Sander Houweling

List of Publications by Year
in descending order

79 papers	11,499 citations	53794 45 h-index	66911 78 g-index
135 all docs	135 docs citations	135 times ranked	9270 citing authors

#	Article	IF	Citations
1	Three decades of global methane sources and sinks. Nature Geoscience, 2013, 6, 813-823.	12.9	1,649
2	The Global Methane Budget 2000â€“2017. Earth System Science Data, 2020, 12, 1561-1623.	9.9	1,199
3	The global methane budget 2000â€“2012. Earth System Science Data, 2016, 8, 697-751.	9.9	824
4	CO₂ flux history 1982â€“2001 inferred from atmospheric data using a global inversion of atmospheric transport. Atmospheric Chemistry and Physics, 2003, 3, 1919-1964.	4.9	528
5	The two-way nested global chemistry-transport zoom model TM5: algorithm and applications. Atmospheric Chemistry and Physics, 2005, 5, 417-432.	4.9	490
6	Atmospheric methane levels off: Temporary pause or a new steady-state?. Geophysical Research Letters, 2003, 30, .	4.0	379
7	The impact of nonmethane hydrocarbon compounds on tropospheric photochemistry. Journal of Geophysical Research, 1998, 103, 10673-10696.	3.3	368
8	TransCom model simulations of CH₄ and related species: linking transport, surface flux and chemical loss with CH₄ variability in the troposphere and lower stratosphere. Atmospheric Chemistry and Physics, 2011, 11, 12813-12837.	4.9	331
9	Inverse modeling of methane sources and sinks using the adjoint of a global transport model. Journal of Geophysical Research, 1999, 104, 26137-26160.	3.3	286
10	Inverse modeling of global and regional CH₄ emissions using SCIAMACHY satellite retrievals. Journal of Geophysical Research, 2009, 114, .	3.3	280
11	Space-borne remote sensing of CO2, CH4, and N2O by integrated path differential absorption lidar: a sensitivity analysis. Applied Physics B: Lasers and Optics, 2008, 90, 593-608.	2.2	278
12	The global chemistry transport model TM5: description and evaluation of the tropospheric chemistry version 3.0. Geoscientific Model Development, 2010, 3, 445-473.	3.6	251
13	Global CO₂ fluxes estimated from GOSAT retrievals of total column CO₂. Atmospheric Chemistry and Physics, 2013, 13, 8695-8717.	4.9	251
14	Atmospheric CH₄ in the first decade of the 21st century: Inverse modeling analysis using SCIAMACHY satellite retrievals and NOAA surface measurements. Journal of Geophysical Research D: Atmospheres, 2013, 118, 7350-7369.	3.3	226
15	Seven years of recent European net terrestrial carbon dioxide exchange constrained by atmospheric observations. Global Change Biology, 2010, 16, 1317-1337.	9.5	223
16	Inverse modeling of CO₂ sources and sinks using satellite data: a synthetic inter-comparison of measurement techniques and their performance as a function of space and time. Atmospheric Chemistry and Physics, 2004, 4, 523-538.	4.9	222
17	Tropical methane emissions: A revised view from SCIAMACHY onboard ENVISAT. Geophysical Research Letters, 2008, 35, .	4.0	199
18	Global column-averaged methane mixing ratios from 2003 to 2009 as derived from SCIAMACHY: Trends and variability. Journal of Geophysical Research, 2011, 116, .	3.3	188

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19	Quantifying methane emissions from the largest oil-producing basin in the United States from space. Science Advances, 2020, 6, eaaz5120.	10.3	155
20	Evidence of systematic errors in SCIAMACHY-observed CO₂ due to aerosols. Atmospheric Chemistry and Physics, 2005, 5, 3003-3013.	4.9	150
21	Reduced biomass burning emissions reconcile conflicting estimates of the post-2006 atmospheric methane budget. Nature Communications, 2017, 8, 2227.	12.8	129
22	Satellite Discovery of Anomalously Large Methane Point Sources From Oil/Gas Production. Geophysical Research Letters, 2019, 46, 13507-13516.	4.0	127
23	TransCom model simulations of hourly atmospheric CO₂: Analysis of synopticâ€scale variations for the period 2002â€“2003. Global Biogeochemical Cycles, 2008, 22, .	4.9	119
24	Natural and anthropogenic variations in methane sources during the past two millennia. Nature, 2012, 490, 85-88.	27.8	115
25	Evaluation of various observing systems for the global monitoring of CO₂ surface fluxes. Atmospheric Chemistry and Physics, 2010, 10, 10503-10520.	4.9	112
26	Satellite observations reveal extreme methane leakage from a natural gas well blowout. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 26376-26381.	7.1	107
27	A multi-year methane inversion using SCIAMACHY, accounting for systematic errors using TCCON measurements. Atmospheric Chemistry and Physics, 2014, 14, 3991-4012.	4.9	106
28	An intercomparison of inverse models for estimating sources and sinks of CO₂ using GOSAT measurements. Journal of Geophysical Research D: Atmospheres, 2015, 120, 5253-5266.	3.3	105
29	Atmospheric constraints on global emissions of methane from plants. Geophysical Research Letters, 2006, 33, .	4.0	102
30	The importance of transport model uncertainties for the estimation of CO₂ sources and sinks using satellite measurements. Atmospheric Chemistry and Physics, 2010, 10, 9981-9992.	4.9	98
31	Interpreting methane variations in the past two decades using measurements of CH₄ mixing ratio and isotopic composition. Atmospheric Chemistry and Physics, 2011, 11, 9141-9153.	4.9	95
32	Fourâ€dimensional variational data assimilation for inverse modeling of atmospheric methane emissions: Analysis of SCIAMACHY observations. Journal of Geophysical Research, 2008, 113, .	3.3	92
33	Carbon monoxide total column retrievals from TROPOMI shortwave infrared measurements. Atmospheric Measurement Techniques, 2016, 9, 4955-4975.	3.1	92
34	MERLIN: A French-German Space Lidar Mission Dedicated to Atmospheric Methane. Remote Sensing, 2017, 9, 1052.	4.0	88
35	Variability and quasi-decadal changes in the methane budget over the period 2000â€“2012. Atmospheric Chemistry and Physics, 2017, 17, 11135-11161.	4.9	85
36	In situ observations of the isotopic composition of methane at the Cabauw tall tower site. Atmospheric Chemistry and Physics, 2016, 16, 10469-10487.	4.9	77

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37	Global inverse modeling of CH₄ sources and sinks: an overview of methods. Atmospheric Chemistry and Physics, 2017, 17, 235-256.	4.9	75
38	Impact of transport model errors on the global and regional methane emissions estimated by inverse modelling. Atmospheric Chemistry and Physics, 2013, 13, 9917-9937.	4.9	68
39	Comparison of CH₄ inversions based on 15 months of GOSAT and SCIAMACHY observations. Journal of Geophysical Research D: Atmospheres, 2013, 118, 11,807.	3.3	66
40	Reduced carbon uptake during the 2010 Northern Hemisphere summer from GOSAT. Geophysical Research Letters, 2013, 40, 2378-2383.	4.0	65
41	Vast CO2 release from Australian fires in 2019â€“2020 constrained by satellite. Nature, 2021, 597, 366-369.	27.8	65
42	Toward an Operational Anthropogenic CO2 Emissions Monitoring and Verification Support Capacity. Bulletin of the American Meteorological Society, 2020, 101, E1439-E1451.	3.3	63
43	Methane airborne measurements and comparison to global models during BARCA. Journal of Geophysical Research, 2012, 117, .	3.3	53
44	Chemical Feedback From Decreasing Carbon Monoxide Emissions. Geophysical Research Letters, 2017, 44, 9985-9995.	4.0	49
45	U.S. CH₄ emissions from oil and gas production: Have recent large increases been detected?. Journal of Geophysical Research D: Atmospheres, 2017, 122, 4070-4083.	3.3	47
46	Anomalous carbon uptake in Australia as seen by GOSAT. Geophysical Research Letters, 2015, 42, 8177-8184.	4.0	45
47	Methane emissions from floodplains in the Amazon Basin: challenges in developing a process-based model for global applications. Biogeosciences, 2014, 11, 1519-1558.	3.3	43
48	Enhanced methane emissions from tropical wetlands during the 2011 La NiÃ±a. Scientific Reports, 2017, 7, 45759.	3.3	41
49	Carbon monoxide air pollution on sub-city scales and along arterial roads detected by the Tropospheric Monitoring Instrument. Atmospheric Chemistry and Physics, 2019, 19, 3579-3588.	4.9	41
50	Global methane emission estimates for 2000â€“2012 from CarbonTracker Europe-CH₄ v1.0. Geoscientific Model Development, 2017, 10, 1261-1289.	3.6	40
51	Early anthropogenic CH₄ emissions and the variation of CH₄ and ¹³CH₄ over the last millennium. Global Biogeochemical Cycles, 2008, 22, .	4.9	39
52	Methane Emissions from Superemitting Coal Mines in Australia Quantified Using TROPOMI Satellite Observations. Environmental Science & Technology, 2021, 55, 16573-16580.	10.0	39
53	How Much CO2 Is Taken Up by the European Terrestrial Biosphere?. Bulletin of the American Meteorological Society, 2017, 98, 665-671.	3.3	33
54	Inverse modeling of GOSAT-retrieved ratios of total column CH₄ and CO₂ for 2009 and 2010. Atmospheric Chemistry and Physics, 2016, 16, 5043-5062.	4.9	32

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55	Off-line algorithm for calculation of vertical tracer transport in the troposphere due to deep convection. Atmospheric Chemistry and Physics, 2013, 13, 1093-1114.	4.9	27
56	Using satellite data to identify the methane emission controls of South Sudan's wetlands. Biogeosciences, 2021, 18, 557-572.	3.3	26
57	What caused the extreme CO concentrations during theÂ2017 high-pollution episode in India?. Atmospheric Chemistry and Physics, 2019, 19, 3433-3445.	4.9	25
58	The seasonal cycle amplitude of total column CO2: Factors behind the model-observation mismatch. Journal of Geophysical Research, 2011, 116, n/a-n/a.	3.3	24
59	TransCom model simulations of methane: Comparison of vertical profiles with aircraft measurements. Journal of Geophysical Research D: Atmospheres, 2013, 118, 3891-3904.	3.3	24
60	The biomass burning contribution to climateâ€"carbon-cycle feedback. Earth System Dynamics, 2018, 9, 663-677.	7.1	24
61	Evaluation of column-averaged methane in models and TCCON with a focus on the stratosphere. Atmospheric Measurement Techniques, 2016, 9, 4843-4859.	3.1	23
62	Quantifying burning efficiency in megacities using the NO₂âˆ•CO ratio from the Tropospheric Monitoring Instrument (TROPOMI). Atmospheric Chemistry and Physics, 2020, 20, 10295-10310.	4.9	23
63	Quantification of CO emissions from the city of Madrid using MOPITT satellite retrievals and WRF simulations. Atmospheric Chemistry and Physics, 2017, 17, 14675-14694.	4.9	21
64	Biomass burning combustion efficiency observed from space using measurements of CO and NO₂ by the TROPOspheric Monitoring Instrument (TROPOMI). Atmospheric Chemistry and Physics, 2021, 21, 597-616.	4.9	20
65	Comparing the CarbonTracker and TM5-4DVar data assimilation systems for CO₂ surface flux inversions. Atmospheric Chemistry and Physics, 2015, 15, 9747-9763.	4.9	19
66	Relevant methane emission to the atmosphere from a geological gas manifestation. Scientific Reports, 2021, 11, 4138.	3.3	17
67	Influence of Atmospheric Transport on Estimates of Variability in the Global Methane Burden. Geophysical Research Letters, 2019, 46, 2302-2311.	4.0	16
68	Iconic CO ₂ Time Series at Risk. Science, 2012, 337, 1038-1040.	12.6	15
69	The Community Inversion Framework v1.0: a unified system for atmospheric inversion studies. Geoscientific Model Development, 2021, 14, 5331-5354.	3.6	15
70	On the use of satellite-derived CH₄ : CO₂ columns in a joint inversion of CH₄ and CO₂ fluxes. Atmospheric Chemistry and Physics, 2015, 15, 8615-8629.	4.9	14
71	Global-scale remote sensing of water isotopologues in the troposphere: representation of first-order isotope effects. Atmospheric Measurement Techniques, 2015, 8, 999-1019.	3.1	12
72	Description and evaluation of a detailed gas-phase chemistry scheme in the TM5-MP global chemistry transport model (r112). Geoscientific Model Development, 2020, 13, 5507-5548.	3.6	11

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73	Improved calibration procedures for the EM27/SUN spectrometers of the COllaborative Carbon Column Observing Network (COCCON). Atmospheric Measurement Techniques, 2022, 15, 2433-2463.	3.1	10
74	Reconstructing and quantifying methane emissions from the full duration of a 38-day natural gas well blowout using space-based observations. Remote Sensing of Environment, 2022, 270, 112755.	11.0	7
75	Model simulations of atmospheric methane (1997â€“2016) and their evaluation using NOAA and AGAGE surface and IAGOS-CARIBIC aircraft observations. Atmospheric Chemistry and Physics, 2020, 20, 5787-5809.	4.9	5
76	A high-resolution gridded inventory of coal mine methane emissions for India and Australia. Elementa, 2022, 10, .	3.2	5
77	The greenhouse gas project of ESAâ€™s climate change initiative (GHG-CCI): overview, achievements and future plans. International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives, 0, XL-7/W3, 165-172.	0.2	1
78	The Role of Emission Sources and Atmospheric Sink in the Seasonal Cycle of CH4 and Î´13-CH4: Analysis Based on the Atmospheric Chemistry Transport Model TM5. Atmosphere, 2022, 13, 888.	2.3	1
79	Order of magnitude wall time improvement of variational methane inversions by physical parallelization: a demonstration using TM5-4DVAR. Geoscientific Model Development, 2022, 15, 4555-4567.	3.6	1