

## Supplementary data

### Late Holocene temperature variability in Tasmania inferred from borehole temperature data

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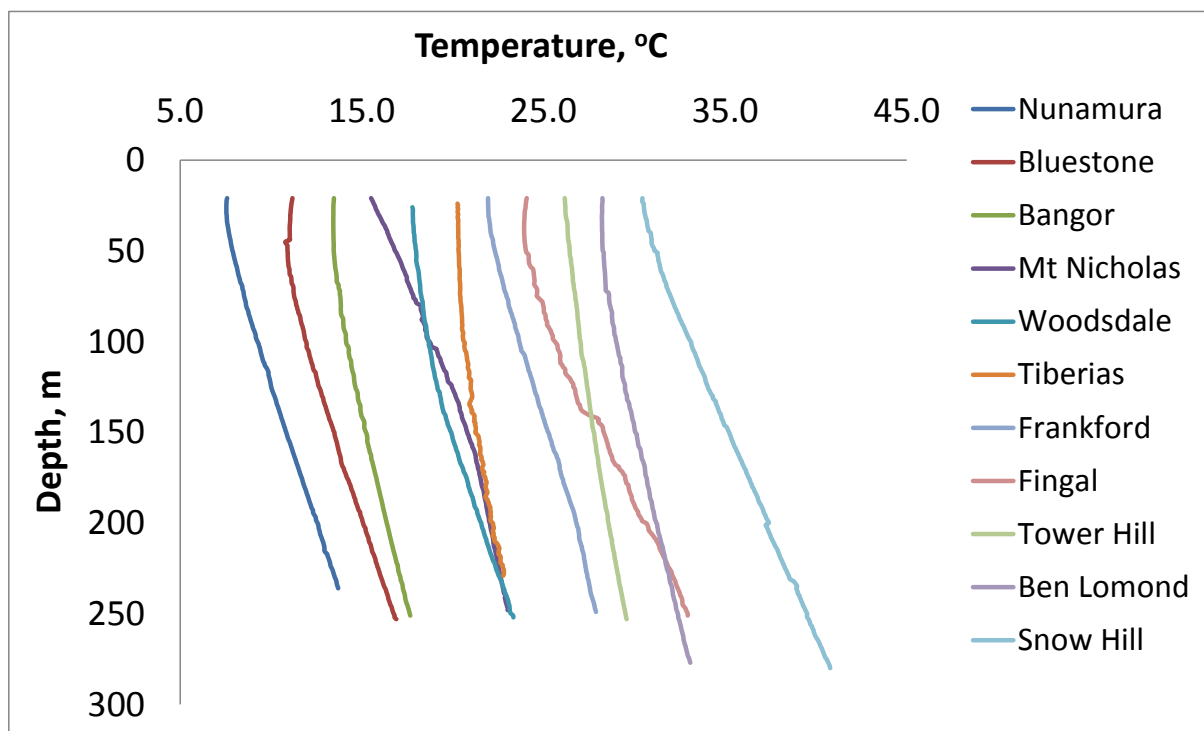
**Table S1: Geologic, geographic and topographic features of the Tasmanian borehole network. \*Boreholes located in variable lithologies and formation \*\* Boreholes with very high model misfit and were not considered for regional average of GSTH. MG = Mathinna Group mudstones and siltstones, PSG = Parmeener Super Group upper (mudstones, siltstone) and lower (tillites) , JD = Jurassic Dolerite, TC = Tertiary Conglomerate.**

Hole Name	Depth, m	Elevation, m	Distance from coast, km	Ground Cover	Slope	Aspect	Relief	MGA94 Northing	MGA94 Easting	Lithology	Thermal conductivity range	Sum sq misfit	Area misfit	Max dT in last 500 Years
Bangor	251	204	20	Cut Forest	5.0	173	135	5440427	508572	MG	2.06-3.77	0.28	3.65	1.79
Beaconsfield*	249	90	15	Forest	5.6	14	92	5439884	489244	JD/PSG	2.28-2.34	0.15	1.73	1.57
Ben Lomond	277	694	60	Forest	1.1	21	318	5402059	546613	MG	3.87-4.41	0.16	1.09	1.3
Bluestone Tier	253	353	11	Forest	4.4	297	205	5300093	571901	JD	2.07-2.18	0.53	4.05	1.44
Cambridge	236	43	2	Grass	4.5	61	246	5261742	534378	TC	1.93-2.22	1.12	4.23	1.91
Charlton	251	242	42	Grass	1.0	34	65	5339821	545174	JD	2.23-2.44	2.31	16.24	1.62

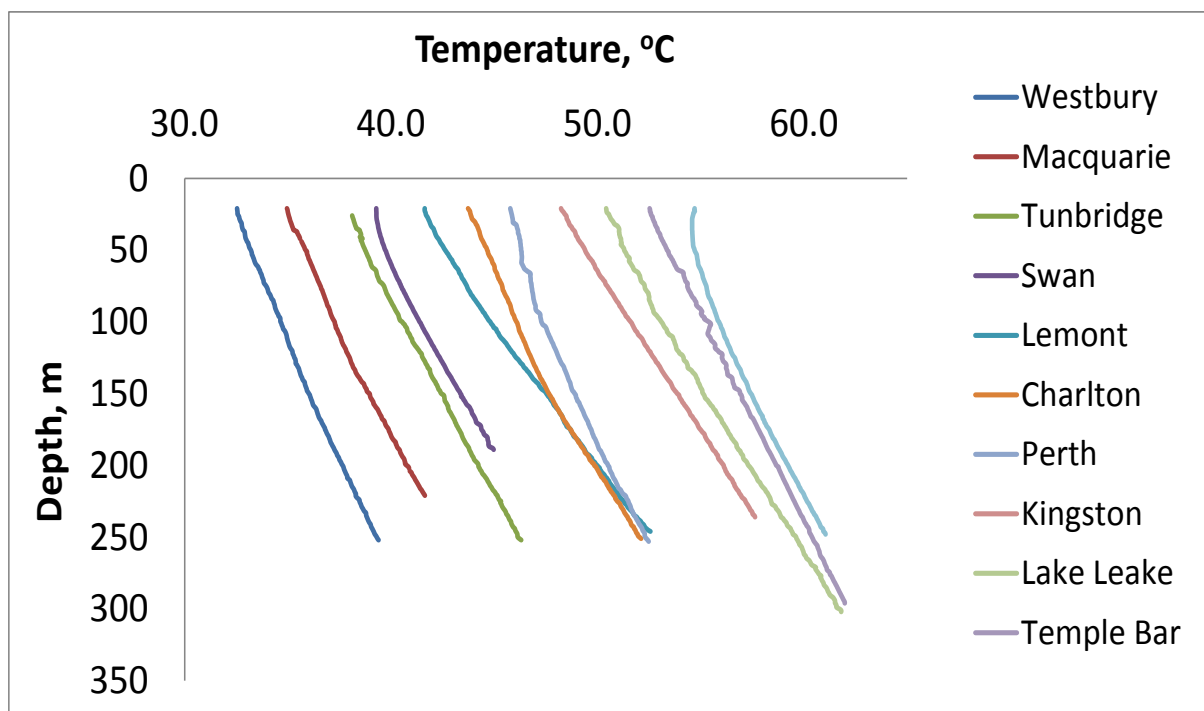
Elizabeth	299	439	45	Forest	2.2	100	199	5356701	549501	JD	1.99-2.27	0.82	8.53	1.1
Epping	289	215	74	Grass	1.7	95	75	5382606	533251	JD	1.87-2.18	1.73	16.90	1.54
Fingal*	251	577	17	Forest	6.1	87	337	5380292	589312	JD/uPSG	0.68-2.53	3.61	10.18	1.85
Frankford*	249	289	38	Forest	1.0	146	151	5416602	490171	JD/uPSG	2.17-3.26	0.50	5.83	1.2
Kingston	236	287	60	Grass	4.5	314	88	5383093	547791	JD	1.88-1.97	0.14	2.42	0.57
Lake Leake	302	475	21	Forest	2.5	174	147	5338586	568510	JD	1.96-2.18	0.65	4.78	1.63
Lemont	246	333	36	Forest	4.4	295	151	5322898	547437	JD	2.09-2.31	0.60	5.38	1.73
Lisle	247	307	24	Forest	1.3	28	468	5437495	528218	MG	2.32-4.8	0.10	1.37	1.03
Macquarie*	221	295	68	Grass	5.6	33	234	5359621	526048	JD/uPSG	2.44-4.96	0.91	5.55	1.63
Marion Bay*	250	81	2	Grass	0.3	132	200	5260030	568645	Tb, JD, uPSG	2.02-2.93	2.55	10.59	1.78
Mt Nicholas*	248	398	20	Forest	7.0	335	471	5401440	587962	IPSG/MG	1.85-4.8	3.40	14.99	1.8
Murdunna**	245	139	5	Forest	8.0	344	161	5242021	573413	JD	2.13-2.42	62.15	51.94	6.49
Native Hut*	249	378	25	Forest	5.0	87	249	5284634	530061	uPSG/JD	2.19-4.48	8.91	16.77	1.85
Nunamara*	236	727	47	Forest	7.3	151	410	5415737	528262	JD/IPSG	2.17-2.47	0.09	0.79	1.21
Oatlands**	249	526	52	Grass	5.0	23	115	5319896	531347	JD	1.96-3.18	33.50	60.22	4.55
Perth	253	200	61	Grass	3.1	114	91	5399080	513500	JD	2.07-2.41	1.73	10.31	1.86
Rheban	241	79	4	Grass	3.0	165	226	5279380	573260	JD	2.05-2.23	0.85	3.09	1.71
Rocherlea	250	49	40	Grass	5.0	273	178	5420496	509171	JD	1.97-2.25	0.67	7.68	0.9
Runnymede	248	247	17	Grass	2.7	224	85	5280238	546175	JD	2.17-2.63	2.00	10.04	1.49
Snow Hill	280	749	26	Forest	3.7	158	162	5358389	572873	JD	1.99-2.25	0.51	3.42	1.59
Sorell*	248	50	1	Grass	1.7	90	81	5260122	550181	IPSG/JD	2.2-3.76	3.20	14.79	1.92
Swan	189	126	20	Forest	3.5	134	207	5359271	588108	JD	1.98-2.13	0.14	1.16	1.5
Temple Bar	296	353	57	Forest	5.2	289	162	5403592	530426	JD	2.28-2.49	0.76	4.51	0.92
Tiberias*	253	437	38	Grass	0.5	266	119	5301300	531690	uPSG	1.7-4.5	1.35	5.97	1.91
Tooms**	263	414	16	Forest	0.3	8	177	5319894	567354	JD	1.8-2.07	9.27	30.43	2.64
Tower Hill	253	584	33	Forest	2.2	2	178	5399699	573964	MG	4.06-5.23	0.16	3.72	0.83

Tunbridge*	252	252	57	Grass	2.5	134	27	5339428	529875	JD, uPSG, JD	1.83-2.39	0.72	5.90	1.03
Westbury	252	233	56	Forest	4.2	305	61	5396730	485940	JD	2.07-2.21	0.53	6.64	0.84
Weymouth	250	102	4	Forest	4.7	318	52	5457196	508409	MG	2.95-4.02	0.21	3.36	0.7
Woodsdale*	252	365	22	Forest	1.7	70	146	5296499	552007	uPSG/JD	2.28-4.54	3.39	17.07	1.81

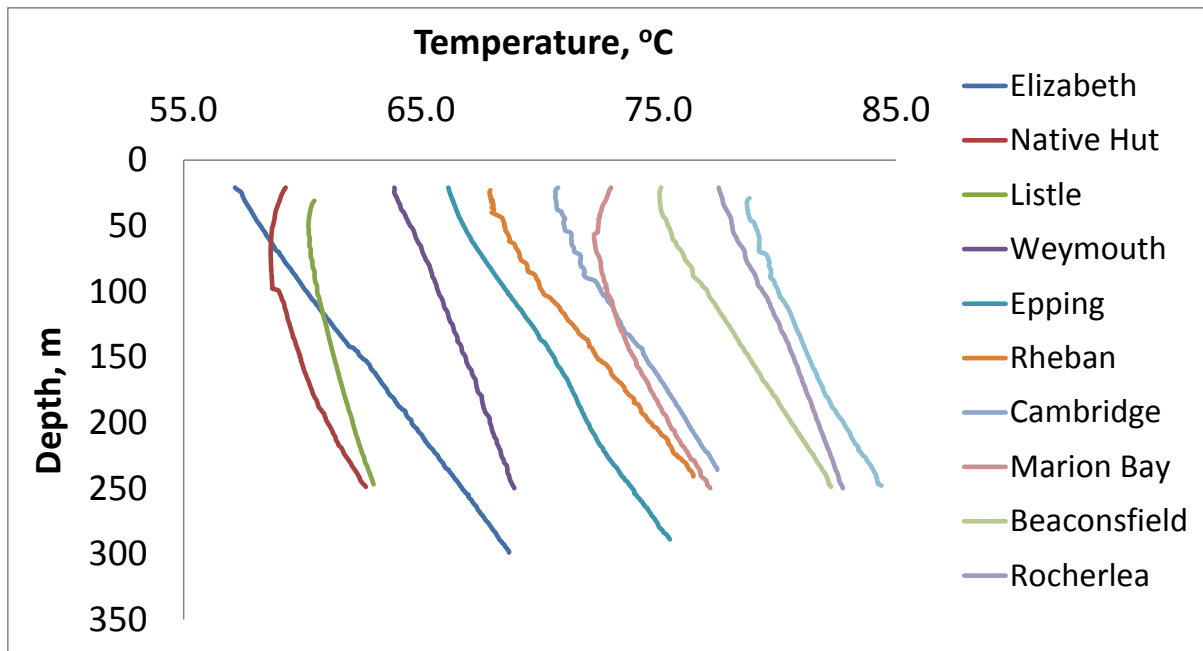
Temperature vs depth profile of 33 boreholes with high quality data:



(a)



(b)



(c)

Fig. S1 (a-c) Downhole temperature depth profiles of thirty three boreholes, which are categorised as having high quality data. Profiles are offset by 2°C at the top for clarity.

Variation in temperature gradient within and between boreholes is largely a function of thermal conductivity, with the exception of the reduction in temperature rise.