Late Mesozoic strike-slip faulting in Tasmania

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SUPPLEMENTARY PAPERS

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Table A1 Summary of fault striation data used in this paper.

Figure A2 Example photographs of fault striations and fault surfaces. (a) PO fault striations (dextral). Field of view 15 cm wide. (b) PO fault striation (sinistral).

Standard paper clip for scale. (c) RM striated surface (dextral). Geological hammer for scale. (d) Detail on lunate fractures on same RM surface (dextral) Figure A2c. Field of view 40 cm wide. (e) RO striated surface (dextral). Standard paper clip for scale. (f) Chlorite fibres attached to surface (sinistral). Field of view 3 cm wide. (g) Chlorite fibres attached to surface (sinistral). Field of view 10 cm wide. (h) Normal fault with grooves in clay matrix cutting across striated surfaces showing the strike slip features described in this paper.

Table A1 Summary of fault striation data used in this paper.

						S	sinistral	X	no evidence available	
						D	dextral	C	Slickenfibres nucleating from ledges	
						N	normal	PO, PT, RM, RO see text		
						R	reverse			
Movement sense										
						Used	Observed	Method	Reliability%	Mineralogy
		DipDir	Dip	Tr	Pl	Type				
BUTLERS GORGE										
439800	5319600	116	89	26	10	S	S	PO	85	
		122	89	32	12	S	X			
		311	89	40	32	S	X			
		110	68	31	25	S	X			
		192	81	105	18	D	D	C	70	CHL/ZEOL
		162	87	73	10	D	D	PO	80	
		202	89	112	21	D	D	C	70	CHL/CARB
		87	66	7	21	S	X			
		102	75	16	14	S	D	PT	70	
		352	83	81	8	D	D	C	60	
		100	74	12	8	S	S	C	85	CHL/CARB
		117	81	35	42	S	S	C	85	CHL/CARB
		188	83	100	13	D	D	C	85	
		133	75	216	24	S	S	C	95	CHL
		209	86	299	3	D	D	PT	75	
		190	84	279	5	D	X			
		191	84	101	2	D	X			
		286	88	16	3	S	X			
		165	85	76	6	D	X			
		92	69	11	21	S	D	PO	70	
		350	86	79	12	D	X			
		110	72	22	6	S	S	PT	70	
		186	82	276	2	D	D	PO	70	
		215	86	126	12	D	D	PO	70	
		121	83	36	35	S	X			
GROVE										
508700	5241700	49	55	56	55	N	X			
		46	56	59	55	N	N	PO	55	
		53	56	65	55	N	X			
		47	59	73	56	N	X			
		42	51	56	50	N	X			
		45	54	87	46	N	N	PO	55	
		45	54	54	54	N	N	PO	55	
		49	62	83	53	N	X			
		142	67	82	50	R	R	PO	70	
		295	85	20	45	S	S	C	60	CHL
		224	73	176	65	N	N	C	60	CHL
		199	80	172	79	N	N	C	90	CAL
		220	86	160	78	N	N	C	60	CHL
		30	58	15	57	N	X			
		26	77	67	73	N	X			
HUONVILLE										
500000	5227100	348	88	258	2	D	D	C	60	CAL
		340	87	250	4	D	D	C	70	
		158	89	68	6	D	X			
		243	80	155	10	S	S	C	55	
		262	84	174	22	S	S	C	55	
		86	88	175	20	S	X			
		352	89	82	5	D	D	C	70	CAL CHL
		112	87	202	0	S	S	C	70	CHL
		154	86	64	3	D	D	C	95	
		148	82	237	5	D	D	C	55	
		169	86	79	0	D	X			
		221	89	311	10	S	S	C	60	
		329	89	59	3	D	D	C	60	
		163	88	73	7	D	D	C	70	

						Movement sense				
						Used	Observed	Method	Reliability%	Mineralogy
504700	5234700	251	86	162	16	S	S	C	90	CAL
		254	89	164	5	S	S	C	90	CAL
		69	89	159	4	S	X			
		68	89	158	11	S	X			
SOUTHERN OUTLET										
525300	5247500	296	39	301	39	R	R	PO	70	CHL
		280	29	272	29	R	X			
		302	35	313	35	R	R	PO	70	
		194	84	105	7	D	X			CHL ZEO
		188	89	278	2	D	D	C	60	CHL
		266	31	302	26	R	X			
		190	85	280	3	D	X			CHL
		190	88	280	10	D	X			
		317	80	230	18	D	D	C	70	CHL
		150	89	240	20	D	D	RM	60	CHL
		239	34	238	34	R	R	C	55	CHL
		190	90	280	1	D	X			ZEOLITE
		269	86	356	33	S	S	C	80	CHL
		193	89	103	8	D	X			
		263	89	353	3	S	X			
		326	87	237	13	D	D	C	60	CHL
		321	86	231	3	D	X			ROUGH SURFACE
		269	85	359	5	S	S	PO	70	CHL
		263	76	345	28	S	S	C	90	CHL
		265	89	355	14	S	X			
		335	44	16	36	R	R	PO	70	
		286	23	292	23	R	R	C	90	CHL ZEO
OATLANDS										
528300	5314100	272	85	1	14	S	S	C	70	CHL
		286	89	16	10	S	X			
		23	89	293	12	D	X			
		45	89	315	16	D	D		52	
		54	83	325	6	D	D	PO	70	
		271	89	181	2	S	S	PO	70	
		40	89	310	5	D	D	OFFSET C	90	
		223	89	133	3	D	D	PO	70	
		223	83	312	9	D	D	C	55	
		265	71	179	10	S	S	PO	90	
LOWER PIEMAN										
349600	5375700	315	83	228	24	S	S	PO	60	
		19	67	290	2	D	D	PO	60	
		35	69	306	2	D	D	C	70	CHL ZEOL
		26	69	297	2	D	D	PO	60	
		144	77	54	2	S	S	PO	60	
		318	65	230	5	S	S	PO	60	
		315	69	226	4	S	S	PO	60	
		135	85	225	3	S	S	C	70	CHLORITE
		337	81	249	12	D	X			
		122	82	32	2	S	S	PO	60	
		110	90	20	4	S	S	PO	60	
		98	85	186	25	S	S	PO	75	CHL. Zeolite on T surface
		118	84	28	4	S	X			
		106	90	196	2	S	S	PT	60	
		292	81	202	2	S	S	C	60	CHL
348100	5375200	317	86	47	3	S	S	PO	60	
		315	82	44	5	S	D	C	60	
		358	84	268	1	D	D	PO	70	
		358	80	271	19	D	D	PO	70	
		330	73	242	8	D	D	PT	60	
347100	5375200	40	84	312	15	D	X			
		95	86	5	1	S	S	PO	70	
		306	71	35	2	S	S	PO	70	
		249	84	160	9	D	D	C	75	CHL

				Movement sense		Method	Reliability%	Mineralogy
				Used	Observed			
	300	71	29	4	S	PO	70	
	282	79	12	2	S	PO	70	
	10	76	281	3	D	X		
	22	17	66	12	R	R	PO/C	85
	350	76	264	17	D	X		
	14	35	72	20	R	R	PO	60
	43	80	132	8	D	D	RMcresc	90
	263	83	176	25	S	S	PT	60
Major Fault								
PROCTORS QUARRY								
525400	5249200	111	81	191	46	S	X	
		101	75	186	19	S	S	
		346	85	76	0	D	X	
		209	75	120	5	D	X	
		112	80	192	45	S	X	
		126	84	38	21	S	X	
		16	82	286	3	D	X	
		198	81	108	1	D	X	
		17	84	287	2	D	X	
		84	83	173	7	S	X	
		81	83	170	7	S	X	
		94	80	183	5	S	X	
		87	83	175	14	S	X	
		82	77	170	10	S	X	
		73	70	349	15	S	X	
		88	72	174	13	S	X	
		88	88	178	9	S	S	PO
		88	88	360	38	S	S	PO
		118	87	206	29	S	X	
		170	87	80	7	D	X	
		92	82	176	35	S	X	
		246	81	158	10	S	X	
		253	85	164	14	S	X	
		68	76	157	6	S	X	
		35	88	305	1	D	X	
		303	85	33	3	S	D	C
		58	88	147	15	S	X	
PORT ARTHUR								
567600	5223200	160	83	70	4	D	X	CHL
		22	88	112	8	D	X	
		148	86	59	10	S	X	
		20	89	110	14	D	X	OXIDE
		218	85	308	1	D	X	OXIDE
		201	84	113	18	D	X	OXIDE
		131	84	45	31	S	S	C
		201	86	112	10	D	X	70
		125	89	35	22	S	X	CHL
		161	85	72	16	D	X	CHL
		248	86	159	10	D	X	CHL
		296	88	206	9	S	X	OXIDE
		84	89	354	3	S	X	CHL
		42	88	132	11	D	X	CHL
		209	89	299	2	D	D	RM
		221	88	132	16	D	D	C
		118	89	28	6	S	S	OFFSET
		228	86	138	2	D	D	C
		67	86	156	16	D	D	C
		130	86	41	10	S	S	C
		242	84	153	11	D	D	C
RISDON BROOK DAM								
526800	5262100	329	86	239	6	D	S	PO
		46	84	318	20	S	X	
		186	89	276	7	D	X	
		359	85	88	14	D	D	RM
							60	
								CHL ZEO PY

Movement sense										
				Used	Observed	Method	Reliability%	Mineralogy		
		172	88	262	8	D	D	RM	60	
		166	87	76	2	D	X			
		152	84	241	8	D	D	RM	60	CHL ZEO PY
		152	81	242	1	D	D	C	70	CHL ZEO PY
		192	87	281	14	D	D	PO	70	
		171	86	261	6	D	D	C	70	ZEO
		76	82	165	7	S	S	RM	60	CLAY
		183	89	273	16	D	X			
		78	84	167	12	S	X			
		151	85	62	8	D	D	RM	65	CHL ZEO PY
		188	86	277	10	D	X			
		46	84	318	19	S	S	C	55	CHL ZEO PY
		340	86	250	2	D	D	C	65	CHL ZEO PY
		156	88	246	12	D	D	C	70	CHL ZEO PY
		340	87	251	16	D	D	RM	70	CHL ZEO PY
		145	87	234	10	D	S	C	60	CHL ZEO PY
		15	90	285	8	D	D	RM	55	CHL ZEO PY
		15	86	105	7	D	D	C	60	CHL
		168	86	258	4	D	D	RM	55	CHL
		152	88	242	6	D	X			
		32	86	303	16	D	D	C	60	ZEO
SANDFLY 514300	5241100	2	86	272	5	D	D	RO	55	CHL
		25	86	295	1	D	X			
		44	85	314	1	D	X			
		25	88	115	2	D	X			
		331	88	61	6	S	X			
		285	71	211	38	S	S	PO	55	PYR CHL CAL
		36	86	306	2	D	X			
		274	74	196	35	S	D	C	90	CAL
		350	83	261	7	D	X			
		324	47	50	4	S	S	C	60	
		299	82	27	13	S	S	C	60	
		281	90	11	15	S	X			
		344	86	254	6	D	D	PO	70	
		11	82	281	3	D	X			
		290	84	19	11	S	X			
		146	88	56	2	D	D	PO	70	
		128	89	218	4	S	X			
		344	88	254	9	D	S	PO	70	
		328	37	257	14	S	X			
		320	90	230	7	S	S	PO	70	
		332	88	62	2	D	D	OFFSET	70	
		91	88	1	8	S	X			
		24	89	294	7	D	X			
		19	87	289	5	D	S	PO	70	
		24	87	294	3	D	X			
		84	86	354	0	S	X			
		29	85	119	3	D	S	PO	70	
		314	89	44	11	D	D	C	90	CHL
		344	86	256	21	D	D	C	70	CHL
		127	87	38	11	D	D	C	90	CAL CHL
		85	82	174	5	S	S	PO	55	
		20	87	110	2	D	X			
CYGNET SYENITE 501500	EARLY STRIATIONS 522900	81	88	170	26	S	S	RM	90	MAJOR FAULT SURFACE
		352	61	336	60	R	D	PO	60	related
		60	63	340	19	R	D	PO	70	possible
		40	29	345	18	R	REV	C	60	early
TYENNA RIVER 487500	5274200	22	87	112	9	D	X			
		78	79	167	3	S	X			
		142	86	53	12	D	X			

Movement sense									
Used Observed Method Reliability% Mineralogy									
		145	89	55	2	D	X		CHL
		4	85	274	4	D	D	RM	90
		65	86	155	3	S	S	OFFSET	60
		77	87	166	11	S	S	C	65
		152	90	242	2	D	D	RM	90
		14	87	104	5	D	X		
		358	79	268	2	D	D	RM	55
		334	89	244	1	D	X		CHL
		171	89	261	0	D	D	RM	55
		335	89	65	2	D	D	RM	85
		338	81	249	6	D	X		CHL
		172	89	262	7	D	X		
		169	87	259	2	D	X		
ZEEHAN									
353000	5370000	219	84	309	0	D	D	PO	70
		328	86	238	0	S	S	PO	70
		230	86	319	10	D	D	PO	70
		225	86	314	10	D	D	PO	70
		214	89	124	2	D	D	PO	60
		230	85	319	10	D	D	PO	60
		226	78	311	21	D	D	C	70
		155	90	245	32	S	S	C	90
		36	77	126	2	D	D	C	60
		22	87	292	3	D	D	C	90
		214	79	303	4	D	S	PO	70
		105	75	18	12	S	S	PO	70
352500	5369600	336	88	66	6	S	x		
		139	85	228	8	S	S	PO	90
		127	86	47	1	S	S	PO	70
		314	77	229	20	S	S	PO	70
		355	89	265	1	D	X		
		161	87	72	10	S	X		
		144	87	233	10	S	R	C	55
352000	5369300	187	87	97	6	D	R	PO	70
		185	85	96	10	D	X		
		181	89	271	2	D	R	PO	70
		183	81	94	8	D	R	PO	75
		185	85	95	1	D	R	C	55
		184	89	274	1	D	R	PO	85
		188	86	99	12	D	R	PO	55
		188	89	98	15	D	R	PO	70
351700	5369400	182	87	93	12	D	R	PO	75
		152	83	242	3	S	R	PO	80
		162	80	74	12	S	X		
		195	85	285	0	D	R	PO	70
		211	89	301	15	D	R	PO	85
		183	89	93	14	D	R	PO	75
		160	86	70	6	S	S	PO	65
		26	89	296	7	D	R	PO	70
		21	89	111	9	D	R	PO	75
351400	5369500	128	85	218	1	S	X		
		125	89	215	2	S	X		
		127	86	216	16	S	S	RM	60
		128	88	218	7	S	X		
		121	78	209	8	S	R	C	60
		171	68	85	9	D	R	PO	90
		127	82	216	10	S	R	C	80
		133	68	219	10	S	R	C	80

Figure A2 Example photographs of fault striations and fault surfaces.

(a) PO fault striations (dextral). Field of view 15 cm wide.

(b) PO fault striation (sinistral). Standard paper clip for scale.

(c) RM striated surface (dextral). Geological hammer for scale.

(d) Detail on lunate fractures on same RM surface (dextral) Figure A2c. Field of view 40 cm wide.

(e) RO striated surface (dextral). Standard paper clip for scale.

(f) Chlorite fibres attached to surface (sinistral). Field of view 3 cm wide.

(g) Chlorite fibres attached to surface (sinistral). Field of view 10 cm wide.

(h) Normal fault with grooves in clay matrix cutting across striated surfaces showing the strike slip features described in this paper.