

Table S1: Rates of glacial thickness changes on the Tibetan Plateau between 2003 and 2009.

No.	Glacial area				S ≤ 15 deg and R ≤ 15 m					S ≤ 20 deg and R ≤ 15 m					S ≤ 25 deg and R ≤ 15 m				
	Lat.	Lon.	Orient.	Basin	N	V (m/yr)	S _{sw} (m/yr)	RMSE (m)	k	N	V (m/yr)	S _{sw} (m/yr)	RMSE (m)	k	N	V (m/yr)	S _{sw} (m/yr)	RMSE (m)	k
1	28.2483	90.5435	N	Brahmaputra						71	-0.14	0.40	7.13	0.0080	111	0.70	0.40	6.12	0.0124
2	30.3370	93.6944	N	Brahmaputra						75	2.38	0.38	6.37	0.0034	98	2.30	0.56	8.08	0.0045
3	30.3640	93.9454	N	Brahmaputra											63	0.32	1.00	7.83	0.0038
4	28.0525	90.5693	NE	Brahmaputra						63	-0.48	0.61	3.76	0.0094	82	-0.67	0.59	7.12	0.0122
5	29.2107	97.3078	NE	Brahmaputra						73	-1.06	0.73	7.91	0.0087	87	-3.04	0.65	5.82	0.0104
6	29.3733	96.6197	NE	Brahmaputra	128	-0.26	0.42	4.18	0.0024	181	-1.56	0.49	6.12	0.0033	187	-1.56	0.48	6.39	0.0034
7	29.7669	82.8037	NE	Brahmaputra	248	-1.04	0.31	2.51	0.0138	262	-1.09	0.33	2.33	0.0146	273	-1.10	0.40	2.38	0.0152
8	27.9793	92.7260	E	Brahmaputra											86	0.26	0.76	7.31	0.0040
9	29.6202	96.0862	E	Brahmaputra						76	-2.03	0.73	0.32	0.0043	102	-2.68	0.81	1.82	0.0057
10	30.3395	93.1502	E	Brahmaputra											75	0.94	0.65	5.96	0.0181
11	30.3670	93.8065	E	Brahmaputra											52	0.39	0.93	6.06	0.0037
12	30.6042	95.2404	E	Brahmaputra											62	-0.44	0.70	3.27	0.0104
13	30.1126	90.2632	SE	Brahmaputra											54	0.30	0.86	5.95	0.0185
14	30.1705	90.2812	SE	Brahmaputra											58	-2.86	0.50	6.67	0.0183
15	30.4785	94.6782	SE	Brahmaputra	369	-0.81	0.28	4.83	0.0030	444	-0.97	0.32	4.44	0.0036	557	-1.24	0.44	3.94	0.0045
16	28.1838	90.5439	S	Brahmaputra	195	-0.72	0.36	6.80	0.0142	261	-0.09	0.39	8.68	0.0190	309	0.12	0.43	9.15	0.0226
17	28.0152	88.3758	N	Ganges						61	-0.95	0.81	2.63	0.0239	88	-2.11	0.69	3.15	0.0345
18	28.0554	86.8359	N	Ganges	189	-1.77	0.32	4.77	0.0091	239	-2.09	0.36	7.61	0.0115	328	-1.23	0.42	9.64	0.0157
19	28.3360	86.3018	N	Ganges	84	-0.06	0.20	2.12	0.0117	93	0.12	0.25	4.64	0.0129	103	0.01	0.25	3.09	0.0143
20	30.4692	81.3096	N	Ganges	94	-0.71	0.52	3.63	0.0212	99	-0.74	0.54	3.40	0.0223	108	-0.53	0.46	3.25	0.0243
21	31.0027	79.2772	N	Ganges	207	-1.61	0.20	4.95	0.0139	236	-1.39	0.23	4.87	0.0158	250	-1.37	0.31	5.00	0.0168
22	28.6863	85.4509	NE	Ganges											70	-0.39	0.36	6.90	0.0117
23	28.1540	86.7890	E	Ganges						74	-0.17	0.52	2.97	0.0110	99	-0.36	0.52	4.28	0.0147
24	28.2613	86.2958	S	Ganges	261	-2.01	0.30	3.91	0.0228	323	-1.83	0.37	3.40	0.0283	361	-1.82	0.40	3.41	0.0316
25	30.4152	81.3064	S	Ganges	75	-0.38	0.68	5.91	0.0260	80	-0.90	0.69	5.83	0.0278	82	-0.94	0.70	5.81	0.0285
26	31.1669	79.3033	NW	Ganges											72	1.19	0.69	9.28	0.0418
27	34.1788	78.9947	N	Indus						77	0.74	0.35	2.12	0.0280	109	1.43	0.40	3.26	0.0396
28	32.7876	81.0514	E	Indus	60	-0.69	0.51	3.01	0.0111	128	0.65	0.71	4.86	0.0237	169	0.13	0.72	5.11	0.0313
29	34.0527	79.7882	E	Indus	178	-0.05	0.19	1.59	0.0761	185	-0.07	0.20	1.51	0.0791	191	0.03	0.20	2.77	0.0817
30	34.2232	79.8126	S	Indus	106	-0.11	0.01	1.67	0.1105	106	-0.11	0.01	1.67	0.1105	106	-0.11	0.01	1.67	0.1105
31	34.0245	79.7631	SW	Indus	63	-0.85	0.39	2.20	0.0186	79	-1.38	0.43	2.73	0.0234	87	-1.47	0.47	3.22	0.0257
32	31.1226	83.4559	N	Inner plateau	58	-1.31	0.50	2.55	0.0117	68	-0.71	0.47	3.61	0.0138	74	-0.69	0.48	2.77	0.0150
33	33.9313	90.4148	N	Inner plateau	49	0.38	0.38	2.69	0.0154	63	0.48	0.46	3.17	0.0198	68	0.62	0.49	4.24	0.0213
34	34.3265	81.9460	N	Inner plateau	150	0.25	0.38	3.07	0.0355	168	0.21	0.47	2.25	0.0398	193	0.55	0.49	3.64	0.0457
35	34.5128	80.7636	N	Inner plateau											79	-1.77	0.89	6.89	0.0428
36	35.6960	85.6129	N	Inner plateau	220	-0.34	0.24	0.98	0.0167	257	-0.04	0.24	2.85	0.0195	284	0.09	0.25	5.08	0.0216
37	36.0994	90.9355	N	Inner plateau	444	-0.41	0.20	2.62	0.0090	494	-0.55	0.22	2.88	0.0100	531	-0.48	0.25	2.73	0.0107
38	30.9295	82.9716	NE	Inner plateau	48	-1.38	1.15	3.90	0.0064	74	-1.13	0.82	4.28	0.0099	97	-1.59	0.69	5.86	0.0130
39	33.6898	82.4899	NE	Inner plateau											68	-2.43	1.35	4.81	0.0236
40	34.3768	79.8450	NE	Inner plateau	138	0.16	0.39	3.38	0.0161	210	-0.03	0.46	1.85	0.0246	245	0.17	0.51	2.06	0.0287

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	Lat.	Lon.	Orient.	Basin	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k
41	30.6121	86.4643	E	Inner plateau						46	-4.38	0.98	5.99	0.0042	60	-1.94	0.99	5.89	0.0054
42	30.9359	83.4939	E	Inner plateau	55	0.43	0.78	6.44	0.0181	83	1.63	0.58	9.21	0.0273	93	2.12	0.76	7.79	0.0306
43	33.3058	91.3293	SE	Inner plateau											62	-3.15	1.18	4.60	0.0321
44	33.4696	86.7921	SE	Inner plateau											53	-1.37	0.81	5.38	0.0226
45	35.4881	82.1995	SE	Inner plateau	58	0.91	0.83	2.54	0.0140	100	1.01	0.87	5.04	0.0242	132	2.45	0.67	7.54	0.0320
46	35.5528	89.6168	SE	Inner plateau	161	0.12	0.40	3.03	0.0176	192	-0.06	0.61	4.45	0.0210	212	-0.48	0.69	4.40	0.0232
47	35.8736	91.4318	SE	Inner plateau	46	1.01	0.45	3.49	0.0184	85	0.18	0.61	3.67	0.0340	101	-0.13	0.59	4.28	0.0404
48	33.9128	90.6589	S	Inner plateau	57	-0.59	0.20	3.16	0.0269	92	-0.47	0.20	3.92	0.0433	105	-0.05	0.20	4.74	0.0495
49	34.2879	81.9455	S	Inner plateau	63	1.54	0.49	2.56	0.0188	106	1.23	0.49	2.76	0.0316	116	1.23	0.49	2.83	0.0346
50	35.2841	80.6850	S	Inner plateau	815	-1.41	0.27	4.65	0.0078	998	-1.02	0.29	4.19	0.0096	1150	-0.84	0.30	4.08	0.0111
51	35.4700	82.1430	S	Inner plateau	67	1.18	1.13	2.67	0.0198	92	-1.50	0.79	4.41	0.0271	118	-1.30	0.66	5.56	0.0348
52	35.6549	85.6200	S	Inner plateau	55	2.01	0.63	3.82	0.0046	118	1.82	0.48	5.08	0.0100	159	1.69	0.54	5.34	0.0134
53	36.7727	84.9026	S	Inner plateau						59	-0.13	0.56	2.89	0.0246	80	0.13	0.62	5.10	0.0333
54	34.3105	85.8384	SW	Inner plateau	284	0.60	0.17	2.27	0.0358	310	0.81	0.20	2.66	0.0391	322	0.76	0.20	3.37	0.0406
55	35.3008	81.4300	SW	Inner plateau	574	-0.26	0.19	1.71	0.0270	635	-0.29	0.20	1.73	0.0298	661	-0.31	0.20	1.93	0.0311
56	31.0217	83.4683	W	Inner plateau	139	-0.14	0.28	3.80	0.0113	160	-0.46	0.36	3.56	0.0130	189	-0.59	0.46	4.31	0.0153
57	34.7324	82.3218	W	Inner plateau	245	-0.70	0.30	1.71	0.0165	294	-0.39	0.34	2.72	0.0198	311	-0.50	0.39	3.07	0.0210
58	33.4831	86.7867	NW	Inner plateau											51	1.17	0.99	2.79	0.0318
59	34.3519	79.9857	NW	Inner plateau	226	0.21	0.22	2.58	0.0319	242	0.11	0.25	3.69	0.0342	266	0.31	0.25	8.13	0.0375
60	34.3766	85.8347	NW	Inner plateau											74	-0.57	0.72	3.62	0.0169
61	33.5516	94.7536	N	Mekong											74	-1.01	0.48	6.18	0.0246
62	31.7083	95.8596	NE	Mekong											44	-2.88	0.35	9.63	0.0245
63	31.0089	93.8679	N	Salween											51	0.35	0.71	7.51	0.0150
64	30.9253	93.8699	NE	Salween											53	-0.99	0.78	3.56	0.0158
65	30.6792	94.6483	E	Salween						58	-0.78	0.81	4.18	0.0250	66	-0.45	0.87	3.79	0.0285
66	30.7695	94.6702	E	Salween											39	-0.54	0.46	3.49	0.0118
67	35.2281	78.6456	N	Tarim Basin											54	-2.36	0.63	2.04	0.0134
68	35.3878	81.3971	N	Tarim Basin	575	-0.18	0.28	1.16	0.0075	633	-0.09	0.30	1.44	0.0082	656	-0.08	0.31	1.57	0.0085
69	35.4884	77.6894	N	Tarim Basin	162	-0.31	0.20	3.94	0.0269	185	-0.61	0.26	5.16	0.0307	199	-0.79	0.33	5.54	0.0330
70	35.5083	81.6237	N	Tarim Basin	341	0.38	0.25	1.45	0.0240	380	0.58	0.28	1.79	0.0267	404	0.43	0.31	2.02	0.0284
71	35.5157	82.1624	N	Tarim Basin						77	-1.02	0.43	5.07	0.0107	129	2.32	0.56	7.49	0.0179
72	35.5234	80.7134	N	Tarim Basin	1120	0.50	0.24	3.62	0.0076	1320	0.69	0.30	3.38	0.0090	1497	0.69	0.34	3.01	0.0102
73	35.6376	80.0381	N	Tarim Basin	308	0.54	0.20	2.16	0.0312	343	0.60	0.33	2.08	0.0348	373	0.89	0.41	2.90	0.0378
74	35.6398	77.1217	N	Tarim Basin	77	-0.91	0.27	2.33	0.0011	116	0.22	0.33	2.23	0.0016	190	-0.33	0.34	3.98	0.0027
75	35.7032	77.6240	N	Tarim Basin											76	-0.49	0.53	2.78	0.0157
76	35.7379	76.8019	N	Tarim Basin						59	-0.78	0.40	7.49	0.0012	73	-0.98	0.50	9.06	0.0015
77	35.7461	78.7394	N	Tarim Basin	70	0.45	0.42	3.12	0.0147	116	2.10	0.46	7.16	0.0244	145	1.97	0.64	4.31	0.0305
78	35.7896	93.3675	N	Tarim Basin											76	1.23	0.68	10.17	0.0364
79	35.8122	77.1481	N	Tarim Basin						47	0.19	0.57	3.16	0.0198	66	0.05	0.54	2.80	0.0278
80	35.9110	91.4375	N	Tarim Basin											59	-3.40	0.86	2.49	0.0166
81	35.9285	77.1800	N	Tarim Basin	143	0.46	0.29	1.32	0.0060	187	0.25	0.36	5.32	0.0079	236	-0.47	0.38	6.06	0.0099
82	35.9310	80.8954	N	Tarim Basin	45	-0.74	0.57	2.05	0.0126	69	-0.86	0.60	2.32	0.0194	88	0.09	0.54	2.98	0.0247
83	36.0723	79.3273	N	Tarim Basin						56	1.25	0.51	3.09	0.0070	80	2.56	0.75	5.19	0.0101
84	36.1386	75.9995	N	Tarim Basin	470	0.92	0.27	5.71	0.0028	528	0.99	0.28	6.69	0.0031	576	1.15	0.29	6.30	0.0034

	Glacial area				S ≤ 15 deg and R ≤ 15 m					S ≤ 20 deg and R ≤ 15 m					S ≤ 25 deg and R ≤ 15 m				
No.	Lat.	Lon.	Orient.	Basin	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k	N	V (m/yr)	S _w (m/yr)	RMSE (m)	k
85	36.4774	75.9075	N	Tarim Basin						52	0.00	0.63	2.98	0.0071	76	0.04	0.49	3.23	0.0103
86	36.5223	77.4777	N	Tarim Basin	93	-0.12	0.49	2.87	0.0070	106	-0.05	0.50	3.21	0.0079	129	0.30	0.49	3.36	0.0096
87	36.6339	91.1211	N	Tarim Basin						127	1.38	0.53	5.72	0.0087	204	1.13	0.54	6.73	0.0140
88	36.8127	84.8954	N	Tarim Basin						52	0.03	0.78	2.44	0.0164	70	-1.55	0.77	5.35	0.0221
89	36.9845	75.2616	N	Tarim Basin						62	-0.42	0.66	2.46	0.0117	66	-0.35	0.65	1.89	0.0125
90	37.0809	75.2591	N	Tarim Basin	49	-0.44	0.69	1.44	0.0104	67	-0.54	0.70	4.04	0.0143	103	0.46	1.00	5.47	0.0220
91	37.3722	87.7941	N	Tarim Basin	91	0.06	0.25	2.34	0.0477	92	0.07	0.25	2.34	0.0482	98	0.11	0.25	2.04	0.0514
92	37.3798	87.7196	N	Tarim Basin	49	0.63	0.29	1.05	0.0080	63	0.06	0.30	3.52	0.0102	70	0.17	0.31	2.51	0.0114
93	37.5106	87.8260	N	Tarim Basin						107	0.13	0.39	4.83	0.0466	137	0.57	0.56	5.02	0.0597
94	38.1895	96.3351	N	Tarim Basin	138	-0.57	0.31	3.04	0.0113	157	-0.33	0.31	2.36	0.0129	181	-0.68	0.35	3.12	0.0149
95	39.2061	73.5100	N	Tarim Basin	85	-1.03	0.50	4.29	0.0371	111	-0.47	0.50	4.91	0.0484	112	-0.47	0.50	5.00	0.0489
96	36.0925	80.1294	NE	Tarim Basin											52	0.49	0.42	6.64	0.0120
97	36.4999	91.3473	NE	Tarim Basin											85	-1.10	0.85	4.43	0.0229
98	36.5810	77.2859	NE	Tarim Basin											53	-0.25	0.52	5.22	0.0143
99	36.8056	76.6516	NE	Tarim Basin						73	0.75	0.34	3.43	0.0244	94	1.73	0.47	3.23	0.0314
100	37.7371	101.4823	NE	Tarim Basin						39	1.69	0.57	5.63	0.0173	57	1.12	0.54	5.25	0.0253
101	38.2362	89.2855	NE	Tarim Basin											60	0.90	0.52	6.36	0.0304
102	38.2380	95.9301	NE	Tarim Basin						65	0.81	0.70	6.49	0.0300	80	0.05	0.64	6.64	0.0370
103	35.9769	78.9192	E	Tarim Basin						49	1.10	0.61	7.50	0.0136	77	1.83	0.66	6.87	0.0214
104	36.7870	75.8619	E	Tarim Basin						96	1.09	0.50	4.84	0.0163	135	1.17	0.54	5.37	0.0229
105	37.6474	88.2015	E	Tarim Basin						52	0.21	0.44	3.22	0.0403	60	-0.13	0.60	4.74	0.0466
106	35.4097	81.6117	SE	Tarim Basin	301	-0.42	0.41	2.98	0.0296	338	-0.44	0.44	3.46	0.0332	360	-0.51	0.51	4.05	0.0354
107	38.8890	73.9813	SE	Tarim Basin											46	0.27	0.49	2.65	0.0430
108	39.3418	73.5386	SE	Tarim Basin	99	1.97	0.60	2.08	0.0140	135	1.34	0.84	2.64	0.0191	164	-0.85	0.86	4.64	0.0232
109	36.0236	90.9623	S	Tarim Basin	381	-0.66	0.36	3.07	0.0072	428	-0.80	0.38	7.03	0.0081	487	-1.12	0.47	7.59	0.0092
110	38.8333	74.9679	SW	Tarim Basin	142	0.06	0.38	2.27	0.0259	145	0.09	0.39	2.03	0.0265	146	-0.03	0.39	2.23	0.0267
111	35.7742	77.1298	W	Tarim Basin	65	0.98	0.34	2.12	0.0046	93	0.06	0.57	4.74	0.0066	138	0.11	0.68	7.20	0.0098
112	36.3990	78.8542	W	Tarim Basin	88	0.14	0.25	2.72	0.0287	116	-0.07	0.44	3.27	0.0378	139	-0.23	0.39	3.49	0.0453
113	38.2403	75.0779	W	Tarim Basin											107	-1.13	0.96	5.50	0.0048
114	39.0528	74.9451	W	Tarim Basin											43	2.05	1.42	5.01	0.0038
115	36.6042	77.4907	NW	Tarim Basin	96	1.24	0.27	2.64	0.0199	129	0.77	0.48	3.70	0.0267	156	-0.58	0.50	5.86	0.0323
116	38.7759	73.9556	NW	Tarim Basin						66	-1.96	0.51	2.38	0.0403	105	-0.41	0.94	7.20	0.0641
117	38.9077	73.9818	NW	Tarim Basin											58	0.56	0.62	6.39	0.0465
118	33.4012	91.3401	N	Yangtze	108	-0.61	0.54	3.41	0.0431	135	-1.67	0.48	3.91	0.0538	169	-0.96	0.48	3.95	0.0674
119	33.9536	90.6697	N	Yangtze	324	-0.48	0.29	3.19	0.0323	342	-0.60	0.30	3.23	0.0341	354	-0.61	0.32	3.55	0.0353
120	29.6724	101.9318	E	Yangtze	70	-0.39	0.59	4.23	0.0017	101	-0.45	0.48	5.14	0.0025	121	-0.67	0.54	7.19	0.0030
121	33.1281	92.1241	E	Yangtze	98	-1.19	0.53	2.25	0.0272	131	-1.37	0.55	2.92	0.0363	158	-0.59	0.56	4.30	0.0438
122	33.0758	92.1159	S	Yangtze	42	-0.98	0.77	3.64	0.0189	67	-1.63	0.49	4.54	0.0301	83	-0.46	0.59	6.37	0.0373