Ralph F Keeling

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

113 papers	9,608 citations	42 h-index	97 g-index
144 ext. papers	11,161 ext. citations	10.6 avg, IF	5.96 L-index

#	Paper	IF	Citations
113	Increasing atmospheric helium due to fossil fuel exploitation. *Nature Geoscience*, **2022**, 15, 346-348	18.3	0
112	Comment on "World Atmospheric CO2, Its 14C Specific Activity, Non-fossil Component, Anthropogenic Fossil Component, and Emissions (1750-2018)," by Kenneth Skrable, George Chabot, and Clayton French.. *Health Physics*, **2022**, 122, 717-719	2.3	0
111	Data-based estimates of interannual sea–air CO₂ flux variations 1957–2020 and their relation to environmental drivers. *Biogeosciences*, **2022**, 19, 2627-2652	4.6	0
110	THE NASA ATMOSPHERIC TOMOGRAPHY (ATom) MISSION: Imaging the Chemistry of the Global Atmosphere. *Bulletin of the American Meteorological Society*, **2021**, 1-53	6.1	6
109	On the Detection of COVID-Driven Changes in Atmospheric Carbon Dioxide.. *Geophysical Research Letters*, **2021**, 48, e2021GL095396	4.9	0
108	Strong Southern Ocean carbon uptake evident in airborne observations. *Science*, **2021**, 374, 1275-1280	33.3	6
107	Insights from Time Series of Atmospheric Carbon Dioxide and Related Tracers. *Annual Review of Environment and Resources*, **2021**, 46, 85-110	17.2	6
106	A method for resolving changes in atmospheric He–N₂ as an indicator of fossil fuel extraction and stratospheric circulation. *Atmospheric Measurement Techniques*, **2021**, 14, 2515–2527	4	1
105	Impacts of Changes in Atmospheric O on Human Physiology. Is There a Basis for Concern?. *Frontiers in Physiology*, **2021**, 12, 571137	4.6	1
104	Airborne measurements of oxygen concentration from the surface to the lower stratosphere and pole to pole. *Atmospheric Measurement Techniques*, **2021**, 14, 2543-2574	4	5
103	Unusual characteristics of the carbon cycle during the 2015-2016 El Niño. *Global Change Biology*, **2021**, 27, 3798-3809	11.4	1
102	The Impact of COVID-19 on CO Emissions in the Los Angeles and Washington DC/Baltimore Metropolitan Areas. *Geophysical Research Letters*, **2021**, 48, e2021GL092744	4.9	8
101	Integrating the evidence for a terrestrial carbon sink caused by increasing atmospheric CO. *New Phytologist*, **2021**, 229, 2413-2445	9.8	94
100	A mass-weighted isentropic coordinate for mapping chemical tracers and computing atmospheric inventories. *Atmospheric Chemistry and Physics*, **2021**, 21, 217-238	6.8	2
99	An Atmospheric Constraint on the Seasonal Air-Sea Exchange of Oxygen and Heat in the Extratropics. *Journal of Geophysical Research: Oceans*, **2021**, 126, e2021JC017510	3.3	0
98	Intercomparison of O₂–N₂ ratio scales among AIST, NIES, TU, and SIO based on a round-robin exercise using gravimetric standard mixtures. *Atmospheric Measurement Techniques*, **2021**, 14, 6181-6193	4	2
97	Achieving atmospheric verification of CO2 emissions. *Nature Climate Change*, **2020**, 10, 416-417	21.4	3

96	Causes of slowing-down seasonal CO amplitude at Mauna Loa. *Global Change Biology*, **2020**, 26, 4462-4477	11.4	9
95	Southern Annular Mode Influence on Wintertime Ventilation of the Southern Ocean Detected in Atmospheric O2 and CO2 Measurements. *Geophysical Research Letters*, **2020**, 47, e2019GL085667	4.9	3
94	Gravitational separation of Ar□₂ and age of air in the lowermost stratosphere in airborne observations and a chemical transport model. *Atmospheric Chemistry and Physics*, **2020**, 20, 12391-12408	6.8	7
93	Changes to Carbon Isotopes in Atmospheric CO Over the Industrial Era and Into the Future. *Global Biogeochemical Cycles*, **2020**, 34, e2019GB006170	5.9	15
92	Extensive land cover change across Arctic-Boreal Northwestern North America from disturbance and climate forcing. *Global Change Biology*, **2020**, 26, 807-822	11.4	53
91	Spatio-temporally Resolved Methane Fluxes From the Los Angeles Megacity. *Journal of Geophysical Research D: Atmospheres*, **2019**, 124, 5131-5148	4.4	19
90	El Ni□like Physical and Biogeochemical Ocean Response to Tropical Eruptions. *Journal of Climate* , **2019**, 32, 2627-2649	4.4	15
89	A Multiplatform Inversion Estimation of Statewide and Regional Methane Emissions in California during 2014-2016. *Environmental Science & Technology*, **2019**, 53, 9636-9645	10.3	3
88	Novel approaches to improve estimates of short-lived halocarbon emissions during summer from the Southern Ocean using airborne observations. *Atmospheric Chemistry and Physics*, **2019**, 19, 14071-14090	6.8	3
87	Summertime Atmospheric Boundary Layer Gradients of O2 and CO2 over the Southern Ocean. *Journal of Geophysical Research D: Atmospheres*, **2019**, 124, 13439-13456	4.4	2
86	The O2/N2 Ratio and CO2 Airborne Southern Ocean Study. *Bulletin of the American Meteorological Society*, **2018**, 99, 381-402	6.1	21
85	Global Carbon Budget 2018. *Earth System Science Data*, **2018**, 10, 2141-2194	10.5	831
84	Global Carbon Budget 2017. *Earth System Science Data*, **2018**, 10, 405-448	10.5	614
83	Net Community Production in the Southern Ocean: Insights From Comparing Atmospheric Potential Oxygen to Satellite Ocean Color Algorithms and Ocean Models. *Geophysical Research Letters*, **2018**, 45, 10,549-10,559	4.9	3
82	How does the terrestrial carbon exchange respond to inter-annual climatic variations? A quantification based on atmospheric CO₂ data. *Biogeosciences*, **2018**, 15, 2481-2498	4.6	33
81	A successful prediction of the record CO rise associated with the 2015/2016 El Ni□. *Philosophical Transactions of the Royal Society B: Biological Sciences*, **2018**, 373,	5.8	18
80	Impacts of ENSO on air-sea oxygen exchange: Observations and mechanisms. *Global Biogeochemical Cycles*, **2017**, 31, 901-921	5.9	17
79	Compiled records of carbon isotopes in atmospheric CO₂ for historical simulations in CMIP6. *Geoscientific Model Development*, **2017**, 10, 4405-4417	6.3	96

78	Atmospheric evidence for a global secular increase in carbon isotopic discrimination of land photosynthesis. *Proceedings of the National Academy of Sciences of the United States of America*, **2017**, 114, 10361-10366	11.5	104
77	Overestimate of committed warming. *Nature*, **2017**, 547, E16-E17	50.4	6
76	Carbon dioxide and methane measurements from the Los Angeles Megacity Carbon Project - Part 1: calibration, urban enhancements, and uncertainty estimates. *Atmospheric Chemistry and Physics*, **2017**, 17,	6.8	73
75	Simulating estimation of California fossil fuel and biosphere carbon dioxide exchanges combining in situ tower and satellite column observations. *Journal of Geophysical Research D: Atmospheres*, **2017**, 122, 3653-3671	4.4	25
74	Toward consistency between trends in bottom-up CO₂ emissions and top-down atmospheric measurements in the Los Angeles megacity. *Atmospheric Chemistry and Physics*, **2016**, 16, 3843-3863	6.8	57
73	Increasing summer net CO₂ uptake in high northern ecosystems inferred from atmospheric inversions and comparisons to remote-sensing NDVI. *Atmospheric Chemistry and Physics*, **2016**, 16, 9047-9066	6.8	25
72	Enhanced seasonal CO2 exchange caused by amplified plant productivity in northern ecosystems. *Science*, **2016**, 351, 696-9	33.3	240
71	A multi-decade record of high-quality <i>f</i>CO₂ data in version 3 of the Surface Ocean CO₂ Atlas (SOCAT). *Earth System Science Data*, **2016**, 8, 383-413	10.5	260
70	Global Carbon Budget 2016. *Earth System Science Data*, **2016**, 8, 605-649	10.5	730
69	Carbon Dioxide and Methane Measurements from the Los Angeles Megacity Carbon Project: 1. Calibration, Urban Enhancements, and Uncertainty Estimates **2016**,		4
68	Estimating methane emissions in California□s urban and rural regions using multitower observations. *Journal of Geophysical Research D: Atmospheres*, **2016**, 121, 13,031-13,049	4.4	32
67	Designing optimal greenhouse gas observing networks that consider performance and cost. *Geoscientific Instrumentation, Methods and Data Systems*, **2015**, 4, 121-137	1.5	16
66	Evaluating the ocean biogeochemical components of Earth system models using atmospheric potential oxygen and ocean color data. *Biogeosciences*, **2015**, 12, 193-208	4.6	13
65	Global carbon budget 2014. *Earth System Science Data*, **2015**, 7, 47-85	10.5	367
64	Interannual sea□air CO₂ flux variability from an observation-driven ocean mixed-layer scheme. *Biogeosciences*, **2014**, 11, 4599-4613	4.6	86
63	Strong sensitivity of Southern Ocean carbon uptake and nutrient cycling to wind stirring. *Biogeosciences*, **2014**, 11, 4077-4098	4.6	30
62	Global carbon budget 2013. *Earth System Science Data*, **2014**, 6, 235-263	10.5	264
61	Evaluating transport in the WRF model along the California coast. *Atmospheric Chemistry and Physics*, **2013**, 13, 1837-1852	6.8	29

60	An Equilibrator System to Measure Dissolved Oxygen and Its Isotopes. *Journal of Atmospheric and Oceanic Technology*, **2013**, 30, 361-377	2	6
59	The global carbon budget 1959–2011. *Earth System Science Data*, **2013**, 5, 165-185	10.5	436
58	Initial Results of an Intercomparison of AMS-Based Atmospheric 14CO2 Measurements. *Radiocarbon*, **2013**, 55, 1475-1483	4.6	15
57	Global surface-ocean <i>p</i>^{CO₂} and sea–air CO₂ flux variability from an observation-driven ocean mixed-layer scheme. *Ocean Science*, **2013**, 9, 193-216	4	94
56	Design and performance of a Nafion dryer for continuous operation at CO₂ and CH₄ air monitoring sites. *Atmospheric Measurement Techniques*, **2013**, 6, 1217-1226	4	24
55	Initial Results of an Intercomparison of AMS-Based Atmospheric 14CO2 Measurements. *Radiocarbon*, **2013**, 55,	4.6	6
54	On the processes controlling the seasonal cycles of the air–sea fluxes of O2 and N2O: A modelling study. *Tellus, Series B: Chemical and Physical Meteorology*, **2012**, 64, 18429	3.3	23
53	Observations of radiocarbon in CO2 at seven global sampling sites in the Scripps flask network: Analysis of spatial gradients and seasonal cycles. *Journal of Geophysical Research*, **2012**, 117, n/a-n/a		51
52	Observations of radiocarbon in CO2at La Jolla, California, USA 1992–2007: Analysis of the long-term trend. *Journal of Geophysical Research*, **2012**, 117, n/a-n/a		54
51	On the Linkage between Antarctic Surface Water Stratification and Global Deep-Water Temperature. *Journal of Climate*, **2011**, 24, 3545-3557	4.4	8
50	Shipboard measurements of atmospheric oxygen using a vacuum-ultraviolet absorption technique. *Tellus, Series B: Chemical and Physical Meteorology*, **2011**, 55, 857-878	3.3	4
49	The atmospheric signature of carbon capture and storage. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2011**, 369, 2113-32	3	15
48	Greenhouse gases in the Earth system: setting the agenda to 2030. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2011**, 369, 1885-90	3	10
47	Evolution of natural and anthropogenic fluxes of atmospheric CO2 from 1957 to 2003. *Tellus, Series B: Chemical and Physical Meteorology*, **2011**, 63, 1-22	3.3	37
46	Ocean deoxygenation in a warming world. *Annual Review of Marine Science*, **2010**, 2, 199-229	15.4	943
45	Vertical profiles of biospheric and fossil fuel-derived CO2 and fossil fuel CO2 :CO ratios from airborne measurements of 14C, CO2 and CO above Colorado, USA. *Tellus, Series B: Chemical and Physical Meteorology*, **2009**, 61, 536-546	3.3	34
44	Climate effects on atmospheric carbon dioxide over the last century. *Tellus, Series B: Chemical and Physical Meteorology*, **2009**, 61, 718-731	3.3	30
43	The Mauna Loa carbon dioxide record: Lessons for long-term Earth observations. *Geophysical Monograph Series*, **2009**, 27-35	1.1	3

42	Atmospheric science. Recording Earth's vital signs. *Science*, **2008**, 319, 1771-2	33.3	60
41	Ocean ventilation as a driver of interannual variability in atmospheric potential oxygen. *Tellus, Series B: Chemical and Physical Meteorology*, **2008**, 60, 706-717	3.3	19
40	On the long-term stability of reference gases for atmospheric O2/N2 and CO2 measurements. *Tellus, Series B: Chemical and Physical Meteorology*, **2007**, 59, 3-14	3.3	62
39	Atmosphere. Deglaciation mysteries. *Science*, **2007**, 316, 1440-1	33.3	4
38	Methods for High-Precision 14C AMS Measurement of Atmospheric CO2 at LLNL. *Radiocarbon*, **2007**, 49, 349-356	4.6	37
37	Diffusive separation of the lower atmosphere. *Science*, **2006**, 311, 1429	33.3	5
36	Atmospheric potential oxygen: New observations and their implications for some atmospheric and oceanic models. *Global Biogeochemical Cycles*, **2006**, 20, n/a-n/a	5.9	55
35	Global oceanic and land biotic carbon sinks from the Scripps atmospheric oxygen flask sampling network. *Tellus, Series B: Chemical and Physical Meteorology*, **2006**, 58, 95-116	3.3	185
34	Northern ice discharges and Antarctic warming: could ocean eddies provide the link?. *Quaternary Science Reviews*, **2005**, 24, 1809-1820	3.9	11
33	Comment on "The ocean sink for anthropogenic CO2". *Science*, **2005**, 308, 1743; author reply 1743	33.3	17
32	Measurement of changes in atmospheric Ar/N2 ratio using a rapid-switching, single-capillary mass spectrometer system. *Tellus, Series B: Chemical and Physical Meteorology*, **2004**, 56, 322-338	3.3	12
31	. *Tellus, Series B: Chemical and Physical Meteorology*, **2003**, 55, 857-878	3.3	44
30	Coastal upwelling air-sea fluxes revealed in atmospheric observations of O2/N2, CO2 and N2O. *Geophysical Research Letters*, **2003**, 30,	4.9	45
29	Measurements and models of the atmospheric Ar/N2 ratio. *Geophysical Research Letters*, **2003**, 30,	4.9	21
28	Interpreting the seasonal cycles of atmospheric oxygen and carbon dioxide concentrations at American Samoa Observatory. *Geophysical Research Letters*, **2003**, 30,	4.9	13
27	The change in oceanic O(2) inventory associated with recent global warming. *Proceedings of the National Academy of Sciences of the United States of America*, **2002**, 99, 7848-53	11.5	222
26	On the freshwater forcing of the thermohaline circulation in the limit of low diapycnal mixing. *Journal of Geophysical Research*, **2002**, 107, 14-1		10
25	Precessionally forced productivity variations across the equatorial Pacific. *Paleoceanography*, **2002**, 17, 9-1-9-7		18

24	Palaeoceanography. Antarctic stratification and glacial CO2. *Nature*, **2001**, 412, 605-6	50.4	28
23	On the global oxygen anomaly and air-sea flux. *Journal of Geophysical Research*, **2001**, 106, 31155-31166		51
22	The oxygen to carbon dioxide ratios observed in emissions from a wildfire in northern California. *Geophysical Research Letters*, **2001**, 28, 2413-2416	4.9	10
21	Antarctic sea ice and the control of Pleistocene climate instability. *Paleoceanography*, **2001**, 16, 112-131		119
20	The influence of Antarctic sea ice on glacial-interglacial CO2 variations. *Nature*, **2000**, 404, 171-4	50.4	391
19	The CO2 Budget and Rectification Airborne Study: Strategies for Measuring Rectifiers and Regional Fluxes. *Geophysical Monograph Series*, **2000**, 311-324	1.1	19
18	Mean annual cycle of the air-sea oxygen flux: A global view. *Global Biogeochemical Cycles*, **2000**, 14, 573-584	5.9	81
17	Atmospheric Oxygen Measurements and the Carbon Cycle **2000**, 134-140		6
16	Precise atmospheric oxygen measurements with a paramagnetic oxygen analyzer. *Global Biogeochemical Cycles*, **1999**, 13, 1107-1115	5.9	51
15	Methods for measuring changes in atmospheric O2 concentration and their application in southern hemisphere air. *Journal of Geophysical Research*, **1998**, 103, 3381-3397		72
14	Seasonal variations in the atmospheric O2/N2 ratio in relation to the kinetics of air-sea gas exchange. *Global Biogeochemical Cycles*, **1998**, 12, 141-163	5.9	102
13	Testing global ocean carbon cycle models using measurements of atmospheric O2 and CO2 concentration. *Global Biogeochemical Cycles*, **1998**, 12, 213-230	5.9	124
12	Analysis of the mean annual cycle of the dissolved oxygen anomaly in the World Ocean. *Journal of Marine Research*, **1997**, 55, 117-151	1.5	73
11	Global and hemispheric CO2 sinks deduced from changes in atmospheric O2 concentration. *Nature*, **1996**, 381, 218-221	50.4	509
10	What atmospheric oxygen measurements can tell us about the global carbon cycle. *Global Biogeochemical Cycles*, **1993**, 7, 37-67	5.9	164
9	Oceanic 13C/12C observations: A new window on ocean CO2 uptake. *Global Biogeochemical Cycles*, **1993**, 7, 353-368	5.9	216
8	Seasonal and interannual variations in atmospheric oxygen and implications for the global carbon cycle. *Nature*, **1992**, 358, 723-727	50.4	344
7	Measuring correlations between atmospheric oxygen and carbon dioxide mole fractions: A preliminary study in urban air. *Journal of Atmospheric Chemistry*, **1988**, 7, 153-176	3.2	69

6	Measurement of changes in atmospheric Ar/N2 ratio using a rapid-switching, single-capillary mass spectrometer system	23
5	Airborne measurements of oxygen concentration from the surface to the lower stratosphere and pole to pole	2
4	A multi-decade record of high-quality fCO₂ data in version 3 of the Surface Ocean CO₂ Atlas (SOCAT)	6
3	Global Carbon Budget 2016	3
2	Global Carbon Budget 2017	60
1	Global Carbon Budget 2018	4