

# Gregor Rehder

## List of Publications by Year in descending order

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Version: 2024-02-01

89

papers

8,635

citations

87888

38

h-index

48315

88

g-index

116

all docs

116

docs citations

116

times ranked

12291

citing authors

| #  | ARTICLE                                                                                                                                                                                       | IF  | CITATIONS |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|
| 1  | Global Carbon Budget 2018. Earth System Science Data, 2018, 10, 2141-2194.                                                                                                                    | 9.9 | 1,167     |
| 2  | Global Carbon Budget 2019. Earth System Science Data, 2019, 11, 1783-1838.                                                                                                                    | 9.9 | 1,159     |
| 3  | Global Carbon Budget 2017. Earth System Science Data, 2018, 10, 405-448.                                                                                                                      | 9.9 | 801       |
| 4  | Global Carbon Budget 2021. Earth System Science Data, 2022, 14, 1917-2005.                                                                                                                    | 9.9 | 663       |
| 5  | Global Carbon Budget 2015. Earth System Science Data, 2015, 7, 349-396.                                                                                                                       | 9.9 | 616       |
| 6  | Gas hydrate destabilization: enhanced dewatering, benthic material turnover and large methane plumes at the Cascadia convergent margin. Earth and Planetary Science Letters, 1999, 170, 1-15. | 4.4 | 386       |
| 7  | Jiulong methane reef: Microbial mediation of seep carbonates in the South China Sea. Marine Geology, 2008, 249, 243-256.                                                                      | 2.1 | 196       |
| 8  | Investigating hypoxia in aquatic environments: diverse approaches to addressing a complex phenomenon. Biogeosciences, 2014, 11, 1215-1259.                                                    | 3.3 | 175       |
| 9  | Enhanced lifetime of methane bubble streams within the deep ocean. Geophysical Research Letters, 2002, 29, 21-1-21-4.                                                                         | 4.0 | 170       |
| 10 | Methane Hydrate Pellet Transport Using the Self-Preservation Effect: A Techno-Economic Analysis. Energies, 2012, 5, 2499-2523.                                                                | 3.1 | 133       |
| 11 | Distribution and height of methane bubble plumes on the Cascadia Margin characterized by acoustic imaging. Geophysical Research Letters, 2003, 30, .                                          | 4.0 | 127       |
| 12 | Dissolution rates of pure methane hydrate and carbon-dioxide hydrate in undersaturated seawater at 1000-m depth. Geochimica Et Cosmochimica Acta, 2004, 68, 285-292.                          | 3.9 | 123       |
| 13 | Controls on methane bubble dissolution inside and outside the hydrate stability field from open ocean field experiments and numerical modeling. Marine Chemistry, 2009, 114, 19-30.           | 2.3 | 110       |
| 14 | Effects of climate change on methane emissions from seafloor sediments in the Arctic Ocean: A review. Limnology and Oceanography, 2016, 61, S283.                                             | 3.1 | 109       |
| 15 | Quantification of seep-related methane gas emissions at Tommeliten, North Sea. Continental Shelf Research, 2011, 31, 867-878.                                                                 | 1.8 | 107       |
| 16 | Methane in the northern Atlantic controlled by microbial oxidation and atmospheric history. Geophysical Research Letters, 1999, 26, 587-590.                                                  | 4.0 | 104       |
| 17 | Estimates of methane output from mud extrusions at the erosive convergent margin off Costa Rica. Marine Geology, 2006, 225, 129-144.                                                          | 2.1 | 94        |
| 18 | Self-Preservation of CH <sub>4</sub> Hydrates for Gas Transport Technology: Pressure-Temperature Dependence and Ice Microstructures. Energy & Fuels, 2014, 28, 6275-6283.                     | 5.1 | 91        |

| #  | ARTICLE                                                                                                                                                                                                                                     | IF   | CITATIONS |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 19 | Methane emission from high-intensity marine gas seeps in the Black Sea into the atmosphere. Geophysical Research Letters, 2005, 32, n/a-n/a.                                                                                                | 4.0  | 90        |
| 20 | Long-term alkalinity trends in the Baltic Sea and their implications for CO <sub>2</sub> -induced acidification. Limnology and Oceanography, 2016, 61, 1984-2002.                                                                           | 3.1  | 87        |
| 21 | The Multiple Sources and Patterns of Methane in North Sea Waters. Aquatic Geochemistry, 1998, 4, 403-427.                                                                                                                                   | 1.3  | 79        |
| 22 | In situ benthic fluxes from an intermittently active mud volcano at the Costa Rica convergent margin. Earth and Planetary Science Letters, 2005, 235, 79-95.                                                                                | 4.4  | 78        |
| 23 | An experiment demonstrating that marine slumping is a mechanism to transfer methane from seafloor gas-hydrate deposits into the upper ocean and atmosphere. Geo-Marine Letters, 2002, 22, 198-203.                                          | 1.1  | 76        |
| 24 | Methane sources, distributions, and fluxes from cold vent sites at Hydrate Ridge, Cascadia Margin. Global Biogeochemical Cycles, 2005, 19, n/a-n/a.                                                                                         | 4.9  | 75        |
| 25 | Experimental Determination of the Fate of Rising CO <sub>2</sub> Droplets in Seawater. Environmental Science & Technology, 2002, 36, 5441-5446.                                                                                             | 10.0 | 74        |
| 26 | Methane-Carbon Flow into the Benthic Food Web at Cold Seeps – A Case Study from the Costa Rica Subduction Zone. PLoS ONE, 2013, 8, e74894.                                                                                                  | 2.5  | 70        |
| 27 | Pockmarks off Big Sur, California. Marine Geology, 2002, 181, 323-335.                                                                                                                                                                      | 2.1  | 61        |
| 28 | A new method for continuous measurement of methane and carbon dioxide in surface waters using off-axis integrated cavity output spectroscopy (ICOS): An example from the Baltic Sea. Limnology and Oceanography: Methods, 2011, 9, 176-184. | 2.0  | 61        |
| 29 | Methane and pCO <sub>2</sub> in the Kuroshio and the South China Sea during maximum summer surface temperatures. Marine Chemistry, 2001, 75, 89-108.                                                                                        | 2.3  | 58        |
| 30 | Distribution of methane in the water column of the Baltic Sea. Geophysical Research Letters, 2010, 37, .                                                                                                                                    | 4.0  | 54        |
| 31 | The contribution of zooplankton to methane supersaturation in the oxygenated upper waters of the central Baltic Sea. Limnology and Oceanography, 2018, 63, 412-430.                                                                         | 3.1  | 52        |
| 32 | Metabolically active microbial communities in marine sediment under high-CO <sub>2</sub> and low-pH extremes. ISME Journal, 2013, 7, 555-567.                                                                                               | 9.8  | 51        |
| 33 | Indications of a link between seismotectonics and CH <sub>4</sub> release from seeps off Costa Rica. Geochemistry, Geophysics, Geosystems, 2007, 8, n/a-n/a.                                                                                | 2.5  | 50        |
| 34 | Enhanced marine CH <sub>4</sub> emissions to the atmosphere off Oregon caused by coastal upwelling. Global Biogeochemical Cycles, 2002, 16, 2-12-11.                                                                                        | 4.9  | 49        |
| 35 | One year of continuous measurements constraining methane emissions from the Baltic Sea to the atmosphere using a ship of opportunity. Biogeosciences, 2013, 10, 81-99.                                                                      | 3.3  | 48        |
| 36 | An intercomparison of oceanic methane and nitrous oxide measurements. Biogeosciences, 2018, 15, 5891-5907.                                                                                                                                  | 3.3  | 42        |

| #  | ARTICLE                                                                                                                                                                                                        | IF   | CITATIONS |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 37 | Ongoing methane discharge at well site 22/4b (North Sea) and discovery of a spiral vortex bubble plume motion. <i>Marine and Petroleum Geology</i> , 2015, 68, 718-730.                                        | 3.3  | 41        |
| 38 | Noble gases and radiocarbon in natural gas hydrates. <i>Geophysical Research Letters</i> , 2002, 29, 63-1-63-4.                                                                                                | 4.0  | 40        |
| 39 | Measurements of the fate of gas hydrates during transit through the ocean water column. <i>Geophysical Research Letters</i> , 2002, 29, 38-1-38-4.                                                             | 4.0  | 39        |
| 40 | Predominance of methanogens over methanotrophs in rewetted fens characterized by high methane emissions. <i>Biogeosciences</i> , 2018, 15, 6519-6536.                                                          | 3.3  | 38        |
| 41 | A low frequency multibeam assessment: Spatial mapping of shallow gas by enhanced penetration and angular response anomaly. <i>Marine and Petroleum Geology</i> , 2013, 44, 217-222.                            | 3.3  | 35        |
| 42 | Seasonal and spatial methane dynamics in the water column of the central Baltic Sea (Gotland Sea). <i>Continental Shelf Research</i> , 2014, 91, 12-25.                                                        | 1.8  | 32        |
| 43 | A Harmonized Nitrous Oxide (N <sub>2</sub> O) Ocean Observation Network for the 21st Century. <i>Frontiers in Marine Science</i> , 2019, 6, .                                                                  | 2.5  | 32        |
| 44 | Gas seepage in the Dnepr paleo-delta area (NW-Black Sea) and its regional impact on the water column methane cycle. <i>Journal of Marine Systems</i> , 2010, 80, 90-100.                                       | 2.1  | 31        |
| 45 | Detecting sinks and sources of CO <sub>2</sub> and CH <sub>4</sub> by ferrybox-based measurements in the Baltic Sea: Three case studies. <i>Journal of Marine Systems</i> , 2014, 140, 13-25.                  | 2.1  | 31        |
| 46 | Understanding the Coastal Ecocline: Assessing Sea-Land Interactions at Non-tidal, Low-Lying Coasts Through Interdisciplinary Research. <i>Frontiers in Marine Science</i> , 2018, 5, .                         | 2.5  | 30        |
| 47 | Controls on zooplankton methane production in the central Baltic Sea. <i>Biogeosciences</i> , 2019, 16, 1-16.                                                                                                  | 3.3  | 30        |
| 48 | Aerobic methanotrophy within the pelagic redox-zone of the Gotland Deep (central Baltic Sea). <i>Biogeosciences</i> , 2012, 9, 4969-4977.                                                                      | 3.3  | 29        |
| 49 | The fate of bubbles in a large, intense bubble megaplume for stratified and unstratified water: Numerical simulations of 22/4b expedition field data. <i>Marine and Petroleum Geology</i> , 2015, 68, 806-823. | 3.3  | 27        |
| 50 | A Surface Ocean CO <sub>2</sub> Reference Network, SOCONET and Associated Marine Boundary Layer CO <sub>2</sub> Measurements. <i>Frontiers in Marine Science</i> , 2019, 6, .                                  | 2.5  | 26        |
| 51 | Methane dynamics in the Weddell Sea determined via stable isotope ratios and CFC-11. <i>Global Biogeochemical Cycles</i> , 2004, 18, n/a-n/a.                                                                  | 4.9  | 25        |
| 52 | The Baltic Sea Tracer Release Experiment: 1. Mixing rates. <i>Journal of Geophysical Research</i> , 2012, 117, .                                                                                               | 3.3  | 25        |
| 53 | Air-sea CO <sub>2</sub> exchange in the Gulf of Bothnia, Baltic Sea. <i>Continental Shelf Research</i> , 2012, 37, 46-56.                                                                                      | 1.8  | 24        |
| 54 | Comment on "A Persistent Oxygen Anomaly Reveals the Fate of Spilled Methane in the Deep Gulf of Mexico". <i>Science</i> , 2011, 332, 1033-1033.                                                                | 12.6 | 23        |

| #  | ARTICLE                                                                                                                                                                                                                                                   | IF   | CITATIONS |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------|
| 55 | Comparative studies of pelagic microbial methane oxidation within the redox zones of the Gotland Deep and Landsort Deep (central Baltic Sea). <i>Biogeosciences</i> , 2013, 10, 7863-7875.                                                                | 3.3  | 22        |
| 56 | Metrology of pH Measurements in Brackish Watersâ€”Part 2: Experimental Characterization of Purified meta-Cresol Purple for Spectrophotometric pH Measurements. <i>Frontiers in Marine Science</i> , 2018, 5, .                                            | 2.5  | 22        |
| 57 | Biogeochemical functioning of the Baltic Sea. <i>Earth System Dynamics</i> , 2022, 13, 633-685.                                                                                                                                                           | 7.1  | 22        |
| 58 | Methane hydrate dissolution rates in undersaturated seawater under controlled hydrodynamic forcing. <i>Marine Chemistry</i> , 2009, 115, 226-234.                                                                                                         | 2.3  | 21        |
| 59 | A review of oceanographic and meteorological controls on the North Sea circulation and hydrodynamics with a view to the fate of North Sea methane from well site 22/4b and other seabed sources. <i>Marine and Petroleum Geology</i> , 2015, 68, 861-882. | 3.3  | 21        |
| 60 | The $\delta^{13}\text{C}$ anomaly in the northeastern Atlantic. <i>Global Biogeochemical Cycles</i> , 1998, 12, 467-477.                                                                                                                                  | 4.9  | 20        |
| 61 | Experimental Investigation of the Rising Behavior of $\text{CO}_2$ Droplets in Seawater under Hydrate-Forming Conditions. <i>Environmental Science &amp; Technology</i> , 2008, 42, 5241-5246.                                                            | 10.0 | 20        |
| 62 | $\text{N}_2\text{O}$ Emissions From the Northern Benguela Upwelling System. <i>Geophysical Research Letters</i> , 2019, 46, 3317-3326.                                                                                                                    | 4.0  | 19        |
| 63 | Metrology for pH Measurements in Brackish Watersâ€”Part 1: Extending Electrochemical pH Measurements of TRIS Buffers to Salinities 5â€“20. <i>Frontiers in Marine Science</i> , 2018, 5, .                                                                | 2.5  | 18        |
| 64 | Seepage of methane at Jaco Scar, a slide caused by seamount subduction offshore Costa Rica. <i>International Journal of Earth Sciences</i> , 2014, 103, 1801-1815.                                                                                        | 1.8  | 16        |
| 65 | Spectrophotometric pH measurements in the presence of dissolved organic matter and hydrogen sulfide. <i>Limnology and Oceanography: Methods</i> , 2018, 16, 68-82.                                                                                        | 2.0  | 16        |
| 66 | Ideas and perspectives: A strategic assessment of methane and nitrous oxide measurements in the marine environment. <i>Biogeosciences</i> , 2020, 17, 5809-5828.                                                                                          | 3.3  | 16        |
| 67 | Sub-marine Continuation of Peat Deposits From a Coastal Peatland in the Southern Baltic Sea and its Holocene Development. <i>Frontiers in Earth Science</i> , 2018, 6, .                                                                                  | 1.8  | 15        |
| 68 | Congruent changes in microbial community dynamics and ecosystem methane fluxes following natural drought in two restored fens. <i>Soil Biology and Biochemistry</i> , 2021, 160, 108348.                                                                  | 8.8  | 15        |
| 69 | Seasonal variation of methane in the water column of Arkona and Bornholm Basin, western Baltic Sea. <i>Journal of Marine Systems</i> , 2014, 139, 332-347.                                                                                                | 2.1  | 14        |
| 70 | Effects of the 2014 major Baltic inflow on methane and nitrous oxide dynamics in the water column of the central Baltic Sea. <i>Earth System Dynamics</i> , 2017, 8, 817-826.                                                                             | 7.1  | 14        |
| 71 | Ecological ReGional Ocean Model with vertically resolved sediments (ERGOM-SED1.0): coupling benthic and pelagic biogeochemistry of the south-western Baltic Sea. <i>Geoscientific Model Development</i> , 2019, 12, 275-320.                              | 3.6  | 14        |
| 72 | The northern European shelf as an increasing net sink for $\text{CO}_2$ . <i>Biogeosciences</i> , 2021, 18, 1127-1147.                                                                                                                                    | 3.3  | 14        |

| #  | ARTICLE                                                                                                                                                                                                                                                                                 | IF  | CITATIONS |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------|
| 73 | Constraining the Oceanic Uptake and Fluxes of Greenhouse Gases by Building an Ocean Network of Certified Stations: The Ocean Component of the Integrated Carbon Observation System, ICOS-Oceans. <i>Frontiers in Marine Science</i> , 2019, 6, .                                        | 2.5 | 13        |
| 74 | The characteristics of the CO <sub>2</sub> system of the Oder River estuary (Baltic Sea). <i>Journal of Marine Systems</i> , 2020, 211, 103418.                                                                                                                                         | 2.1 | 13        |
| 75 | Technical note: Seamless gas measurements across the land-ocean aquatic continuum – corrections and evaluation of sensor data for CO <sub>2</sub> , CH <sub>4</sub> and O <sub>2</sub> from field deployments in contrasting environments. <i>Biogeosciences</i> , 2021, 18, 1351-1373. | 3.3 | 13        |
| 76 | Partial pressure and air-sea flux of CO <sub>2</sub> in the Northeast Atlantic during September 1995. <i>Deep-Sea Research Part II: Topical Studies in Oceanography</i> , 2001, 48, 3179-3189.                                                                                          | 1.4 | 11        |
| 77 | The FluxEngine air-sea gas flux toolbox: simplified interface and extensions for in situ analyses and multiple sparingly soluble gases. <i>Ocean Science</i> , 2019, 15, 1707-1728.                                                                                                     | 3.4 | 10        |
| 78 | Decoupling salinity and carbonate chemistry: low calcium ion concentration rather than salinity limits calcification in Baltic Sea mussels. <i>Biogeosciences</i> , 2021, 18, 2573-2590.                                                                                                | 3.3 | 10        |
| 79 | Fluid and gas fluxes from the Logatchev hydrothermal vent area. <i>Geochemistry, Geophysics, Geosystems</i> , 2012, 13, .                                                                                                                                                               | 2.5 | 9         |
| 80 | Biogeochemical cycles. , 2017, , 87-122.                                                                                                                                                                                                                                                |     | 9         |
| 81 | The diurnal cycle of pCO <sub>2</sub> in the coastal region of the Baltic Sea. <i>Ocean Science</i> , 2021, 17, 1657-1675.                                                                                                                                                              | 3.4 | 8         |
| 82 | Carbon release and transformation from coastal peat deposits controlled by submarine groundwater discharge: a column experiment study. <i>Limnology and Oceanography</i> , 2020, 65, 1116-1135.                                                                                         | 3.1 | 5         |
| 83 | A Bioreactor Approach to Investigate the Linkage between Methane Oxidation and Nitrate/Nitrite Reduction in the Pelagic Oxidic-Anoxic Transition Zone of the Central Baltic Sea. <i>Frontiers in Marine Science</i> , 2016, 3, .                                                        | 2.5 | 3         |
| 84 | Upwelling-induced trace gas dynamics in the Baltic Sea inferred from 8 years of autonomous measurements on a ship of opportunity. <i>Biogeosciences</i> , 2021, 18, 2679-2709.                                                                                                          | 3.3 | 3         |
| 85 | Pelagic Methane Sink Enhanced by Benthic Methanotrophs Ejected From a Gas Seep. <i>Geophysical Research Letters</i> , 2021, 48, e2021GL094819.                                                                                                                                          | 4.0 | 3         |
| 86 | Visual and Hydroacoustic Investigations of Gas Bubbles Detection and Quantification of Natural and Man-Made Methane Expulsions. <i>Energy Exploration and Exploitation</i> , 2003, 21, 293-297.                                                                                         | 2.3 | 1         |
| 87 | Hunting a New Ocean Tracer. <i>Eos</i> , 2008, 89, 419-419.                                                                                                                                                                                                                             | 0.1 | 1         |
| 88 | Meridional and Cross-Shelf Variability of N <sub>2</sub> O and CH <sub>4</sub> in the Eastern-South Atlantic. <i>Journal of Geophysical Research: Oceans</i> , 2021, 126, e2020JC016878.                                                                                                | 2.6 | 1         |
| 89 | Cyanobacteria net community production in the Baltic Sea as inferred from profiling pCO <sub>2</sub> measurements. <i>Biogeosciences</i> , 2021, 18, 4889-4917.                                                                                                                         | 3.3 | 0         |