

SUPPLEMENTARY DATA

Amino acid racemization/epimerization (AAR) dating of *Glycymeris* from the Tenerife, Lanzarote and Gran Canaria

Mean D/L values of isoleucine, aspartic acid, alanine, valine and glutamic acid measured in *Glycymeris* shells from different localities. N: number of samples analysed

Site/locality		N	D-allo/L-Ile	D/L Asp	D/L Ala	D/L Val	D/L Glu	Age (ka)
Teno platform (Tenerife)	Teno -1	7	0.537±0.105	0.535±0.018	0.734±0.094	0.487±0.065	0.394±0.027	141 ± 27
	Teno -2	15	0.554±0.084	0.551±0.083	0.694±0.071	0.437±0.042	0.417±0.091	145 ± 23
	Faro	11	0.474±0.067	0.661±0.040	0.821±0.054	0.651±0.083	0.520±0.045	126 ± 17
Isla Baja platform (Tenerife)	Playa Las Arenas-1	4	0.455±0.049	0.675±0.037	0.790±0.070	0.634±0.106	0.526±0.067	119 ± 13
	Playa Las Arenas-2	2	0.535±0.013	0.691±0.011	0.772±0.005	0.503±0.080	0.562±0.030	141 ± 3
	Cenizales-1	6	0.469±0.029	0.681±0.058	0.772±0.051	0.434±0.034	0.542±0.028	123 ± 8
	Cenizales-2	6	0.288±0.009	0.508±0.043	0.607±0.035	0.360±0.023	0.374±0.017	74 ± 2
Piedra Alta (Lanzarote)	Piedra Alta -1	7	0.824±0.001	0.625±0.003	0.934±0.027	0.723±0.070	0.628±0.001	218 ± 3
	Piedra Alta -2	7	0.670±0.092	0.722±0.063	0.937±0.038	0.661±0.053	0.693±0.095	181 ± 27
Agaete (Gran Canaria)	Aldea-1	7	0.612±0.078	0.642±0.062	0.858±0.053	0.649±0.068	0.562±0.051	164 ± 23
	Aldea-2	5	0.610±0.033	0.632±0.034	0.799±0.048	0.638±0.049	0.581±0.040	160 ± 8
	Turman	5	0.683±0.078	0.661±0.052	0.854±0.052	0.699±0.060	0.616±0.082	180 ± 21

Thermoluminescence dating (TL) in quartz grains from Agaete (Gran Canaria)

Samples Agaete		
Aldea -1	MAD-5759SDA	Base inf. - Nivel TSU-1 - Cota 64 m
Aldea -2	MAD-5788SDA	Costra sup. - Nivel TSU-1 - Cota 64 m
Aldea -3	MAD-5789RSDA	Base nivel alto - TSU-2a - Cota 71 m
Aldea -4	MAD-5760SDA	Techo nivel alto - Nivel TSUN-26 - Cota 71 m

Result of TL measures

Referencia Laboratorio	Dosis Equivalente (Gy)	Dosis Anual (mGy/año)	Número de años B.P.	Localización
MAD-5759SDA	233,37	1,65	141436±17719	costra (Aldea-1)
MAD-5788SDA	193,86	1,36	142544±18558	costra (Aldea-2)
MAD-5789RSDA	155,01	2,50	62003±7333	costra (Aldea-3)
MAD-5760SDA	95,31	1,56	61730±7691	costra (Aldea-4)

TL measures

Referencia Laboratorio	Dosis Equivalente	Supralinealidad (Gy)	Plateau (°C)	Factor K	Condiciones
MAD-5759SDA	233,37±37,58	0	370-410	0,07	Tamaño grano de 2-10 micras
MAD-5788SDA	193,86±39,56	0	350-400	0,29	
MAD-5789RSDA	155,01±35,76	0	330-380	0,22	
MAD-5760SDA	95,31±17,39	0,99	300-350	0,17	

Parámetros asociados a Dosis Anual

Material Calcáreo					
Muestra	U(ppm)	Th(ppm)	K ₂ O(%)	H ₂ O(%)	H ₂ Osat(%)
MAD-5759SDA	1,71	3,36	0,32	3,49	7,52
MAD-5788SDA	0,47	1,43	0,01	5,44	20,13
MAD-5789RSDA	1,94	1,94	0,02	3,01	11,00
MAD-5760SDA	1,01	1,40	0,11	5,45	20,98

U-Th dating of coral fragments from Teno (Tenerife) and Piedra Alta (Lanzarote)

U and Th activity ratios in Canary Islands corals for the first group of corals (2013)

Sample	Location	[²³⁰ Th/ ²³⁸ U]	[²³⁴ U/ ²³⁸ U]	[²³⁸ U/ ²³² Th]	[²³⁰ Th/ ²³² Th]
PA1-I	Piedra Alta	0.3349	1.0489	177	59
PA1-II	Piedra Alta	7.1710	1.0759	3	18
LZ-2A-I	Piedra Alta	0.3602	1.0249	1152	415
LZ-2A-II	Piedra Alta	5.4063	1.0293	19	100
LZ-2B-I	Piedra Alta	0.4635	1.0773	185	86
LZ-2B-II	Piedra Alta	4.2327	0.9902	8	35
TB-3-I	Tenerif	0.1827	1.1052	143	26
TB-3-II	Tenerif	6.3689	1.0972	1	7
TB-4-I	Tenerif	0.1838	1.1317	27	5
TB-4-II	Tenerif	3.1123	1.0428	1	2
LANZA-I	Piedra Alta	0.2383	1.0473	123	29
LANZA-II	Piedra Alta	7.7992	1.0821	1	8
LANZA-M6-I	Piedra Alta	0.2609	1.0513	180	47
LANZA-M6-II	Piedra Alta	8.4661	1.1025	2	19
TENO-I	Tenerif	0.5154	1.0332	200	103
TENO-II	Tenerif	16.2984	1.0976	2	26
TENO M7-I	Tenerif	0.3698	1.0416	310	115
TENO M7-II	Tenerif	11.0627	1.0506	3	31

Errors on the activity ratios are lower than 0.7 %

Th ratios and ages in corals from second group (2017)

Sample	2err	230Th/229Th	error	2err	U-Th C.S age	err (+/-)	~U-Th C.S age (Ka)
Ten 11	3,8	0,300914	0,0023	0,0046	43618	885	44
Ten 12	58	0,91107	0,0041	0,0082			
Ten 13	54	0,69979	0,00523	0,01046			
Ten 14	64	0,5041644	0,0032	0,0064			
Ten 15	102	0,400125	0,00283	0,00566	213528	12119	214
Ten 16	98	0,37091	0,00155	0,0031	61407	1047	61
LAN-LS1*	2,32	0,68721	0,00427	0,00854	110585	2563	111
LAN 2	18,6	0,91155	0,0095	0,019	299152	41918	299
LAN 3	8,2	0,665444	0,0052	0,0104	342555	44291	343
LAN 4	4,48	0,62195	0,00058	0,00116	211316	3850	211
LAN 5	4,2	0,78761	0,00475	0,0095	357844	41993	358
LAN 6-2	4	0,54759	0,0028	0,0056	235931	9946	236
LAN 7	2	0,47025	0,0035	0,007	135796	4440	136
LAN 8	3,1	0,662	0,004	0,008	181751	6404	182
LAN 9	3,4	0,583233	0,0039	0,0078	236264	12640	236
LAN 10	5,4	0,77622	0,0046	0,0092	222133	10036	222

* For Calibration and verification purposes

Activity ratios and ages of corals from the third group (2013)

Muestras Lanzarote		Age (ka)
1	La Santa *	112,219 + 6,178 / -5,863 (possible MIS 5.5)
2A	Piedra Alta – A	> 350,000
2B	Piedra Alta -B	192,587 +18,009 / -15,532

* For Calibration and verification purposes

U-238 (ppm)	Th-232 (ppm)	U-234/U-238	Th-230/Th-232	Th-230/U-234	Nominal date (years BP)
3.30	0.22	1.05 +/- 0.01	50.120 +/- 2.424	1.03 +/- 0.04	> 350,000
4.47	****	1.15 +/- 0.01	****	0.65 +/- 0.02	112,219 +6,178 / -5,863
2.85	0.06	1.07 +/- 0.01	124.916 +/- 9.620	0.84 +/- 0.03	192,587 +18,009 / -15,532