

Supplementary Materials

Modeling of Atmospheric Carbon Dioxide (CO₂) Concentrations as a Function of Fossil-Fuel and Land-Use Change CO₂ Emissions Coupled with Oceanic and Terrestrial Sequestration

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A. Land Use Carbon Dioxide Emissions

Year	Million Metric Tons CO ₂	Year	Million Metric Tons CO ₂	Year	Million Metric Tons CO ₂	Year	Million Metric Tons CO ₂	Year	Million Metric Tons CO ₂	Year	Million Metric Tons CO ₂
1750	393.94	1800	515.15	1850	1,371.21	1900	3,136.36	1950	5,409.09	2000	4,871.21
1751	392.42	1801	529.55	1851	1,387.12	1901	3,187.88	1951	5,468.18	2001	4,851.52
1752	390.91	1802	543.94	1852	1,403.03	1902	3,239.39	1952	5,527.27	2002	4,831.82
1753	389.39	1803	558.33	1853	1,418.94	1903	3,290.91	1953	5,586.36	2003	4,812.12
1754	387.88	1804	572.73	1854	1,434.85	1904	3,342.42	1954	5,645.45	2004	4,792.42
1755	386.36	1805	587.12	1855	1,450.76	1905	3,393.94	1955	5,704.55	2005	4,772.73
1756	384.85	1806	601.52	1856	1,466.67	1906	3,445.45	1956	5,763.64		
1757	383.33	1807	615.91	1857	1,482.58	1907	3,496.97	1957	5,822.73		
1758	381.82	1808	630.30	1858	1,498.48	1908	3,548.48	1958	5,881.82		
1759	380.30	1809	644.70	1859	1,514.39	1909	3,600.00	1959	5,940.91		
1760	378.79	1810	659.09	1860	1,530.30	1910	3,651.52	1960	6,000.00		
1761	381.82	1811	670.45	1861	1,559.09	1911	3,677.27	1961	6,025.00		
1762	384.85	1812	681.82	1862	1,587.88	1912	3,703.03	1962	6,050.00		
1763	387.88	1813	693.18	1863	1,616.67	1913	3,728.79	1963	6,075.00		
1764	390.91	1814	704.55	1864	1,645.45	1914	3,754.55	1964	6,100.00		
1765	393.94	1815	715.91	1865	1,674.24	1915	3,780.30	1965	6,125.00		
1766	396.97	1816	727.27	1866	1,703.03	1916	3,806.06	1966	6,150.00		
1767	400.00	1817	738.64	1867	1,731.82	1917	3,831.82	1967	6,175.00		
1768	403.03	1818	750.00	1868	1,760.61	1918	3,857.58	1968	6,200.00		
1769	406.06	1819	761.36	1869	1,789.39	1919	3,883.33	1969	6,225.00		
1770	409.09	1820	772.73	1870	1,818.18	1920	3,909.09	1970	6,250.00		
1771	415.15	1821	787.88	1871	1,856.82	1921	3,945.45	1971	6,240.15		
1772	421.21	1822	803.03	1872	1,895.45	1922	3,981.82	1972	6,230.30		
1773	427.27	1823	818.18	1873	1,934.09	1923	4,018.18	1973	6,220.45		
1774	433.33	1824	833.33	1874	1,972.73	1924	4,054.55	1974	6,210.61		
1775	439.39	1825	848.48	1875	2,011.36	1925	4,090.91	1975	6,200.76		
1776	445.45	1826	863.64	1876	2,050.00	1926	4,127.27	1976	6,190.91		
1777	451.52	1827	878.79	1877	2,088.64	1927	4,163.64	1977	6,181.06		
1778	457.58	1828	893.94	1878	2,127.27	1928	4,200.00	1978	6,171.21		
1779	463.64	1829	909.09	1879	2,165.91	1929	4,236.36	1979	6,161.36		
1780	469.70	1830	924.24	1880	2,204.55	1930	4,272.73	1980	6,151.52		
1781	469.70	1831	943.94	1881	2,243.18	1931	4,308.33	1981	6,116.67		
1782	469.70	1832	963.64	1882	2,281.82	1932	4,343.94	1982	6,081.82		
1783	469.70	1833	983.33	1883	2,320.45	1933	4,379.55	1983	6,046.97		
1784	469.70	1834	1,003.03	1884	2,359.09	1934	4,415.15	1984	6,012.12		
1785	469.70	1835	1,022.73	1885	2,397.73	1935	4,450.76	1985	5,977.27		
1786	469.70	1836	1,042.42	1886	2,436.36	1936	4,486.36	1986	5,942.42		
1787	469.70	1837	1,062.12	1887	2,475.00	1937	4,521.97	1987	5,907.58		
1788	469.70	1838	1,081.82	1888	2,513.64	1938	4,557.58	1988	5,872.73		
1789	469.70	1839	1,101.52	1889	2,552.27	1939	4,593.18	1989	5,837.88		
1790	469.70	1840	1,121.21	1890	2,590.91	1940	4,628.79	1990	5,803.03		
1791	474.24	1841	1,146.21	1891	2,645.45	1941	4,706.82	1991	5,709.85		
1792	478.79	1842	1,171.21	1892	2,700.00	1942	4,784.85	1992	5,616.67		
1793	483.33	1843	1,196.21	1893	2,754.55	1943	4,862.88	1993	5,523.48		
1794	487.88	1844	1,221.21	1894	2,809.09	1944	4,940.91	1994	5,430.30		
1795	492.42	1845	1,246.21	1895	2,863.64	1945	5,018.94	1995	5,337.12		
1796	496.97	1846	1,271.21	1896	2,918.18	1946	5,096.97	1996	5,243.94		
1797	501.52	1847	1,296.21	1897	2,972.73	1947	5,175.00	1997	5,150.76		
1798	506.06	1848	1,321.21	1898	3,027.27	1948	5,253.03	1998	5,057.58		
1799	510.61	1849	1,346.21	1899	3,081.82	1949	5,331.06	1999	4,964.39		

Table 1: Land Use Change CO₂ Emissions [10]

Modeling of Atmospheric Carbon Dioxide (CO₂) Concentrations as a Function of Fossil-Fuel and Land-Use Change CO₂ Emissions Coupled with Oceanic and Terrestrial Sequestration

B. Comparison of LUC Data from Stocker et al. 2014 and Le Quéré et al Global Carbon Budget 2018

	Gtons Carbon/year	Gtons Carbon/year		Error (1 sigma)
Year	Le Quéré et al Global Carbon Budget 2018	Stocker BD et al 2014		Le Quere et al
1900	1.09	0.86		0.7
1910	1.2	1.00		0.7
1920	1.2	1.07		0.7
1930	1.3	1.17		0.7
1940	1.52	1.26		0.7
1950	1.57	1.48		0.7
1960	1.72	1.64		0.7
1970	1.31	1.70		0.7
1980	1.09	1.68		0.7
1990	1.31	1.58		0.7
2000	1.34	1.33		0.7

Table 2. Comparison of Land Use Change Emissions Data [9,10]

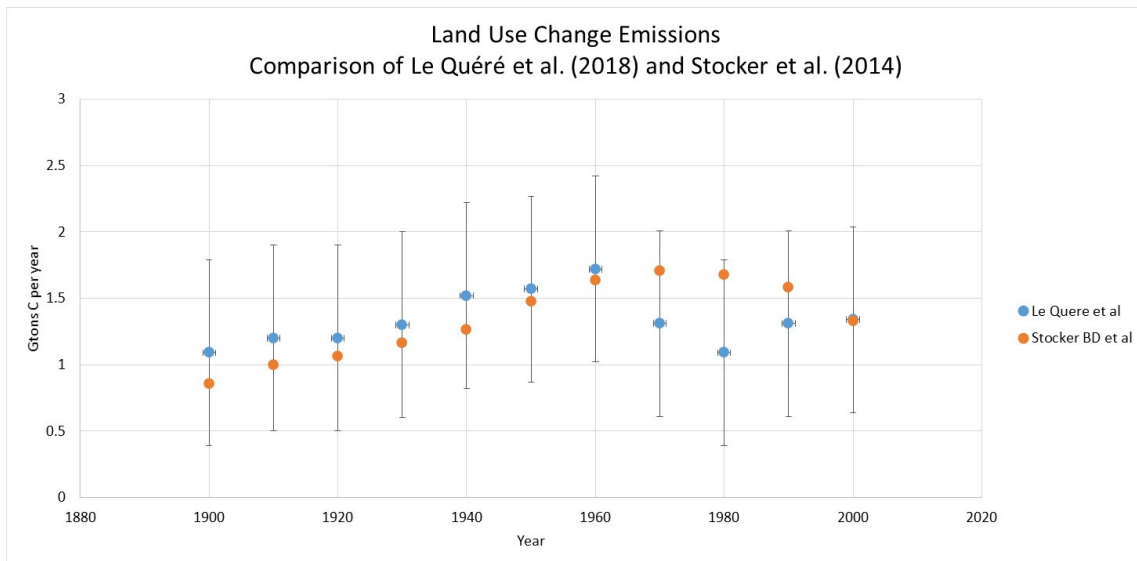


Figure B. Comparison of Le Quéré et al [9] and Stocker et al Land Use Change Emissions [10, 32]

C. Comparison of E_{FF} Data from Boden et al. [8] and Le Quéré et al. [9]

Year	Gtons Carbon/year	Gtons Carbon/year	Error (1 sigma)
	Le Quéré et al	Boden et al	Le Quéré et al
1900	0.56	0.53	
1910	0.86	0.82	
1920	1.04	0.93	
1930	1.09	1.05	
1940	1.27	1.30	
1950	1.57	1.63	
1960	2.55	2.57	0.15
1970	4.07	4.05	0.19
1980	5.29	5.32	0.26
1990	6.06	6.13	0.32
2000	6.59	6.77	0.33
2010	8.91	9.17	0.48

Table 3: E_{FF} Boden et al. [7,8] and Le Quéré et al. [9]

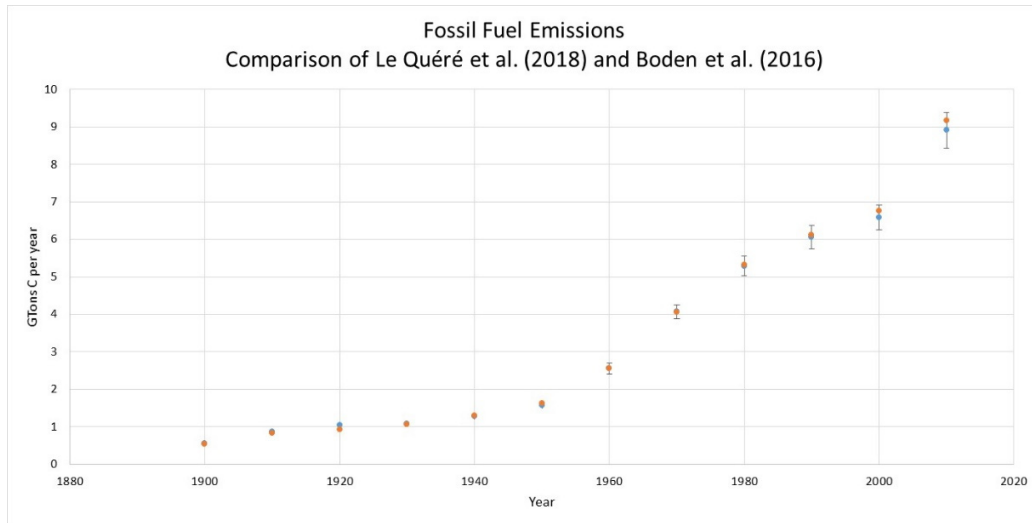


Figure C. Comparison of E_{FF} Data from Boden et al. [7,9] and Le Quéré et al. [9]

D. Analysis of Combined Fossil Fuel and Land-Use Emissions

These data form the basis for Figures 1-4 in the manuscript.

Year	Measured CO2 conc (ppm)	Measured CO2 conc (ppm)	Measured CO2 conc (ppm)	Year	CO2 from Land Use Changes	CO2 from Fossil Fuels	Sum of Land Use and Fossil Fuels Carbon Dioxide Emissions	Exponential fit to the sum of FF and LUC emissions data	Percent Error of Exponential fit to Observations	Year	CO2 observations (ppm)	CO2 in atmosphere calculation using 43.1%AF for both Fossil Fuels and Land Use Changes	Year	CO2 observations (ppm)	CO2 Model Predictions			
1750	277	277	277	1750	393.35	1750	11 1750	404	250	-38%	1750	277.00	278.50	0.54%	2.24	1750	277.00	278.50
1755				1755	393.42	1755	11 1755	403	255	-37%	1755		278.52			1755	277.00	278.61
1760				1760	390.91	1760	11 1760	402	260	-35%	1760		278.54			1760	277.60	278.72
1765				1765	389.39	1765	11 1765	400	265	-34%	1765		278.56			1765	278.00	278.83
1770				1770	387.88	1770	11 1770	399	270	-33%	1770		278.58			1770	278.60	278.94
1775				1775	386.36	1775	11 1775	397	275	-31%	1775	277.20	278.61	0.51%	1.98	1775	277.20	279.06
1780	280.1	1756	1756	1780	384.85	1756	11 1756	396	281	-29%	1756		278.63			1780	280.10	279.19
1785	280.8	1757	1757	1785	383.33	1757	11 1757	394	286	-27%	1757		278.65			1785	280.80	279.32
1790	281.6	1758	1758	1790	381.82	1758	11 1758	393	292	-26%	1758		278.67			1790	281.60	279.46
1795	282.3	1759	1759	1795	380.30	1759	11 1759	391	297	-24%	1759		278.69			1795	282.30	279.60
1798				1798	378.79	1760	11 1760	390	303	-22%	1760	277.60	278.72	0.40%	1.25	1760	277.60	280.33
1799				1799	381.82	1761	11 1761	393	309	-21%	1761		278.74			1799	381.82	281.83
1800				1800	384.85	1762	11 1762	396	315	-20%	1762		278.76			1800	384.85	282.13
1801				1801	387.88	1763	11 1763	399	322	-19%	1763		278.78			1801	387.88	282.73
1802				1802	390.91	1764	11 1764	402	328	-18%	1764		278.80			1802	390.91	283.44
1803				1803	393.94	1765	11 1765	405	334	-17%	1765	278.00	278.83	0.30%	0.68	1803	393.94	283.02
1804				1804	396.97	1766	11 1766	408	341	-16%	1766		278.85			1804	396.97	283.62
1805				1805	400.00	1767	11 1767	411	348	-15%	1767		278.87			1805	400.00	284.24
1806				1806	403.03	1768	11 1768	414	354	-14%	1768		278.89			1806	403.03	284.85
1807				1807	406.06	1769	11 1769	417	361	-13%	1769		278.92			1807	406.06	285.46
1808				1808	409.09	1770	11 1770	420	368	-12%	1770	278.60	278.94	0.12%	0.12	1808	409.09	286.07
1809				1809	415.15	1771	11 1771	430	376	-11%	1771		278.96			1809	415.15	286.68
1810				1810	421.21	1772	11 1772	436	383	-12%	1772		278.99			1810	421.21	287.29
1811				1811	427.27	1773	11 1773	442	391	-11%	1773		279.01			1811	427.27	287.90
1812				1812	433.33	1774	11 1774	448	398	-11%	1774		279.04			1812	433.33	288.51
1813				1813	439.39	1775	11 1775	454	406	-11%	1775	279.30	279.06	-0.09%	0.06	1813	439.39	289.12
1814				1814	445.45	1776	11 1776	460	414	-10%	1776		279.08			1814	445.45	289.73
1815				1815	451.52	1777	11 1777	466	422	-9%	1777		279.11			1815	451.52	290.34
1816				1816	457.58	1778	11 1778	472	431	-9%	1778		279.14			1816	457.58	290.95
1817				1817	463.64	1779	11 1779	478	439	-8%	1779		279.16			1817	463.64	291.56
1818				1818	469.70	1780	11 1780	484	448	-8%	1780	280.10	279.19	-0.33%	0.83	1818	469.70	292.17
1819				1819	469.70	1781	11 1781	488	456	-6%	1781		279.22			1819	469.70	292.78
1820				1820	469.70	1782	11 1782	488	465	-5%	1782		279.24			1820	469.70	293.39
1821				1821	469.70	1783	11 1783	488	475	-3%	1783		279.27			1821	469.70	294.00
1822				1822	469.70	1784	11 1784	488	484	-1%	1784		279.30			1822	469.70	294.61
1823				1823	469.70	1785	11 1785	488	493	1%	1785	280.80	279.32	-0.53%	2.18	1823	469.70	295.22
1824				1824	469.70	1786	11 1786	488	502	2%	1786		279.35			1824	469.70	295.83
1825				1825	469.70	1787	11 1787	488	513	5%	1787		279.38			1825	469.70	296.44
1826				1826	469.70	1788	11 1788	488	523	7%	1788		279.40			1826	469.70	297.05
1827				1827	469.70	1789	11 1789	488	533	9%	1789		279.43			1827	469.70	297.66
1828				1828	469.70	1790	11 1790	488	544	11%	1790	281.60	279.46	-0.76%	4.58	1828	469.70	298.27
1829				1829	474.24	1791	11 1791	496	554	12%	1791		279.49			1829	474.24	298.88
1830				1830	478.79	1792	11 1792	501	565	13%	1792		279.51			1830	478.79	299.49
1831				1831	483.33	1793	11 1793	505	576	14%	1793		279.54			1831	483.33	300.10
1832				1832	487.88	1794	11 1794	510	588	15%	1794		279.57			1832	487.88	300.71
1833				1833	492.42	1795	11 1795	514	599	17%	1795	282.30	279.60	-0.96%	7.30	1833	492.42	301.32
1834				1834	496.97	1796	11 1796	519	611	18%	1796		279.63			1834	496.97	301.93
1835				1835	501.52	1797	11 1797	527	623	18%	1797		279.65			1835	501.52	302.54
1836				1836	506.06	1798	11 1798	532	635	19%	1798		279.68			1836	506.06	303.15
1837				1837	510.61	1799	11 1799	536	648	19%	1799		279.71			1837	510.61	303.76
1838				1838	515.15	1800	11 1800	544	661	21%	1800		279.74			1838	515.15	304.37
1839				1839	520.70	1801	11 1801	559	674	21%	1801		279.77			1839	520.70	304.98
1840				1840	526.25	1802	11 1802	570	687	20%	1802		279.80			1840	526.25	305.59
1841				1841	531.80	1803	11 1803	591	700	18%	1803		279.84			1841	531.80	306.20
1842				1842	537.35	1804	11 1804	606	714	18%	1804		279.87			1842	537.35	306.81
1843				1843	542.90	1805	11 1805	621	728	17%	1805		279.90			1843	542.90	307.42
1844				1844	548.45	1806	11 1806	638	742	16%	1806		279.94			1844	548.45	308.03
1845				1845	554.00	1807	11 1807	653	757	16%	1807		279.97			1845	554.00	308.64
1846				1846	559.55	1808	11 1808	667	772	16%	1808		280.01			1846	559.55	309.25
1847				1847	565.10	1809	11 1809	681	787	16%	1809		280.05			1847	565.10	309.86
1848				1848	570.65	1810	11 1810	696	802	15%	1810		280.08			1848	570.65	310.47
1849				1849	576.20	1811	11 1811	711	818	15%	1811		280.12			1849	576.20	311.08
1850				1850	581.75	1812	11 1812	722	834	16%	1812		280.16			1850	581.75	311.69
1851				1851	587.30	1813	11 1813	734	851	16%	1813		280.20			1851	587.30	312.30
1852				1852	592.85	1814	11 1814	745	867	16%	1814		280.24			1852	592.85	312.91
1853				1853	598.40	1815	11 1815	756	884	16%	1815		280.28			1853	598.40	313.52
1854				1854	603.95	1816	11 1816	767	902	16%	1816	283.80	280.33	-1.22%	12.08	1854	603.95	314.13
1855																		

1981	5,152	1981	6,116.67	1981	18,891	1981	25,007	22,368	-11%	1981	340.11	342.83	0.80%	7.40	1981	340.11
1982	5,113	1982	6,081.82	1982	18,748	1982	24,829	22,807	-8%	1982	341.45	344.21	0.81%	7.64	1982	341.45
1983	5,094	1983	6,046.97	1983	18,678	1983	24,725	23,255	-6%	1983	343.05	345.59	0.74%	6.45	1983	343.05
1984	5,280	1984	6,012.12	1984	19,360	1984	25,372	23,712	-7%	1984	344.65	346.96	0.67%	5.33	1984	344.65
1985	5,439	1985	5,977.27	1985	19,943	1985	25,920	24,178	-7%	1985	346.12	348.36	0.65%	5.04	1985	346.12
1986	5,607	1986	5,942.42	1986	20,559	1986	26,501	24,653	-7%	1986	347.42	349.80	0.68%	5.66	1986	347.42
1987	5,752	1987	5,907.58	1987	21,091	1987	26,998	25,138	-7%	1987	349.19	351.27	0.59%	4.32	1987	349.19
1988	5,965	1988	5,872.73	1988	21,872	1988	27,744	25,632	-8%	1988	351.57	352.76	0.34%	1.42	1988	351.57
1989	6,097	1989	5,837.88	1989	22,356	1989	28,194	26,136	-7%	1989	353.12	354.30	0.33%	1.39	1989	353.12
1990	6,127	1990	5,803.03	1990	22,466	1990	28,269	26,649	-6%	1990	354.39	355.86	0.42%	2.16	1990	354.39
1991	6,217	1991	5,709.85	1991	22,796	1991	28,506	27,173	-5%	1991	355.61	357.43	0.51%	3.30	1991	355.61
1992	6,164	1992	5,616.67	1992	22,601	1992	28,218	27,707	-2%	1992	356.45	359.01	0.72%	6.53	1992	356.45
1993	6,162	1993	5,523.48	1993	22,594	1993	28,117	28,251	0%	1993	357.10	360.57	0.97%	12.03	1993	357.10
1994	6,266	1994	5,430.30	1994	22,975	1994	28,406	28,806	1%	1994	358.83	362.13	0.92%	10.86	1994	358.83
1995	6,308	1995	5,337.12	1995	23,459	1995	28,796	29,372	2%	1995	360.82	363.70	0.80%	8.29	1995	360.82
1996	6,542	1996	5,243.94	1996	23,987	1996	29,231	29,950	2%	1996	362.61	365.29	0.74%	7.20	1996	362.61
1997	6,651	1997	5,150.76	1997	24,387	1997	29,538	30,538	3%	1997	363.73	366.91	0.87%	10.13	1997	363.73
1998	6,643	1998	5,057.58	1998	24,358	1998	29,415	31,138	6%	1998	366.70	368.55	0.50%	3.42	1998	366.70
1999	6,610	1999	4,964.39	1999	24,217	1999	29,201	31,750	9%	1999	368.38	370.18	0.49%	3.23	1999	368.38
2000	6,765	2000	4,871.21	2000	24,805	2000	29,676	32,374	9%	2000	369.55	371.79	0.61%	5.04	2000	369.55
2001	6,927	2001	4,851.52	2001	25,399	2001	30,251	33,010	9%	2001	371.14	373.44	0.62%	5.28	2001	371.14
2002	6,996	2002	4,831.82	2002	25,652	2002	30,484	33,659	10%	2002	373.28	375.11	0.49%	3.36	2002	373.28
2003	7,416	2003	4,812.12	2003	27,192	2003	32,004	34,320	7%	2003	375.80	376.80	0.27%	1.00	2003	375.80
2004	7,807	2004	4,792.42	2004	28,626	2004	33,418	34,995	5%	2004	377.52	378.57	0.28%	1.11	2004	377.52
2005	8,093	2005	4,772.73	2005	29,674	2005	34,447	35,682	4%	2005	379.80	380.43	0.16%	0.39	2005	379.80
2006	8,370	2006	4,547.00	2006	30,690	2006	35,237	36,384	3%	2006	381.90	382.33	0.11%	0.19	2006	381.90
2007	8,566	2007	4,217.00	2007	31,409	2007	35,626	37,098	4%	2007	383.79	384.28	0.13%	0.24	2007	383.79
2008	8,763	2008	4,583.00	2008	32,204	2008	36,787	37,827	3%	2008	385.60	386.26	0.17%	0.43	2008	385.60
2009	8,740	2009	4,830.00	2009	32,047	2009	37,877	38,571	2%	2009	387.43	388.30	0.22%	0.75	2009	387.43
2010	9,167	2010	5,317.00	2010	33,612	2010	38,929	39,329	1%	2010	389.90	390.39	0.13%	0.24	2010	389.90
2011	9903	2011	4,987.00	2011	34,844	2011	39,831	40,102	1%	2011	391.65	392.55	0.23%	0.81	2011	391.65
2012	9673	2012	6,013.00	2012	35,468	2012	41,481	40,890	-1%	2012	393.85	394.76	0.23%	0.82	2012	393.85
2013	9773	2013	6,683.00	2013	35,834	2013	41,517	41,693	0%	2013	396.52	397.05	0.13%	0.28	2013	396.52
2014	9855	2014	6,013.00	2014	36,135	2014	42,148	42,512	1%	2014	398.65	399.35	0.18%	0.49	2014	398.65
2015		2015	6,013.00	2015	35,500	2015	41,513	43,348	4%	2015	400.83	401.69	0.21%	0.73	2015	400.83
2016		2016	4,987.00	2016	35,700	2016	40,687	44,200	9%	2016	404.21	403.99	-0.06%	0.05	2016	404.21
2017		2017	4,987.00	2017	36,200	2017	41,187	45,068	9%	2017	406.55	406.24	-0.08%	0.10	2017	406.55
2018		2018	4,987.00	2018	37,100	2018	42,087	45,954	9%	2018	408.52	408.52	0.00%	0.00	2018	408.52

Table 4: Analysis of combined E_{FF} [8] with E_{LUC} [9,10] with CO_2 concentration data [15-18] to (a) generate raw data graphs of E_{FF} and E_{LUC} over the time period (Figure 1), (b) generate graph of observed CO_2 concentrations (Figure 2), (c) determine best fit exponential curve to combined $E_{FF} + E_{LUC}$ (Figure 3), (d) apply Eq. (1) to combined $E_{FF} + E_{LUC}$ data to compare predicted CO_2 concentrations with observations using best fit value of constant $AF=43.1\%$ (Figure 4)

E. Analysis of Fossil Fuel Emissions with Linear Component of CO₂ Concentration

These data form the basis for Figures 5-9 in the manuscript.

Year	Total carbon emissions from fossil fuel consumption and cement production (million metric tons of C)	CO ₂ from fossil fuels	CO ₂ observations (ppm)	Sum of errors squared	Year	CO ₂ observations (ppm)	Year	CO ₂ observations (ppm)	Relative CO ₂ rise for F1 (ppm) (from 1850)	Relative CO ₂ rise for F2 (ppm) (from 1850)	Year	Expected CO ₂ value based on linear release	delta actual vs predicted	square of difference	CO ₂ observations (ppm)	CO ₂ Model Prediction	Error	Sum of errors squared	Year	CO ₂ observations (ppm)	CO ₂ Model Prediction	Error	Sum of errors squared
1750			297.42	3.39%	448.84	1750	277.00	297.42	1750	277.00	1750	277.00	0.01	0.0001	277.00	277.00	0.00	0.00	1750	277.00	277.00	0.00	0.00
1751			297.42			1751	277.20	297.42	1751	277.20	1751	277.20	0.01	0.0001	277.20	277.20	0.00	0.00	1751	277.20	277.20	0.00	0.00
1752			297.42			1752	277.40	297.42	1752	277.40	1752	277.40	0.01	0.0001	277.40	277.40	0.00	0.00	1752	277.40	277.40	0.00	0.00
1753			297.42			1753	277.60	297.42	1753	277.60	1753	277.60	0.01	0.0001	277.60	277.60	0.00	0.00	1753	277.60	277.60	0.00	0.00
1754			297.42			1754	277.80	297.42	1754	277.80	1754	277.80	0.01	0.0001	277.80	277.80	0.00	0.00	1754	277.80	277.80	0.00	0.00
1755			297.42	3.39%	408.86	1755	278.00	297.42	1755	278.00	1755	278.00	-0.29	0.0837	278.00	278.00	0.00	0.00	1755	278.00	278.00	0.00	0.00
1756			297.42			1756	278.20	297.42	1756	278.20	1756	278.20	0.01	0.0001	278.20	278.20	0.00	0.00	1756	278.20	278.20	0.00	0.00
1757			297.42			1757	278.40	297.42	1757	278.40	1757	278.40	0.01	0.0001	278.40	278.40	0.00	0.00	1757	278.40	278.40	0.00	0.00
1758			297.42			1758	278.60	297.42	1758	278.60	1758	278.60	0.01	0.0001	278.60	278.60	0.00	0.00	1758	278.60	278.60	0.00	0.00
1759			297.42	3.14%	393.00	1759	278.80	297.42	1759	278.80	1759	278.80	-0.39	0.1531	278.80	278.80	0.00	0.00	1759	278.80	278.80	0.00	0.00
1760			297.42			1760	279.00	297.42	1760	279.00	1760	279.00	0.01	0.0001	279.00	279.00	0.00	0.00	1760	279.00	279.00	0.00	0.00
1761			297.42			1761	279.20	297.42	1761	279.20	1761	279.20	0.01	0.0001	279.20	279.20	0.00	0.00	1761	279.20	279.20	0.00	0.00
1762			297.42			1762	279.40	297.42	1762	279.40	1762	279.40	0.01	0.0001	279.40	279.40	0.00	0.00	1762	279.40	279.40	0.00	0.00
1763			297.42			1763	279.60	297.42	1763	279.60	1763	279.60	0.01	0.0001	279.60	279.60	0.00	0.00	1763	279.60	279.60	0.00	0.00
1764			297.42			1764	279.80	297.42	1764	279.80	1764	279.80	0.01	0.0001	279.80	279.80	0.00	0.00	1764	279.80	279.80	0.00	0.00
1765			297.42	6.99%	377.45	1765	280.00	297.42	1765	280.00	1765	280.00	-0.49	0.2384	280.00	280.00	0.00	0.00	1765	280.00	280.00	0.00	0.00
1766			297.42			1766	280.20	297.42	1766	280.20	1766	280.20	0.01	0.0001	280.20	280.20	0.00	0.00	1766	280.20	280.20	0.00	0.00
1767			297.42			1767	280.40	297.42	1767	280.40	1767	280.40	0.01	0.0001	280.40	280.40	0.00	0.00	1767	280.40	280.40	0.00	0.00
1768			297.42			1768	280.60	297.42	1768	280.60	1768	280.60	0.01	0.0001	280.60	280.60	0.00	0.00	1768	280.60	280.60	0.00	0.00
1769			297.42			1769	280.80	297.42	1769	280.80	1769	280.80	0.01	0.0001	280.80	280.80	0.00	0.00	1769	280.80	280.80	0.00	0.00
1770			297.42	6.76%	354.64	1770	281.00	297.42	1770	281.00	1770	281.00	-0.38	0.1457	281.00	281.00	0.00	0.00	1770	281.00	281.00	0.00	0.00
1771			297.42			1771	281.20	297.42	1771	281.20	1771	281.20	0.01	0.0001	281.20	281.20	0.00	0.00	1771	281.20	281.20	0.00	0.00
1772			297.42			1772	281.40	297.42	1772	281.40	1772	281.40	0.01	0.0001	281.40	281.40	0.00	0.00	1772	281.40	281.40	0.00	0.00
1773			297.42			1773	281.60	297.42	1773	281.60	1773	281.60	0.01	0.0001	281.60	281.60	0.00	0.00	1773	281.60	281.60	0.00	0.00
1774			297.42	6.49%	338.84	1774	281.80	297.42	1774	281.80	1774	281.80	-0.39	0.1537	281.80	281.80	0.00	0.00	1774	281.80	281.80	0.00	0.00
1775			297.42			1775	282.00	297.42	1775	282.00	1775	282.00	0.01	0.0001	282.00	282.00	0.00	0.00	1775	282.00	282.00	0.00	0.00
1776			297.42			1776	282.20	297.42	1776	282.20	1776	282.20	0.01	0.0001	282.20	282.20	0.00	0.00	1776	282.20	282.20	0.00	0.00
1777			297.42			1777	282.40	297.42	1777	282.40	1777	282.40	0.01	0.0001	282.40	282.40	0.00	0.00	1777	282.40	282.40	0.00	0.00
1778			297.42			1778	282.60	297.42	1778	282.60	1778	282.60	0.01	0.0001	282.60	282.60	0.00	0.00	1778	282.60	282.60	0.00	0.00
1779			297.42	6.19%	300.74	1779	282.80	297.42	1779	282.80	1779	282.80	-0.31	0.0932	282.80	282.80	0.00	0.00	1779	282.80	282.80	0.00	0.00
1780			297.42			1780	283.00	297.42	1780	283.00	1780	283.00	0.01	0.0001	283.00	283.00	0.00	0.00	1780	283.00	283.00	0.00	0.00
1781			297.42			1781	283.20	297.42	1781	283.20	1781	283.20	0.01	0.0001	283.20	283.20	0.00	0.00	1781	283.20	283.20	0.00	0.00
1782			297.42			1782	283.40	297.42	1782	283.40	1782	283.40	0.01	0.0001	283.40	283.40	0.00	0.00	1782	283.40	283.40	0.00	0.00
1783			297.42			1783	283.60	297.42	1783	283.60	1783	283.60	0.01	0.0001	283.60	283.60	0.00	0.00	1783	283.60	283.60	0.00	0.00
1784			297.42	5.91%	277.16	1784	283.80	297.42	1784	283.80	1784	283.80	-0.31	0.0960	283.80	283.80	0.00	0.00	1784	283.80	283.80	0.00	0.00
1785			297.42			1785	284.00	297.42	1785	284.00	1785	284.00	0.01	0.0001	284.00	284.00	0.00	0.00	1785	284.00	284.00	0.00	0.00
1786			297.42			1786	284.20	297.42	1786	284.20	1786	284.20	0.01	0.0001	284.20	284.20	0.00	0.00	1786	284.20	284.20	0.00	0.00
1787			297.42			1787	284.40	297.42	1787	284.40	1787	284.40	0.01	0.0001	284.40	284.40	0.00	0.00	1787	284.40	284.40	0.00	0.00
1788			297.42			1788	284.60	297.42	1788	284.60	1788	284.60	0.01	0.0001	284.60	284.60	0.00	0.00	1788	284.60	284.60	0.00	0.00
1789			297.42			1789	284.80	297.42	1789	284.80	1789	284.80	0.01	0.0001	284.80	284.80	0.00	0.00	1789	284.80	284.80	0.00	0.00
1790			297.42	5.63%	251.37	1790	285.00	297.42	1790	285.00	1790	285.00	-0.61	0.3722	285.00	285.00	0.00	0.00	1790	285.00	285.00	0.00	0.00
1791			297.42			1791	285.20	297.42	1791	285.20	1791	285.20	0.01	0.0001	285.20	285.20	0.00	0.00	1791	285.20	285.20	0.00	0.00
1792			297.42			1792	285.40	297.42	1792	285.40	1792	285.40	0.01	0.0001	285.40	285.40	0.00	0.00	1792	285.40	285.40	0.00	0.00
1793			297.42			1793	285.60	297.42	1793	285.60	1793	285.60	0.01	0.0001	285.60	285.60	0.00	0.00	1793	285.60	285.60	0.00	0.00
1794			297.42			1794	285.80	297.42	1794	285.80	1794	285.80	0.01	0.0001	285.80	285.80	0.00	0.00	1794	285.80	285.80	0.00	0.00
1795			297.42			1795	286.00	297.42	1795	286.00	1795	286.00	0.01	0.0001	286.00	286.00	0.00	0.00	1795	286.00	286.00	0.00	0.00
1796			297.42			1796	286.20	297.42	1796	286.20	1796	286.20	0.01	0.0001	286.20	286.20	0.00	0.00	1796	286.20	286.20	0.00	0.00
1797			297.42			1797	286.40	297.42	1797	286.40	1797	286.40	0.01	0.0001	286.40	286.40	0.00	0.00	1797	286.40	286.40	0.00	0.00
1798			297.42			1798	286.60	297.42	1798	286.60	1798	286.60	0.01	0.0001	286.60	286.60	0.00	0.00	1798	286.60	286.60	0.00	0.00
1799			297.42	5.37%	229.89	1799	286.80	297.42	1799	286.80	1799	286.80	-0.20	0.0400	286.80	286.80	0.00	0.00	1799	286.80	286.80	0.00	0.00
1800			297.42			1800	287.00	297.42	1800	287.00	1800	287.00	0.01	0.0001	287.00	287.00	0.00	0.00	1800	287.00	287.00	0.00	0.00
1801			297.42			1801	287.20	297.42	1801	287.20	1801	287.20	0.01	0.0001	287.20	287.20	0.00	0.00	1801	287.20	287.20	0.00	0.00

1891	1348	299.48				1891				1891						293.17			
1892	1351	299.18				1892				1892						293.26			
1893	1352	299.17				1893				1893						293.30			
1894	1404	299.77				1894				1894						293.73			
1895	1408	299.87				1895				1895						293.93			
1896	1534	299.97				1896				1896						294.12			
1897	1535	300.08				1897				1897						294.23			
1898	1709	300.19				1898				1898						294.53			
1899	1849	295.8	1.52%	20.33		1899	295.8			1899	295.8					294.76	-0.56%	1.12	
1900	1900	300.44				1900				1900						294.86			
1901	2248	300.58				1901				1901						295.23			
1902	2249	300.58				1902				1902						295.23			
1903	2248	294.8	1.06%	16.77		1903	294.8			1903	294.8					295.46	0.29%	0.74	
1904	2248	301.35				1904				1904						295.65			
1905	2431	301.18	1.44%	18.24		1905	296.9			1905	296.9					296.18	-0.25%	0.55	
1906	2431	301.35				1906				1906						296.45			
1907	2431	301.35				1907				1907						296.69			
1908	2431	301.35				1908				1908						296.69			
1909	2431	301.35				1909				1909						297.25			
1910	2431	301.35				1910				1910						297.25			
1911	3061	302.34				1911				1911						297.84			
1912	3061	302.34				1912				1912						297.84			
1913	3061	302.34				1913				1913						298.46			
1914	3061	302.34				1914				1914						298.78			
1915	3061	302.34				1915	300.5			1915	300.5					299.09	-0.47%	1.99	
1916	3061	302.34				1916				1916						299.29			
1917	3061	302.34				1917				1917						299.71			
1918	3061	302.34				1918				1918						299.71			
1919	3061	302.34				1919				1919						300.04			
1920	3061	302.34				1920				1920						300.36			
1921	3061	302.34				1921	301.6			1921	301.6					300.98	-0.20%	0.38	
1922	3061	302.34				1922				1922						301.28			
1923	3061	302.34				1923				1923						301.58			
1924	3061	302.34				1924				1924						301.96			
1925	3061	302.34				1925				1925						302.25			
1926	3061	302.34				1926				1926						302.55			
1927	3061	302.34	0.18%	0.29		1927	305.5			1927	305.5					302.82	-0.84%	4.46	
1928	3061	302.34				1928				1928						303.22			
1929	3061	302.34				1929				1929						303.53			
1930	3061	302.34				1930				1930						304.03			
1931	3061	302.34				1931				1931						304.26			
1932	3061	302.34				1932				1932						304.69			
1933	3061	302.34				1933				1933						304.69			
1934	3061	302.34				1934				1934						305.23			
1935	3061	302.34				1935				1935						305.64			
1936	3061	302.34				1936				1936						305.95			
1937	3061	302.34				1937				1937						306.26			
1938	3061	302.34				1938				1938						306.57			
1939	3061	302.34				1939				1939						307.13			
1940	3061	302.34				1940				1940						307.52			
1941	3061	302.34				1941				1941						307.91			
1942	3061	302.34				1942				1942						308.35			
1943	3061	302.34				1943				1943						308.78			
1944	3061	302.34				1944	307.9			1944	307.9					309.23	0.38%	0.77	
1945	3061	302.34				1945				1945						309.64			
1946	3061	302.34				1946				1946						310.03			
1947	3061	302.34				1947				1947						310.46			
1948	3061	302.34				1948				1948						310.86			
1949	3061	302.34				1949				1949						311.21			
1950	3061	302.34				1950				1950						311.76			
1951	3061	302.34				1951				1951						312.11			
1952	3061	302.34				1952				1952						312.78			
1953	3061	302.34				1953	312.7			1953	312.7					313.81	0.26%	0.37	
1954	3061	302.34				1954				1954						314.43			
1955	3061	302.34				1955				1955						314.86			
1956	3061	302.34				1956				1956						315.43			
1957	3061	302.34				1957				1957						316.02			
1958	3061	302.34				1958				1958						316.67			
1959	3061	302.34				1959	315.97			1959	315.97					316.64	0.33%	0.69	
1960	3061	302.34				1960				1960						317.18			
1961	3061	302.34				1961				1961						317.64			
1962	3061	302.34				1962				1962						318.05			
1963	3061	302.34				1963				1963						318.42			
1964	3061	302.34				1964				1964						318.79			
1965	3061	302.34				1965				1965						319.08			
1966	3061	302.34				1966				1966						319.29			
1967	3061	302.34				1967				1967						319.43			
1968	3061	302.34				1968				1968						319.58			
1969	3061	302.34				1969				1969						319.64			
1970	3061	302.34				1970				1970						319.71			
1971	3061	302.34				1971				1971						319.78			
1972	3061	302.34				1972				1972						319.84			
1973	3061	302.34				1973				1973						319.86			
1974	3061	302.34				1974				1974						319.87			
1975	3061	302.34				1975				1975						319.86			
1976	3061	302.34				1976				1976						319.84			
1977	3061	302.34				1977				1977						319.85			
1978	3061	302.34				1978				1978						319.84			
1979	3061	302.34				1979				1979						319.86			
1980	3061	302.34				1980				1980						319.87			
1981	3061	302.34				1981				1981						319.79			
1982	3061	302.34				1982				1982						319.79			
1983	3061	302.34				1983				1983						319.79			
1984	3061	302.34				1984				1984						319.79			
1985	3061	302.34				1985				1985						319.79			
1986	3061	302.34				1986				1986						319.79			
1987	3061	302.34				1987				1987						319.79			
1988	3061	302.34				1988				1988						319.79			
1989	3061	302.34				1989				1989						319.79			
1990	3061	302.34				1990				1990						319.79			
1991	3061	302.34				1991				1991						319.79			
1992																			