Steffen Beirle

List of Publications by Citations

88 papers	2,722 citations	27 h-index	50 g-index
204 ext. papers	3,331 ext. citations	5.7 avg, IF	4.95 L-index

#	Paper	IF	Citations
88	Megacity emissions and lifetimes of nitrogen oxides probed from space. *Science*, **2011**, 333, 1737-9	33.3	295
87	Simultaneous global observations of glyoxal and formaldehyde from space. *Geophysical Research Letters*, **2006**, 33,	4.9	237
86	The Monte Carlo atmospheric radiative transfer model McArtim: Introduction and validation of Jacobians and 3D features. *Journal of Quantitative Spectroscopy and Radiative Transfer*, **2011**, 112, 1119-1137	2.1	139
85	Tropospheric NO₂ vertical column densities over Beijing: results of the first three years of ground-based MAX-DOAS measurements (2008–2011) and satellite validation. *Atmospheric Chemistry and Physics*, **2013**, 13, 1547-1567	6.8	122
84	Improving algorithms and uncertainty estimates for satellite NO₂ retrievals: results from the quality assurance for the essential climate variables (QA4ECV) project. *Atmospheric Measurement Techniques*, **2018**, 11, 6651-6678	4	115
83	NO emission trends over Chinese cities estimated from OMI observations during 2005 to 2015. *Atmospheric Chemistry and Physics*, **2017**, 17, 9261-9275	6.8	114
82	NO_{<i>x</i>} lifetimes and emissions of cities and power plants in polluted background estimated by satellite observations. *Atmospheric Chemistry and Physics*, **2016**, 16, 5283-5298	6.8	105
81	Structural uncertainty in air mass factor calculation for NO₂ and HCHO satellite retrievals. *Atmospheric Measurement Techniques*, **2017**, 10, 759-782	4	91
80	Algorithm theoretical baseline for formaldehyde retrievals from S5P TROPOMI and from the QA4ECV project. *Atmospheric Measurement Techniques*, **2018**, 11, 2395-2426	4	73
79	In situ, satellite measurement and model evidence on the dominant regional contribution to fine particulate matter levels in the Paris megacity. *Atmospheric Chemistry and Physics*, **2015**, 15, 9577-9591	6.8	72
78	Validation of OMI, GOME-2A and GOME-2B tropospheric NO₂, SO₂ and HCHO products using MAX-DOAS observations from 2011 to 2014 in Wuxi, China: investigation of the effects of priori profiles and aerosols on the satellite products. *Atmospheric Chemistry and Physics*, **2017**, 17, 5007-5033	6.8	67
77	Estimating the volcanic emission rate and atmospheric lifetime of SO₂ from space: a case study for Kīlauea volcano, Hawai‘i. *Atmospheric Chemistry and Physics*, **2014**, 14, 8309-8322	6.8	64
76	Ground-based MAX-DOAS observations of tropospheric aerosols, NO₂, SO₂ and HCHO in Wuxi, China, from 2011 to 2014. *Atmospheric Chemistry and Physics*, **2017**, 17, 2189-2215	6.8	62
75	Systematic investigation of bromine monoxide in volcanic plumes from space by using the GOME-2 instrument. *Atmospheric Chemistry and Physics*, **2013**, 13, 4749-4781	6.8	51
74	Improved slant column density retrieval of nitrogen dioxide and formaldehyde for OMI and GOME-2A from QA4ECV: intercomparison, uncertainty characterisation, and trends. *Atmospheric Measurement Techniques*, **2018**, 11, 4033-4058	4	51
73	MAX-DOAS measurements and satellite validation of tropospheric NO2 and SO2 vertical column densities at a rural site of North China. *Atmospheric Environment*, **2016**, 133, 12-25	5.3	48
72	A multi-site intercomparison of integrated water vapour observations for climate change analysis. *Atmospheric Measurement Techniques*, **2014**, 7, 2487-2512	4	47

71	Pinpointing nitrogen oxide emissions from space. *Science Advances*, **2019**, 5, eaax9800	14.3	47
70	Abrupt recent trend changes in atmospheric nitrogen dioxide over the Middle East. *Science Advances*, **2015**, 1, e1500498	14.3	46
69	Cloud detection and classification based on MAX-DOAS observations. *Atmospheric Measurement Techniques*, **2014**, 7, 1289-1320	4	45
68	Intercomparison of aerosol extinction profiles retrieved from MAX-DOAS measurements. *Atmospheric Measurement Techniques*, **2016**, 9, 3205-3222	4	43
67	Parameterizing the instrumental spectral response function and its changes by a super-Gaussian and its derivatives. *Atmospheric Measurement Techniques*, **2017**, 10, 581-598	4	41
66	Global patterns of lightning properties derived by OTD and LIS. *Natural Hazards and Earth System Sciences*, **2014**, 14, 2715-2726	3.9	39
65	GOME Observations of Stratospheric Trace Gas Distributions during the Splitting Vortex Event in the Antarctic Winter of 2002. Part I: Measurements. *Journals of the Atmospheric Sciences*, **2005**, 62, 778-785	2.1	31
64	Total column water vapour measurements from GOME-2 MetOp-A and MetOp-B. *Atmospheric Measurement Techniques*, **2015**, 8, 1111-1133	4	30
63	Detection of water vapour absorption around 363 nm in measured atmospheric absorption spectra and its effect on DOAS evaluations. *Atmospheric Chemistry and Physics*, **2017**, 17, 1271-1295	6.8	30
62	Re-evaluating the NO2 hotspot over the South African Highveld. *South African Journal of Science*, **2012**, 108,	1.3	29
61	A global aerosol classification algorithm incorporating multiple satellite data sets of aerosol and trace gas abundances. *Atmospheric Chemistry and Physics*, **2015**, 15, 10597-10618	6.8	26
60	Absolute calibration of the colour index and O₄ absorption derived from Multi AXis (MAX-)DOAS measurements and their application to a standardised cloud classification algorithm. *Atmospheric Measurement Techniques*, **2016**, 9, 4803-4823	4	25
59	MAX-DOAS measurements of HONO slant column densities during the MAD-CAT campaign: inter-comparison, sensitivity studies on spectral analysis settings, and error budget. *Atmospheric Measurement Techniques*, **2017**, 10, 3719-3742	4	25
58	Cloud and aerosol classification for 2.5 years of MAX-DOAS observations in Wuxi (China) and comparison to independent data sets. *Atmospheric Measurement Techniques*, **2015**, 8, 5133-5156	4	24
57	The STRatospheric Estimation Algorithm from Mainz (STREAM): estimating stratospheric NO₂ from nadir-viewing satellites by weighted convolution. *Atmospheric Measurement Techniques*, **2016**, 9, 2753-2779	4	22
56	MAX-DOAS observations of the total atmospheric water vapour column and comparison with independent observations. *Atmospheric Measurement Techniques*, **2013**, 6, 131-149	4	22
55	A feasibility study for the retrieval of the total column precipitable water vapour from satellite observations in the blue spectral range. *Atmospheric Measurement Techniques*, **2013**, 6, 2593-2605	4	22
54	Intercomparison of MAX-DOAS vertical profile retrieval algorithms: studies using synthetic data. *Atmospheric Measurement Techniques*, **2019**, 12, 2155-2181	4	21

53	The Mainz profile algorithm (MAPA). *Atmospheric Measurement Techniques*, **2019**, 12, 1785-1806	4	19
52	Estimation of the Paris NO_{<i>x</i>} emissions from mobile MAX-DOAS observations and CHIMERE model simulations during the MEGAPOLI campaign using the closed integral method. *Atmospheric Chemistry and Physics*, **2017**, 17, 7853-7890	6.8	19
51	Detection of Trends and Seasonal Variation in Tropospheric Nitrogen Dioxide over Pakistan. *Aerosol and Air Quality Research*, **2015**, 15, 2508-2524	4.6	19
50	Is a scaling factor required to obtain closure between measured and modelled atmospheric O₄ absorptions? An assessment of uncertainties of measurements and radiative transfer simulations for 2 selected days during the MAD-CAT campaign. *Atmospheric Measurement Techniques*, **2019**, 12, 2745-2817	4	16
49	A methodology to constrain carbon dioxide emissions from coal-fired power plants using satellite observations of co-emitted nitrogen dioxide. *Atmospheric Chemistry and Physics*, **2020**, 20, 99-116	6.8	16
48	New concepts for the comparison of tropospheric NO₂ column densities derived from car-MAX-DOAS observations, OMI satellite observations and the regional model CHIMERE during two MEGAPOLI campaigns in Paris 2009/10. *Atmospheric Measurement Techniques*, **2015**, 8, 2827-2852	4	16
47	Linearisation of the effects of spectral shift and stretch in DOAS analysis. *Atmospheric Measurement Techniques*, **2013**, 6, 661-675	4	16
46	Technical Note: Temporal change in averaging kernels as a source of uncertainty in trend estimates of carbon monoxide retrieved from MOPITT. *Atmospheric Chemistry and Physics*, **2013**, 13, 11307-11316	6.8	16
45	Intercomparison of MAX-DOAS vertical profile retrieval algorithms: studies on field data from the CINDI-2 campaign. *Atmospheric Measurement Techniques*, **2021**, 14, 1-35	4	16
44	Multi-satellite sensor study on precipitation-induced emission pulses of NO_{<i>x</i>} from soils in semi-arid ecosystems. *Atmospheric Chemistry and Physics*, **2016**, 16, 9457-9487	6.8	15
43	Nitrogen oxides in the global upper troposphere: interpreting cloud-sliced NO₂ observations from the OMI satellite instrument. *Atmospheric Chemistry and Physics*, **2018**, 18, 17017-17027	6.8	15
42	Top-Down NO Emissions of European Cities Based on the Downwind Plume of Modelled and Space-Borne Tropospheric NO Columns. *Sensors*, **2018**, 18,	3.8	15
41	Long-term MAX-DOAS measurements of NO₂, HCHO, and aerosols and evaluation of corresponding satellite data products over Mohali in the Indo-Gangetic Plain. *Atmospheric Chemistry and Physics*, **2020**, 20, 14183-14235	6.8	13
40	Validation of Aura-OMI QA4ECV NO₂ climate data records with ground-based DOAS networks: the role of measurement and comparison uncertainties. *Atmospheric Chemistry and Physics*, **2020**, 20, 8017-8045	6.8	13
39	Total column water vapour retrieval from S-5P/TROPOMI in the visible blue spectral range. *Atmospheric Measurement Techniques*, **2020**, 13, 2751-2783	4	10
38	In-operation field-of-view retrieval (IFR) for satellite and ground-based DOAS-type instruments applying coincident high-resolution imager data. *Atmospheric Measurement Techniques*, **2017**, 10, 881-903	4	10
37	Intercomparison of MAX-DOAS vertical profile retrieval algorithms: studies on field data from the CINDI-2 campaign		10
36	An improved total and tropospheric NO₂ column retrieval for GOME-2. *Atmospheric Measurement Techniques*, **2019**, 12, 1029-1057	4	9

35	Vertical Profiles of Tropospheric Ozone From MAX-DOAS Measurements During the CINDI-2 Campaign: Part 1 Development of a New Retrieval Algorithm. *Journal of Geophysical Research D: Atmospheres*, **2018**, 123, 10,637	4.4	8
34	Applications of Satellite Observations of Tropospheric Composition. *Physics of Earth and Space Environments*, **2011**, 365-449		8
33	The ESA GOME-Evolution Climate water vapor product: a homogenized time series of H₂O columns from GOME, SCIAMACHY, and GOME-2. *Earth System Science Data*, **2018**, 10, 449-468	10.5	8
32	Evaluating different methods for elevation calibration of MAX-DOAS (Multi AXis Differential Optical Absorption Spectroscopy) instruments during the CINDI-2 campaign. *Atmospheric Measurement Techniques*, **2020**, 13, 685-712	4	7
31	Profile information on CO from SCIAMACHY observations using cloud slicing and comparison with model simulations. *Atmospheric Chemistry and Physics*, **2014**, 14, 1717-1732	6.8	7
30	Inter-comparison of MAX-DOAS measurements of tropospheric HONO slant column densities and vertical profiles during the CINDI-2 campaign. *Atmospheric Measurement Techniques*, **2020**, 13, 5087-5116	4	7
29	Seasonal variation of tropospheric bromine monoxide over the Rann of Kutch salt marsh seen from space. *Atmospheric Chemistry and Physics*, **2016**, 16, 13015-13034	6.8	6
28	Global patterns of lightning properties derived by OTD and LIS		6
27	The tilt effect in DOAS observations. *Atmospheric Measurement Techniques*, **2017**, 10, 4819-4831	4	5
26	Total column water vapour measurements from GOME-2 MetOp-A and MetOp-B **2014**,		5
25	Estimating the volcanic emission rate and atmospheric lifetime of SO₂ from space: a case study for Kīlauea volcano, Hawai'i		5
24	A multi-site techniques intercomparison of integrated water vapour observations for climate change analysis		5
23	Catalog of NO_{<i>x</i>} emissions from point sources as derived from the divergence of the NO₂ flux for TROPOMI. *Earth System Science Data*, **2021**, 13, 2995-3012	10.5	5
22	An improved TROPOMI tropospheric NO₂ research product over Europe. *Atmospheric Measurement Techniques*, **2021**, 14, 7297-7327	4	4
21	Intercomparison of MAX-DOAS Vertical Profile Retrieval Algorithms: Studies using Synthetic Data		4
20	A new method for the absolute radiance calibration for UV-vis measurements of scattered sunlight. *Atmospheric Measurement Techniques*, **2015**, 8, 4265-4280	4	4
19	Validation of OMI, GOME-2A and GOME-2B tropospheric NO₂, SO₂ and HCHO products using MAX-DOAS observations from 2011 to 2014 in Wuxi, China **2016**,		4
18	Nitrogen dioxide decline and rebound observed by GOME-2 and TROPOMI during COVID-19 pandemic. *Air Quality, Atmosphere and Health*, **2021**, 1-19	5.6	4

17	NO_{<I>x</I>} lifetimes and emissions of hotspots in polluted background estimated by satellite observations		3
16	CO profiles from SCIAMACHY observations using cloud slicing and comparison with model simulations		2
15	The tilt-effect in DOAS observations		2
14	Improving algorithms and uncertainty estimates for satellite NO₂ retrievals: Results from the Quality Assurance for Essential Climate Variables (QA4ECV) project		2
13	Identification of atmospheric and oceanic teleconnection patterns in a 20-year global data set of the atmospheric water vapour column measured from satellites in the visible spectral range. *Atmospheric Chemistry and Physics*, **2021**, 21, 5315-5353	6.8	2
12	Cloud and aerosol classification for 2 1/2 years of MAX-DOAS observations in Wuxi (China) and comparison to independent data sets **2015**,		1
11	Cloud detection and classification based on MAX-DOAS observations **2013**,		1
10	Quantitative comparison of measured and simulated O₄ absorptions for one day with extremely low aerosol load over the tropical Atlantic. *Atmospheric Measurement Techniques*, **2021**, 14, 3871-3893	4	1
9	Estimating real driving emissions from multi-axis differential optical absorption spectroscopy (MAX-DOAS) measurements at the A60 motorway near Mainz, Germany. *Atmospheric Measurement Techniques*, **2021**, 14, 769-783	4	1
8	Interpreting the time variability of world-wide GPS and GOME/SCIAMACHY integrated water vapour retrievals, using reanalyses as auxiliary tools **2018**,		1
7	Evaluation of the coupled high-resolution atmospheric chemistry model system MECO(n) using in situ and MAX-DOAS NO₂ measurements. *Atmospheric Measurement Techniques*, **2021**, 14, 5241-5269	4	1
6	Global Spatiotemporal Variability of Integrated Water Vapor Derived from GPS, GOME/SCIAMACHY and ERA-Interim: Annual Cycle, Frequency Distribution and Linear Trends. *Remote Sensing*, **2022**, 14, 1050	5	1
5	A new method for inferring city emissions and lifetimes of nitrogen oxides from high-resolution nitrogen dioxide observations: a model study. *Atmospheric Chemistry and Physics*, **2022**, 22, 1333-1349	6.8	0
4	MICRU: an effective cloud fraction algorithm designed for UV–vis satellite instruments with large viewing angles. *Atmospheric Measurement Techniques*, **2021**, 14, 3989-4031	4	0
3	Technical note: Evaluation of profile retrievals of aerosols and trace gases for MAX-DOAS measurements under different aerosol scenarios based on radiative transfer simulations. *Atmospheric Chemistry and Physics*, **2021**, 21, 12867-12894	6.8	0
2	Observations of iodine monoxide over three summers at the Indian Antarctic bases of Bharati and Maitri. *Atmospheric Chemistry and Physics*, **2021**, 21, 11829-11842	6.8	
1	Calculating the vertical column density of O₄ during daytime from surface values of pressure, temperature, and relative humidity. *Atmospheric Measurement Techniques*, **2022**, 15, 987-1006	4	