Thomas H Painter

List of Publications by Year
in descending order

124 papers	13,741 citations	31976 53 h-index	21540 114 g-index
137 all docs	137 docs citations	137 times ranked	12042 citing authors

#	Article	IF	Citations
1	Reflectance quantities in optical remote sensingâ€"definitions and case studies. Remote Sensing of Environment, 2006, 103, 27-42.	11.0	1,142
2	Importance and vulnerability of the worldâ€™s water towers. Nature, 2020, 577, 364-369.	27.8	885
3	Climatic, edaphic, and biotic controls over storage and turnover of carbon in soils. Global Biogeochemical Cycles, 1994, 8, 279-293.	4.9	871
4	Mountain hydrology of the western United States. Water Resources Research, 2006, 42, .	4.2	521
5	Springtime warming and reduced snow cover from carbonaceous particles. Atmospheric Chemistry and Physics, 2009, 9, 2481-2497.	4.9	492
6	Retrieval of subpixel snow covered area, grain size, and albedo from MODIS. Remote Sensing of Environment, 2009, 113, 868-879.	11.0	446
7	Increasing eolian dust deposition in the western United States linked to humanÂactivity. Nature Geoscience, 2008, 1, 189-195.	12.9	439
8	MODIS-based Mosaic of Antarctica (MOA) data sets: Continent-wide surface morphology and snow grain size. Remote Sensing of Environment, 2007, 111, 242-257.	11.0	393
9	Earth system science related imaging spectroscopyâ€"An assessment. Remote Sensing of Environment, 2009, 113, S123-S137.	11.0	382
10	Impact of disturbed desert soils on duration of mountain snow cover. Geophysical Research Letters, 2007, 34, .	4.0	370
11	Lidar measurement of snow depth: a review. Journal of Glaciology, 2013, 59, 467-479.	2.2	352
12	Retrieval of subpixel snow-covered area and grain size from imaging spectrometer data. Remote Sensing of Environment, 2003, 85, 64-77.	11.0	340
13	Response of Colorado River runoff to dust radiative forcing in snow. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 17125-17130.	7.1	324
14	Geomorphic and geologic controls of geohazards induced by Nepalâ€™s 2015 Gorkha earthquake. Science, 2016, 351, aac8353.	12.6	317
15	The Airborne Snow Observatory: Fusion of scanning lidar, imaging spectrometer, and physically-based modeling for mapping snow water equivalent and snow albedo. Remote Sensing of Environment, 2016, 184, 139-152.	11.0	313
16	Assessment of methods for mapping snow cover from MODIS. Advances in Water Resources, 2013, 51, 367-380.	3.8	287
17	MULTISPECTRAL AND HYPERSPECTRAL REMOTE SENSING OF ALPINE SNOW PROPERTIES. Annual Review of Earth and Planetary Sciences, 2004, 32, 465-494.	11.0	266
18	The ecology of dust. Frontiers in Ecology and the Environment, 2010, 8, 423-430.	4.0	248

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19	Estimating snow-cover trends from space. Nature Climate Change, 2018, 8, 924-928.	18.8	218
20	Radiative forcing by light-absorbing particles in snow. Nature Climate Change, 2018, 8, 964-971.	18.8	216
21	Timeâ€“space continuity of daily maps of fractional snow cover and albedo from MODIS. Advances in Water Resources, 2008, 31, 1515-1526.	3.8	176
22	Interpretation of snow properties from imaging spectrometry. Remote Sensing of Environment, 2009, 113, S25-S37.	11.0	167
23	The Effect of Grain Size on Spectral Mixture Analysis of Snow-Covered Area from AVIRIS Data. Remote Sensing of Environment, 1998, 65, 320-332.	11.0	166
24	Contact spectroscopy for determination of stratigraphy of snow optical grain size. Journal of Glaciology, 2007, 53, 121-127.	2.2	166
25	Dust radiative forcing in snow of the Upper Colorado River Basin: 1. A 6 year record of energy balance, radiation, and dust concentrations. Water Resources Research, 2012, 48, .	4.2	160
26	Seasonal and elevational variations of black carbon and dust in snow and ice in the Solu-Khumbu, Nepal and estimated radiative forcings. Atmospheric Chemistry and Physics, 2014, 14, 8089-8103.	4.9	157
27	NASA's surface biology and geology designated observable: A perspective on surface imaging algorithms. Remote Sensing of Environment, 2021, 257, 112349.	11.0	148
28	End of the Little Ice Age in the Alps forced by industrial black carbon. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 15216-15221.	7.1	142
29	The VEMAP Integrated Database for Modelling United States Ecosystem/Vegetation Sensitivity to Climate Change. Journal of Biogeography, 1995, 22, 857.	3.0	138
30	Dust radiative forcing in snow of the Upper Colorado River Basin: 2. Interannual variability in radiative forcing and snowmelt rates. Water Resources Research, 2012, 48, .	4.2	136
31	Measurements of the hemispherical-directional reflectance of snow at fine spectral and angular resolution. Journal of Geophysical Research, 2004, 109, .	3.3	122
32	Radiative forcing by light absorbing impurities in snow from MODIS surface reflectance data. Geophysical Research Letters, 2012, 39, .	4.0	118
33	Detection and Quantification of Snow Algae with an Airborne Imaging Spectrometer. Applied and Environmental Microbiology, 2001, 67, 5267-5272.	3.1	115
34	Dust dominates high-altitude snow darkening and melt over high-mountain Asia. Nature Climate Change, 2020, 10, 1045-1051.	18.8	101
35	Biological consequences of earlier snowmelt from desert dust deposition in alpine landscapes. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 11629-11634.	7.1	90
36	Snow water equivalent in the Sierra Nevada: Blending snow sensor observations with snowmelt model simulations. Water Resources Research, 2013, 49, 5029-5046.	4.2	90

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37	Imaging spectroscopy of albedo and radiative forcing by lightâ€absorbing impurities in mountain snow. Journal of Geophysical Research D: Atmospheres, 2013, 118, 9511-9523.	3.3	90
38	Albedo feedbacks to future climate via climate change impacts on dryland biocrusts. Scientific Reports, 2017, 7, 44188.	3.3	84
39	Snow water equivalent along elevation gradients in the Merced and Tuolumne River basins of the Sierra Nevada. Water Resources Research, 2011, 47, .	4.2	82
40	Variation in Rising Limb of Colorado River Snowmelt Runoff Hydrograph Controlled by Dust Radiative Forcing in Snow. Geophysical Research Letters, 2018, 45, 797-808.	4.0	81
41	Contemporary geochemical composition and flux of aeolian dust to the San Juan Mountains, Colorado, United States. Journal of Geophysical Research, 2010, 115, .	3.3	78
42	Daily evolution in dust and black carbon content, snow grain size, and snow albedo during snowmelt, Rocky Mountains, Colorado. Journal of Glaciology, 2017, 63, 118-132.	2.2	78
43	Spectral snow-reflectance models for grain-size and liquid-water fraction in melting snow for the solar-reflected spectrum. Annals of Glaciology, 2002, 34, 71-73.	1.4	76
44	Measuring the expressed abundance of the three phases of water with an imaging spectrometer over melting snow. Water Resources Research, 2006, 42, .	4.2	76
45	Effect of grain size on remotely sensed spectral reflectance of sandy desert surfaces. Remote Sensing of Environment, 2004, 89, 272-280.	11.0	73
46	Accelerated glacier melt on Snow Dome, Mount Olympus, Washington, USA, due to deposition of black carbon and mineral dust from wildfire. Journal of Geophysical Research D: Atmospheres, 2015, 120, 2793-2807.	3.3	72
47	Incorporating remotely-sensed snow albedo into a spatially-distributed snowmelt model. Geophysical Research Letters, 2004, 31, .	4.0	71
48	Regional variability in dustâ€onâ€snow processes and impacts in the Upper Colorado River Basin. Hydrological Processes, 2015, 29, 5397-5413.	2.6	67
49	Validating reconstruction of snow water equivalent in <scp>C</scp>alifornia's <scp>S</scp>ierra <scp>N</scp>evada using measurements from the <scp>NASA</scp><scp>A</scp>irborne <scp>S</scp>now <scp>O</scp>bservatory. Water Resources Research, 2016, 52, 8437-8460.	4.2	67
50	Atmospheric bioaerosols transported via dust storms in the western United States. Geophysical Research Letters, 2011, 38, n/a-n/a.	4.0	65
51	Climate change impacts on maritime mountain snowpack in the Oregon Cascades. Hydrology and Earth System Sciences, 2013, 17, 2581-2597.	4.9	64
52	Direct Insertion of NASA Airborne Snow Observatoryâ€Derived Snow Depth Time Series Into the <i>iSnobal</i> Energy Balance Snow Model. Water Resources Research, 2018, 54, 8045-8063.	4.2	62
53	Earth Observation Imaging Spectroscopy for Terrestrial Systems: An Overview of Its History, Techniques, and Applications of Its Missions. Surveys in Geophysics, 2019, 40, 303-331.	4.6	59
54	Composition of dust deposited to snow cover in the Wasatch Range (Utah, USA): Controls on radiative properties of snow cover and comparison to some dust-source sediments. Aeolian Research, 2014, 15, 73-90.	2.7	54

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55	Combined impacts of current and future dust deposition and regional warming on Colorado River Basin snow dynamics and hydrology. Hydrology and Earth System Sciences, 2013, 17, 4401-4413.	4.9	53
56	Satellite-Based Precipitation Estimation and Its Application for Streamflow Prediction over Mountainous Western U.S. Basins. Journal of Applied Meteorology and Climatology, 2014, 53, 2823-2842.	1.5	53
57	Episodic Dust Events of Utahâ€™s Wasatch Front and Adjoining Region. Journal of Applied Meteorology and Climatology, 2012, 51, 1654-1669.	1.5	50
58	Comparing Aerial Lidar Observations With Terrestrial Lidar and Snowâ€Probe Transects From NASA's 2017 SnowEx Campaign. Water Resources Research, 2019, 55, 6285-6294.	4.2	49
59	Automated spectro-goniometer: A spherical robot for the field measurement of the directional reflectance of snow. Review of Scientific Instruments, 2003, 74, 5179-5188.	1.3	48
60	Case study of spatial and temporal variability of snow cover, grain size, albedo and radiative forcing in the Sierra Nevada and Rocky Mountain snowpack derived from imaging spectroscopy. Cryosphere, 2016, 10, 1229-1244.	3.9	47
61	Impact of light-absorbing particles on snow albedo darkening and associated radiative forcing over high-mountain Asia: high-resolution WRF-Chem modeling and new satellite observations. Atmospheric Chemistry and Physics, 2019, 19, 7105-7128.	4.9	46
62	The effect of anisotropic reflectance on imaging spectroscopy of snow properties. Remote Sensing of Environment, 2004, 89, 409-422.	11.0	45
63	Improving snow albedo processes in WRF/SSiB regional climate model to assess impact of dust and black carbon in snow on surface energy balance and hydrology over western U.S.. Journal of Geophysical Research D: Atmospheres, 2015, 120, 3228-3248.	3.3	45
64	Impact of dust radiative forcing in snow on accuracy of operational runoff prediction in the Upper Colorado River Basin. Geophysical Research Letters, 2013, 40, 3945-3949.	4.0	44
65	NASA Cold Land Processes Experiment (CLPX 2002/03): Airborne Remote Sensing. Journal of Hydrometeorology, 2009, 10, 338-346.	1.9	42
66	A method to retrieve the spectral complex refractive index and single scattering optical properties of dust deposited in mountain snow. Journal of Glaciology, 2017, 63, 133-147.	2.2	41
67	Scaling dimensions in spectroscopy of soil and vegetation. International Journal of Applied Earth Observation and Geoinformation, 2007, 9, 137-164.	2.8	39
68	Modeling the View Angle Dependence of Gap Fractions in Forest Canopies: Implications for Mapping Fractional Snow Cover Using Optical Remote Sensing. Journal of Hydrometeorology, 2008, 9, 1005-1019.	1.9	39
69	Canopy Adjustment and Improved Cloud Detection for Remotely Sensed Snow Cover Mapping. Water Resources Research, 2020, 56, e2019WR024914.	4.2	38
70	Spatially Extensive Groundâ€Penetrating Radar Snow Depth Observations During NASA's 2017 SnowEx Campaign: Comparison With In Situ, Airborne, and Satellite Observations. Water Resources Research, 2019, 55, 10026-10036.	4.2	37
71	Evaluation of snow cover fraction for regional climate simulations in the Sierra Nevada. International Journal of Climatology, 2015, 35, 2472-2484.	3.5	34
72	Toward Understanding Direct Absorption and Grain Size Feedbacks by Dust Radiative Forcing in Snow With Coupled Snow Physical and Radiative Transfer Modeling. Water Resources Research, 2019, 55, 7362-7378.	4.2	34

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73	Watershed-scale mapping of fractional snow cover under conifer forest canopy using lidar. Remote Sensing of Environment, 2019, 222, 34-49.	11.0	33
74	Quantifying uncertainty for remote spectroscopy of surface composition. Remote Sensing of Environment, 2020, 247, 111898.	11.0	31
75	Indices for estimating fractional snow cover in the western Tibetan Plateau. Journal of Glaciology, 2009, 55, 737-745.	2.2	29
76	Multi-sensor fusion using random forests for daily fractional snow cover at 30Âm. Remote Sensing of Environment, 2021, 264, 112608.	11.0	29
77	Impacts of coal dust from an active mine on the spectral reflectance of Arctic surface snow in Svalbard, Norway. Journal of Geophysical Research D: Atmospheres, 2017, 122, 1767-1778.	3.3	28
78	Combining snow, streamflow, and precipitation gauge observations to infer basinâ€mean precipitation. Water Resources Research, 2016, 52, 8700-8723.	4.2	26
79	Mapping Snow Depth From Ka-Band Interferometry: Proof of Concept and Comparison With Scanning Lidar Retrievals. IEEE Geoscience and Remote Sensing Letters, 2017, 14, 886-890.	3.1	25
80	Assessment of Radiative Forcing by Light-Absorbing Particles in Snow from In Situ Observations with Radiative Transfer Modeling. Journal of Hydrometeorology, 2018, 19, 1397-1409.	1.9	25
81	Highâ€Elevation Evapotranspiration Estimates During Drought: Using Streamflow and NASA Airborne Snow Observatory SWE Observations to Close the Upper Tuolumne River Basin Water Balance. Water Resources Research, 2018, 54, 746-766.	4.2	24
82	A High-Resolution Data Assimilation Framework for Snow Water Equivalent Estimation across the Western United States and Validation with the Airborne Snow Observatory. Journal of Hydrometeorology, 2019, 20, 357-378.	1.9	24
83	Automated mapping of Earth's annual minimum exposed snow and ice with MODIS. Geophysical Research Letters, 2012, 39, .	4.0	23
84	Using the Airborne Snow Observatory to Assess Remotely Sensed Snowfall Products in the California Sierra Nevada. Water Resources Research, 2018, 54, 7331-7346.	4.2	22
85	Accelerated Snow Melt in the Russian Caucasus Mountains After the Saharan Dust Outbreak in March 2018. Journal of Geophysical Research F: Earth Surface, 2020, 125, e2020JF005641.	2.8	22
86	Estimation of Precipitation over the OLYMPEX Domain during Winter 2015/16. Journal of Hydrometeorology, 2018, 19, 143-160.	1.9	19
87	A <inline-formula> <tex-math notation="LaTeX">$K_{{u}}$ </tex-math> </inline-formula>-Band CMOS FMCW Radar Transceiver for Snowpack Remote Sensing. IEEE Transactions on Microwave Theory and Techniques, 2018, 66, 2480-2494.	4.6	17
88	Measuring spatiotemporal variation in snow optical grain size under a subalpine forest canopy using contact spectroscopy. Water Resources Research, 2016, 52, 7513-7522.	4.2	16
89	Evaluation of VIIRS and MODIS Snow Cover Fraction in High-Mountain Asia Using Landsat 8 OLI. Frontiers in Remote Sensing, 2021, 2, .	3.5	16
90	Fusion of NASA Airborne Snow Observatory (ASO) Lidar Time Series over Mountain Forest Landscapes. Remote Sensing, 2018, 10, 164.	4.0	14

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91	Constraining plant functional types in a semi-arid ecosystem with waveform lidar. Remote Sensing of Environment, 2018, 209, 497-509.	11.0	13
92	Snow and Water Imaging Spectrometer: mission and instrument concepts for earth-orbiting CubeSats. Journal of Applied Remote Sensing, 2018, 12, 1.	1.3	13
93	Combining ground-based and remotely sensed snow data in a linear regression model for real-time estimation of snow water equivalent. Advances in Water Resources, 2022, 160, 104075.	3.8	13
94	Classification of surface types using SIR-C/X-SAR, Mount Everest Area, Tibet. Journal of Geophysical Research, 1998, 103, 25823-25837.	3.3	12
95	Comment on Singh and others, â€˜Hyperspectral analysis of snow reflectance to understand the effects of contamination and grain sizeâ€™. Journal of Glaciology, 2011, 57, 183-185.	2.2	12
96	Relating variation of dust on snow to bare soil dynamics in the western United States. Environmental Research Letters, 2013, 8, 044054.	5.2	12
97	Quantifying insect-related forest mortality with the remote sensing of snow. Remote Sensing of Environment, 2017, 188, 26-36.	11.0	12
98	Portable spectral profiler probe for rapid snow grain size stratigraphy. Cold Regions Science and Technology, 2013, 85, 183-190.	3.5	11
99	Quantifying the Spatial Variability of a Snowstorm Using Differential Airborne Lidar. Water Resources Research, 2020, 56, e2019WR025331.	4.2	11
100	Optimal estimation of snow and ice surface parameters from imaging spectroscopy measurements. Remote Sensing of Environment, 2021, 264, 112613.	11.0	11
101	NASA Cold Land Processes Experiment (CLPX 2002/03): Local Scale Observation Site. Journal of Hydrometeorology, 2008, 9, 1434-1442.	1.9	10
102	Airborne imaging spectroscopy to monitor urban mosquito microhabitats. Remote Sensing of Environment, 2013, 137, 226-233.	11.0	10
103	From Drought to Flood: A Water Balance Analysis of the Tuolumne River Basin during Extreme Conditions (2015 â€“ 2017). Hydrological Processes, 2020, 34, 2560.	2.6	10
104	On the prediction of threshold friction velocity of wind erosion using soil reflectance spectroscopy. Aeolian Research, 2015, 19, 129-136.	2.7	9
105	Satellite-Based Estimation of Temporally Resolved Dust Radiative Forcing in Snow Cover. Journal of Hydrometeorology, 2016, 17, 1999-2011.	1.9	7
106	Characterization and Retrieval of Snow and Urban Land Cover Parameters using Hyperspectral Imaging. Current Science, 2019, 116, 1182.	0.8	7
107	NASA Cold Land Processes Experiment (CLPX 2002/03): Spaceborne Remote Sensing. Journal of Hydrometeorology, 2008, 9, 1427-1433.	1.9	5
108	How Important Is Meltwater to the Chamkhar Chhu Headwaters of the Brahmaputra River?. Frontiers in Earth Science, 2020, 8, .	1.8	5

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109	24 Hour near real time processing and computation for the JPL Airborne Snow Observatory. , 2014, , .		3
110	Present Weather and Climate: Average Conditions. , 2013, , 56-73.		3
111	Analysis of topographic controls on depletion curves derived from airborne lidar snow depth data. Hydrology Research, 2021, 52, 253-265.	2.7	3
112	Snow and Ice Products from ABI on the GOES-R Series. , 2020, , 165-177.		2
113	IMPENDING LOSS OF LITTLE ICE AGE GLACIERS IN YOSEMITE NATIONAL PARK. , 2017, , .		2
114	Snow and Water Imaging Spectrometer (SWIS): development of a CubeSat-compatible instrument. Proceedings of SPIE, 2016, , .	0.8	1
115	Why and How to Write a Highâ€Impact Review Paper: Lessons From Eight Years of Editorial Board Service to <i>Reviews of Geophysics</i>. Reviews of Geophysics, 2017, 55, 860-863.	23.0	1
116	Remote sensing of the cryosphere in high mountain ASIA. , 2017, , .		1
117	Ground Validation of Airborne Snow Observatory Spectral and Broadband Snow Albedo During Snowex â€™17. , 2018, , .		1
118	Snow Grains. Encyclopedia of Earth Sciences Series, 2011, , 1050-1053.	0.1	1
119	<title>Improving alpine region spectral mixture analysis estimates of snow-covered area</title>. , 1995, , .		0
120	Mapping snow-depth using KA-band InSAR: Calibration and validation during SnowEx. , 2017, , .		0
121	The airborne snow observatory during NASA snow experiment (SnowEx) year 1: Mapping of snow water equivalent and snow albedo and constraining understanding of the physical environment. , 2017, , .		0
122	Imaging spectroscopy to understand the controls on cryospheric melting in a changing world. , 2017, , .		0
123	Registration of multiple low resolution nasa airborne snow observatory (ASO) lidar data for forest vegetation structure caracterization. , 2017, , .		0
124	Fusion of Multiple Low-Resolution NASA Airborne Snow Observatory (ASO) Lidar Data for Forest Vegetation Structure Caracterization. , 2018, , .		0