

Rik Wanninkhof

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.

117
papers

18,311
citations

53
h-index

122
g-index

122
ext. papers

21,439
ext. citations

7.3
avg, IF

6.73
L-index

#	Paper	IF	Citations
117	Global Carbon Budget 2021. <i>Earth System Science Data</i> , 2022 , 14, 1917-2005	10.5	47
116	Variability of USA East Coast surface total alkalinity distributions revealed by automated instrument measurements. <i>Marine Chemistry</i> , 2021 , 232, 103960	3.7	1
115	Coastal Ocean Data Analysis Product in North America (CODAP-NA) [an internally consistent data product for discrete inorganic carbon, oxygen, and nutrients on the North American ocean margins. <i>Earth System Science Data</i> , 2021 , 13, 2777-2799	10.5	1
114	Circulation-driven variability of Atlantic anthropogenic carbon transports and uptake. <i>Nature Geoscience</i> , 2021 , 14, 571-577	18.3	2
113	Increasing River Alkalinity Slows Ocean Acidification in the Northern Gulf of Mexico. <i>Geophysical Research Letters</i> , 2021 , 48,	4.9	0
112	Controls on surface water carbonate chemistry along North American ocean margins. <i>Nature Communications</i> , 2020 , 11, 2691	17.4	26
111	Long-Term Changes of Carbonate Chemistry Variables Along the North American East Coast. <i>Journal of Geophysical Research: Oceans</i> , 2020 , 125, e2019JC015982	3.3	9
110	Seasonal patterns of surface inorganic carbon system variables in the Gulf of Mexico inferred from a regional high-resolution ocean biogeochemical model. <i>Biogeosciences</i> , 2020 , 17, 1685-1700	4.6	9
109	A 17-year dataset of surface water fugacity of CO ₂ along with calculated pH, aragonite saturation state and air-sea CO ₂ fluxes in the northern Caribbean Sea. <i>Earth System Science Data</i> , 2020 , 12, 1489-1509	10.5	1
108	Global Carbon Budget 2020. <i>Earth System Science Data</i> , 2020 , 12, 3269-3340	10.5	533
107	Variability of bottom carbonate chemistry over the deep coral reefs in the Florida Straits and the impacts of mesoscale processes. <i>Ocean Modelling</i> , 2020 , 147, 101555	3	2
106	Seasonal Variations in Dissolved Carbon Inventory and Fluxes in a Mangrove-Dominated Estuary. <i>Global Biogeochemical Cycles</i> , 2020 , 34, e2019GB006515	5.9	6
105	A machine learning approach to estimate surface ocean pCO ₂ from satellite measurements. <i>Remote Sensing of Environment</i> , 2019 , 228, 203-226	13.2	34
104	Pacific Anthropogenic Carbon Between 1991 and 2017. <i>Global Biogeochemical Cycles</i> , 2019 , 33, 597-617	5.9	14
103	The oceanic sink for anthropogenic CO from 1994 to 2007. <i>Science</i> , 2019 , 363, 1193-1199	33.3	268
102	On the Future of Argo: A Global, Full-Depth, Multi-Disciplinary Array. <i>Frontiers in Marine Science</i> , 2019 , 6,	4.5	116
101	Large Decadal Changes in Air-Sea CO ₂ Fluxes in the Caribbean Sea. <i>Journal of Geophysical Research: Oceans</i> , 2019 , 124, 6960-6982	3.3	7

100	The Global Ocean Ship-Based Hydrographic Investigations Program (GO-SHIP): A Platform for Integrated Multidisciplinary Ocean Science. <i>Frontiers in Marine Science</i> , 2019 , 6,	4.5	27
99	A Surface Ocean CO ₂ Reference Network, SOCONET and Associated Marine Boundary Layer CO ₂ Measurements. <i>Frontiers in Marine Science</i> , 2019 , 6,	4.5	17
98	Metrics for the Evaluation of the Southern Ocean in Coupled Climate Models and Earth System Models. <i>Journal of Geophysical Research: Oceans</i> , 2018 , 123, 3120-3143	3.3	19
97	Spatial and Temporal Variability of pCO ₂ , Carbon Fluxes, and Saturation State on the West Florida Shelf. <i>Journal of Geophysical Research: Oceans</i> , 2018 , 123, 6174-6188	3.3	12
96	Climatic modulation of surface acidification rates through summertime wind forcing in the Southern Ocean. <i>Nature Communications</i> , 2018 , 9, 3240	17.4	11
95	Autonomous Biogeochemical Floats Detect Significant Carbon Dioxide Outgassing in the High-Latitude Southern Ocean. <i>Geophysical Research Letters</i> , 2018 , 45, 9049-9057	4.9	76
94	Arctic Ocean CO ₂ uptake: an improved multiyear estimate of the air-sea CO ₂ flux incorporating chlorophyll concentrations. <i>Biogeosciences</i> , 2018 , 15, 1643-1661	4.6	29
93	Eutrophication-induced acidification of coastal waters in the northern Gulf of Mexico: Insights into origin and processes from a coupled physical-biogeochemical model. <i>Geophysical Research Letters</i> , 2017 , 44, 946-956	4.9	56
92	Calculating surface ocean pCO ₂ from biogeochemical Argo floats equipped with pH: An uncertainty analysis. <i>Global Biogeochemical Cycles</i> , 2017 , 31, 591-604	5.9	67
91	The impact of changing wind speeds on gas transfer and its effect on global air-sea CO ₂ fluxes. <i>Global Biogeochemical Cycles</i> , 2017 , 31, 961-974	5.9	23
90	Short-term variability of aragonite saturation state in the central Mid-Atlantic Bight. <i>Journal of Geophysical Research: Oceans</i> , 2017 , 122, 4274-4290	3.3	15
89	Wind-driven ocean dynamics impact on the contrasting sea-ice trends around West Antarctica. <i>Journal of Geophysical Research: Oceans</i> , 2017 , 122, 4413-4430	3.3	10
88	Spectrophotometric Determination of Carbonate Ion Concentrations: Elimination of Instrument-Dependent Offsets and Calculation of In Situ Saturation States. <i>Environmental Science & Technology</i> , 2017 , 51, 9127-9136	10.3	8
87	Variability and trends in surface seawater pCO ₂ and CO ₂ flux in the Pacific Ocean. <i>Geophysical Research Letters</i> , 2017 , 44, 5627-5636	4.9	36
86	Time series pCO ₂ at a coastal mooring: Internal consistency, seasonal cycles, and interannual variability. <i>Continental Shelf Research</i> , 2017 , 145, 95-108	2.4	11
85	Changes in Ocean Heat, Carbon Content, and Ventilation: A Review of the First Decade of GO-SHIP Global Repeat Hydrography. <i>Annual Review of Marine Science</i> , 2016 , 8, 185-215	15.4	118
84	A comparison of CO ₂ dynamics and air-water fluxes in a river-dominated estuary and a mangrove-dominated marine estuary. <i>Geophysical Research Letters</i> , 2016 , 43, 11,726	4.9	33
83	Empirical algorithms to estimate water column pH in the Southern Ocean. <i>Geophysical Research Letters</i> , 2016 , 43, 3415-3422	4.9	32

82	A multi-decade record of high-quality CO_2 data in version 3 of the Surface Ocean CO_2 Atlas (SOCAT). <i>Earth System Science Data</i> , 2016 , 8, 383-413	10.5	260
81	Rapid anthropogenic changes in CO_2 and pH in the Atlantic Ocean: 2003–2014. <i>Global Biogeochemical Cycles</i> , 2016 , 30, 70-90	5.9	45
80	Mapping of the air-sea CO_2 flux in the Arctic Ocean and its adjacent seas: Basin-wide distribution and seasonal to interannual variability. <i>Polar Science</i> , 2016 , 10, 323-334	2.3	37
79	Carbon dynamics of the Weddell Gyre, Southern Ocean. <i>Global Biogeochemical Cycles</i> , 2015 , 29, 288-306	5.9	11
78	Ocean acidification along the Gulf Coast and East Coast of the USA. <i>Continental Shelf Research</i> , 2015 , 98, 54-71	2.4	70
77	Internal consistency of marine carbonate system measurements and assessments of aragonite saturation state: Insights from two U.S. coastal cruises. <i>Marine Chemistry</i> , 2015 , 176, 9-20	3.7	33
76	The reinvigoration of the Southern Ocean carbon sink. <i>Science</i> , 2015 , 349, 1221-4	33.3	235
75	Procedures for direct spectrophotometric determination of carbonate ion concentrations: Measurements in US Gulf of Mexico and East Coast waters. <i>Marine Chemistry</i> , 2015 , 168, 80-85	3.7	12
74	Subannual variability of total alkalinity distributions in the northeastern Gulf of Mexico. <i>Journal of Geophysical Research: Oceans</i> , 2015 , 120, 3805-3816	3.3	7
73	How Can Present and Future Satellite Missions Support Scientific Studies that Address Ocean Acidification?. <i>Oceanography</i> , 2015 , 25, 108-121	2.3	10
72	Data-based estimates of the ocean carbon sink variability – First results of the Surface Ocean CO_2 Mapping Intercomparison (SOCOM). <i>Biogeosciences</i> , 2015 , 12, 7251-7278	4.6	122
71	Strong sensitivity of Southern Ocean carbon uptake and nutrient cycling to wind stirring. <i>Biogeosciences</i> , 2014 , 11, 4077-4098	4.6	30
70	Relationship between wind speed and gas exchange over the ocean revisited. <i>Limnology and Oceanography: Methods</i> , 2014 , 12, 351-362	2.6	567
69	The marine inorganic carbon system along the Gulf of Mexico and Atlantic coasts of the United States: Insights from a transregional coastal carbon study. <i>Limnology and Oceanography</i> , 2013 , 58, 325-342	4.8	98
68	Global ocean carbon uptake: magnitude, variability and trends. <i>Biogeosciences</i> , 2013 , 10, 1983-2000	4.6	229
67	A large increase of the CO_2 sink in the western tropical North Atlantic from 2002 to 2009. <i>Journal of Geophysical Research</i> , 2012 , 117, n/a-n/a		19
66	Importance of water mass formation regions for the air-sea CO_2 flux estimate in the Southern Ocean. <i>Global Biogeochemical Cycles</i> , 2011 , 25, n/a-n/a	5.9	13
65	The impact of the North Atlantic Oscillation on the uptake and accumulation of anthropogenic CO_2 by North Atlantic Ocean mode waters. <i>Global Biogeochemical Cycles</i> , 2011 , 25, n/a-n/a	5.9	23

64	Impacts of temporal CO ₂ and climate trends on the detection of ocean anthropogenic CO ₂ accumulation. <i>Global Biogeochemical Cycles</i> , 2011 , 25, n/a-n/a	5.9	16
63	Southern Ocean Gas Exchange Experiment: Setting the stage. <i>Journal of Geophysical Research</i> , 2011 , 116,		31
62	Toward a universal relationship between wind speed and gas exchange: Gas transfer velocities measured with ³ He/SF ₆ during the Southern Ocean Gas Exchange Experiment. <i>Journal of Geophysical Research</i> , 2011 , 116,		91
61	Variability of global net sea-air CO ₂ fluxes over the last three decades using empirical relationships. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 2010 , 62, 352-368	3.3	62
60	Recent acceleration of the sea surface fCO ₂ growth rate in the North Atlantic subpolar gyre (1993-2008) revealed by winter observations. <i>Global Biogeochemical Cycles</i> , 2010 , 24, n/a-n/a	5.9	55
59	Detecting anthropogenic CO ₂ changes in the interior Atlantic Ocean between 1989 and 2005. <i>Journal of Geophysical Research</i> , 2010 , 115,		60
58	Increase in anthropogenic CO ₂ in the Atlantic Ocean in the last two decades. <i>Deep-Sea Research Part I: Oceanographic Research Papers</i> , 2010 , 57, 755-770	2.5	18
57	Recommendations for autonomous underway pCO ₂ measuring systems and data-reduction routines. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2009 , 56, 512-522	2.3	217
56	Climatological mean and decadal change in surface ocean pCO ₂ , and net sea-air CO ₂ flux over the global oceans. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2009 , 56, 554-577	2.3	1200
55	Advances in quantifying air-sea gas exchange and environmental forcing. <i>Annual Review of Marine Science</i> , 2009 , 1, 213-44	15.4	446
54	Changes in the North Atlantic Oscillation influence CO ₂ uptake in the North Atlantic over the past 2 decades. <i>Global Biogeochemical Cycles</i> , 2008 , 22, n/a-n/a	5.9	106
53	Impact of ocean carbon system variability on the detection of temporal increases in anthropogenic CO ₂ . <i>Journal of Geophysical Research</i> , 2008 , 113,		35
52	Air-sea CO ₂ fluxes on the U.S. South Atlantic Bight: Spatial and seasonal variability. <i>Journal of Geophysical Research</i> , 2008 , 113,		90
51	Ocean acidification of the Greater Caribbean Region 1996-2006. <i>Journal of Geophysical Research</i> , 2008 , 113,		64
50	Constraining global air-sea gas exchange for CO ₂ with recent bomb ¹⁴ C measurements. <i>Global Biogeochemical Cycles</i> , 2007 , 21, n/a-n/a	5.9	372
49	Simultaneous spectrophotometric flow-through measurements of pH, carbon dioxide fugacity, and total inorganic carbon in seawater. <i>Analytica Chimica Acta</i> , 2007 , 596, 23-36	6.6	61
48	Air-sea CO ₂ fluxes in the Caribbean Sea from 2002-2004. <i>Journal of Marine Systems</i> , 2007 , 66, 272-284	2.7	28
47	The Impact of Different Gas Exchange Formulations and Wind Speed Products on Global Air-Sea CO ₂ Fluxes. <i>Environmental Science and Engineering</i> , 2007 , 1-23	0.2	5

46	Air-Water Flux Reconciliation Between the Atmospheric CO ₂ Profile and Mass Balance Techniques. <i>Environmental Science and Engineering</i> , 2007 , 181-192	0.2	4
45	Aqueous CO ₂ gradients for air-sea flux estimates. <i>Marine Chemistry</i> , 2006 , 98, 100-108	3.7	54
44	Decadal change of the surface water pCO ₂ in the North Pacific: A synthesis of 35 years of observations. <i>Journal of Geophysical Research</i> , 2006 , 111,		99
43	Empirical temperature-based estimates of variability in the oceanic uptake of CO ₂ over the past 2 decades. <i>Journal of Geophysical Research</i> , 2006 , 111,		18
42	CO ₂ fluxes in the subtropical and subarctic North Atlantic based on measurements from a volunteer observing ship. <i>Journal of Geophysical Research</i> , 2006 , 111,		27
41	Decadal variability of the air-sea CO ₂ fluxes in the equatorial Pacific Ocean. <i>Journal of Geophysical Research</i> , 2006 , 111,		135
40	Global relationships of total alkalinity with salinity and temperature in surface waters of the world's oceans. <i>Geophysical Research Letters</i> , 2006 , 33,	4.9	338
39	Farfield tracing of a point source discharge plume in the coastal ocean using sulfur hexafluoride. <i>Environmental Science & Technology</i> , 2005 , 39, 8883-90	10.3	11
38	Repeat hydrography cruises reveal chemical changes in the North Atlantic. <i>Eos</i> , 2005 , 86, 399	1.5	5
37	. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 2005 , 57, 95-106	3.3	22
36	Sea-air flux of CO ₂ in the Caribbean Sea estimated using in situ and remote sensing data. <i>Remote Sensing of Environment</i> , 2004 , 89, 309-325	13.2	57
35	Air-sea gas transfer in the Southern Ocean. <i>Journal of Geophysical Research</i> , 2004 , 109, n/a-n/a		58
34	Evaluation of the National Oceanic and Atmospheric Administration/Coupled-Ocean Atmospheric Response Experiment (NOAA/COARE) air-sea gas transfer parameterization using GasEx data. <i>Journal of Geophysical Research</i> , 2004 , 109, n/a-n/a		49
33	Air-sea CO ₂ exchange in the equatorial Pacific. <i>Journal of Geophysical Research</i> , 2004 , 109, n/a-n/a		127
32	A global ocean carbon climatology: Results from Global Data Analysis Project (GLODAP). <i>Global Biogeochemical Cycles</i> , 2004 , 18, n/a-n/a	5.9	1144
31	The oceanic sink for anthropogenic CO ₂ . <i>Science</i> , 2004 , 305, 367-71	33.3	2745
30	Gas transfer velocities measured at low wind speed over a lake. <i>Limnology and Oceanography</i> , 2003 , 48, 1010-1017	4.8	208
29	A 1998-1992 comparison of inorganic carbon and its transport across 24.5°N in the Atlantic. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2003 , 50, 3041-3064	2.3	33

28	Increase of anthropogenic CO ₂ in the Pacific Ocean over the last two decades. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2003 , 50, 3065-3082	2.3	36
27	Global sea-air CO ₂ flux based on climatological surface ocean pCO ₂ , and seasonal biological and temperature effects. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2002 , 49, 1601-1622	2.3	1234
26	Consistency and synthesis of Pacific Ocean CO ₂ survey data. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2001 , 49, 21-58	2.3	55
25	Global relationships of total inorganic carbon with temperature and nitrate in surface seawater. <i>Global Biogeochemical Cycles</i> , 2000 , 14, 979-994	5.9	55
24	The recommended dissociation constants for carbonic acid in seawater. <i>Geophysical Research Letters</i> , 2000 , 27, 229-232	4.9	82
23	The optimal carbonate dissociation constants for determining surface water pCO ₂ from alkalinity and total inorganic carbon. <i>Marine Chemistry</i> , 1999 , 65, 291-301	3.7	86
22	Influence of El Niño on the equatorial Pacific contribution to atmospheric CO ₂ accumulation. <i>Nature</i> , 1999 , 398, 597-601	50.4	241
21	A cubic relationship between air-sea CO ₂ exchange and wind speed. <i>Geophysical Research Letters</i> , 1999 , 26, 1889-1892	4.9	514
20	A new automated underway system for making high precision pCO ₂ measurements onboard research ships. <i>Analytica Chimica Acta</i> , 1998 , 377, 185-191	6.6	53
19	Quantification of decadal anthropogenic CO ₂ uptake in the ocean based on dissolved inorganic carbon measurements. <i>Nature</i> , 1998 , 396, 560-563	50.4	60
18	Climatic variability in upper ocean ventilation rates diagnosed using chlorofluorocarbons. <i>Geophysical Research Letters</i> , 1998 , 25, 1399-1402	4.9	23
17	The effect of bubble-mediated gas transfer on purposeful dual-gaseous tracer experiments. <i>Journal of Geophysical Research</i> , 1998 , 103, 10555-10560		108
16	The effect of rain on air-water gas exchange. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 1997 , 49, 149-158	3.3	29
15	Gas exchange, dispersion, and biological productivity on the West Florida Shelf: Results from a Lagrangian Tracer Study. <i>Geophysical Research Letters</i> , 1997 , 24, 1767-1770	4.9	61
14	. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 1997 , 49, 149-158	3.3	51
13	Chemical enhancement of CO ₂ exchange in natural waters. <i>Limnology and Oceanography</i> , 1996 , 41, 689-697	4.9	125
12	Gas transfer velocities for SF ₆ and ³ He in a small pond at low wind speeds. <i>Geophysical Research Letters</i> , 1995 , 22, 93-96	4.9	33
11	Gas exchange rates in the tidal Hudson river using a dual tracer technique. <i>Tellus, Series B: Chemical and Physical Meteorology</i> , 1994 , 46, 274-285	3.3	27

10	Gas transfer experiment on Georges Bank using two volatile deliberate tracers. <i>Journal of Geophysical Research</i> , 1993 , 98, 20237		94
9	Measurement of fugacity of CO ₂ in surface water using continuous and discrete sampling methods. <i>Marine Chemistry</i> , 1993 , 44, 189-204	3-7	142
8	Relationship between wind speed and gas exchange over the ocean. <i>Journal of Geophysical Research</i> , 1992 , 97, 7373		3234
7	Gas exchange on Mono Lake and Crowley Lake, California. <i>Journal of Geophysical Research</i> , 1987 , 92, 14567		106
6	Gas exchange-wind speed relation measured with sulfur hexafluoride on a lake. <i>Science</i> , 1985 , 227, 1224-1226	3-3	218
5	Comparison of Inorganic Carbon System Parameters Measured in the Atlantic Ocean from 1990 to 1998 and Recommended Adjustments		20
4	Strong sensitivity of Southern Ocean carbon uptake and nutrient cycling to wind stirring		1
3	Data-based estimates of the ocean carbon sink variability [First results of the Surface Ocean CO ₂ Mapping Intercomparison (SOCOM)]		5
2	Global ocean carbon uptake: magnitude, variability and trends		14
1	A multi-decade record of high-quality surface CO ₂ data in version 3 of the Surface Ocean CO ₂ Atlas (SOCAT)		6