

# Pilar Garc a-Navarro

## List of Publications by Year in descending order

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116  
papers

4,393  
citations

117571

34  
h-index

118793

62  
g-index

117  
all docs

117  
docs citations

117  
times ranked

1849  
citing authors

#	ARTICLE	IF	CITATIONS
1	A high-resolution Godunov-type scheme in finite volumes for the 2D shallow-water equations. <i>International Journal for Numerical Methods in Fluids</i> , 1993, 16, 489-505.	0.9	380
2	A numerical model for the flooding and drying of irregular domains. <i>International Journal for Numerical Methods in Fluids</i> , 2002, 39, 247-275.	0.9	253
3	On numerical treatment of the source terms in the shallow water equations. <i>Computers and Fluids</i> , 2000, 29, 951-979.	1.3	216
4	Flux Difference Splitting and the Balancing of Source Terms and Flux Gradients. <i>Journal of Computational Physics</i> , 2000, 165, 89-125.	1.9	210
5	Zero mass error using unsteady wetting-drying conditions in shallow flows over dry irregular topography. <i>International Journal for Numerical Methods in Fluids</i> , 2004, 45, 1047-1082.	0.9	175
6	Weak solutions for partial differential equations with source terms: Application to the shallow water equations. <i>Journal of Computational Physics</i> , 2010, 229, 4327-4368.	1.9	141
7	Efficient construction of high-resolution TVD conservative schemes for equations with source terms: application to shallow water flows. <i>International Journal for Numerical Methods in Fluids</i> , 2001, 37, 209-248.	0.9	114
8	Godunov-type methods for free-surface shallow flows: A review. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2007, 45, 736-751.	0.7	108
9	1D Mathematical modelling of debris flow. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2000, 38, 435-446.	0.7	104
10	Two-dimensional dam break flow simulation. <i>International Journal for Numerical Methods in Fluids</i> , 2000, 33, 35-57.	0.9	98
11	Rainfall/runoff simulation with 2D full shallow water equations: Sensitivity analysis and calibration of infiltration parameters. <i>Journal of Hydrology</i> , 2016, 536, 496-513.	2.3	91
12	McCormack's method for the numerical simulation of one-dimensional discontinuous unsteady open channel flow. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 1992, 30, 95-105.	0.7	87
13	Flux difference splitting for 1D open channel flow equations. <i>International Journal for Numerical Methods in Fluids</i> , 1992, 14, 1009-1018.	0.9	81
14	Influence of mesh structure on 2D full shallow water equations and SCS Curve Number simulation of rainfall/runoff events. <i>Journal of Hydrology</i> , 2012, 448-449, 39-59.	2.3	80
15	An Exner-based coupled model for two-dimensional transient flow over erodible bed. <i>Journal of Computational Physics</i> , 2010, 229, 8704-8732.	1.9	78
16	Augmented versions of the HLL and HLLC Riemann solvers including source terms in one and two dimensions for shallow flow applications. <i>Journal of Computational Physics</i> , 2012, 231, 6861-6906.	1.9	73
17	An optimized GPU implementation of a 2D free surface simulation model on unstructured meshes. <i>Advances in Engineering Software</i> , 2014, 78, 1-15.	1.8	70
18	A 2D weakly-coupled and efficient numerical model for transient shallow flow and movable bed. <i>Advances in Water Resources</i> , 2014, 71, 93-109.	1.7	69

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19	The influence of source terms on stability, accuracy and conservation in two-dimensional shallow flow simulation using triangular finite volumes. <i>International Journal for Numerical Methods in Fluids</i> , 2007, 54, 543-590.	0.9	68
20	An implicit method for water flow modelling in channels and pipes. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 1994, 32, 721-742.	0.7	65
21	The shallow water equations and their application to realistic cases. <i>Environmental Fluid Mechanics</i> , 2019, 19, 1235-1252.	0.7	56
22	Friction term discretization and limitation to preserve stability and conservation in the 1D shallow water model: Application to unsteady irrigation and river flow. <i>International Journal for Numerical Methods in Fluids</i> , 2008, 58, 403-425.	0.9	55
23	A conservative strategy to couple 1D and 2D models for shallow water flow simulation. <i>Computers and Fluids</i> , 2013, 81, 26-44.	1.3	53
24	Solute Transport Modeling in Overland Flow Applied to Fertigation. <i>Journal of Irrigation and Drainage Engineering - ASCE</i> , 2000, 126, 33-40.	0.6	46
25	Coupling between shallow water and solute flow equations: analysis and management of source terms in 2D. <i>International Journal for Numerical Methods in Fluids</i> , 2005, 49, 267-299.	0.9	46
26	Wave Riemann description of friction terms in unsteady shallow flows: Application to water and mud/debris floods. <i>Journal of Computational Physics</i> , 2012, 231, 1963-2001.	1.9	46
27	Dam-break flow simulation: some results for one-dimensional models of real cases. <i>Journal of Hydrology</i> , 1999, 216, 227-247.	2.3	45
28	GPU implementation of the 2D shallow water equations for the simulation of rainfall/runoff events. <i>Environmental Earth Sciences</i> , 2015, 74, 7295-7305.	1.3	44
29	A conservative 2D model of inundation flow with solute transport over dry bed. <i>International Journal for Numerical Methods in Fluids</i> , 2006, 52, 1059-1092.	0.9	43
30	2D simulation of granular flow over irregular steep slopes using global and local coordinates. <i>Journal of Computational Physics</i> , 2013, 255, 166-204.	1.9	43
31	Genuinely Multidimensional Upwinding for the 2D Shallow Water Equations. <i>Journal of Computational Physics</i> , 1995, 121, 79-93.	1.9	42
32	Analysis of a second-order upwind method for the simulation of solute transport in 2D shallow water flow. <i>International Journal for Numerical Methods in Fluids</i> , 2008, 56, 661-686.	0.9	42
33	Conservative 1D-2D coupled numerical strategies applied to river flooding: The Tiber (Rome). <i>Applied Mathematical Modelling</i> , 2016, 40, 2087-2105.	2.2	40
34	A finite volume method for the simulation of the waves generated by landslides. <i>Journal of Hydrology</i> , 2009, 373, 273-289.	2.3	36
35	Reconstruction of 2D river beds by appropriate interpolation of 1D cross-sectional information for flood simulation. <i>Environmental Modelling and Software</i> , 2014, 61, 206-228.	1.9	35
36	Accurate numerical modeling of 1D flow in channels with arbitrary shape. Application of the energy balanced property. <i>Journal of Computational Physics</i> , 2014, 260, 222-248.	1.9	35

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37	2D numerical simulation of unsteady flows for large scale floods prediction in real time. <i>Advances in Water Resources</i> , 2019, 134, 103444.	1.7	34
38	Time step restrictions for well-balanced shallow water solutions in non-zero velocity steady states. <i>International Journal for Numerical Methods in Fluids</i> , 2009, 60, 1351-1377.	0.9	32
39	Numerical assessment of bed-load discharge formulations for transient flow in 1D and 2D situations. <i>Journal of Hydroinformatics</i> , 2013, 15, 1234-1257.	1.1	32
40	Improving simple explicit methods for unsteady open channel and river flow. <i>International Journal for Numerical Methods in Fluids</i> , 2004, 45, 125-156.	0.9	31
41	Analysis of the Friction Term in the One-Dimensional Shallow-Water Model. <i>Journal of Hydraulic Engineering</i> , 2007, 133, 1048-1063.	0.7	31
42	Conservative numerical simulation of multi-component transport in two-dimensional unsteady shallow water flow. <i>Journal of Computational Physics</i> , 2009, 228, 5539-5573.	1.9	31
43	Energy balance numerical schemes for shallow water equations with discontinuous topography. <i>Journal of Computational Physics</i> , 2013, 236, 119-142.	1.9	31
44	Implicit schemes with large time step for non-linear equations: application to river flow hydraulics. <i>International Journal for Numerical Methods in Fluids</i> , 2004, 46, 607-636.	0.9	28
45	Extension of an explicit finite volume method to large time steps ( $CFL > 1$ ): application to shallow water flows. <i>International Journal for Numerical Methods in Fluids</i> , 2006, 50, 63-102.	0.9	27
46	Fertigation in Furrows and Level Furrow Systems. I: Model Description and Numerical Tests. <i>Journal of Irrigation and Drainage Engineering - ASCE</i> , 2009, 135, 401-412.	0.6	26
47	A 2D extension of a Large Time Step explicit scheme ( $CFL > 1$ ) for unsteady problems with wet/dry boundaries. <i>Journal of Computational Physics</i> , 2014, 263, 303-327.	1.9	26
48	A large time step 1D upwind explicit scheme ( $CFL > 1$ ): Application to shallow water equations. <i>Journal of Computational Physics</i> , 2012, 231, 6532-6557.	1.9	25
49	An efficient GPU implementation for a faster simulation of unsteady bed-load transport. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2016, 54, 275-288.	0.7	25
50	Numerical Modeling of Basin Irrigation with an Upwind Scheme. <i>Journal of Irrigation and Drainage Engineering - ASCE</i> , 2002, 128, 212-223.	0.6	24
51	The formulation of internal boundary conditions in unsteady 2D shallow water flows: Application to flood regulation. <i>Water Resources Research</i> , 2013, 49, 471-487.	1.7	24
52	An efficient solution for hazardous geophysical flows simulation using GPUs. <i>Computers and Geosciences</i> , 2015, 78, 63-72.	2.0	23
53	2D dry granular free-surface flow over complex topography with obstacles. Part I: experimental study using a consumer-grade RGB-D sensor. <i>Computers and Geosciences</i> , 2014, 73, 177-197.	2.0	22
54	Implicit finite volume simulation of 2D shallow water flows in flexible meshes. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2018, 328, 1-25.	3.4	22

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55	Calibration of a dynamic Eulerian-lagrangian model for the computation of wood cylinders transport in shallow water flow. <i>Journal of Hydroinformatics</i> , 2019, 21, 164-179.	1.1	22
56	Finite volumes for 2D shallow-water flow with bed-load transport on unstructured grids. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2012, 50, 154-163.	0.7	21
57	Overland water and salt flows in a set of rice paddies. <i>Agricultural Water Management</i> , 2008, 95, 645-658.	2.4	20
58	A model based on Hirano-Exner equations for two-dimensional transient flows over heterogeneous erodible beds. <i>Advances in Water Resources</i> , 2016, 87, 1-18.	1.7	20
59	Experimental and numerical simulation of bed load transport over steep slopes. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2017, 55, 455-469.	0.7	20
60	Fertigation in Furrows and Level Furrow Systems. II: Field Experiments, Model Calibration, and Practical Applications. <i>Journal of Irrigation and Drainage Engineering - ASCE</i> , 2009, 135, 413-420.	0.6	19
61	2D dry granular free-surface transient flow over complex topography with obstacles. Part II: Numerical predictions of fluid structures and benchmarking. <i>Computers and Geosciences</i> , 2014, 73, 142-163.	2.0	19
62	A Riemann solver for unsteady computation of 2D shallow flows with variable density. <i>Journal of Computational Physics</i> , 2012, 231, 4775-4807.	1.9	18
63	A 1D numerical model for the simulation of unsteady and highly erosive flows in rivers. <i>Computers and Fluids</i> , 2019, 181, 8-34.	1.3	18
64	Preprocess static subdomain decomposition in practical cases of 2D unsteady hydraulic simulation. <i>Computers and Fluids</i> , 2013, 80, 225-232.	1.3	17
65	Two-Dimensional Numerical Simulation of Bed-Load Transport of a Finite-Depth Sediment Layer: Applications to Channel Flushing. <i>Journal of Hydraulic Engineering</i> , 2017, 143, .	0.7	17
66	A Roe type energy balanced solver for 1D arterial blood flow and transport. <i>Computers and Fluids</i> , 2015, 117, 149-167.	1.3	16
67	Numerical boundary conditions for globally mass conservative methods to solve the shallow-water equations and applied to river flow. <i>International Journal for Numerical Methods in Fluids</i> , 2006, 51, 585-615.	0.9	15
68	Improved Riemann solvers for complex transport in two-dimensional unsteady shallow flow. <i>Journal of Computational Physics</i> , 2011, 230, 7202-7239.	1.9	15
69	SURCOS: A software tool to simulate irrigation and fertigation in isolated furrows and furrow networks. <i>Computers and Electronics in Agriculture</i> , 2014, 103, 91-103.	3.7	15
70	Numerical modelling of bridges in 2D shallow water flow simulations. <i>International Journal for Numerical Methods in Fluids</i> , 2014, 75, 250-272.	0.9	15
71	Modelling sediment deposition and phosphorus retention in a river floodplain. <i>Hydrological Processes</i> , 2015, 29, 384-394.	1.1	14
72	Towards transient experimental water surfaces: A new benchmark dataset for 2D shallow water solvers. <i>Advances in Water Resources</i> , 2018, 121, 130-149.	1.7	14

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73	Diffusionâ€dispersion numerical discretization for solute transport in 2D transient shallow flows. <i>Environmental Fluid Mechanics</i> , 2019, 19, 1217-1234.	0.7	14
74	Finite volume model for the simulation of 1D unsteady river flow and water quality based on the WASP. <i>Journal of Hydroinformatics</i> , 2020, 22, 327-345.	1.1	14
75	Preserving bounded and conservative solutions of transport in oneâ€dimensional shallowâ€water flow with upwind numerical schemes: Application to fertigation and solute transport in rivers. <i>International Journal for Numerical Methods in Fluids</i> , 2008, 56, 1731-1764.	0.9	13
76	Diffusive-Wave Based Hydrologic-Hydraulic Model with Sediment Transport. I: Model Development. <i>Journal of Hydrologic Engineering - ASCE</i> , 2012, 17, 1093-1104.	0.8	13
77	A Riemann coupled edge (RCE) 1Dâ€2D finite volume inundation and solute transport model. <i>Environmental Earth Sciences</i> , 2015, 74, 7319-7335.	1.3	13
78	A fractional-order infiltration model to improve the simulation of rainfall/runoff in combination with a 2D shallow water model. <i>Journal of Hydroinformatics</i> , 2018, 20, 898-916.	1.1	13
79	Formulation of exactly balanced solvers for blood flow in elastic vessels and their application to collapsed states. <i>Computers and Fluids</i> , 2019, 186, 74-98.	1.3	13
80	A GPU-accelerated Efficient Simulation Tool (EST) for 2D variable-density mud/debris flows over non-uniform erodible beds. <i>Engineering Geology</i> , 2022, 296, 106462.	2.9	12
81	Development of a New Simulation Tool Coupling a 2D Finite Volume Overland Flow Model and a Drainage Network Model. <i>Geosciences (Switzerland)</i> , 2018, 8, 288.	1.0	11
82	A 2D finite volume simulation tool to enable the assessment of combined hydrological and morphodynamical processes in mountain catchments. <i>Advances in Water Resources</i> , 2020, 141, 103617.	1.7	11
83	2D modelling of erosion/deposition processes with suspended load using. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2008, 46, 99-112.	0.7	10
84	Transient Two-Dimensional Simulation of Real Flood Events in a Mediterranean Floodplain. <i>Journal of Hydraulic Engineering</i> , 2012, 138, 629-641.	0.7	10
85	A robust two-dimensional model for highly sediment-laden unsteady flows of variable density over movable beds. <i>Journal of Hydroinformatics</i> , 2020, 22, 1138-1160.	1.1	10
86	Application of a distributed 2D overland flow model for rainfall/runoff and erosion simulation in a Mediterranean watershed. <i>Cuadernos De Investigacion Geografica</i> , 2018, 44, 615.	0.6	10
87	An Efficient GPU Implementation of a Coupled Overland-Sewer Hydraulic Model with Pollutant Transport. <i>Hydrology</i> , 2021, 8, 146.	1.3	10
88	Simulation of PID Control Applied to Irrigation Channels. <i>Procedia Engineering</i> , 2014, 70, 978-987.	1.2	9
89	Calibration of the 1D shallow water equations: a comparison of Monte Carlo and gradient-based optimization methods. <i>Journal of Hydroinformatics</i> , 2017, 19, 282-298.	1.1	9
90	Use of internal boundary conditions for levees representation: application to river flood management. <i>Environmental Fluid Mechanics</i> , 2019, 19, 1253-1271.	0.7	9

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91	Numerical simulation of runoff from extreme rainfall events in a mountain water catchment. <i>Natural Hazards and Earth System Sciences</i> , 2002, 2, 109-117.	1.5	8
92	A Pipe Network Simulation Model with Dynamic Transition between Free Surface and Pressurized Flow. <i>Procedia Engineering</i> , 2014, 70, 641-650.	1.2	8
93	Finite volume simulation of unsteady water pipe flow. <i>Drinking Water Engineering and Science</i> , 2014, 7, 83-92.	0.8	8
94	A Large Time Step explicit scheme ( $CFL > 1$ ) on unstructured grids for 2D conservation laws: Application to the homogeneous shallow water equations. <i>Applied Mathematical Modelling</i> , 2017, 47, 294-317.	2.2	7
95	Application of an adjoint-based optimization procedure for the optimal control of internal boundary conditions in the shallow water equations. <i>Journal of Hydraulic Research/De Recherches Hydrauliques</i> , 2018, 56, 111-123.	0.7	7
96	Adaptation of flux-based solvers to 2D two-layer shallow flows with variable density including numerical treatment of the loss of hyperbolicity and drying/wetting fronts. <i>Journal of Hydroinformatics</i> , 2020, 22, 972-1014.	1.1	7
97	A GPU-based 2D shallow water quality model. <i>Journal of Hydroinformatics</i> , 2020, 22, 1182-1197.	1.1	6
98	Discontinuous Galerkin well-balanced schemes using augmented Riemann solvers with application to the shallow water equations. <i>Journal of Hydroinformatics</i> , 2020, 22, 1038-1058.	1.1	6
99	A GPU accelerated adjoint-based optimizer for inverse modeling of the two-dimensional shallow water equations. <i>Computers and Fluids</i> , 2016, 136, 371-383.	1.3	5
100	Analysis of the performance of a hybrid CPU/GPU 1D2D coupled model for real flood cases. <i>Journal of Hydroinformatics</i> , 2020, 22, 1198-1216.	1.1	5
101	Novel discretization strategies for the 2D non-Newtonian resistance term in geophysical shallow flows. <i>Engineering Geology</i> , 2022, 302, 106625.	2.9	5
102	A Solution of the Junction Riemann Problem for 1D Hyperbolic Balance Laws in Networks including Supersonic Flow Conditions on Elastic Collapsible Tubes. <i>Symmetry</i> , 2021, 13, 1658.	1.1	4
103	Simulación numérica con RiverFlow2D de posibles soluciones de mitigación de avenidas en el tramo medio del río Ebro. <i>Ingeniería Del Agua</i> , 2017, 21, 53.	0.2	4
104	A 1D shallow-flow model for two-layer flows based on FORCE scheme with wet-dry treatment. <i>Journal of Hydroinformatics</i> , 2020, 22, 1015-1037.	1.1	4
105	Accurate and efficient simulation of transport in multidimensional flow. <i>International Journal for Numerical Methods in Fluids</i> , 2011, 65, 405-431.	0.9	3
106	Flood lamination strategy based on a three-flood-diversion-area system management. , 2012, , .		3
107	Simulación de avenidas mediante un modelo hidráulico/hidrológico distribuido en un tramo urbano del río Ginel (Fuentes de Ebro). <i>Ribagua</i> , 2019, 6, 49-62.	0.3	3
108	A gradient-descent adjoint method for the reconstruction of boundary conditions in a river flow nitrification model. <i>Environmental Sciences: Processes and Impacts</i> , 2020, 22, 381-397.	1.7	3

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109	Efficient Reservoir Modelling for Flood Regulation in the Ebro River (Spain). Water (Switzerland), 2021, 13, 3160.	1.2	3
110	Finite Volume Models and Efficient Simulation Tools (EST) for Shallow Flows. Forum for Interdisciplinary Mathematics, 2022, , 67-137.	0.8	3
111	Analysis of the performance of different culvert boundary conditions in 2D shallow flow models. Journal of Hydroinformatics, 2020, 22, 1093-1121.	1.1	2
112	Solute Transport Control at Channel Junctions Using Adjoint Sensitivity. Mathematics, 2022, 10, 93.	1.1	2
113	Balancing Source Terms and Flux Gradients in Finite Volume Schemes. , 2001, , 477-483.		1
114	Numerical simulation of 2D real large scale floods on GPU: the Ebro River. E3S Web of Conferences, 2018, 40, 06007.	0.2	0
115	Development of a simplified model to solve 2D surface flow in basins. , 2009, , 17-20.		0
116	Calibración y simulación de un sistema regulado de suministro de agua a través de técnicas de Monte Carlo. IngenierÍA Del Agua, 2015, 19, 117.	0.2	0