Frank Keppler

List of Publications by Citations

129 papers	4,277 citations	32 h-index	62 g-index
161 ext. papers	5,003 ext. citations	7.4 avg, IF	5.35 L-index

#	Paper	IF	Citations
129	Methane emissions from terrestrial plants under aerobic conditions. *Nature*, **2006**, 439, 187-91	50.4	690
128	Halocarbons produced by natural oxidation processes during degradation of organic matter. *Nature* , **2000**, 403, 298-301	50.4	277
127	Chloride methylation by plant pectin: an efficient environmentally significant process. *Science*, **2003** , 301, 206-9	33.3	153
126	Methoxyl groups of plant pectin as a precursor of atmospheric methane: evidence from deuterium labelling studies. *New Phytologist*, **2008**, 178, 808-814	9.8	135
125	Effect of UV radiation and temperature on the emission of methane from plant biomass and structural components. *Biogeosciences*, **2008**, 5, 937-947	4.6	124
124	Evidence for methane production by saprotrophic fungi. *Nature Communications*, **2012**, 3, 1046	17.4	117
123	New insight into the atmospheric chloromethane budget gained using stable carbon isotope ratios. *Atmospheric Chemistry and Physics*, **2005**, 5, 2403-2411	6.8	108
122	Halogen retention, organohalogens, and the role of organic matter decomposition on halogen enrichment in two Chilean peat bogs. *Environmental Science & Technology*, **2004**, 38, 1984-91	10.3	106
121	Transitory microbial habitat in the hyperarid Atacama Desert. *Proceedings of the National Academy of Sciences of the United States of America*, **2018**, 115, 2670-2675	11.5	105
120	Carbon isotope anomaly in the major plant C₁ pool and its global biogeochemical implications. *Biogeosciences*, **2004**, 1, 123-131	4.6	92
119	Atmospheric constraints on global emissions of methane from plants. *Geophysical Research Letters*, **2006**, 33,	4.9	88
118	Aquatic and terrestrial cyanobacteria produce methane. *Science Advances*, **2020**, 6, eaax5343	14.3	85
117	Methane formation in aerobic environments. *Environmental Chemistry*, **2009**, 6, 459	3.2	83
116	Nitrous oxide and methane emissions from cryptogamic covers. *Global Change Biology*, **2015**, 21, 3889-900	10.4	75
115	Exogenous addition of H for an in situ biogas upgrading through biological reduction of carbon dioxide into methane. *Waste Management*, **2017**, 68, 146-156	8.6	74
114	Stable hydrogen isotope ratios of lignin methoxyl groups as a paleoclimate proxy and constraint of the geographical origin of wood. *New Phytologist*, **2007**, 176, 600-609	9.8	71
113	Formation of chloroacetic acids from soil, humic acid and phenolic moieties. *Chemosphere*, **2003**, 52, 513-24	8.4	64

112	Abiotic Fe(III) induced mineralization of phenolic substances. *Chemosphere*, **2001**, 44, 613-9	8.4	64
111	Evidence for methane production by the marine algae <i>Emiliania huxleyi</i>. *Biogeosciences*, **2016**, 13, 3163-3174	4.6	64
110	Natural formation of vinyl chloride in the terrestrial environment. *Environmental Science & Technology*, **2002**, 36, 2479-83	10.3	62
109	Abiotic methanogenesis from organosulphur compounds under ambient conditions. *Nature Communications*, **2014**, 5, 4205	17.4	61
108	Ultraviolet-radiation-induced methane emissions from meteorites and the Martian atmosphere. *Nature*, **2012**, 486, 93-6	50.4	57
107	The stable isotope signature of methane emitted from plant material under UV irradiation. *Atmospheric Environment*, **2009**, 43, 5637-5646	5.3	55
106	Enhanced formation of methane in plant cell cultures by inhibition of cytochrome c oxidase. *Plant, Cell and Environment*, **2011**, 34, 457-64	8.4	51
105	Carbon, hydrogen and oxygen stable isotope ratios of whole wood, cellulose and lignin methoxyl groups of Picea abies as climate proxies. *Rapid Communications in Mass Spectrometry*, **2013**, 27, 265-75	2.2	49
104	Abiotic methyl bromide formation from vegetation, and its strong dependence on temperature. *Environmental Science & Technology*, **2008**, 42, 6837-42	10.3	43
103	Improved rapid authentication of vanillin using δ13C and δ2H values. *European Food Research and Technology*, **2010**, 231, 933-941	3.4	42
102	A rapid and precise method for determination of D/H ratios of plant methoxyl groups. *Rapid Communications in Mass Spectrometry*, **2008**, 22, 3983-8	2.2	36
101	Organoiodine formation during humification in peatlands. *Environmental Chemistry Letters*, **2003**, 1, 219-223	2.3	35
100	Online monitoring of stable carbon isotopes of methane in anaerobic digestion as a new tool for early warning of process instability. *Bioresource Technology*, **2015**, 197, 161-70	11	32
99	Stable isotope and high precision concentration measurements confirm that all humans produce and exhale methane. *Journal of Breath Research*, **2016**, 10, 016003	3.1	32
98	Identification of methanogenic pathways in anaerobic digesters using stable carbon isotopes. *Engineering in Life Sciences*, **2010**, 10, 509-514	3.4	32
97	. *IEEE Journal of Quantum Electronics*, **1989**, 25, 1407-1416	2	31
96	Methane formation by oxidation of ascorbic acid using iron minerals and hydrogen peroxide. *Chemosphere*, **2010**, 80, 286-92	8.4	30
95	Effect of UV radiation and temperature on the emission of methane from plant biomass and structural components		30

94	Technical Note: Methionine, a precursor of methane in living plants. *Biogeosciences*, **2015**, 12, 1907-1914	4.6	29
93	□H, □□C and □□O from whole wood, □-cellulose and lignin methoxyl groups in Pinus sylvestris: a multi-parameter approach. *Isotopes in Environmental and Health Studies*, **2015**, 51, 553-68	1.5	27
92	Non-microbial methane formation in oxic soils. *Biogeosciences*, **2012**, 9, 5291-5301	4.6	27
91	Methyl chloride and C2□5 hydrocarbon emissions from dry leaf litter and their dependence on temperature. *Atmospheric Environment*, **2011**, 45, 3112-3119	5.3	27
90	Differentiation of the halogen content of peat samples using ion chromatography after combustion (TX/TOX-IC). *Analytical and Bioanalytical Chemistry*, **2003**, 375, 781-5	4.4	26
89	Peatlands: a major sink of naturally formed organic chlorine. *Chemosphere*, **2003**, 52, 451-3	8.4	26
88	Methane production by three widespread marine phytoplankton species: release rates, precursor compounds, and potential relevance for the environment. *Biogeosciences*, **2019**, 16, 4129-4144	4.6	26
87	Measurements of 13C/12C methane from anaerobic digesters: comparison of optical spectrometry with continuous-flow isotope ratio mass spectrometry. *Environmental Science & Technology*, **2010**, 44, 5067-73	10.3	25
86	A simple rapid method to precisely determine (13)C/(12)C ratios of plant methoxyl groups. *Rapid Communications in Mass Spectrometry*, **2009**, 23, 1710-4	2.2	25
85	High Spatiotemporal Dynamics of Methane Production and Emission in Oxic Surface Water. *Environmental Science & Technology*, **2020**, 54, 1451-1463	10.3	25
84	Release of methane from aerobic soil: an indication of a novel chemical natural process?. *Chemosphere*, **2012**, 86, 684-9	8.4	24
83	Non-microbial methane emissions from fresh leaves: Effects of physical wounding and anoxia. *Atmospheric Environment*, **2011**, 45, 4915-4921	5.3	24
82	Nitrous oxide effluxes from plants as a potentially important source to the atmosphere. *New Phytologist*, **2019**, 221, 1398-1408	9.8	24
81	Methyl chloride emissions from halophyte leaf litter: dependence on temperature and chloride content. *Chemosphere*, **2012**, 87, 483-9	8.4	23
80	Stable bromine isotopic composition of methyl bromide released from plant matter. *Geochimica Et Cosmochimica Acta*, **2014**, 125, 186-195	5.5	21
79	Age dependent breath methane in the German population. *Science of the Total Environment*, **2014**, 481, 582-7	10.2	21
78	Tracing the geographical origin of early potato tubers using stable hydrogen isotope ratios of methoxyl groups. *Isotopes in Environmental and Health Studies*, **2008**, 44, 337-47	1.5	21
77	Formation of volatile iodinated alkanes in soil: results from laboratory studies. *Chemosphere*, **2003**, 52, 477-83	8.4	20

76	Fluxes of trichloroacetic acid between atmosphere, biota, soil, and groundwater. *Chemosphere*, **2003**, 52, 339-54	8.4	20
75	De novo formation of chloroethyne in soil. *Environmental Science & Technology*, **2006**, 40, 130-4	10.3	18
74	Site-specific climatic signals in stable isotope records from Swedish pine forests. *Trees - Structure and Function*, **2018**, 32, 855-869	2.6	17
73	Probing the diversity of chloromethane-degrading bacteria by comparative genomics and isotopic fractionation. *Frontiers in Microbiology*, **2014**, 5, 523	5.7	17
72	Isotopic composition of H2 from wood burning: Dependency on combustion efficiency, moisture content, and D of local precipitation. *Journal of Geophysical Research*, **2010**, 115,		17
71	Influence of different growth techniques on the quality of GaInAs-InP quantum well structures grown by adduct-MOVPE. *Journal of Crystal Growth*, **1988**, 93, 347-352	1.6	17
70	Late Quaternary relative humidity changes from Mt. Kilimanjaro, based on a coupled 2 H- 18 O biomarker paleohygrometer approach. *Quaternary International*, **2017**, 438, 116-130	2	16
69	Methane Production and Bioactivity-A Link to Oxido-Reductive Stress. *Frontiers in Physiology*, **2019**, 10, 1244	4.6	16
68	Organic compounds in fluid inclusions of Archean quartz-Analogues of prebiotic chemistry on early Earth. *PLoS ONE*, **2017**, 12, e0177570	3.7	16
67	Mean annual temperatures of mid-latitude regions derived from H values of wood lignin methoxyl groups and its implications for paleoclimate studies. *Science of the Total Environment*, **2017**, 574, 1276-1282	10.2	16
66	Stable hydrogen-isotope analysis of methyl chloride emitted from heated halophytic plants. *Atmospheric Environment*, **2012**, 62, 584-592	5.3	15
65	Water drives the deuterium content of the methane emitted from plants. *Geochimica Et Cosmochimica Acta*, **2010**, 74, 3865-3873	5.5	15
64	Stable isotope determination of ester and ether methyl moieties in plant methoxyl groups. *Isotopes in Environmental and Health Studies*, **2011**, 47, 470-82	1.5	15
63	Nonheme Iron-Oxo-Catalyzed Methane Formation from Methyl Thioethers: Scope, Mechanism, and Relevance for Natural Systems. *Chemistry - A European Journal*, **2017**, 23, 10465-10472	4.8	14
62	Fast determination of methyl chloride and methyl bromide emissions from dried plant matter and soil samples using HS-SPME and GC-MS: method and first results. *Environmental Chemistry*, **2009**, 6, 311	3.2	14
61	Design and application of a synthetic DNA standard for real-time PCR analysis of microbial communities in a biogas digester. *Applied Microbiology and Biotechnology*, **2015**, 99, 6855-63	5.7	13
60	Methane, Plants and Climate Change. *Scientific American*, **2007**, 296, 52-57	0.5	13
59	Widespread methane formation by Cyanobacteria in aquatic and terrestrial ecosystems		13

58	Vanilla authenticity control by DNA barcoding and isotope data aggregation. *Flavour and Fragrance Journal*, **2017**, 32, 228-237	2.5	12
57	Hydrogen and carbon isotope fractionation during degradation of chloromethane by methylotrophic bacteria. *MicrobiologyOpen*, **2013**, 2, 893-900	3.4	12
56	Stable hydrogen and carbon isotope ratios of methoxyl groups during plant litter degradation. *Isotopes in Environmental and Health Studies*, **2015**, 51, 143-54	1.5	11
55	Climate signals in δ13C of wood lignin methoxyl groups from high-elevation larch trees. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **2016**, 445, 60-71	2.9	11
54	Earliest Eocene cold period and polar amplification - Insights from δ2H values of lignin methoxyl groups of mummified wood. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **2018**, 505, 326-336	2.9	11
53	Chloromethane release from carbonaceous meteorite affords new insight into Mars lander findings. *Scientific Reports*, **2014**, 4, 7010	4.9	11
52	Stable carbon isotopes of methane for real-time process monitoring in anaerobic digesters. *Engineering in Life Sciences*, **2014**, 14, 153-160	3.4	11
51	Global methane emissions from the human body: Past, present and future. *Atmospheric Environment*, **2019**, 214, 116823	5.3	10
50	Evidence of anaerobic syntrophic acetate oxidation in biogas batch reactors by analysis of 13C carbon isotopes. *Isotopes in Environmental and Health Studies*, **2013**, 49, 365-77	1.5	10
49	Stable hydrogen isotope values of lignin methoxyl groups of four tree species across Germany and their implication for temperature reconstruction. *Science of the Total Environment*, **2017**, 579, 263-271	10.2	9
48	Chloromethane Degradation in Soils: A Combined Microbial and Two-Dimensional Stable Isotope Approach. *Journal of Environmental Quality*, **2018**, 47, 254-262	3.4	9
47	D/H ratios of methoxyl groups of the sedimentary organic matter of Lake Holzmaar (Eifel, Germany): A potential palaeoclimate/-hydrology proxy. *Geochimica Et Cosmochimica Acta*, **2014**, 142, 39-52	5.5	9
46	Seasonal changes in chlorine and methoxyl content of leaves of deciduous trees and their impact on release of chloromethane and methanol at elevated temperatures. *Environmental Chemistry*, **2015**, 12, 426	3.2	9
45	A stable isotope approach to assessing water loss in fruits and vegetables during storage. *Journal of Agricultural and Food Chemistry*, **2015**, 63, 1974-81	5.7	9
44	Evidence for a major missing source in the global chloromethane budget from stable carbon isotopes. *Atmospheric Chemistry and Physics*, **2019**, 19, 1703-1719	6.8	8
43	Warm season precipitation signal in δH values of wood lignin methoxyl groups from high elevation larch trees in Switzerland. *Rapid Communications in Mass Spectrometry*, **2017**, 31, 1589-1598	2.2	8
42	Chloromethane emissions in human breath. *Science of the Total Environment*, **2017**, 605-606, 405-410	10.2	8
41	Chloromethane formation and degradation in the fern phyllosphere. *Science of the Total Environment*, **2018**, 634, 1278-1287	10.2	7

40	Position-specific isotope analysis of the methyl group carbon in methylcobalamin for the investigation of biomethylation processes. *Analytical and Bioanalytical Chemistry*, **2013**, 405, 2833-41	4.4	7
39	Chapter 19 Occurrence and fate of halogens in mires. *Developments in Earth Surface Processes*, **2006**, 9, 449-464	2.8	7
38	Long-term monitoring of breath methane. *Science of the Total Environment*, **2018**, 624, 69-77	10.2	6
37	Carbon isotope anomaly in the major plant C₁ pool and its global biogeochemical implications		6
36	Methyl sulfates as methoxy isotopic reference materials for C and H measurements. *Rapid Communications in Mass Spectrometry*, **2019**, 33, 343-350	2.2	6
35	Sources and sinks of chloromethane in a salt marsh ecosystem: constraints from concentration and stable isotope measurements of laboratory incubation experiments. *Environmental Sciences: Processes and Impacts*, **2020**, 22, 627-641	4.3	5
34	Optical gain in strain-free and strained layer GaXIn1XAs/InP superlattices. *Superlattices and Microstructures*, **1989**, 5, 555-559	2.8	5
33	Methylotrophs and Methylotroph Populations for Chloromethane Degradation. *Current Issues in Molecular Biology*, **2019**, 33, 149-172	2.9	5
32	The stable carbon isotope signature of methane produced by saprotrophic fungi. *Biogeosciences*, **2020**, 17, 3891-3901	4.6	5
31	Three wood isotopic reference materials for 2H and 13C measurements of plant methoxy groups. *Chemical Geology*, **2020**, 533, 119428	4.2	5
30	Effects of Temperature and Light on Methane Production of Widespread Marine Phytoplankton. *Journal of Geophysical Research G: Biogeosciences*, **2020**, 125, e2020JG005793	3.7	5
29	Mass spectrometric measurement of hydrogen isotope fractionation for the reactions of chloromethane with OH and Cl. *Atmospheric Chemistry and Physics*, **2018**, 18, 6625-6635	6.8	5
28	Simultaneous Abiotic Production of Greenhouse Gases (CO2, CH4, and N2O) in Subtropical Soils. *Journal of Geophysical Research G: Biogeosciences*, **2019**, 124, 1977-1987	3.7	4
27	Tree-ring 2H values from lignin methoxyl groups indicate sensitivity to European-scale temperature changes. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **2020**, 546, 109665	2.9	4
26	Comment on Authenticity and traceability of vanilla flavors by analysis of stable isotopes of carbon and hydrogen. *Journal of Agricultural and Food Chemistry*, **2015**, 63, 5305-6	5.7	4
25	Evidence for methane production by marine algae (<i>Emiliana huxleyi</i>) and its implication for the methane paradox in oxic waters		4
24	Non-microbial methane formation in oxic soils		4
23	Methane formation driven by reactive oxygen species across all living organisms.. *Nature*, **2022**,	50.4	4

22	Temperature signal recorded in δH and δC values of wood lignin methoxyl groups from a permafrost forest in northeastern China. *Science of the Total Environment*, **2020**, 727, 138558	10.2	3
21	A fast and sensitive method for the continuous in situ determination of dissolved methane and its δ13C-isotope ratio in surface waters. *Limnology and Oceanography: Methods*, **2018**, 16, 273-285	2.6	3
20	Chlorine Isotope Fractionation of the Major Chloromethane Degradation Processes in the Environment. *Environmental Science & Technology*, **2020**, 54, 1634-1645	10.3	3
19	Tree-ring lignin proxies in Larix gmelinii forest growing in a permafrost area of northeastern China: Temporal variation and potential for climate reconstructions. *Ecological Indicators*, **2020**, 118, 106750	5.8	3
18	The impact of seasonal sulfate–methane transition zones on methane cycling in a sulfate-enriched freshwater environment. *Limnology and Oceanography*, **2021**, 66, 2290-2308	4.8	3
17	Methane oxidation in industrial biogas plants-Insights in a novel methanotrophic environment evidenced by pmoA gene analyses and stable isotope labelling studies. *Journal of Biotechnology*, **2018**, 270, 77-84	3.7	2
16	Subaqueous speleothems (Hells Bells) formed by the interplay of pelagic redoxcline biogeochemistry and specific hydraulic conditions in the El Zapote sinkhole, Yucatán Peninsula, Mexico. *Biogeosciences*, **2019**, 16, 2285-2305	4.6	2
15	Late permian changes in conditions of the atmosphere and environments caused by halogenated gases. *Doklady Earth Sciences*, **2009**, 425, 291-295	0.6	2
14	Subaqueous speleothems (Hells Bells) formed by the interplay of pelagic redoxcline biogeochemistry and specific hydraulic conditions in the El Zapote sinkhole, Yucatán Peninsula, Mexico		2
13	Methane production by three widespread marine phytoplankton species: release rates, precursor compounds, and relevance for the environment		2
12	C-chloromethane incubations provide evidence for novel bacterial chloromethane degraders in a living tree fern. *Environmental Microbiology*, **2021**, 23, 4450-4465	5.2	2
11	Technical note: Methionine, a precursor of methane in living plants **2014**,		1
10	De novo formation of organochlorines in a sewage treatment plant. *Biogeochemistry*, **2003**, 62, 277-287	3.8	1
9	Chapter 8:Production and Signaling of Methane. *2-Oxoglutarate-Dependent Oxygenases*, **2018**, 192-234	1.8	1
8	Iron catalyzed demethylation of acetic acid*. *Journal of Coordination Chemistry*, **2018**, 71, 1704-1714	1.6	1
7	Potential role of submerged macrophytes for oxic methane production in aquatic ecosystems. *Limnology and Oceanography*,	4.8	1
6	Ansätze zur regionalen Quantifizierung von Methan aus Pflanzen. *Environmental Sciences Europe*, **2008**, 20, 75-79	5	0
5	Measurements and applications of δ2H values of wood lignin methoxy groups for paleoclimatic studies. *Quaternary Science Reviews*, **2021**, 268, 107107	3.9	0

List of Publications

4	Real Time Measurement of Concentration and δ13C-CH4 in Water. *Procedia Earth and Planetary Science*, **2017**, 17, 460-463	
3	A surprise from the deep. *Science*, **2021**, 374, 821-822	33.3
2	Stable Biological Production in the Eastern Equatorial Pacific Across the Plio-Pleistocene Transition (~3.35–2.0 Ma). *Paleoceanography and Paleoclimatology*, **2021**, 36, e2020PA003965	3.3
1	Methane, plants and climate change. *Scientific American*, **2007**, 296, 40-5	0.5