Data compilation to accompany the paper:

A Lateglacial age for the Main Rock Platform, western Scotland

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SAMPLE DETAILS

Samples were collected along the southwest coast of the Isle of Lismore between Port nan Galian and Achadun Bay. Elevations refer to British Ordnance Datum (OD), which is 0.55 m below present-day mean sea level at Lismore. Thickness estimates assume a bulk density of 2.6 g cm^{-3}. Exposure geometry corrections are integrated with respect to a $Sin^{2.3}(\theta)$ distribution for incoming cosmic radiation, where θ is measured from the horizon. Corrections to the production rate of spallogenic ^{36}Cl to account for sample thickness assume that production decreases exponentially with depth beneath the surface, with an attenuation length of 160 g cm^{-2}. Correction factors for production by thermal and epithermal neutron capture are calculated using the treatment given by Liu et al. (1994). Note that these factors depend both on thickness and the whole-rock compositions given in Table A3 below.

TABLE A1: SAMPLE DETAILS AND PRODUCTION RATE CORRECTION FACTORS

Sample	LSM-4	LSM-7	LSM-8	LSM-9	LSM-10
Latitude	55° 29' 37"	55° 29' 20"	55° 29' 20"	55° 29' 20"	55° 29' 17"
Elevation(m OD)	8	8	8.5	8.5	4
Thickness (cm)	5.0	5.0	7.0	3.0	5.5
Thickness (g cm^{-2})	13	13	19	8	15
Correction factors for ^{36}Cl production by spallation and neutron capture					
Exposure geometry	1.00	1.00	0.99	0.97	1.00
Elevation	1.01	1.01	1.01	1.01	1.00
Thickness (spallation)	0.96	0.96	0.94	0.98	0.95
Thickness (thermal neutrons)	1.43	1.42	1.54	1.27	1.52
Thickness (epithermal neutrons)	1.04	1.03	1.04	1.02	1.03

CALCITE TARGET ELEMENT ANALYSES

Sample solutions were analysed to determine the Ca and Cl contents of the calcite dissolved for ^{36}Cl measurement. Based on experience from many samples, calcite is assumed to contain no potassium (the other principal target element for spallogenic ^{36}Cl production). Samples were not analysed for this element. Uncertainties in the Ca analyses are estimated at ± 1% relative. Uncertainties in the Cl analyses are as shown.

TABLE A2: CALCITE ANALYSES

Sample	LSM-4	LSM-7	LSM-8	LSM-9	LSM-10
Major elements (wt %)					
CaO	54.7	55.2	54.9	55.1	55.3
Trace elements (ppm)					
Cl	26 ± 3	98 ± 12	173 ± 3	124 ± 5	126 ± 10

WHOLE-ROCK CHEMICAL ANALYSES

Major and trace element concentrations used to calculate neutron production, thermalisation and absorption properties of the samples. Uncertainties are estimated at ± 1% relative for major elements except H and C (calculated as H_2O and CO_2 by difference, mineralogical norms) for which uncertainties are estimated at ± 10% relative. Uncertainties for trace elements vary, but are typically between ± 0.1 ppm and 0.2 ppm absolute, except for Li, for which uncertainties are ~± 1 ppm absolute.

TABLE A3: WHOLE-ROCK CHEMICAL ANALYSES

Sample	LSM-4	LSM-7	LSM-8	LSM-9	LSM-10
Major elements (wt %)					
SiO_2	18.36	6.67	20.22	19.91	3.23
TiO_2	0.09	0.02	0.04	0.05	0.01
Al_2O_3	2.82	0.53	1.66	1.70	0.28
FeO	1.73	0.74	1.44	1.40	0.48
MnO	0.04	0.03	0.04	0.04	0.02
MgO	0.60	0.47	0.87	0.73	0.34
CaO	40.86	50.48	41.07	41.71	52.78
Na_2O	0.20	0.12	0.37	0.38	0.06
K_2O	0.88	0.03	0.09	0.10	0.10
P_2O_5	0.02	0.03	0.03	0.03	0.02
H_2O	1.5	0.7	1.1	1.2	0.7
CO_2	32.8	40.2	32.9	33.3	42.0
Trace neutron absorbing elements (ppm)					
Li	12	1.5	30	12	1.4
B	0.8	0.4	0.5	0.5	0.2
Sm	1.9	0.7	1.5	1.6	0.5
Gd	1.4	0.6	1.1	1.3	0.4
Neutron-, alpha-emitters (ppm)					
U	0.5	0.1	0.4	0.4	0.1
Th	3.2	0.8	2.2	2.9	0.5

PRODUCTION RATES

Chlorine-36 production rates are determined by the Ca and Cl contents of the calcite samples, the compositionally-dependent neutron moderating and absorption properties of the whole-rocks, and the elevation, thickness and irradiation geometry corrections given in Table A1. Production rates are referenced to the siderial time scale and are based on the calibration measurements of Stone et al. (1994, 1996), Liu et al., (1994) and Phillips et al. (1996). The "background" ^{36}Cl production rate assumes local equilibrium between capture of neutrons and their production by U-fission and (α,n) reactions, with (α,n) yields calculated by the method of Fabryka-Martin (1988). The ^{36}Cl production rate by Ca spallation at sea level at Lismore is taken as 48.8 ± 3.4 atom $(g\ Ca)^{-1}\ a^{-1}$ (Stone et al., 1996). The rate for production by muon capture on ^{40}Ca is taken as 4.8 ± 1.2 atom $(g\ Ca)^{-1}\ a^{-1}$ (slightly revised from the value in Stone et al. (1994)). Production by thermal and epithermal neutron capture on ^{35}Cl is calculated by the method of Liu et al. (1994), with a secondary neutron production rate of 586 ± 40 neutrons $(g\ air)^{-1}\ a^{-1}$, as given by Phillips et al. (1996). Stated uncertainties are based on a full propagation of errors in chemical data and reference production rates.

TABLE A4: CHLORINE-36 PRODUCTION RATES

Sample	LSM-4	LSM-7	LSM-8	LSM-9	LSM-10
Ca spallation rate (atom g^{-1} a^{-1})	18.50 ± 0.65	18.71 ± 0.65	18.18 ± 0.63	18.64 ± 0.65	18.36 ± 0.64
Ca(μ^-,α)^{36}Cl rate (atom g^{-1} a^{-1})	1.82 ± 0.36	1.84 ± 0.37	1.79 ± 0.36	1.83 ± 0.37	1.81 ± 0.36
Neutron absorption properties					
Macroscopic cross-section: thermal neutrons (cm^2 g^{-1})	0.00378 ± 0.00004	0.00308 ± 0.00003	0.00354 ± 0.00003	0.00348 ± 0.00005	0.00301 ± 0.00003
Fraction thermal neutrons captured by ^{35}Cl	0.0039 ± 0.0005	0.0178 ± 0.0022	0.0274 ± 0.0005	0.0200 ± 0.0009	0.0235 ± 0.0019
Fraction epithermal neutrons captured by ^{35}Cl	0.0029 ± 0.0004	0.0121 ± 0.0015	0.0201 ± 0.0004	0.0144 ± 0.0006	0.0159 ± 0.0013
^{35}Cl(n,γ)^{36}Cl rate: thermal neutrons (atom g^{-1} a^{-1})	1.09 ± 0.17	4.53 ± 0.68	8.03 ± 0.69	4.75 ± 0.54	6.30 ± 0.75
^{35}Cl(n,γ)^{36}Cl rate: epithermal neutrons (atom g^{-1} a^{-1})	0.07 ± 0.01	0.37 ± 0.05	0.55 ± 0.04	0.37 ± 0.03	0.50 ± 0.05
Total ^{35}Cl(n,γ)^{36}Cl rate (atom g^{-1} a^{-1})	1.16 ± 0.17	4.90 ± 0.68	8.58 ± 0.69	5.12 ± 0.54	6.80 ± 0.75
Radiogenic background ^{36}Cl production					
Background neutron production rate (n g^{-1} a^{-1})	0.85 ± 0.06	0.14 ± 0.05	0.62 ± 0.06	0.72 ± 0.07	0.11 ± 0.05
Background ^{36}Cl production rate (atom g^{-1} a^{-1})	0.0033 ± 0.0005	0.0025 ± 0.0009	0.0171 ± 0.0017	0.0144 ± 0.0015	0.0024 ± 0.0011
Background ^{36}Cl production rate (10^3 atom g^{-1})	1.4 ± 0.2	1.1 ± 0.4	7.4 ± 0.7	6.3 ± 0.7	1.0 ± 0.5