Nicholas Deutscher

List of Publications by Year
in descending order

123 papers	7,737 citations	61857 43 h-index	66788 78 g-index
216 all docs	216 docs citations	216 times ranked	4303 citing authors

#	Article	IF	Citations
1	Calibration of the Total Carbon Column Observing Network using aircraft profile data. Atmospheric Measurement Techniques, 2010, 3, 1351-1362.	1.2	441
2	Toward accurate CO₂and CH₄observations from GOSAT. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	355
3	The ACOS CO₂ retrieval algorithm â€“ Part II: Global X_{CO₂} data characterization. Atmospheric Measurement Techniques, 2012, 5, 687-707.	1.2	320
4	A method for evaluating bias in global measurements of CO₂ total columns from space. Atmospheric Chemistry and Physics, 2011, 11, 12317-12337.	1.9	279
5	Importance of secondary sources in the atmospheric budgets of formic and acetic acids. Atmospheric Chemistry and Physics, 2011, 11, 1989-2013.	1.9	266
6	Improvement of the retrieval algorithm for GOSAT SWIR XCO₂ and XCH₄ and their validation using TCCON data. Atmospheric Measurement Techniques, 2013, 6, 1533-1547.	1.2	261
7	Comparisons of the Orbiting Carbon Observatory-2 (OCO-2) <i>X</i>_{CO₂} measurements with TCCON. Atmospheric Measurement Techniques, 2017, 10, 2209-2238.	1.2	252
8	Estimating global and North American methane emissions with high spatial resolution using GOSAT satellite data. Atmospheric Chemistry and Physics, 2015, 15, 7049-7069.	1.9	225
9	Preliminary validation of column-averaged volume mixing ratios of carbon dioxide and methane retrieved from GOSAT short-wavelength infrared spectra. Atmospheric Measurement Techniques, 2011, 4, 1061-1076.	1.2	217
10	Methane observations from the Greenhouse Gases Observing SATellite: Comparison to groundâ€based TCCON data and model calculations. Geophysical Research Letters, 2011, 38, .	1.5	211
11	Dynamic Processes Governing Lower-Tropospheric HDO/H ₂ O Ratios as Observed from Space and Ground. Science, 2009, 325, 1374-1377.	6.0	187
12	Satellite evidence for a large source of formic acid from boreal and tropical forests. Nature Geoscience, 2012, 5, 26-30.	5.4	171
13	A Fourier transform infrared trace gas and isotope analyser for atmospheric applications. Atmospheric Measurement Techniques, 2012, 5, 2481-2498.	1.2	161
14	Retrieval of atmospheric CO₂with enhanced accuracy and precision from SCIAMACHY: Validation with FTS measurements and comparison with model results. Journal of Geophysical Research, 2011, 116, .	3.3	153
15	Atmospheric carbon dioxide retrieved from the Greenhouse gases Observing SATellite (GOSAT): Comparison with groundâ€based TCCON observations and GEOSâ€Chem model calculations. Journal of Geophysical Research, 2012, 117, .	3.3	139
16	Total column CO₂ measurements at Darwin, Australia â€“ site description and calibration against in situ aircraft profiles. Atmospheric Measurement Techniques, 2010, 3, 947-958.	1.2	131
17	Methane retrievals from Greenhouse Gases Observing Satellite (GOSAT) shortwave infrared measurements: Performance comparison of proxy and physics retrieval algorithms. Journal of Geophysical Research, 2012, 117, .	3.3	128
18	Calibration of TCCON column-averaged CO₂: the first aircraft campaign over European TCCON sites. Atmospheric Chemistry and Physics, 2011, 11, 10765-10777.	1.9	120

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19	Inferring regional sources and sinks of atmospheric CO₂ from GOSAT XCO₂ data. Atmospheric Chemistry and Physics, 2014, 14, 3703-3727.	1.9	120
20	Processâ€evaluation of tropospheric humidity simulated by general circulation models using water vapor isotopologues: 1. Comparison between models and observations. Journal of Geophysical Research, 2012, 117, .	3.3	114
21	The Greenhouse Gas Climate Change Initiative (GHG-CCI): Comparison and quality assessment of near-surface-sensitive satellite-derived CO2 and CH4 global data sets. Remote Sensing of Environment, 2015, 162, 344-362.	4.6	112
22	Impact of aerosol and thin cirrus on retrieving and validating XCO₂ from GOSAT shortwave infrared measurements. Journal of Geophysical Research D: Atmospheres, 2013, 118, 4887-4905.	1.2	111
23	Methane retrieved from TROPOMI: improvement of the data product and validation of the first 2 years of measurements. Atmospheric Measurement Techniques, 2021, 14, 665-684.	1.2	104
24	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.	1.9	98
25	Atmospheric greenhouse gases retrieved from SCIAMACHY: comparison to ground-based FTS measurements and model results. Atmospheric Chemistry and Physics, 2012, 12, 1527-1540.	1.9	86
26	Global CO₂fluxes inferred from surface air-sample measurements and from TCCON retrievals of the CO₂total column. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	85
27	Satellite-inferred European carbon sink larger than expected. Atmospheric Chemistry and Physics, 2014, 14, 13739-13753.	1.9	83
28	Building the COllaborative Carbon Column Observing Network (COCCON): long-term stability and ensemble performance of the EM27/SUN Fourier transform spectrometer. Atmospheric Measurement Techniques, 2019, 12, 1513-1530.	1.2	82
29	Reducing the impact of source brightness fluctuations on spectra obtained by Fourier-transform spectrometry. Applied Optics, 2007, 46, 4774.	2.1	80
30	Consistent evaluation of ACOS-GOSAT, BESD-SCIAMACHY, CarbonTracker, and MACC through comparisons to TCCON. Atmospheric Measurement Techniques, 2016, 9, 683-709.	1.2	80
31	Estimates of European uptake of CO₂ inferred from GOSAT X_{CO₂} retrievals: sensitivity to measurement bias inside and outside Europe. Atmospheric Chemistry and Physics, 2016, 16, 1289-1302.	1.9	77
32	Forecasting global atmospheric CO₂. Atmospheric Chemistry and Physics, 2014, 14, 11959-11983.	1.9	74
33	A scientific algorithm to simultaneously retrieve carbon monoxide and methane from TROPOMI onboard Sentinel-5 Precursor. Atmospheric Measurement Techniques, 2019, 12, 6771-6802.	1.2	71
34	The Greenhouse Gas Climate Change Initiative (GHG-CCI): comparative validation of GHG-CCI SCIAMACHY/ENVISAT and TANSO-FTS/GOSAT CO₂ and CH₄ retrieval algorithm products with measurements from the TCCON. Atmospheric Measurement Techniques, 2014, 7, 1723-1744.	1.2	70
35	Ground-based remote sensing of tropospheric water vapour isotopologues within the project MUSICA. Atmospheric Measurement Techniques, 2012, 5, 3007-3027.	1.2	69
36	Assessing 5 years of GOSAT Proxy XCH₄ data and associated uncertainties. Atmospheric Measurement Techniques, 2015, 8, 4785-4801.	1.2	64

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37	Does GOSAT capture the true seasonal cycle of carbon dioxide?. Atmospheric Chemistry and Physics, 2015, 15, 13023-13040.	1.9	63
38	Validation of methane and carbon monoxide from Sentinel-5 Precursor using TCCON and NDACC-IRWG stations. Atmospheric Measurement Techniques, 2021, 14, 6249-6304.	1.2	57
39	A decade of GOSAT Proxy satellite CH₄ observations. Earth System Science Data, 2020, 12, 3383-3412.	3.7	53
40	Global satellite observations of column-averaged carbon dioxide and methane: The GHG-CCI XCO2 and XCH4 CRDP3 data set. Remote Sensing of Environment, 2017, 203, 276-295.	4.6	52
41	Consistent regional fluxes of CH₄ and CO₂ inferred from GOSAT proxy XCH₄â€:â€XCO₂ retrievals, 2010â€“2014. Atmospheric Chemistry and Physics, 2017, 17, 4781-4797.	1.9	52
42	Trace gas emissions from savanna fires in northern Australia. Journal of Geophysical Research, 2010, 115, .	3.3	51
43	The Ginninderra CH4 and CO2 release experiment: An evaluation of gas detection and quantification techniques. International Journal of Greenhouse Gas Control, 2018, 70, 202-224.	2.3	49
44	Effects of atmospheric light scattering on spectroscopic observations of greenhouse gases from space. Part 2: Algorithm intercomparison in the GOSAT data processing for CO₂ retrievals over TCCON sites. Journal of Geophysical Research D: Atmospheres, 2013, 118, 1493-1512.	1.2	46
45	Source and meteorological influences on air quality (CO, CH4 & CO2) at a Southern Hemisphere urban site. Atmospheric Environment, 2016, 126, 274-289.	1.9	46
46	HDO/H₂O ratio retrievals from GOSAT. Atmospheric Measurement Techniques, 2013, 6, 599-612.	1.2	45
47	Consistent satellite XCO₂ retrievals from SCIAMACHY and GOSAT using the BESD algorithm. Atmospheric Measurement Techniques, 2015, 8, 2961-2980.	1.2	45
48	Effects of atmospheric light scattering on spectroscopic observations of greenhouse gases from space: Validation of PPDFâ€based CO₂ retrievals from GOSAT. Journal of Geophysical Research, 2012, 117, .	3.3	42
49	The covariation of Northern Hemisphere summertime CO₂ with surface temperature in boreal regions. Atmospheric Chemistry and Physics, 2013, 13, 9447-9459.	1.9	42
50	Simulations of column-averaged CO₂ and CH₄ using the NIES TM with a hybrid sigma-isentropic (ï‚f-î¸) vertical coordinate. Atmospheric Chemistry and Physics, 2013, 13, 1713-1732.	1.9	42
51	Bias corrections of GOSAT SWIR XCO₂ and XCH₄ with TCCON data and their evaluation using aircraft measurement data. Atmospheric Measurement Techniques, 2016, 9, 3491-3512.	1.2	40
52	Using XCO₂ retrievals for assessing the long-term consistency of NDACC/FTIR data sets. Atmospheric Measurement Techniques, 2015, 8, 1555-1573.	1.2	39
53	Tropospheric CH₄ signals as observed by NDACC FTIR at globally distributed sites and comparison to GAW surface in situ measurements. Atmospheric Measurement Techniques, 2014, 7, 2337-2360.	1.2	38
54	Ability of the 4-D-Var analysis of the GOSAT BESD XCO₂ retrievals to characterize atmospheric CO₂ at large and synoptic scales. Atmospheric Chemistry and Physics, 2016, 16, 1653-1671.	1.9	38

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55	The Australian methane budget: Interpreting surface and train-borne measurements using a chemistry transport model. Journal of Geophysical Research, 2011, 116, .	3.3	36
56	Trace gas emissions from biomass burning inferred from aerosol optical depth. Geophysical Research Letters, 2004, 31, n/a-n/a.	1.5	34
57	Global land mapping of satellite-observed CO₂ total columns using spatio-temporal geostatistics. International Journal of Digital Earth, 2017, 10, 426-456.	1.6	33
58	Validation of five years (2003â€“2007) of SCIAMACHY CO total column measurements using ground-based spectrometer observations. Atmospheric Measurement Techniques, 2010, 3, 1457-1471.	1.2	31
59	Improved water vapour spectroscopy in the 4174â€“4300 cm^{â^'1} region and its impact on SCIAMACHY HDO/H₂O measurements. Atmospheric Measurement Techniques, 2013, 6, 879-894.	1.2	30
60	Improved method for linear carbon monoxide simulation and sourceÂattribution in atmospheric chemistry models illustratedÂusingÂGEOS-Chem v9. Geoscientific Model Development, 2017, 10, 4129-4144.	1.3	29
61	Evaluation of seasonal atmosphereâ€“biosphere exchange estimations with TCCON measurements. Atmospheric Chemistry and Physics, 2013, 13, 5103-5115.	1.9	28
62	Derivation of tropospheric methane from TCCON CH₄ and HF total column observations. Atmospheric Measurement Techniques, 2014, 7, 2907-2918.	1.2	28
63	Characterizing model errors in chemical transport modeling of methane: impact of model resolution in versions v9-02 of GEOS-Chem and v35j of its adjoint model. Geoscientific Model Development, 2020, 13, 3839-3862.	1.3	27
64	CH₄, CO, and H₂O spectroscopy for the Sentinel-5 Precursor mission: an assessment with the Total Carbon Column Observing Network measurements. Atmospheric Measurement Techniques, 2012, 5, 1387-1398.	1.2	26
65	Improved Constraints on Northern Extratropical CO₂ Fluxes Obtained by Combining Surfaceâ€Based and Spaceâ€Based Atmospheric CO₂ Measurements. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2019JD032029.	1.2	26
66	Automated ground-based remote sensing measurements of greenhouse gases at the BiaÅ‚ystok site in comparison with collocated in situ measurements and model data. Atmospheric Chemistry and Physics, 2012, 12, 6741-6755.	1.9	25
67	Technical Note: Latitude-time variations of atmospheric column-average dry air mole fractions of CO₂, CH₄ and N₂O. Atmospheric Chemistry and Physics, 2012, 12, 7767-7777.	1.9	25
68	Toward High Precision XCO₂Retrievals From TanSat Observations: Retrieval Improvement and Validation Against TCCON Measurements. Journal of Geophysical Research D: Atmospheres, 2020, 125, e2020JD032794.	1.2	25
69	First intercalibration of column-averaged methane from the Total Carbon Column Observing Network and the Network for the Detection of Atmospheric Composition Change. Atmospheric Measurement Techniques, 2013, 6, 397-418.	1.2	24
70	Seasonal variability of stratospheric methane: implications for constraining tropospheric methane budgets using total column observations. Atmospheric Chemistry and Physics, 2016, 16, 14003-14024.	1.9	24
71	The Total Carbon Column Observing Network site description for Lauder, New Zealand. Earth System Science Data, 2017, 9, 977-992.	3.7	24
72	SCIAMACHY WFM-DOAS <i>X</i>CO₂: reduction of scattering related errors. Atmospheric Measurement Techniques, 2012, 5, 2375-2390.	1.2	23

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73	Retrieval of tropospheric column-averaged CH₄ mole fraction by solar absorption FTIR-spectrometry using N₂O as a proxy. Atmospheric Measurement Techniques, 2014, 7, 3295-3305.	1.2	23
74	Evaluation of column-averaged methane in models and TCCON with a focus on the stratosphere. Atmospheric Measurement Techniques, 2016, 9, 4843-4859.	1.2	23
75	Validation of Carbon Trace Gas Profile Retrievals from the NOAA-Unique Combined Atmospheric Processing System for the Cross-Track Infrared Sounder. Remote Sensing, 2020, 12, 3245.	1.8	23
76	Multistation intercomparison of column-averaged methane from NDACC and TCCON: impact of dynamical variability. Atmospheric Measurement Techniques, 2014, 7, 4081-4101.	1.2	22
77	TCCON Philippines: First Measurement Results, Satellite Data and Model Comparisons in Southeast Asia. Remote Sensing, 2017, 9, 1228.	1.8	22
78	Ensemble-based satellite-derived carbon dioxide and methane column-averaged dry-air mole fraction data sets (2003â€“2018) for carbon and climate applications. Atmospheric Measurement Techniques, 2020, 13, 789-819.	1.2	22
79	Evaluation of MOPITT VersionÂ7 joint TIRâ€“NIR X_{CO} retrievals with TCCON. Atmospheric Measurement Techniques, 2019, 12, 5547-5572.	1.2	21
80	The Carbon Cycle of Southeast Australia During 2019â€“2020: Drought, Fires, and Subsequent Recovery. AGU Advances, 2021, 2, .	2.3	21
81	Positive trends in Southern Hemisphere carbonyl sulfide. Geophysical Research Letters, 2015, 42, 9473-9480.	1.5	20
82	Comparison of XH2O Retrieved from GOSAT Short-Wavelength Infrared Spectra with Observations from the TCCON Network. Remote Sensing, 2016, 8, 414.	1.8	20
83	Towards understanding the variability in biospheric CO₂Âfluxes: using FTIR spectrometry and a chemical transport model to investigate the sources and sinks of carbonyl sulfide and its link to CO₂. Atmospheric Chemistry and Physics, 2016, 16, 2123-2138.	1.9	20
84	Drivers of column-average CO₂ variability at Southern Hemispheric Total Carbon Column Observing Network sites. Atmospheric Chemistry and Physics, 2014, 14, 9883-9901.	1.9	18
85	Retrieval of xCO₂ from ground-based mid-infrared (NDACC) solar absorption spectra and comparison to TCCON. Atmospheric Measurement Techniques, 2016, 9, 577-585.	1.2	18
86	Satellite and ground-based measurements of XCO₂ in aÂremote semiarid region of Australia. Earth System Science Data, 2019, 11, 935-946.	3.7	18
87	Validation of SCIAMACHY HDO/H₂O measurements using the TCCON and NDACC-MUSICA networks. Atmospheric Measurement Techniques, 2015, 8, 1799-1818.	1.2	17
88	An intercomparison of total column-averaged nitrous oxide between ground-based FTIR TCCON and NDACC measurements at seven sites and comparisons with the GEOS-Chem model. Atmospheric Measurement Techniques, 2019, 12, 1393-1408.	1.2	17
89	Evaluation and Analysis of the Seasonal Cycle and Variability of the Trend from GOSAT Methane Retrievals. Remote Sensing, 2019, 11, 882.	1.8	17
90	An 11-year record of XCO₂ estimates derived from GOSAT measurements using the NASA ACOS version 9 retrieval algorithm. Earth System Science Data, 2022, 14, 325-360.	3.7	17

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91	On the potential of the 2041â€“2047nm spectral region for remote sensing of atmospheric CO2 isotopologues. Journal of Quantitative Spectroscopy and Radiative Transfer, 2012, 113, 2009-2017.	1.1	15
92	Simultaneous retrieval of atmospheric CO₂ and light path modification from space-based spectroscopic observations of greenhouse gases: methodology and application to GOSAT measurements over TCCON sites. Applied Optics, 2013, 52, 1339.	0.9	15
93	XCO₂ retrieval for GOSAT and GOSAT-2 based on the FOCAL algorithm. Atmospheric Measurement Techniques, 2021, 14, 3837-3869.	1.2	15
94	Characterizing model errors in chemical transport modeling of methane: using GOSAT XCH₄ data with weak-constraint four-dimensional variational data assimilation. Atmospheric Chemistry and Physics, 2021, 21, 9545-9572.	1.9	14
95	Improving atmospheric CO2 retrievals using line mixing and speed-dependence when fitting high-resolution ground-based solar spectra. Journal of Molecular Spectroscopy, 2016, 323, 15-27.	0.4	10
96	Study of the footprints of short-term variation in XCO₂ observed by TCCON sites using NIES and FLEXPART atmospheric transport models. Atmospheric Chemistry and Physics, 2017, 17, 143-157.	1.9	10
97	Emissions of methane in Europe inferred by total column measurements. Atmospheric Chemistry and Physics, 2019, 19, 3963-3980.	1.9	10
98	Improved calibration procedures for the EM27/SUN spectrometers of the COllaborative Carbon Column Observing Network (COCCON). Atmospheric Measurement Techniques, 2022, 15, 2433-2463.	1.2	10
99	Retrieval of greenhouse gases from GOSAT and GOSAT-2 using the FOCAL algorithm. Atmospheric Measurement Techniques, 2022, 15, 3401-3437.	1.2	10
100	Moist processes during MJO events as diagnosed from water isotopic measurements from the IASI satellite. Journal of Geophysical Research D: Atmospheres, 2015, 120, 10,619-10,636.	1.2	9
101	EOF-based regression algorithm for the fast retrieval of atmospheric CO2 total column amount from the GOSAT observations. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 189, 258-266.	1.1	9
102	Trainâ€borne measurements of tropical methane enhancements from ephemeral wetlands in Australia. Journal of Geophysical Research, 2010, 115, .	3.3	8
103	Total Carbon Column Observing Network Philippines: Toward Quantifying Atmospheric Carbon in Southeast Asia. Climate Disaster and Development Journal, 2017, 2, 1-12.	0.1	8
104	Was Australia a sink or source of CO₂ in 2015? Data assimilation using OCO-2 satellite measurements. Atmospheric Chemistry and Physics, 2021, 21, 17453-17494.	1.9	8
105	Contributions of the troposphere and stratosphere to CH₄ model biases. Atmospheric Chemistry and Physics, 2017, 17, 13283-13295.	1.9	7
106	Key challenges for tropospheric chemistry in the Southern Hemisphere. Elementa, 2022, 10, .	1.1	7
107	The impact of spectral resolution on satellite retrieval accuracy of CO₂ and CH₄. Atmospheric Measurement Techniques, 2014, 7, 1105-1119.	1.2	6
108	Validation of GOSAT SWIR XCO₂ and XCH₄ Retrieved by PPDF-S Method and Comparison with Full Physics Method. Scientific Online Letters on the Atmosphere, 2017, 13, 168-173.	0.6	6

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109	Australian Fire Emissions of Carbon Monoxide Estimated by Global Biomass Burning Inventories: Variability and Observational Constraints. Journal of Geophysical Research D: Atmospheres, 2022, 127, .	1.2	6
110	Simultaneous shipborne measurements of CO₂, CH₄ and CO and their application to improving greenhouse-gas flux estimates in Australia. Atmospheric Chemistry and Physics, 2019, 19, 7055-7072.	1.9	5
111	The Adaptable 4A Inversion (5AI): description and first <i>X</i>_{CO₂} retrievals from Orbiting Carbon Observatory-2 (OCO-2) observations. Atmospheric Measurement Techniques, 2021, 14, 4689-4706.	1.2	5
112	2019â€“20 Australian Bushfires and Anomalies in Carbon Monoxide Surface and Column Measurements. Atmosphere, 2021, 12, 755.	1.0	5
113	Interannual variability in the Australian carbon cycle over 2015â€“2019, based on assimilation of Orbiting Carbon Observatory-2 (OCO-2) satellite data. Atmospheric Chemistry and Physics, 2022, 22, 8897-8934.	1.9	5
114	The arctic seasonal cycle of total column CO₂ and CH₄ from ground-based solar and lunar FTIR absorption spectrometry. Atmospheric Measurement Techniques, 2017, 10, 2397-2411.	1.2	4
115	Bayesian atmospheric tomography for detection and quantification of methane emissions: application to data from the 2015 Ginninderra release experiment. Atmospheric Measurement Techniques, 2019, 12, 4659-4676.	1.2	4
116	Spectral sizing of a coarse-spectral-resolution satellite sensor for XCO₂. Atmospheric Measurement Techniques, 2020, 13, 731-745.	1.2	3
117	Validation of XCO₂ and XCH₄ retrieved from a portable Fourier transform spectrometer with those from in situ profiles from aircraft-borne instruments. Atmospheric Measurement Techniques, 2020, 13, 5149-5163.	1.2	3
118	On the consistency of methane retrievals using the Total Carbon Column Observing Network (TCCON) and multiple spectroscopic databases. Atmospheric Measurement Techniques, 2022, 15, 2377-2406.	1.2	3
119	Evaluation of Bias Correction Methods for GOSAT SWIR XH2O Using TCCON data. Remote Sensing, 2019, 11, 290.	1.8	2
120	Bias Correction of the Ratio of Total Column CH4 to CO2 Retrieved from GOSAT Spectra. Remote Sensing, 2020, 12, 3155.	1.8	2
121	Performance of an open-path near-infrared measurement system for measurements of CO₂ and CH₄ during extended field trials. Atmospheric Measurement Techniques, 2021, 14, 3119-3130.	1.2	2
122	Philippines TCCON Project: One-year Measurement Results and Future. , 2018, , .		0
123	Nitrous Oxide Profiling from Infrared Radiances (NOPIR): Algorithm Description, Application to 10 Years of IASI Observations and Quality Assessment. Remote Sensing, 2022, 14, 1810.	1.8	0