Supplementary Table 1. U-Th baddeleyite results for Campi Flegrei lavas and Phalaborwa reference

Grain number	(^{238}U)/(^{232}Th)	1σ	(^{230}Th)/(^{232}Th)	1σ	U ppm[a]	%246[b]
Accademia						
ACC2_1_b47	32.4	0.4	3.33	0.17	10200	86.6
ACC2_1_b55	26.4	0.7	2.58	0.29	7400	91.1
ACC2_1_b52	30.1	0.3	3.30	0.56	4980	76.4
ACC2_1_b41	54.2	2.3	5.00	1.15	3150	86.4
ACC2_1_b37	41.4	0.5	3.49	0.28	3880	90.1
ACC2_1_b48	52.3	2.7	3.83	0.62	172	82.8
ACC3_1_b35	37.5	0.5	2.44	0.16	141	88.8
ACC3_1_b20	46.0	0.9	3.48	0.26	2200	84.3
ACC3_1_b30	87.2	1.1	4.46	0.70	7040	98.0
ACC3_1_b27	36.6	2.2	2.79	0.31	5680	90.7
ACC3_1_b29	105	2	5.99	1.03	1980	79.0
ACC3_1_b47	53.9	1.9	3.75	0.99	7390	64.3
ACC2_2_b24	38.7	0.8	3.30	0.17	5040	95.9
ACC2_2_b6	47.8	1.0	2.97	0.27	6640	94.3
ACC2_2_b7	88.1	3.5	5.77	0.70	2050	92.8
ACC2_2_b11	23.4	0.3	3.72	0.32	3570	85.2
ACC2_2_b51	42.7	1.0	4.01	0.81	11800	96.2
ACC2_2_b31	33.2	0.4	2.25	0.24	8450	93.1
ACC3_2_b25	25.7	1.9	2.58	0.37	11400	63.6
~~**ACC3_2_b28**~~	~~113~~	~~5~~	~~12.9~~	~~6.7~~	~~9660~~	~~74.9~~
ACC3_2_b36	26.0	2.5	2.08	0.3	4420	89.8
ACC4_1_b47	*57.9*	*2.9*	*8.84*	*0.83*	*6280*	*72.1*
~~**ACC4_1_b5**~~	~~25.3~~	~~0.3~~	~~2.96~~	~~0.32~~	~~5350~~	~~62.9~~
~~**ACC4_2_b41**~~	~~41.6~~	~~0.7~~	~~3.82~~	~~0.38~~	~~4890~~	~~61.3~~
ACC4_2_b36	48.7	1.0	3.31	0.39	6030	84.7
~~**ACC4_2_b38**~~	~~26.7~~	~~0.3~~	~~3.18~~	~~0.32~~	~~4560~~	~~57.5~~
~~**ACC4_2_b12**~~	~~97.9~~	~~2.3~~	~~28.0~~	~~4.9~~	~~3160~~	~~1.89~~
~~**ACC4_2_b43**~~	~~42.7~~	~~0.9~~	~~2.86~~	~~0.44~~	~~9960~~	~~32.4~~
~~**ACC4_2_b44**~~	~~38.6~~	~~0.4~~	~~5.10~~	~~0.64~~	~~16500~~	~~50.1~~
~~**ACC4_2_b9**~~	~~34.4~~	~~0.7~~	~~2.57~~	~~0.5~~	~~383~~	~~1.85~~
ACC_25	53.5	1.5	4.42	0.35	37100	-47.8
ACC_23	48.3	1.4	3.36	0.36	88800	61.8
ACC_16	27.4	0.9	0.39	2.25	56800	13.1
Astroni						
AS_1_badd8	44.3	0.7	1.74	0.46	79000	83.5
AS_1_badd9	42.4	0.9	3.58	0.34	190000	49.2
AS_1_badd12	191	4.2	8.55	6.06	41800	8.8
AS_1_badd7	45.4	1.1	3.32	0.33	246000	61.2
AS_2_badd20	77.1	2.8	5.78	1.15	44700	35.9
~~**AS_2_badd11**~~	~~23.1~~	~~1.1~~	~~0.37~~	~~0.87~~	~~1190000~~	~~-59.8~~
~~**AS_2_badd14**~~	~~2.20~~	~~0.4~~	~~3.07~~	~~0.79~~	~~106000~~	~~72.0~~
AS_2_badd16	42.5	0.7	3.31	0.24	423000	84.8

AS_2_badd15	36.8	0.8	3.51	0.42	110000	72.5
AS_2_badd13	48.6	1.1	5.59	0.74	110000	55.8
AS_1_6	25.2	1.2	2.41	1.88	46500	86.0
AS_1_5	105	4	6.06	3.55	34200	100
AS_1_badd3	58.6	1.2	2.92	0.58	185000	9.3
AS_1_badd10	103	4	7.21	2.73	50000	74.9
AS_1__1_badd9	38.7	0.8	1.77	0.84	233000	-3.4
AS_1_2_badd1	44.8	2.5	3.23	0.50	66800	58.8
AS_1_2_badd8	45.9	1.0	3.25	0.48	242000	37.6
AS_1_2_badd7	46.9	1.0	2.90	0.48	130000	7.7
AS_1_2_badd4	129	3	9.04	2.79	41000	69.9
Cuma						
Cuma_1_1	23.4	0.8	9.40	1.01	19600	90.6
Cuma_3_1	51.6	3.1	20.4	1.6	22800	96.0
~~**Cuma_3_3**~~	~~10.8~~	~~0.5~~	~~13.1~~	~~1.1~~	~~345000~~	~~59.5~~
Cuma_1_2	0.30	0.01	1.86	0.06	98400	89.4
Cuma_4_2	1.77	0.31	6.41	1.81	78800	91.2
Cuma_4_3	41.8	1.7	14.0	1.8	13300	91.4
Cuma_5_3	29.6	2.6	12.1	1.3	20600	96.7
Cuma_5_2	29.3	1.0	11.1	0.8	45700	93.0
Cuma_6_2	48.7	1.5	17.8	1.4	17300	92.6
Cuma_6_1	2.12	0.25	3.98	0.67	20000	76.2
~~**Cuma_5_1**~~	~~24.0~~	~~1.7~~	~~17.0~~	~~2.0~~	~~19000~~	~~94.0~~
CUMA1_badd	11.8	2.5	8.54	0.57	19100	85.9
CUMA2_badd	32.8	6.8	14.7	1.3	8020	94.8
Punta Marmolite						
PM3_1_14	38.0	1.7	16.2	1.2	37300	96.9
PM3_1_1	27.1	3.3	12.8	2.3	117000	96.1
PM3_1_7	14.7	0.5	8.20	0.40	29800	96.6
PM3_1_15	31.0	1.0	19.9	2.3	76700	97.8
PM3_2_9	24.8	1.7	12.3	1.4	25800	90.6
PM3_2_12	15.4	1.5	7.69	0.67	34300	91.8
PM3_2_8	3.12	0.25	3.43	0.38	14100	94.8
~~**PM1_2**~~	~~21.3~~	~~1.1~~	~~71.2~~	~~48.9~~	~~936000~~	~~100~~
~~**PM3_2_10**~~	~~15.9~~	~~0.8~~	~~7.57~~	~~1.73~~	~~33200~~	~~43.5~~
~~**PM4_1_4**~~	~~5.58~~	~~0.32~~	~~13.2~~	~~2.7~~	~~13100~~	~~67.6~~
PM4_1_9	13.7	0.5	8.31	1.57	45500	95.8
~~**PM4_1_19**~~	~~6.54~~	~~0.79~~	~~72.9~~	~~11.8~~	~~14800~~	~~85.3~~
~~**PM4_2_2**~~	~~10.6~~	~~1.2~~	~~20.7~~	~~3.5~~	~~12800~~	~~60.3~~
~~**PM4_2_3**~~	~~11.5~~	~~1.4~~	~~30.7~~	~~4.6~~	~~29000~~	~~83.8~~
PM4_2_11	1.00	0.04	2.27	0.16	5600	90.9
~~**PM4_2_8**~~	~~23.1~~	~~0.9~~	~~22.6~~	~~3.7~~	~~38500~~	~~78.4~~
PM4_2_16	26.3	0.9	13.3	0.7	39400	93.4
PM4_2_17	19.3	0.7	11.7	0.8	25000	90.0
Phalaborwa reference						
Phalaborwa Al_UTH@1	200	26	230	19	1550	95.5

Phalaborwa Al_UTH@2	349	15	382	22	1010	98.2
Phalaborwa Al_UTH@3	763	26	711	50	1060	99.3
Phalaborwa PM1_UTH@4	364	11	334	30	1050	97.9
Phalaborwa PM1_UTH@5	877	27	894	50	1260	98.7
Phalaborwa PM1_UTH@6	602	28	590	42	1140	98.3
U/Th RSF = 1.14±0.04 (MSWD = 0.97)						
Phala_ACC2_1@1	226	2	217	14	167	98.6
Phala_ACC2_1@2	186	2	189	8	229	98.8
Phala_ACC2_1@3	373	5	377	23	140	98.0
Phala_ACC2_1@4	223	2	223	13	169	98.8
Phala_ACC2_1@5	272	3	273	7	615	99.2
ACC2_1@6	251	3	256	13	172	99.7
ACC3_1@1	395	4	403	28	141	97.5
ACC3_1@2	226	2	220	16	243	99.6
Phala_ACC2_2@1	123	1	123	4	436	99.5
Phala_ACC2_2@2	258	3	231	15	162	98.7
Phala_ACC2_2@3	245	3	250	13	156	98.3
Phala_ACC2_2@4	742	9	737	35	298	99.1
Phala_ACC3_2@1	353	9	394	19	471	99.6
Phala_ACC3_2@2	235	2	243	10	280	97.9
Phala_ACC4_1@1	326	3	308	7	1140	99.1
Phala_ACC4_1@3	412	4	431	10	1990	99.2
Phala_ACC4_2@1	295	3	324	19	305	99.4
Phala_ACC4_2@2	397	5	415	29	116	97.0
Phala_ACC4_2@3	176	2	178	6	501	99.0
Phala_ACC4_2@4	248	3	258	14	383	97.1
U/Th RSF = 1.22±0.01 (MSWD = 1.3)						
Phala_PM3_1@1	328	7	301	28	1830	94.1
Phala_PM3_1@2	393	9	347	20	4170	98.2
Phala_PM3_1@3	2895	97	2796	283	1950	98.1
Phala_PM3_1@4	217	5	198	14	2790	97.4
Phala_PM3_1@5	183	13	178	16	2980	99.6
Phala_PM3_2@1	606	21	560	131	2720	95.5
Phala_PM3_2@2	622	15	545	52	794	94.3
Phala_PM4_1@1	161	4	170	9	1880	97.1
Phala_PM4_1@2	326	7	420	38	573	93.4
Phala_PM4_2@1	358	8	424	30	1180	97.4
Phala_PM4_2@3	412	9	482	32	1180	97.5
Phala_PM4_2@4	333	7	332	21	1300	97.8
Phala_PM4_2@5	312	7	326	20	1880	98.1
U/Th RSF = 1.02±0.02 (MSWD = 2.1)						
Phala_AS_1@1	379	7	424	47	817	95.1
Phala_AS_1@2	241	4	237	12	2950	99.2

Phala_AS_1@3	382	6	421	20	3200	99.3
Phala_AS_1@4	330	6	332	19	2770	99.7
Phala_AS_1@5	215	4	208	21	790	91.5
Phala_AS_1@6	319	6	312	7	17800	99.8
Phala_AS_1@7	362	7	358	14	7430	99.5
Phala_AS_2@1	342	6	359	24	1740	94.1
Phala_AS_2@2	350	6	388	27	2550	97.8
Phala_AS_1_1@1	245	4	242	13	3580	98.7
Phala_AS_1_1@2	811	18	882	30	6080	99.2
Phala_AS_1_1@3	326	6	358	29	1990	98.9
Phala_AS_1_2@1	467	8	484	32	4080	99.1
Phala_AS_1_2@2	246	4	261	12	4050	98.9
U/Th RSF = 1.18±0.02 (MSWD = 0.92)						

Strikethrough: data discarded due to high 244.0381 interference or lack of Zr signal.
Italic: data plotted on the U-Th isochron, but excluded from regression line fit.
a: U concentration in ppm based on UO^+/Zr_2O_4 in sample relative to 91500 reference zircon. Because of a lack of a baddeleyite concentration standard, these values are only to evaluate relative differences; absolute values are not reliable because of the matrix difference between zircon and baddeleyite.
b: % 246: calculated as (246.028-244.0381) × 100 ÷ 246.028 from raw intensities.