

Article

Impact of Prospective Climate Change Scenarios upon Hydropower Potential of Ethiopia in GERD and GIBE Dams

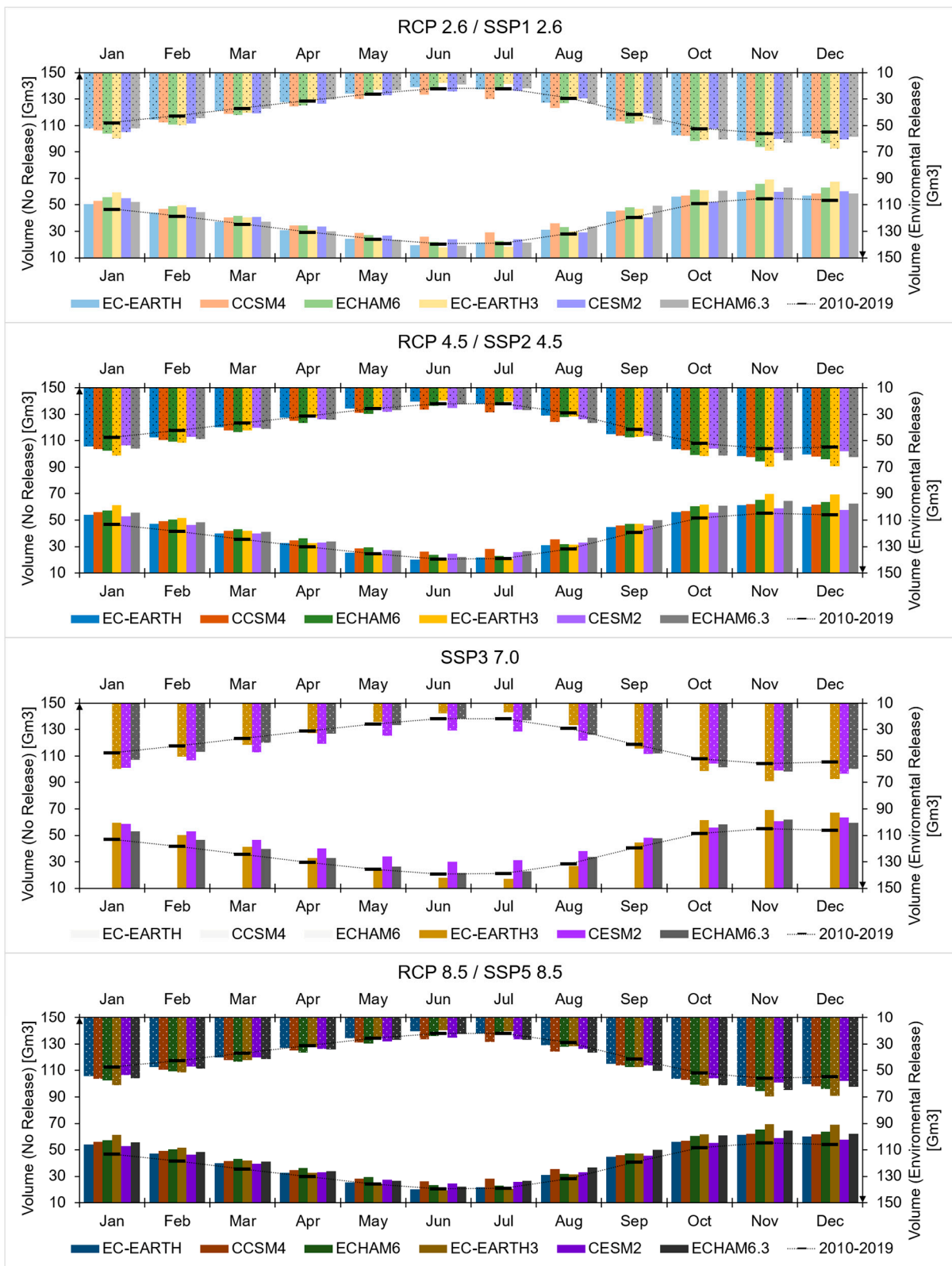
Giovanni Martino Bombelli, Stefano Tomiet, Alberto Bianchi and Daniele Bocchiola *

Politecnico di Milano Dipartimento di Ingegneria Civile e Ambientale, L. da Vinci 32, 20133 Milano, Italy; giovannimartino.bombelli@polimi.it (G.M.B.); stefano.tomiet@mail.polimi.it (S.T.);

alberto.bianchi@polimi.it (A.B.)

* Correspondence: daniele.bocchiola@polimi.it

Supplementary Material



(a)

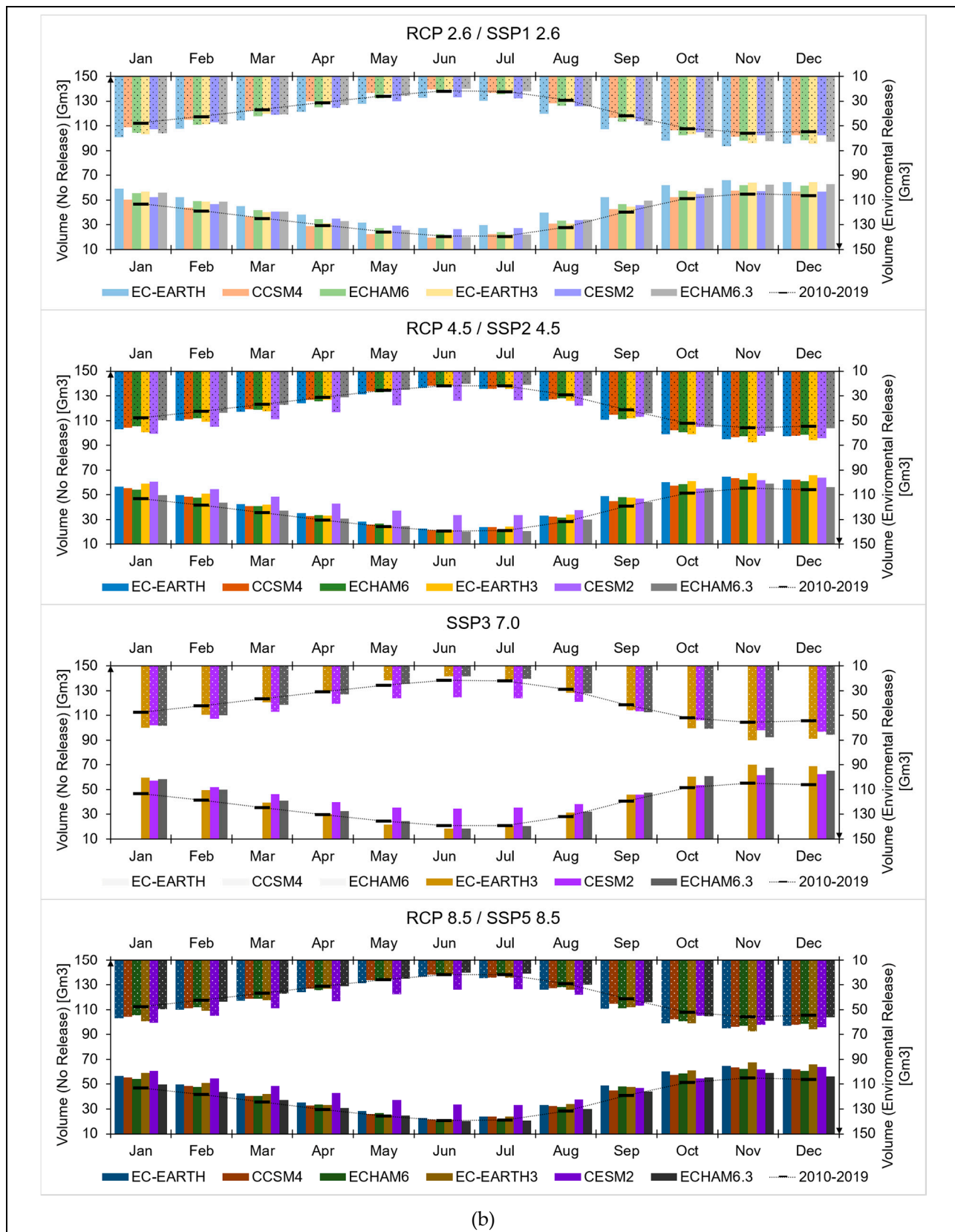
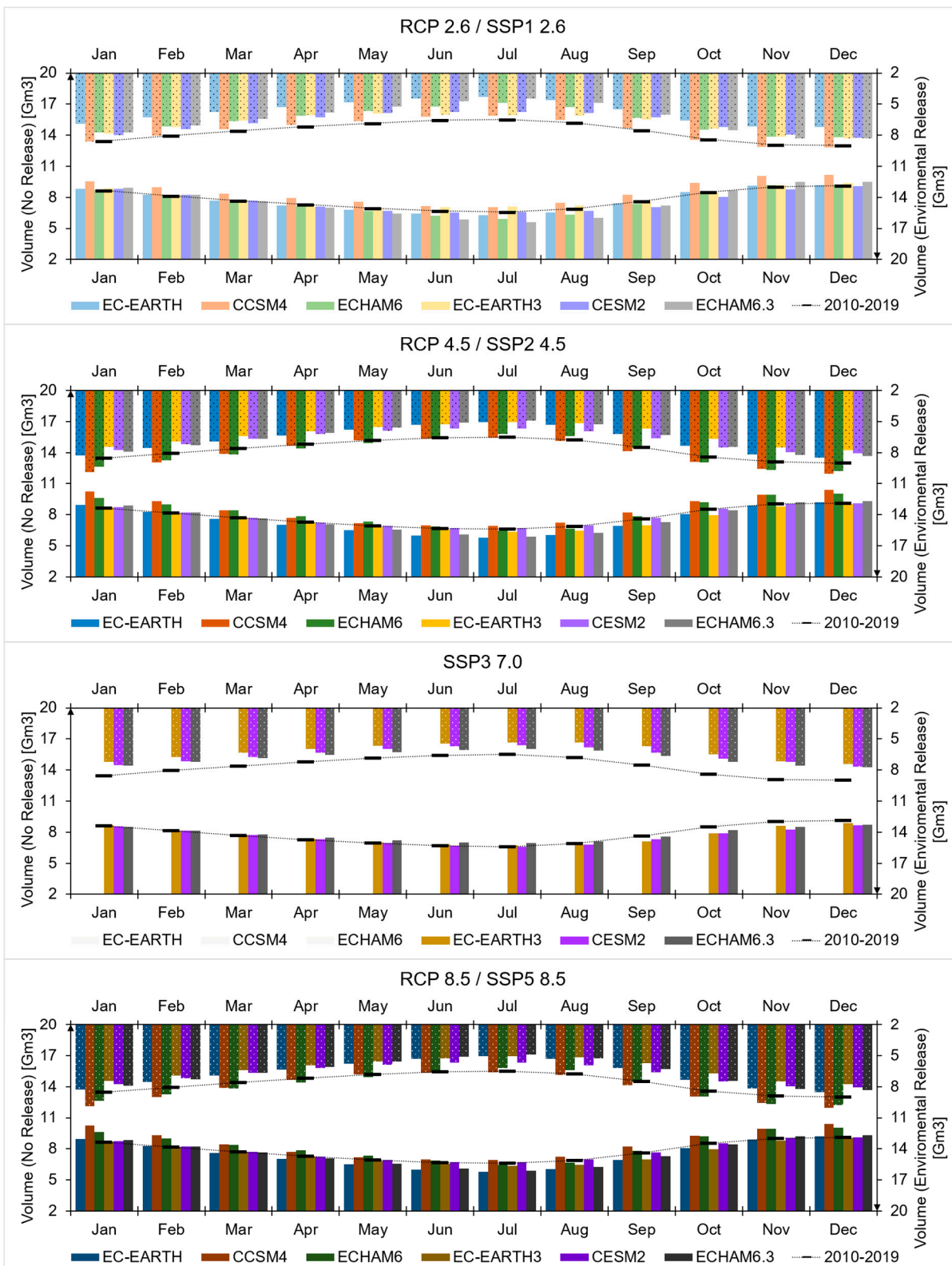


Figure S1. GERD. Average estimated monthly pool volume. (a) Mid Century P1. (b) End of Century P2.

Table S1. GERD. Average estimated yearly pool volume.

		GERD						
		Volume [Mm ³]	EC-EARTH	CCSM4	ECHAM6	EC-EARTH3	CESM2	ECHAM6.3
		2010–2019				37.46		
Mid Century	No Release	RCP 2.6 / SSP1 2.6	39.77	43.10	43.72	42.90	41.21	41.11
		RCP 4.5 / SSP2 4.5	41.14	43.90	44.33	44.23	41.74	44.16
		SSP3 7.0	-	-	-	42.69	46.75	42.02
		RCP 8.5 / SSP5 8.5	42.13	40.21	43.52	43.25	45.27	42.70
	Environmental Release	RCP 2.6 / SSP1 2.6	41.21	43.95	43.99	42.90	41.38	41.15
		RCP 4.5 / SSP2 4.5	41.30	44.14	44.54	44.24	42.22	44.21
		SSP3 7.0	-	-	-	42.69	46.97	42.16
		RCP 8.5 / SSP5 8.5	41.30	44.14	44.54	44.24	42.22	44.21
End Century	No Release	RCP 2.6 / SSP1 2.6	47.37	38.70	43.05	42.11	42.23	42.89
		RCP 4.5 / SSP2 4.5	44.04	42.38	42.24	44.41	48.00	39.32
		SSP3 7.0	-	-	-	43.08	46.93	43.30
		RCP 8.5 / SSP5 8.5	45.70	42.80	43.05	45.63	41.71	45.58
	Environmental Release	RCP 2.6 / SSP1 2.6	47.65	39.69	43.22	42.11	42.70	42.90
		RCP 4.5 / SSP2 4.5	44.53	42.67	42.76	44.41	48.27	39.40
		SSP3 7.0	-	-	-	43.08	47.51	43.32
		RCP 8.5 / SSP5 8.5	44.53	42.67	42.76	44.41	48.27	39.40



(a)

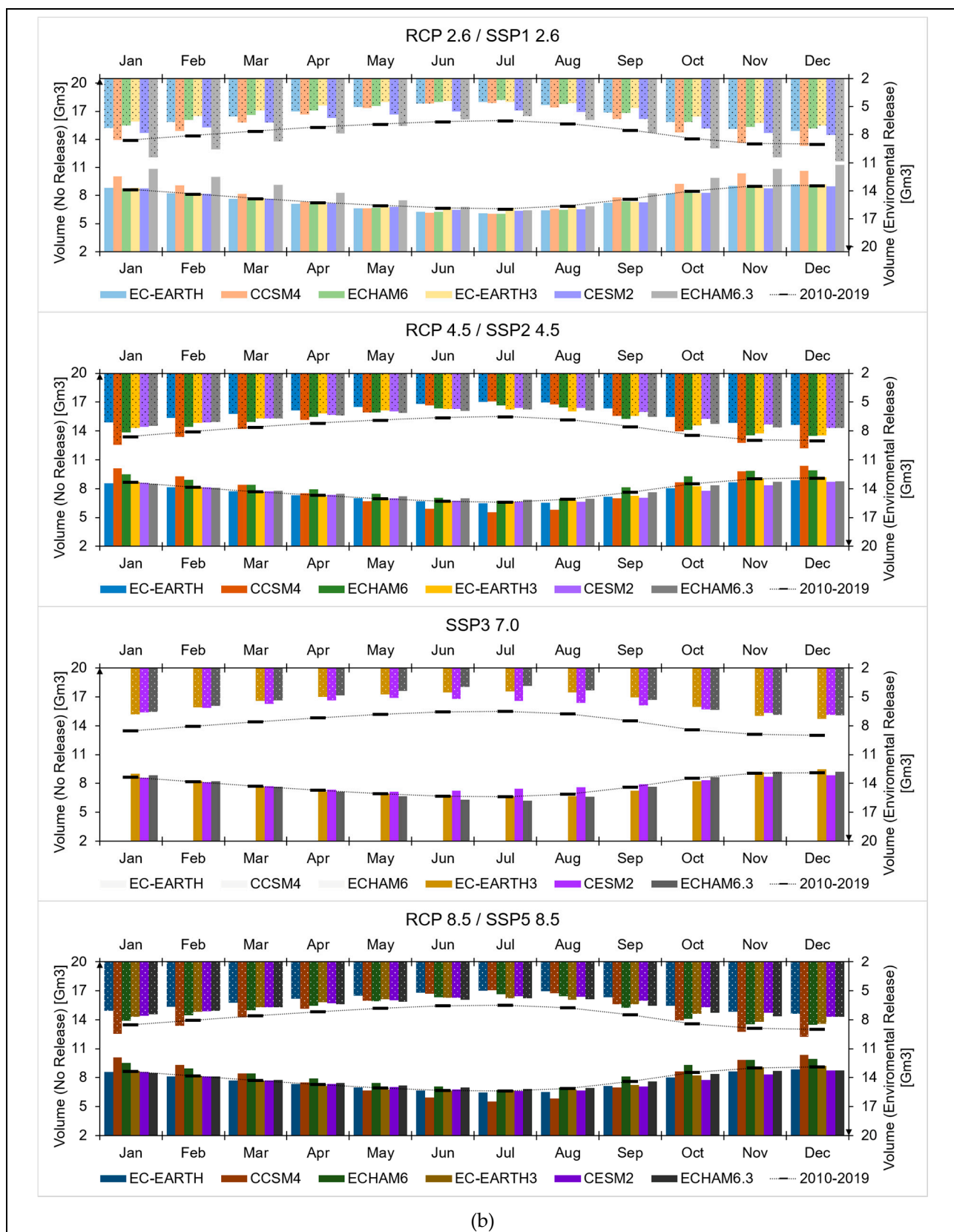


Figure S2. GIBE III. Average estimated monthly pool volume. (a) Mid Century P1. (b) End of Century P2.

Table S2. GIBE III. Average estimated yearly pool volume.

		<i>GIBE III</i>						
		<i>Volume [Mm³]</i>	<i>EC-EARTH</i>	<i>CCSM4</i>	<i>ECHAM6</i>	<i>EC-EARTH3</i>	<i>CESM2</i>	<i>ECHAM6.3</i>
		<i>2010–2019</i>	<i>7.77</i>					
<i>Mid Century</i>	<i>No Release</i>	RCP 2.6 / SSP1 2.6	7.68	8.49	7.60	7.90	7.60	7.54
		RCP 4.5 / SSP2 4.5	7.44	8.50	8.27	7.57	7.80	7.58
		SSP3 7.0	-	-	-	7.66	7.58	7.76
		RCP 8.5 / SSP5 8.5	7.51	7.47	7.59	7.54	7.61	7.64
	<i>Environmental Release</i>	RCP 2.6 / SSP1 2.6	5.74	7.56	6.58	6.85	6.79	6.38
		RCP 4.5 / SSP2 4.5	6.74	8.14	8.01	6.28	6.76	6.59
		SSP3 7.0	-	-	-	6.23	6.57	6.81
		RCP 8.5 / SSP5 8.5	6.74	8.14	8.01	6.28	6.76	6.59
<i>End Century</i>	<i>No Release</i>	RCP 2.6 / SSP1 2.6	7.58	8.18	7.58	7.68	7.60	8.84
		RCP 4.5 / SSP2 4.5	7.59	7.93	8.35	7.69	7.56	7.77
		SSP3 7.0	-	-	-	7.75	7.91	7.69
		RCP 8.5 / SSP5 8.5	7.65	8.22	11.24	7.46	8.83	7.59
	<i>Environmental Release</i>	RCP 2.6 / SSP1 2.6	5.99	6.70	5.84	5.50	6.65	8.43
		RCP 4.5 / SSP2 4.5	6.11	7.32	6.97	6.80	6.53	6.71
		SSP3 7.0	-	-	-	5.58	5.91	5.39
		RCP 8.5 / SSP5 8.5	6.11	7.32	6.97	6.80	6.53	6.71