

Greenhouse Gases Chart

A day will come when our children and grandchildren will look back and they'll ask one of two questions. Either they will ask: "What in God's name were they doing?" Or they may look back and say: "How did they find the uncommon moral courage to rise above politics and redeem the promise of American democracy?"

— Al Gore

n/a = not applicable n/k = not known	Pre-Industrial Concentration (1860)	Concentration in 2005 ¹	Average Atmospheric Lifetime ²	Growth Rate per Year
Water vapor	Variable 1–3%	Variable 1–3%	Few days	0.2% ⁵
Carbon dioxide CO ₂	280 ppm	385 ppm (2008) Rising by 2 ppm per year	Very approx: 50% 30 years 30% 300 yrs, 20% 3,000 yrs	3%
Black carbon	0	n/a	5.5 days	n/k
Methane CH ₄ ¹²	715 ppb	1774 ppb	8.4 years	0.6%
Tropospheric ozone O ₃	25 ppb	34 ppb	Hours/days	1%
CFC-12	0	542 ppt	100 years	Decline
HCFC-22	0	174 ppt	12 years	Decline
HFC-23	0	14 ppt ¹⁵ (+0.55ppt pa)	270 years	5.1%
PFC-14 — CF ₄	0	79 ppt	50,000 years	10%
Sulfur hexafluoride SF ₆	0	5.22 ppt	3,200 years	10%
Fluorinated ethers (HFE-125)	0	0.16 ppt	136 years	n/k
Nitrous oxide N ₂ O	270 ppb	319 ppb	114 years	0.26%
TOTAL				
Aerosols	>0	Variable	Hours/days	n/k ¹⁷
Surface albedo changes	n/a	n/a	n/a	n/a
Solar irradiance	n/a	n/a	10 to 100 yrs	n/a

Anthropogenic Sources (from Human Activity)	Global Warming Potential (GWP) over 100 Years³	GWP over 20 Years	Radiative Forcing Watts per sq. meter⁴	Share of Cause of Climate Change based on radiative forcing
All of the below ⁶	n/a ⁷		n/a	n/a
Gas (16%), Oil (33%), Coal (32%) Cement (7.4%) ⁸ , Deforestation (16%) ⁹	1	1	+1.66	44%
Fossil fuels (40%) Open biomass burning (42%) Residential traditional biofuel burning (18%)	1,650 ¹⁰	4470	+0.80 ¹¹	21%
Fossil fuel extraction (26%) Livestock digestion (35%), Rice paddies (8%) Landfills (12%), Animal manure/slurry (7%) Biomass burning (12%)	25	72	+0.48	13%
Fossil fuel use (50%) Forests/biomass burning (25%), Methane (25%) ¹³	n/a	n/a	+0.35	9%
Liquid coolants, foams	10,900	11,000	} +0.34 ¹⁴	
Liquid coolants	1,810	5,160		
Liquid coolant CFC & HCFC substitutes	14,800	12,000		
Aluminum manufacture (59%) Solvents and other (26%), Plasma etching (15%)	7,390	5,210		
Magnesium production Dielectric fluid	22,800	16,300		
Manufacturing of fluoro-chemicals ¹⁶	14,900	13,800		
Nitrogen fertilizers & manures (70%) Transportation (14%), Industrial processes (7%)	298	289	+0.16	4%
TOTAL			+3.79	100%
Fossil fuels, Biomass fires, Volcanoes	n/a		-0.5 ¹⁸	
Deforestation (-0.2), Black carbon on snow (+0.1)	n/a		-0.1 ¹⁹	
n/a	n/a		+0.12	