



Supplement of

Impact-based flood forecasting in the Greater Horn of Africa

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Hydrological model evaluation

Table S1: Performance of simulated versus observed discharge at 78 validation stations for the entire period of data availability, ranked by decreasing correlation values.

ID	Name	nRMSE	KGE	Correlation (r)	Bias rate	Variability rate	longitude	latitude
1	Blue Nile River at GERD	0.51	0.84	0.92	1.09	0.9	34.92	11.24
2	Nile River at Ad Damar	1.13	0.16	0.87	0.79	1.81	33.97	17.65
3	Awash River at Hombole	1.06	0.67	0.86	1.29	0.94	38.78	8.38
4	Blue Nile at El Roseires Dam	0.77	0.75	0.85	1.17	1.12	34.39	11.8
5	Blue Nile at Khartoum Manshia Bridge	1.26	0.5	0.85	0.97	1.47	32.53	15.61
6	Nile at Khartoum Al Halfaia Bridge	0.88	0.44	0.84	0.87	1.52	32.56	15.98
7	Awash River at Melka Kuntire	1.08	0.69	0.84	1.11	0.76	38.6	8.7
8	Blue Nile River at Sennar	1.07	0.57	0.83	0.91	1.38	33.64	13.55
9	Nile River at Dongola	1.52	0.06	0.83	0.96	1.92	30.49	19.18
10	Ruvubu River at Muyiga	1.23	-0.11	0.77	1.96	1.51	30.47	-2.98
11	Shabelle River at Beledweyne	0.71	0.72	0.75	0.98	1.13	45.2	4.74
12	Tana River at Garsen	0.88	-0.11	0.73	1.97	0.54	40.12	-2.28
13	Awash River at Haro Adi	1.95	-0.18	0.72	2.09	1.34	39.85	8.85
14	White Nile River at Mongalla	0.17	0.5	0.67	0.63	0.91	31.77	5.2
15	Shabelle River at Bulobarde	1.15	0.36	0.67	0.94	1.54	45.57	3.86
16	Kachwamba River at Sofia	1.02	-3.24	0.59	5.12	0.06	30.46	-1.05
17	Jubba River at Doolow	2.04	-0.21	0.58	2.13	1.08	42.22	4.16
18	Nzoia River at Ruambwa Ferry	0.96	-0.21	0.58	1.88	0.29	34.09	0.12
19	Awash River at Melka Sedi	1.82	-0.99	0.56	2.94	1.06	40.13	9.39
20	Jubba River at Luuq	0.99	0.31	0.54	1.33	0.61	42.56	3.79
21	White Nile River at Malakal	0.71	0.23	0.53	1.08	1.61	31.67	9.55
22	Athi River at Munyu	2.36	-0.65	0.52	2.4	0.27	37.19	-1.09
23	Ewaso Narok River at Sosian	2.75	0.39	0.51	0.99	1.36	36.72	0.44
24	Jubba River at Bardere	0.95	-1.75	0.51	3.56	0.14	42.27	2.34
25	Tana River at Sagana	1.44	-3.35	0.48	5.24	0.19	37.21	-0.67
26	Songwe River at Galula	1.46	-0.99	0.47	2.72	0.13	33.06	-8.73
27	Mbarali River at Igawa	1.24	-1.2	0.47	2.99	0.22	34.38	-8.78
28	Awash River at Adaitu	1.12	0.21	0.45	1.45	0.66	40.78	11.13
29	Lukuledi River at Mkwaya	9.05	-1.18	0.44	2.41	2.57	39.66	-10.14
30	Great Ruaha River at Msembe	1.97	-0.01	0.44	1.48	0.31	34.9	-7.71
31	Thiba River at Nyamindi confluence	4.67	-0.21	0.43	1.43	0.01	37.51	-0.73
32	Gucha River at Migori	1.16	0.22	0.41	1.41	0.69	34.21	-0.95
33	Ruvyironza River at Kibaya	1.13	-0.36	0.41	2.21	1.14	29.92	-3.32
34	Mayanja River at Kapeka	1.17	0.03	0.41	1.67	0.62	32.17	0.68

35	Ruhuhu River at Mavanga	1.04	-3.29	0.4	5.17	0.2	35.19	-9.94
36	Rovuma River at Ruvumachini	1.24	-1.59	0.39	3.42	0.28	35.34	-11.2
37	Tana River at Garissa	1.15	-2.82	0.36	4.68	0.18	39.7	-0.45
38	Kizigo River at Chinugulu	1.89	0.04	0.36	1.38	0.39	35.4	-6.93
39	Little Ruaha River at Mawande	1.24	-1.73	0.35	3.5	0.13	35.46	-7.5
40	Wami River at Dakawa	1.8	-1.22	0.34	2.93	0.12	37.53	-6.45
41	Lach Dera River at Elkarama	6.95	-0.57	0.34	0.92	2.42	36.91	0.09
42	Rumpungwe River at Gisuru	1.83	-0.34	0.34	1.67	0.04	30.49	-3.44
43	Great Ruaha River at Salimwani	1.78	-0.81	0.33	2.4	0.06	34.11	-8.9
44	Ruvubu River at Kanabusoro	1.11	0.05	0.33	1.63	0.77	29.71	-3.03
45	Ruaha River Tributary at Kilolo	1.13	-3.28	0.32	5.14	0.15	35.78	-8.02
46	Ruaha River at Iringa	1.18	-2.13	0.32	3.93	0.12	35.72	-7.79
47	Malagarasi River at Mbelagule	1.13	-0.42	0.31	2.19	0.66	30.08	-5.18
48	Wami River at Mandera T2	1.55	-1.67	0.3	3.39	0.03	38.39	-6.25
49	Basse Mulembwe at Mutambara	1.08	-3.91	0.3	5.76	0.03	29.44	-4
50	Ruvu River at Kibaha	1.62	-1.33	0.3	3.06	0.16	38.71	-6.69
51	Mutonga River at Kierera	1.55	-2.27	0.29	4.07	0.13	37.9	-0.38
52	Tsavo River at Tsavo	1.2	-14.78	0.29	16.74	0.07	38.47	-3
53	Kigogo Ruaha River at Lugema	1.14	-3.29	0.29	5.14	0.14	35.34	-8.77
54	Kagera River at Masangano	10.95	-6.53	0.27	1	8.5	31.76	-0.94
55	Tana River at Hola	0.9	-0.7	0.27	2.32	0.21	40.03	-1.5
56	Luichi River at Isangwa	1.34	-1.26	0.26	3.03	0.34	31.6	-7.74
57	Ruaha River at Mafinga	1.25	-1.47	0.26	3.19	0.12	35.33	-8.37
58	Kimani River at GreatNorthRoad	1.71	-1.49	0.26	3.17	0.05	34.17	-8.85
59	Ndembera River at Ilongo	1.62	-1.18	0.25	2.84	0.11	35.16	-8.26
60	Ruvu River at Kifaru	1.42	-5.01	0.24	6.87	0.01	37.56	-3.53
61	Lufilyo River at Lufilyo	1.07	-2.21	0.23	4	0.16	33.92	-9.32
62	Kafu River at Nile confluence	2	0.16	0.23	1.21	1.27	32.04	1.55
63	Kagogo River at Gatore	1.04	-8.07	0.22	9.99	0.07	30.56	-2.27
64	Ruizi River at Mbarara	1.28	-1.36	0.22	3.01	0.05	30.65	-0.62
65	Nyabarongo River at Mugesera	0.99	-6.43	0.2	8.33	0.04	30.28	-2.2
66	Kagera River at Resumo	1.01	-7.1	0.18	9	0.03	30.78	-2.38
67	Pangani River at Mnyuzi	1.45	-3.01	0.18	4.8	0.04	38.56	-5.23
68	Victoria Nile River at Karuma Falls	0.5	-0.58	0.18	2.34	1.17	32.27	2.27
69	White Nile River at Jebel Aulia Dam	2.34	-1.17	0.16	1.76	2.85	32.49	15.25
70	Buzimba River at Gatete	1.4	-1.15	0.16	2.76	0.09	29.54	-4.17

71	White Nile at Panyango	0.29	0.14	0.15	0.96	1.07	31.43	2.57
72	Mbaka River at Mwaya	1.25	-1.18	0.13	2.83	0.19	33.96	-9.52
73	Awash River at Tendaho	1.61	0.01	0.11	1.27	0.65	40.95	11.68
74	Victoria Nile River at Masindi Port	0.63	-0.46	0.11	2.12	1.28	32.09	1.69
75	Mvuha River at Tulo School	1.31	-4.79	0.1	6.63	0.03	37.92	-7.24
76	Ruvu River at Kibangile	1.41	-3.22	0.09	5	0.03	37.8	-7.02
77	Victoria Nile at Paraa	0.59	-0.14	0.07	1.61	1.23	31.56	2.28
78	Victoria Nile River at Mbulamuti	0.67	-1.08	0	2.81	1.18	33.03	0.84