

Lab. No.	Sample	DFT [mm]	<sup>238</sup> U [μg/g]	±	<sup>232</sup> Th [ng/g]	±	( <sup>234</sup> U/ <sup>238</sup> U)	±	( <sup>230</sup> Th/ <sup>238</sup> U)	±	( <sup>234</sup> U/ <sup>238</sup> U) <sub>ini</sub>	±	Age <sub>uncorr</sub> [ka]	±	Age <sub>corr</sub> [ka]	±
SW111	L1A-0.5	0.5	0.2947	0.0035	0.4468	0.0049	1.107	0.012	0.1468	0.0031	1.111	0.012	16.45	0.28	15.48	0.39
SW1	L1A-1.5	1.5	0.2811	0.0017	0.1056	0.0015	1.1018	0.0018	0.1573	0.0013	1.1066	0.0019	17.00	0.14	16.76	0.15
SW41	L1A-2.5	2.5	0.1007	0.0006	0.0089	0.0002	1.0992	0.0044	0.1632	0.0015	1.1042	0.0046	17.50	0.19	17.48	0.19
SW9	L1A-5.3	5.3	0.3165	0.0021	0.0000	0.0000	1.0923	0.0025	0.1654	0.0014	1.0970	0.0026	17.86	0.16	17.86	0.16
SW2	L1A-6.5	6.5	0.3006	0.0016	0.0000	0.0000	1.0895	0.0015	0.1754	0.0013	1.0945	0.0015	19.10	0.15	19.10	0.15
SW17	L1A-9.5	9.5	0.3290	0.0019	0.0278	0.0004	1.0913	0.0016	0.1792	0.0010	1.0965	0.0017	19.57	0.12	19.52	0.13
SW10	L1A-10.8	10.8	0.2743	0.0019	0.4843	0.0060	1.0977	0.0043	0.1811	0.0033	1.1024	0.0045	20.75	0.19	19.61	0.41
SW42	L1A-11.8	11.8	0.0927	0.0006	0.0371	0.0005	1.0934	0.0046	0.1869	0.0020	1.0989	0.0048	20.46	0.26	20.39	0.25
SW11	L1A-16.1	16.1	0.2954	0.0022	0.0496	0.0024	1.0848	0.0047	0.1881	0.0017	1.0899	0.0049	20.82	0.23	20.71	0.24
SW25	L1A-17.5	17.5	0.2589	0.0015	0.0834	0.0011	1.0789	0.0024	0.1892	0.0016	1.0836	0.0024	21.19	0.19	20.98	0.20
SW3	L1A-19.5	19.5	0.3896	0.0023	0.7091	0.0075	1.0781	0.0015	0.1937	0.0032	1.0824	0.0016	22.73	0.13	21.54	0.41
SW33	L1A-20.3	20.3	0.2981	0.0018	0.1864	0.0028	1.0794	0.0017	0.1919	0.0020	1.0841	0.0018	21.70	0.22	21.30	0.26
SW43	L1A-21.3	21.3	0.1332	0.0008	0.0198	0.0003	1.0807	0.0033	0.1919	0.0016	1.0856	0.0035	21.31	0.21	21.27	0.21
SW18	L1A-23.2	23.2	0.3002	0.0016	1.721	0.017	1.0809	0.0017	0.2000	0.0099	1.0839	0.0018	26.06	0.16	22.3	1.3
SW26	L1A-25.2	25.2	0.3036	0.0018	2.027	0.020	1.0805	0.0025	0.2007	0.0116	1.0832	0.0027	26.79	0.17	22.3	1.5
SW4	L1A-26.5	26.5	0.3026	0.0018	0.1794	0.0027	1.0772	0.0014	0.1989	0.0021	1.0819	0.0015	22.59	0.24	22.20	0.27
SW12	L1A-31.7	31.7	0.3306	0.0028	0.0208	0.0022	1.0819	0.0063	0.2031	0.0018	1.0872	0.0068	22.66	0.27	22.61	0.27
SW19	L1A-32.5	32.5	0.3075	0.0018	0.0451	0.0006	1.0808	0.0016	0.2062	0.0016	1.0861	0.0017	23.12	0.21	23.03	0.21
SW5	L1A-35	35	0.3491	0.0022	n.d.	n.d.	1.0847	0.0017	0.2100	0.0014	1.0905	0.0018	23.39	0.18	23.39	0.18
SW6	L1A-41	41	0.3205	0.0020	n.d.	n.d.	1.0883	0.0018	0.2136	0.0012	1.0944	0.0019	23.76	0.16	23.76	0.16
SW13	L1A-47.8	47.8	0.2838	0.0018	n.d.	n.d.	1.0832	0.0023	0.2149	0.0020	1.0891	0.0025	24.05	0.27	24.05	0.27
SW14	L1A-49.3	49.3	0.2536	0.0017	n.d.	n.d.	1.0801	0.0035	0.2153	0.0019	1.0857	0.0037	24.17	0.26	24.17	0.26
SW20	L1A-50.8	50.8	0.2574	0.0015	0.1518	0.0020	1.0789	0.0017	0.2182	0.0020	1.0844	0.0018	24.96	0.22	24.58	0.25
SW15	L1A-54.5	54.5	0.2585	0.0017	0.1933	0.0028	1.0759	0.0032	0.2188	0.0018	1.0812	0.0034	25.21	0.19	24.72	0.25
SW29	L1B-0.00	55	0.2923	0.0032	0.02302	0.00062	1.073	0.010	0.2207	0.0028	1.078	0.010	25.10	0.45	25.05	0.45
SW44	L1B-4.0	59	0.3924	0.0024	0.00986	0.00018	1.0654	0.0042	0.2235	0.0019	1.0703	0.0044	25.63	0.27	25.61	0.27
SW49	L1B-5.5	60.5	0.2708	0.0023	0.0550	0.0014	1.0623	0.0066	0.2279	0.0039	1.0671	0.0073	26.41	0.55	26.27	0.53
SW34	L1B-9.3	64.3	0.3374	0.0020	0.01604	0.00053	1.0614	0.0020	0.2303	0.0020	1.0662	0.0021	26.64	0.27	26.61	0.27
SW50	L1B-10.8	65.8	0.3278	0.0026	0.03056	0.00066	1.0661	0.0061	0.2398	0.0033	1.0714	0.0067	27.77	0.46	27.71	0.48
SW145	L1B-13.2	68.2	0.3925	0.0023	0.0721	0.0012	1.0628	0.0018	0.2395	0.0019	1.0678	0.0019	27.89	0.25	27.77	0.26
SW27	L1B-17.7	72.7	0.4043	0.0024	0.02920	0.00072	1.0646	0.0025	0.2383	0.0026	1.0698	0.0027	27.61	0.35	27.56	0.35
SW51	L1B-19.7	74.7	0.3428	0.0038	0.02240	0.00069	1.071	0.010	0.2435	0.0036	1.077	0.011	28.09	0.57	28.04	0.57

SW45	L1B-24.0	79	0.1120	0.0007	0.03674	0.00050	1.0977	0.0039	0.2566	0.0021	1.1059	0.0041	28.99	0.29	28.92	0.29
SW28	L1B-25.3	80.3	0.2699	0.0017	0.05160	0.00077	1.0977	0.0027	0.2593	0.0021	1.1060	0.0029	29.39	0.28	29.27	0.29
SW105	L1C-1.5	82	0.4442	0.0030	n.d.	n.d.	1.0987	0.0045	0.2582	0.0021	1.1071	0.0048	29.09	0.31	29.09	0.31
SW35	L1C-2.7	83.2	0.4708	0.0027	0.00377	0.00046	1.0995	0.0018	0.2591	0.0020	1.1081	0.0020	29.19	0.27	29.18	0.26
SW106	L1C-6.2	86.7	0.3363	0.0032	n.d.	n.d.	1.1000	0.0084	0.2616	0.0026	1.1087	0.0089	29.49	0.43	29.49	0.43
SW146	L1C-8.9	89.4	0.3752	0.0021	0.05437	0.00072	1.1007	0.0016	0.2625	0.0019	1.1094	0.0018	29.68	0.25	29.59	0.25
SW46	L1C-10.6	91.1	0.0941	0.0006	0.00556	0.00014	1.1014	0.0050	0.2637	0.0027	1.1103	0.0053	29.72	0.38	29.71	0.37
SW52	L1C-11.7	92.2	0.3532	0.0037	0.00097	0.00029	1.1019	0.0099	0.2640	0.0032	1.111	0.011	29.74	0.52	29.74	0.53
SW147	L1C-14.2	94.7	0.3467	0.0020	0.03649	0.00056	1.0973	0.0017	0.2636	0.0021	1.1058	0.0018	29.91	0.28	29.84	0.28
SW107	L1C-16.3	96.8	0.3073	0.0030	0.0014	0.0011	1.0930	0.0088	0.2682	0.0029	1.1014	0.0094	30.58	0.48	30.57	0.49
SW30	L1C-19.9	100.4	0.3244	0.0022	0.00703	0.00030	1.0915	0.0040	0.2657	0.0025	1.0997	0.0043	30.31	0.35	30.30	0.35
SW47	L1C-22.7	103.2	0.2007	0.0013	0.01040	0.00017	1.0860	0.0032	0.2750	0.0020	1.0941	0.0035	31.74	0.29	31.72	0.29
SW108	L1C-24.3	104.8	0.3114	0.0037	0.0126	0.0014	1.085	0.011	0.2759	0.0034	1.093	0.012	31.90	0.59	31.87	0.60
SW 36	L1C-26.1	106.6	0.3411	0.0020	n.d.	n.d.	1.0706	0.0018	0.2819	0.0026	1.0776	0.0020	33.21	0.36	33.21	0.36
SW109	L1C-28.3	108.8	0.3370	0.0022	n.d.	n.d.	1.0687	0.0040	0.2839	0.0024	1.0756	0.0044	33.55	0.36	33.55	0.36
SW148*	L1C-33.4	113.9	0.3596	0.0020	0.07142	0.00086	1.0510	0.0017	0.2916	0.0020	1.0563	0.0018	35.46	0.28	35.33	0.29
SW110*	L1C-35.5	116	0.3140	0.0036	0.3373	0.0039	1.0494	0.0108	0.2889	0.0039	1.054	0.012	35.74	0.68	35.02	0.73
SW149*	L1C-37.0	117.5	0.3483	0.0020	0.0784	0.0009	1.0505	0.0020	0.2956	0.0025	1.0558	0.0021	36.08	0.37	35.93	0.37
SW31	L1C-38.5	119	0.3637	0.0025	0.01813	0.00040	1.0541	0.0044	0.2833	0.0033	1.0596	0.0048	34.07	0.50	34.03	0.51
SW113	L1D-0.0	120.6	0.3443	0.0019	n.d.	n.d.	1.0469	0.0015	0.2758	0.0037	1.0515	0.0016	33.27	0.53	33.27	0.53
SW129*	L1D-3.2	123.8	0.2682	0.0016	0.2061	0.0025	1.0719	0.0017	0.3590	0.0031	1.0811	0.0018	44.75	0.42	44.25	0.48
SW114	L1D-7.4	128	0.3484	0.0020	0.00160	0.00093	1.0448	0.0016	0.2850	0.0040	1.0494	0.0018	34.66	0.56	34.66	0.57
SW130*	L1D-10.2	130.8	0.1967	0.0011	1.455	0.015	1.0808	0.0022	0.3776	0.0136	1.0891	0.0025	51.50	0.41	46.59	2.32
SW115	L1D-13.0	133.6	0.3398	0.0019	0.0301	0.0011	1.0529	0.0017	0.2873	0.0034	1.0583	0.0018	34.71	0.47	34.65	0.48
SW131*	L1D-17.1	137.7	0.2364	0.0014	1.029	0.010	1.0711	0.0020	0.3757	0.0080	1.0796	0.0023	49.74	0.34	46.9	1.4
SW132*	L1D-18.3	138.9	0.2265	0.0013	0.05063	0.00088	1.0719	0.0017	0.3492	0.0027	1.0811	0.0019	42.93	0.39	42.78	0.40
SW116	L1D-23.7	144.3	0.3783	0.0022	n.d.	n.d.	1.0770	0.0018	0.3003	0.0028	1.0852	0.0020	35.50	0.40	35.50	0.40
SW125	L1E-1.2	146.2	0.2887	0.0016	0.01636	0.00052	1.0953	0.0016	0.3485	0.0022	1.1071	0.0017	41.55	0.33	41.51	0.34
SW133	L1E-5.9	150.9	0.2025	0.0012	0.00910	0.00042	1.0952	0.0016	0.3468	0.0023	1.1069	0.0018	41.31	0.32	41.28	0.34
SW134	L1E-10.9	155.9	0.2961	0.0017	0.03165	0.00060	1.0778	0.0018	0.3541	0.0030	1.0879	0.0021	43.28	0.46	43.21	0.45
SW126	L1E-11.9	156.9	0.3274	0.0019	0.03503	0.00066	1.0778	0.0018	0.3543	0.0030	1.0879	0.0021	43.30	0.44	43.23	0.46
SW127	L1E-14.0	159	0.3358	0.0019	0.4433	0.0060	1.0796	0.0017	0.3528	0.0036	1.0894	0.0019	43.77	0.42	42.91	0.57
SW124	L1E-19.2	164.2	0.3346	0.0019	0.0776	0.0013	1.0719	0.0017	0.3504	0.0026	1.0811	0.0019	43.11	0.40	42.96	0.40

SW135	L1Eb-0.7	166.8	0.3227	0.0018	0.4264	0.0058	1.0796	0.0017	0.3528	0.0036	1.0894	0.0018	43.78	0.42	42.92	0.57
SW117*	L1Eb-2.2	168.3	0.3328	0.0019	0.0479	0.0015	1.0709	0.0016	0.3334	0.0047	1.0794	0.0017	40.58	0.68	40.49	0.69
SW121	L1Eb-4.1	170.2	0.2882	0.0016	0.2222	0.0026	1.0719	0.0017	0.3593	0.0031	1.0812	0.0019	44.80	0.44	44.29	0.49
SW150	L1Eb-8.2	174.3	0.2950	0.0023	0.9855	0.0099	1.0679	0.0060	0.3502	0.0067	1.0756	0.0069	45.35	0.58	43.1	1.1
SW122	L1Eb-10.1	176.2	0.2493	0.0014	1.845	0.019	1.0808	0.0022	0.378	0.014	1.0891	0.0026	51.58	0.41	46.7	2.4
SW123	L1Eb11.1	177.2	0.2385	0.0014	1.038	0.011	1.0711	0.0020	0.3757	0.0080	1.0796	0.0022	49.74	0.34	46.9	1.3
SW151*	L1Eb-12.5	178.6	0.2475	0.0015	0.1712	0.0023	1.0696	0.0023	0.3861	0.0039	1.0796	0.0026	49.03	0.60	48.57	0.63
SW118	L1Eb-15.2	181.3	0.2816	0.0016	0.1937	0.0027	1.0700	0.0016	0.3669	0.0043	1.0793	0.0018	46.01	0.64	45.56	0.66
SW119	L1Eb-20.7	186.8	0.3081	0.0017	n.d.	n.d.	1.0724	0.0017	0.3694	0.0042	1.0825	0.0019	45.81	0.64	45.81	0.64

Table S2. Activity ratios and calculated ages of stalagmite PR-LA-1.

Activity ratios were corrected for initial Th assuming an detrital weight ratio  $^{232}\text{Th}/^{238}\text{U} = 0.154 \pm 0.038$  (corresponding to an activity ratio of the detritus in secular equilibrium of  $(^{230}\text{Th}/^{232}\text{Th}) = 19.79 \pm 4.93$ , and secular equilibrium of the detritus.

Ages are calculated using the decay constants by Cheng et al. (2000)).

**Uncertainties are given as 2σ- range, and do not include half-life uncertainties.**

Ages marked with a \* are not used to calculate the age model