

Supplementary Material for “Ti solubility in
biotite at low pressure in metapelitic systems: the
Torres del Paine case”

Appendix A Biotite composition

Appendix B Binary plots

References

Henry, D.J., & Guidotti, C.V. (2002, April). Titanium in biotite from metapelitic rocks: Temperature effects, crystal-chemical controls, and petrologic applications. *American Mineralogist*, 87(4), 375–382, <https://doi.org/10.2138/am-2002-0401>

Table A1 Average compositions for biotites from samples of the different profiles.

Sample	N.	Crd-poor	Ti min	Ti max	Ti av.	1 σ	X _{Mg} min	X _{Mg} max	X _{Mg} av.	1 σ	Al av.	1 σ	Slope	T (°C)	P (bar)
09TP13	77	2	0.39	0.48	0.44	0.02	0.39	0.48	0.41	0.00	3.22	0.07	-0.45	563	734
09TP14	43	8	0.28	0.53	0.46	0.07	0.28	0.53	0.36	0.01	3.23	0.06	-0.41	549	728
09TP15	60	6	0.32	0.51	0.42	0.04	0.32	0.51	0.37	0.02	3.46	0.05	-0.39	538	724
09TP18	48	1	0.35	0.45	0.41	0.02	0.35	0.45	0.39	0.01	3.45	0.05	-0.35	522	718
09TP19	17	0	0.33	0.45	0.40	0.03	0.33	0.45	0.38	0.01	3.43	0.12	-0.31	507	711
10P134	86	10	0.36	0.53	0.47	0.03	0.36	0.53	0.36	0.01	3.33	0.05	-0.44	557	733
10P138	29	0	0.40	0.55	0.46	0.04	0.40	0.55	0.40	0.01	3.36	0.06	-0.49	578	741
10P144	52	0	0.39	0.52	0.47	0.03	0.39	0.52	0.42	0.01	3.22	0.02	-0.54	598	750
10P72	36	0	0.39	0.50	0.45	0.03	0.39	0.50	0.32	0.01	3.50	0.03	-0.53	569	748
10P91	63	0	0.37	0.53	0.47	0.04	0.37	0.53	0.34	0.01	3.44	0.05	-0.52	562	746
10P92	65	2	0.35	0.56	0.47	0.06	0.35	0.56	0.34	0.01	3.30	0.05	-0.53	569	748
10P93	76	0	0.41	0.56	0.51	0.03	0.41	0.56	0.33	0.00	3.24	0.03	-0.54	572	749
07TP55	39	0	0.14	0.18	0.17	0.01	0.14	0.18	0.39	0.01	3.69	0.06	-0.02	486	1048
07TP56	50	2	0.19	0.28	0.24	0.02	0.19	0.28	0.37	0.01	3.58	0.04	-0.15	514	1026
07TP58	49	0	0.20	0.42	0.34	0.04	0.20	0.42	0.34	0.01	3.62	0.04	-0.28	543	994
07TP59	62	0	0.25	0.40	0.34	0.03	0.25	0.40	0.34	0.01	3.55	0.05	-0.35	558	988
07TP60	44	0	0.26	0.48	0.39	0.05	0.26	0.48	0.35	0.02	3.55	0.04	-0.39	567	972
12P24	39	0	0.41	0.56	0.50	0.03	0.41	0.56	0.39	0.00	3.31	0.05	-0.52	580	747
12P25	31	0	0.38	0.52	0.48	0.03	0.38	0.52	0.36	0.00	3.29	0.04	-0.48	563	742
12P26	23	0	0.40	0.49	0.45	0.03	0.40	0.49	0.40	0.01	3.37	0.06	-0.45	549	739
12P27	20	0	0.34	0.42	0.39	0.03	0.34	0.42	0.41	0.01	3.35	0.07	-0.39	525	732

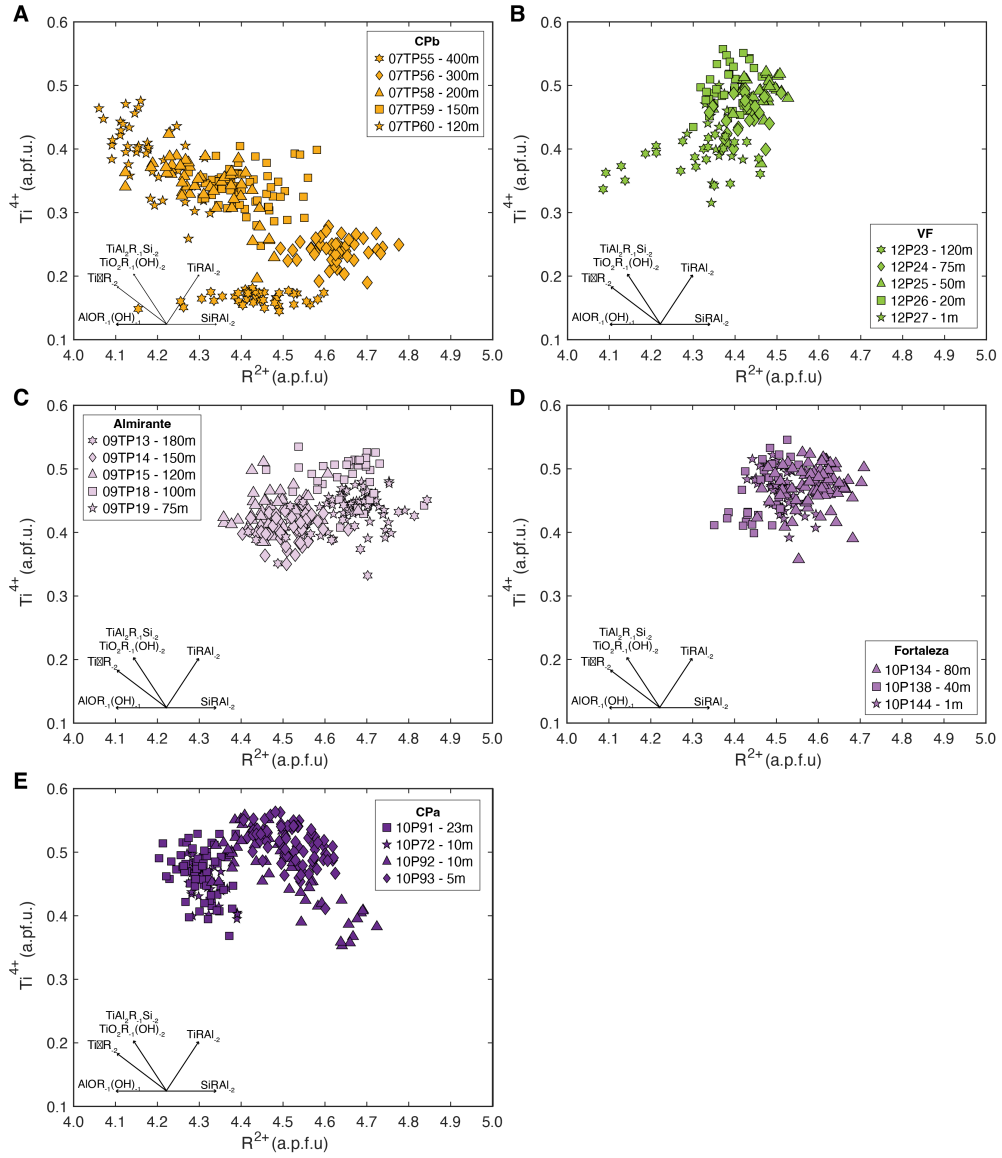


Figure B1 Variation of Si vs Ti within each studied profile in the TPIC aureole: **A)** Cuerno Principal below. **B)** Valle del Francés. **C)** Almirante. **D)** Fortaleza. and **E)** Cuerno Principal above. Grey scale is used to show to the proximity to the intrusion.. The darkest color is used to show the sample furthest away from the intrusion and the lightest to show the closest sample. Arrows for the possible exchange vectors in biotite. directly and indirectly. relevant for the Ti incorporation in all the samples considered for Torres del Paine are also included for comparison (Henry & Guidotti, 2002). Biotite analyses were normalized to 44 equivalent negative charges. Only analyses from cordierite-rich domains were considered.

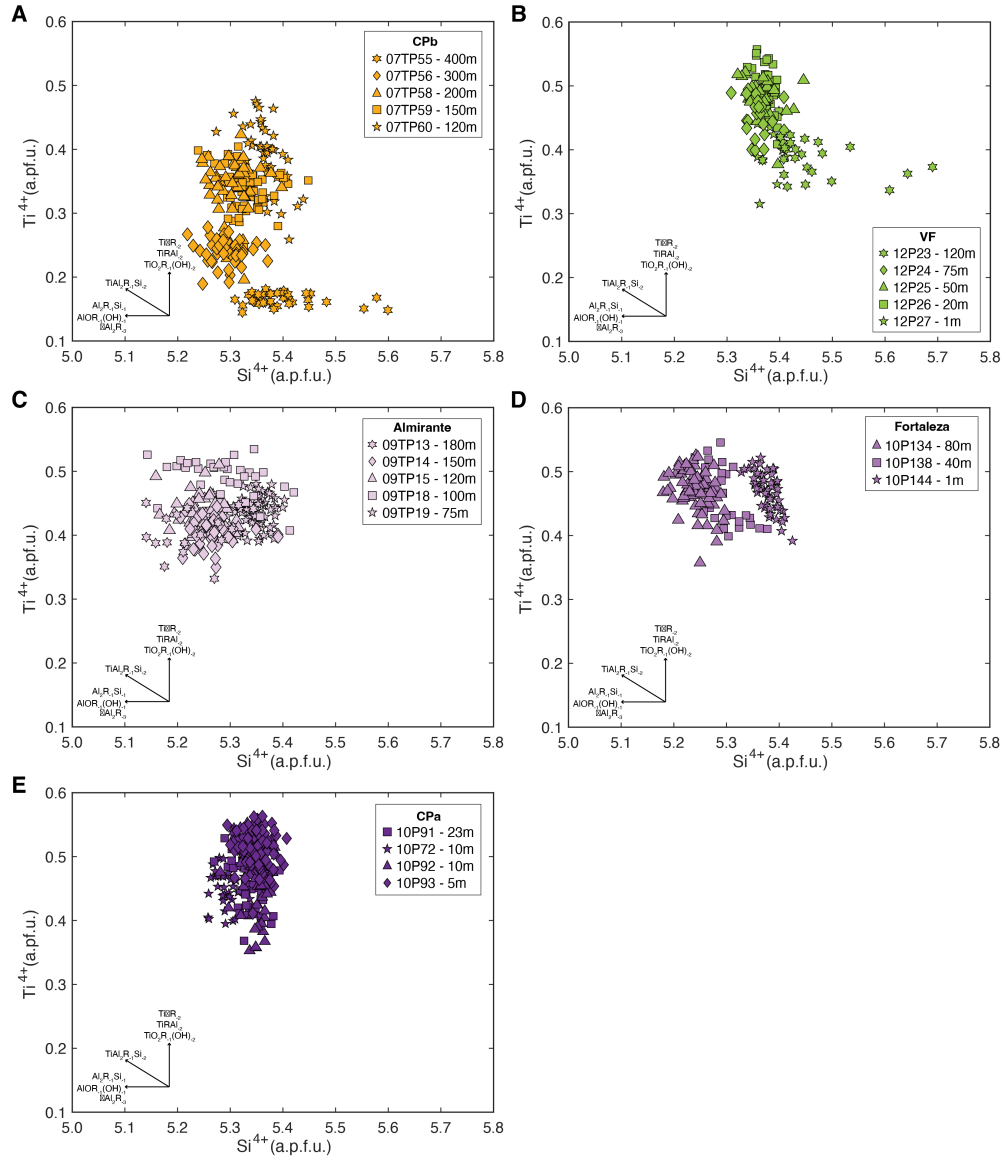


Figure B2 Variation of the sum of the divalent cations R^{2+} ($Fe^{2+} + Mg + Mn$) vs Ti within each studied profile in the TPIC aureole: **A)** Cuerno Principal below. **B)** Valle del Francés. **C)** Almirante. **D)** Fortaleza. and **E)** Cuerno Principal above. Grey scale is used to show to the proximity to the intrusion.. The darkest color is used to show the sample furthest away from the intrusion and the lightest to show the closest sample. Arrows for the possible exchange vectors in biotite, directly and indirectly, relevant for the Ti incorporation in all the samples considered from Torres del Paine are also included for comparison (Henry & Guidotti, 2002). Biotite analyses were normalized to 44 equivalent negative charges. Only analyses from cordierite-rich domains were considered.