Matt Rodell

List of Publications by Citations

150 papers	19,052 citations	63 h-index	138 g-index
167 ext. papers	21,955 ext. citations	6.1 avg, IF	6.85 L-index

#	Paper	IF	Citations
150	The Global Land Data Assimilation System. *Bulletin of the American Meteorological Society*, **2004**, 85, 381-394	6.2	2869
149	Satellite-based estimates of groundwater depletion in India. *Nature*, **2009**, 460, 999-1002	50.4	1672
148	Ground water and climate change. *Nature Climate Change*, **2013**, 3, 322-329	21.4	1116
147	Emerging trends in global freshwater availability. *Nature*, **2018**, 557, 651-659	50.4	634
146	Satellites measure recent rates of groundwater depletion in California's Central Valley. *Geophysical Research Letters*, **2011**, 38,	4.9	570
145	Variability in surface moisture content along a hillslope transect: Rattlesnake Hill, Texas. *Journal of Hydrology*, **1998**, 210, 259-281	6	464
144	Groundwater depletion in the Middle East from GRACE with implications for transboundary water management in the Tigris-Euphrates-Western Iran region. *Water Resources Research*, **2013**, 49, 904-914	5.4	457
143	Quantifying renewable groundwater stress with GRACE. *Water Resources Research*, **2015**, 51, 5217-5238	5.4	424
142	Estimating groundwater storage changes in the Mississippi River basin (USA) using GRACE. *Hydrogeology Journal*, **2007**, 15, 159-166	3.1	412
141	Impact of water withdrawals from groundwater and surface water on continental water storage variations. *Journal of Geodynamics*, **2012**, 59-60, 143-156	2.2	384
140	Analysis of terrestrial water storage changes from GRACE and GLDAS. *Water Resources Research*, **2008**, 44,	5.4	351
139	Basin scale estimates of evapotranspiration using GRACE and other observations. *Geophysical Research Letters*, **2004**, 31,	4.9	333
138	Ground-based investigation of soil moisture variability within remote sensing footprints During the Southern Great Plains 1997 (SGP97) Hydrology Experiment. *Water Resources Research*, **1999**, 35, 1839-1851	5.4	310
137	Assimilation of GRACE Terrestrial Water Storage Data into a Land Surface Model: Results for the Mississippi River Basin. *Journal of Hydrometeorology*, **2008**, 9, 535-548	3.7	301
136	Environmental science. Water in the balance. *Science*, **2013**, 340, 1300-1	33.3	273
135	Global intercomparison of 12 land surface heat flux estimates. *Journal of Geophysical Research*, **2011**, 116,		271
134	Evaluation of global observations-based evapotranspiration datasets and IPCC AR4 simulations. *Geophysical Research Letters*, **2011**, 38, n/a-n/a	4.9	267

133	Contributions of GRACE to understanding climate change. *Nature Climate Change*, **2019**, 5, 358-369	21.4	260
132	A GRACE-based water storage deficit approach for hydrological drought characterization. *Geophysical Research Letters*, **2014**, 41, 1537-1545	4.9	251
131	Drought indicators based on model-assimilated Gravity Recovery and Climate Experiment (GRACE) terrestrial water storage observations. *Water Resources Research*, **2012**, 48,	5.4	243
130	Field observations of soil moisture variability across scales. *Water Resources Research*, **2008**, 44,	5.4	242
129	The Future of Earth Observation in Hydrology. *Hydrology and Earth System Sciences*, **2017**, 21, 3879-3914	5.5	235
128	Groundwater depletion during drought threatens future water security of the Colorado River Basin. *Geophysical Research Letters*, **2014**, 41, 5904-5911	4.9	226
127	Implications of projected climate change for groundwater recharge in the western United States. *Journal of Hydrology*, **2016**, 534, 124-138	6	215
126	Remote sensing of groundwater storage changes in Illinois using the Gravity Recovery and Climate Experiment (GRACE). *Water Resources Research*, **2006**, 42,	5.4	215
125	Detectability of variations in continental water storage from satellite observations of the time dependent gravity field. *Water Resources Research*, **1999**, 35, 2705-2723	5.4	187
124	Simulating the Effects of Irrigation over the United States in a Land Surface Model Based on Satellite-Derived Agricultural Data. *Journal of Hydrometeorology*, **2010**, 11, 171-184	3.7	186
123	An analysis of terrestrial water storage variations in Illinois with implications for the Gravity Recovery and Climate Experiment (GRACE). *Water Resources Research*, **2001**, 37, 1327-1339	5.4	184
122	The potential for satellite-based monitoring of groundwater storage changes using GRACE: the High Plains aquifer, Central US. *Journal of Hydrology*, **2002**, 263, 245-256	6	180
121	Updating a Land Surface Model with MODIS-Derived Snow Cover. *Journal of Hydrometeorology*, **2004**, 5, 1064-1075	3.7	178
120	The Observed State of the Water Cycle in the Early Twenty-First Century. *Journal of Climate*, **2015**, 28, 8289-8318	4.4	162
119	Realistic Initialization of Land Surface States: Impacts on Subseasonal Forecast Skill. *Journal of Hydrometeorology*, **2004**, 5, 1049-1063	3.7	161
118	Analysis of Multiple Precipitation Products and Preliminary Assessment of Their Impact on Global Land Data Assimilation System Land Surface States. *Journal of Hydrometeorology*, **2005**, 6, 573-598	3.7	152
117	Comparison of seasonal terrestrial water storage variations from GRACE with groundwater-level measurements from the High Plains Aquifer (USA). *Geophysical Research Letters*, **2007**, 34,	4.9	136
116	State of the Climate in 2013. *Bulletin of the American Meteorological Society*, **2014**, 95, S1-S279	6.1	128

115	Assimilation of GRACE terrestrial water storage into a land surface model: Evaluation and potential value for drought monitoring in western and central Europe. *Journal of Hydrology*, **2012**, 446-447, 103-115	6	126
114	The Observed State of the Energy Budget in the Early Twenty-First Century. *Journal of Climate*, **2015**, 28, 8319-8346	4.4	125
113	Uncertainty in global groundwater storage estimates in a Total Groundwater Stress framework. *Water Resources Research*, **2015**, 51, 5198-5216	5.4	124
112	Low degree spherical harmonic influences on Gravity Recovery and Climate Experiment (GRACE) water storage estimates. *Geophysical Research Letters*, **2005**, 32, n/a-n/a	4.9	121
111	Total basin discharge for the Amazon and Mississippi River basins from GRACE and a land-atmosphere water balance. *Geophysical Research Letters*, **2005**, 32,	4.9	121
110	State of the Climate in 2016. *Bulletin of the American Meteorological Society*, **2017**, 98, Si-S280	6.1	112
109	Hydrological evaluation of the Noah-MP land surface model for the Mississippi River Basin. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 23-38	4.4	105
108	State of the Climate in 2011. *Bulletin of the American Meteorological Society*, **2012**, 93, S1-S282	6.1	103
107	Global GRACE Data Assimilation for Groundwater and Drought Monitoring: Advances and Challenges. *Water Resources Research*, **2019**, 55, 7564-7586	5.4	102
106	Assimilation of Gridded GRACE Terrestrial Water Storage Estimates in the North American Land Data Assimilation System. *Journal of Hydrometeorology*, **2016**, 17, 1951-1972	3.7	99
105	Evaluation of the Global Land Data Assimilation System using global river discharge data and a source-to-sink routing scheme. *Water Resources Research*, **2010**, 46,	5.4	96
104	Evaluation of 10 Methods for Initializing a Land Surface Model. *Journal of Hydrometeorology*, **2005**, 6, 146-155	3.7	96
103	Groundwater Storage Changes: Present Status from GRACE Observations. *Surveys in Geophysics*, **2016**, 37, 397-417	7.6	91
102	Forward-Looking Assimilation of MODIS-Derived Snow-Covered Area into a Land Surface Model. *Journal of Hydrometeorology*, **2009**, 10, 130-148	3.7	90
101	Groundwater rejuvenation in parts of India influenced by water-policy change implementation. *Scientific Reports*, **2017**, 7, 7453	4.9	84
100	Assimilation of terrestrial water storage from GRACE in a snow-dominated basin. *Water Resources Research*, **2012**, 48,	5.4	84
99	Sensitivity of Land Surface Simulations to Model Physics, Land Characteristics, and Forcings, at Four CEOP Sites. *Journal of the Meteorological Society of Japan*, **2007**, 85A, 187-204	2.8	81
98	Estimating evapotranspiration using an observation based terrestrial water budget. *Hydrological Processes*, **2011**, 25, 4082-4092	3.3	80

97	Attenuation effect on seasonal basin-scale water storage changes from GRACE time-variable gravity. *Journal of Geodesy*, **2007**, 81, 237-245	4.5	80
96	Terrestrial water mass load changes from Gravity Recovery and Climate Experiment (GRACE). *Water Resources Research*, **2006**, 42,	5.4	79
95	Evaluation of a model-based groundwater drought indicator in the conterminous U.S.. *Journal of Hydrology*, **2015**, 526, 78-88	6	78
94	Spatial distribution of soil moisture over 6 and 30 cm depth, Mahurangi river catchment, New Zealand. *Journal of Hydrology*, **2003**, 276, 254-274	6	73
93	Satellites provide the big picture. *Science*, **2015**, 349, 684-5	33.3	72
92	Assimilation of gridded terrestrial water storage observations from GRACE into a land surface model. *Water Resources Research*, **2016**, 52, 4164-4183	5.4	72
91	Spatial sensitivity of the Gravity Recovery and Climate Experiment (GRACE) time-variable gravity observations. *Journal of Geophysical Research*, **2005**, 110,		71
90	Development of land surface albedo parameterization based on Moderate Resolution Imaging Spectroradiometer (MODIS) data. *Journal of Geophysical Research*, **2005**, 110,		70
89	Benefits and Pitfalls of GRACE Data Assimilation: a Case Study of Terrestrial Water Storage Depletion in India. *Geophysical Research Letters*, **2017**, 44, 4107-4115	4.9	66
88	Improving land-surface model hydrology: Is an explicit aquifer model better than a deeper soil profile?. *Geophysical Research Letters*, **2007**, 34,	4.9	66
87	Rivers and Floodplains as Key Components of Global Terrestrial Water Storage Variability. *Geophysical Research Letters*, **2017**, 44, 10,359-10,368	4.9	61
86	State of the Climate in 2014. *Bulletin of the American Meteorological Society*, **2015**, 96, ES1-ES32	6.1	61
85	Contemporary estimates of Pan-Arctic freshwater discharge from GRACE and reanalysis. *Geophysical Research Letters*, **2007**, 34,	4.9	57
84	Assimilation of GRACE Terrestrial Water Storage Observations into a Land Surface Model for the Assessment of Regional Flood Potential. *Remote Sensing*, **2015**, 7, 14663-14679	5	56
83	Impact of Irrigation Methods on Land Surface Model Spinup and Initialization of WRF Forecasts. *Journal of Hydrometeorology*, **2015**, 16, 1135-1154	3.7	55
82	Seasonal global mean sea level change from satellite altimeter, GRACE, and geophysical models. *Journal of Geodesy*, **2005**, 79, 532-539	4.5	55
81	Water Balance in the Amazon Basin from a Land Surface Model Ensemble. *Journal of Hydrometeorology*, **2014**, 15, 2586-2614	3.7	54
80	Reply to comment by H. Vereecken et al. on Field observations of soil moisture variability across scales *Water Resources Research*, **2008**, 44,	5.4	53

79	Influence of thermodynamic soil and vegetation parameterizations on the simulation of soil temperature states and surface fluxes by the Noah LSM over a Tibetan plateau site. *Hydrology and Earth System Sciences*, **2009**, 13, 759-777	5.5	52
78	Toward calibration of regional groundwater models using GRACE data. *Journal of Hydrology*, **2012**, 422-423, 1-9	6	49
77	Assimilation of MODIS snow cover through the Data Assimilation Research Testbed and the Community Land Model version 4. *Journal of Geophysical Research D: Atmospheres*, **2014**, 119, 7091-7103	4.4	48
76	Development of a hydrometeorological forcing data set for global soil moisture estimation. *International Journal of Climatology*, **2005**, 25, 1697-1714	3.5	47
75	A 10 per cent increase in global land evapotranspiration from 2003 to 2019. *Nature*, **2021**, 593, 543-547	50.4	47
74	Using leaf chlorophyll to parameterize light-use-efficiency within a thermal-based carbon, water and energy exchange model. *Remote Sensing of Environment*, **2011**, 115, 1694-1705	13.2	46
73	Comparison and Assessment of Three Advanced Land Surface Models in Simulating Terrestrial Water Storage Components over the United States. *Journal of Hydrometeorology*, **2017**, 18, 625-649	3.7	45
72	Spatial variability and its scale dependency of observed and modeled soil moisture over different climate regions. *Hydrology and Earth System Sciences*, **2013**, 17, 1177-1188	5.5	45
71	NCA-LDAS Land Analysis: Development and Performance of a Multisensor, Multivariate Land Data Assimilation System for the National Climate Assessment. *Journal of Hydrometeorology*, **2019**, 20, 1571-1593	3.7	44
70	Evaluation of the Snow Simulations from the Community Land Model, Version 4 (CLM4). *Journal of Hydrometeorology*, **2016**, 17, 153-170	3.7	43
69	Use of Gravity Recovery and Climate Experiment terrestrial water storage retrievals to evaluate model estimates by the Australian water resources assessment system. *Water Resources Research*, **2011**, 47,	5.4	43
68	Inferring aquifer storage parameters using satellite and in situ measurements: Estimation under uncertainty. *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	43
67	Possible link between irrigation in the U.S. High Plains and increased summer streamflow in the Midwest. *Water Resources Research*, **2011**, 47,	5.4	42
66	Retrieving snow mass from GRACE terrestrial water storage change with a land surface model. *Geophysical Research Letters*, **2007**, 34,	4.9	42
65	Global Biomass Variation and Its Geodynamic Effects: 1982–98. *Earth Interactions*, **2005**, 9, 1-19	1.5	41
64	Spatio-temporal variability of groundwater storage in India. *Journal of Hydrology*, **2017**, 544, 428-437	6	33
63	Tradeoff between cost and accuracy in large-scale surface water dynamic modeling. *Water Resources Research*, **2017**, 53, 4942-4955	5.4	32
62	The sensitivity of US wildfire occurrence to pre-season soil moisture conditions across ecosystems. *Environmental Research Letters*, **2018**, 13,	6.2	30

61	Groundwater Withdrawals Under Drought: Reconciling GRACE and Land Surface Models in the United States High Plains Aquifer. *Water Resources Research*, **2018**, 54, 5282-5299	5.4	29
60	Assessment of Irrigation Physics in a Land Surface Modeling Framework using Non-Traditional and Human-Practice Datasets. *Hydrology and Earth System Sciences*, **2017**, 21, 2953-2966	5.5	27
59	Groundwater variability across temporal and spatial scales in the central and northeastern U.S.. *Journal of Hydrology*, **2015**, 525, 769-780	6	26
58	Estimating Snow Water Storage in North America Using CLM4, DART, and Snow Radiance Data Assimilation. *Journal of Hydrometeorology*, **2016**, 17, 2853-2874	3.7	26
57	How might recharge change under projected climate change in western US?. *Geophysical Research Letters*, **2017**, 44, 10407-10418	4.9	26
56	Global Climate. *Bulletin of the American Meteorological Society*, **2020**, 101, S9-S128	6.1	26
55	Assimilating GRACE Into a Land Surface Model in the Presence of an Irrigation-Induced Groundwater Trend. *Water Resources Research*, **2019**, 55, 11274-11294	5.4	24
54	Multi-sensor assimilation of SMOS brightness temperature and GRACE terrestrial water storage observations for soil moisture and shallow groundwater estimation. *Remote Sensing of Environment* , **2019**, 227, 12-27	13.2	23
53	Movement of Amazon surface water from time-variable satellite gravity measurements and implications for water cycle parameters in land surface models. *Geochemistry, Geophysics, Geosystems*, **2010**, 11,	3.6	23
52	Long-term, non-anthropogenic groundwater storage changes simulated by three global-scale hydrological models. *Scientific Reports*, **2019**, 9, 10746	4.9	20
51	Using Satellite-Based Vegetation Cover as Indicator of Groundwater Storage in Natural Vegetation Areas. *Geophysical Research Letters*, **2019**, 46, 8082-8092	4.9	20
50	Toward a South America Land Data Assimilation System: Aspects of land surface model spin-up using the Simplified Simple Biosphere. *Journal of Geophysical Research*, **2006**, 111,		19
49	Impact of different initial soil moisture fields on Eta model weather forecasts for South America. *Journal of Geophysical Research*, **2006**, 111,		19
48	Groundwater storage change detection from and GRACE-based estimates in major river basins across India. *Hydrological Sciences Journal*, **2020**, 65, 650-659	3.5	18
47	Comparing potential recharge estimates from three Land Surface Models across the Western US. *Journal of Hydrology*, **2017**, 545, 410-423	6	14
46	GRACE improves seasonal groundwater forecast initialization over the U.S. *Journal of Hydrometeorology*, **2020**, 21, 59-71	3.7	14
45	Basin-Scale River Runoff Estimation From GRACE Gravity Satellites, Climate Models, and In Situ Observations: A Case Study in the Amazon Basin. *Water Resources Research*, **2020**, 56, e2020WR028032	5.4	13
44	U.S. CONTRIBUTIONS TO THE CEOP. *Bulletin of the American Meteorological Society*, **2006**, 87, 927-940	6.1	12

43	. *IEEE Transactions on Geoscience and Remote Sensing*, **2015**, 53, 5247-5268	8.1	11
42	The Value of Remotely Sensed Information: The Case of GRACE-Enhanced Drought Severity Index. *Weather, Climate, and Society*, **2018**, 10, 187-203	2.3	11
41	Groundwater Storage Variations in India. *Springer Hydrogeology*, **2018**, 49-59	0.4	11
40	Monitoring Subsidence Associated with Groundwater Dynamics in the Central Valley of California Using Interferometric Radar. *Geophysical Monograph Series*, **2014**, 397-406	1.1	11
39	The South American Land Data Assimilation System (SALDAS) 5-Yr Retrospective Atmospheric Forcing Datasets. *Journal of Hydrometeorology*, **2009**, 10, 999-1010	3.7	11
38	A framework for assessing the potential of remote-sensed gravity to provide new insight on the hydrology of the Murray-Darling Basin. *Australian Journal of Water Resources*, **2006**, 10, 125-138	1.2	10
37	100 Years of Progress in Hydrology. *Meteorological Monographs*, **2018**, 59, 25.1-25.51	5.7	10
36	Groundwater Storage Changes: Present Status from GRACE Observations. *Space Sciences Series of ISSI*, **2016**, 207-227	0.1	9
35	NCA-LDAS: Overview and Analysis of Hydrologic Trends for the National Climate Assessment. *Journal of Hydrometeorology*, **2019**, 20, 1595-1617	3.7	9
34	In Situ and GRACE-Based Groundwater Observations: Similarities, Discrepancies, and Evaluation in the High Plains Aquifer in Kansas. *Water Resources Research*, **2018**, 54, 8034-8044	5.4	9
33	Earth observations and integrative models in support of food and water security. *Remote Sensing in Earth Systems Sciences*, **2019**, 2, 18-38	3.1	8
32	Dominant Patterns of Water Storage Changes in the Nile Basin During 2003–2013. *Geophysical Monograph Series*, **2014**, 367-381	1.1	8
31	Using enhanced GRACE water storage data to improve drought detection by the U.S. and North American Drought Monitors **2010**,		7
30	Evaluation and validation of mascon recovery using GRACE KBRR data with independent mass flux estimates in the Mississippi Basin. *Journal of Geodesy*, **2009**, 83, 817-827	4.5	7
29	Reply to comment by Sahoo et al. on "Quantifying renewable groundwater stress with GRACE" *Water Resources Research*, **2016**, 52, 4188-4192	5.4	6
28	Terrestrial water storage **2019**, 41-64		6
27	Monitoring Aquifer Depletion from Space. *Geophysical Monograph Series*, **2014**, 347-366	1.1	6
26	Observation of Hydrological Processes Using Remote Sensing **2011**, 351-399		6

25	The Future of Earth Observation in Hydrology		6
24	Irrigation Water Demand Sensitivity to Climate Variability Across the Contiguous United States. *Water Resources Research*, **2021**, 57, 2020WR027738	5.4	6
23	Underlying Fundamentals of Kalman Filtering for River Network Modeling. *Journal of Hydrometeorology*, **2020**, 21, 453-474	3.7	5
22	Controls of Terrestrial Water Storage Changes Over the Central Congo Basin Determined by Integrating PALSAR ScanSAR, Envisat Altimetry, and GRACE Data. *Geophysical Monograph Series*, **2014**, 115-129	1.1	5
21	GRACE-Based Estimates of Global Groundwater Depletion. *Geophysical Monograph Series*, **2016**, 135-146	1.1	5
20	Evaluation of Simulated Snow and Snowmelt Timing in the Community Land Model Using Satellite-based Products and Streamflow Observations. *Journal of Advances in Modeling Earth Systems*, **2018**, 10, 2933-2951	7.1	5
19	Realizing the Potential of Satellite Gravimetry for Hydrology: Second GRACE Hydrology Workshop; Austin, Texas, 4 November 2009. *Eos*, **2010**, 91, 96	1.5	4
18	Using climate regionalization to understand Climate Forecast System Version 2 (CFSv2) precipitation performance for the Conterminous United States (CONUS). *Geophysical Research Letters*, **2016**, 43, 6485-6492	4.9	4
17	Groundwater Recharge Estimated by Land Surface Models: An Evaluation in the Conterminous United States. *Journal of Hydrometeorology*, **2021**, 22, 499-522	3.7	4
16	Influence of thermodynamic soil and vegetation parameterizations on the simulation of soil temperature states and surface fluxes by the Noah LSm over a Tibetan plateau site **2009**,		3
15	Achieving Breakthroughs in Global Hydrologic Science by Unlocking the Power of Multisensor, Multidisciplinary Earth Observations. *AGU Advances*, **2021**, 2, e2021AV000455	5.4	3
14	Application of Satellite Gravimetry for Water Resource Vulnerability Assessment **2013**, 151-159		2
13	Assessment of Irrigation Physics in a Land Surface Modeling Framework using Non-Traditional and Human-Practice Datasets		2
12	Spatial variability and its scale dependency of observed and modeled soil moisture under different climate conditions		2
11	Earth observation: Serving the needs of an increasingly global society **2009**, 153-196		2
10	A High-Resolution Land Data Assimilation System Optimized for the Western United States. *Journal of the American Water Resources Association*,	2.1	2
9	Monitoring drought with GRACE data assimilation **2016**,		2
8	An Evaluation of Remotely Sensed and In Situ Data Sufficiency for SGMA-Scale Groundwater Studies in the Central Valley, California. *Journal of the American Water Resources Association*, **2021**, 57, 664	2.1	2

7	Data Assimilation of Terrestrial Water Storage Observations to Estimate Precipitation Fluxes: A Synthetic Experiment. *Remote Sensing*, **2021**, 13, 1223	5	2
6	Retrieval and Validation of VIIRS Snow Cover Information for Terrestrial Water Cycle Applications. *Geophysical Monograph Series*, **2014**, 175-197	1.1	1
5	NASA Giovanni. *Geophysical Monograph Series*, **2014**, 331-346	1.1	1
4	Changes in Snowpacks of Canadian Prairies for 1979–2004 Detected from Snow Water Equivalent Data of SMMR and SSM/I Passive Microwave and Related Climatic Factors. *Geophysical Monograph Series*, **2014**, 227-243	1.1	1
3	Filters to estimate water storage variations from GRACE **2005**, 607-611		1
2	Groundwater drought: environmental controls and monitoring **2021**, 145-162		1
1	Applications of Gravity Recovery and Climate Experiment (GRACE) in global groundwater study **2021**, 531-543		