



Supplement of

Mid-Holocene Intertropical Convergence Zone migration: connection with Hadley cell dynamics and impacts on terrestrial hydroclimate

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Table S1. Annual precipitation (unit: mm/year) difference between the MH and PI from the pollen proxy dataset adapted from Herbert and Harrison (2016) and Lowry and McGowan (2024). SE denotes the pooled standard error.

Latitude(°)	Longitude(°)	MAP	SE
-43	145	33.9	±316.12
-43	147	488.81	±400.77
-43	149	340.52	±337.83
-41	145	-192.24	±362.11
-41	147	-134.7	±351.44
-39	141	-1.39	±345.53
-39	143	127.76	±320.8
-39	145	-34.94	±332.51
-39	147	648.35	±589.47
-37	141	344.4	±314.35
-37	143	435.95	±350.25
-37	145	733.33	±310.24
-37	147	347.46	±387.13
-37	149	236.91	±338.02
-37	151	-118.95	±294.92
-35	115	94.1	±405.65
-35	117	360.51	±361.18
-35	119	145.4	±315.22
-35	139	337.95	±409.06
-35	143	-6.69	±294.87
-35	149	218.66	±346.99
-35	151	92.32	±304.07
-33	115	149.26	±354.93
-33	141	350.91	±300.04
-33	151	329.92	±315.23
-31	115	974.56	±323.65
-31	127	366.88	±330.12
-31	139	227.16	±334.44
-31	143	9.63	±295.29
-31	151	529.72	±328.49
-27	153	-100.25	±412.28
-25	153	-35.77	±320.7
-17	127	105.82	±300.74
-17	145	896.86	±476.2
-17	147	-2065.91	±630.63
-15	127	746.57	±357.96
-15	137	298.54	±298.73
-15	145	137.11	±319.76
-13	137	37.03	±334.55
-13	141	-789.8	±330.85
-13	143	8.88	±363.29
-11	143	-22.07	±334.56

Table S2. Alpha index difference between the MH and PI from the pollen proxy dataset adapted from Herbert and Harrison (2016) and Lowry and McGowan (2024). SE denotes the pooled standard error.

Latitude(°)	Longitude(°)	Alpha	SE
-43	145	0	±0.0971
-43	147	0.0265	±0.102
-43	149	0.0152	±0.1098
-41	145	-0.1337	±0.0983
-41	147	-0.1781	±0.1527
-39	141	-0.0532	±0.1302
-39	143	0.0414	±0.1116
-39	145	-0.0495	±0.1451
-39	147	-0.0145	±0.1072
-37	141	0.2339	±0.1195
-37	143	0.0931	±0.14
-37	145	0.2544	±0.1102
-37	147	0.065	±0.129
-37	149	-0.017	±0.1211
-37	151	-0.1508	±0.0984
-35	115	0.1778	±0.1646
-35	117	0.2084	±0.1407
-35	119	0.1549	±0.1452
-35	139	0.2376	±0.1469
-35	143	-0.0034	±0.0971
-35	149	-0.0315	±0.1181
-35	151	0.0283	±0.109
-33	115	0.1347	±0.1438
-33	141	0.5122	±0.1006
-33	151	0.1332	±0.1018
-31	115	0.3877	±0.1244
-31	127	0.3249	±0.1703
-31	139	0.1824	±0.1683
-31	143	0.0089	±0.0987
-31	151	0.2113	±0.1127
-27	153	-0.0817	±0.1585
-25	153	0.0299	±0.1049
-17	127	0.2538	±0.1376
-17	145	0.2457	±0.1148
-17	147	-0.2435	±0.1209
-15	127	0.349	±0.114
-15	137	0.3037	±0.156
-15	145	0.0228	±0.106
-13	137	0.0786	±0.1244
-13	141	0.2548	±0.1142
-13	143	0.0401	±0.117
-11	143	0.0486	±0.1153

References

Herbert, A. V. and Harrison, S. P.: Evaluation of a modern-analogue methodology for reconstructing Australian palaeoclimate from pollen, *Review of Palaeobotany and Palynology*, 226, 65–77, 2016.

Lowry, A. L. and McGowan, H. A.: Insights into the Australian mid-Holocene climate using downscaled climate models, *Climate of the Past*, 20, 2309–2325, 2024.