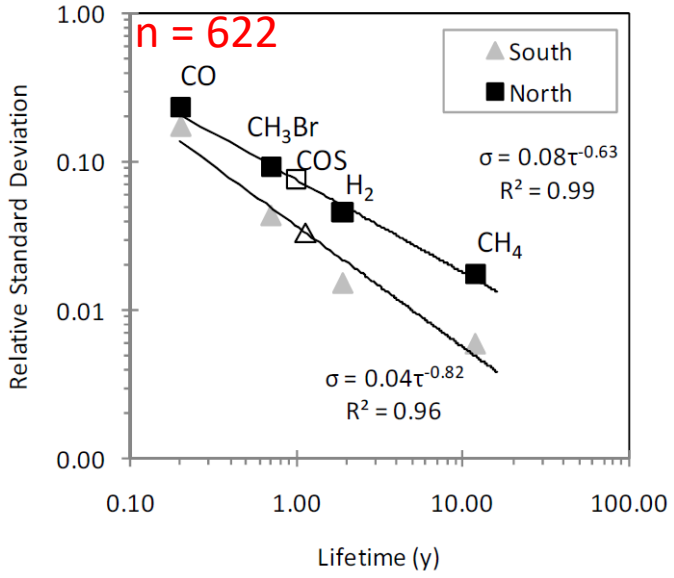
OCS Lifetime

Junge Method



Budget Approach

Life = Mass / Sink

Campbell et al., *Science*, 2008 (supporting material)

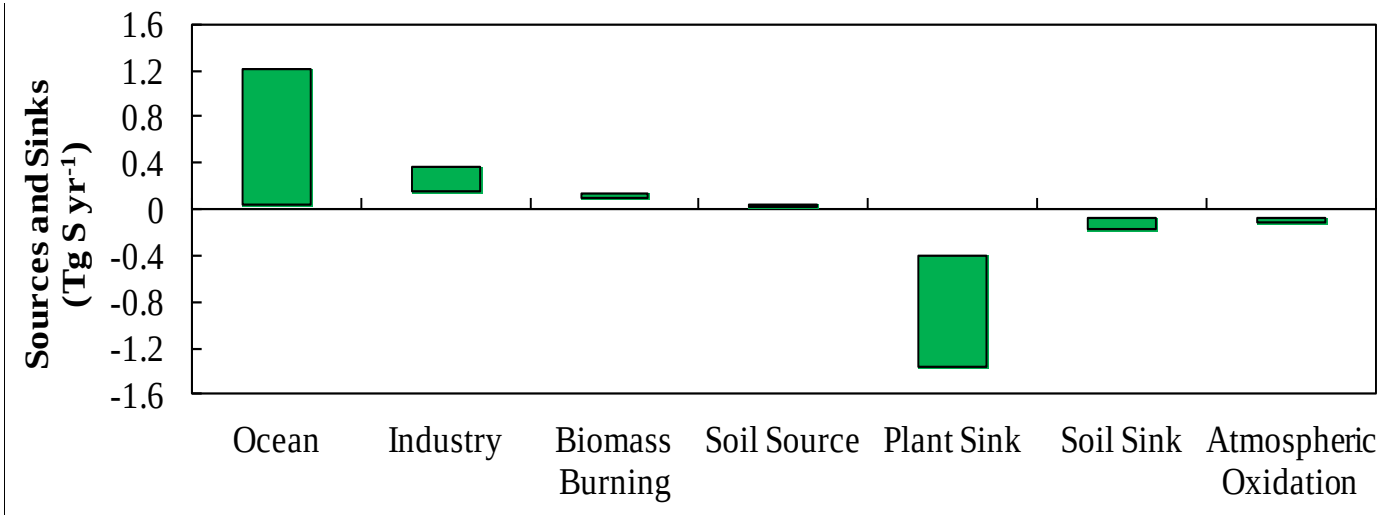
Table S3. COS lifetimes calculated from NOAA/ESRL global data with a range of differe inputs to the Junge analysis.

Junge Input Variables				COS Lifetime (
Compounds	Compound Lifetime[1]	Variability	Sampling Sites	
CO, CH4, H2, CH3Br	Total	Standard Deviation	Northern Hemisphere	1.0
CO, CH4, H2, CH3Br, HCFC-22	Total	Standard Deviation	Northern Hemisphere	1.0
CO, CH4, H2, CH3Br, HCFC-22, H1211	Total	Standard Deviation	Northern Hemisphere	1.3
CO, CH4, H2	Total	Standard Deviation	Northern Hemisphere	1.2
CO, CH4, H2, CH3Br	Total	Standard	Southern	1.1
CO, CH4, H				1.2
CO, CH4, H H1211		Deviation	Hemisphere	2.0
CO, CH4, H2	Total	Standard Deviation	Southern Hemisphere	2.3
CO, CH4, H2, CH3Br	Total	Seasonal Amplitude	Northern Hemisphere	0.7
CO, CH4, H2, CH3Br	OH + Soil	Seasonal Amplitude	Northern Hemisphere	0.8
CO, CH4, H2, CH3Br	Total	Seasonal Amplitude	Southern Hemisphere	0.8
CO, CH4, H2, CH3Br	OH + Soil	Seasonal Amplitude	Southern Hemisphere	1.0
H2, CH3Br, PCE, CH2Cl2, CH3CCl3, CH3Cl	Total	Seasonal Amplitude	Southern Hemisphere	1.1
H2, CH3Br, PCE, CH2Cl2	OH + Soil	Seasonal	Southern	1.2

τ = 0.8 – 2.3 years

Campbell et al., *Science*, 2008 (supporting material)

OCS Lifetime



	Low	High	Low plant, high other	
Plant	0.4	1.36	0.4	Tg S / y
In Situ Sink	0.08	0.11	0.11	Tg S / y
Soil Sink	0.07	0.18	0.18	Tg S / y
Total Sink	0.55	1.65	1.65	Tg S / y
Lifetime	**4.9**	**1.6**	**1.6**	**y**

Campbell et al., *Nature*, 2017