Peter Bauer

List of Publications by Year
in descending order

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Version: 2024-02-01

114 papers	27,297 citations	66343 42 h-index	24258 110 g-index
121 all docs	121 docs citations	121 times ranked	24856 citing authors

#	Article	IF	Citations
1	Ambitious partnership needed for reliable climate prediction. Nature Climate Change, 2022, 12, 499-503.	18.8	45
2	The digital revolution of Earth-system science. Nature Computational Science, 2021, 1, 104-113.	8.0	98
3	A digital twin of Earth for the green transition. Nature Climate Change, 2021, 11, 80-83.	18.8	158
4	Confronting Grand Challenges in environmental fluid mechanics. Physical Review Fluids, 2021, 6, .	2.5	37
5	The potential of numerical prediction systems to support the design of Arctic observing systems: Insights from the <scp>APPLICATE</scp> and <scp>YOPP</scp> projects. Quarterly Journal of the Royal Meteorological Society, 2021, 147, 3863-3877.	2.7	6
6	Bulk hydrometeor optical properties for microwave and sub-millimetre radiative transfer in RTTOV-SCATT v13.0. Geoscientific Model Development, 2021, 14, 7497-7526.	3.6	7
7	Advancing Research for Seamless Earth System Prediction. Bulletin of the American Meteorological Society, 2020, 101, E23-E35.	3.3	18
8	ECMWF global coupled atmosphere, ocean and sea-ice dataset for the Year of Polar Prediction 2017â€“2020. Scientific Data, 2020, 7, 427.	5.3	7
9	A Baseline for Global Weather and Climate Simulations at 1 km Resolution. Journal of Advances in Modeling Earth Systems, 2020, 12, e2020MS002192.	3.8	54
10	New Methods for Data Storage of Model Output from Ensemble Simulations. Monthly Weather Review, 2019, 147, 677-689.	1.4	1
11	Assessing the scales in numerical weather and climate predictions: will exascale be the rescue?. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2019, 377, 20180148.	3.4	48
12	The ESCAPE project: Energy-efficient Scalable Algorithms for Weather Prediction at Exascale. Geoscientific Model Development, 2019, 12, 4425-4441.	3.6	19
13	Use and impact of Arctic observations in the ECMWF Numerical Weather Prediction system. Quarterly Journal of the Royal Meteorological Society, 2019, 145, 3432-3454.	2.7	57
14	Reflecting on the Goal and Baseline for Exascale Computing: A Roadmap Based on Weather and Climate Simulations. Computing in Science and Engineering, 2019, 21, 30-41.	1.2	47
15	Crossing the chasm: how to develop weather and climate models for next generation computers?. Geoscientific Model Development, 2018, 11, 1799-1821.	3.6	50
16	Challenges and design choices for global weather and climate models based on machine learning. Geoscientific Model Development, 2018, 11, 3999-4009.	3.6	179
17	Atlas : A library for numerical weather prediction and climate modelling. Computer Physics Communications, 2017, 220, 188-204.	7.5	29
18	Aspects of ECMWF model performance in polar areas. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 583-596.	2.7	31

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19	A comparison of the regional Arctic System Reanalysis and the global ERAâ€Interim Reanalysis for the Arctic. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 644-658.	2.7	125
20	Paving the Way for the Year of Polar Prediction. Bulletin of the American Meteorological Society, 2016, 97, ES85-ES88.	3.3	20
21	Advancing Polar Prediction Capabilities on Daily to Seasonal Time Scales. Bulletin of the American Meteorological Society, 2016, 97, 1631-1647.	3.3	199
22	Observation impact over the southern polar area during the Concordiasi field campaign. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 597-610.	2.7	15
23	Editorial for the Quarterly Journal's special issue on Polar Prediction. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 537-538.	2.7	3
24	The quiet revolution of numerical weather prediction. Nature, 2015, 525, 47-55.	27.8	1,429
25	Optimization of NWP model closure parameters using total energy norm of forecast error as a target. Geoscientific Model Development, 2014, 7, 1889-1900.	3.6	18
26	GNSS Radio Occultation Constellation Observing System Experiments. Monthly Weather Review, 2014, 142, 555-572.	1.4	52
27	Global versus Local MJO Forecast Skill of the ECMWF Model during DYNAMO. Monthly Weather Review, 2014, 142, 2228-2247.	1.4	56
28	The use of variable CO₂ in the data assimilation of AIRS and IASI radiances. Quarterly Journal of the Royal Meteorological Society, 2014, 140, 958-965.	2.7	17
29	Weather Prediction. Encyclopedia of Earth Sciences Series, 2014, , 912-921.	0.1	0
30	Quality Assessment of Cloud-Top Height Estimates From Satellite IR Radiances Using the CALIPSO Lidar. IEEE Transactions on Geoscience and Remote Sensing, 2013, 51, 2454-2464.	6.3	17
31	Scaling of GNSS Radio Occultation Impact with Observation Number Using an Ensemble of Data Assimilations. Monthly Weather Review, 2013, 141, 4395-4413.	1.4	41
32	Characteristics of Occasional Poor Medium-Range Weather Forecasts for Europe. Bulletin of the American Meteorological Society, 2013, 94, 1393-1405.	3.3	139
33	Driftsonde Observations to Evaluate Numerical Weather Prediction of the Late 2006 African Monsoon. Journal of Applied Meteorology and Climatology, 2013, 52, 974-995.	1.5	4
34	Intercomparison of High-Resolution Precipitation Products over Northwest Europe. Journal of Hydrometeorology, 2012, 13, 67-83.	1.9	218
35	Comparing rain retrievals from GPROF with ECMWF 1Dâ€Var products. Quarterly Journal of the Royal Meteorological Society, 2012, 138, 1852-1866.	2.7	3
36	Interpreting an evaluation of the ECMWF global model with CloudSat observations: ambiguities due to radar reflectivity forward operator uncertainties. Quarterly Journal of the Royal Meteorological Society, 2012, 138, 2047-2065.	2.7	28

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37	Experimental 1D + 4Dâ€Var assimilation of CloudSat observations. Quarterly Journal of the Royal Meteorological Society, 2012, 138, 1196-1220.	2.7	18
38	Improved assimilation of data from China's FYâ€3A microwave temperature sounder. Atmospheric Science Letters, 2012, 13, 9-15.	1.9	7
39	Microwave Absorption, Emission and Scattering: Trace Gases and Meteorological Parameters. Physics of Earth and Space Environments, 2011, , 153-230.	0.5	4
40	Impact of singularâ€vectorâ€based satellite data thinning on NWP. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 286-302.	2.7	23
41	The ERAâ€Interim reanalysis: configuration and performance of the data assimilation system. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 553-597.	2.7	20,227
42	Observation errors in allâ€sky data assimilation. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 2024-2037.	2.7	142
43	Estimates of observationâ€error characteristics in clear and cloudy regions for microwave imager radiances from numerical weather prediction. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 2014-2023.	2.7	31
44	An evaluation of FYâ€3A satellite data for numerical weather prediction. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 1298-1311.	2.7	33
45	Satellite cloud and precipitation assimilation at operational NWP centres. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 1934-1951.	2.7	112
46	The use of cloud and precipitation observations in data assimilation (CPDA). Quarterly Journal of the Royal Meteorological Society, 2011, 137, 1933-1933.	2.7	6
47	Characterizing the FY-3A Microwave Temperature Sounder Using the ECMWF Model. Journal of Atmospheric and Oceanic Technology, 2011, 28, 1373-1389.	1.3	43
48	Assimilating Satellite Observations of Clouds and Precipitation into NWP Models. Bulletin of the American Meteorological Society, 2011, 92, ES25-ES28.	3.3	51
49	Solar Biases in Microwave Imager Observations Assimilated at ECMWF. IEEE Transactions on Geoscience and Remote Sensing, 2010, 48, 2660-2669.	6.3	23
50	Estimates of spatial and interchannel observation-error characteristics for current sounder radiances for numerical weather prediction. II: Application to AIRS and IASI data. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 1051-1063.	2.7	77
51	Estimates of spatial and interchannel observation-error characteristics for current sounder radiances for numerical weather prediction. I: Methods and application to ATOVS data. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 1036-1050.	2.7	115
52	Direct 4D-Var assimilation of all-sky radiances. Part I: Implementation. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 1868-1885.	2.7	172
53	Direct 4D-Var assimilation of all-sky radiances. Part II: Assessment. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 1886-1905.	2.7	93
54	Ground validation of oceanic snowfall detection in satellite climatologies during LOFZY. Tellus, Series A: Dynamic Meteorology and Oceanography, 2010, 62, 469-480.	1.7	18

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55	Satellite Data Simulator Unit. Bulletin of the American Meteorological Society, 2010, 91, 1625-1632.	3.3	85
56	An Evaluation of Precipitation Forecasts from Operational Models and Reanalyses Including Precipitation Variations Associated with MJO Activity. Monthly Weather Review, 2010, 138, 4542-4560.	1.4	26
57	The Radiometric Sensitivity Requirements for Satellite Microwave Temperature Sounding Instruments for Numerical Weather Prediction. Journal of Atmospheric and Oceanic Technology, 2010, 27, 443-456.	1.3	7
58	High-Repetition Millimeter-Wave Passive Remote Sensing of Humidity and Hydrometeor Profiles from Elliptical Orbit Constellations. Journal of Applied Meteorology and Climatology, 2010, 49, 1454-1476.	1.5	4
59	A review of satellite meteorology and climatology at the start of the twenty-first century. Progress in Physical Geography, 2009, 33, 474-489.	3.2	34
60	A Revised Cloud Overlap Scheme for Fast Microwave Radiative Transfer in Rain and Cloud. Journal of Applied Meteorology and Climatology, 2009, 48, 2257-2270.	1.5	40
61	4Dâ€Var assimilation of MERIS total column waterâ€vapour retrievals over land. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 1852-1862.	2.7	13
62	Precipitation: Measurement, remote sensing, climatology and modeling. Atmospheric Research, 2009, 94, 512-533.	4.1	334
63	Lessons learnt from the operational 1D + 4Dâ€Var assimilation of rainâ€and cloudâ€affected SSM/I observations at ECMWF. Quarterly Journal of the Royal Meteorological Society, 2008, 134, 1513-1525.	2.7	46
64	Impact of SSM/I Observations Related to Moisture, Clouds, and Precipitation on Global NWP Forecast Skill. Monthly Weather Review, 2008, 136, 2713-2726.	1.4	34
65	A Fast Cloud Overlap Parameterization for Microwave Radiance Assimilation. Journals of the Atmospheric Sciences, 2007, 64, 3896-3909.	1.7	7
66	Issues Regarding the Assimilation of Cloud and Precipitation Data. Journals of the Atmospheric Sciences, 2007, 64, 3785-3798.	1.7	133
67	Assimilation of Satellite Cloud and Precipitation Observations in Numerical Weather Prediction Models: Introduction to the JAS Special Collection. Journals of the Atmospheric Sciences, 2007, 64, 3737-3741.	1.7	28
68	â€œ1D+4DVARâ€•Assimilation of NCEP Stage-IV Radar and Gauge Hourly Precipitation Data at ECMWF. Monthly Weather Review, 2007, 135, 2506-2524.	1.4	46
69	Analysis and forecast impact of the main humidity observing systems. Quarterly Journal of the Royal Meteorological Society, 2007, 133, 1473-1485.	2.7	76
70	A Next-generation Microwave Rainfall Retrieval Algorithm for use by TRMM and GPM. , 2007, , 235-252.		5
71	Snowfall Measurements by Proposed European GPM Mission. , 2007, , 655-674.		13
72	The European Centre for Medium-Range Weather Forecasts Global Rainfall Data Assimilation Experimentation. , 2007, , 447-457.		0

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73	The Successive-Order-of-Interaction Radiative Transfer Model. Part II: Model Performance and Applications. Journal of Applied Meteorology and Climatology, 2006, 45, 1403-1413.	1.5	31
74	Multiple-scattering microwave radiative transfer for data assimilation applications. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 1259-1281.	2.7	104
75	Passive microwave radiometer channel selection based on cloud and precipitation information content. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 1299-1323.	2.7	25
76	Implementation of 1D+4D-Var assimilation of precipitation-affected microwave radiances at ECMWF. I: 1D-Var. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 2277-2306.	2.7	102
77	Experimental 2D-Var assimilation of ARM cloud and precipitation observations. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 1325-1347.	2.7	19
78	Implementation of 1D+4D-Var assimilation of precipitation-affected microwave radiances at ECMWF. II: 4D-Var. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 2307-2332.	2.7	85
79	Modeling uncertainties for passive microwave precipitation retrieval: evaluation of a case study. IEEE Transactions on Geoscience and Remote Sensing, 2006, 44, 78-89.	6.3	12
80	The International Precipitation Working Group and Its Role in the Improvement of Quantitative Precipitation Measurements. Bulletin of the American Meteorological Society, 2006, 87, 643-648.	3.3	28
81	Verification of TMI-Adjusted Rainfall Analyses of Tropical Cyclones at ECMWF Using TRMM Precipitation Radar. Journal of Applied Meteorology and Climatology, 2005, 44, 1677-1690.	1.7	12
82	Hydrometeor Retrieval Accuracy Using Microwave Window and Sounding Channel Observations. Journal of Applied Meteorology and Climatology, 2005, 44, 1016-1032.	1.7	37
83	The assimilation of SSM/I and TMI rainfall rates in the ECMWF 4D-Var system. Quarterly Journal of the Royal Meteorological Society, 2005, 131, 437-458.	2.7	29
84	Experimental use of TRMM precipitation radar observations in 1D+4D-Var assimilation. Quarterly Journal of the Royal Meteorological Society, 2005, 131, 2473-2495.	2.7	29
85	Bayesian algorithm for microwave-based precipitation retrieval: description and application to TMI measurements over ocean. IEEE Transactions on Geoscience and Remote Sensing, 2005, 43, 778-791.	6.3	33
86	Comments on "Interference from 24-GHz automotive Radars to passive microwave Earth remote sensing Satellites". IEEE Transactions on Geoscience and Remote Sensing, 2005, 43, 1691-1692.	6.3	1
87	Assimilation and Modeling of the Atmospheric Hydrological Cycle in the ECMWF Forecasting System. Bulletin of the American Meteorological Society, 2005, 86, 387-402.	3.3	143
88	Variational retrieval of temperature and humidity profiles using rain rates versus microwave brightness temperatures. Quarterly Journal of the Royal Meteorological Society, 2004, 130, 827-852.	2.7	49
89	A comparison of ocean emissivity models using the Advanced Microwave Sounding Unit, the Special Sensor Microwave Imager, the TRMM Microwave Imager, and airborne radiometer observations. Journal of Geophysical Research, 2003, 108, .	3.3	42
90	Variational retrieval of rain profiles from spaceborne passive microwave radiance observations. Journal of Geophysical Research, 2003, 108, .	3.3	27

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91	Precipitation profile retrievals using temperature-sounding microwave observations. Journal of Geophysical Research, 2003, 108, .	3.3	31
92	Model Rain and Clouds over Oceans: Comparison with SSM/I Observations. Monthly Weather Review, 2003, 131, 1240-1255.	1.4	35
93	Intercomparison of microwave radiative transfer models for precipitating clouds. IEEE Transactions on Geoscience and Remote Sensing, 2002, 40, 541-549.	6.3	54
94	Error analysis of TMI rainfall estimates over ocean for variational data assimilation. Quarterly Journal of the Royal Meteorological Society, 2002, 128, 2129-2144.	2.7	37
95	Variational retrieval of cloud profile from ATOVS observations. Quarterly Journal of the Royal Meteorological Society, 2002, 128, 2511-2525.	2.7	30
96	Comparison of TMI rainfall estimates and their impact on 4D-Var assimilation. Quarterly Journal of the Royal Meteorological Society, 2002, 128, 2737-2758.	2.7	13
97	Precipitation Modeling for Inversion Purposes. , 2002, , 19-34.		0
98	Sensitivity analysis of airborne microwave retrieval of stratiform precipitation to the melting layer parameterization. IEEE Transactions on Geoscience and Remote Sensing, 2001, 39, 75-91.	6.3	17
99	Including a melting layer in microwave radiative transfer simulation for clouds. Atmospheric Research, 2001, 57, 9-30.	4.1	34
100	A Melting-Layer Model for Passive/Active Microwave Remote Sensing Applications. Part I: Model Formulation and Comparison with Observations. Journal of Applied Meteorology and Climatology, 2001, 40, 1145-1163.	1.7	63
101	Over-Ocean Rainfall Retrieval from Multisensor Data of the Tropical Rainfall Measuring Mission. Part I: Design and Evaluation of Inversion Databases. Journal of Atmospheric and Oceanic Technology, 2001, 18, 1315-1330.	1.3	60
102	Over-Ocean Rainfall Retrieval from Multisensor Data of the Tropical Rainfall Measuring Mission. Part II: Algorithm Implementation. Journal of Atmospheric and Oceanic Technology, 2001, 18, 1838-1855.	1.3	48
103	Model Clouds over Oceans as Seen from Space: Comparison with HIRS/2 and MSU Radiances. Journal of Climate, 2001, 14, 4216-4229.	3.2	46
104	A Melting-Layer Model for Passive/Active Microwave Remote Sensing Applications. Part II: Simulation of TRMM Observations. Journal of Applied Meteorology and Climatology, 2001, 40, 1164-1179.	1.7	41
105	The comparative impact of the assimilation of SSM/I and TMI brightness temperatures in the ECMWF 4D-Var system. Quarterly Journal of the Royal Meteorological Society, 2001, 127, 1123-1142.	2.7	11
106	Combined Cloudâ€“Microwave Radiative Transfer Modeling of Stratiform Rainfall. Journals of the Atmospheric Sciences, 2000, 57, 1082-1104.	1.7	43
107	The Effect of the Melting Layer on the Microwave Emission of Clouds over the Ocean. Journals of the Atmospheric Sciences, 1999, 56, 852-867.	1.7	35
108	Tropical Rainfall Measuring Mission microwave imaging capabilities for the observation of rain clouds. Radio Science, 1998, 33, 335-349.	1.6	21

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109	Correction of Three-Dimensional Effects for Passive Microwave Remote Sensing of Convective Clouds. Journal of Applied Meteorology and Climatology, 1998, 37, 1619-1632.	1.7	40
110	Results of WetNet PIP-2 Project. Journals of the Atmospheric Sciences, 1998, 55, 1483-1536.	1.7	145
111	The potential of combining SSM/I and SSM/T2 measurements to improve the identification of snowcover and precipitation. IEEE Transactions on Geoscience and Remote Sensing, 1995, 33, 252-261.	6.3	18
112	Algorithms for the retrieval of rainfall from passive microwave measurements. International Journal of Remote Sensing, 1994, 11, 163-194.	1.0	96
113	The first WetNet precipitation intercomparison project (PIPâ€1): Interpretation of results. International Journal of Remote Sensing, 1994, 11, 303-373.	1.0	44
114	Rainfall, total water, ice water, and water vapor over sea from polarized microwave simulations and Special Sensor Microwave/Imager data. Journal of Geophysical Research, 1993, 98, 20737-20759.	3.3	117