

Supplementary materials

Table S1

Geographical locations of gauging stations used in the present study.

NO.	Station-ID	Lat(°N)	Lon(°E)	NO.	Station-ID	Lat(°N)	Lon(°E)	NO.	Station-ID	Lat(°N)	Lon(°E)
1	50136	53.29	122.21	265	54284	42.06	127.34	529	57625	28.43	107.21
2	50353	51.43	126.39	266	54285	42.33	128.17	530	57633	28.37	108.44
3	50425	50.28	120.06	267	54286	42.32	128.58	531	57642	28.43	109.38
4	50434	50.3	121.28	268	54292	42.54	129.31	532	57647	28.02	109.06
5	50468	50.15	127.27	269	54308	41.12	116.32	533	57649	28.19	109.44
6	50514	49.37	117.26	270	54311	41.57	117.33	534	57655	28.27	110.23
7	50527	49.13	119.45	271	54324	41.35	120.25	535	57662	28.55	111.33
8	50548	49.05	123.53	272	54326	41.23	119.42	536	57669	28.28	111.18
9	50557	49.1	125.13	273	54333	41.59	122.48	537	57671	28.51	112.22
10	50564	49.26	127.21	274	54334	41.32	121.14	538	57673	28.49	113.05
11	50603	48.42	116.58	275	54335	41.41	122.01	539	57679	28.15	112.5
12	50618	48.13	118.16	276	54337	41.07	121.07	540	57682	28.43	113.35
13	50632	48.46	121.55	277	54339	41.07	122.59	541	57696	28.25	114.47
14	50639	48	122.44	278	54342	41.47	123.24	542	57707	27.2	105.2
15	50656	48.17	126.31	279	54346	41.19	123.47	543	57710	27.51	106.22
16	50658	48.04	125.52	280	54349	41.15	124.29	544	57718	27.02	106.43
17	50727	47.13	119.58	281	54351	41.5	124.07	545	57722	27.47	107.29
18	50739	47.21	123.1	282	54353	41.42	124.49	546	57729	27.05	107.44
19	50742	47.51	124.41	283	54363	41.41	125.55	547	57731	28.2	108.3
20	50745	47.2	123.56	284	54365	41.15	125.21	548	57741	27.35	109.04
21	50756	47.26	126.58	285	54374	41.43	126.57	549	57745	27.27	109.38
22	50758	47.11	125.53	286	54377	41.06	126.1	550	57752	27.53	110.33
23	50774	47.3	129.2	287	54386	41.21	128.18	551	57758	27.04	110.22
24	50788	47.14	131.59	288	54401	40.5	115.11	552	57761	27.53	110.1
25	50834	46.36	121.14	289	54405	40.25	115.3	553	57766	27.15	111.23
26	50838	46.13	122.03	290	54406	40.27	115.57	554	57774	27.28	112.11
27	50844	46.24	123.25	291	54416	40.23	116.5	555	57776	27.15	112.45
28	50853	46.42	126.59	292	54423	40.58	117.5	556	57779	27	113.2
29	50854	46.24	125.21	293	54429	40.12	117.57	557	57780	27.5	113.09
30	50862	46.59	128.03	294	54436	40.24	118.53	558	57789	27.08	113.56
31	50873	46.25	130.2	295	54449	40	119.44	559	57793	27.51	114.21
32	50877	46.18	129.35	296	54452	40.48	119.49	560	57799	27.05	114.55
33	50888	46.19	132.11	297	54454	40.21	120.21	561	57803	27.03	106
34	50915	45.3	118	298	54455	40.36	120.34	562	57805	26.39	105.42
35	50936	45.38	122.51	299	54470	40.59	122.04	563	57806	26.14	105.55
36	50945	45.3	124.16	300	54471	40.4	122.14	564	57816	26.35	106.43
37	50948	45	124.01	301	54472	40.53	122.43	565	57825	26.36	107.59

38	50949	45.01	124.58	302	54476	40.13	122.11	566	57827	26.17	107.31
39	50950	45.42	125.15	303	54486	40.16	123.17	567	57832	26.58	108.41
40	50953	45.45	126.38	304	54493	40.44	124.47	568	57839	26.1	109
41	50955	45.22	126.14	305	54497	40.11	124.19	569	57840	26.53	109.12
42	50963	45.58	128.44	306	54511	39.56	116.2	570	57841	26.4	109.29
43	50968	45.13	127.58	307	54518	39.06	116.26	571	57845	26.22	109.3
44	50973	45.45	130.33	308	54525	39.42	117.18	572	57853	26.44	110.37
45	50978	45.17	130.57	309	54527	39.08	117.11	573	57857	26.17	110.12
46	50983	45.46	132.56	310	54534	39.39	118.11	574	57866	26.22	111.31
47	51053	47.53	86.12	311	54539	39.2	118.54	575	57872	26.56	112.35
48	51059	47.26	85.52	312	54563	39.44	121.45	576	57874	26.26	112.17
49	51060	47.42	86.51	313	54579	39.14	122.4	577	57889	26	113.56
50	51068	47.06	87.21	314	54584	39.4	123.02	578	57894	26.38	114.06
51	51076	47.44	88.05	315	54602	38.53	115.34	579	57896	26.15	114.2
52	51087	47.12	89.47	316	54606	38.15	115.45	580	57902	25.25	105.15
53	51133	46.42	82.58	317	54618	38.04	116.33	581	57906	25.15	105.59
54	51156	46.38	86.11	318	54623	38.58	117.49	582	57907	25.05	105.01
55	51186	46.36	90.39	319	54624	38.36	117.31	583	57910	25.43	106.09
56	51232	45.48	82.18	320	54660	38.48	121.13	584	57912	26.11	106.41
57	51238	45	81.57	321	54662	38.54	121.38	585	57916	25.27	106.46
58	51241	45.52	83.37	322	54705	37.22	115.23	586	57922	25.51	107.32
59	51243	45.47	84.52	323	54715	37.2	116.34	587	57926	25.25	107.53
60	51288	45.14	90.33	324	54725	37.3	117.32	588	57932	25.52	108.35
61	51330	44.57	81.13	325	54727	36.59	117.19	589	57947	25.13	109.24
62	51334	44.37	82.58	326	54751	37.55	120.46	590	57957	25.15	110.1
63	51346	44.16	84.52	327	54753	37.37	120.19	591	57965	25.33	111.42
64	51358	44.2	85.1	328	54774	37.31	122.08	592	57972	25.45	112.59
65	51365	44.37	87.42	329	54776	37.23	122.42	593	57974	25.32	112.18
66	51367	44.07	86.49	330	54808	36.02	115.35	594	57993	25.5	114.5
67	51379	44.03	89.27	331	54823	36.42	117.04	595	57996	25.08	114.19
68	51431	43.55	81.17	332	54826	36.09	117.18	596	58005	34.27	115.49
69	51433	43.48	82.34	333	54836	36.11	118.09	597	58015	34.25	116.21
70	51437	43.08	81	334	54842	36.46	119.57	598	58026	34.27	117.58
71	51463	43.47	87.37	335	54843	36.42	119.08	599	58027	34.17	117.18
72	51467	43.01	86.36	336	54857	36.03	120.25	600	58034	34.32	118.14
73	51470	43.53	88.07	337	54863	36.46	121.12	601	58038	34.14	118.57
74	51477	43.12	88.3	338	54916	35.35	116.55	602	58040	34.5	119.08
75	51495	43.29	91.39	339	54929	35.16	117.56	603	58047	34.29	119.19
76	51526	42.21	88.28	340	54936	35.36	118.52	604	58102	33.53	115.47
77	51542	42.48	84.27	341	54945	35.23	119.32	605	58111	33.54	116.25
78	51567	42.03	86.34	342	55228	32.11	79.59	606	58118	33.17	116.32
79	51573	42.55	91	343	55279	31.48	89.4	607	58122	33.39	117.03

80	51581	42.53	90.17	344	55299	32.06	92.16	608	58130	33.53	118.04
81	51628	41.1	80.14	345	55472	30.57	88.38	609	58135	33.25	118.23
82	51633	41.48	81.53	346	55493	30.29	91.05	610	58138	33.03	118.37
83	51639	41.14	82.47	347	55578	29.13	88.55	611	58143	33.48	119.48
84	51642	41.45	84.15	348	55591	29.43	91.02	612	58150	34.05	120.15
85	51644	41.45	83.04	349	55598	29.15	91.47	613	58158	33.02	120.47
86	51655	41.26	86.03	350	55664	28.35	86.37	614	58203	32.56	115.5
87	51656	41.45	86.09	351	55680	28.55	89.36	615	58208	32.12	115.42
88	51701	40.31	75.24	352	55696	28.25	92.28	616	58215	32.32	116.35
89	51704	39.43	76.09	353	55773	27.44	89.05	617	58221	32.56	117.22
90	51705	39.42	75.11	354	56004	33.57	92.37	618	58225	32.32	117.4
91	51709	39.28	75.52	355	56018	33.09	94.43	619	58236	32.19	118.2
92	51711	40.47	77.55	356	56021	34.36	95.51	620	58238	32.05	118.45
93	51716	39.46	78.1	357	56029	32.52	96.4	621	58241	32.45	119.3
94	51720	40.3	79.03	358	56033	34.24	98.31	622	58251	32.51	120.19
95	51730	40.33	81.19	359	56034	33.55	97.31	623	58255	32.24	120.29
96	51765	40.39	87.42	360	56038	33.14	97.44	624	58259	32.01	120.54
97	51777	39.05	88.03	361	56043	34.45	99.5	625	58265	32.03	121.36
98	51804	37.47	75.15	362	56046	33.48	99.48	626	58311	31.46	116.29
99	51810	38.56	77.4	363	56065	34.17	101.35	627	58314	31.19	116.22
100	51811	38.26	77.16	364	56067	33.19	101.14	628	58319	31.03	116.56
101	51818	37.39	78.16	365	56079	33.2	102.43	629	58321	31.53	117.15
102	51828	37.13	79.54	366	56080	34.55	103.04	630	58326	31.34	117.3
103	51839	37	82.46	367	56093	34.3	104.05	631	58336	31.32	118.35
104	51855	38.08	85.32	368	56096	33.23	104.41	632	58343	31.45	119.55
105	51886	38.13	90.31	369	56106	31.51	93.4	633	58345	31.26	119.31
106	51931	36.5	81.39	370	56116	31.29	95.29	634	58354	31.27	120.26
107	52101	43.36	93	371	56125	32.18	96.17	635	58356	31.25	120.57
108	52112	43.47	94.59	372	56137	31.11	96.59	636	58358	31.04	120.26
109	52118	43.16	94.42	373	56144	31.5	98.38	637	58362	31.25	121.28
110	52203	42.5	93.3	374	56146	31.38	99.59	638	58402	30.44	115.37
111	52267	41.14	101.34	375	56151	33.03	100.25	639	58407	30.15	115.01
112	52313	41.47	95.07	376	56152	32.25	100.44	640	58414	30.32	116.2
113	52323	41.35	96.53	377	56167	31	101.1	641	58419	29.35	116.48
114	52418	40.08	94.47	378	56172	31.55	102.36	642	58424	30.37	117.02
115	52424	40.3	95.55	379	56173	32.48	102.33	643	58429	30.57	117.48
116	52436	40.16	97.11	380	56178	31	102.22	644	58436	30.37	118.59
117	52446	40.18	99.31	381	56182	32.39	103.34	645	58437	30.08	118.09
118	52447	40	98.54	382	56187	30.42	103.5	646	58450	30.53	120.07
119	52495	40.28	104.35	383	56188	31	103.35	647	58457	30.2	120.14
120	52533	39.4	98.43	384	56196	31.29	104.46	648	58464	30.38	121.06
121	52546	39.23	99.43	385	56202	30.48	93.17	649	58467	30.16	121.1

122	52576	39.13	101.4	386	56227	30.06	95.47	650	58472	30.44	122.27
123	52602	38.45	93.35	387	56247	30.01	98.56	651	58477	30.04	122.07
124	52633	38.52	98.22	388	56251	30.57	100.16	652	58500	29.5	115.1
125	52645	38.37	99.21	389	56257	30	100.16	653	58506	29.35	115.59
126	52652	38.55	100.35	390	56287	30	103.03	654	58507	29.16	115.05
127	52657	38.11	100.18	391	56312	29.41	94.35	655	58519	29.01	116.4
128	52661	38.47	101.05	392	56357	29.03	100.11	656	58520	29.55	117.5
129	52674	38.14	101.58	393	56374	30.03	102.02	657	58527	29.1	117.15
130	52679	38.05	102.55	394	56385	29.28	103.41	658	58531	29.45	118.23
131	52681	38.38	103.05	395	56386	29.3	103.45	659	58543	29.37	119.01
132	52707	36.54	93.1	396	56444	28.49	98.49	660	58549	29.1	119.45
133	52713	37.5	95.17	397	56459	28.11	100.48	661	58556	29.36	120.49
134	52737	37.15	97.08	398	56462	28.59	101.33	662	58557	29.19	120.04
135	52754	37.2	100.1	399	56475	28.37	102.33	663	58562	29.52	121.3
136	52765	37.27	101.37	400	56479	28.14	102.57	664	58569	29.12	121.57
137	52787	37.12	102.52	401	56485	28.18	103.36	665	58600	28.51	115.22
138	52797	37.14	104.11	402	56492	28.49	104.32	666	58606	28.4	115.58
139	52818	36.12	94.38	403	56533	27.56	98.35	667	58608	28.01	115.22
140	52825	36.22	96.27	404	56543	27.32	99.57	668	58622	28.51	117.34
141	52836	36.15	98.05	405	56548	27.13	99.31	669	58626	28.17	117.06
142	52856	36.04	100.54	406	56565	27.27	101.37	670	58633	28.58	118.53
143	52866	36.35	101.55	407	56571	27.53	102.18	671	58634	28.4	118.15
144	52868	36.22	101.22	408	56586	27.2	103.45	672	58637	28.26	117.54
145	52876	36.14	102.56	409	56651	26.53	100.1	673	58646	28.28	119.55
146	52884	36.33	103.4	410	56664	26.38	101.16	674	58652	28.52	120.44
147	52895	36.36	104.39	411	56671	26.5	102.15	675	58665	28.4	121.3
148	52908	35.17	93.36	412	56684	26.26	103.11	676	58666	28.27	121.53
149	52943	35.48	99.4	413	56691	26.51	104.15	677	58667	28.05	121.17
150	52955	35.3	100.35	414	56693	26.44	104.47	678	58705	27.21	115.25
151	52974	35.3	102.05	415	56739	25	98.3	679	58715	27.33	116.36
152	52983	35.52	104	416	56748	25.05	99.1	680	58718	27.12	116.23
153	52984	35.37	103.11	417	56751	25.43	100.11	681	58725	27.2	117.28
154	52986	35.22	103.52	418	56763	25.41	102.17	682	58730	27.43	118
155	52996	35.25	104.5	419	56768	25.01	101.32	683	58731	28	118.35
156	53068	44.13	111.32	420	56778	25.02	102.43	684	58734	27.2	118.06
157	53083	44.4	113.44	421	56786	25.35	103.5	685	58737	27.05	118.19
158	53149	42.29	110.08	422	56792	25.47	104.57	686	58742	27.58	119.37
159	53192	43.41	114.29	423	56793	25.47	104.39	687	58744	27.32	119.25
160	53195	43.15	114.3	424	56838	23.47	98.06	688	58752	27.48	120.37
161	53276	42.24	112.43	425	56856	24.28	101.05	689	58754	27.2	120.13
162	53336	41.28	108.57	426	56875	24.2	102.34	690	58806	26.22	115.5
163	53352	41.48	110.3	427	56886	24.32	103.44	691	58813	26.45	116.06

164	53362	41.32	111.42	428	56946	23.3	99.43	692	58818	26.14	116.38
165	53391	41.46	114.06	429	56951	23.51	100.13	693	58820	26.53	117.08
166	53399	41.08	114.52	430	56954	22.48	100.07	694	58834	26.39	118.1
167	53446	40.5	109.5	431	56959	21.55	100.45	695	58837	26.1	118.09
168	53463	40.49	111.41	432	56964	22.33	101.02	696	58843	26.53	120
169	53478	39.59	112.27	433	56966	23.38	101.58	697	58846	26.4	119.31
170	53480	40.58	113.03	434	56969	21.25	101.52	698	58847	26.05	119.18
171	53487	40.06	113.2	435	56977	22.31	102.08	699	58911	25.45	116.2
172	53490	40.42	114.03	436	56985	23.28	103.34	700	58918	25.03	116.25
173	53502	39.49	105.3	437	56986	22.53	103.44	701	58921	25.58	117.21
174	53513	40.48	107.3	438	56991	23.41	104.19	702	58926	25.18	117.24
175	53519	39.18	106.54	439	57003	34.52	106.59	703	58927	25.06	117.06
176	53529	39.06	107.59	440	57014	34.33	105.53	704	58931	25.43	118.06
177	53543	39.5	109.59	441	57025	34.28	107.28	705	58933	25.55	118.59
178	53564	39.17	111.16	442	57028	33.54	107.35	706	58936	25.21	118.41
179	53578	39.18	112.26	443	57030	34.51	108.03	707	58944	25.3	119.47
180	53588	39.02	113.32	444	57034	34.21	108.1	708	59007	24.02	105.02
181	53593	39.56	114.41	445	57037	34.56	108.59	709	59021	24.33	107.02
182	53594	39.27	114.11	446	57046	34.25	109.57	710	59023	24.46	108
183	53602	38.52	105.34	447	57048	34.2	108.43	711	59037	24.01	108.05
184	53612	38	106.15	448	57049	34.24	109.38	712	59046	24.18	109.16
185	53614	38.25	107.05	449	57051	34.48	111.11	713	59058	24.13	110.32
186	53615	38.44	106.4	450	57067	34.02	110.02	714	59065	24.26	111.31
187	53646	38.15	109.25	451	57071	34.5	112.26	715	59072	24.47	112.23
188	53651	38.55	110.07	452	57077	33.47	111.38	716	59082	24.55	113.07
189	53663	38.55	111.51	453	57083	34.45	113.35	717	59087	23.52	113.32
190	53664	38.28	111.08	454	57089	34.01	113.49	718	59088	24.1	113.24
191	53673	38.45	112.42	455	57091	34.5	114.2	719	59092	24.53	114.46
192	53698	38.04	114.26	456	57106	33.16	105.57	720	59096	24.22	114.29
193	53704	37.33	105.11	457	57124	33.32	107.08	721	59097	24.03	114.12
194	53705	37.29	105.38	458	57127	33.05	107.1	722	59102	24.57	115.29
195	53723	37.43	107.27	459	57134	33.36	108.02	723	59107	24.06	115.15
196	53725	37.33	107.36	460	57143	33.57	109.56	724	59113	24.51	116.49
197	53735	37.24	108.24	461	57144	33.22	109.17	725	59116	24.21	116.42
198	53738	37.05	108.15	462	57154	33.35	110.1	726	59117	24.08	116.15
199	53740	37.55	109.1	463	57156	33.18	111.3	727	59126	24.32	117.41
200	53754	37.37	110.04	464	57178	33.04	112.32	728	59133	24.53	118.54
201	53764	37.33	111.09	465	57181	33.53	113.03	729	59134	24.27	118.04
202	53772	37.55	112.31	466	57193	33.45	114.3	730	59209	23.18	105.57
203	53775	37.25	112.35	467	57206	32.26	105.48	731	59211	23.55	106.32
204	53787	37.04	112.59	468	57211	32.43	106.26	732	59218	23.08	106.25
205	53798	37.04	114.3	469	57232	32.55	108.38	733	59228	23.19	107.35

206	53806	36.34	105.54	470	57237	32.05	108.11	734	59242	23.45	109.13
207	53810	36.59	106.08	471	57238	32.18	108.04	735	59254	23.23	110.03
208	53817	35.58	106.45	472	57245	32.32	109.21	736	59265	23.3	111.25
209	53821	36.41	107.22	473	57251	32.59	110.21	737	59271	23.38	112.26
210	53845	36.36	109.32	474	57259	32.02	110.46	738	59278	23.03	112.27
211	53853	36.47	110.54	475	57265	32.25	111.4	739	59280	23.36	113.04
212	53854	36.38	110.01	476	57278	32.14	112.04	740	59287	23	113.13
213	53859	36.05	110.41	477	57279	32.09	112.4	741	59289	22.54	114.04
214	53863	37.02	111.54	478	57285	32.22	113.23	742	59293	23.44	114.41
215	53868	36.05	111.32	479	57290	32.58	114.03	743	59294	23.18	113.49
216	53877	36.1	112.15	480	57297	32.1	114.05	744	59298	23.22	114.11
217	53884	36.31	113.02	481	57306	31.37	105.57	745	59303	23.56	115.46
218	53898	36.08	114.21	482	57313	31.51	106.45	746	59304	23.38	115.11
219	53903	35.56	105.58	483	57328	31.16	107.28	747	59316	23.2	116.4
220	53915	35.33	106.4	484	57343	31.55	109.41	748	59317	23.02	116.18
221	53923	35.42	107.44	485	57348	31.04	109.29	749	59321	23.45	117.31
222	53929	35.15	107.54	486	57355	31.04	110.24	750	59324	23.26	117.02
223	53942	35.5	109.31	487	57358	31	110.36	751	59417	22.22	106.45
224	53948	35.01	109.32	488	57359	31.19	110.47	752	59431	22.48	108.18
225	53955	35.26	110.25	489	57378	31.1	112.34	753	59446	22.25	109.17
226	53959	35.02	111	490	57381	31.43	113.2	754	59453	22.38	110.07
227	53963	35.39	111.22	491	57395	31.34	114.04	755	59456	22.22	110.56
228	53968	35.1	111.49	492	57399	31.11	114.58	756	59462	22.46	111.34
229	53975	35.29	112.24	493	57405	30.3	105.25	757	59478	22.16	112.46
230	53986	35.21	113.5	494	57411	30.48	106.04	758	59485	22.24	113.21
231	54012	44.4	118	495	57426	30.41	107.49	759	59488	22.17	113.35
232	54026	44.34	120.54	496	57432	30.48	108.25	760	59493	22.33	114.07
233	54027	44	119.12	497	57439	30.17	108.51	761	59501	22.46	115.22
234	54041	44.49	123.05	498	57445	30.36	109.38	762	59626	21.46	108.18
235	54049	44.15	123.58	499	57447	30.16	109.22	763	59632	21.57	108.36
236	54063	44.51	125.54	500	57458	30.1	110.37	764	59644	21.43	109.05
237	54064	44.27	125.08	501	57461	30.42	111.05	765	59647	21.02	109.05
238	54094	44.35	129.36	502	57476	30.24	112.04	766	59658	21.02	110.28
239	54096	44.23	131.09	503	57482	30.56	113.51	767	59663	21.54	111.57
240	54102	43.51	116.05	504	57483	30.39	113.19	768	59664	21.3	111
241	54115	43.3	118.03	505	57493	30.28	114.33	769	59673	21.41	112.48
242	54134	43.36	121.12	506	57494	30.25	114.17	770	59754	20.2	110.1
243	54135	43.4	122.15	507	57502	29.41	105.42	771	59758	20	110.25
244	54142	43.4	123.29	508	57512	29.59	106.17	772	59838	19.08	108.38
245	54157	43.11	124.2	509	57516	29.3	106.33	773	59845	19.31	109.32
246	54161	43.52	125.2	510	57517	29.19	106.15	774	59849	19.06	109.53
247	54165	43.31	125.38	511	57520	29.51	107.04	775	59855	19.25	110.28

248	54181	43.42	127.19	512	57523	29.53	107.42	776	59948	18.14	109.29
249	54186	43.21	128.11	513	57536	29.31	108.47	777	59954	18.3	110.02
250	54195	43.17	129.48	514	57545	29.34	109.29	778	59981	16.5	112.2
251	54208	42.15	116.13	515	57554	29.24	110.08				
252	54213	42.54	119	516	57562	29.36	111.23				
253	54218	42.16	118.54	517	57573	29.5	112.5				
254	54226	42.23	120.43	518	57574	29.2	112.25				
255	54236	42.24	122.29	519	57581	29.49	113.24				
256	54237	42.1	121.38	520	57583	29.59	113.52				
257	54243	43.12	124.04	521	57584	29.27	113.12				
258	54254	42.33	124.01	522	57595	29.36	114.23				
259	54259	42.06	124.57	523	57598	29.02	114.34				
260	54260	42.55	125.05	524	57604	28.47	105.22				
261	54263	42.57	125.59	525	57606	28	106.5				
262	54266	42.31	125.38	526	57608	28.1	105.26				
263	54273	42.57	126.42	527	57612	28.46	106.4				
264	54276	42.21	126.49	528	57614	28.33	105.59				
