

Online Resource 1

Geographically Weighted Regression (GWR) statistics and Geographically Weighted Regression – Kriging (GWRK) model validation for the periods 1891-1930 and 1981-2010

Month/Season	GWR 1891 – 1930* n=327		GWR 1981 – 2010* n=204		GWRK validation 1891 – 1930 [mm] n=40				GWRK validation 1981 – 2010 [mm] n=40			
	R ² adj.	STE	R ² adj.	STE	Min	Max	ME	MAE	Min	Max	ME	MAE
Jan	0.61	11.36	0.67	6.74	-18.05	9.95	-1.72	4.76	-17.51	16.09	-1.20	4.49
Feb	0.64	8.54	0.74	4.60	-16.33	5.68	-1.17	3.06	-8.75	8.72	-1.04	3.22
Mar	0.70	7.55	0.77	5.02	-10.00	7.25	-1.31	3.21	-12.72	8.58	-1.28	3.72
Apr	0.75	7.14	0.76	3.97	-10.09	7.36	-0.69	2.96	-7.96	10.03	-0.62	2.70
May	0.75	7.55	0.72	6.10	-13.48	8.70	-0.35	3.83	-15.19	8.37	-0.80	3.74
Jun	0.76	8.49	0.67	8.23	-17.25	9.44	-1.39	4.29	-14.38	12.47	-0.93	4.15
Jul	0.78	9.90	0.69	8.19	-22.08	12.53	-1.96	5.08	-15.44	16.17	-0.43	5.65
Aug	0.78	7.81	0.77	6.26	-19.43	9.78	-1.28	3.76	-15.67	8.84	-1.77	3.68
Sep	0.84	5.83	0.80	5.25	-10.07	6.95	1.89	5.89	-11.95	8.50	-1.16	3.52
Oct	0.80	6.86	0.75	3.87	-9.29	6.92	-0.80	2.83	-6.37	5.55	-0.64	2.21
Nov	0.74	7.35	0.74	5.01	-10.27	7.55	-1.02	2.81	-9.76	11.07	-0.57	3.84
Dec	0.63	10.58	0.75	5.97	-14.14	7.06	-1.25	3.67	-10.95	13.20	-1.15	4.19
Winter	Annual and seasonal maps were calculated as the sums of monthly maps				-44.84	21.87	-4.17	10.70	-29.02	35.88	-3.51	11.83
Spring					-24.78	16.75	-2.36	8.52	-27.70	24.62	-2.79	9.19
Summer					-49.32	18.77	-4.65	11.90	-33.56	37.49	-3.22	11.67
Autumn					-5.82	30.33	16.07	16.51	-25.34	21.54	-2.46	8.44
Year					-92.97	79.43	4.89	33.46	-89.21	88.96	-11.97	34.05

*residuals of all GWR models were significantly ($p < 0.05$) autocorrelated according to Moran's I statistics;

STE – standard error of estimation, ME – mean error, MAE – mean absolute error