Appendix DR1: U-series ages

Reef	Site	Core	Sample Depth	Corrected Depth	Genus	U (ppm)	±2s	^{232}Th (ppb)	±2s	(^{230}Th/ ^{232}Th)	(^{230}Th/ ^{238}U)	±2s	(^{234}U/ ^{238}U)	±2s	uncorr. ^{230}Th Age (ka)	±2s	corr. ^{230}Th Age (ka)	±2s	corr. ^{230}Th Age (yr)	±2s	corr. Initial (^{234}U/ ^{238}U)
Havannah	1	A	340	451	*Goniopora*	2.6652	0.0123	6.179	0.023	14.85	0.01133	0.00014	1.1448	0.0072	1.0819	0.0154	1.0296	0.0185	1030	18	1.1453
Havannah	1	A	230	305	*Goniopora*	3.0429	0.0038	7.151	0.045	8.23	0.00635	0.00005	1.1620	0.0014	0.5958	0.0047	0.5444	0.0113	544	11	1.1624
Havannah	1	A	200	266	*Alveopora*	2.8955	0.0027	7.434	0.027	4.78	0.00403	0.00006	1.1497	0.0013	0.3814	0.0054	0.3248	0.0125	325	13	1.1499
Havannah	1	A	145	192	*Alveopora*	3.2542	0.0027	11.427	0.071	4.42	0.00509	0.00008	1.1484	0.0012	0.4833	0.0074	0.4080	0.0168	408	17	1.1486
Havannah	1	A	105	139	*Goniopora*	2.5310	0.0020	22.891	0.100	1.49	0.00442	0.00003	1.1458	0.0013	0.4204	0.0031	0.2311	0.0380	231	38	1.1461
Havannah	1	A	50	66	*Pavona*	3.5966	0.0037	1.859	0.010	7.68	0.00130	0.00002	1.1505	0.0012	0.1232	0.0020	0.1091	0.0035	109	3	1.1506
Havannah	1	A	20	27	*Goniopora*	2.7292	0.0022	6.726	0.025	1.07	0.00087	0.00002	1.1473	0.0014	0.0821	0.0015	0.0272	0.0111	27	11	1.1474
Havannah	1	A	30	40	*Acropora*	3.6502	0.0033	3.520	0.029	3.63	0.00115	0.00002	1.1474	0.0012	0.1090	0.0021	0.0858	0.0051	86	5	1.1474
Havannah	1	B	270	436	*Goniopora*	3.2649	0.0040	11.639	0.092	7.11	0.00834	0.00006	1.1445	0.0015	0.7954	0.0061	0.7185	0.0165	719	17	1.1449
Havannah	1	B	200	323	*Galaxea*	2.9403	0.0021	7.264	0.037	8.41	0.00682	0.00005	1.1474	0.0013	0.6482	0.0046	0.5936	0.0119	594	12	1.1477
Havannah	1	B	145	234	*Galaxea*	2.9734	0.0024	1.215	0.006	34.15	0.00458	0.00003	1.1471	0.0013	0.4351	0.0027	0.4224	0.0037	422	4	1.1473
Havannah	1	B	75	121	*Pavona*	3.7382	0.0031	9.692	0.024	3.61	0.00307	0.00003	1.1482	0.0013	0.2914	0.0030	0.2352	0.0116	235	12	1.1484
Havannah	1	B	15	24	*Pocillopora*	2.3913	0.0023	0.825	0.004	4.43	0.00050	0.00001	1.1490	0.0014	0.0475	0.0008	0.0352	0.0026	35	3	1.1490
Havannah	1	C	95	179	*Goniopora*	2.8235	0.0031	5.174	0.021	3.03	0.00182	0.00007	1.1472	0.0018	0.1729	0.0066	0.1310	0.0107	131	11	1.1474
Havannah	1	C	95	179	*Goniopora*	2.8289	0.0024	3.674	0.012	3.71	0.00158	0.00003	1.1498	0.0013	0.1496	0.0027	0.1186	0.0067	119	7	1.1499
Havannah	1	C	90	170	*Goniopora*	2.7234	0.0031	4.916	0.027	2.76	0.00163	0.00003	1.1492	0.0018	0.1546	0.0027	0.1131	0.0087	113	9	1.1493
Havannah	1	C	90	170	*Goniopora*	2.7544	0.0022	3.240	0.007	3.78	0.00146	0.00002	1.1490	0.0014	0.1380	0.0015	0.1094	0.0059	109	6	1.1491
Havannah	1	C	85	160	*Goniopora*	2.8499	0.0022	3.496	0.009	3.69	0.00149	0.00004	1.1466	0.0012	0.1410	0.0036	0.1114	0.0069	111	7	1.1467
Havannah	1	D	55	139	*Pavona*	3.7525	0.0051	2.078	0.014	7.91	0.00144	0.00001	1.1492	0.0017	0.1361	0.0013	0.1213	0.0032	121	3	1.1493
Havannah	1	E	90	165	*Acropora*	3.5832	0.0032	0.362	0.002	40.17	0.00133	0.00002	1.1472	0.0012	0.1264	0.0017	0.1228	0.0018	123	2	1.1472
Havannah	1	F	90	160	*Alveopora*	2.8717	0.0027	8.183	0.019	4.74	0.00443	0.00008	1.1465	0.0014	0.4210	0.0079	0.3585	0.0148	359	15	1.1467
Havannah	1	F	25	44	*Goniopora*	2.9628	0.0026	18.934	0.068	0.86	0.00180	0.00003	1.1470	0.0014	0.1710	0.0027	0.0367	0.0270	37	27	1.1472
Havannah	1	F	35	62	*Pavona*	2.9704	0.0035	18.267	0.055	0.90	0.00181	0.00002	1.1480	0.0014	0.1713	0.0019	0.0420	0.0260	42	26	1.1482
Havannah	1	G	90	146	*Cyphastrea*	2.1969	0.0018	1.980	0.014	5.13	0.00152	0.00004	1.1462	0.0018	0.1442	0.0035	0.1199	0.0060	120	6	1.1463
Havannah	1	H	100	176	*Pavona*	4.2553	0.0055	2.336	0.009	14.50	0.00261	0.00004	1.1464	0.0018	0.2481	0.0042	0.2339	0.0051	234	5	1.1465

Havannah	1	H	20	35	*Goniopora*	2.4354	0.0021	10.165	0.036	1.02	0.00139	0.00002	1.1493	0.0015	0.1318	0.0016	0.0417	0.0181	42	18	1.1494
Havannah	2	A	195	367	*Galaxea*	3.0543	0.0030	4.902	0.020	9.18	0.00485	0.00006	1.1473	0.0013	0.4608	0.0055	0.4238	0.0092	424	9	1.1476
Havannah	2	A	145	273	*Montipora*	3.7564	0.0034	5.421	0.022	5.82	0.00276	0.00004	1.1470	0.0013	0.2616	0.0039	0.2288	0.0076	229	8	1.1471
Havannah	2	A	45	85	*Goniopora*	2.7942	0.0031	2.563	0.007	3.60	0.00108	0.00003	1.1481	0.0015	0.1027	0.0025	0.0794	0.0053	79	5	1.1482
Havannah	2	A	70	132	*Goniopora*	2.7646	0.0023	27.820	0.180	1.04	0.00344	0.00004	1.1448	0.0013	0.3275	0.0037	0.1177	0.0422	118	42	1.1452
Havannah	2	A	100	188	*Pavona*	3.8486	0.0037	16.862	0.063	2.22	0.00319	0.00003	1.1462	0.0014	0.3028	0.0028	0.2102	0.0187	210	19	1.1465
Havannah	2	B	360	413	*Goniopora*	2.9623	0.0030	4.069	0.015	23.37	0.01057	0.00011	1.1459	0.0017	1.0075	0.0104	0.9750	0.0122	975	12	1.1464
Havannah	2	B	225	258	*Alveopora*	2.9544	0.0026	1.546	0.003	30.49	0.00524	0.00007	1.1482	0.0013	0.4970	0.0068	0.4819	0.0075	482	7	1.1484
Havannah	2	B	140	161	*Goniopora*	2.8038	0.0021	16.294	0.075	1.98	0.00378	0.00010	1.1472	0.0012	0.3585	0.0093	0.2357	0.0263	236	26	1.1475

Reef	**Site**	**Core**	**Sample Depth**	**Corrected Depth**	**Genus**	**U (ppm)**	**±2s**	**^{232}Th (ppb)**	**±2s**	**(^{230}Th/ ^{232}Th)**	**(^{230}Th/ ^{238}U)**	**±2s**	**(^{234}U/ ^{238}U)**	**±2s**	**uncorr. ^{230}Th Age (ka)**	**±2s**	**corr. ^{230}Th Age (ka)**	**±2s**	**corr. ^{230}Th Age (yr)**	**±2s**	**corr. Initial (^{234}U/ ^{238}U)**
Havannah	2	B	90	103	*Pavona*	3.6151	0.0038	0.588	0.003	23.64	0.00126	0.00002	1.1451	0.0014	0.1199	0.0018	0.1141	0.0022	114	2	1.1452
Havannah	2	B	55	63	*Pavona*	3.5882	0.0033	1.599	0.007	6.73	0.00098	0.00001	1.1442	0.0012	0.0935	0.0010	0.0808	0.0027	81	3	1.1442
Havannah	2	B	45	52	*Goniopora*	2.7397	0.0024	2.584	0.059	1.85	0.00057	0.00001	1.1467	0.0014	0.0543	0.0012	0.0303	0.0050	30	5	1.1468
Havannah	2	C	55	98	*Goniopora*	3.4361	0.0035	55.044	0.178	14.23	0.07481	0.00034	1.1457	0.0014	7.3329	0.0361	7.0035	0.0746	7004	75	1.1492
Havannah	2	C	65	116	*Turbinaria*	3.0437	0.0025	7.101	0.028	2.02	0.00155	0.00003	1.1457	0.0013	0.1472	0.0027	0.0954	0.0107	95	11	1.1459
Havannah	2	C	80	142	*Turbinaria*	2.1210	0.0020	0.059	0.000	139.07	0.00127	0.00003	1.1468	0.0018	0.1205	0.0031	0.1195	0.0031	120	3	1.1469
Havannah	2	D	75	161	*Goniopora*	4.6269	0.0060	12.430	0.034	1.67	0.00148	0.00003	1.1466	0.0016	0.1400	0.0032	0.0825	0.0119	83	12	1.1468
Havannah	2	E	80	152	*Goniopora*	2.8356	0.0022	11.996	0.037	1.74	0.00242	0.00003	1.1488	0.0012	0.2293	0.0029	0.1388	0.0183	139	18	1.1490
Havannah	2	E	35	67	*Goniopora*	2.7408	0.0033	18.015	0.043	0.92	0.00199	0.00006	1.1483	0.0015	0.1885	0.0054	0.0502	0.0282	50	28	1.1486
Havannah	2	F	45	70	*Goniopora*	3.0315	0.0025	30.072	0.161	0.88	0.00287	0.00005	1.1478	0.0014	0.2722	0.0051	0.0663	0.0416	66	42	1.1482
Havannah	2	F	50	78	*Galaxea*	3.0045	0.0019	6.075	0.011	1.95	0.00130	0.00004	1.1481	0.0011	0.1228	0.0039	0.0774	0.0099	77	10	1.1482
Havannah	2	F	90	141	*Pavona*	2.9650	0.0037	0.620	0.002	34.99	0.00240	0.00003	1.1504	0.0017	0.2272	0.0028	0.2197	0.0032	220	3	1.1505
Havannah	2	G	85	178	*Hydnophora*	3.2798	0.0027	6.763	0.025	4.26	0.00288	0.00003	1.1459	0.0014	0.2739	0.0032	0.2280	0.0097	228	10	1.1461
Havannah	2	G	35	73	*Goniopora*	2.8129	0.0016	28.107	0.129	0.82	0.00267	0.00003	1.1478	0.0013	0.2537	0.0032	0.0459	0.0417	46	42	1.1482
Havannah	2	G	25	52	*Montipora*	2.4903	0.0022	22.630	0.102	0.96	0.00285	0.00004	1.1475	0.0014	0.2703	0.0034	0.0803	0.0382	80	38	1.1478
Havannah	2	H	15	60	*Goniopora*	2.8195	0.0023	4.422	0.020	1.38	0.00071	0.00001	1.1463	0.0012	0.0672	0.0012	0.0306	0.0074	31	7	1.1463
Pandora	1	A	285	439	*Acropora*	2.6344	0.0040	0.727	0.012	91.76	0.00834	0.00013	1.1466	0.0025	0.7936	0.0126	0.7837	0.0127	784	13	1.1470
Pandora	1	A	240	370	*Montipora*	3.5793	0.0037	29.370	0.187	2.60	0.00701	0.00006	1.1462	0.0015	0.6667	0.0058	0.4961	0.0346	496	35	1.1467

Pandora	1	A	180	277	*Acropora*	3.4580	0.0025	23.757	0.163	2.62	0.00591	0.00010	1.1466	0.0012	0.5622	0.0094	0.4186	0.0302	419	30	1.1470
Pandora	1	A	130	200	*Acropora*	0.3481	0.0003	2.771	0.023	2.13	0.00556	0.00009	1.1487	0.0014	0.5274	0.0084	0.3281	0.0408	328	41	1.1491
Pandora	1	A	45	69	*Acropora*	3.9381	0.0036	23.061	0.104	1.31	0.00252	0.00004	1.1368	0.0014	0.2418	0.0035	0.1183	0.0250	118	25	1.1370
Pandora	1	A	25	39	*Goniopora*	3.2779	0.0020	24.071	0.145	1.22	0.00295	0.00004	1.1488	0.0013	0.2796	0.0036	0.1265	0.0309	126	31	1.1491
Pandora	1	A	5	8	*Acropora*	3.3530	0.0028	13.945	0.094	0.99	0.00135	0.00003	1.1498	0.0013	0.1282	0.0028	0.0399	0.0179	40	18	1.1500
Pandora	1	A	0	0	*Acropora*	3.3757	0.0030	13.050	0.096	0.92	0.00117	0.00003	1.1478	0.0012	0.1107	0.0032	0.0283	0.0168	28	17	1.1480
Pandora	1	B	5	7	*Acropora*	3.3077	0.0036	4.691	0.023	1.33	0.00062	0.00001	1.1498	0.0011	0.0586	0.0011	0.0259	0.0066	26	7	1.1498
Pandora	1	B	20	28	*Acropora*	3.7355	0.0038	4.357	0.033	3.52	0.00135	0.00006	1.1481	0.0012	0.1278	0.0056	0.1006	0.0078	101	8	1.1482
Pandora	1	B	20	28	*Acropora*	3.6483	0.0045	4.991	0.024	2.85	0.00128	0.00002	1.1466	0.0012	0.1212	0.0022	0.0898	0.0066	90	7	1.1467
Pandora	1	B	25	35	*Acropora*	3.8630	0.0041	3.669	0.022	4.18	0.00130	0.00004	1.1464	0.0014	0.1236	0.0035	0.1009	0.0057	101	6	1.1465
Pandora	1	B	295	411	*Acropora*	3.5715	0.0090	1.480	0.009	60.03	0.00819	0.00008	1.1495	0.0021	0.7774	0.0074	0.7652	0.0077	765	8	1.1499
Pandora	1	B	205	286	*Acropora*	3.3398	0.0026	54.828	0.393	1.47	0.00791	0.00016	1.1488	0.0014	0.7513	0.0155	0.4138	0.0694	414	69	1.1495
Pandora	1	B	145	202	*Acropora*	3.8109	0.0042	19.399	0.067	3.17	0.00530	0.00004	1.1468	0.0014	0.5036	0.0042	0.3966	0.0218	397	22	1.1471
Pandora	1	B	95	132	*Acropora*	3.6852	0.0033	13.146	0.081	3.10	0.00363	0.00007	1.1506	0.0012	0.3436	0.0069	0.2677	0.0167	268	17	1.1509
Pandora	1	B	45	63	*Acropora*	3.3459	0.0032	8.191	0.035	3.50	0.00281	0.00005	1.1452	0.0014	0.2676	0.0047	0.2138	0.0117	214	12	1.1453
Pandora	1	C	0	0	*Acropora*	3.3610	0.0030	6.312	0.019	1.33	0.00082	0.00002	1.1489	0.0013	0.0775	0.0015	0.0355	0.0085	35	9	1.1489
Pandora	1	C	100	174	*Acropora*	3.3315	0.0027	2.480	0.020	8.52	0.00208	0.00004	1.1333	0.0012	0.1998	0.0036	0.1805	0.0053	180	5	1.1334
Pandora	1	D	0	0	*Acropora*	3.6725	0.0034	5.646	0.017	1.14	0.00058	0.00001	1.1477	0.0012	0.0546	0.0011	0.0198	0.0070	20	7	1.1478
Reef	**Site**	**Core**	**Sample Depth**	**Corrected Depth**	**Genus**	**U (ppm)**	**±2s**	**^{232}Th (ppb)**	**±2s**	**(^{230}Th/ ^{232}Th)**	**(^{230}Th/ ^{238}U)**	**±2s**	**(^{234}U/ ^{238}U)**	**±2s**	**uncorr. ^{230}Th Age (ka)**	**±2s**	**corr. ^{230}Th Age (ka)**	**±2s**	**corr. ^{230}Th Age (yr)**	**±2s**	**corr. Initial (^{234}U/ ^{238}U)**
Pandora	1	D	5	11	*Acropora*	3.7264	0.0036	3.257	0.020	1.85	0.00053	0.00002	1.1484	0.0011	0.0502	0.0019	0.0290	0.0046	29	5	1.1484
Pandora	1	D	75	160	*Stylophora*	2.6549	0.0023	0.817	0.005	11.98	0.00121	0.00003	1.1491	0.0017	0.1145	0.0033	0.1035	0.0039	103	4	1.1492
Pandora	1	E	105	165	*Acropora*	3.4321	0.0039	3.668	0.123	7.20	0.00253	0.00003	1.1482	0.0018	0.2394	0.0028	0.2139	0.0059	214	6	1.1483
Pandora	1	E	0	0	*Acropora*	3.7737	0.0038	5.365	0.025	1.32	0.00062	0.00001	1.1472	0.0013	0.0584	0.0011	0.0260	0.0066	26	7	1.1473
Pandora	1	E	5	8	*Acropora*	3.3357	0.0033	8.626	0.061	1.07	0.00091	0.00003	1.1488	0.0015	0.0859	0.0025	0.0295	0.0116	30	12	1.1489
Pandora	1	F	0	0	*Acropora*	3.3366	0.0025	17.608	0.091	0.87	0.00150	0.00004	1.1484	0.0010	0.1421	0.0041	0.0310	0.0226	31	23	1.1486
Pandora	1	F	45	80	*Acropora*	3.6053	0.0033	11.872	0.068	1.81	0.00196	0.00002	1.1467	0.0015	0.1857	0.0018	0.1151	0.0142	115	14	1.1469
Pandora	1	F	90	160	*Acropora*	3.4777	0.0038	3.925	0.017	8.96	0.00332	0.00004	1.1449	0.0018	0.3157	0.0035	0.2889	0.0064	289	6	1.1451
Pandora	1	H	0	0	*Acropora*	4.0256	0.0034	4.585	0.018	1.26	0.00047	0.00001	1.1486	0.0010	0.0446	0.0008	0.0182	0.0053	18	5	1.1487

Reef	Site	Core	Sample Depth	Corrected Depth	Genus	U (ppm)	±2s	^{232}Th (ppb)	±2s	(^{230}Th/ ^{232}Th)	(^{230}Th/ ^{238}U)	±2s	(^{234}U/ ^{238}U)	±2s	uncorr. ^{230}Th Age (ka)	±2s	corr. ^{230}Th Age (ka)	±2s	corr. ^{230}Th Age (yr)	±2s	corr. Initial (^{234}U/ ^{238}U)
Pandora	1	H	40	56	*Acropora*	0.3265	0.0003	1.773	0.005	1.45	0.00259	0.00004	1.1462	0.0012	0.2457	0.0040	0.0949	0.0304	95	30	1.1464
Pandora	1	H	100	139	*Acropora*	3.8397	0.0049	6.794	0.043	5.67	0.00329	0.00006	1.1482	0.0015	0.3124	0.0055	0.2731	0.0096	273	10	1.1484
Pandora	2	A	280	397	*Goniopora*	2.5482	0.0030	0.779	0.002	25.81	0.00260	0.00003	1.1469	0.0014	0.2467	0.0025	0.2357	0.0034	236	3	1.1470
Pandora	2	A	210	297	*Acropora*	2.6707	0.0023	20.751	0.161	1.53	0.00391	0.00004	1.1478	0.0013	0.3711	0.0037	0.2083	0.0328	208	33	1.1481
Pandora	2	A	175	248	*Merulina*	2.7974	0.0026	6.235	0.051	3.28	0.00240	0.00004	1.1460	0.0014	0.2278	0.0034	0.1777	0.0106	178	11	1.1462
Pandora	2	A	110	156	*Stylophora*	2.5496	0.0023	0.299	0.001	30.38	0.00117	0.00002	1.1466	0.0012	0.1108	0.0015	0.1066	0.0017	107	2	1.1467
Pandora	2	A	50	71	*Goniopora*	2.8142	0.0018	5.696	0.042	1.58	0.00105	0.00003	1.1469	0.0012	0.0997	0.0029	0.0539	0.0096	54	10	1.1470
Pandora	2	B	205	428	*Goniopora*	3.0085	0.0038	1.471	0.015	22.11	0.00356	0.00005	1.1471	0.0016	0.3381	0.0044	0.3237	0.0052	324	5	1.1473
Pandora	2	B	155	323	*Goniopora*	2.7744	0.0018	29.241	0.200	1.28	0.00443	0.00005	1.1477	0.0012	0.4207	0.0043	0.2017	0.0441	202	44	1.1482
Pandora	2	B	145	302	*Pavona*	3.1061	0.0030	7.564	0.054	3.16	0.00253	0.00005	1.1482	0.0013	0.2395	0.0045	0.1858	0.0116	186	12	1.1483
Pandora	2	B	55	115	*Goniopora*	2.9096	0.0024	23.216	0.058	0.95	0.00248	0.00005	1.1474	0.0012	0.2351	0.0046	0.0684	0.0337	68	34	1.1477
Pandora	2	B	10	21	*Porites*	3.4875	0.0023	23.050	0.092	0.80	0.00174	0.00002	1.1482	0.0015	0.1653	0.0021	0.0273	0.0277	27	28	1.1484
Pandora	2	C	75	171	*Goniopora*	2.8216	0.0020	16.461	0.065	1.29	0.00246	0.00006	1.1486	0.0010	0.2333	0.0058	0.1102	0.0253	110	25	1.1488
Pandora	2	C	65	148	*Goniopora*	2.8958	0.0051	5.804	0.024	2.07	0.00136	0.00002	1.1480	0.0031	0.1292	0.0021	0.0840	0.0093	84	9	1.1482
Pandora	2	D	55	175	*Goniopora*	3.0730	0.0029	13.624	0.064	1.56	0.00227	0.00010	1.1471	0.0015	0.2156	0.0095	0.1212	0.0211	121	21	1.1473
Pandora	2	E	85	183	*Goniopora*	2.9881	0.0038	2.799	0.006	2.58	0.00079	0.00002	1.1486	0.0020	0.0752	0.0018	0.0518	0.0050	52	5	1.1487
Pandora	2	F	50	153	*Goniopora*	2.8889	0.0033	3.814	0.015	2.38	0.00103	0.00009	1.1494	0.0018	0.0977	0.0089	0.0664	0.0109	66	11	1.1495
Pandora	2	G	**105**	182	*Goniopora*	2.7049	0.0030	2.152	0.018	3.76	0.00098	0.00003	1.1484	0.0018	0.0929	0.0027	0.0719	0.0050	72	5	1.1484
Pandora	2	H	80	178	*Goniopora*	2.8380	0.0031	4.381	0.017	4.43	0.00224	0.00004	1.1471	0.0017	0.2129	0.0033	0.1769	0.0079	177	8	1.1473
Pandora	3	A	**290**	426	*Stylophora*	2.9311	0.0233	1.106	0.006	62.78	0.00780	0.00010	1.1335	0.0084	0.7509	0.0110	0.7385	0.0113	739	11	1.1338
Pandora	3	A	**205**	301	*Turbinaria*	4.6480	0.0088	10.227	0.061	7.07	0.00512	0.00005	1.1453	0.0016	0.4876	0.0050	0.4398	0.0108	440	11	1.1456
Pandora	3	A	**135**	198	*Goniopora*	2.2215	0.0022	3.618	0.018	6.76	0.00362	0.00005	1.1481	0.0013	0.3437	0.0043	0.3046	0.0089	305	9	1.1483
Pandora	3	A	**80**	118	*Goniopora*	3.1138	0.0039	9.045	0.033	3.26	0.00312	0.00006	1.1470	0.0016	0.2961	0.0055	0.2327	0.0138	233	14	1.1472
Pandora	3	A	**15**	22	*Goniopora*	2.6898	0.0027	15.103	0.098	0.74	0.00137	0.00008	1.1462	0.0016	0.1298	0.0075	0.0102	0.0251	10	25	1.1464
Pandora	3	B	325	407	*Palaustrea*	2.5400	0.0027	0.743	0.004	70.51	0.00679	0.00005	1.1452	0.0015	0.6466	0.0049	0.6361	0.0054	636	5	1.1455
Pandora	3	B	260	326	*Acropora*	2.6833	0.0021	7.780	0.083	5.19	0.00495	0.00007	1.1467	0.0015	0.4705	0.0064	0.4064	0.0144	406	14	1.1470
Pandora	3	B	215	270	*Acropora*	3.7187	0.0046	3.077	0.028	13.04	0.00355	0.00003	1.1489	0.0016	0.3367	0.0026	0.3164	0.0048	316	5	1.1490

Pandora	3	B	170	213	*Pavona*	3.5859	0.0040	0.664	0.002	44.99	0.00274	0.00002	1.1479	0.0016	0.2601	0.0024	0.2535	0.0027	253	3	1.1480
Pandora	3	B	115	144	*Goniopora*	2.6423	0.0024	9.637	0.063	1.71	0.00204	0.00004	1.1502	0.0011	0.1932	0.0034	0.1143	0.0161	114	16	1.1503
Pandora	3	B	60	75	*Goniopora*	3.1643	0.0033	27.981	0.170	0.93	0.00270	0.00003	1.1475	0.0013	0.2561	0.0031	0.0722	0.0370	72	37	1.1478
Pandora	3	C	30	30	*Goniopora*	2.7791	0.0050	2.280	0.029	1.84	0.00050	0.00003	1.1489	0.0021	0.0471	0.0027	0.0257	0.0051	26	5	1.1489
Pandora	3	D	90	167	*Pavona*	3.5065	0.0046	1.050	0.008	47.48	0.00468	0.00007	1.1417	0.0014	0.4470	0.0071	0.4371	0.0074	437	7	1.1419
Pandora	3	E	90	166	*Goniopora*	2.7345	0.0032	2.917	0.037	6.03	0.00211	0.00003	1.1467	0.0070	0.2002	0.0032	0.1737	0.0062	174	6	1.1469
Pandora	3	F	80	163	*Goniopora*	3.8229	0.0053	0.173	0.001	190.96	0.00284	0.00004	1.1468	0.0016	0.2695	0.0042	0.2678	0.0042	268	4	1.1469
Pandora	3	G	95	205	*Goniopora*	2.8907	0.0079	7.503	0.053	2.39	0.00204	0.00003	1.1483	0.0023	0.1934	0.0029	0.1360	0.0119	136	12	1.1484
Pandora	3	H	75	140	*Goniopora*	2.7100	0.0032	7.415	0.066	3.61	0.00325	0.00003	1.1468	0.0015	0.3085	0.0031	0.2478	0.0125	248	13	1.1470

1. Ratios in parentheses are activity ratios calculated from atomic ratios.
2. Errors are 2σ.
3. $\delta^{234}U(T)= \delta^{234}U(O)e^{\lambda 234T}$ where $\delta^{234}U=[(^{234}U/^{238}U)-1]\times 1000$ and the age (T) is calculated using ISOPLOT 3.0 (Ludwig, 2003) using decay constants $\lambda_{238} = 1.55125 \times 10^{-10}$ yr^{-1} (Jaffey et al., 1971), $\lambda_{234} = (2.8262 \pm 0.0057) \times 10^{-6}$ yr^{-1} (revised value p24, Cheng et al., 2000), $\lambda_{230} = (9.158 \pm 0.028) \times 10^{-6}$ yr^{-1} (p27, Cheng et al., 2000)
4. To account for both hydrogenous and terrestrially derived $^{230}Th_0$, the corrected (corr.) ^{230}Th age of each sample was calculated using a sample specific initial ($^{230}Th/^{232}Th$) value calculated using the equation:

$$\left(\frac{^{230}Th}{^{232}Th}\right)_{mix} = \left(\left(\frac{^{232}Th_{live}}{^{232}Th_{dead}}\right)\times\left(\frac{^{230}Th}{^{232}Th}\right)_{live}\right)+\left(\left(\frac{^{232}Th_{dead}-{}^{232}Th_{live}}{^{232}Th_{dead}}\right)\times\left(\frac{^{230}Th}{^{232}Th}\right)_{sed}\right)$$

where $^{232}Th_{dead}$ is the measured ^{232}Th value (ppb) in the non-living coral sample. $^{232}Th_{live}$ is the mean measured ^{232}Th value (ppb) and $^{230}Th/^{232}Th_{live}$ is the mean initial Th value calculated from live *Porites* corals collected from adjacent reefs within the inshore central GBR (Havannah Island, Orpheus Island and Pandora Reef). $^{230}Th/^{232}Th_{sed}$ is the initial Th value for sediments collected from the region.

5. Compacted depth is based upon the length of recovered core relative to the top of the core (0cm), whereas uncompacted depth is based upon the penetrated depth of the core relative to the top of the core (0cm).

Cheng, H., Edwards, R. L., Hoff, J., Gallup, C. D., Richards, D. A., and Asmerom, Y., 2000, The half-lives of uranium-234 and thorium-230: Chemical Geology, v. 169, no. 1-2, p. 17-33.

Jaffey, A. H., Flynn, K. F., Glendenin, L. E., Bentley, W. C., and Essling, A. M., 1971, Precision measurement of half-lives and specific activities of 235U and 238U: Physical Review, v. 4, p. 1889–1906.

Ludwig, K. R., 2003, User's manual for Isoplot Version 3.0, A geochronological toolkit for Microsoft Excel.

Appendix DR2

Non-parametric post-hoc multiple comparisons between sites were tested using the "kruskalmc" function in 'pgirmess' package, R Software.

Pairwise comparison	obs.dif	critical.dif	difference
H1 - H2	4.375	16.73321	FALSE
H1 - P1	7.803571	17.32052	FALSE
H1 - P2	13.625	16.73321	FALSE
H1 - P3	3.25	16.73321	FALSE
H2 - P1	12.178571	17.32052	FALSE
H2 - P2	9.25	16.73321	FALSE
H2 - P3	7.625	16.73321	FALSE
P1 - P2	21.428571	17.32052	TRUE
P1 - P3	4.55357	17.32052	FALSE
P2 - P3	16.875	16.73321	TRUE

Appendix DR3: Rates of reef accretion from cores at Pandora and Havannah Reefs

Reef	Core	Accretion rate (mm/yr)	r2	n
Pandora	P1A	5.49	0.96	9
Pandora	P1B	3.95	0.96	10
Pandora	P2A	14.67	0.98	6
Pandora	P2B	14.96	0.97	6
Pandora	P3A	6.73	0.98	6
Pandora	P3B	10.57	0.95	7
Havannah	H1A	7.70	0.93	9
Havannah	H1B	5.32	0.99	6
Havannah	H2A	10.73	0.95	6
Havannah	H2B	8.39	0.97	8
Pandora	P1C	8.73	-	-
Pandora	P1D	14.79	-	-
Pandora	P1E	6.87	-	-
Pandora	P1F	4.96	-	-
Pandora	P1H	4.98	-	-
Pandora	P2C	16.30	-	-
Pandora	P2D	14.46	-	-
Pandora	P2E	35.19	-	-
Pandora	P2F	23.18	-	-
Pandora	P2G	25.28	-	-
Pandora	P2H	10.06	-	-
Pandora	P3C	11.54	-	-
Pandora	P3D	3.82	-	-
Pandora	P3E	9.54	-	-
Pandora	P3F	6.08	-	-
Pandora	P3G	15.07	-	-
Pandora	P3H	5.65	-	-
Havannah	H1C	14.71	-	-
Havannah	H1D	11.49	-	-
Havannah	H1E	13.41	-	-
Havannah	H1F	6.32	-	-
Havannah	H1G	12.17	-	-
Havannah	H1H	7.63	-	-
Havannah	H2C	11.98	-	-
Havannah	H2D	19.40	-	-
Havannah	H2E	11.28	-	-
Havannah	H2F	7.97	-	-
Havannah	H2G	7.40	-	-
Havannah	H2H	19.35	-	-