

## GSA Data Repository item, Details of U-Th chemistry

Table 1. U and Th isotope concentrations with  $2\sigma$  errors and calculated ages for Hoti Cave speleothems.

Sample	Depth		Concentration $^{238}\text{U}$		Concentration $^{232}\text{Th}$		Concentration $^{230}\text{Th}$		$\delta^{234}\text{U}$		Age	
	[cm]	$\forall$ [cm]	[ $\mu\text{g/g}$ ]	$\forall$ [ $\mu\text{g/g}$ ]	[ng/g]	$\forall$ [ng/g]	[pg/g]	$\forall$ [pg/g]	[ $\lambda$ ]	$\forall$ [ $\lambda$ ]	[ka BP]	$\forall$ [ka BP]
H4	1.0	0.5	1.148	0.005	5.080	0.022	14.91	0.097	202.0	6.6	113	2.7
H4	4.3	0.3	1.646	0.014	4.832	0.047	22.52	0.293	212.5	9.3	122	5.2
H4	35.0	1.0	0.713	0.001	0.807	0.004	9.037	0.080	157.1	3.8	117	2.6
H4	57.0	1.0	0.594	0.001	3.563	0.009	7.612	0.062	162.4	4.3	118	2.6
H4	84.0	1.0	0.593	0.001	0.276	0.003	7.844	0.110	191.3	5.7	119	4.4
H5	0.5	0.5	3.429	0.009	200.3	2.2	5.48	0.12	498.2	7.8	6.22	0.18
H5	2.5	0.5	9.204	0.052	56.1	0.68	13.44	0.26	518.7	5.9	6.49	0.16
H5	6.5	0.2	5.080	0.010	8.10	0.06	8.73	0.07	617.8	4.9	7.28	0.08
H5	9.8	0.2	4.031	0.011	10.4	0.08	7.61	0.08	617.5	6.8	8.00	0.12
H5	13.5	0.2	4.510	0.014	7.10	0.06	8.46	0.07	604.5	6.4	8.03	0.11
H5	16.0	0.3	4.313	0.011	10.9	0.08	7.98	0.09	592.8	6.5	7.97	0.12
H5	20.5	0.2	4.002	0.008	22.2	0.15	7.60	0.04	598.1	4.7	8.10	0.07
H5	23.5	0.2	4.371	0.016	15.2	0.21	8.40	0.30	592.9	10.1	8.26	0.36
H5	25.5	0.5	3.904	0.014	14.6	0.25	8.11	0.16	582.2	11.1	9.02	0.26
H5	29.5	0.2	4.566	0.018	91.7	1.02	10.33	0.16	630.4	9.4	9.27	0.21
H5	32.5	0.2	5.057	0.011	63.4	0.45	10.92	0.09	546.5	4.8	9.46	0.11
H5	35.0	0.5	4.201	0.006	40.8	0.10	9.81	0.04	642.0	6.5	9.71	0.08
Flowstone	5-7		0.253	0.001	4.757	0.031	3.334	0.043	164.7	11.4	122	5.4
Flowstone	72-75		0.318	0.001	19.78	0.130	3.595	0.043	252.6	5.6	82.0*	2.0
Flowstone	127-130		0.282	0.001	14.11	0.078	3.927	0.034	194.5	5.5	126	3.2
Flowstone	177-180		0.299	0.001	5.665	0.052	3.890	0.066	215.4	6.9	110*	4.4
Flowstone	215-219		0.316	0.001	7.336	0.034	4.025	0.033	249.5	5.9	101*	2.2

H10	top		2.262	0.004	0.888	0.006	3.559	0.041	317.4	3.9	8.25	0.13
H10	bottom		4.844	0.012	1.735	0.014	9.716	0.653	375.6	5.5	10.15	0.76
H11	top		8.339	0.020	0.721	0.005	12.84	0.108	308.3	4.4	8.13	0.11
H11	bottom		6.007	0.034	0.357	0.003	10.27	0.132	308.6	20.9	9.06	0.28
H13	1	1	0.260	0.0004	0.520	0.004	4.136	0.065	347.9	6.3	129	4.9
H13	58	1	0.277	0.001	0.386	0.003	4.553	0.047	364.8	7.5	134	4.2
H13	112	1	0.480	0.001	0.786	0.006	7.631	0.061	372.9	0.7	124	2.7
H13	155	1	0.120	0.0003	1.174	0.011	2.181	0.046	312.1	10.2	180	12.8
H13	160	1	0.430	0.001	1.019	0.008	8.355	0.080	345.6	0.8	197	7.4
H13	184	1	0.245	0.001	4.895	0.040	4.594	0.054	329.7	0.7	187	9.0
H13	188	1	0.186	0.0003	1.237	0.009	3.524	0.029	323.7	0.6	194	6.8
H13	225	1	0.591	0.001	0.398	0.004	12.33	0.181	232.9	4.3	387	59.6
H13	238	1	0.537	0.001	0.303	0.002	10.71	0.091	227.6	0.4	308	20.6
H13	249	1	0.428	0.001	1.292	0.010	8.669	0.088	232.1	0.4	325	27.2
H13	262	1	0.369	0.001	0.531	0.004	7.424	0.056	242.8	0.7	299	18.6
H13	270	1	0.425	0.001	3.114	0.024	8.895	0.088	244.2	7.1	366	34.6
H13	290	1	1.351	0.003	2.204	0.016	27.33	0.208	237.5	0.6	315	20.9
H14	1.0	0.3	1.600	0.003	2.541	0.018	2.415	0.025	605.9	1.1	6.41	0.09
H14	5.2	0.3	1.978	0.008	1.051	0.008	3.206	0.046	627.6	2.5	6.82	0.14
H14	5.9	0.3	2.305	0.005	0.727	0.005	3.798	0.035	621.9	1.4	6.97	0.09
H14	15.3	0.3	3.111	0.012	0.660	0.009	5.226	0.120	614.3	2.4	7.15	0.23
H14	16.0	0.3	2.642	0.006	0.459	0.004	4.492	0.043	615.8	1.4	7.23	0.10
H14	20.2	0.3	1.637	0.004	0.382	0.003	2.979	0.036	613.2	1.4	7.76	0.13
H14	21.2	0.3	1.980	0.004	1.292	0.011	3.578	0.052	609.3	1.4	7.72	0.14
H14	28.4	0.3	2.035	0.005	0.737	0.010	3.726	0.048	609.2	1.4	7.83	0.13
H14	30.1	0.2	1.247	0.002	0.197	0.001	2.314	0.025	591.8	1.2	8.04	0.12
H14	30.5	0.2	1.733	0.003	0.189	0.002	3.175	0.043	579.4	1.1	7.99	0.14
H14	32.8	0.3	2.108	0.004	1.481	0.010	4.041	0.035	588.0	1.1	8.32	0.10
H14	40.5	0.3	2.208	0.007	2.058	0.017	4.269	0.041	575.0	1.8	8.47	0.13