G Hilmar Gudmundsson

List of Publications by Year
in descending order

129 papers	6,750 citations	66234 42 h-index	76769 74 g-index
212 all docs	212 docs citations	212 times ranked	3604 citing authors

#	Article	IF	Citations
1	Deep glacial troughs and stabilizing ridges unveiled beneath the margins of the Antarctic ice sheet. Nature Geoscience, 2020, 13, 132-137.	5.4	431
2	Retreat of Pine Island Glacier controlled by marine ice-sheet instability. Nature Climate Change, 2014, 4, 117-121.	8.1	366
3	Benchmark experiments for higher-order and full-Stokes ice sheet models (ISMIPâ€"HOM). Cryosphere, 2008, 2, 95-108.	1.5	221
4	Transmission of basal variability to a glacier surface. Journal of Geophysical Research, 2003, 108, .	3.3	206
5	Ice-shelf buttressing and the stability of marine ice sheets. Cryosphere, 2013, 7, 647-655.	1.5	204
6	The stability of grounding lines on retrograde slopes. Cryosphere, 2012, 6, 1497-1505.	1.5	203
7	Results of the Marine Ice Sheet Model Intercomparison Project, MISMIP. Cryosphere, 2012, 6, 573-588.	1.5	191
8	Grounding-line migration in plan-view marine ice-sheet models: results of the ice2sea MISMIP3d intercomparison. Journal of Glaciology, 2013, 59, 410-422.	1.1	179
9	How accurate are estimates of glacier ice thickness? Results from ITMIX, the Ice Thickness Models Intercomparison eXperiment. Cryosphere, 2017, 11, 949-970.	1.5	173
10	The far reach of ice-shelf thinning in Antarctica. Nature Climate Change, 2018, 8, 53-57.	8.1	161
11	Analysing the creep of mountain permafrost using high precision aerial photogrammetry: 25 years of monitoring Gruben rock glacier, Swiss Alps. Permafrost and Periglacial Processes, 1997, 8, 409-426.	1.5	133
12	Decadal Ocean Forcing and Antarctic Ice Sheet Response: Lessons from the Amundsen Sea. , 2016, 29, 106-117.		122
13	Initialization of ice-sheet forecasts viewed as an inverse Robin problem. Journal of Glaciology, 2010, 56, 527-533.	1.1	115
14	Fortnightly variations in the flow velocity of Rutford Ice Stream, West Antarctica. Nature, 2006, 444, 1063-1064.	13.7	114
15	Impacts of the Larsen-C Ice Shelf calving event. Nature Climate Change, 2017, 7, 540-542.	8.1	111
16	Permafrost changes in rock walls and the retreat of alpine glaciers: a thermal modelling approach. Permafrost and Periglacial Processes, 1998, 9, 23-33.	1.5	110
17	Experimental design for three interrelated marine ice sheet and ocean model intercomparison projects: MISMIP v. 3 (MISMIP +), ISOMIP v. 2 (ISOMIP +) and MISOMIP v. 1 (MISOMIP1). Geoscientific Model Development, 2016, 9, 2471-2497.	1.3	106
18	Instantaneous Antarctic ice sheet mass loss driven by thinning ice shelves. Geophysical Research Letters, 2019, 46, 13903-13909.	1.5	106

#	Article	IF	Citations
19	Subglacial melt channels and fracture in the floating part of Pine Island Glacier, Antarctica. Journal of Geophysical Research, 2012, 117, .	3.3	105
20	Ice-stream response to ocean tides and the form of the basal sliding law. Cryosphere, 2011, 5, 259-270.	1.5	103
21	Tides and the flow of Rutford Ice Stream, West Antarctica. Journal of Geophysical Research, 2007, 112, .	3.3	101
22	The origin and longevity of flow stripes on Antarctic ice streams. Annals of Glaciology, 1998, 27, 145-152.	2.8	99
23	On the effects of anisotropic rheology on ice flow, internal structure, and the ageâ€depth relationship at ice divides. Journal of Geophysical Research, 2009, 114, .	3.3	95
24	Atmosphereâ€oceanâ€ice interactions in the Amundsen Sea Embayment, West Antarctica. Reviews of Geophysics, 2017, 55, 235-276.	9.0	92
25	Projecting Antarctica's contribution to future sea level rise from basal ice shelf melt using linear response functions of 16 ice sheet models (LARMIP-2). Earth System Dynamics, 2020, 11, 35-76.	2.7	92
26	On estimating length fluctuations of glaciers caused by changes in climatic forcing. Journal of Geophysical Research, 2004, 109, .	3.3	84
27	Increased rate of acceleration on Pine Island Glacier strongly coupled to changes in gravitational driving stress. Cryosphere, 2009, 3, 125-131.	1.5	82
28	Short-term variations in glacier flow controlled by subglacial water pressure at Lauteraargletscher, Bernese Alps, Switzerland. Journal of Glaciology, 2004, 50, 353-362.	1.1	77
29	A three-dimensional numerical model of the confluence area of Unteraargletscher, Bernese Alps, Switzerland. Journal of Glaciology, 1999, 45, 219-230.	1.1	69
30	Evidence for deep icequakes in an Alpine glacier. Annals of Glaciology, 2000, 31, 85-90.	2.8	67
31	Processes controlling the downstream evolution of ice rheology in glacier shear margins: case study on Rutford Ice Stream, West Antarctica. Journal of Glaciology, 2018, 64, 583-594.	1.1	63
32	Evolution of surface velocities and ice discharge of Larsen B outlet glaciers from 1995 to 2013. Cryosphere, 2015, 9, 957-969.	1.5	61
33	Coupled ice shelfâ€ocean modeling and complex grounding line retreat from a seabed ridge. Journal of Geophysical Research F: Earth Surface, 2016, 121, 865-880.	1.0	59
34	On the relationship between surface and basal properties on glaciers, ice sheets, and ice streams. Journal of Geophysical Research, 2005, 110, .	3.3	58
35	Modelling present-day basal melt rates for Antarctic ice shelves using a parametrization of buoyant meltwater plumes. Cryosphere, 2018, 12, 49-70.	1.5	58
36	Basal-flow characteristics of a non-linear flow sliding frictionless over strongly undulating bedrock. Journal of Glaciology, 1997, 43, 80-89.	1.1	56

#	Article	IF	Citations
37	On the limit to resolution and information on basal properties obtainable from surface data on ice streams. Cryosphere, 2008, 2, 167-178.	1.5	56
38	Temporal variations in the flow of a large Antarctic ice stream controlled by tidally induced changes in the subglacial water system. Cryosphere, 2015, 9, 1649-1661.	1.5	56
39	A three-dimensional numerical model of the confluence area of Unteraargletscher, Bernese Alps, Switzerland. Journal of Glaciology, 1999, 45, 219-230.	1.1	55
40	Estimating basal properties of ice streams from surface measurements: a non-linear Bayesian inverse approach applied to synthetic data. Cryosphere, 2009, 3, 265-278.	1.5	55
41	Diurnal and semidiurnal tideâ€induced lateral movement of Ronne Ice Shelf, Antarctica. Geophysical Research Letters, 2012, 39, .	1.5	55
42	Dynamic changes in outlet glaciers in northern Greenland from 1948 to 2015. Cryosphere, 2018, 12, 3243-3263.	1.5	54
43	Results of the third Marine Ice Sheet Model Intercomparison Project (MISMIP+). Cryosphere, 2020, 14, 2283-2301.	1.5	53
44	Bed topography and lubrication inferred from surface measurements on fast-flowing ice streams. Journal of Glaciology, 2003, 49, 481-490.	1.1	46
45	Longitudinal surface structures (flowstripes) on Antarctic glaciers. Cryosphere, 2012, 6, 383-391.	1.5	46
46	Hydraulic and mechanical properties of glacial sediments beneath Unteraargletscher, Switzerland: implications for glacier basal motion. Hydrological Processes, 2001, 15, 3525-3540.	1.1	44
47	Draping or overriding: The effect of horizontal stress gradients on internal layer architecture in ice sheets. Journal of Geophysical Research, 2006, 111, .	3.3	43
48	Bayesian estimation of basal conditions on Rutford Ice Stream, West Antarctica, from surface data. Journal of Glaciology, 2011, 57, 315-324.	1.1	43
49	The tipping points and early warning indicators for Pine Island Glacier, West Antarctica. Cryosphere, 2021, 15, 1501-1516.	1.5	42
50	Diurnal variability of subglacial drainage conditions as revealed by tracer experiments. Journal of Geophysical Research, 2004, 109, n/a-n/a.	3.3	41
51	Modeling the instantaneous response of glaciers after the collapse of the Larsen B Ice Shelf. Geophysical Research Letters, 2015, 42, 5355-5363.	1.5	41
52	Effects of nonlinear rheology, temperature and anisotropy on the relationship between age and depth at ice divides. Cryosphere, 2012, 6, 1221-1229.	1.5	36
53	The ice-thickness distribution of Unteraargletscher, Switzerland. Annals of Glaciology, 2003, 37, 331-336.	2.8	34
54	Analytical solutions for the surface response to small amplitude perturbations in boundary data in the shallow-ice-stream approximation. Cryosphere, 2008, 2, 77-93.	1.5	34

#	Article	IF	Citations
55	The response of a glacier to a surface disturbance: a case study on VatnajÃ¶kull ice cap, Iceland. Annals of Glaciology, 2000, 31, 104-110.	2.8	33
56	Insights into ice stream dynamics through modelling their response to tidal forcing. Cryosphere, 2014, 8, 1763-1775.	1.5	33
57	Intermittent structural weakening and acceleration of the Thwaites Glacier Tongue between 2000 and 2018. Journal of Glaciology, 2020, 66, 485-495.	1.1	33
58	Drivers of Pine Island Glacier speed-up between 1996 and 2016. Cryosphere, 2021, 15, 113-132.	1.5	33
59	Highly temporally resolved response to seasonal surface melt of the Zachariae and 79N outlet glaciers in northeast Greenland. Geophysical Research Letters, 2017, 44, 9805-9814.	1.5	30
60	Ocean tides in the Weddell Sea: New observations on the Filchner-Ronne and Larsen C ice shelves and model validation. Journal of Geophysical Research, 2011, 116, .	3.3	29
61	Basal-flow characteristics of a linear medium sliding frictionless over small bedrock undulations. Journal of Glaciology, 1997, 43, 71-79.	1.1	27
62	High-resolution measurements of spatial and temporal variations in surface velocities of Unteraargletscher, Bernese Alps, Switzerland. Annals of Glaciology, 2000, 31, 63-68.	2.8	27
63	Nonlinear interaction between ocean tides and the Larsen C Ice Shelf system. Geophysical Research Letters, 2011, 38, n/a-n/a.	1.5	27
64	An improved model for tidally modulated grounding-line migration. Journal of Glaciology, 2015, 61, 216-222.	1.1	26
65	Evaluating the Potential of an Airborne Laser-scanning System for Measuring Volume Changes of Glaciers. Geografiska Annaler, Series A: Physical Geography, 1999, 81, 555-561.	0.6	26
66	Estimating rates of basal motion and internal ice deformation from continuous tilt measurements. Annals of Glaciology, 1999, 28, 247-252.	2.8	25
67	Surface undulations of Antarctic ice streams tightly controlled by bedrock topography. Cryosphere, 2013, 7, 407-417.	1.5	25
68	Measurements of ice deformation at the confluence area of Unteraargletscher Bernese Alps, Switzerland. Journal of Glaciology, 1997, 43, 548-556.	1.1	24
69	The ice thickness distribution of Flask Glacier, Antarctic Peninsula, determined by combining radio-echo soundings, surface velocity data and flow modelling. Annals of Glaciology, 2013, 54, 18-24.	2.8	24
70	Velocity response of Petermann Glacier, northwest Greenland, to past and future calving events. Cryosphere, 2018, 12, 3907-3921.	1.5	24
71	Recent rift formation and impact on the structural integrity of the Brunt Ice Shelf, East Antarctica. Cryosphere, 2018, 12, 505-520.	1.5	24
72	The bedrock topography of Starbuck Glacier, Antarctic Peninsula, as determined by radio-echo soundings and flow modeling. Annals of Glaciology, 2014, 55, 22-28.	2.8	23

#	Article	IF	Citations
73	Accurate coastal DEM generation by merging ASTER GDEM and ICESat/GLAS data over Mertz Glacier, Antarctica. Remote Sensing of Environment, 2018, 206, 218-230.	4.6	23
74	Five decades of strong temporal variability in the flow of Brunt Ice Shelf, Antarctica. Journal of Glaciology, 2017, 63, 164-175.	1.1	22
75	Towards an Indirect Determination of the Mass-balance Distribution of Glaciers using the Kinematic Boundary Condition. Geografiska Annaler, Series A: Physical Geography, 1999, 81, 575-583.	0.6	22
76	Grounding-line flux formula applied as a flux condition in numerical simulations fails for buttressed Antarctic ice streams. Cryosphere, 2018, 12, 3229-3242.	1.5	21
77	Thermally induced temporal strain variations in rock walls observed at subzero temperatures. , 1999, , 511-518.		20
78	Observations of a reversal in vertical and horizontal strain-rate regime during a motion event on Unteraargletscher, Bernese Alps, Switzerland. Journal of Glaciology, 2002, 48, 566-574.	1.1	20
79	Diurnal variations in vertical strain observed in a temperate valley glacier. Geophysical Research Letters, 2003, 30, .	1.5	19
80	The internal structure of the Brunt Ice Shelf from ice-penetrating radar analysis and implications for ice shelf fracture. Cryosphere, 2018, 12, 3361-3372.	1.5	19
81	Ice deformation at the confluence of two glaciers investigated with conceptual map-plane and flowline models. Journal of Glaciology, 1997, 43, 537-547.	1.1	18
82	A numerical study of glacier advance over deforming till. Cryosphere, 2010, 4, 359-372.	1.5	18
83	Modelling of Kealey Ice Rise, Antarctica, reveals stable ice-flow conditions in East Ellsworth Land over millennia. Journal of Glaciology, 2014, 60, 139-146.	1.1	18
84	Volume sensitivity of VatnajÃ¶kull Ice Cap, Iceland, to perturbations in equilibrium line altitude. Journal of Geophysical Research, 2005, 110, n/a-n/a.	3.3	17
85	Ice-flow velocities on Rutford Ice Stream, West Antarctica, are stable over decadal timescales. Journal of Glaciology, 2009, 55, 339-344.	1.1	17
86	On the interpretation of ice-shelf flexure measurements. Journal of Glaciology, 2017, 63, 783-791.	1.1	17
87	Exploring mechanisms responsible for tidal modulation in flow of the Filchnerâ€“Ronne Ice Shelf. Cryosphere, 2020, 14, 17-37.	1.5	17
88	Relevance of Detail in Basal Topography for Basal Slipperiness Inversions: A Case Study on Pine Island Glacier, Antarctica. Frontiers in Earth Science, 2018, 6, .	0.8	16
89	Comparison of Modeled Water Input and Measured Discharge Prior to a Release Event: Unteraargletscher, Bernese Alps, Switzerland. Hydrology Research, 2002, 33, 27-46.	1.1	15
90	Halley Research Station, Antarctica: calving risks and monitoring strategies. Natural Hazards and Earth System Sciences, 2014, 14, 917-927.	1.5	15

#	Article	IF	Citations
91	A new approach to inferring basal drag and ice rheology in ice streams, with applications to West Antarctic Ice Streams. Journal of Glaciology, 2021, 67, 229-242.	1.1	15
92	Numerical investigation of the effects of temporal variations in basal lubrication on englacial strain-rate distribution. Annals of Glaciology, 2003, 37, 49-54.	2.8	14
93	Tidal controls on the flow of ice streams. Geophysical Research Letters, 2016, 43, 4433-4440.	1.5	14
94	Modeling the dynamic response of outlet glaciers to observed ice-shelf thinning in the Bellingshausen Sea Sector, West Antarctica. Journal of Glaciology, 2018, 64, 333-342.	1.1	14
95	Tidal bending of ice shelves as a mechanism for large-scale temporal variations in ice flow. Cryosphere, 2018, 12, 1699-1713.	1.5	14
96	Recent acceleration of Denman Glacier (1972â€“2017), East Antarctica, driven by grounding line retreat and changes in ice tongue configuration. Cryosphere, 2021, 15, 663-676.	1.5	14
97	Comment on â€œFriction at the bed does not control fast glacier flowâ€. Science, 2019, 363, .	6.0	13
98	The instantaneous impact of calving and thinning on the LarsenÂC Ice Shelf. Cryosphere, 2022, 16, 883-901.	1.5	13
99	A three-dimensional numerical model of the confluence area of Unteraargletscher, Bernese Alps, Switzerland. Journal of Glaciology, 1999, 45, 219-230.	1.1	12
100	Changes in ice-shelf buttressing following the collapse of Larsen A Ice Shelf, Antarctica, and the resulting impact on tributaries. Journal of Glaciology, 2016, 62, 905-911.	1.1	12
101	The transferability of adjoint inversion products between different ice flow models. Cryosphere, 2021, 15, 1975-2000.	1.5	12
102	A regression model for the mass-balance distribution of the VatnajÃ¶kull ice cap, Iceland. Annals of Glaciology, 2003, 37, 189-193.	2.8	11
103	Calving cycle of the Brunt Ice Shelf, Antarctica, driven by changes in ice shelf geometry. Cryosphere, 2019, 13, 2771-2787.	1.5	11
104	Twenty-first century response of Petermann Glacier, northwest Greenland to ice shelf loss. Journal of Glaciology, 2021, 67, 147-157.	1.1	10
105	Quantifying the potential future contribution to global mean sea level from the Filchnerâ€“Ronne basin, Antarctica. Cryosphere, 2021, 15, 4675-4702.	1.5	10
106	Can Seismic Observations of Bed Conditions on Ice Streams Help Constrain Parameters in Ice Flow Models?. Journal of Geophysical Research F: Earth Surface, 2017, 122, 2269-2282.	1.0	9
107	Oceanâ€Driven and Topographyâ€Controlled Nonlinear Glacier Retreat During the Holocene: Southwestern Ross Sea, Antarctica. Geophysical Research Letters, 2021, 48, e2020GL091454.	1.5	9
108	Analysis of GPS Data from An Antarctic Ice Stream. International Association of Geodesy Symposia, 2009, , 569-579.	0.2	9

#	Article	IF	Citations
109	Observational verification of predicted increase in bedrock-to-surface amplitude transfer during a glacier surge. Annals of Glaciology, 2003, 36, 91-96.	2.8	8
110	Strong tidal variations in ice flow observed across the entire Ronne Ice Shelf and adjoining ice streams. Earth System Science Data, 2017, 9, 849-860.	3.7	8
111	Impact of marine processes on flow dynamics of northern Antarctic Peninsula outlet glaciers. Nature Communications, 2020, 11, 2969.	5.8	7
112	Basal-flow characteristics of a non-linear flow sliding frictionless over strongly undulating bedrock. Journal of Glaciology, 1997, 43, 80-89.	1.1	6
113	Drivers of Change of Thwaites Glacier, West Antarctica, Between 1995 and 2015. Geophysical Research Letters, 2021, 48, e2021GL093102.	1.5	6
114	Aircraft-Deployable Ice Observation System (ADIOS) for instrumenting inaccessible glaciers. Journal of Glaciology, 2013, 59, 1129-1134.	1.1	6
115	High spatial and temporal variability in Antarctic ice discharge linked to ice shelf buttressing and bed geometry. Scientific Reports, 2022, 12, .	1.6	6
116	Measurements of ice deformation at the confluence area of Unteraargletscher Bernese Alps, Switzerland. Journal of Glaciology, 1997, 43, 548-556.	1.1	5
117	Estimating Basal Properties of Glaciers from Surface Measurements. , 0, , 415-417.		4
118	Correction to â€œOcean tides in the Weddell Sea: New observations on the Filchner-Ronne and Larsen C ice shelves and model validationâ€ Journal of Geophysical Research, 2011, 116, .	3.3	4
119	Tracking B-31 iceberg with two aircraft-deployed sensors. Natural Hazards and Earth System Sciences, 2015, 15, 1243-1250.	1.5	4
120	Inferring palaeo-accumulation records from ice-core data by an adjoint-based method: application to James Ross Island's ice core. Climate of the Past, 2015, 11, 547-557.	1.3	4
121	A new high-precision and low-power GNSS receiver for long-term installations in remote areas. Geoscientific Instrumentation, Methods and Data Systems, 2016, 5, 65-73.	0.6	4
122	Inverse Methods in Glaciology. Encyclopedia of Earth Sciences Series, 2011, , 653-656.	0.1	4
123	Ice deformation at the confluence of two glaciers investigated with conceptual map-plane and flowline models. Journal of Glaciology, 1997, 43, 537-547.	1.1	4
124	Basal-flow characteristics of a linear medium sliding frictionless over small bedrock undulations. Journal of Glaciology, 1997, 43, 71-79.	1.1	1
125	Differential Geometry of Ice Flow. Frontiers in Earth Science, 2018, 6, .	0.8	1
126	Permafrost changes in rock walls and the retreat of alpine glaciers: a thermal modelling approach. , 1998, 9, 23.		1

#	Article	IF	Citations
127	The sensitivity of Cook Glacier, East Antarctica, to changes in ice-shelf extent and grounding-line position. Journal of Glaciology, 2022, 68, 473-485.	1.1	1
128	Subglacial topography and ice flux along the English Coast of Palmer Land, Antarctic Peninsula. Earth System Science Data, 2020, 12, 3453-3467.	3.7	1
129	On the validity of the stress-flow angle as a metric for ice-shelf stability. Journal of Glaciology, 0, , 1-3.	1.1	0