

Peter Bauer

List of Publications by Year in descending order

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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	The ERA-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
2	The quiet revolution of numerical weather prediction. Nature, 2015, 525, 47-55.	27.8	1,429
3	Precipitation: Measurement, remote sensing, climatology and modeling. Atmospheric Research, 2009, 94, 512-533.	4.1	334
4	Intercomparison of High-Resolution Precipitation Products over Northwest Europe. Journal of Hydrometeorology, 2012, 13, 67-83.	1.9	218
5	Advancing Polar Prediction Capabilities on Daily to Seasonal Time Scales. Bulletin of the American Meteorological Society, 2016, 97, 1631-1647.	3.3	199
6	Challenges and design choices for global weather and climate models based on machine learning. Geoscientific Model Development, 2018, 11, 3999-4009.	3.6	179
7	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
8	A digital twin of Earth for the green transition. Nature Climate Change, 2021, 11, 80-83.	18.8	158
9	Results of WetNet PIP-2 Project. Journals of the Atmospheric Sciences, 1998, 55, 1483-1536.	1.7	145
10	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
11	Observation errors in all-sky data assimilation. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 2024-2037.	2.7	142
12	Characteristics of Occasional Poor Medium-Range Weather Forecasts for Europe. Bulletin of the American Meteorological Society, 2013, 94, 1393-1405.	3.3	139
13	Issues Regarding the Assimilation of Cloud and Precipitation Data. Journals of the Atmospheric Sciences, 2007, 64, 3785-3798.	1.7	133
14	A comparison of the regional Arctic System Reanalysis and the global ERA-Interim Reanalysis for the Arctic. Quarterly Journal of the Royal Meteorological Society, 2016, 142, 644-658.	2.7	125
15	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
16	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
17	Satellite cloud and precipitation assimilation at operational NWP centres. Quarterly Journal of the Royal Meteorological Society, 2011, 137, 1934-1951.	2.7	112
18	Multiple-scattering microwave radiative transfer for data assimilation applications. Quarterly Journal of the Royal Meteorological Society, 2006, 132, 1259-1281.	2.7	104

#	ARTICLE	IF	CITATIONS
19	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
20	The digital revolution of Earth-system science. Nature Computational Science, 2021, 1, 104-113.	8.0	98
21	Algorithms for the retrieval of rainfall from passive microwave measurements. International Journal of Remote Sensing, 1994, 11, 163-194.	1.0	96
22	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
23	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
24	Satellite Data Simulator Unit. Bulletin of the American Meteorological Society, 2010, 91, 1625-1632.	3.3	85
25	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
26	Analysis and forecast impact of the main humidity observing systems. Quarterly Journal of the Royal Meteorological Society, 2007, 133, 1473-1485.	2.7	76
27	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
28	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
29	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
30	Global versus Local MJO Forecast Skill of the ECMWF Model during DYNAMO. Monthly Weather Review, 2014, 142, 2228-2247.	1.4	56
31	Intercomparison of microwave radiative transfer models for precipitating clouds. IEEE Transactions on Geoscience and Remote Sensing, 2002, 40, 541-549.	6.3	54
32	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
33	GNSS Radio Occultation Constellation Observing System Experiments. Monthly Weather Review, 2014, 142, 555-572.	1.4	52
34	Assimilating Satellite Observations of Clouds and Precipitation into NWP Models. Bulletin of the American Meteorological Society, 2011, 92, ES25-ES28.	3.3	51
35	Crossing the chasm: how to develop weather and climate models for next generation computers?. Geoscientific Model Development, 2018, 11, 1799-1821.	3.6	50
36	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

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37	Over-Ocean Rainfall Retrieval from Multisensor Data of the Tropical Rainfall Measuring Mission. Part II: Algorithm Implementation. <i>Journal of Atmospheric and Oceanic Technology</i> , 2001, 18, 1838-1855.	1.3	48
38	Assessing the scales in numerical weather and climate predictions: will exascale be the rescue?. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2019, 377, 20180148.	3.4	48
39	Reflecting on the Goal and Baseline for Exascale Computing: A Roadmap Based on Weather and Climate Simulations. <i>Computing in Science and Engineering</i> , 2019, 21, 30-41.	1.2	47
40	Model Clouds over Oceans as Seen from Space: Comparison with HIRS/2 and MSU Radiances. <i>Journal of Climate</i> , 2001, 14, 4216-4229.	3.2	46
41	1D+4DVAR-Assimilation of NCEP Stage-IV Radar and Gauge Hourly Precipitation Data at ECMWF. <i>Monthly Weather Review</i> , 2007, 135, 2506-2524.	1.4	46
42	Lessons learnt from the operational 1D + 4DVar assimilation of rain- and cloud-affected SSM/I observations at ECMWF. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2008, 134, 1513-1525.	2.7	46
43	Ambitious partnership needed for reliable climate prediction. <i>Nature Climate Change</i> , 2022, 12, 499-503.	18.8	45
44	The first WetNet precipitation intercomparison project (PIP1): Interpretation of results. <i>International Journal of Remote Sensing</i> , 1994, 11, 303-373.	1.0	44
45	Combined Cloud-Microwave Radiative Transfer Modeling of Stratiform Rainfall. <i>Journals of the Atmospheric Sciences</i> , 2000, 57, 1082-1104.	1.7	43
46	Characterizing the FY-3A Microwave Temperature Sounder Using the ECMWF Model. <i>Journal of Atmospheric and Oceanic Technology</i> , 2011, 28, 1373-1389.	1.3	43
47	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. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	42
48	A Melting-Layer Model for Passive/Active Microwave Remote Sensing Applications. Part II: Simulation of TRMM Observations. <i>Journal of Applied Meteorology and Climatology</i> , 2001, 40, 1164-1179.	1.7	41
49	Scaling of GNSS Radio Occultation Impact with Observation Number Using an Ensemble of Data Assimilations. <i>Monthly Weather Review</i> , 2013, 141, 4395-4413.	1.4	41
50	Correction of Three-Dimensional Effects for Passive Microwave Remote Sensing of Convective Clouds. <i>Journal of Applied Meteorology and Climatology</i> , 1998, 37, 1619-1632.	1.7	40
51	A Revised Cloud Overlap Scheme for Fast Microwave Radiative Transfer in Rain and Cloud. <i>Journal of Applied Meteorology and Climatology</i> , 2009, 48, 2257-2270.	1.5	40
52	Error analysis of TMI rainfall estimates over ocean for variational data assimilation. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2002, 128, 2129-2144.	2.7	37
53	Hydrometeor Retrieval Accuracy Using Microwave Window and Sounding Channel Observations. <i>Journal of Applied Meteorology and Climatology</i> , 2005, 44, 1016-1032.	1.7	37
54	Confronting Grand Challenges in environmental fluid mechanics. <i>Physical Review Fluids</i> , 2021, 6, .	2.5	37

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55	The Effect of the Melting Layer on the Microwave Emission of Clouds over the Ocean. <i>Journals of the Atmospheric Sciences</i> , 1999, 56, 852-867.	1.7	35
56	Model Rain and Clouds over Oceans: Comparison with SSM/I Observations. <i>Monthly Weather Review</i> , 2003, 131, 1240-1255.	1.4	35
57	Including a melting layer in microwave radiative transfer simulation for clouds. <i>Atmospheric Research</i> , 2001, 57, 9-30.	4.1	34
58	Impact of SSM/I Observations Related to Moisture, Clouds, and Precipitation on Global NWP Forecast Skill. <i>Monthly Weather Review</i> , 2008, 136, 2713-2726.	1.4	34
59	A review of satellite meteorology and climatology at the start of the twenty-first century. <i>Progress in Physical Geography</i> , 2009, 33, 474-489.	3.2	34
60	Bayesian algorithm for microwave-based precipitation retrieval: description and application to TMI measurements over ocean. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2005, 43, 778-791.	6.3	33
61	An evaluation of FYÅ€A satellite data for numerical weather prediction. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2011, 137, 1298-1311.	2.7	33
62	Precipitation profile retrievals using temperature-sounding microwave observations. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	31
63	The Successive-Order-of-Interaction Radiative Transfer Model. Part II: Model Performance and Applications. <i>Journal of Applied Meteorology and Climatology</i> , 2006, 45, 1403-1413.	1.5	31
64	Estimates of observationâ€error characteristics in clear and cloudy regions for microwave imager radiances from numerical weather prediction. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2011, 137, 2014-2023.	2.7	31
65	Aspects of ECMWF model performance in polar areas. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2016, 142, 583-596.	2.7	31
66	Variational retrieval of cloud profile from ATOVS observations. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2002, 128, 2511-2525.	2.7	30
67	The assimilation of SSM/I and TMI rainfall rates in the ECMWF 4D-Var system. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2005, 131, 437-458.	2.7	29
68	Experimental use of TRMM precipitation radar observations in 1D+4D-Var assimilation. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2005, 131, 2473-2495.	2.7	29
69	Atlas : A library for numerical weather prediction and climate modelling. <i>Computer Physics Communications</i> , 2017, 220, 188-204.	7.5	29
70	The International Precipitation Working Group and Its Role in the Improvement of Quantitative Precipitation Measurements. <i>Bulletin of the American Meteorological Society</i> , 2006, 87, 643-648.	3.3	28
71	Assimilation of Satellite Cloud and Precipitation Observations in Numerical Weather Prediction Models: Introduction to the JAS Special Collection. <i>Journals of the Atmospheric Sciences</i> , 2007, 64, 3737-3741.	1.7	28
72	Interpreting an evaluation of the ECMWF global model with CloudSat observations: ambiguities due to radar reflectivity forward operator uncertainties. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2012, 138, 2047-2065.	2.7	28

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73	Variational retrieval of rain profiles from spaceborne passive microwave radiance observations. <i>Journal of Geophysical Research</i> , 2003, 108, .	3.3	27
74	An Evaluation of Precipitation Forecasts from Operational Models and Reanalyses Including Precipitation Variations Associated with MJO Activity. <i>Monthly Weather Review</i> , 2010, 138, 4542-4560.	1.4	26
75	Passive microwave radiometer channel selection based on cloud and precipitation information content. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2006, 132, 1299-1323.	2.7	25
76	Solar Biases in Microwave Imager Observations Assimilated at ECMWF. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2010, 48, 2660-2669.	6.3	23
77	Impact of singularâ€vectorâ€based satellite data thinning on NWP. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2011, 137, 286-302.	2.7	23
78	Tropical Rainfall Measuring Mission microwave imaging capabilities for the observation of rain clouds. <i>Radio Science</i> , 1998, 33, 335-349.	1.6	21
79	Paving the Way for the Year of Polar Prediction. <i>Bulletin of the American Meteorological Society</i> , 2016, 97, ES85-ES88.	3.3	20
80	Experimental 2D-Var assimilation of ARM cloud and precipitation observations. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2006, 132, 1325-1347.	2.7	19
81	The ESCAPE project: Energy-efficient Scalable Algorithms for Weather Prediction at Exascale. <i>Geoscientific Model Development</i> , 2019, 12, 4425-4441.	3.6	19
82	The potential of combining SSM/I and SSM/T2 measurements to improve the identification of snowcover and precipitation. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 1995, 33, 252-261.	6.3	18
83	Ground validation of oceanic snowfall detection in satellite climatologies during LOFZY. <i>Tellus, Series A: Dynamic Meteorology and Oceanography</i> , 2010, 62, 469-480.	1.7	18
84	Experimental 1D + 4Dâ€Var assimilation of CloudSat observations. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2012, 138, 1196-1220.	2.7	18
85	Optimization of NWP model closure parameters using total energy norm of forecast error as a target. <i>Geoscientific Model Development</i> , 2014, 7, 1889-1900.	3.6	18
86	Advancing Research for Seamless Earth System Prediction. <i>Bulletin of the American Meteorological Society</i> , 2020, 101, E23-E35.	3.3	18
87	Sensitivity analysis of airborne microwave retrieval of stratiform precipitation to the melting layer parameterization. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2001, 39, 75-91.	6.3	17
88	Quality Assessment of Cloud-Top Height Estimates From Satellite IR Radiances Using the CALIPSO Lidar. <i>IEEE Transactions on Geoscience and Remote Sensing</i> , 2013, 51, 2454-2464.	6.3	17
89	The use of variable CO ₂ in the data assimilation of AIRS and IASI radiances. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2014, 140, 958-965.	2.7	17
90	Observation impact over the southern polar area during the Concordiasi field campaign. <i>Quarterly Journal of the Royal Meteorological Society</i> , 2016, 142, 597-610.	2.7	15

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91	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
92	4D-Var assimilation of MERIS total column water vapour retrievals over land. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 1852-1862.	2.7	13
93	Snowfall Measurements by Proposed European GPM Mission. , 2007, , 655-674.		13
94	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
95	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
96	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
97	A Fast Cloud Overlap Parameterization for Microwave Radiance Assimilation. Journals of the Atmospheric Sciences, 2007, 64, 3896-3909.	1.7	7
98	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
99	Improved assimilation of data from China's FY-3A microwave temperature sounder. Atmospheric Science Letters, 2012, 13, 9-15.	1.9	7
100	ECMWF global coupled atmosphere, ocean and sea-ice dataset for the Year of Polar Prediction 2017-2020. Scientific Data, 2020, 7, 427.	5.3	7
101	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
102	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
103	The potential of numerical prediction systems to support the design of Arctic observing systems: Insights from the <sc>APPLICATE</sc> and <sc>YOPP</sc> projects. Quarterly Journal of the Royal Meteorological Society, 2021, 147, 3863-3877.	2.7	6
104	A Next-generation Microwave Rainfall Retrieval Algorithm for use by TRMM and GPM. , 2007, , 235-252.		5
105	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
106	Microwave Absorption, Emission and Scattering: Trace Gases and Meteorological Parameters. Physics of Earth and Space Environments, 2011, , 153-230.	0.5	4
107	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
108	Comparing rain retrievals from GPROF with ECMWF 1D-Var products. Quarterly Journal of the Royal Meteorological Society, 2012, 138, 1852-1866.	2.7	3

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109	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
110	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
111	New Methods for Data Storage of Model Output from Ensemble Simulations. Monthly Weather Review, 2019, 147, 677-689.	1.4	1
112	The European Centre for Medium-Range Weather Forecasts Global Rainfall Data Assimilation Experimentation. , 2007, , 447-457.		0
113	Weather Prediction. Encyclopedia of Earth Sciences Series, 2014, , 912-921.	0.1	0
114	Precipitation Modeling for Inversion Purposes. , 2002, , 19-34.		0