Gianpaolo Balsamo

List of Publications by Citations

126 papers	29,533 citations	52 h-index	171 g-index
173 ext. papers	35,927 ext. citations	5.2 avg, IF	6.33 L-index

#	Paper	IF	Citations
126	The ERA-Interim reanalysis: configuration and performance of the data assimilation system. *Quarterly Journal of the Royal Meteorological Society*, **2011**, 137, 553-597	6.4	17277
125	The ERA5 global reanalysis. *Quarterly Journal of the Royal Meteorological Society*, **2020**, 146, 1999-2049	6.4	3404
124	The WFDEI meteorological forcing data set: WATCH Forcing Data methodology applied to ERA-Interim reanalysis data. *Water Resources Research*, **2014**, 50, 7505-7514	5.4	660
123	A Revised Hydrology for the ECMWF Model: Verification from Field Site to Terrestrial Water Storage and Impact in the Integrated Forecast System. *Journal of Hydrometeorology*, **2009**, 10, 623-643	3.7	557
122	ESA CCI Soil Moisture for improved Earth system understanding: State-of-the art and future directions. *Remote Sensing of Environment*, **2017**, 203, 185-215	13.2	488
121	Advances in simulating atmospheric variability with the ECMWF model: From synoptic to decadal time-scales. *Quarterly Journal of the Royal Meteorological Society*, **2008**, 134, 1337-1351	6.4	407
120	ERA-Interim/Land: a global land surface reanalysis data set. *Hydrology and Earth System Sciences*, **2015**, 19, 389-407	5.5	379
119	Contribution of land surface initialization to subseasonal forecast skill: First results from a multi-model experiment. *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	280
118	Global intercomparison of 12 land surface heat flux estimates. *Journal of Geophysical Research*, **2011**, 116,		271
117	Evaluation of global observations-based evapotranspiration datasets and IPCC AR4 simulations. *Geophysical Research Letters*, **2011**, 38, n/a-n/a	4.9	267
116	The Second Phase of the Global Land–Atmosphere Coupling Experiment: Soil Moisture Contributions to Subseasonal Forecast Skill. *Journal of Hydrometeorology*, **2011**, 12, 805-822	3.7	242
115	An Improved Snow Scheme for the ECMWF Land Surface Model: Description and Offline Validation. *Journal of Hydrometeorology*, **2010**, 11, 899-916	3.7	191
114	A simplified Extended Kalman Filter for the global operational soil moisture analysis at ECMWF. *Quarterly Journal of the Royal Meteorological Society*, **2013**, 139, 1199-1213	6.4	188
113	Skill and Global Trend Analysis of Soil Moisture from Reanalyses and Microwave Remote Sensing. *Journal of Hydrometeorology*, **2013**, 14, 1259-1277	3.7	162
112	ERA-5 and ERA-Interim driven ISBA land surface model simulations: which one performs better?. *Hydrology and Earth System Sciences*, **2018**, 22, 3515-3532	5.5	156
111	Toward a Consistent Reanalysis of the Climate System. *Bulletin of the American Meteorological Society*, **2014**, 95, 1235-1248	6.1	153
110	SEAS5: the new ECMWF seasonal forecast system. *Geoscientific Model Development*, **2019**, 12, 1087-1117	6.3	152

109	The Plumbing of Land Surface Models: Benchmarking Model Performance. *Journal of Hydrometeorology*, **2015**, 16, 1425-1442	3.7	150
108	The AMMA Land Surface Model Intercomparison Project (ALMIP). *Bulletin of the American Meteorological Society*, **2009**, 90, 1865-1880	6.1	149
107	Why is it so difficult to represent stably stratified conditions in numerical weather prediction (NWP) models?. *Journal of Advances in Modeling Earth Systems*, **2013**, 5, 117-133	7.1	140
106	ERA5-Land: a state-of-the-art global reanalysis dataset for land applications. *Earth System Science Data*, **2021**, 13, 4349-4383	10.5	138
105	Current systematic carbon-cycle observations and the need for implementing a policy-relevant carbon observing system. *Biogeosciences*, **2014**, 11, 3547-3602	4.6	136
104	Stochastic representations of model uncertainties at ECMWF: state of the art and future vision. *Quarterly Journal of the Royal Meteorological Society*, **2017**, 143, 2315-2339	6.4	123
103	A global water resources ensemble of hydrological models: the eartH2Observe Tier-1 dataset. *Earth System Science Data*, **2017**, 9, 389-413	10.5	116
102	The new VarEPS-monthly forecasting system: A first step towards seamless prediction. *Quarterly Journal of the Royal Meteorological Society*, **2008**, 134, 1789-1799	6.4	109
101	Soil Moisture Analyses at ECMWF: Evaluation Using Global Ground-Based In Situ Observations. *Journal of Hydrometeorology*, **2012**, 13, 1442-1460	3.7	101
100	Initialisation of Land Surface Variables for Numerical Weather Prediction. *Surveys in Geophysics*, **2014**, 35, 607-621	7.6	100
99	The 2010–2011 drought in the Horn of Africa in ECMWF reanalysis and seasonal forecast products. *International Journal of Climatology*, **2013**, 33, 1720-1729	3.5	97
98	AMMA Land Surface Model Intercomparison Experiment coupled to the Community Microwave Emission Model: ALMIP-MEM. *Journal of Geophysical Research*, **2009**, 114,		92
97	Soil moisture effects on seasonal temperature and precipitation forecast scores in Europe. *Climate Dynamics*, **2012**, 38, 349-362	4.2	91
96	Verification of the new ECMWF ERA-Interim reanalysis over France. *Hydrology and Earth System Sciences*, **2011**, 15, 647-666	5.5	91
95	Natural land carbon dioxide exchanges in the ECMWF integrated forecasting system: Implementation and offline validation. *Journal of Geophysical Research D: Atmospheres*, **2013**, 118, 5923-5946	4.4	88
94	Impact of a satellite-derived leaf area index monthly climatology in a global numerical weather prediction model. *International Journal of Remote Sensing*, **2013**, 34, 3520-3542	3.1	80
93	Cross-evaluation of modelled and remotely sensed surface soil moisture with in situ data in southwestern France. *Hydrology and Earth System Sciences*, **2010**, 14, 2177-2191	5.5	79
92	On the contribution of lakes in predicting near-surface temperature in a global weather forecasting model. *Tellus, Series A: Dynamic Meteorology and Oceanography*, **2012**, 64, 15829	2	74

91	The ECMWF model climate: recent progress through improved physical parametrizations. *Quarterly Journal of the Royal Meteorological Society*, **2010**, 136, 1145-1160	6.4	70
90	Monitoring multi-decadal satellite earth observation of soil moisture products through land surface reanalyses. *Remote Sensing of Environment*, **2013**, 138, 77-89	13.2	68
89	Towards a Kalman Filter based soil moisture analysis system for the operational ECMWF Integrated Forecast System. *Geophysical Research Letters*, **2009**, 36,	4.9	68
88	Land water storage variability over West Africa estimated by Gravity Recovery and Climate Experiment (GRACE) and land surface models. *Water Resources Research*, **2011**, 47,	5.4	67
87	The Concordiasi Project in Antarctica. *Bulletin of the American Meteorological Society*, **2010**, 91, 69-86	6.1	65
86	A Land Data Assimilation System for Soil Moisture and Temperature: An Information Content Study. *Journal of Hydrometeorology*, **2007**, 8, 1225-1242	3.7	65
85	Towards operational predictions of the near-term climate. *Nature Climate Change*, **2019**, 9, 94-101	21.4	63
84	Impact of snow initialization on sub-seasonal forecasts. *Climate Dynamics*, **2013**, 41, 1969-1982	4.2	63
83	ESM-SnowMIP: assessing snow models and quantifying snow-related climate feedbacks. *Geoscientific Model Development*, **2018**, 11, 5027-5049	6.3	62
82	Evaluation of snow depth and snow cover over the Tibetan Plateau in global reanalyses using in situ and satellite remote sensing observations. *Cryosphere*, **2019**, 13, 2221-2239	5.5	61
81	Evaluation of 18 satellite- and model-based soil moisture products using in situ measurements from 826 sensors. *Hydrology and Earth System Sciences*, **2021**, 25, 17-40	5.5	61
80	Confronting weather and climate models with observational data from soil moisture networks over the United States. *Journal of Hydrometeorology*, **2016**, 17, 1049-1067	3.7	60
79	A revised land hydrology in the ECMWF model: a step towards daily water flux prediction in a fully-closed water cycle. *Hydrological Processes*, **2011**, 25, 1046-1054	3.3	60
78	Satellite and In Situ Observations for Advancing Global Earth Surface Modelling: A Review. *Remote Sensing*, **2018**, 10, 2038	5	60
77	Comparison of model land skin temperature with remotely sensed estimates and assessment of surface-atmosphere coupling. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 12,096	4.4	57
76	Analysis of leaf area index in the ECMWF land surface model and impact on latent heat and carbon fluxes: Application to West Africa. *Journal of Geophysical Research*, **2008**, 113,		57
75	Water Balance in the Amazon Basin from a Land Surface Model Ensemble. *Journal of Hydrometeorology*, **2014**, 15, 2586-2614	3.7	54
74	Comparing ERA-40-Based L-Band Brightness Temperatures with Skylab Observations: A Calibration/Validation Study Using the Community Microwave Emission Model. *Journal of Hydrometeorology*, **2009**, 10, 213-226	3.7	52

73	Complexity of Snow Schemes in a Climate Model and Its Impact on Surface Energy and Hydrology. *Journal of Hydrometeorology*, **2012**, 13, 521-538	3.7	50
72	Forecasting global atmospheric CO₂. *Atmospheric Chemistry and Physics*, **2014**, 14, 11959-11983	6.8	49
71	Verification of land-atmosphere coupling in forecast models, reanalyses and land surface models using flux site observations. *Journal of Hydrometeorology*, **2018**, 19, 375-392	3.7	46
70	A bare ground evaporation revision in the ECMWF land-surface scheme: evaluation of its impact using ground soil moisture and satellite microwave data. *Hydrology and Earth System Sciences*, **2012**, 16, 3607-3620	5.5	42
69	Assimilation of surface albedo and vegetation states from satellite observations and their impact on numerical weather prediction. *Remote Sensing of Environment*, **2015**, 163, 111-126	13.2	41
68	Influence of the Eurasian snow on the negative North Atlantic Oscillation in subseasonal forecasts of the cold winter 2009/2010. *Climate Dynamics*, **2016**, 47, 1325-1334	4.2	41
67	A simplified bi-dimensional variational analysis of soil moisture from screen-level observations in a mesoscale numerical weather-prediction model. *Quarterly Journal of the Royal Meteorological Society*, **2004**, 130, 895-915	6.4	41
66	Global runoff routing with the hydrological component of the ECMWF NWP system. *International Journal of Climatology*, **2010**, 30, 2155-2174	3.5	40
65	The ECMWF re-analysis for the AMMA observational campaign. *Quarterly Journal of the Royal Meteorological Society*, **2010**, 136, 1457-1472	6.4	40
64	Impact of springtime Himalayan□ibetan Plateau snowpack on the onset of the Indian summer monsoon in coupled seasonal forecasts. *Climate Dynamics*, **2016**, 47, 2709-2725	4.2	36
63	Infiltration from the Pedon to Global Grid Scales: An Overview and Outlook for Land Surface Modeling. *Vadose Zone Journal*, **2019**, 18, 1-53	2.7	36
62	Precipitation over Monsoon Asia: A Comparison of Reanalyses and Observations. *Journal of Climate*, **2017**, 30, 465-476	4.4	36
61	ERA-Interim/Land: a global land water resources dataset		36
60	Snow cover sensitivity to horizontal resolution, parameterizations, and atmospheric forcing in a land surface model. *Journal of Geophysical Research*, **2011**, 116,		35
59	The plumbing of land surface models: is poor performance a result of methodology or data quality?. *Journal of Hydrometeorology*, **2016**, 17, 1705-1723	3.7	33
58	Toward an Operational Anthropogenic CO2 Emissions Monitoring and Verification Support Capacity. *Bulletin of the American Meteorological Society*, **2020**, 101, E1439-E1451	6.1	29
57	Monitoring and Forecasting the Impact of the 2018 Summer Heatwave on Vegetation. *Remote Sensing*, **2019**, 11, 520	5	27
56	A Global Root-Zone Soil Moisture Analysis Using Simulated L-band Brightness Temperature in Preparation for the Hydros Satellite Mission. *Journal of Hydrometeorology*, **2006**, 7, 1126-1146	3.7	27

55	Advancing land surface model development with satellite-based Earth observations. *Hydrology and Earth System Sciences*, **2017**, 21, 2483-2495	5.5	26
54	Impact of improved soil moisture on the ECMWF precipitation forecast in West Africa. *Geophysical Research Letters*, **2010**, 37, n/a-n/a	4.9	26
53	Soil temperature at ECMWF: An assessment using ground-based observations. *Journal of Geophysical Research D: Atmospheres*, **2015**, 120, 1361-1373	4.4	25
52	Sensitivity of L-band NWP forward modelling to soil roughness. *International Journal of Remote Sensing*, **2011**, 32, 5607-5620	3.1	25
51	Evaluating the potential of large-scale simulations to predict carbon fluxes of terrestrial ecosystems over a European Eddy Covariance network. *Biogeosciences*, **2014**, 11, 2661-2678	4.6	22
50	An Intercomparison of Simulated Rainfall and Evapotranspiration Associated with a Mesoscale Convective System over West Africa. *Weather and Forecasting*, **2010**, 25, 37-60	2.1	19
49	ERA5-Land: A state-of-the-art global reanalysis dataset for land applications		19
48	Toward a Surface Soil Moisture Product at High Spatiotemporal Resolution: Temporally Interpolated, Spatially Disaggregated SMOS Data. *Journal of Hydrometeorology*, **2018**, 19, 183-200	3.7	19
47	Building a Multimodel Flood Prediction System with the TIGGE Archive. *Journal of Hydrometeorology*, **2016**, 17, 2923-2940	3.7	18
46	A biogenic CO₂ flux adjustment scheme for the mitigation of large-scale biases in global atmospheric CO₂ analyses and forecasts. *Atmospheric Chemistry and Physics*, **2016**, 16, 10399-10418	6.8	18
45	Energy, environment and sustainable development of the belt and road initiative: The Chinese scenario and Western contributions. *Sustainable Futures*, **2020**, 2, 100009	2.9	17
44	On the numerical stability of surface□tmosphere coupling in weather and climate models. *Geoscientific Model Development*, **2017**, 10, 977-989	6.3	17
43	The Numerics of Physical Parametrization in the ECMWF Model. *Frontiers in Earth Science*, **2018**, 6,	3.5	17
42	Land-Atmosphere Interactions Exacerbated the Drought and Heatwave Over Northern Europe During Summer 2018. *AGU Advances*, **2021**, 2, e2020AV000283	5.4	16
41	Environmental Lapse Rate for High-Resolution Land Surface Downscaling: An Application to ERA5. *Earth and Space Science*, **2020**, 7, e2019EA000984	3.1	15
40	The Concordiasi Field Experiment over Antarctica: First Results from Innovative Atmospheric Measurements. *Bulletin of the American Meteorological Society*, **2013**, 94, ES17-ES20	6.1	14
39	Evaluation of European Land Data Assimilation System (ELDAS) products using in situ observations. *Tellus, Series A: Dynamic Meteorology and Oceanography*, **2008**, 60, 1023-1037	2	14
38	Modeling Surface Runoff and Water Fluxes over Contrasted Soils in the Pastoral Sahel: Evaluation of the ALMIP2 Land Surface Models over the Gourma Region in Mali. *Journal of Hydrometeorology*, **2017**, 18, 1847-1866	3.7	13

37	Multi-scale enhancement of climate prediction over land by increasing the model sensitivity to vegetation variability in EC-Earth. *Climate Dynamics*, **2017**, 49, 1215-1237	4.2	13
36	Impact of soil surface moisture initialization on rainfall in a limited area model: a case study of the 1995 South Ticino flash flood. *Hydrological Processes*, **2002**, 16, 1301-1317	3.3	13
35	Impact of a Multi-Layer Snow Scheme on Near-Surface Weather Forecasts. *Journal of Advances in Modeling Earth Systems*, **2019**, 11, 4687-4710	7.1	12
34	Streamflows over a West African Basin from the ALMIP2 Model Ensemble. *Journal of Hydrometeorology*, **2017**, 18, 1831-1845	3.7	11
33	Representing model uncertainty for global atmospheric CO₂ flux inversions using ECMWF-IFS-46R1. *Geoscientific Model Development*, **2020**, 13, 2297-2313	6.3	11
32	Data assimilation for continuous global assessment of severe conditions over terrestrial surfaces. *Hydrology and Earth System Sciences*, **2020**, 24, 4291-4316	5.5	11
31	Current systematic carbon cycle observations and needs for implementing a policy-relevant carbon observing system		10
30	Systematic detection of local CH₄ anomalies by combining satellite measurements with high-resolution forecasts. *Atmospheric Chemistry and Physics*, **2021**, 21, 5117-5136	6.8	10
29	Upgraded global mapping information for earth system modelling: an application to surface water depth at the ECMWF. *Hydrology and Earth System Sciences*, **2019**, 23, 4051-4076	5.5	9
28	Representing Land Surface Heterogeneity: Offline Analysis of the Tiling Method. *Journal of Hydrometeorology*, **2013**, 14, 850-867	3.7	9
27	Sensitivity of snow models to the accuracy of meteorological forcings in mountain environments. *Hydrology and Earth System Sciences*, **2020**, 24, 4061-4090	5.5	9
26	Land Surface Processes Relevant to Sub-seasonal to Seasonal (S2S) Prediction **2019**, 165-181		9
25	Spectral Empirical Orthogonal Function Analysis of Weather and Climate Data. *Monthly Weather Review*, **2019**, 147, 2979-2995	2.4	7
24	ECLand: The ECMWF Land Surface Modelling System. *Atmosphere*, **2021**, 12, 723	2.7	5
23	An Urban Scheme for the ECMWF Integrated Forecasting System: Single-Column and Global Offline Application. *Journal of Advances in Modeling Earth Systems*, **2021**, 13, e2020MS002375	7.1	5
22	Upgrading Land-Cover and Vegetation Seasonality in the ECMWF Coupled System: Verification With FLUXNET Sites, METEOSAT Satellite Land Surface Temperatures, and ERA5 Atmospheric Reanalysis. *Journal of Geophysical Research D: Atmospheres*, **2021**, 126, e2020JD034163	4.4	5
21	Global anthropogenic CO₂ emissions and uncertainties as prior for Earth system modelling and data assimilation		4
20	Evaluation of 18 satellite- and model-based soil moisture products using in situ measurements from 826 sensors		4

19	A bare ground evaporation revision in the ECMWF land-surface scheme: evaluation of its impact using ground soil moisture and satellite microwave data		4
18	Sensitivity of Surface Fluxes in the ECMWF Land Surface Model to the Remotely Sensed Leaf Area Index and Root Distribution: Evaluation with Tower Flux Data. *Atmosphere*, **2020**, 11, 1362	2.7	4
17	Impact of Initialized Land Surface Temperature and Snowpack on Subseasonal to Seasonal Prediction Project, Phase I (LS4P-I): organization and experimental design. *Geoscientific Model Development*, **2021**, 14, 4465-4494	6.3	4
16	The CO2 Human Emissions (CHE) Project: First Steps Towards a European Operational Capacity to Monitor Anthropogenic CO2 Emissions. *Frontiers in Remote Sensing*, **2021**, 2,	1	4
15	Global anthropogenic CO₂ emissions and uncertainties as a prior for Earth system modelling and data assimilation. *Earth System Science Data*, **2021**, 13, 5311-5335	10.5	3
14	Measuring the Impact of a New Snow Model Using Surface Energy Budget Process Relationships. *Journal of Advances in Modeling Earth Systems*, **2020**, 12, e2020MS002144	7.1	3
13	ESM-SnowMIP: Assessing models and quantifying snow-related climate feedbacks **2018**,		3
12	Forecasting global atmospheric CO₂		2
11	Evaluating the potential of large scale simulations to predict carbon fluxes of terrestrial ecosystems over a European Eddy Covariance network		2
10	A global water resources ensemble of hydrological models: the eartH2Observe Tier-1 dataset		2
9	Varying snow and vegetation signatures of surface albedo feedback on the Northern Hemisphere land warming. *Environmental Research Letters*,	6.2	2
8	SEAS5: The new ECMWF seasonal forecast system **2018**,		2
7	Interactions Between the Amazonian Rainforest and Cumuli Clouds: A Large-Eddy Simulation, High-Resolution ECMWF, and Observational Intercomparison Study. *Journal of Advances in Modeling Earth Systems*, **2020**, 12, e2019MS001828	7.1	1
6	Towards the inclusion of hydros soil moisture measurements in forecasting systems of the meteorological service of Canada		1
5	Cross-evaluation of modelled and remotely sensed surface soil moisture with in situ data in Southwestern France		1
4	Capability of the variogram to quantify the spatial patterns of surface fluxes and soil moisture simulated by land surface models. *Progress in Physical Geography*, **2021**, 45, 279-293	3.5	1
3	Global nature run data with realistic high-resolution carbon weather for the year of the Paris Agreement.. *Scientific Data*, **2022**, 9, 160	8.2	1
2	Quantification of methane emissions from hotspots and during COVID-19 using a global atmospheric inversion. *Atmospheric Chemistry and Physics*, **2022**, 22, 5961-5981	6.8	1

1 Initialisation of Land Surface Variables for Numerical Weather Prediction. *Space Sciences Series of ISSI*, **2012**, 607-621 0.1