Chiel C Van Heerwaarden

List of Publications by Year
in descending order

78 papers	3,233 citations	218677 26 h-index	161849 54 g-index
126 all docs	126 docs citations	126 times ranked	4286 citing authors

#	Article	IF	Citations
1	Mega-heatwave temperatures due to combined soil desiccation and atmospheric heat accumulation. Nature Geoscience, 2014, 7, 345-349.	12.9	694
2	Landâ€“Atmosphere Interactions: The LoCo Perspective. Bulletin of the American Meteorological Society, 2018, 99, 1253-1272.	3.3	226
3	Formulation of the Dutch Atmospheric Large-Eddy Simulation (DALES) and overview of its applications. Geoscientific Model Development, 2010, 3, 415-444.	3.6	213
4	Amplification of mega-heatwaves through heat torrents fuelled by upwind drought. Nature Geoscience, 2019, 12, 712-717.	12.9	168
5	Interactions between dryâ€air entrainment, surface evaporation and convective boundaryâ€layer development. Quarterly Journal of the Royal Meteorological Society, 2009, 135, 1277-1291.	2.7	132
6	Observational evidence for cloud cover enhancement over western European forests. Nature Communications, 2017, 8, 14065.	12.8	104
7	Relative Humidity as an Indicator for Cloud Formation over Heterogeneous Land Surfaces. Journals of the Atmospheric Sciences, 2008, 65, 3263-3277.	1.7	92
8	Towards Adaptive Grids for Atmospheric Boundary-Layer Simulations. Boundary-Layer Meteorology, 2018, 167, 421-443.	2.3	91
9	Understanding the Daily Cycle of Evapotranspiration: A Method to Quantify the Influence of Forcings and Feedbacks. Journal of Hydrometeorology, 2010, 11, 1405-1422.	1.9	89
10	Clouds and Convective Selfâ€Aggregation in a Multimodel Ensemble of Radiativeâ€Convective Equilibrium Simulations. Journal of Advances in Modeling Earth Systems, 2020, 12, e2020MS002138.	3.8	86
11	The Influence of Land Surface Heterogeneities on Cloud Size Development. Monthly Weather Review, 2014, 142, 3830-3846.	1.4	82
12	Modelled suppression of boundary-layer clouds by plants in a CO2-rich atmosphere. Nature Geoscience, 2012, 5, 701-704.	12.9	81
13	On the segregation of chemical species in a clear boundary layer over heterogeneous land surfaces. Atmospheric Chemistry and Physics, 2011, 11, 10681-10704.	4.9	67
14	Social-ecological systems in the Anthropocene: The need for integrating social and biophysical records at regional scales. Infrastructure Asset Management, 2015, 2, 220-246.	1.6	65
15	MicroHH 1.0: a computational fluid dynamics code for direct numerical simulation and large-eddy simulation of atmospheric boundary layer flows. Geoscientific Model Development, 2017, 10, 3145-3165.	3.6	61
16	Scaling Laws for the Heterogeneously Heated Free Convective Boundary Layer. Journals of the Atmospheric Sciences, 2014, 71, 3975-4000.	1.7	54
17	Modelling the partitioning of ammonium nitrate in the convective boundary layer. Atmospheric Chemistry and Physics, 2012, 12, 3005-3023.	4.9	47
18	Direct and Diffuse Radiation in the Shallow Cumulusâ€“Vegetation System: Enhanced and Decreased Evapotranspiration Regimes. Journal of Hydrometeorology, 2017, 18, 1731-1748.	1.9	46

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19	Atmospheric Aridity and Apparent Soil Moisture Drought in European Forest During Heat Waves. Geophysical Research Letters, 2020, 47, e2020GL087091.	4.0	45
20	Disentangling the response of forest and grassland energy exchange to heatwaves under idealized landâ€“atmosphere coupling. Biogeosciences, 2014, 11, 6159-6171.	3.3	40
21	Subcloud-Layer Feedbacks Driven by the Mass Flux of Shallow Cumulus Convection over Land. Journals of the Atmospheric Sciences, 2014, 71, 881-895.	1.7	35
22	Landâ€atmosphere coupling explains the link between pan evaporation and actual evapotranspiration trends in a changing climate. Geophysical Research Letters, 2010, 37, .	4.0	33
23	Record high solar irradiance in Western Europe during first COVID-19 lockdown largely due to unusual weather. Communications Earth & Environment, 2021, 2, .	6.8	31
24	A Probabilistic Bulk Model of Coupled Mixed Layer and Convection. Part II: Shallow Convection Case. Journals of the Atmospheric Sciences, 2013, 70, 1557-1576.	1.7	30
25	Soil drought can mitigate deadly heat stress thanks to a reduction of air humidity. Science Advances, 2022, 8, eabe6653.	10.3	30
26	Analysis of high frequency photovoltaic solar energy fluctuations. Solar Energy, 2020, 206, 381-389.	6.1	29
27	Intercomparison of Large-Eddy Simulations of the Antarctic Boundary Layer for Very Stable Stratification. Boundary-Layer Meteorology, 2020, 176, 369-400.	2.3	28
28	Combined effects of surface conditions, boundary layer dynamics and chemistry on diurnal SOA evolution. Atmospheric Chemistry and Physics, 2012, 12, 6827-6843.	4.9	27
29	Growth and Decay of a Convective Boundary Layer over a Surface with a Constant Temperature. Journals of the Atmospheric Sciences, 2016, 73, 2165-2177.	1.7	27
30	A conceptual framework to quantify the influence of convective boundary layer development on carbon dioxide mixing ratios. Atmospheric Chemistry and Physics, 2012, 12, 2969-2985.	4.9	25
31	A Probabilistic Bulk Model of Coupled Mixed Layer and Convection. Part I: Clear-Sky Case. Journals of the Atmospheric Sciences, 2013, 70, 1543-1556.	1.7	22
32	Near-Surface Effects of Free Atmosphere Stratification in Free Convection. Boundary-Layer Meteorology, 2016, 159, 69-95.	2.3	22
33	Effects of soil moisture gradients on the path and the intensity of a West African squall line. Quarterly Journal of the Royal Meteorological Society, 2010, 136, 2162-2175.	2.7	21
34	A Closer Look at Boundary Layer Inversion in Large-Eddy Simulations and Bulk Models: Buoyancy-Driven Case. Journals of the Atmospheric Sciences, 2015, 72, 728-749.	1.7	21
35	Predicting atmospheric optical properties for radiative transfer computations using neural networks. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200095.	3.4	21
36	Mean and Flux Horizontal Variability of Virtual Potential Temperature, Moisture, and Carbon Dioxide: Aircraft Observations and LES Study. Monthly Weather Review, 2008, 136, 4435-4451.	1.4	20

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37	Interactions between vegetation, atmospheric turbulence and clouds under a wide range of background wind conditions. Agricultural and Forest Meteorology, 2018, 255, 31-43.	4.8	18
38	Moisture statistics in free convective boundary layers growing into linearly stratified atmospheres. Quarterly Journal of the Royal Meteorological Society, 2017, 143, 2403-2419.	2.7	17
39	Large-Eddy Simulations of the Steady Wintertime Antarctic Boundary Layer. Boundary-Layer Meteorology, 2019, 173, 165-192.	2.3	17
40	Sensible heating as a potential mechanism for enhanced cloud formation over temperate forest. Quarterly Journal of the Royal Meteorological Society, 2019, 145, 450-468.	2.7	16
41	Atmospheric boundary layer dynamics from balloon soundings worldwide: CLASS4GL v1.0. Geoscientific Model Development, 2019, 12, 2139-2153.	3.6	15
42	Soil moisture signature in global weather balloon soundings. Npj Climate and Atmospheric Science, 2021, 4, .	6.8	15
43	A Businger Mechanism for Intermittent Bursting in the Stable Boundary Layer. Journals of the Atmospheric Sciences, 2020, 77, 3343-3360.	1.7	14
44	The benefits of spatial resolution increase in global simulations of the hydrological cycle evaluated for the Rhine and Mississippi basins. Hydrology and Earth System Sciences, 2019, 23, 1779-1800.	4.9	13
45	Modeled Contrast in the Response of the Surface Energy Balance to Heat Waves for Forest and Grassland. Journal of Hydrometeorology, 2014, 15, 973-989.	1.9	12
46	Threeâ€Dimensional Radiative Effects By Shallow Cumulus Clouds on Dynamic Heterogeneities Over a Vegetated Surface. Journal of Advances in Modeling Earth Systems, 2020, 12, e2019MS001990.	3.8	11
47	Using 3D turbulence-resolving simulations to understand the impact of surface properties on the energy balance of a debris-covered glacier. Cryosphere, 2020, 14, 1611-1632.	3.9	11
48	Role of large eddies in the breakdown of the Reynolds analogy in an idealized mildly unstable atmospheric surface layer. Quarterly Journal of the Royal Meteorological Society, 2017, 143, 2182-2197.	2.7	10
49	Decline in Terrestrial Moisture Sources of the Mississippi River Basin in a Future Climate. Journal of Hydrometeorology, 2020, 21, 299-316.	1.9	8
50	Development of a large-eddy simulation subgrid model based on artificial neural networks: a case study of turbulent channel flow. Geoscientific Model Development, 2021, 14, 3769-3788.	3.6	8
51	Relation between Convective Rainfall Properties and Antecedent Soil Moisture Heterogeneity Conditions in North Africa. Remote Sensing, 2018, 10, 969.	4.0	7
52	The Southeastern Tropical Atlantic SST Bias Investigated with a Coupled Atmosphereâ€"Ocean Single-Column Model at a PIRATA Mooring Site. Journal of Climate, 2020, 33, 6255-6271.	3.2	6
53	Regional co-variability of spatial and temporal soil moistureâ€"precipitation coupling in North Africa: an observational perspective. Hydrology and Earth System Sciences, 2018, 22, 3275-3294.	4.9	5
54	Technical note: Interpretation of field observations of point-source methane plume using observation-driven large-eddy simulations. Atmospheric Chemistry and Physics, 2022, 22, 6489-6505.	4.9	5

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55	Anomalous moisture sources of the Rhine basin during the extremely dry summers of 2003 and 2018. Weather and Climate Extremes, 2021, 31, 100302.	4.1	4
56	Shallow convection over land: a mesoscale modelling study based on idealized WRF experiments. Tethys, 0, , .	0.0	4
57	Modelling climate change in a Dutch polder system using the FutureViewR modelling suite. Computers and Geosciences, 2009, 35, 446-458.	4.2	3
58	Characterizing solar PV grid overvoltages by data blending advanced metering infrastructure with meteorology. Solar Energy, 2021, 227, 312-320.	6.1	3
59	Surface Moisture Exchange Under Vanishing Wind in Simulations of Idealized Tropical Convection. Geophysical Research Letters, 2019, 46, 13602-13609.	4.0	2
60	Evaluation of two common source estimation measurement strategies using large-eddy simulation of plume dispersion under neutral atmospheric conditions. Atmospheric Measurement Techniques, 2022, 15, 3611-3628.	3.1	2
61	Derivation of the Penman-Monteith Equation. , 2016, , 619-625.		1
62	Trends in and closure of the atmospheric angular momentum budget in the 20th century in ERAâ€20C. Quarterly Journal of the Royal Meteorological Society, 2019, 145, 2990-3003.	2.7	1
63	Atmospheric Boundary Layer Dynamics. , 0, , 21-32.		0
64	Atmospheric Boundary Layer Chemistry. , 0, , 33-41.		0
65	Potential Temperature Budget: Diurnal Variation of Temperature. , 0, , 42-52.		0
66	A Dynamic Representation of Carbon Dioxide Exchange from the Vegetation and Soil. , 0, , 138-147.		0
67	The Partially Cloud-Topped Boundary Layer: Shallow Cumulus. , 0, , 190-212.		0
68	Seeking Interdisciplinary Connections. , 0, , 3-18.		0
69	Moisture Budget: Diurnal Variation of Specific Moisture. , 0, , 53-61.		0
70	Momentum Budget: Diurnal Variation of Wind. , 0, , 62-84.		0
71	Scalar and CO2 Budget: Contributions of Surface, Entrainment, and Advection. , 0, , 85-91.		0
72	Reactant Budget: Diurnal Variation of Ozone. , 0, , 92-110.		0

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73	Numerical Experiments: Atmosphere-Vegetation-Soil Interaction. , 0, , 126-137.		0
74	Sensitivity of the Atmosphere-Vegetation-Soil System to Climate Perturbations. , 0, , 148-155.		0
75	Case Studies of More Complex Situations. , 0, , 156-176.		0
76	Cloud-Topped Boundary Layer: Stratocumulus. , 0, , 179-189.		0
77	On the Segregation of Chemical Species in a Clear Boundary Layer Over Heterogeneous Surface Conditions. NATO Science for Peace and Security Series C: Environmental Security, 2014, , 541-546.	0.2	0
78	Chemical Reaction Rates. , 2020, , 280-280.		0