

**[Supplementary material]**

**A re-evaluation of manner of death at Roman Herculaneum following the AD 79 eruption of Vesuvius**

Rachelle Martyn<sup>1</sup>, Oliver Craig<sup>1</sup>, Sarah Ellingham<sup>2</sup>, Meez Islam<sup>3</sup>, Luciano Fattore<sup>4</sup>,  
Alessandra Sperduti<sup>5</sup>, Luca Bondioli<sup>6</sup> & Tim Thompson<sup>3,\*</sup>

<sup>1</sup> *Department of Archaeology, University of York, UK*

<sup>2</sup> *International Committee of the Red Cross, Geneva, Switzerland*

<sup>3</sup> *School of Health and Life Sciences, Teesside University, UK*

<sup>4</sup> *Department of Chemical Engineering and Environmental Materials, Sapienza University of Rome, Italy*

<sup>5</sup> *Bioarchaeology Service, Museum of Civilizations, Rome, Italy*

<sup>6</sup> *Luigi Pigorini Museum of Prehistory and Ethnography, Rome, Italy*

\* *Author for correspondence (Email: t.thompson@tees.ac.uk)*

**Table S1. Crystallinity indices outputs from the spectroscopic analyses.**

<i>Fornici</i>	<b>Individual</b>	<b>CI</b>	<b>CO/COP</b>	<b>CO/CO<sub>3</sub></b>	<b>CO<sub>3</sub>/P</b>	<b>PHT</b>	<b>Line width</b>	<b>C/P</b>	<b>C/C</b>
7	1	3.377650395	0.125489993	0.356001644	0.190546218	1.208633517	86.13913333	0.352400249	0.938868468
7	2	3.293525392	0.16082663	0.416565926	0.214839748	1.296185232	88.711	0.385958865	0.920401543
7	3	3.270248133	0.146345125	0.355414157	0.210369594	1.349854016	86.782	0.411651201	0.924065968
7	4	3.203850395	0.159247321	0.482072035	0.222985608	1.150500971	91.92473333	0.330224471	0.942013188
7	5	2.896284686	0.272190121	0.82908422	0.319498399	1.120683643	139.4944	0.329252697	0.974297309
7	6	2.991906674	0.217332946	0.719566961	0.267029775	1.107667739	135.6375667	0.301618132	1.038601892
7	7	3.059636282	0.223273318	0.491847682	0.254758781	1.2360425	97.71046667	0.453803432	0.921613108
7	8	3.589695914	0.109489766	0.360821656	0.167124518	1.327082268	76.4966	0.303381234	0.949494302
7	9	2.93171779	0.235026534	0.571944183	0.279037821	1.155786716	106.7101333	0.410456566	0.96230528
7	10	4.32895812	0.403511516	0.866172074	0.321007778	1.115943336	134.3517333	0.46379259	0.961240522
7	11	3.077077808	0.228011352	0.457263388	0.22256114	1.193775917	93.85333333	0.498510348	0.92856779
8	1	3.18515248	0.172496921	0.487863507	0.236919641	1.212854593	100.2814	0.353545896	0.940452384
8	2	3.118360366	0.183659834	0.423768553	0.240453149	1.25886919	92.568	0.43329016	0.930571885
8	3	2.58968612	0.245661684	0.618162239	0.26575011	1.183412662	153.6370667	0.397338124	0.944233961
8	4	3.302227135	0.122628315	0.295755787	0.229912925	1.339836091	92.5674	0.414623978	0.907878978
8	5	3.326262151	0.137746795	0.339501528	0.211877039	1.28136418	88.068	0.405627242	0.911941795
8	6	3.083560367	0.175358307	0.383430689	0.313722757	1.198220452	116.9952333	0.457281289	0.925289126
8	7	3.181562153	0.18445734	0.481736567	0.258609809	1.244689245	103.4959333	0.382659632	0.929000294
8	8	2.62704774	0.584864227	0.947875501	0.492444204	1.077474457	170.9934	0.617444849	1.041432882
8	9	3.171919898	0.19639464	0.441710509	0.254508455	1.274265077	96.425	0.444631206	0.930998582
8	10	3.278625269	0.144741423	0.299979439	0.26822153	1.256065312	97.0674	0.482271389	0.927983739
8	11	2.986756493	0.197043959	0.431411102	0.257673725	1.212509107	100.282	0.456690446	0.926922215
8	12	3.211342059	0.180051886	0.478604665	0.218451985	1.343112773	95.139	0.376005187	0.926823677
8	13	2.969271028	0.358285128	0.64583512	0.328611078	1.178569299	129.2092333	0.554434639	0.919745632
8	14	2.569207472	0.553508719	0.905960293	0.414327454	1.082606144	156.8512333	0.609853728	1.005150299
8	15	3.658069195	0.094749669	0.260019738	0.198463751	1.254622074	73.2824	0.364396764	0.914397141

8	17	3.38755734	0.165704257	0.441288766	0.196736839	1.38926115	83.568	0.375487698	0.932210058
8	18	2.85139228	0.299836818	0.641264245	0.267215117	1.136975365	95.139	0.467612235	0.985655047
8	19	4.297243576	0.212952478	0.966950795	0.41729268	1.06991733	161.9935	0.220229287	1.014966728
8	21	3.567414504	0.12299823	0.393092732	0.194614449	1.414442176	84.854	0.312874708	0.918857625
8	22	2.992376518	0.364592306	0.620835069	0.363507931	1.095522632	126.6377333	0.587117492	0.997715086
8	23	2.989523333	0.316613083	0.614735759	0.285074508	1.217548427	103.4957333	0.514941849	0.928659331
9	1	2.966553253	0.197781961	0.480356087	0.280421865	1.203471775	123.4239	0.411740304	0.936329814
9	2	3.099847385	0.202306022	0.555754288	0.2442746	1.230191803	98.353	0.364020622	0.967718723
9	3	3.151543352	0.17286638	0.444987312	0.247707553	1.185988175	104.1389	0.388474851	0.930807754
9	5	2.899599808	0.205678597	0.443750476	0.337881732	1.204668662	134.9949	0.463500566	0.930224934
9	6	3.16817431	0.203005708	0.525917572	0.22826437	1.224621543	92.568	0.386002899	0.928849176
9	7	3.071171134	0.18766845	0.393429849	0.266156481	1.278652146	104.1384	0.477006131	0.925663514
9	9	3.447569387	0.139259071	0.401109176	0.176650301	1.37850342	77.14	0.347184955	0.901639537
9	10	2.453018877	0.529514478	0.930977318	0.499032838	1.060586479	185.1359	0.568772696	1.009064608
9	11	3.347851206	0.505182535	1.041934928	0.508462704	1.096895543	198.6353	0.484850369	0.999842433
9	12	3.236665099	0.16100673	0.308538702	0.281296105	1.329767416	96.4244	0.521836415	0.923502919
9	13	3.180544776	0.222918927	0.560383191	0.216789547	1.377525538	104.1384	0.397797311	0.923743847
9	14	2.884519459	0.298766336	0.970108278	0.41370349	1.093727936	177.4219	0.307972154	0.974976172
9	15	2.603102066	0.49824608	0.739704073	0.424206312	1.134483617	156.2084	0.673574877	0.909526565
9	16	3.118511001	0.204462712	0.621283532	0.268379404	1.159607653	129.2089	0.329097267	0.940707075
9	17	3.080778961	0.156690275	0.391311484	0.23169006	1.239896044	96.425	0.4004234	0.929004891
9	18	2.981870672	0.197255723	0.47819687	0.266383169	1.177409504	107.996	0.412498985	0.948877912
9	19	2.854705228	0.230418499	0.610177953	0.262638075	1.081849376	100.282	0.377625081	0.961168757
9	20	3.266387365	0.149124683	0.407385742	0.223325331	1.337778587	100.2814	0.36605278	0.934541442
9	21	2.700315607	0.335357997	0.647748064	0.355889017	1.102893851	142.7084	0.517729061	0.938973238
9	23	3.39233671	0.13717155	0.390769791	0.205329512	1.273561594	88.711	0.351029053	0.926074524
9	24	3.010701041	0.194445018	0.398323199	0.290209467	1.269121621	100.282	0.488158909	0.954424749
9	26	3.311379863	0.144395988	0.4373305	0.242751412	1.134035314	100.2814	0.330175892	0.950140016

9	28	3.168403256	0.192308973	0.496273324	0.231848781	1.196537341	92.5674	0.387506166	0.956317589
9	29	2.948384124	0.226642944	0.635297834	0.266407902	1.203955408	127.2809	0.356750695	0.93041949
9	30	3.185725159	0.171861222	0.501563746	0.270413001	1.203983822	117.6384	0.342650806	0.952968012
9	31	3.590936514	0.330278367	0.642560344	0.382991132	1.042971811	136.9234	0.514003657	0.969284733
9	32	4.12818644	0.361621402	1.006923429	0.349497601	1.056810778	53.998	0.359134956	1.049188075
9	33	2.759491798	0.25146101	0.567939075	0.297591549	1.185421019	107.9954	0.442760538	0.939767872
10	1	3.772392452	0.364544996	0.818727119	0.344045323	1.094893927	129.2094333	0.444650643	0.973198585
10	2	3.351672976	0.139900328	0.40909857	0.190405341	1.390749797	80.35413333	0.341902014	0.958460408
10	3	3.117159822	0.198278027	0.707744941	0.294362244	1.147089524	127.2809	0.280138319	0.940377369
10	4	2.993476259	0.213460381	0.559884083	0.257087696	1.176179011	98.99613333	0.380222235	0.942067694
10	5	2.994485727	0.225579417	0.640906147	0.257468668	1.189433228	109.9241	0.351441524	0.959707763
10	6	3.149498617	0.180600667	0.420347421	0.250597521	1.286704556	91.9246	0.429643523	0.957925151
10	7	3.261572804	0.181176235	0.475249335	0.224584468	1.337424384	96.4246	0.380973863	0.923015297
10	8	2.938061092	0.271326328	0.642283493	0.283048714	1.252095554	104.1387333	0.420163888	0.962514182
10	9	3.219408535	0.17190806	0.570295091	0.268784462	1.326214791	125.3524	0.300570089	0.946175417
10	10	3.110128459	0.277671493	0.667260942	0.261482558	1.225480684	111.2097333	0.416012346	0.935058117
10	11	3.233845677	0.196873063	0.50488809	0.218919143	1.283591988	95.13893333	0.389544527	0.933966019
10	12	3.020275718	0.278815495	0.602718027	0.260137915	1.230823091	100.2816667	0.462543533	0.935553868
10	14	2.833422525	0.493505989	0.83941741	0.352135886	1.2387943	141.4230667	0.587744036	0.935666389
10	15	2.929530409	0.448144116	0.771126343	0.339649422	1.273537736	138.2087333	0.581128528	0.909831754
10	16	3.074057093	0.278955358	0.625302488	0.274235589	1.233647481	127.2805667	0.446069236	0.929903504
10	17	3.252992845	0.235192341	0.592778361	0.245534709	1.400479146	106.0674	0.396684248	0.934212582
10	18	3.08657063	0.363692339	0.762645276	0.283193807	1.296820034	126.6375667	0.47688348	0.925447632
10	19	2.573702023	0.549640535	0.938656582	0.424917107	1.065811181	168.4217333	0.585374826	0.95073645
10	20	3.086929237	0.357452799	0.711375388	0.294572915	1.25688849	124.7092333	0.502476456	0.925066154
10	21	3.291563929	0.200050442	0.510273952	0.213433201	1.400256165	90.6394	0.391907356	0.913112734
10	22	2.778622091	0.634137637	1.01461289	0.41399819	1.091924744	169.0648667	0.62370889	1.019470837
10	23	3.265388748	0.299572483	0.686569166	0.264000756	1.371848347	123.4234	0.436328296	0.904734342

10	24	3.014754602	0.347977761	0.673225692	0.296628198	1.324308966	124.0665667	0.516798074	0.908793333
10	25	3.043262584	0.367878791	0.73927999	0.303658518	1.239472699	127.9232333	0.497611738	0.908979489
10	26	2.842550765	0.477060655	0.888248822	0.358137984	1.144004872	142.7084	0.536939843	0.966215043
10	27	3.022361208	0.317861666	0.696527944	0.265973375	1.329891157	122.1382333	0.45635214	0.932503146
10	28	3.369579494	0.351640564	1.128560507	0.468136527	1.062901917	194.1351667	0.31181717	1.033851983
10	29	3.272160549	0.266682344	0.786207514	0.383406495	1.167524363	161.3507333	0.338253324	0.986687102
10	32	3.257209096	0.182759056	0.483247474	0.224217319	1.408294831	93.2104	0.377858985	0.949466454
10	33	3.858364962	0.082157332	0.336011529	0.122763199	1.320549459	67.497	0.244497313	0.923059666
10	34	2.848654617	0.317351376	0.73358632	0.307715434	1.126216522	113.7811333	0.431722092	0.957263099
10	35	2.766391754	0.406734934	0.82767431	0.363645509	1.216309699	160.7080667	0.491451487	0.948945766
10	36	3.504045245	0.121243304	0.342974372	0.174865007	1.378661994	77.1394	0.35350014	0.907626529
10	38	3.097651608	0.23829779	0.829494108	0.297259109	1.176565517	140.1372333	0.286980878	1.002604881
10	39	3.248970987	0.315024049	0.721024868	0.285642827	1.279922331	123.4239	0.436902162	0.91335005
10	40	3.652149078	0.15286505	0.551819288	0.177784178	1.457004461	86.782	0.27696609	0.923219432
11	1	3.673421675	0.112110456	0.393579338	0.140588712	1.37200356	70.0684	0.284826687	0.935509171
11	2	3.22384275	0.242411398	0.590998078	0.212659362	1.308136267	95.139	0.409879099	0.913672485
11	3	3.598675138	0.130897736	0.423248383	0.152226933	1.321599871	77.14	0.30925994	0.917664842
11	4	3.458020436	0.166215368	0.456492078	0.176052125	1.463294307	82.9254	0.364064112	0.926598355
11	5	3.437638563	0.184638283	0.516198836	0.195385641	1.392406227	88.7104	0.357684338	0.920681588
11	6	3.010168421	0.359830847	0.689635781	0.268435927	1.271221778	120.2097333	0.521772497	0.90792149
11	7	3.242578526	0.281623808	0.626301759	0.230146842	1.342326375	98.3534	0.449658368	0.900796472
11	8	2.860480422	0.438142894	0.973829952	0.377649068	1.134101634	162.6364	0.449951293	0.950860769
11	9	2.950747231	0.524513693	0.856165525	0.32137644	1.186424205	131.7802333	0.612368651	0.91071742
11	10	3.320780008	0.227237729	0.584185798	0.200713659	1.44140579	89.99646667	0.388818404	0.894981108
11	11	3.295110141	0.206021119	0.523213647	0.199327109	1.327595057	88.711	0.393749767	0.91539494
11	14	3.042048596	0.442561924	0.808881746	0.293090078	1.25088139	125.3519	0.547103161	0.929336618
11	15	3.252262516	0.230861334	0.628577893	0.206371746	1.259803917	89.9966	0.36728157	0.967110402
11	16	3.503104185	0.115627685	0.340507648	0.172969923	1.421183879	76.49693333	0.339282455	0.917705735

11	17	3.544502142	0.108192466	0.359919715	0.160905941	1.296850755	77.14	0.300569905	0.946861846
11	18	3.423725054	0.153391337	0.442548561	0.188527765	1.312833033	86.1394	0.346491472	0.90692922
11	19	3.099619741	0.220104227	0.528337033	0.251521244	1.249980927	98.99626667	0.41644494	0.931041849
11	20	3.486463662	0.111437704	0.33948283	0.17228999	1.340587396	80.9964	0.327889309	0.913535401
11	21	2.93442075	0.286980703	0.707658092	0.287605287	1.166035582	132.4234	0.405440982	0.952435776
11	22	3.543070702	0.115713241	0.331100251	0.188344004	1.271669961	78.42533333	0.349307919	0.935844622
11	23	3.633484573	0.108073558	0.356144017	0.160113364	1.301066253	80.997	0.303438266	0.903235309
11	24	3.941995279	0.083739202	0.358467105	0.112535064	1.315565423	1058.745	0.233607254	0.926532913
12	1	3.476411489	0.152553737	0.533277298	0.194120389	1.247898767	92.5674	0.285900432	0.935687478
12	2	3.201828457	0.298721564	0.664937359	0.267146569	1.249768794	116.9955667	0.449179992	0.921489328
12	3	3.33894169	0.190637434	0.527493622	0.196691904	1.352515751	89.3534	0.361376584	0.926545482
12	4	3.348896854	0.223960365	0.575957417	0.218048265	1.429245856	94.4964	0.388778671	0.911663442
12	5	3.234207447	0.219144356	0.581738307	0.223569371	1.294497311	93.2104	0.376608357	0.933814204
12	6	3.360241654	0.142493941	0.46664215	0.214502605	1.295601021	96.425	0.30521811	0.946530099
12	7	2.966437758	0.335658095	0.635350922	0.305127385	1.225140099	127.2807333	0.527699005	0.921377843
12	8	3.445055684	0.150578635	0.445963268	0.177857888	1.37785256	82.925	0.337632597	0.912800354
12	9	3.125611999	0.273075381	0.650732124	0.257829758	1.309031908	108.6384	0.419603673	0.92234943
12	10	3.557312075	0.226104876	1.069691061	0.401701434	1.08294295	163.2791667	0.211383476	1.012930466
12	11	2.884533455	0.450540039	0.894522752	0.341453974	1.220393382	144.6370667	0.50371562	0.946128143
12	12	3.271529924	0.2520936	0.976756374	0.395284564	1.133154592	162.6367	0.258097753	0.972696614
12	13	2.295458415	0.639166157	0.96056699	0.586078298	1.039514676	142.0659	0.66464266	0.985980974
12	14	2.979490275	0.310432939	0.704243461	0.277570508	1.260228526	115.7094	0.439944328	0.933363812
12	15	2.85417725	0.472915064	0.908974276	0.34877774	1.198502689	142.0657333	0.519100802	0.937435529
12	16	3.246894161	0.214938252	0.575341702	0.217230932	1.423031395	95.7818	0.37343595	0.911081802
12	17	2.453957714	0.572368917	0.972080838	0.461619351	1.056520344	179.9930333	0.58817221	0.961114679
12	18	2.6918309	0.427639662	0.998819497	0.358628888	1.083246466	156.2079	0.427900881	0.981898434
12	19	2.804469424	0.259906628	0.747395526	0.297760393	1.131734501	134.9945667	0.346468774	0.952858062
12	20	3.649351413	0.105688224	0.411128053	0.146601251	1.410525793	77.7824	0.257050583	0.931123832

12	21	3.181686547	0.183798161	0.803605584	0.33262701	1.110199102	139.4945667	0.227777094	0.978338349
12	22	3.515817814	0.126940319	0.432030868	0.187715302	1.357216326	89.35346667	0.293145	0.908147165
12	23	3.306424764	0.218467163	0.702769321	0.237646811	1.425004335	124.7094	0.31073833	0.919356501
12	24	3.566419872	0.116750755	0.373762892	0.169217092	1.419741045	81.63926667	0.312325753	0.92742427
12	25	3.215047142	0.211002008	0.621012709	0.246600324	1.304067766	120.2095667	0.339344742	0.933316957
12	26	3.223407721	0.26529686	0.694566572	0.251575365	1.384811152	124.7090667	0.381894533	0.922448788
12	27	2.941436195	0.319059687	0.690378376	0.305472719	1.239677225	135.6374	0.462034596	0.930119746
12	29	3.444334861	0.147058384	0.423896441	0.185189989	1.40858128	81.6394	0.346856493	0.917132669
12	30	3.004482991	0.366273145	0.708872891	0.304574258	1.244171599	122.7805667	0.51648246	0.916451152
12	31	3.284287646	0.311183837	1.006567501	0.366143293	1.096638343	158.7797333	0.30906317	0.987663731

---