Table S1: Percentage of grid cells calculated as low and high outliers for K_f and runoff for Cu, percentage of grid cells concerned by Cu leaching potential (LP) and by accumulation potential (AP), percentage of grid cells with high outlier for Cu runoff with leaching potential, and proportion of grid cells with low outlier for runoff with accumulation potential for each time period of each climate change scenario and each couple of land surface model x global circulation model.

LSM	GCM	Period	K_f low outlier	K_f high outlier	Leaching	Accumulation	Runoff low outlier	Runoff high outlier	Leaching / Runoff high outlier	Accumulation / Runoff low outlier
ORCHIDEE	CM5a	Historic	20.08	29.89	6.41	8.05	21.72	28.19	0.23	0.37
		RCP 2.6 2051-2055	20.08	29.89	5.57	9.07	24.26	25.71	0.22	0.37
		RCP 2.6 2091-2095	20.08	29.89	5.08	7.50	24.86	25.05	0.20	0.30
		RCP 6.0 2051-2055	20.08	29.89	6.47	7.26	20.45	29.52	0.22	0.36
		RCP 6.0 2091-2095	20.08	29.89	4.48	10.59	26.07	23.84	0.19	0.41
	ESM2m	Historic	20.08	29.89	6.17	7.74	22.08	27.89	0.22	0.35
		RCP 2.6 2051-2055	20.08	29.89	3.81	10.65	28.01	21.96	0.17	0.38
		RCP 2.6 2091-2095	20.08	29.89	3.45	11.19	29.58	20.39	0.17	0.38
		RCP 6.0 2051-2055	20.08	29.89	4.90	10.16	26.07	23.90	0.21	0.39
		RCP 6.0 2091-2095	20.08	29.89	2.54	12.04	28.49	21.42	0.12	0.42
LPJmL	CM5a	Historic	20.08	29.89	6.65	5.51	20.15	29.82	0.22	0.27
		RCP 2.6 2051-2055	20.08	29.89	6.53	7.80	22.69	27.28	0.24	0.34
		RCP 2.6 2091-2095	20.08	29.89	5.69	5.69	21.78	28.19	0.20	0.26
		RCP 6.0 2051-2055	20.08	29.89	6.35	5.81	21.54	28.43	0.22	0.27
		RCP 6.0 2091-2095	20.08	29.89	5.38	9.20	25.47	24.50	0.22	0.36
	ESM2m	Historic	20.08	29.89	6.35	5.69	21.11	28.86	0.22	0.27
		RCP 2.6 2051-2055	20.08	29.89	5.51	6.72	24.02	25.95	0.21	0.28
		RCP 2.6 2091-2095	20.08	29.89	5.26	8.35	25.53	24.44	0.22	0.33
		RCP 6.0 2051-2055	20.08	29.89	6.05	7.99	23.59	26.38	0.23	0.34
		RCP 6.0 2091-2095	20.08	29.89	4.11	9.98	26.62	23.35	0.18	0.38

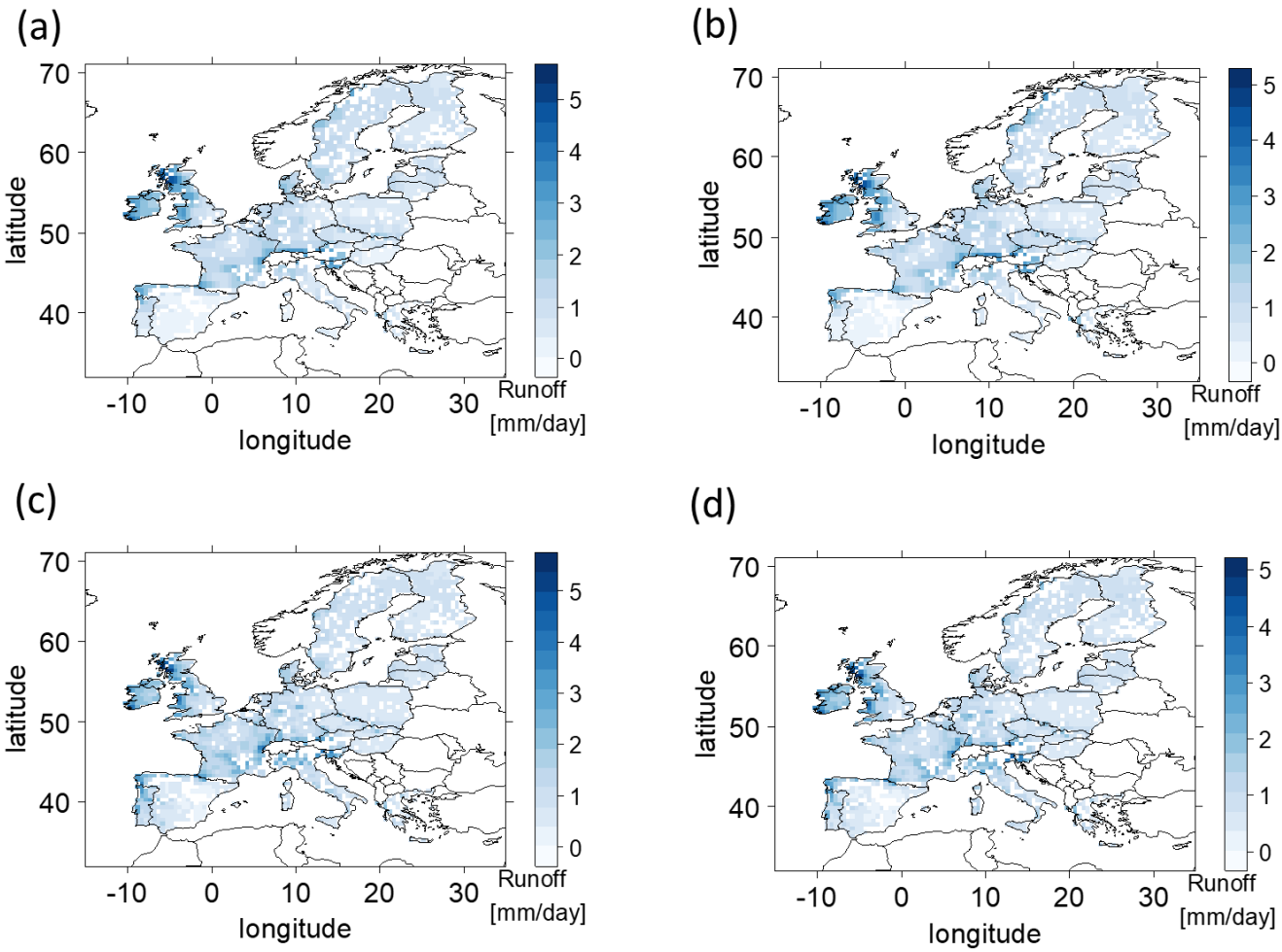

Fig S1: Mean of Cu runoffs for the 2001-2005 period for the different combinations of land surface schemes (ORCHIDEE in (a), (b) ; LPJmL in (c), (d)) and climate forcings (CM5a in (a), (c) and ESM2m in (b), (d)). White pixels correspond to pixel without OC measurement, then no K_f calcul and where thus exclude.

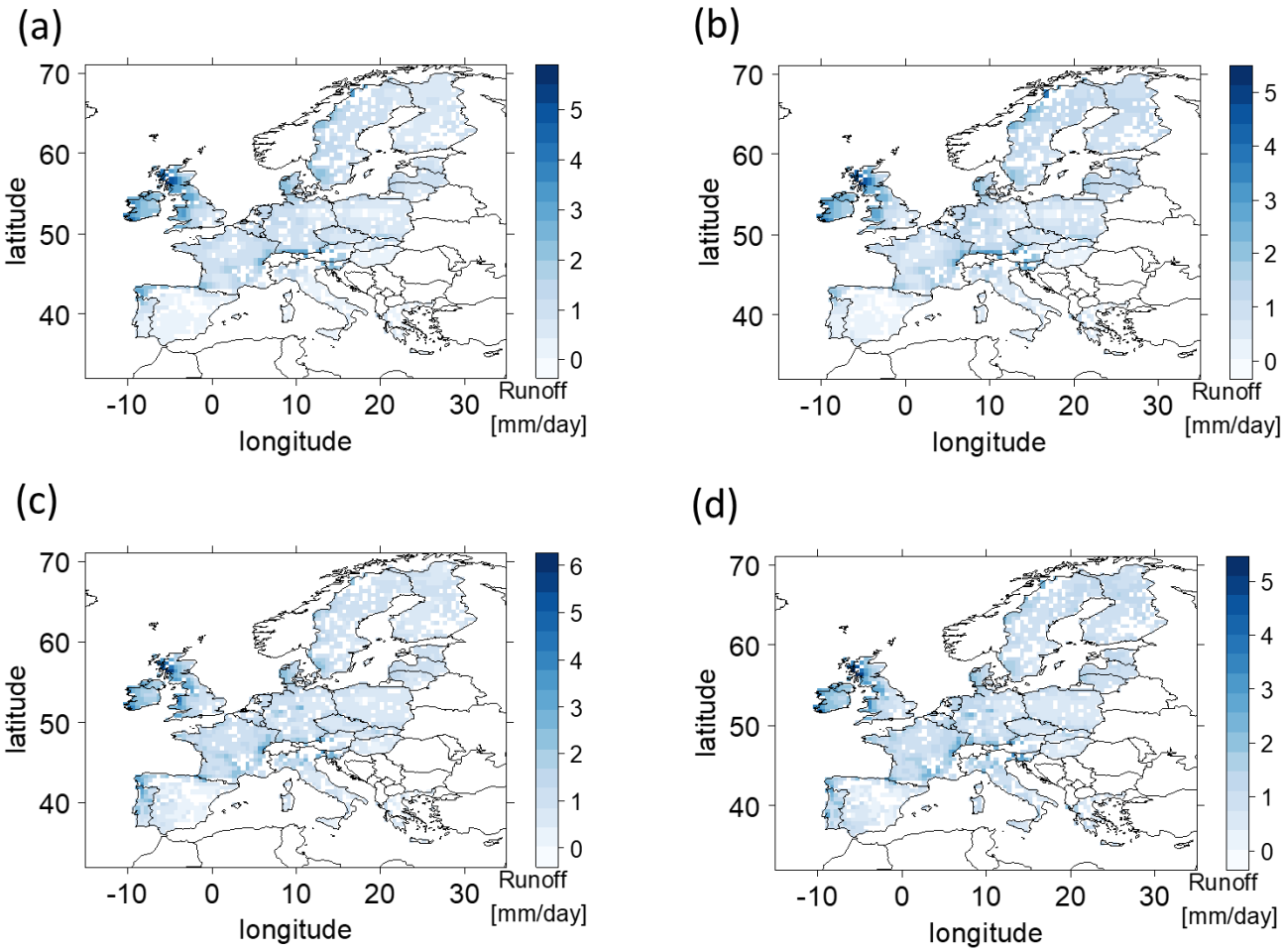

Fig S2: Mean of Cu runoffs for the RCP 2.6 and 2051-2055 period for the different combinations of land surface schemes (ORCHIDEE in (a), (b) ; LPJmL in (c), (d)) and climate forcings (CM5a in (a), (c) and ESM2m in (b), (d)). White pixels correspond to pixel without OC measurement, then no K_f calcul and where thus exclude.

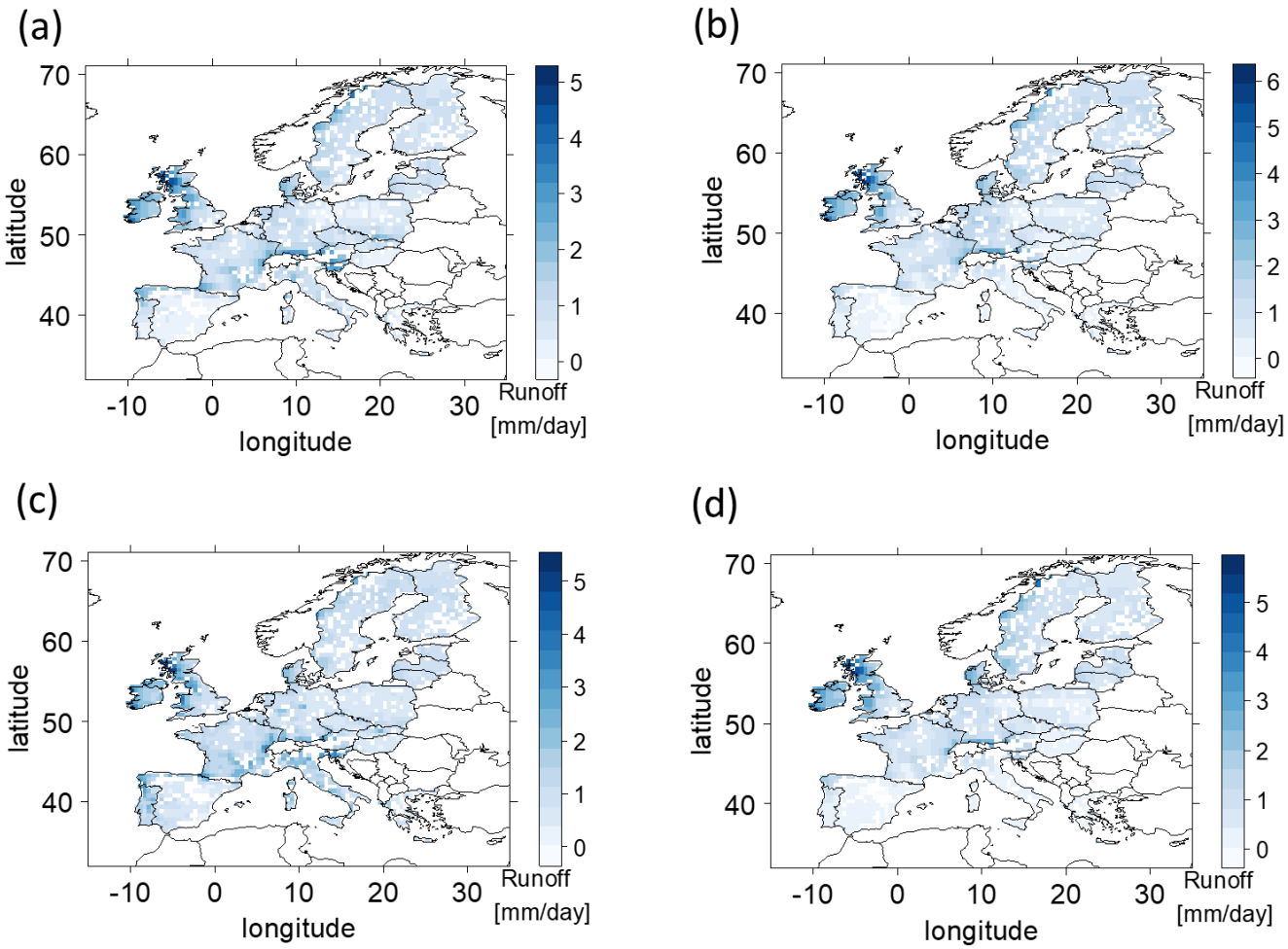

Fig S3: Mean of Cu runoffs for the RCP 2.6 and 2091-2095 period for the different combinations of land surface schemes (ORCHIDEE in (a), (b) ; LPJmL in (c), (d)) and climate forcings (CM5a in (a), (c) and ESM2m in (b), (d)). White pixels correspond to pixel without OC measurement, then no K_f calcul and where thus exclude.

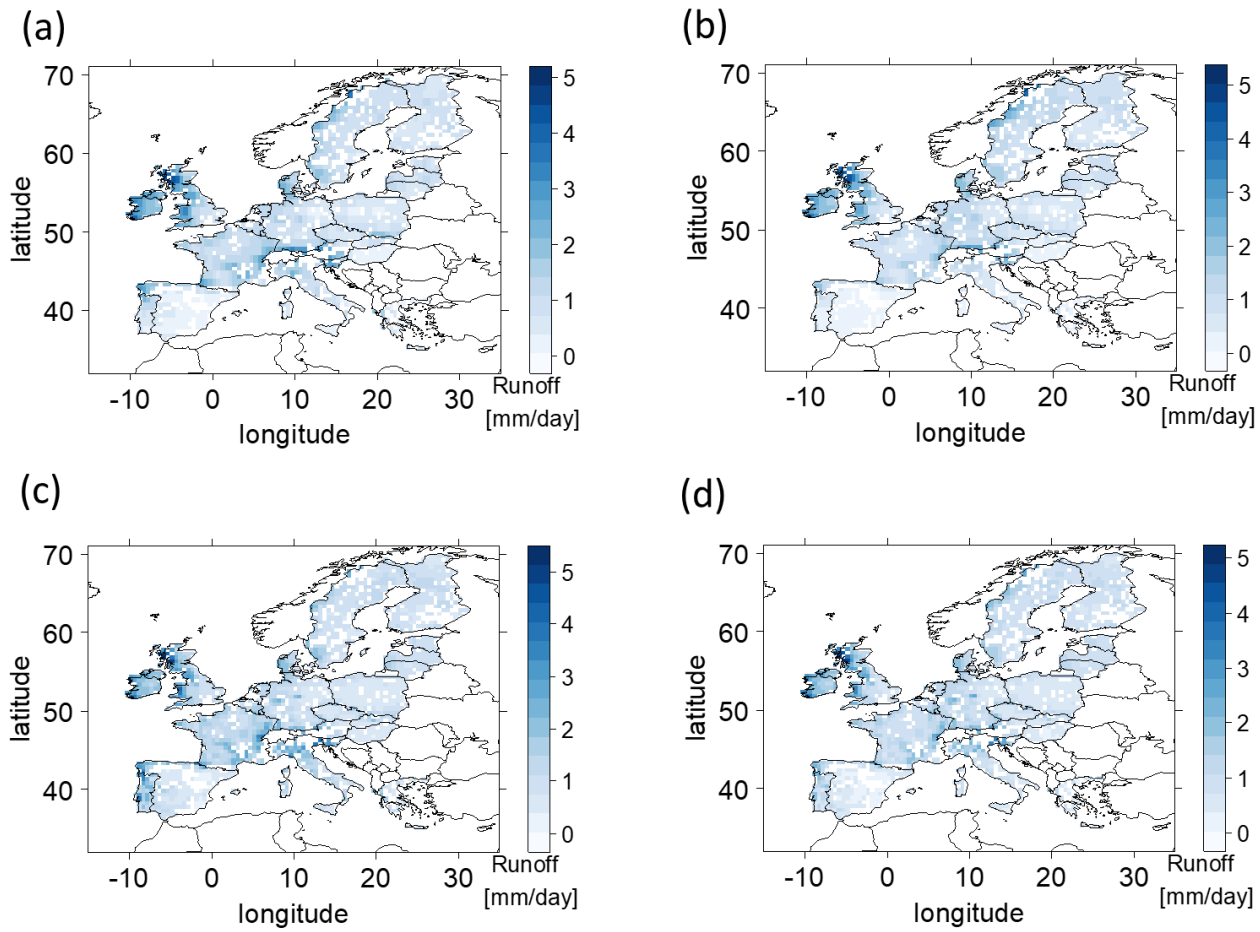

Fig S4: Mean of Cu runoffs for the RCP 6.0 and 2051-2055 period for the different combinations of land surface schemes (ORCHIDEE in (a), (b); LPJmL in (c), (d)) and climate forcings (CM5a in (a), (c) and ESM2m in (b), (d)). White pixels correspond to pixel without OC measurement, then no K_f calcul and where thus exclude.

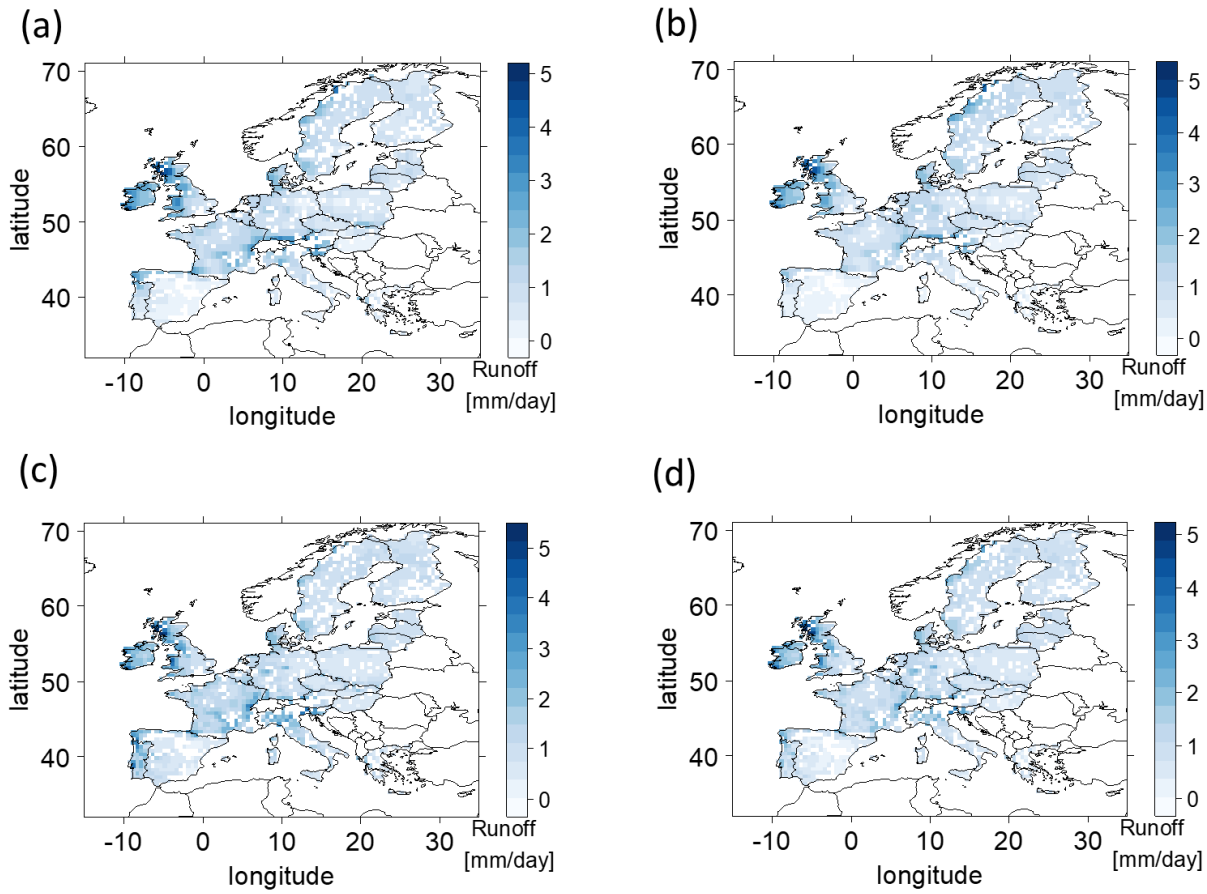

Fig S5: Mean of Cu runoffs for the RCP 6.0 and 2091-2095 period for the different combinations of land surface schemes (ORCHIDEE in (a), (b) ; LPJmL in (c), (d)) and climate forcings (CM5a in (a), (c) and ESM2m in (b), (d)). White pixels correspond to pixel without OC measurement, then no K_f calcul and where thus exclude.