

Supplementary information for

**Glacier terminus retreat, mass budget, and surface velocity
measurements for the Jankar Chhu Watershed, Lahaul Himalaya,
India**

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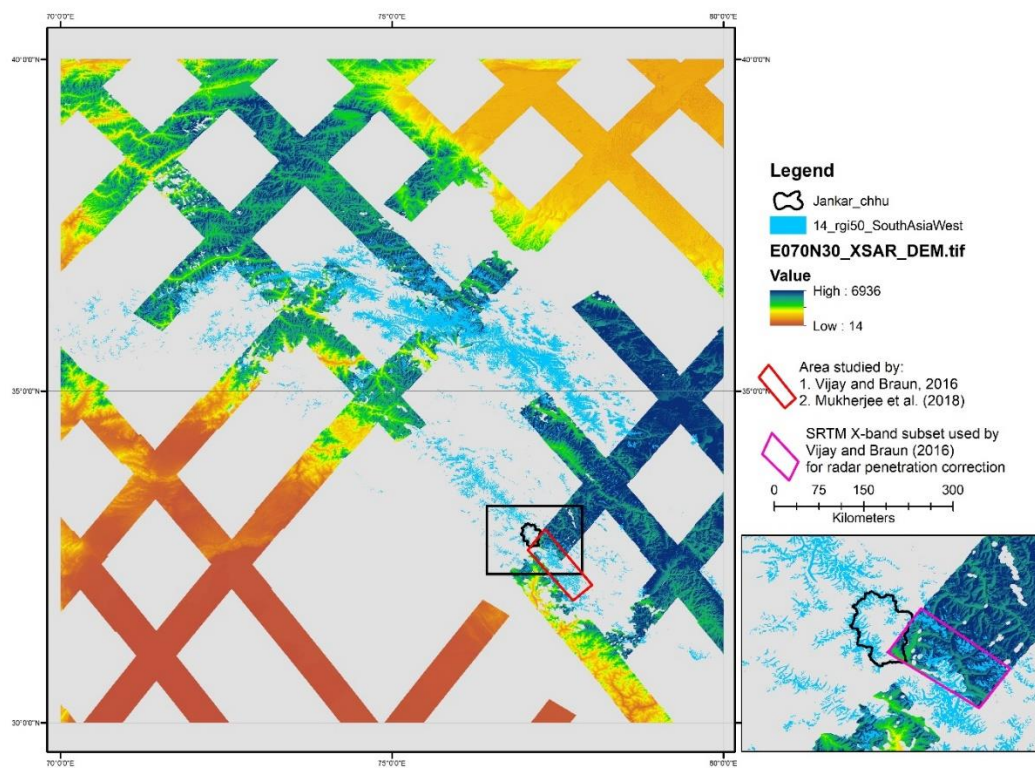


Figure S1. Spatial coverage of SRTM–X band DEM. Location of the JCW shown by black polygon.

Table S1. Comparison of glacier surface area loss across the Himalaya.

Region/ Basin/ Sub-basin	Glaciers	Period	$\Delta Surf$ (%)	$\Delta Surf$ (% a ⁻¹)	Data used	References
1	2	3	4	5	6	7
Western Himalaya						
Ravi basin		1971- 2010/2013	4.6 ± 4.1	0.1 ± 0.1	Corona, Landsat, Worldview, Aster	(Chand and Sharma, 2015)
Saraswati/Alaknanda		1968- 2006	4.6 ± 2.8	0.12 ± 0.07	Corona, Landsat, ASTER, LISS IV, Cartosat	(Bhambri et al., 2011)
Bhagirathi		1968- 2006	5.7 ± 2.7	0.15 ± 0.7		
Kang Yatze		1969- 2010	14.3	0.3	Corona, Landsat, Spot, Worldview	(Schmidt and Nüsser, 2012)
Massif, Ladakh						
	Phutse		6	0.4	Corona, Landsat, and field campaigns	(Schmidt and Nüsser, 2017)
Central Ladakh	Nangtse		7	0.5		
Range		1969-2016	22.4	0.5		
Stok Range			21.4	0.5		
Kang Yatze Range			17.7	0.4		
Lungser Range			12.8	0.6	Landsat TM, ETM+, OLI	(Chudley et al., 2017)
Ladakh range		1991-2014	21	0.5		
Chenab basin			22	0.52	SOI Maps, LISS III, LISS IV	(Kulkarni et al., 2007)
Parbati basin		1962- 2001/2004	19	0.45		
Baspa basin			19	0.45		
Goriganga basin			14	0.33		
Bhagirathi basin			20	0.48		
Chandra basin			30	0.71	SOI Maps, LISS III, LISS IV	(Kulkarni et al., 2011)
Bhaga basin		1962- 2001/2004	8	0.19		
Miyar basin			10	0.24		
Bhut basin			21	0.5		
Warwan basin			9	0.21		
Zaskar basin			16.37 ± 3.74	0.41 ± 0.09	Corona, Landsat, LISS IV, Cartosat 1	(Negi et al., 2013)
Bhaga basin	Baralacha La	1971- 2011				

Zanskar range	Parkachik	1971- 2015	1.5 ± 0.09	0.03 ± 0.002	Corona, Landsat, GE	(Mir and Majeed, 2016)
	Pensilungpa		14.47	0.40		
	Durung-drung		12.67	0.35		
Zansar range	Haskira	1977-2013	20.74	0.58	Landsat	(Shukla and Qadir, 2016)
	Kange		13.61	0.38		
	Hagshu		15.55	0.43		
Chandrabhaga basin		1980-2010	2.5	0.08	Landsat, LISS III, AWiFS	(Pandey and Venkataraman, 2013)
Alaknanda basin	Tipra	1962- 2008	~18	0.39	SOI Maps, LISS III, Field observation	(Mehta et al., 2011)
Kashmir Himalaya	Kolahai	1962- 2014	22.99 ± 2.3	0.44 ± 0.04	SoI Maps, Landsat, Aster, LISS IV	(Shukla et al., 2017)
Upper Tons basin		1962- 2010	5.4	0.11	SOI Maps, Landsat, LISS III, Field observation	(Mehta et al., 2012)
Chandra basin	Samudra Tapu	1962- 2000	10.96	0.30	SoI Maps, IRS PAN and LISS III	(Kulkarni et al., 2006)
Kashmir Himalaya		1980- 2013	17.92	0.54	Landsat and Aster GDEM	(Murtaza and Romshoo, 2016)
Upper Chandra basin	Sakchum		3.7	0.18		
	Chhota Shigri	1993-2014	1.26	0.06	Landsat, Terra ASTER, SRTM, Worldview	(Garg et al., 2017)
	Bara Shigri		0.92	0.04		
Chenab basin (Warwan-Bhut region)		1962-2001/02	11	0.28	SoI maps, LISS III, AWiFS	(Brahmbhatt et al., 2017)
Miyar basin		1989-2014	9 ± 0.7	0.36 ± 0.01	Landsat and Aster GDEM	(Patel et al., 2018)
Jankar Chhu Watershed		1971-2016	7.48 ± 2.17	0.17 ± 0.05	Corona, Landsat, Sentinel 2A, ASTER GDEM v2	(Das and Sharma, 2019)
Central Himalaya						
Kumbhu Himalaya		1962- 2005	5.2	0.12	Corona KH- 4, Landsat, Aster	(Bolch et al., 2008)
Sagarmanthan National Park		1950- 1990	4.9	0.12	Based on topographic maps	(Salerno et al., 2008)
Mt. Everest region		1974-2008	10.4	0.3	Landsat MSS/TM, ASTER, ALOS/AVNIR2	(Ye et al., 2009)
Kanchenjunga–Sikkim area		1962- 2000	19 ± 7	0.5 ± 0.18	Corona KH- 4, Landsat, ASTER, Quick bird, Worldview	(Racoviteanu et al., 2015)
Imja valley, Nepal	Nuptse		27.3	0.91		
	West Lhotse	1980-2010	54.9	1.83	Landsat	(Bajracharya et al., 2015)
	Lhotse		30.6	1.02		

	Imja		16.2	0.54		
	East Amadablam		17.4	0.58		
	Amadablam		13	0.43		
	Duwo		5.3	0.18		
Eastern Himalaya						
	Sikkim Himalaya	1989/90- 2010	3.3 ± 0.8	0.2 ± 0.1	Landsat, LISS III	(Basnett et al., 2013)
	Bhutan Himalaya	1980- 2010	23.3 ± 0.9	0.8 ± 0.03	Landsat	(Bajracharya et al., 2014)
	Bechung		18.6	0.62		
	Raphstreng		29.3	0.98		
Lunana area, Bhutan	Thorthormi	1980- 2010	14.5	0.48	Landsat	(Bajracharya et al., 2015)
	Lugge		21.2	0.71		
	Drukchang		8.2	0.27		

Table S1. Data sets for length (L) and elevation (Elev) change for the Jankar Chhu Watershed. Δ ALC= average length change based on 50 m interval strip lines.

Glacier ID	L ₁₉₇₁ (m)	L ₂₀₀₀ (m)	L ₂₀₁₆ (m)	Length change along the center line (m)			Δ ALC ₁₉₇₁₋₂₀₁₆	Δ Elev (m a ⁻¹)	Volume change (10 ⁻³ km ³ a ⁻¹)	Mass balance (m w.e. a ⁻¹)
				1971-2000	2000-2016	1971-2016				
G01	812.16	755.43	631.68	-56.73	-123.75	-180.48	-192.21	-0.86	-0.29	-0.73
G02	412.29	371.23	360.15	-41.06	-11.08	-52.14	-35.54	-0.23	-0.04	-0.19
G03	872.96	795.41	738.19	-77.55	-57.22	-134.77	-140.72	-0.6	-0.22	-0.51
G04	1028.48	991.22	958.21	-37.26	-33.01	-70.27	-62.92	-0.38	-0.09	-0.32
G05	563.72	536.88	524.13	-26.84	-12.75	-39.59	-51.03	-0.8	-0.08	-0.68
G06	786.47	737.79	725.55	-48.68	-12.24	-60.92	-70.04	-0.68	-0.17	-0.58
G07	918.76	845.84	845.84	-72.92	0	-72.92	-85.12	0.21	0.04	0.18
G08	2030.31	1906.4	1853.7	-123.91	-52.7	-176.61	-226.75	-0.28	-0.45	-0.24
G09	1456.51	1326.89	1224.29	-129.62	-102.6	-232.22	-236.84	-0.11	-0.06	-0.09
G10	426.81	396.11	349.11	-30.7	-47	-77.7	-117.01	-0.1	-0.02	-0.09
G11	816.72	789.23	428.46	-27.49	-360.77	-388.26	-308.06	-0.07	-0.02	-0.06
G12	5652.08	5328.1	4928.02	-323.98	-400.08	-724.06	-548.92	-0.88	-6.11	-0.75
G13	230.61	230.61	226.6	0	-4.01	-4.01	-26.6	-0.63	-0.02	-0.54
G14	1295.63	1277.28	1232.78	-18.35	-44.5	-62.85	-58.17	-1.34	-0.9	-1.14
G15	1464.79	1317.18	1317.18	-147.61	0	-147.61	-161.43	-0.84	-0.33	-0.71
G16	635.92	604.59	540.38	-31.33	-64.21	-95.54	-123.99	-0.64	-0.07	-0.54
G17	2280.78	2042.49	1859.32	-238.29	-183.17	-421.46	-394.32	-0.56	-0.5	-0.48
G18	3586.2	3414.79	3383.38	-171.41	-31.41	-202.82	-328.29	-0.54	-1.08	-0.46
G19	2845.3	2659.6	2487.94	-185.7	-171.66	-357.36	-387.72	-0.43	-1.24	-0.36
G20	5407.68	5050.43	4985.72	-357.25	-64.71	-421.96	-412.96	-0.68	-5.63	-0.58
G21	813.91	754.89	696.07	-59.02	-58.82	-117.84	-161.2	0.65	0.12	0.55
G22	409.71	352.22	314.76	-57.49	-37.46	-94.95	-86.65	0.36	0.02	0.3
G23	1220.74	1195.58	1162.36	-25.16	-33.22	-58.38	-111.88	-0.66	-0.26	-0.56

G24	4364.59	4108.65	3969.07	-255.94	-139.58	-395.52	-409.11	-1.05	-3.8	-0.89
G25	270.11	238.18	211.66	-31.93	-26.52	-58.45	-58.57	-0.29	-0.1	-0.25
G26	1964.99	1861.7	1769.98	-103.29	-91.72	-195.01	-192.81	-0.74	-0.47	-0.63
G27	1116.29	825.85	807.34	-290.44	-18.51	-308.95	-264.9	-0.94	-0.19	-0.8
G28	2325.29	2291.07	2163.43	-34.22	-127.64	-161.86	-301.07	-0.95	-0.7	-0.81
G29	2370.66	2300.4	2005.69	-70.26	-294.71	-364.97	-326.71	-1.02	-0.82	-0.87
G30	1299.92	1206	1121.45	-93.92	-84.55	-178.47	-153.02	-0.66	-0.21	-0.56
G31	1446.19	1398.07	1348.28	-48.12	-49.79	-97.91	-88.21	-0.46	-0.19	-0.39
G32	2729.48	2592.94	2445.13	-136.54	-147.81	-284.35	-200.24	-0.97	-2.66	-0.82
G33	639.28	596.85	553.34	-42.43	-43.51	-85.94	-116.92	-0.61	-0.11	-0.52
G34	8297.77	8023.68	7724.39	-274.09	-299.29	-573.38	-536.85	-0.84	-18.25	-0.71
G35	407.42	365.67	348.56	-41.75	-17.11	-58.86	-78.68	-0.52	-0.05	-0.44
G36	1059.97	907.37	875.76	-152.6	-31.61	-184.21	-266.32	-1.06	-1.06	-0.9
G37	1628.04	1389.02	1332.47	-239.02	-56.55	-295.57	-319.69	0.09	0.05	0.07
G38	7015.54	6832.55	6429.14	-182.99	-403.41	-586.4	-459.77	-0.94	-6.05	-0.8
G39	247.98	231.17	222.6	-16.81	-8.57	-25.38	-44.76	0.07	0	0.06
G40	1805.13	1687.11	1577.99	-118.02	-109.12	-227.14	-221.72	-1.05	-1.04	-0.9
G41	352.61	357.16	328.93	4.55	-28.23	-23.68	-62.71	-0.49	-0.03	-0.42
G42	198.36	176.91	169.92	-21.45	-6.99	-28.44	-33.85	-0.79	-0.03	-0.67
G43	2566.4	2411.03	2305.02	-155.37	-106.01	-261.38	-289.46	-0.95	-0.93	-0.81
G44	835.46	681.79	664.23	-153.67	-17.56	-171.23	-155.5	-0.96	-0.09	-0.81
G45	578.24	502.49	454.25	-75.75	-48.24	-123.99	-124.5	-0.7	-0.06	-0.59
G46	637.95	548.21	457.56	-89.74	-90.65	-180.39	-179.13	-0.06	0	-0.05
G47	7246.34	6987.79	6948.17	-258.55	-39.62	-298.17	-326.11	-1.07	-6.01	-0.91
G48	1637.35	1585.99	1514.26	-51.36	-71.73	-123.09	-94.72	-1.09	-0.66	-0.93
G49	405.32	362.42	355.58	-42.9	-6.84	-49.74	-45.41	-0.2	-0.01	-0.17
G50	1302.31	1207.87	1110.15	-94.44	-97.72	-192.16	-214.87	-0.86	-0.27	-0.73

G52	1023.59	862.71	808.31	-160.88	-54.4	-215.28	-581.86	-0.79	-0.14	-0.67
G53	2723.18	2559.67	2494.43	-163.51	-65.24	-228.75	-179.86	-1.22	-1.69	-1.03
G54	10176.6	9476.72	9223.45	-699.88	-253.27	-953.15	-985.41	-1.14	-16.99	-0.97
G55	2039.94	1990.68	1942.87	-49.26	-47.81	-97.07	-159.31	-1.31	-2.74	-1.11
G56	8296.11	7386.37	7222.53	-909.74	-163.84	-1073.58	-745.49	-1.01	-13.65	-0.86
G57	747.95	707.48	707.72	-40.47	0.24	-40.23	-55.76	-0.93	-0.17	-0.79
G58	675.17	588.31	563.57	-86.86	-24.74	-111.6	-110.74	0.16	0.02	0.14
G59	1250.19	959.48	888.28	-290.71	-71.2	-361.91	-329.1	-1.16	-0.61	-0.98
G61	1206.97	899.22	810.25	-307.75	-88.97	-396.72	-329.32	-0.65	-0.12	-0.55
G62	918.79	783.78	730.43	-135.01	-53.35	-188.36	-202.62	-0.95	-0.25	-0.81
G64	1203.87	971.68	841.59	-232.19	-130.09	-362.28	-309.61	-1.14	-0.56	-0.97
G65	801	712.63	613.14	-88.37	-99.49	-187.86	-176.91	-0.54	-0.06	-0.46
G66	499.54	455.81	424.33	-43.73	-31.48	-75.21	-59.52	-0.09	-0.02	-0.07
G67	778.26	669.45	621.27	-108.81	-48.18	-156.99	-195.81	-0.21	-0.04	-0.18
G68	8543.6	7918.95	7269.61	-624.65	-649.34	-1273.99	-1214.43	-0.97	-12.94	-0.82
G69	935.03	935.03	879.33	0	-55.7	-55.7	-83.64	-0.19	-0.04	-0.16
G70	375.67	340.59	314.32	-35.08	-26.27	-61.35	-48.03	-0.25	-0.02	-0.21
G71	306.91	258.15	241.49	-48.76	-16.66	-65.42	-43.31	-0.26	-0.02	-0.22
G72	6724.01	6396.19	6122.02	-327.82	-274.17	-601.99	-549.88	-1.28	-8.54	-1.09
G73	241.23	219.18	204.14	-22.05	-15.04	-37.09	-41.42	0.7	0.02	0.59
G74	1217.25	1150.8	1098.14	-66.45	-52.66	-119.11	-150.43	-0.54	-0.55	-0.46
G75	613.19	535.35	227.25	-77.84	-308.1	-385.94	-199.81	-1.52	-0.29	-1.29
G76	576.13	508.33	441.99	-67.8	-66.34	-134.14	-121.55	-1.3	-0.1	-1.11
G77	2348.78	2277.57	2140.49	-71.21	-137.08	-208.29	-245.61	-0.92	-1.01	-0.78
G78	3001.71	2674.25	2574.36	-327.46	-99.89	-427.35	-422.28	-1.18	-2.08	-1.01
G79	1506.05	1452.58	1404.84	-53.47	-47.74	-101.21	-104.97	-1.3	-0.65	-1.1
G80	1376.94	1356.59	1342.88	-20.35	-13.71	-34.06	-40.11	-1.05	-0.55	-0.9

G81	1679.82	1571.99	1461.86	-107.83	-110.13	-217.96	-237.51	-0.74	-0.3	-0.63
G82	1126.08	1052.45	916.46	-73.63	-135.99	-209.62	-170.88	-1.23	-0.64	-1.04
G84	2473.05	2348.36	2297.23	-124.69	-51.13	-175.82	-226.03	-1.38	-1.91	-1.17
G85	2037.78	1860.26	1787.85	-177.52	-72.41	-249.93	-272.01	-1.34	-1.93	-1.14
G86	1523.1	1507.11	1464.5	-15.99	-42.61	-58.6	-164.95	-1.17	-0.98	-1
G87	6029.99	5490.08	5376.19	-539.91	-113.89	-653.8	-614.83	-1.15	-9.13	-0.97
G88	223.95	200.73	189.74	-23.22	-10.99	-34.21	-77.19	-0.36	-0.02	-0.3
G89	204.36	204.36	189.13	0	-15.23	-15.23	-25.03	-0.23	-0.02	-0.2
G90	457.65	424.55	348.61	-33.1	-75.94	-109.04	-59.14	-0.95	-0.05	-0.81
G91	1103.09	984.99	926.61	-118.1	-58.38	-176.48	-156.12	-1.04	-0.47	-0.88
G92	518.4	473.75	372.05	-44.65	-101.7	-146.35	-165.14	-1.08	-0.06	-0.92
G93	382.79	372.21	351.91	-10.58	-20.3	-30.88	-38.27	-1.17	-0.03	-1
G94	689.41	453.95	401.89	-235.46	-52.06	-287.52	-186.71	-0.49	-0.11	-0.42
G95	2152.76	2069.84	1977.99	-82.92	-91.85	-174.77	-223.51	-1.47	-1.87	-1.25
G96	2474.72	2439.96	2329.54	-34.76	-110.42	-145.18	-206.17	-1.08	-1.65	-0.92
G97	1745.8	1664.64	1604.67	-81.16	-59.97	-141.13	-180.77	-0.89	-0.56	-0.76
G98	220.78	220.78	175.85	0	-44.93	-44.93	-44.14	-0.36	-0.02	-0.31
G99	2381.56	2237.58	2140.34	-143.98	-97.24	-241.22	-150.28	-1.54	-1.97	-1.31
G100	671.97	520.03	427.16	-151.94	-92.87	-244.81	-190.67	-0.56	-0.13	-0.47
G101	1801.77	1557.05	1409.95	-244.72	-147.1	-391.82	-382.72	-1.18	-0.53	-1
G104	572.15	546.18	526.54	-25.97	-19.64	-45.61	-84.29	-0.73	-0.08	-0.62
G105	1700.2	1442.45	1315.96	-257.75	-126.49	-384.24	-337.99	-1.4	-0.57	-1.19
G112	793.86	750.04	493.21	-43.82	-256.83	-300.65	-249.35	-0.25	-0.02	-0.22
G113	1572.8	1450.81	1408.62	-121.99	-42.19	-164.18	-174.3	-1.16	-0.56	-0.98
G114	4813.22	4722.46	4472.13	-90.76	-250.33	-341.09	-240.65	-1.26	-6.17	-1.07
G115	2007.33	1948.24	1875.83	-59.09	-72.41	-131.5	-144.81	-1.19	-0.71	-1.01
G116	969.94	901.07	868.2	-68.87	-32.87	-101.74	-156.49	-0.51	-0.12	-0.43

G117	403.21	253.48	231.7	-149.73	-21.78	-171.51	-163.22	-0.92	-0.03	-0.78
G118	582.42	571.66	556.96	-10.76	-14.7	-25.46	-51.02	-0.61	-0.09	-0.52
G119	3305.98	3047.5	2986.57	-258.48	-60.93	-319.41	-245.81	-1.17	-1.69	-0.99
G120	4902.29	4723.98	4575.9	-178.31	-148.08	-326.39	-330.52	-1.23	-4.44	-1.04
G121	726.52	676.86	549.85	-49.66	-127.01	-176.67	-191.34	-0.72	-0.07	-0.61
G122	245.18	232.01	220.73	-13.17	-11.28	-24.45	-80.83	0.36	0.04	0.3
G123	535.52	443.15	370.45	-92.37	-72.7	-165.07	-144.65	-0.14	-0.01	-0.12
G124	1896.95	1664.02	1613.49	-232.93	-50.53	-283.46	-225.78	-1.23	-1.01	-1.04
G128	1410.1	1339.6	1312.05	-70.5	-27.55	-98.05	-100.79	-1.1	-0.37	-0.93
G129	4132.49	3919.3	3820.35	-213.19	-98.95	-312.14	-299.02	-1.19	-3.22	-1.01
G130	1136.43	1083.95	1017.05	-52.48	-66.9	-119.38	-119.13	-1.17	-0.66	-0.99
G132	999.17	852.52	799.18	-146.65	-53.34	-199.99	-195.53	-1.14	-0.26	-0.97
G134	1239.45	1231.41	1186.55	-8.04	-44.86	-52.9	-129	-0.59	-0.39	-0.5
G135	1831.53	1766.18	1723.47	-65.35	-42.71	-108.06	-144.08	-0.84	-0.65	-0.71
G136	4301.91	4124.88	3977.98	-177.03	-146.9	-323.93	-362.65	-0.9	-2.93	-0.76
G137	725.98	613.62	624.71	-112.36	11.09	-101.27	-87.66	0.72	0.08	0.61
G138	2138.22	2056.74	2009.86	-81.48	-46.88	-128.36	-132.67	-0.76	-0.91	-0.64
G141	2698.71	2513.43	2275.48	-185.28	-237.95	-423.23	-449.38	-1.18	-2.93	-1.01
G142	458.92	365.63	328.74	-93.29	-36.89	-130.18	-149.81	-1.22	-0.29	-1.04
G144	1439.97	1374.96	1300.86	-65.01	-74.1	-139.11	-174.18	-0.43	-0.29	-0.36
G145	675.91	652.49	516.49	-23.42	-136	-159.42	-122.35	-1.3	-0.15	-1.11
G146	774.84	696.12	620.54	-78.72	-75.58	-154.3	-157.87	-0.75	-0.12	-0.64
G147	659.74	644.67	623.34	-15.07	-21.33	-36.4	-59.47	-0.42	-0.05	-0.36

Table S3. Surface velocity statistics over stable terrain (<25° slope).

Image pairs	days	year	EWD (m)	EWD SD (m)	NSD (m)	NSD SD (m)	D (m)	D SD (m)	V (m a ⁻¹)	V SD (m a ⁻¹)
1993-10-20 & 1994-10-23	368	1.01	-1.17	2.13	-0.87	2.46	1.46	3.26	1.44	3.23
2000-08-28 & 2002-08-02	704	1.93	2.60	1.63	-6.34	1.46	6.85	2.19	3.55	1.14
2009-09-30 & 2011-10-22	722	1.98	-2.20	2.45	-0.68	4.20	2.30	4.87	1.16	2.46
2016-10-19 & 2017-10-06	352	0.96	-0.32	1.13	1.17	1.25	1.21	1.69	1.25	1.75

Table S4. Surface velocity of select glacier in the JCW.

Sl no	Glacier ID	1993-1994		2000-2002		2009-2011		2016-2017	
		Mean velocity (m a ⁻¹)	Mean Velocity along the central line (m a ⁻¹)	Mean velocity (m a ⁻¹)	Mean Velocity along the central line (m a ⁻¹)	Mean velocity (m a ⁻¹)	Velocity along the central line (m a ⁻¹)	Mean velocity (m a ⁻¹)	Velocity along the central line (m a ⁻¹)
1	G08	5.08	7.53	9.48	23.02	2.94	2.92	4.72	8.80
2	G12	6.10	10.65	10.03	15.84	3.48	7.04	5.96	5.30
3	G18	9.35	8.30	7.14	7.48	3.57	3.15	6.53	6.88
4	G19	6.03	5.88	10.11	13.16	2.15	2.20	9.63	11.18
5	G20	6.71	6.87	12.10	14.16	2.84	3.35	11.38	15.27
6	G24	6.75	6.88	12.95	10.18	4.70	4.01	7.60	8.08
7	G32	4.15	4.96	6.22	7.84	3.24	4.13	7.47	10.75
8	G34	9.88	17.03	14.44	23.16	4.10	7.90	14.72	20.44
9	G36	4.33	4.75	8.02	16.11	2.52	2.31	2.78	3.93
10	G38	8.56	10.60	12.24	16.44	8.53	12.62	15.47	21.48
11	G47	5.68	5.61	7.63	8.19	2.58	2.69	10.80	8.34
12	G53	5.15	3.99	8.40	11.04	4.27	3.94	11.35	16.94
13	G54	9.18	14.82	10.56	20.34	4.93	6.50	13.89	25.45
14	G55	3.38	3.17	6.74	8.17	4.87	5.88	3.30	3.02
15	G56	5.17	7.23	9.56	11.09	3.87	5.86	7.37	11.13
16	G68	6.25	8.52	11.43	14.85	3.82	5.77	7.43	4.69
17	G72	3.95	5.49	7.63	12.12	2.05	2.21	6.26	7.78
18	G74	6.30	7.71	4.86	3.71	2.65	2.92	22.36	24.55
19	G77	3.81	3.06	5.55	5.43	1.40	1.32	6.82	9.74
20	G78	5.54	8.02	9.32	9.03	2.07	2.43	6.11	8.32
21	G84	2.40	2.66	10.27	14.66	2.73	2.91	5.92	5.95
22	G85	2.02	1.89	11.89	12.87	2.55	2.90	5.65	7.48
23	G87	4.33	5.19	8.18	8.11	2.42	2.38	6.86	6.49
24	G95	2.87	2.86	10.51	15.59	3.30	3.28	8.58	11.16
25	G96	3.08	2.82	8.11	9.51	2.82	3.06	5.35	3.40
26	G99	8.40	8.60	6.92	8.07	1.71	1.64	7.45	11.65
27	G114	11.59	9.03	12.71	15.41	6.02	7.32	18.95	19.97
28	G119	2.82	2.40	8.06	9.61	2.95	2.97	11.02	11.37
29	G120	4.11	5.81	9.61	10.86	2.25	2.23	3.98	3.64
30	G129	3.98	4.85	13.50	14.76	1.90	2.17	5.85	6.72
31	G136	4.27	6.03	11.24	17.43	2.49	2.28	7.88	9.82
32	G138	5.08	5.79	8.87	11.35	3.01	2.86	3.07	3.18
33	G141	3.07	3.39	7.21	7.01	2.56	2.35	6.63	7.83
	Mean	5.44	6.44	9.44	12.32	3.25	3.86	8.46	10.33

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