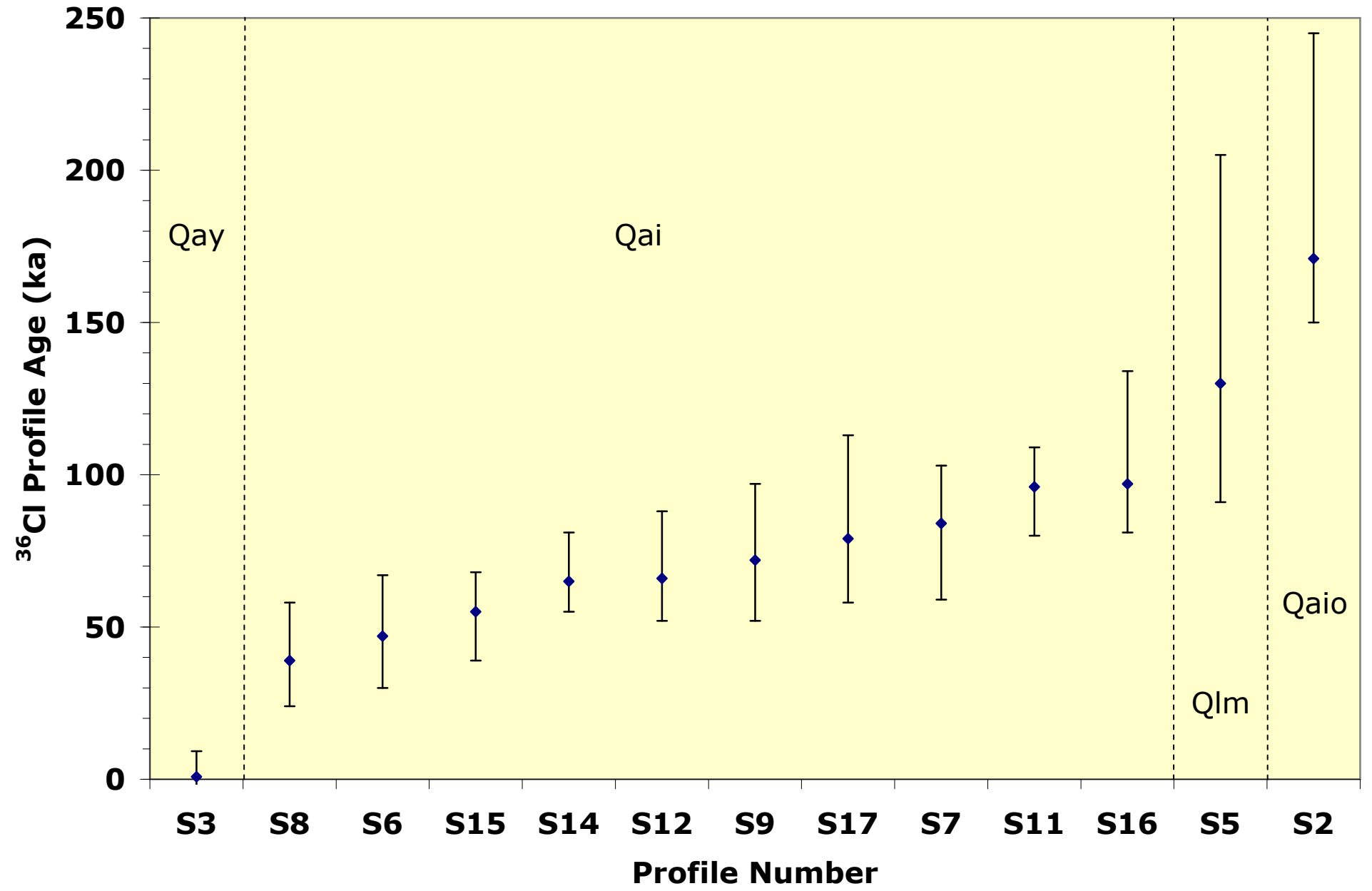


Summary of Depth Profile Ages



Summary of depth profile ages, errors, erosion rates, and inheritance

Profile Number	2	3	5	6	7	8	9
Age (ka)	171	0.8	130	47	84	39	72
Error (ka)	+74, -21	+8.4,-8.6	+75, -39	+20, -17	+19, -25	+19, -15	+25, -20
Erosion Range (g cm² ky⁻¹)	0.5 to -0.5	0.5 to -0.5	0.5 to 1.0	0.0 to -0.7	0.0 to -0.7	0.7 to -0.25	0.0 to -0.7
Inheritance (kyr)	36±8	94±10	45±17	97±12	83±12	38±7	37±7
Reduced χ^2	0.16	0.86	0.97	0.22	0.85	0.11	0.62

Profile Number	11	12	14	15	16	17
Age (ka)	96	66	65	55	97	79
Error (ka)	+13, -16	+22, -14	+16, -10	+13, -16	+37, -16	+34, -21
Erosion Range (g cm² ky⁻¹)	0.0 to -0.7	0.5 to -0.5	0.0 to -0.7	0.0 to -0.7	0.6 to -0.6	0.4 to -0.5
Inheritance (kyr)	23±6	43±7	59±8	63±8	72±17	62±9
Reduced χ^2	0.27	0.86	0.75	0.12	1.37	0.18

Profile	Best estimate (ka)	Plus (ka)	Minus (ka)
S3	0.8	8.4	8.6
S8	39	19	15
S6	47	20	17
S15	55	13	16
S14	65	16	10
S12	66	22	14
S9	72	25	20
S17	79	34	21
S7	84	19	25
S11	96	13	16
S16	97	37	16
S5	130	75	39
S2	171	74	21

Summary of data for inheritance in depth profiles

Profile	Age	Plus	Minus	Inheritance	±	Decay-corrected inher. (ka)	Decay-corrected inher. (±)
S2	171	74	21	36	8	53	12
S3	0.8	8.4	8.6	94	10	94	10
S5	130	75	39	45	7	61	9
S6	47	20	17	97	12	108	13
S7	84	19	15	83	12	101	15
S8	39	19	15	38	7	42	8
S9	72	25	20	37	7	44	8
S11	96	13	16	23	6	29	7
S12	66	22	14	43	7	50	8
S14	65	16	10	59	8	69	9
S15	55	13	16	63	8	72	9
S16	97	37	16	72	17	90	21
S17	79	34	21	62	9	74	11

Hanupah Cyn. Depth Profiles (S8, S9, S11, S12)

41

Mean of uncertainties
Standard deviation

8

9.0

Depth Profile S2.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
6/13/2005

1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	2a 10-15	2b 30-38	2c 60-68	2d 90-110	2e 132-145	2f 175-185	Average	Std Dev	Coeff Var
C	1.02	4.50	3.16	2.28	2.05	4.26	2.88	1.350	46.91
Na	0.27	0.43	0.59	0.52	0.49	0.68	0.50	0.141	28.29
Mg	0.60	2.22	1.72	1.35	1.21	2.29	1.57	0.645	41.23
Al	3.67	7.40	9.77	10.41	10.55	12.53	9.06	3.111	34.36
Si	91.49	78.27	76.97	78.00	78.92	70.44	79.02	6.855	8.68
P	0.03	0.03	0.04	0.04	0.03	0.05	0.04	0.008	22.27
K	1.31	2.39	2.81	2.81	3.08	3.29	2.62	0.707	27.05
Ca	0.30	2.31	0.97	0.41	0.27	1.46	0.95	0.811	85.04
Ti	0.28	0.53	0.52	0.60	0.59	0.82	0.56	0.174	31.21
Mn	0.01	0.02	0.02	0.02	0.02	0.03	0.02	0.006	31.62
Fe	1.30	2.72	3.64	4.44	3.65	4.97	3.45	1.306	37.80
Cl	50.01	81.99	63.09	44.70	55.94	55.12	58.48	13.064	22.34
B	15.00	31.00	36.00	34.00	41.00	49.00	34.33	11.378	33.14
Sm	3.00	3.00	4.00	4.00	4.00	5.00	3.83	0.753	19.64
Gd	3.00	3.00	4.00	4.00	4.00	5.00	3.83	0.753	19.64
U	2.00	2.00	1.00	1.00	3.00	2.00	1.83	0.753	41.06
Th	4.00	6.00	7.00	10.00	10.00	12.00	8.17	2.994	36.67

Depth (cm)	Atoms/gram			Depth (cm)	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
	N_K	N_Ca	N_Cl						
10-15	1.6742E+20	3.22E+19	8.49E+17	10-15	2a	7.3E+05	32824.00	27.3	0.13
30-38	3.05E+20	2.48E+20	1.39E+18	30-38	2b	1.2E+06	40565.00	75.6	0.34
60-68	3.59E+20	1.04E+20	1.07E+18	60-68	2c	7.7E+05	22400.00	147.6	0.64
90-110	3.59E+20	4.40E+19	7.59E+17	90-110	2d	5.0E+05	17842.00	234.0	1.00
132-145	3.94E+20	2.90E+19	9.50E+17	132-145	2e	4.9E+05	39957.00	326.4	1.40
175-185	4.20E+20	1.57E+20	9.36E+17	175-185	2f	3.8E+05	16156.00	426.0	1.80

Chi-squared plot for depth-profile S2

Plot to find the minimum chi squared.

36 ka	Inheritance	100	114	128	142	156	170	184	198	212	240
2.17	0.5	28.393	20.799	14.788	10.126	6.609	4.058	2.321	1.266	0.781	1.145
1.74	0.4	26.545	18.852	12.838	8.271	4.947	2.687	1.332	0.744	0.804	2.460
1.30	0.3	24.745	16.979	10.997	6.576	3.513	1.629	0.763	0.773	1.533	4.863
0.87	0.2	23.017	15.207	9.299	5.076	2.346	0.931	0.671	1.422	3.053	8.495
0.43	0.1	21.387	13.572	7.782	3.816	1.489	0.632	1.089	2.717	5.386	13.372
0.00	0	19.866	12.099	6.486	2.840	0.987	0.765	2.024	4.626	8.441	19.241
-0.43	-0.1	18.811	11.136	5.734	2.425	1.041	1.423	3.420	6.891	11.703	24.855
-0.87	-0.2										
-1.30	-0.3	17.425	10.495	6.188	4.353	4.861	7.633	12.665	20.074	30.168	61.199
-1.74	-0.4										
-2.17	-0.5	19.905	16.600	18.537	27.796	48.756	90.264	169.693	320.441	605.713	2153.344

e (mm/kyr) e (g cm⁻² kyr⁻¹) Minimum is at 171 kyr and e = 0.09, with chi-sqrd 0.621, reduced chi-sqrd 0.155

Plot to find the limiting chi squared.

td (kyr)	65 ka	Inheritance	130	142	154	166	178	190	202	214	226	250
1.74	0.4	12.102	8.271	5.353	3.234	1.811	0.993	0.700	0.859	1.407	3.445	al chi-sqrd is 3.78
1.39	0.32											
1.04	0.24									Upper limit is at e = 0.4 g/cm2/kyr and td = 245 ka		
0.70	0.16									Lower limit is at e = -0.255 g/cm2/kyr and td = 150		
0.35	0.08											
0.00	0	5.849	2.840	1.148	0.671	1.312	2.983	5.597	9.078	13.349	23.995	
-0.35	-0.08											
-0.70	-0.16	4.854	2.395	1.406	1.783	3.426	6.237	10.124	14.997	20.773	34.710	
-1.04	-0.24	5.027	3.025	2.585	3.604	5.984	9.641	14.501	20.510	27.642	45.333	
-1.39	-0.32	6.206	5.059	5.735	8.222	12.581	18.967	27.690	39.270	54.546	101.930	
-1.74	-0.4	9.328	10.193	13.893	21.042	32.739	50.846	78.419	120.371	184.461	434.060	

e (mm/kyr) e (g cm⁻² kyr⁻¹)

td (kyr)	60	65	70	75	80	85	90	95	100	110	
-1.91	-0.4										
-2.25	-0.47										
-2.58	-0.54										
-2.92	-0.61										
-3.25	-0.68										
-3.59	-0.75										
-3.92	-0.82										
-4.26	-0.89	32.53	28.47	24.69	21.20	18.00	15.11	12.55	10.32	8.43	5.72
-4.59	-0.96	31.90	27.81	24.01	20.51	17.34	14.50	12.02	9.90	8.17	5.97
-4.93	-1.03	31.26	27.15	23.34	19.87	16.74	13.98	11.61	9.66	8.18	6.87
-5.26	-1.1	30.64	26.51	22.71	19.27	16.21	13.57	11.38	9.71	8.63	9.04

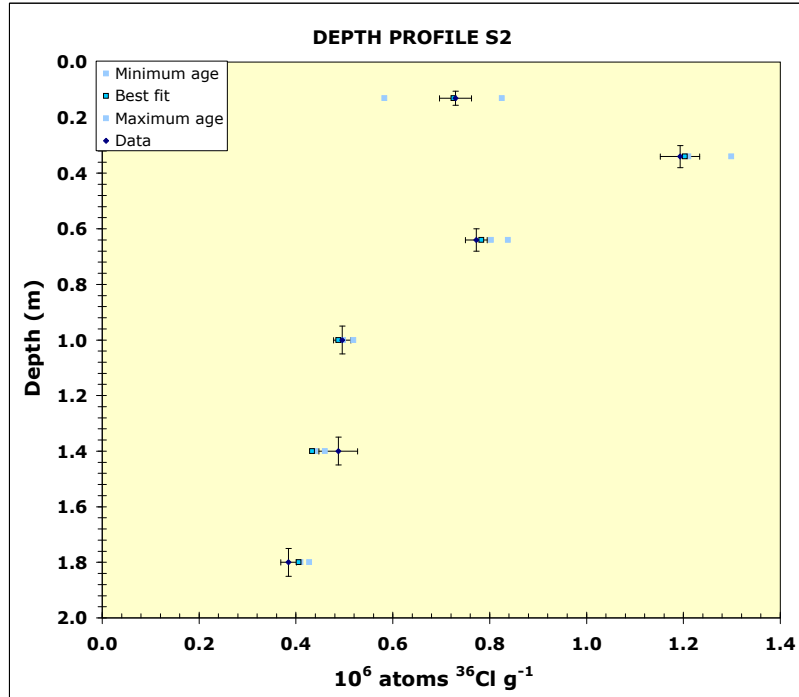
e (mm/kyr) e (g cm⁻² kyr⁻¹)

Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	6	Number of samples in the depth profile

- 36±8 Inheritance (ka)
- 2.3 χ^2_{ν} for two degrees of freedom (t_{min}, t_{max})
- 2.92 Calculated chi-sqrd for minimum

Age = 171+74/-21 ka

Calculated Inventories				Measured inventories		
e=-0.255 g/cm2/yr	e=0.09 g/cm2/yr	e=0.4 g/cm2/yr	Depth (m)	³⁶ Cl/g	±	Depth (m)
t=150 ka	t=171 ka	t=245				Depth interval (±)
5.8282E+05	7.2527E+05	8.2541E+05	0.13	7.3E+05	32824.00	0.13
1.2104E+06	1.2030E+06	1.2991E+06	0.34	1.2E+06	40565.00	0.34
8.0275E+05	7.8311E+05	8.3794E+05	0.64	7.7E+05	22400.00	0.64
4.9746E+05	4.8760E+05	5.1882E+05	1.00	5.0E+05	17842.00	1.00
4.3995E+05	4.3349E+05	4.5957E+05	1.40	4.9E+05	39957.00	1.40
4.0959E+05	4.0580E+05	4.2751E+05	1.80	3.8E+05	16156.00	1.80



Depth Profile S3.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
16-Jun-05

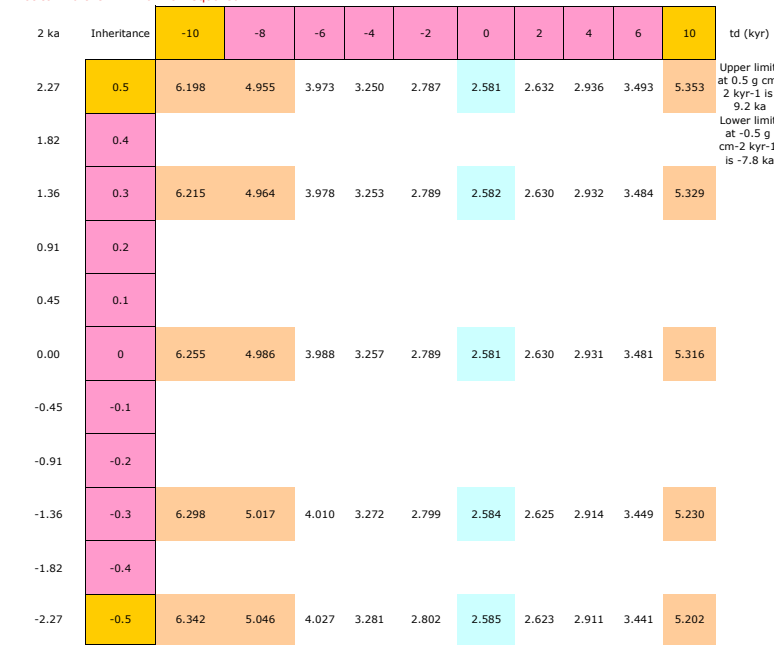
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	SPV-3a 0-10	SPV-3b 15-25	SPV-3c 35-45	SPV-3f 90-100	SPV-3i 185-195	Average	Std Dev	Coeff Var
C	7.55	2.15	5.97	0.84	1.11	3.52	3.046	86.43
Na	0.62	0.79	0.72	0.68	0.84	0.73	0.087	11.94
Mg	3.36	1.21	2.89	0.49	0.74	1.74	1.303	74.97
Al	3.43	7.01	6.87	5.58	7.16	6.01	1.573	26.18
Si	77.99	81.91	74.65	88.37	84.58	81.50	5.387	6.61
P	0.05	0.05	0.06	0.02	0.02	0.04	0.019	46.77
K	1.23	2.58	2.53	2.17	2.63	2.23	0.587	26.33
Ca	4.99	0.75	3.39	0.04	0.04	1.84	2.236	121.37
Ti	0.34	0.90	0.86	0.54	0.72	0.67	0.233	34.68
Mn	0.02	0.02	0.02	0.01	0.01	0.02	0.005	34.23
Fe	1.27	3.18	2.98	1.98	3.02	2.49	0.828	33.33
Cl	61.20	49.08	62.27	49.37	48.20	54.02	7.062	13.07
B	12.00	25.00	26.00	22.00	29.00	22.80	6.535	28.66
Sm	0.50	4.00	0.50	0.50	3.00	1.70	1.681	98.87
Gd	0.50	4.00	0.50	0.50	3.00	1.70	1.681	98.87
U	2.00	3.00	2.00	2.00	2.00	2.20	0.447	20.33
Th	3.00	7.00	6.00	5.00	5.00	5.20	1.483	28.52

Depth	Atoms/gram			Sample	Sample Data	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
	N_K	N_Ca	N_Cl		N36			
0-10	1.5719E+20	5.35E+20	1.04E+18	SPV-3a	3.4E+05	17000.00	5.50	0.03
15-25	3.30E+20	8.05E+19	8.33E+17	SPV-3b	3.6E+05	16000.00	44.00	0.20
35-45	3.23E+20	3.64E+20	1.06E+18	SPV-3c	5.0E+05	23000.00	88.00	0.40
90-100	2.77E+20	4.29E+18	8.38E+17	SPV-3f	3.0E+05	18000.00	220.00	1.00
185-195	3.36E+20	4.29E+18	8.18E+17	SPV-3i	3.3E+05	18000.00	418.00	1.90

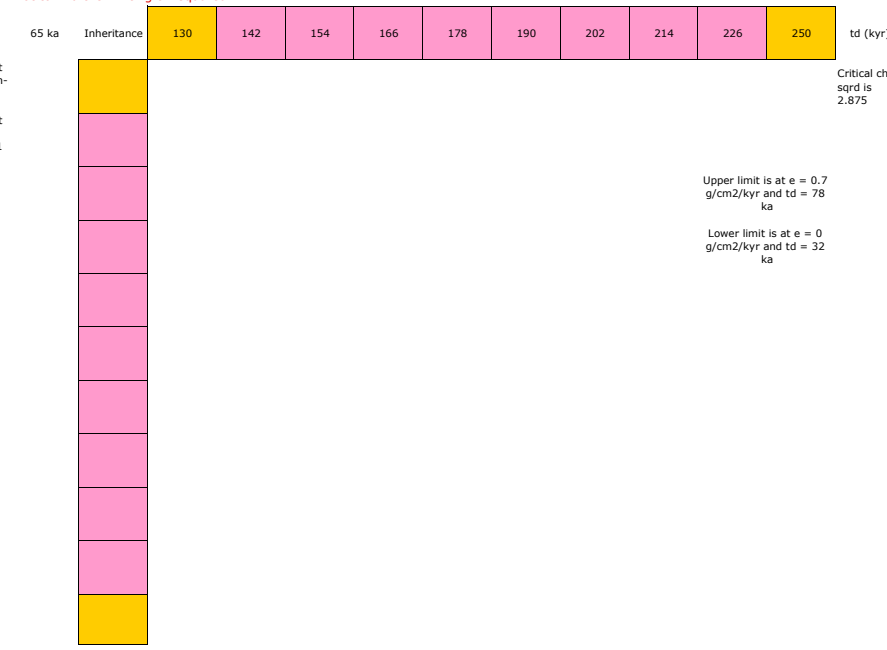
Chi-squared plot for depth-profile S3

Plot to find the minimum chi squared.

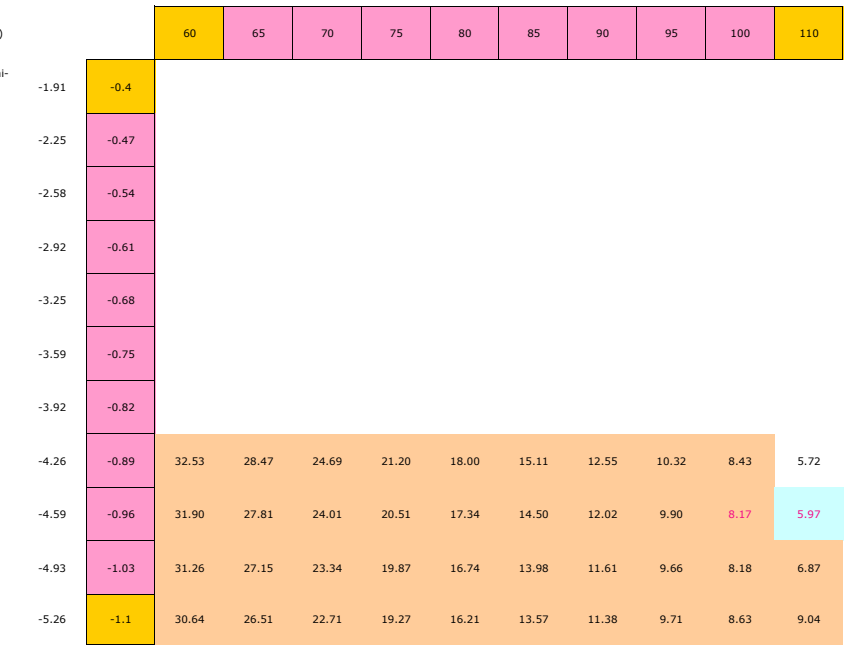


e (mm/kyr) e (g cm⁻² kyr⁻¹) Minimum is at 0.8 kyr and e = 0 (midpoint), with chi-sqrd 2.57, reduced chi-sqrd 0.857

Plot to find the limiting chi squared.



e (mm/kyr) e (g cm⁻² kyr⁻¹)



e (mm/kyr) e (g cm⁻² kyr⁻¹)

Sinh	0.03	Fractional uncertainty due to variable inheritance
Sothor	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

94±10 Inheritance (ka)
 2.3 Δχ², for two degrees of freedom (t_{min}, t_{max})
 4.9 Calculated chi-sqrd for minimum

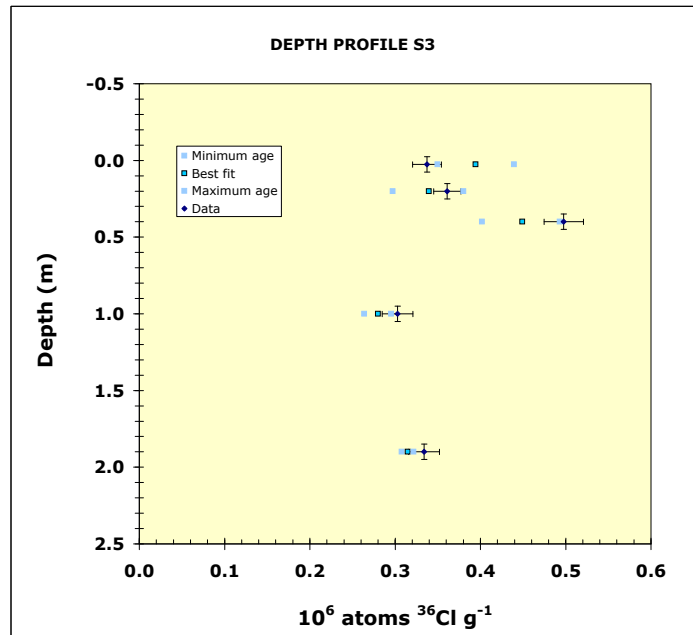
Age = 0.8±8.4/-8.6 ka

Calculated Inventories

e=-0.5 g/cm2/yr	e=0 g/cm2/yr	e=0.5 g/cm2/yr	Depth (m)
t=-7.8 ka	t=0.8 ka	t=9.2 ka	
3.4958E+05	3.9431E+05	4.3946E+05	0.03
2.9708E+05	3.3967E+05	3.8006E+05	0.20
4.0203E+05	4.4906E+05	4.9321E+05	0.40
2.6371E+05	2.8001E+05	2.9532E+05	1.00
3.0794E+05	3.1489E+05	3.2155E+05	1.90

Measured inventories		
36Cl/g	±	Depth (m)
3.373E+05	17000.00	0.03
3.611E+05	16000.00	0.20
4.977E+05	23000.00	0.40
3.030E+05	18000.00	1.00
3.338E+05	18000.00	1.90

Depth interval (m)	±m	Depth (m)
0-10	0.05	0.03
15-25	0.05	0.20
35-45	0.05	0.40
90-100	0.05	1.00
185-195	0.05	1.90



Depth Profile S5.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
10-Jun-05

1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	5f 5-15	5e 45-55	5c 100-110	5a 200-210	5g 400	Average	Std Dev	Coeff Var
C	1.91	1.83	3.79	1.98	2.10	2.32	0.827	35.60
Na	1.26	1.28	1.36	0.93	1.40	1.25	0.186	14.90
Mg	2.42	2.15	2.92	1.73	2.29	2.30	0.432	18.76
Al	11.35	12.42	14.10	9.13	14.50	12.30	2.182	17.74
Si	72.78	73.14	67.77	79.43	69.59	72.54	4.454	6.14
P	0.05	0.03	0.06	0.05	0.03	0.04	0.013	30.49
K	2.56	2.98	2.99	2.18	3.30	2.80	0.436	15.56
Ca	1.99	1.57	2.13	1.55	1.44	1.74	0.304	17.51
Ti	0.59	0.65	0.65	0.47	0.75	0.62	0.103	16.49
Mn	0.05	0.05	0.05	0.03	0.04	0.04	0.009	20.33
Fe	4.73	4.46	4.94	3.28	5.31	4.54	0.772	16.99
Cl	91.77	86.91	56.59	134.64	68.44	87.67	29.830	34.03
B	27.00	44.00	40.00	24.00	49.00	36.80	10.849	29.48
Sm	4.00	6.00	5.00	4.00	5.00	4.80	0.837	17.43
Gd	4.00	6.00	5.00	4.00	5.00	4.80	0.837	17.43
U	2.00	2.00	3.00	2.00	3.00	2.40	0.548	22.82
Th	8.00	10.00	10.00	6.00	11.00	9.00	2.000	22.22

Depth	Atoms/gram			Depth	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
	N_K	N_Ca	N_Cl					
5-15	3.2717E+20	2.14E+20	1.56E+18	5f	8.9E+05	30060.00	19.70	0.10
45-55	3.81E+20	1.68E+20	1.48E+18	5e	7.2E+05	30060.00	111.30	0.50
100-110	3.82E+20	2.29E+20	9.61E+17	5c	4.7E+05	20505.00	243.30	1.05
200-210	2.79E+20	1.66E+20	2.29E+18	5a	5.1E+05	40120.00	483.30	2.05
400	4.22E+20	1.55E+20	1.16E+18	5g	3.2E+05	38910.00	951.30	4.00

Chi-squared plot for depth-profile S5

Plot to find the minimum chi squared.

45 ka	Inheritance	100	106	112	118	124	130	136	142	148	160	td (kyr)
4.22	1	6.140	5.248	4.525	3.955	3.520	3.206	2.998	2.884	2.854	3.005	
4.01	0.95											
3.80	0.9	5.601	4.754	4.089	3.588	3.234	3.010	2.902	2.898	2.986	3.394	
3.59	0.85											
3.38	0.8	5.097	4.305	3.710	3.291	3.032	2.916	2.928	3.054	3.282	3.999	
3.16	0.75	4.859	4.099	3.542	3.171	2.966	2.910	2.990	3.190	3.498	4.391	
2.95	0.7	4.632	3.905	3.391	3.070	2.923	2.933	3.086	3.366	3.761	4.846	
2.74	0.65											
2.53	0.6	4.209	3.558	3.138	2.929	2.912	3.069	3.385	3.845	4.435	5.955	
2.32	0.55											
2.11	0.5	3.830	3.266	2.952	2.870	3.000	3.325	3.829	4.497	5.313	7.339	

e (mm/kyr) e (g cm⁻² kyr⁻¹) Minimum is selected at erosion midpoint at 129.5 kyr and e = 0.75, with chi-sqrd 2.91, reduced chi-sqre (mm/kyr) e (g cm⁻² kyr⁻¹)

Plot to find the limiting chi squared.

65 ka	Inheritance	90	103	116	129	142	155	168	181	194	220	td (kyr)
4.22	1	8.064	5.671	4.129	3.250	2.884	2.911	3.235	3.781	4.487	6.203	Critical chi-sqrd is 3.78
4.01	0.95											
3.80	0.9									Upper limit is at e = 1.0 g/cm2/kyr and td = 205 ka		
3.59	0.85									Lower limit is at e = 0.5 g/cm2/kyr and td = 91 ka		
3.38	0.8											
3.16	0.75	6.639	4.452	3.275	2.910	3.190	3.978	5.159	6.641	8.345	12.183	
2.95	0.7											
2.74	0.65											
2.53	0.6											
2.32	0.55											
2.11	0.5	5.387	3.515	2.873	3.258	4.497	6.435	8.942	11.904	15.223	22.612	

	60	65	70	75	80	85	90	95	100	110	
-1.91	-0.4										
-2.25	-0.47										
-2.58	-0.54										
-2.92	-0.61										
-3.25	-0.68										
-3.59	-0.75										
-3.92	-0.82										
-4.26	-0.89	32.53	28.47	24.69	21.20	18.00	15.11	12.55	10.32	8.43	5.72
-4.59	-0.96	31.90	27.81	24.01	20.51	17.34	14.50	12.02	9.90	8.17	5.97
-4.93	-1.03	31.26	27.15	23.34	19.87	16.74	13.98	11.61	9.66	8.18	6.87
-5.26	-1.1	30.64	26.51	22.71	19.27	16.21	13.57	11.38	9.71	8.63	9.04

e (mm/kyr) : (g cm⁻² kyr⁻¹)

Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

45±17 Inheritance (ka)
 2.3 χ^2 , for two degrees of freedom (t_{min}, t_d)
 5.21 Calculated chi-sqrd for minimum

Age = 130+75/-39 ka

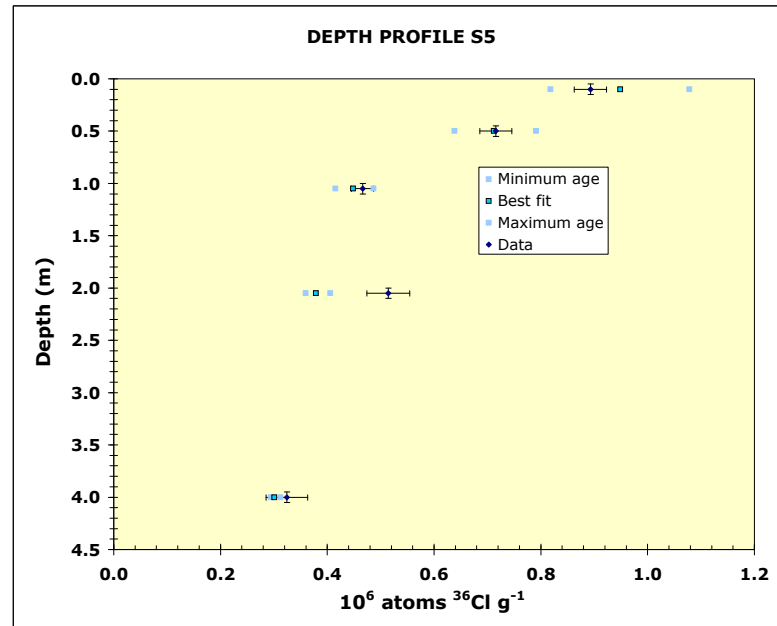
Calculated Inventories

e=0.5 g/cm2/yr	e=0.75 g/cm2/yr	e=1.0 g/cm2/yr	Depth (m)
t=91 ka	t=130 ka	t=205 ka	
8.1794E+05	9.4860E+05	1.0785E+06	0.10
6.3815E+05	7.1216E+05	7.9106E+05	0.50
4.1538E+05	4.4838E+05	4.8667E+05	1.05
3.5956E+05	3.7891E+05	4.0600E+05	2.05
2.9448E+05	3.0103E+05	3.1218E+05	4.00

Measured inventories

36Cl/g	±	Depth (m)
8.9E+05	10060.00	0.10
7.2E+05	10060.00	0.50
4.7E+05	20505.00	1.05
5.1E+05	40120.00	2.05
3.2E+05	38910.00	4.00

Depth interval (±)	Depth (m)
0.05	0.10
0.05	0.50
0.05	1.05
0.05	2.05
0.05	4.00



Depth Profile S6.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
13-Jun-05

1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

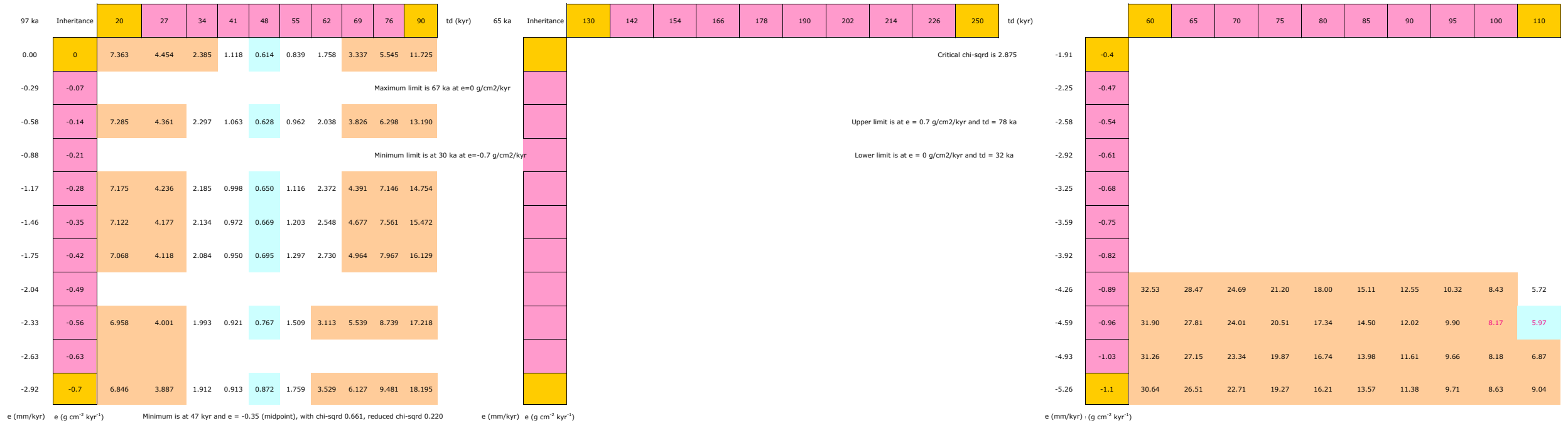
Element	6a 13-21	6b 41-53	6c 72-84	6d 106-118	6e 140-155	Average	Std Dev	Coeff Var
C	4.82	1.49	1.99	1.70	2.09	2.42	1.364	56.39
Na	1.84	1.91	2.07	2.21	2.07	2.02	0.146	7.24
Mg	4.01	2.51	2.71	2.83	2.70	2.95	0.602	20.41
Al	11.41	12.20	12.26	12.61	12.76	12.25	0.524	4.28
Si	62.59	67.61	67.17	65.69	66.09	65.83	1.972	2.99
P	0.09	0.03	0.04	0.03	0.04	0.05	0.025	54.56
K	3.78	4.45	4.25	4.15	4.82	4.29	0.383	8.94
Ca	3.60	1.65	1.73	1.70	1.90	2.12	0.835	39.46
Ti	1.36	1.37	1.37	1.55	1.35	1.40	0.084	6.02
Mn	0.07	0.06	0.06	0.07	0.06	0.06	0.005	8.56
Fe	6.52	7.07	6.57	7.18	6.41	6.75	0.349	5.18
Cl	128.93	120.10	132.20	136.63	108.88	125.35	11.020	8.79
B	32.00	25.00	24.00	26.00	27.00	26.80	3.114	11.62
Sm	5.00	3.00	3.00	4.00	3.00	3.60	0.894	24.85
Gd	5.00	3.00	3.00	4.00	3.00	3.60	0.894	24.85
U	2.00	2.00	2.00	2.00	2.00	2.00	0.000	0.00
Th	4.00	5.00	7.00	6.00	4.00	5.20	1.304	25.07

Depth	Atoms/gram			Sample	Sample Data	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
	N_K	N_Ca	N_Cl		N36			
13-21	4.8308E+20	3.86E+20	2.19E+18	6a	1.3E+06	63239.80	35.6	0.17
41-53	5.69E+20	1.77E+20	2.04E+18	6b	1.0E+06	33390.94	110.6	0.47
72-84	5.43E+20	1.86E+20	2.24E+18	6c	9.9E+05	28641.12	188.1	0.78
106-118	5.30E+20	1.82E+20	2.32E+18	6d	9.9E+05	36498.84	273.1	1.12
140-155	6.16E+20	2.04E+20	1.85E+18	6e	8.8E+05	25452.79	316.8	1.48

Chi-squared plot for depth-profile S6

Plot to find the minimum chi squared.

Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

97±12 Inheritance (ka)
 2.3 $\Delta\chi^2_1$ for two degrees of freedom (t_{min}, t_d)
 2.96 Calculated chi-sqrd for minimum

Age = 47+20/-17 ka

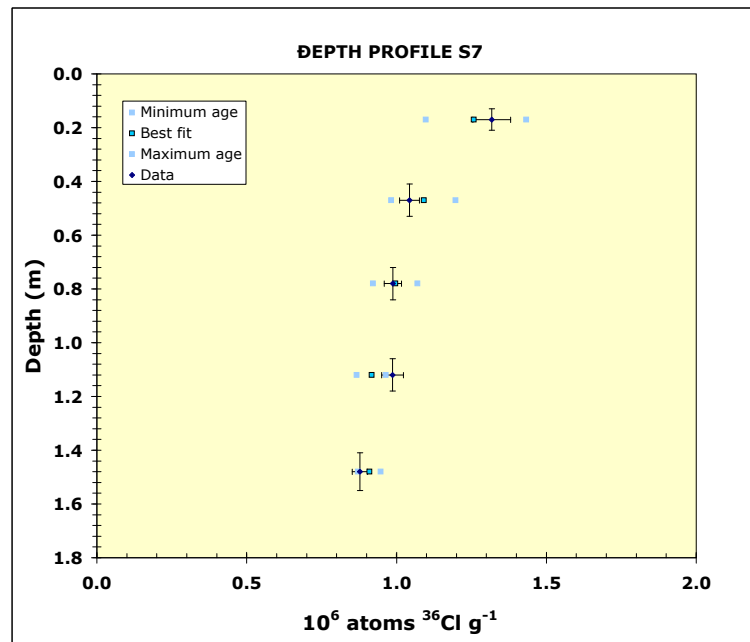
Calculated Inventories

e=-0.7 g/cm2/yr	e=-0.35 g/cm2/yr	e=0 g/cm2/yr	Depth (m)
1.0976E+06	1.2575E+06	1.4332E+06	0.17
9.8221E+05	1.0916E+06	1.1975E+06	0.47
9.2130E+05	9.9600E+05	1.0694E+06	0.78
8.6732E+05	9.1698E+05	9.6470E+05	1.12
8.7161E+05	9.0992E+05	9.4669E+05	1.48

Measured inventories

36Cl/g	±	Depth (m)
1.38E+06	63239.80	0.17
1.0E+06	33390.94	0.47
9.9E+05	28641.12	0.78
9.9E+05	36498.84	1.12
8.8E+05	25452.79	1.48

Depth interval (cm)	±m	Depth (m)
13-21	0.04	0.17
41-53	0.06	0.47
72-84	0.06	0.78
106-118	0.06	1.12
140-155	0.07	1.48



Depth Profile S7.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
13-Jun-05

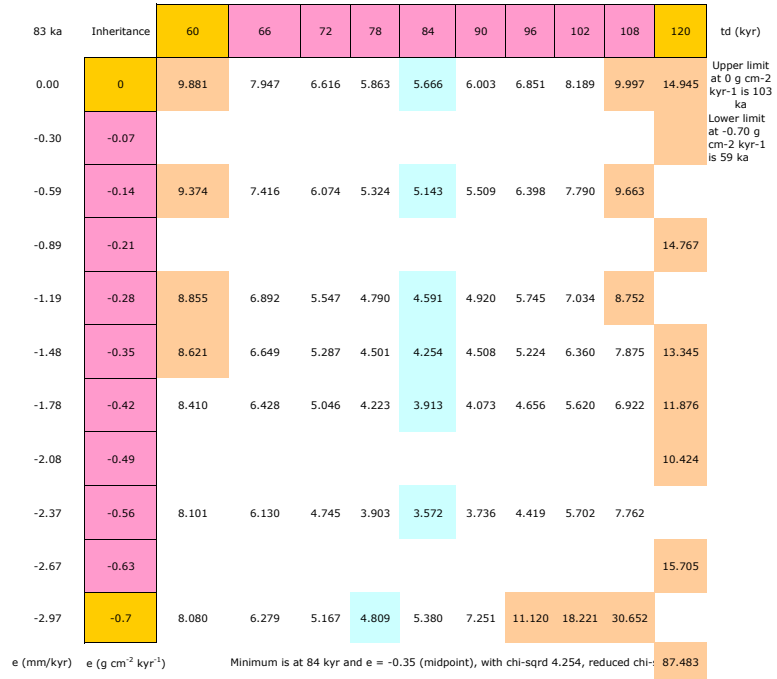
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	7a 8-15	7b 22-35	7b (dup) 22-35	7c 72-82	7d 96-106	7e 155-165	7f 190-202	Average	Std Dev	Coeff Var
C	1.95	1.59	1.59	2.31	2.31	3.22	4.31	2.47	0.985	39.89
Na	1.96	2.11	2.11	1.72	1.86	2.08	1.56	1.91	0.213	11.13
Mg	2.53	2.12	2.12	2.74	2.82	3.55	3.78	2.81	0.649	23.09
Al	12.79	12.16	12.16	11.57	11.62	12.18	11.28	11.97	0.508	4.24
Si	67.32	70.20	70.20	68.82	68.37	63.92	65.69	67.79	2.332	3.44
P	0.05	0.04	0.04	0.05	0.05	0.06	0.08	0.05	0.014	26.11
K	5.05	4.26	4.26	4.24	3.94	3.63	4.15	4.22	0.433	10.26
Ca	1.53	1.06	1.06	1.89	1.86	2.97	3.14	1.93	0.839	43.48
Ti	1.02	1.04	1.04	1.14	1.34	1.46	0.94	1.14	0.190	16.67
Mn	0.05	0.04	0.04	0.06	0.07	0.09	0.06	0.06	0.018	30.27
Fe	6.28	6.25	6.25	6.00	6.71	7.61	5.94	6.43	0.575	8.93
Cl	150.90	114.45	112.31	125.90	109.05	169.74	119.69	128.86	22.817	17.71
B	26.00	31.00	31.00	22.00	31.00	29	25	27.86	3.579	12.85
Sm	4.00	3.00	3.00	3.00	2.00	3	3	3.00	0.577	19.25
Gd	4.00	3.00	3.00	3.00	2.00	3	3	3.00	0.577	19.25
U	1.00	2.00	2.00	1.00	2.00	2	1	1.57	0.535	34.02
Th	10.00	9.00	9.00	7.00	8.00	7	8	8.29	1.113	13.43

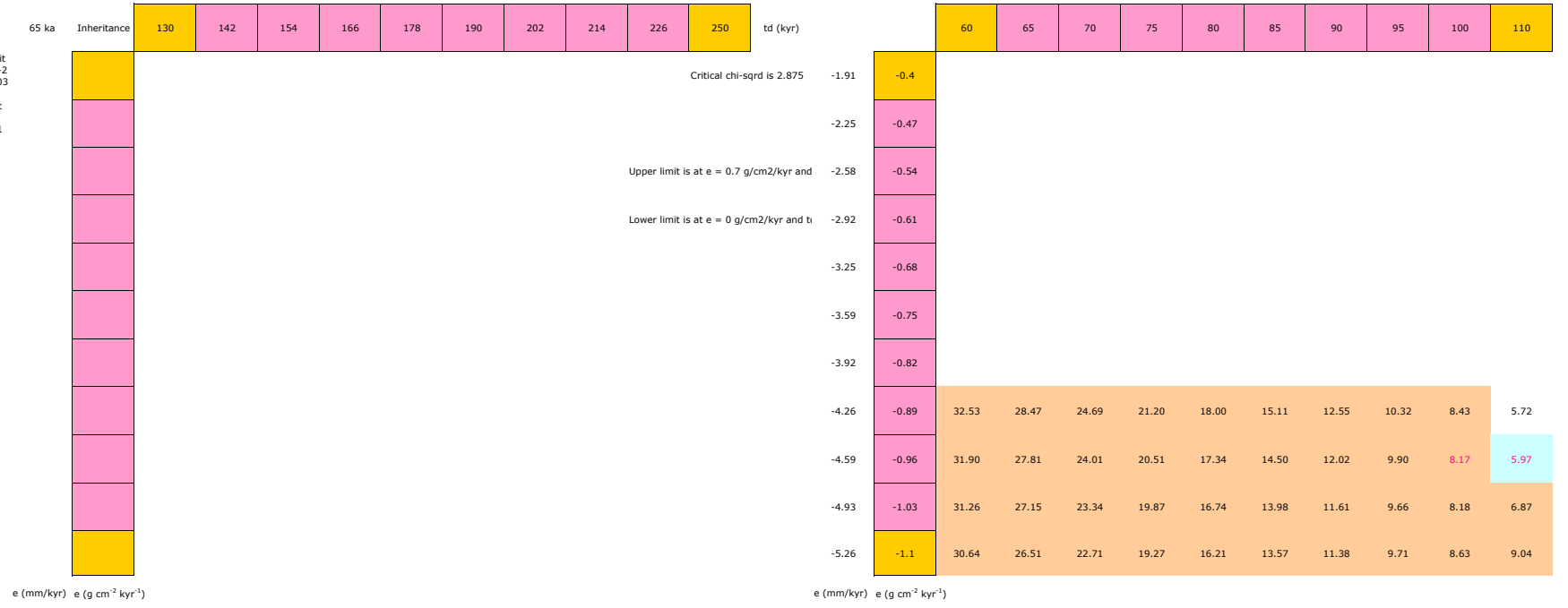
Depth	Atoms/gram			Depth	Sample	Sample Data	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
	N_K	N_Ca	N_Cl			N36			
8-15	6.45E+20	1.64E+20	2.56E+18	8-15	7a	1.4E+06	58174.00	22.60	0.12
22-35	5.44E+20	1.14E+20	1.94E+18	22-35	7b	1.3E+06	56387.00	59.40	0.28
22-35	5.44E+20	1.14E+20	1.91E+18	22-35	7b(dup)	1.3E+06	50773.00	59.40	0.28
72-82	5.42E+20	2.03E+20	2.14E+18	72-82	7c	1.1E+06	45163.00	180.60	0.77
96-106	5.04E+20	2.00E+20	1.85E+18	96-106	7d	8.0E+05	17640.00	240.60	1.01
155-165	4.64E+20	3.19E+20	2.88E+18	155-165	7e	1.0E+06	50418.00	388.10	1.60
190-202	5.30E+20	3.37E+20	2.03E+18	190-202	7f	6.9E+05	18600.00	478.10	1.96

Chi-squared plot for depth-profile S7

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	7	Number of samples in the depth profile

83±12 Inheritance (ka)

2.3 $\Delta\chi^2_{\text{min}}$ for two degrees of freedom (t_{min} , t_{e})

8.57 Calculated chi-sqrd for minimum

Age = 84±19/-25 ka

Calculated Inventories

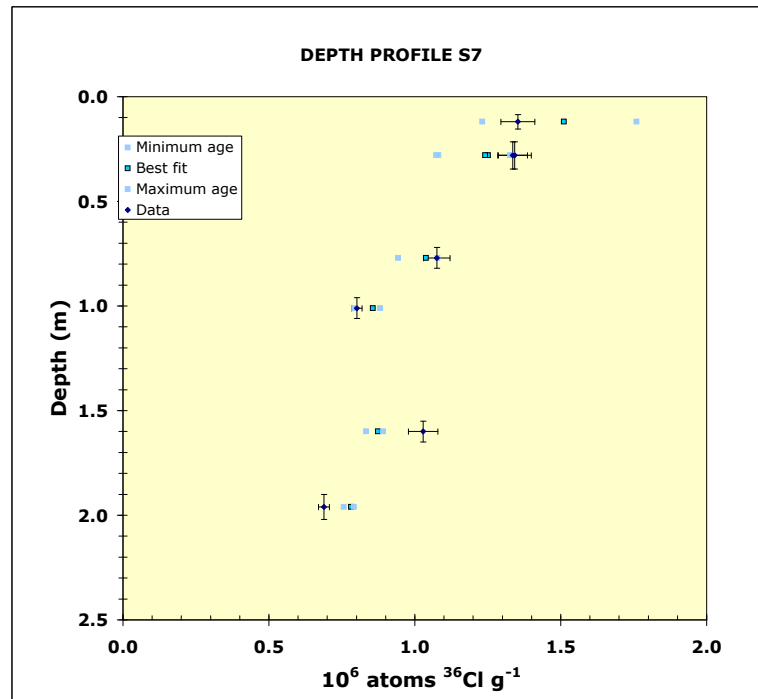
e=-0.7 g/cm ² /yr	e=-0.35 g/cm ² /yr	e=0 g/cm ² /yr	Depth (m)
t=59 ka	t=84 ka	t=103 ka	

e=-0.7 g/cm ² /yr	e=-0.35 g/cm ² /yr	e=0 g/cm ² /yr	Depth (m)
1.2309E+06	1.5105E+06	1.7594E+06	0.12
1.0809E+06	1.2511E+06	1.3371E+06	0.28
1.0732E+06	1.2417E+06	1.3267E+06	0.28
9.4309E+05	1.0381E+06	1.0773E+06	0.77
7.9322E+05	8.5603E+05	8.8194E+05	1.01
8.3333E+05	8.7434E+05	8.9136E+05	1.60
7.5700E+05	7.8156E+05	7.9179E+05	1.96

Measured inventories

36Cl/g	±	Depth (m)
1.353E+06	58174.00	0.12
1.343E+06	56387.00	0.28
1.335E+06	50773.00	0.28
1.075E+06	45163.00	0.77
8.018E+05	17640.00	1.01
1.029E+06	50418.00	1.60
6.890E+05	18600.00	1.96

Depth interval (m)	±m	Depth (m)
8-15	0.035	0.12
22-35	0.065	0.28
22-35	0.065	0.28
72-82	0.05	0.77
96-106	0.05	1.01
155-165	0.05	1.60
190-202	0.06	1.96



Depth Profile S8.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
13-Jun-05

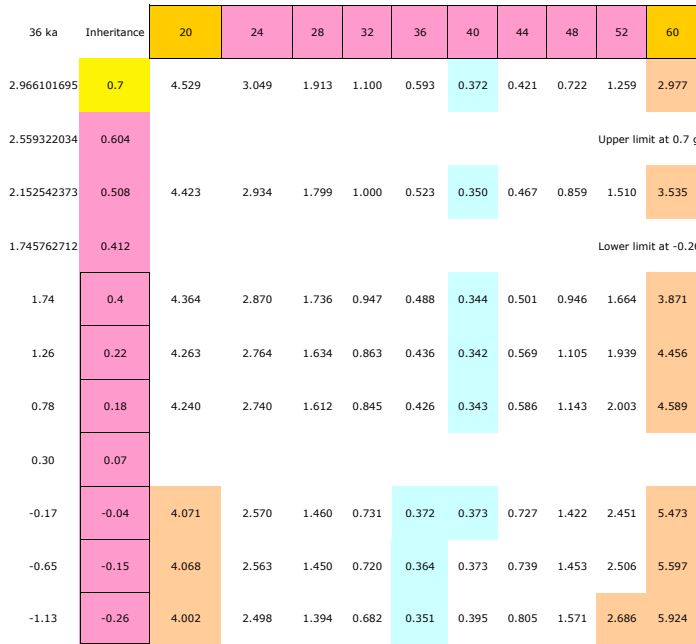
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	8a 10-20	8b 35-45	8c 75-85	8d 135-145	8e 190-200	Average	Std Dev	Coeff Var
C	3.59	2.11	1.94	1.94	1.62	2.24	0.775	34.61
Na	1.47	1.43	1.51	1.58	0.91	1.38	0.269	19.46
Mg	2.69	2.12	2.01	2.43	1.50	2.15	0.451	20.97
Al	12.62	12.28	12.56	12.62	9.46	11.91	1.376	11.55
Si	69.23	72.40	72.64	70.66	79.31	72.85	3.869	5.31
P	0.07	0.03	0.03	0.04	0.03	0.04	0.017	43.30
K	2.91	2.86	3.00	3.55	2.66	3.00	0.334	11.14
Ca	2.64	1.43	0.95	2.24	0.74	1.60	0.819	51.18
Ti	0.60	0.61	0.62	0.64	0.52	0.60	0.046	7.70
Mn	0.05	0.04	0.03	0.05	0.02	0.04	0.013	34.31
Fe	4.42	4.75	4.61	4.29	3.46	4.31	0.505	11.72
Cl	128.17	51.30	49.37	149.56	48.09	85.30	49.494	58.03
B	34.00	31.00	34.00	36.00	26.00	32.20	3.899	12.11
Sm	5.00	6.00	5.00	6.00	4.00	5.20	0.837	16.09
Gd	5.00	6.00	5.00	6.00	4.00	5.20	0.837	16.09
U	3.00	3.00	2.00	3.00	2.00	2.60	0.548	21.07
Th	8.00	6.00	7.00	9.00	6.00	7.20	1.304	18.11

Depth	<u>Atoms/gram</u> N_K	<u>Atoms/gram</u> N_Ca	<u>Atoms/gram</u> N_Cl	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Average depth (cm)
10-20	3.719E+20	2.83E+20	2.18E+18	8a	6.3E+05	84880.00	26.00	0.15
35-45	3.66E+20	1.53E+20	8.71E+17	8b	3.7E+05	29571.00	76.80	0.40
75-85	3.83E+20	1.02E+20	8.38E+17	8c	3.0E+05	62872.00	166.80	0.80
135-145	4.54E+20	2.40E+20	2.54E+18	8d	4.8E+05	38093.00	301.80	1.40
190-200	3.40E+20	7.94E+19	8.17E+17	8e	2.0E+05	13882.00	425.30	1.95

Chi-squared plot for depth-profile S8

Plot to find the minimum chi squared.



e (mm/kyr) e (g cm⁻² kyr⁻¹) Minimum is at 39 kyr and e = 0.22 (midpoint), with chi-sqrd 0.335, reduced chi-sqrd 0.112

Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

38±7 Inheritance (ka)

2.3 Δχ², for two degrees of freedom (t_{min}, t₀)

2.635 Calculated chi-sqrd for minimum

Age = 39±19/-15 ka

Calculated Inventories

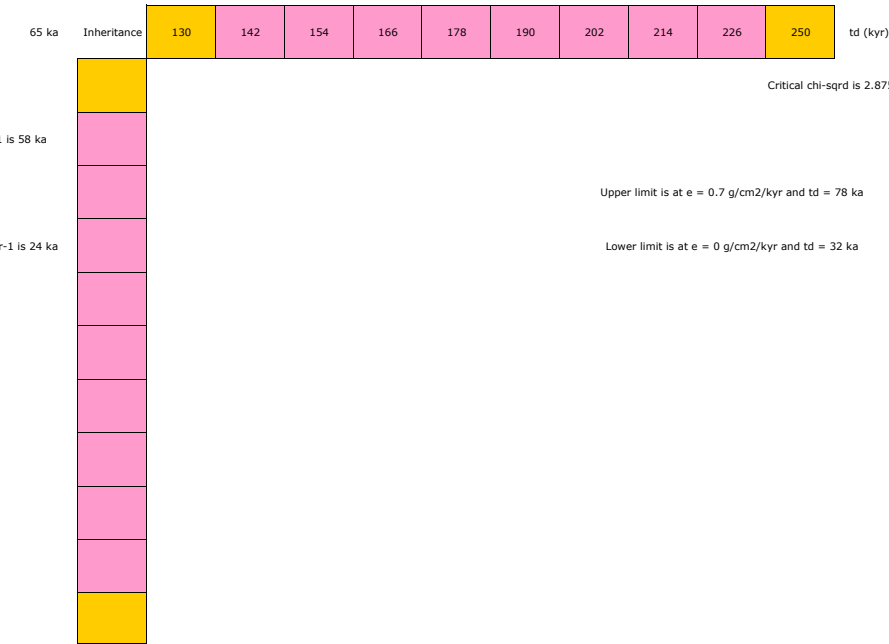
e=-0.26 g/cm2/yr	e=0.22 g/cm2/yr	e=0.7 g/cm2/yr	Depth (m)
t=24 ka	t=39 ka	t=58 ka	
5.0898E+05	6.3935E+05	7.7768E+05	0.15
3.1712E+05	3.7526E+05	4.3142E+05	0.40
2.7013E+05	3.0503E+05	3.3858E+05	0.80
4.0060E+05	4.3689E+05	4.7201E+05	1.40
2.0203E+05	2.1137E+05	2.2050E+05	1.95

Measured inventories

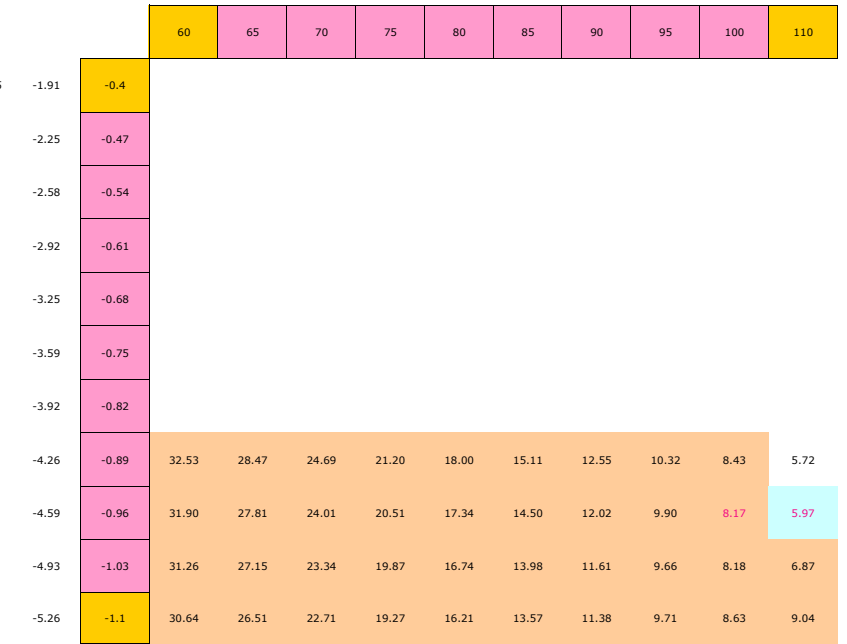
36Cl/g	±	Depth (m)
6.312E+05	84880.00	0.15
3.719E+05	29571.00	0.40
2.963E+05	62872.00	0.80
4.781E+05	38093.00	1.40
2.034E+05	13882.00	1.95

Depth interval (m)	±m	Depth (m)
10-20	0.05	0.15
35-45	0.05	0.40
75-85	0.05	0.80
135-145	0.05	1.40
190-200	0.05	1.95

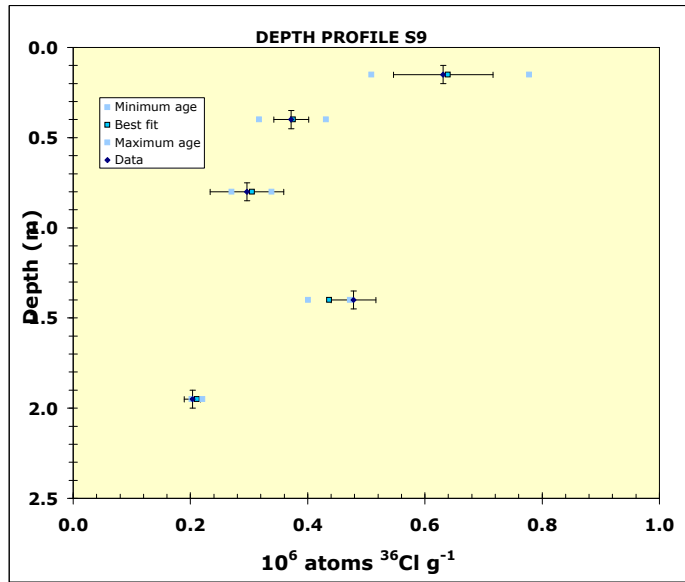
Plot to find the limiting chi squared.



e (mm/kyr) e (g cm⁻² kyr⁻¹)



e (mm/kyr) e (g cm⁻² kyr⁻¹)



Depth Profile S9.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on

14-Jun-05

Note: Sample 9d has been deleted from analysis

1.28E+20 K stoichiometry conversion

1.07E+20 Ca stoichiometry conversion

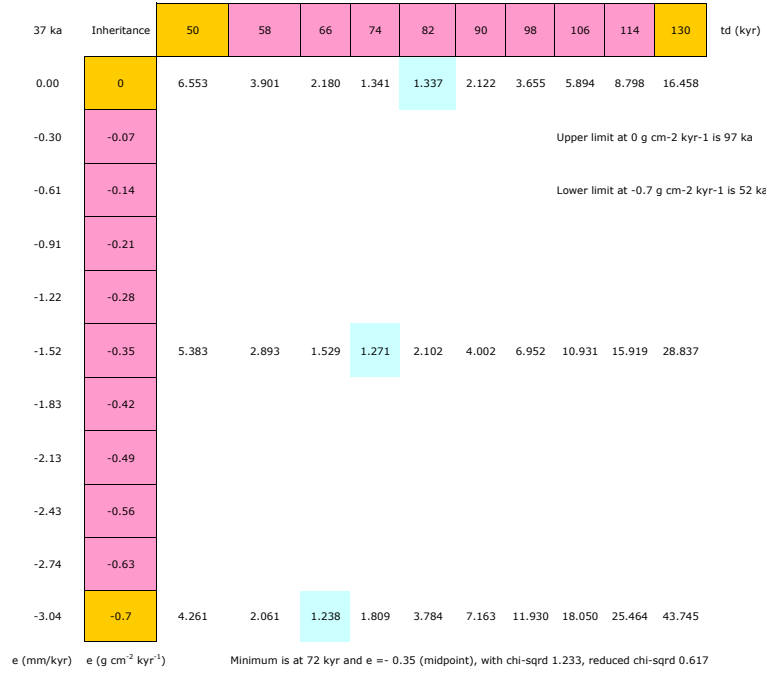
1.70E+16 Cl stoichiometry conversion

Element	9b 33-46	9c 54-65	9d 112-124	9e 152-164	9f 205-220	Average	Std Dev	Coeff Var
C	2.14	1.74	3.79	1.99	2.62	2.46	0.812	33.05
Na	1.34	1.23	1.30	1.32	1.23	1.28	0.051	3.99
Mg	2.13	1.57	2.72	2.04	2.48	2.19	0.440	20.12
Al	12.06	10.81	10.94	12.16	11.82	11.56	0.637	5.51
Si	72.10	77.09	70.74	72.92	71.81	72.93	2.452	3.36
P	0.04	0.03	0.07	0.05	0.06	0.05	0.016	31.62
K	2.98	2.64	2.67	3.23	2.96	2.90	0.245	8.45
Ca	1.54	1.18	2.72	1.23	2.16	1.77	0.661	37.42
Ti	0.67	0.60	0.66	0.71	0.71	0.67	0.045	6.76
Mn	0.04	0.03	0.05	0.03	0.04	0.04	0.008	22.02
Fe	4.49	3.54	4.13	4.29	4.45	4.18	0.385	9.21
Cl	106.68	53.84	119.11	95.60	54.88	86.02	30.078	34.97
B	32.00	29.00	33.00	39.00	31.00	32.80	3.768	11.49
Sm	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00
Gd	5.00	6.00	4.00	4.00	6.00	5.00	1.000	20.00
U	3.00	2.00	2.00	2.00	2.00	2.20	0.447	20.33
Th	7.00	6.00	7.00	8.00	8.00	7.20	0.837	11.62

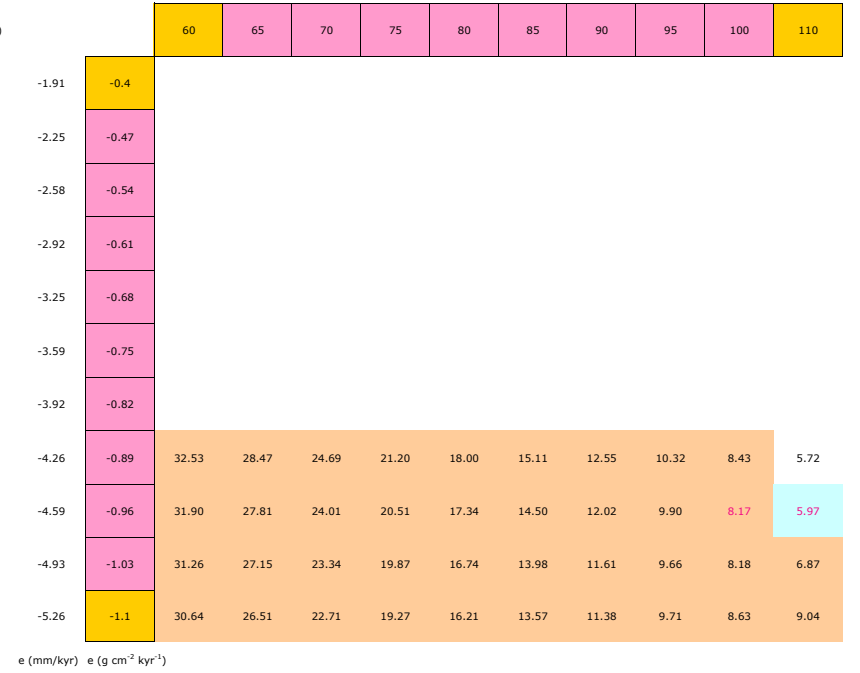
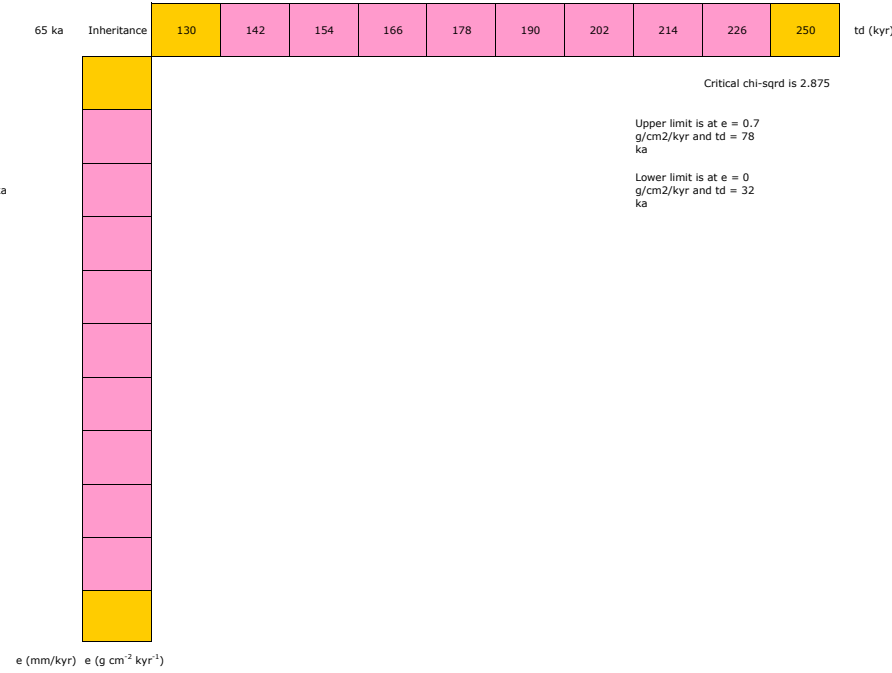
Depth (cm)	Atoms/gram			Sample	Sample Data	Uncert.	Depth in	Depth (m)
	N_K	N_Ca	N_Cl		N36	g/cm ³ based on density		
33-46	3.8084E+20	1.65E+20	1.81E+18	9b	7.3E+05	43474.00	93.05	0.40
54-65	3.37E+20	1.27E+20	9.14E+17	9c	4.2E+05	15541.00	137.90	0.59
152-164	4.13E+20	1.32E+20	1.62E+18	9e	4.3E+05	22726.00	376.00	1.58
205-220	3.78E+20	2.32E+20	9.32E+17	9f	2.6E+05	9318.00	506.00	2.12

Chi-squared plot for depth-profile S9

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Soth	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	4	Number of samples in the depth profile

37±7 Inheritance (ka)
2.3 Δχ² for two degrees of freedom (t_{min}, t_{max})
3.54 Calculated chi-sqrd for minimum

Age = 72±25/-20 ka

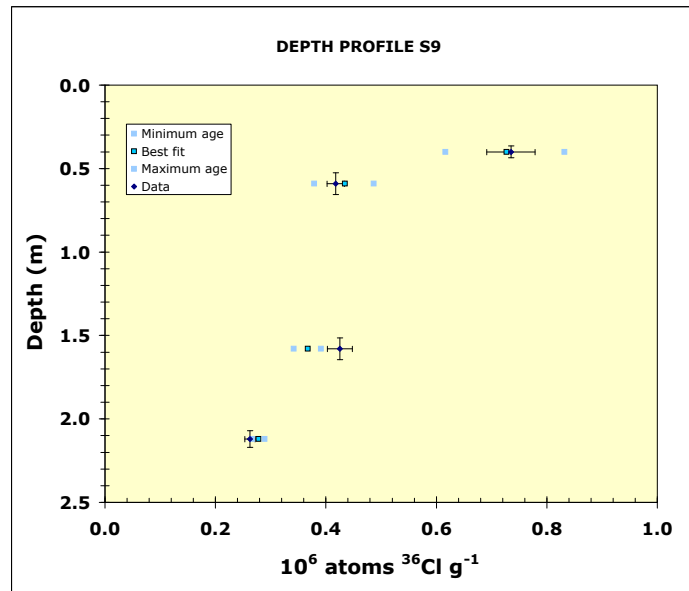
Calculated Inventories

e=-0.7 g/cm ² /yr	e=-0.35 g/cm ² /yr	e=0 g/cm ² /yr	Depth (m)
t=52 ka	t=72 ka	t=97 ka	
6.1668E+05	7.2685E+05	8.3200E+05	0.40
3.7890E+05	4.3450E+05	4.8673E+05	0.59
3.4197E+05	3.6707E+05	3.9117E+05	1.58
2.6656E+05	2.7793E+05	2.8908E+05	2.12

Measured Inventories

36Cl/g	±	Depth (m)
7.350E+05	43474.00	0.40
4.179E+05	15541.00	0.59
4.283E+05	22726.00	1.58
2.625E+05	9318.00	2.12

Depth interval (m)	±m	Depth (m)
33-46	0.035	0.40
54-65	0.065	0.59
152-164	0.065	1.58
205-220	0.05	2.12



Depth Profile S11.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
14-Jun-05

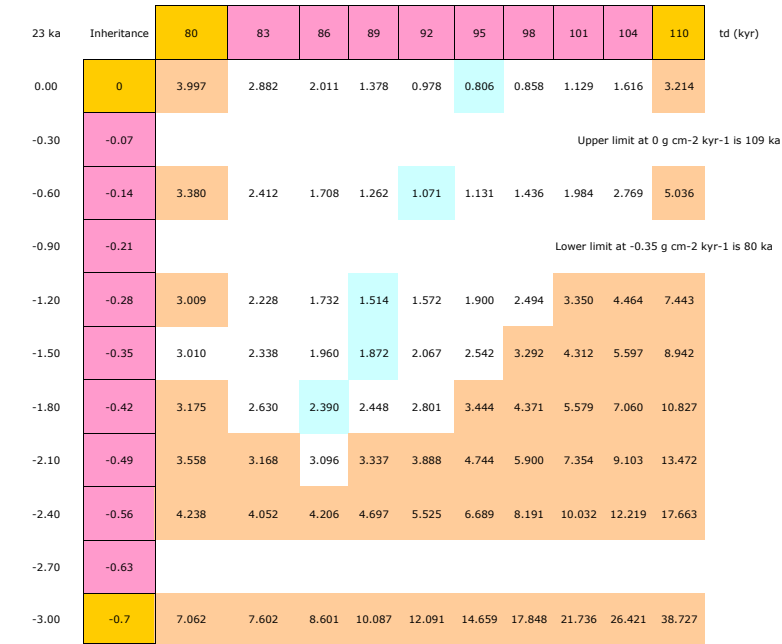
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	11a 10-20	11b 33-35	11c 78-86	11d 125-140	11e 190-200	Average	Std Dev	Coeff Var
C	1.44	1.97	2.70	1.84	2.01	1.99	0.455	22.87
Na	0.96	0.96	0.87	1.07	1.06	0.98	0.083	8.40
Mg	1.61	1.96	1.98	1.90	1.81	1.85	0.151	8.13
Al	9.22	11.46	9.71	11.09	11.08	10.51	0.983	9.35
Si	79.94	74.86	76.49	75.43	75.22	76.39	2.076	2.72
P	0.03	0.04	0.06	0.03	0.04	0.04	0.012	30.62
K	2.24	3.35	2.61	2.96	2.89	2.81	0.414	14.73
Ca	1.43	0.64	1.68	0.97	1.19	1.18	0.403	34.06
Ti	0.49	0.61	0.53	0.62	0.66	0.58	0.070	11.99
Mn	0.03	0.03	0.03	0.03	0.03	0.03	0.000	0.00
Fe	3.30	4.13	3.51	3.87	3.98	3.76	0.343	9.14
Cl	73.97	206.36	83.51	86.83	67.58	103.65	57.922	55.88
B	22.00	71.00	32.00	38.00	33.00	39.20	18.700	47.70
Sm	4.00	5.00	5.00	4.00	4.00	4.40	0.548	12.45
Gd	4.00	5.00	5.00	4.00	4.00	4.40	0.548	12.45
U	2.00	2.00	2.00	2.00	2.00	2.00	0.000	0.00
Th	5.00	6.00	6.00	6.00	7.00	6.00	0.707	11.79

Depth (cm)	Atoms/gram			Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
	N_K	N_Ca	N_Cl					
10-20	2.8627E+20	1.53E+20	1.26E+18	11a	8.4E+05	37681.00	29.90	0.15
33-35	4.28E+20	6.87E+19	3.50E+18	11b	1.3E+06	35050.00	84.60	0.39
78-86	3.34E+20	1.80E+20	1.42E+18	11c	5.3E+05	19852.00	184.20	0.82
125-140	3.78E+20	1.04E+20	1.47E+18	11d	3.8E+05	8269.00	305.40	1.32
190-200	3.69E+20	1.28E+20	1.15E+18	11e	2.6E+05	9510.00	455.50	1.95

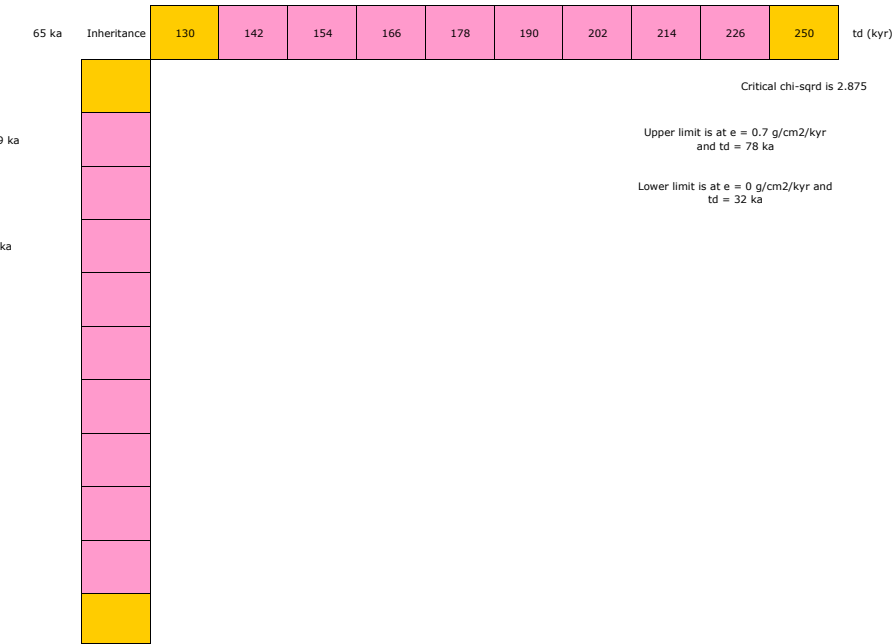
Chi-squared plot for depth-profile S11

Plot to find the minimum chi squared.



e (mm/kyr) e (g cm⁻² kyr⁻¹) Minimum is at 96 kyr and e = 0, with chi-sqrd 0.80, reduced chi-sqrd 0.266

Plot to find the limiting chi squared.

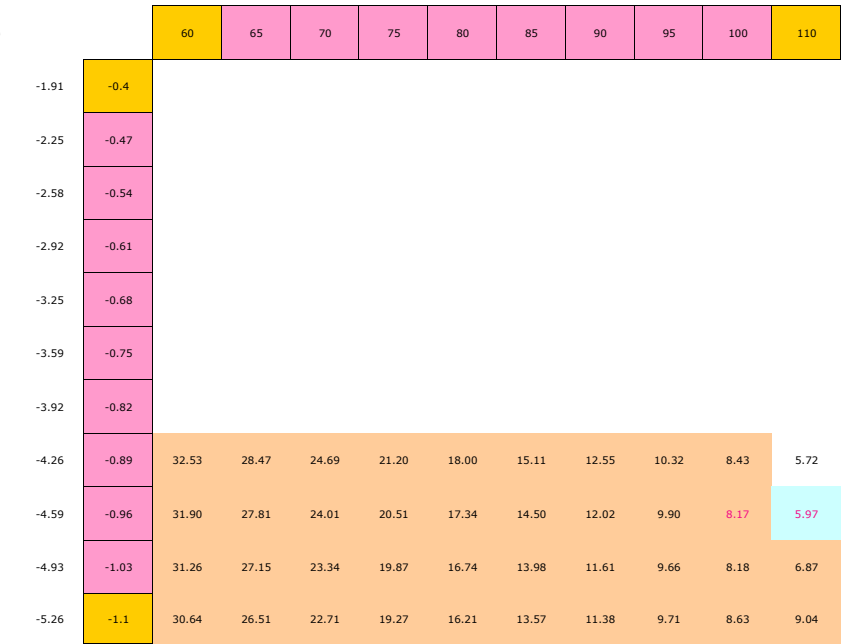


e (mm/kyr) e (g cm⁻² kyr⁻¹)

Critical chi-sqrd is 2.875

Upper limit is at e = 0.7 g/cm2/kyr and td = 78 ka

Lower limit is at e = 0 g/cm2/kyr and td = 32 ka



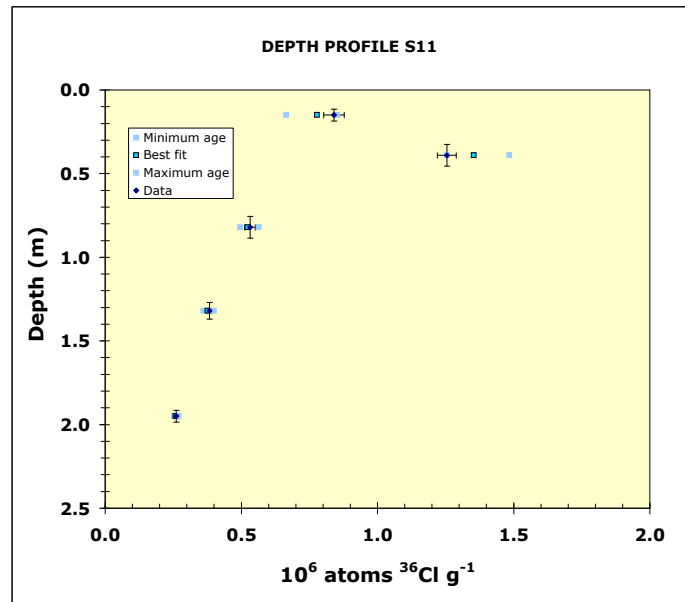
e (mm/kyr) e (g cm⁻² kyr⁻¹)

Sinh	0.03	Fractional uncertainty due to variable inheritance
Soth	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

- 23±6 Inheritance (ka)
- 2.3 $\Delta\chi^2$ for two degrees of freedom (t_{min}, t_d)
- 3.1 Calculated chi-sqrd for minimum

Age = 96+13/-16 ka

Calculated Inventories				Measured inventories			Depth interval (M)		
e=-0.35 g/cm2/yr	e=0 g/cm2/yr	e=0 g/cm2/yr	Depth (m)	36Cl/g	±	Depth (m)	Depth interval (M)	±m	Depth (m)
t=80 ka	t=96 ka	t=109 ka							
6.6502E+05	7.7842E+05	8.5322E+05	0.15	8.403E+05	37681.00	0.15	10-20	0.035	0.15
1.2553E+06	1.3535E+06	1.4844E+06	0.39	1.254E+06	35050.00	0.39	33-35	0.065	0.39
4.9583E+05	5.2260E+05	5.6440E+05	0.82	5.317E+05	19852.00	0.82	78-86	0.065	0.82
3.6095E+05	3.7573E+05	3.9957E+05	1.32	3.833E+05	8269.00	1.32	125-140	0.05	1.32
2.5227E+05	2.5885E+05	2.7004E+05	1.95	2.605E+05	9510.00	1.95	190-200	0.035	1.95



Depth Profile S12.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
14-Jun-05

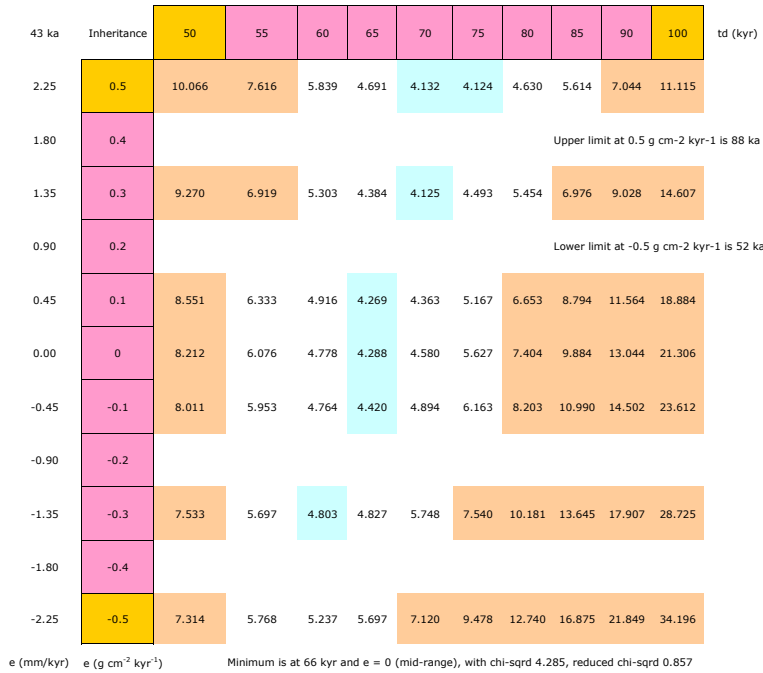
1.28E+20 K stoichiom conversion
1.07E+20 Ca stoichiom conversion
1.70E+16 Cl stoichiom conversion

Element	12a 16-23	12b 38-46	12c 63-73	12d 98-108	12e 124-136	12e(dup) 124-136	12f 190-205	Average	Std Dev	Coeff Var
C	2.69	2.07	1.70	2.27	1.85	1.85	1.75	2.03	0.353	17.42
Na	2.91	1.36	2.59	2.91	3.60	3.60	3.15	2.87	0.764	26.59
Mg	1.70	1.87	0.56	1.44	2.08	2.08	1.70	1.63	0.525	32.15
Al	11.67	11.99	10.31	11.01	12.04	12.04	11.40	11.49	0.648	5.64
Si	72.80	74.09	78.48	74.86	71.39	71.39	73.16	73.74	2.453	3.33
P	0.08	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.017	39.77
K	1.46	2.85	1.15	1.24	1.46	1.46	1.36	1.57	0.578	36.84
Ca	2.12	0.84	1.54	1.99	2.48	2.48	2.15	1.94	0.582	29.95
Ti	0.54	0.61	0.51	0.58	0.62	0.62	0.66	0.59	0.052	8.75
Mn	0.04	0.03	0.02	0.03	0.05	0.05	0.04	0.04	0.011	29.96
Fe	4.17	4.49	3.62	3.75	3.85	3.85	4.20	3.99	0.306	7.66
Cl	364.84	38.81	60.84	80.67	139.69	122.57	113.07	131.50	108.859	82.78
B	28.00	36.00	33.00	37.00	38.00	38.00	34.00	34.86	3.579	10.27
Sm	5.00	5.00	2.00	4.00	3.00	3.00	4.00	3.71	1.113	29.96
Gd	5.00	5.00	2.00	4.00	3.00	3.00	4.00	3.71	1.113	29.96
U	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.000	0.00
Th	8.00	7.00	9.00	9.00	10.00	10.00	8.00	8.71	1.113	12.77

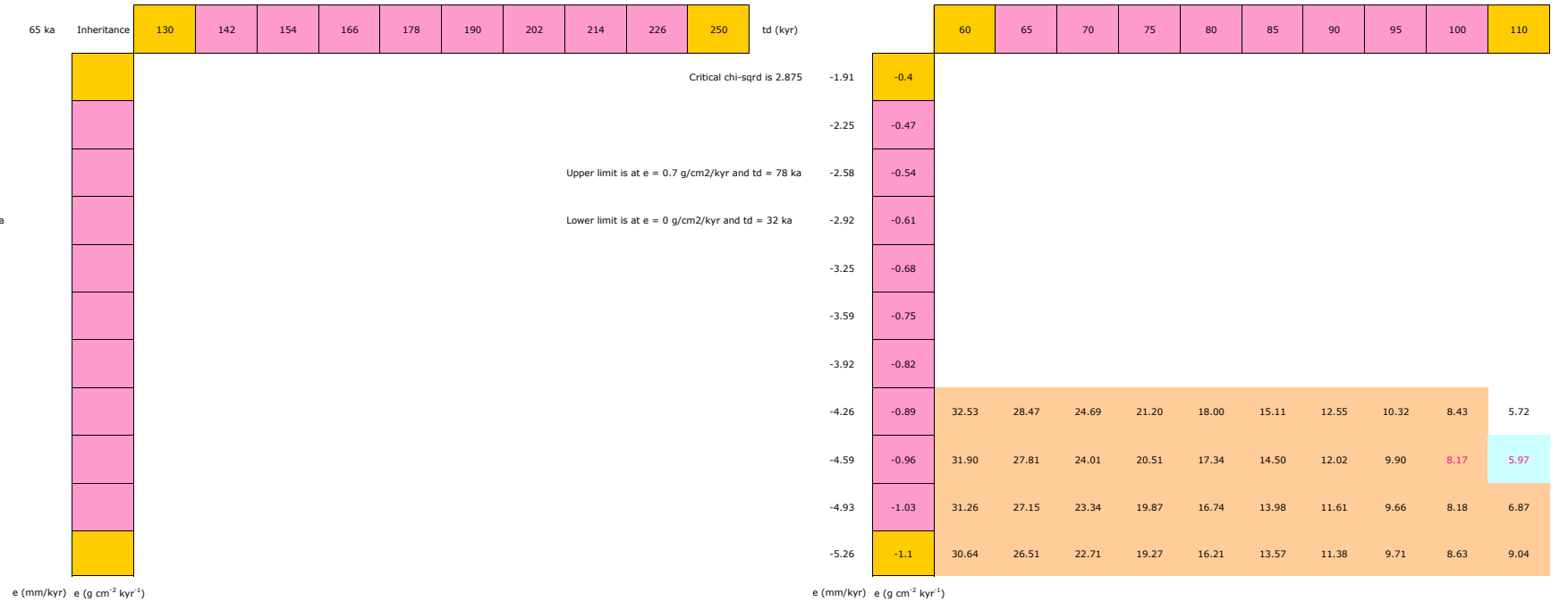
Depth (cm)	Atoms/g N_K	Atoms/g N_Ca	Atoms/g N_Cl	Depth (cm)	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
16-23	1.87E+20	2.27E+20	6.19E+18	16-23	12a	1.8E+06	80535.00	40.90	0.19
38-46	3.64E+20	9.01E+19	6.59E+17	38-46	12b	3.9E+05	11862.00	105.50	0.42
63-73	1.47E+20	1.65E+20	1.03E+18	63-73	12c	3.4E+05	20662.00	158.30	0.68
98-108	1.58E+20	2.14E+20	1.37E+18	98-108	12d	4.2E+05	13698.00	238.90	1.03
124-136	1.58E+20	2.66E+20	2.37E+18	124-136	12e	4.2E+05	22893.00	295.80	1.30
124-136	4.66E+22	2.66E+20	2.08E+18	124-136	12e(dup)	4.5E+05	28463.00	295.80	1.30
190-205	3.58E+21	2.31E+20	1.92E+18	190-205	12f	3.3E+05	13440.00	437.60	1.98

Chi-squared plot for depth-profile S12

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sothor	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile
43±7	Inheritance (ka)	
2.3	$\Delta\chi^2_{0.95}$ for two degrees of freedom (t_{low} , t_{up})	
6.6	Calculated chi-sqrd for minimum	
Age = 66±22/-14 ka		

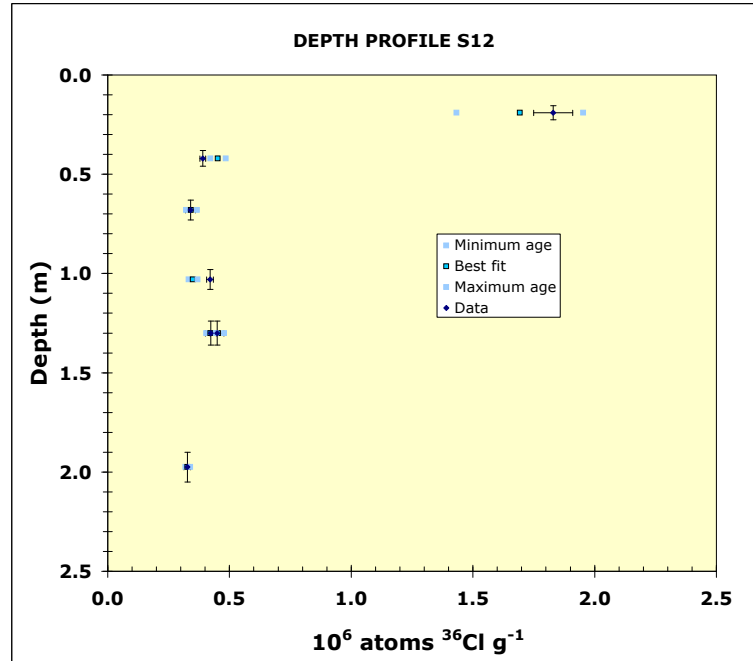
Calculated Inventories

e=-0.5 g/cm2/yr	e=0 g/cm2/yr	e=0.5 g/cm2/yr	Depth (m)
t=52 ka	t=66 ka	t=88 ka	
1.4333E+06	1.6929E+06	1.9534E+06	0.19
4.2256E+05	4.5176E+05	4.8544E+05	0.42
3.2156E+05	3.4226E+05	3.6659E+05	0.68
3.3265E+05	3.4951E+05	3.6992E+05	1.03
4.3423E+05	4.5378E+05	4.7806E+05	1.30
4.0444E+05	4.2217E+05	4.4421E+05	1.30
3.1940E+05	3.2753E+05	3.3856E+05	1.98

Measured Inventories

36Cl/g	±	Depth (m)
1.830E+06	80535.00	0.19
3.907E+05	11862.00	0.42
3.399E+05	20662.00	0.68
4.201E+05	13698.00	1.03
4.233E+05	22893.00	1.30
4.493E+05	28463.00	1.30
3.269E+05	13440.00	1.98

Depth interval (m)	±m	Depth (m)
16-23	0.035	0.19
38-46	0.04	0.42
63-73	0.05	0.68
98-108	0.05	1.03
124-136	0.06	1.30
124-136	0.06	1.30
190-205	0.075	1.98



Depth Profile S14.

the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normal

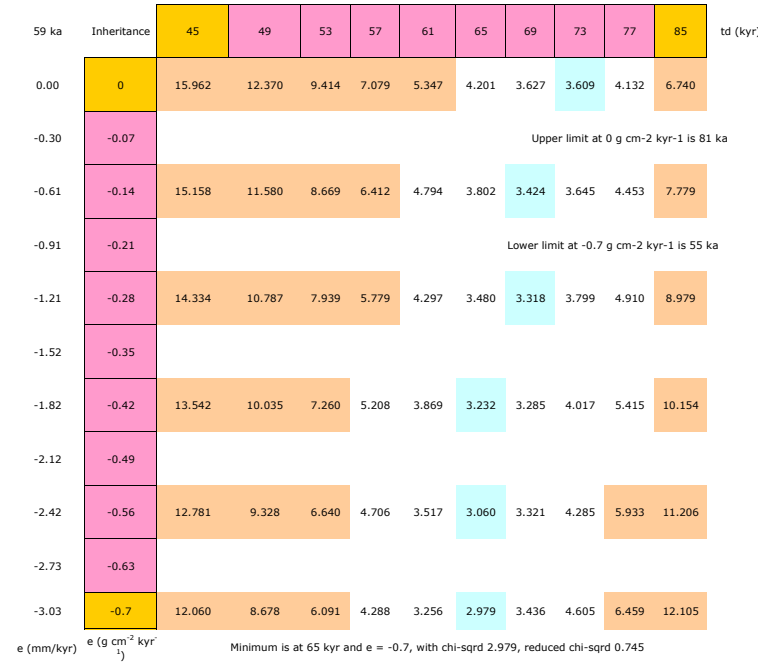
Calculated on 16-Jun-05
 1.28E+20 K stoichiometric conversion
 1.07E+20 Ca stoichiometric conversion
 1.70E+16 Cl stoichiometric conversion

Element	14b 22-28	14c 45-53	14d 70-83	14d (dup) 70-83	14e 110-120	14g 215-225	Average	Std Dev	Coeff Var
C	1.20	3.49	1.55	1.55	4.98	3.33	2.68	1.491	55.56
Na	0.87	1.38	1.16	1.16	1.25	0.75	1.10	0.238	21.74
Mg	0.68	1.72	0.81	0.81	2.48	1.71	1.37	0.717	52.43
Al	5.58	7.04	7.53	7.53	6.75	7.35	6.96	0.743	10.66
Si	87.67	79.43	83.36	83.36	77.23	80.51	81.93	3.671	4.48
P	0.02	0.03	0.03	0.03	0.04	0.04	0.03	0.008	23.77
K	1.92	2.79	3.15	3.15	2.57	2.81	2.73	0.457	16.73
Ca	0.29	1.98	0.52	0.52	3.15	1.65	1.35	1.116	82.57
Ti	0.37	0.46	0.53	0.53	0.38	0.44	0.45	0.070	15.43
Mn	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.008	61.24
Fe	2.03	1.83	1.71	1.71	1.66	2.13	1.85	0.193	10.46
Cl	77.79	93.80	79.77	76.39	95.67	67.14	81.76	10.961	13.41
B	18.00	19.00	20.00	20.00	18.00	0.00	15.83	7.808	49.31
Sm	3.00	3.00	3.00	3.00	3.00	0.00	2.50	1.225	48.99
Gd	3.00	3.00	3.00	3.00	3.00	0.00	2.50	1.225	48.99
U	1.00	2.00	2.00	2.00	2.00	2.00	1.83	0.408	22.27
Th	6.00	9.00	9.00	9.00	10.00	8.00	8.50	1.378	16.22

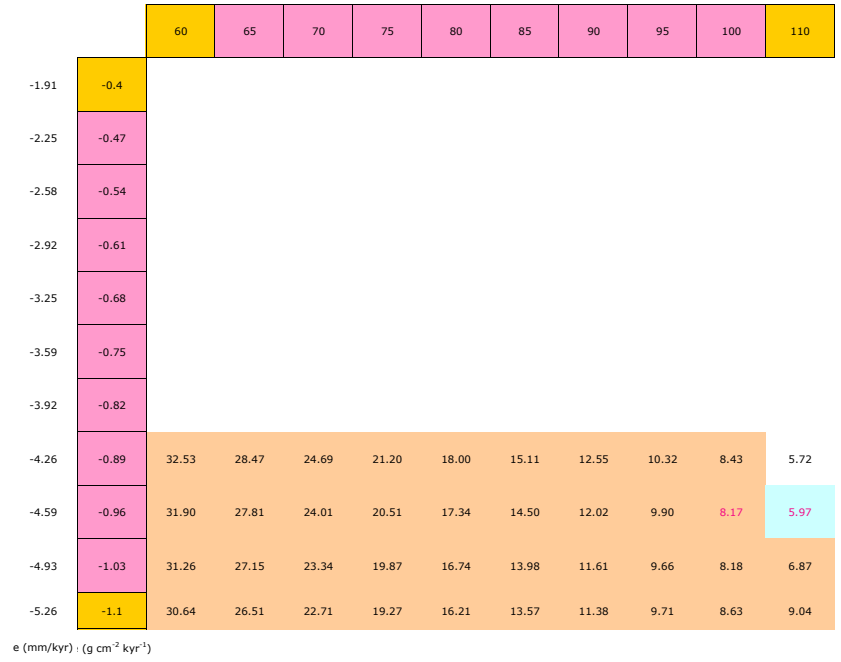
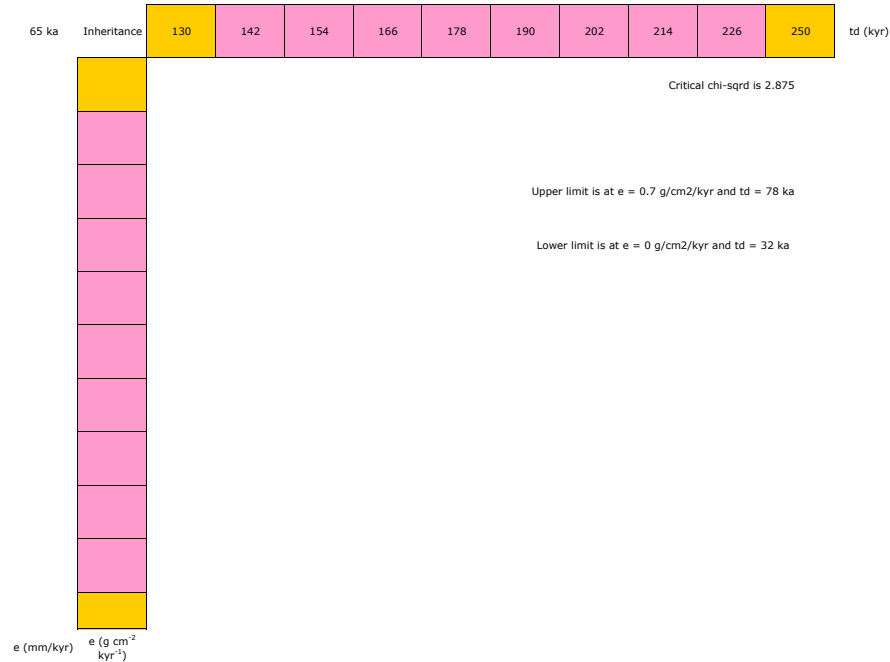
Depth (cm)	Atoms/g N_K	Atoms/g N_Ca	Atoms/g N_Cl	Depth (cm)	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
22-28	2.4538E+20	3.11E+19	1.32E+18	22-28	14b	8.5E+05	16112.00	52.20	0.25
45-53	3.57E+20	2.12E+20	1.59E+18	45-53	14c	1.0E+06	18634.00	105.00	0.49
70-83	4.03E+20	5.58E+19	1.35E+18	70-83	14d	8.9E+05	16985.00	165.50	0.76
70-83	4.03E+20	5.58E+19	1.30E+18	70-83	14d (dup)	8.8E+05	14090.00	165.50	0.76
110-120	3.28E+20	3.38E+20	1.62E+18	110-120	14e	1.0E+06	34300.00	256.20	1.15
215-225	3.59E+20	1.77E+20	1.14E+18	215-225	14g	5.0E+05	17471.00	508.20	2.20

Chi-squared plot for depth-profile S14

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	6	Number of samples in the depth profile

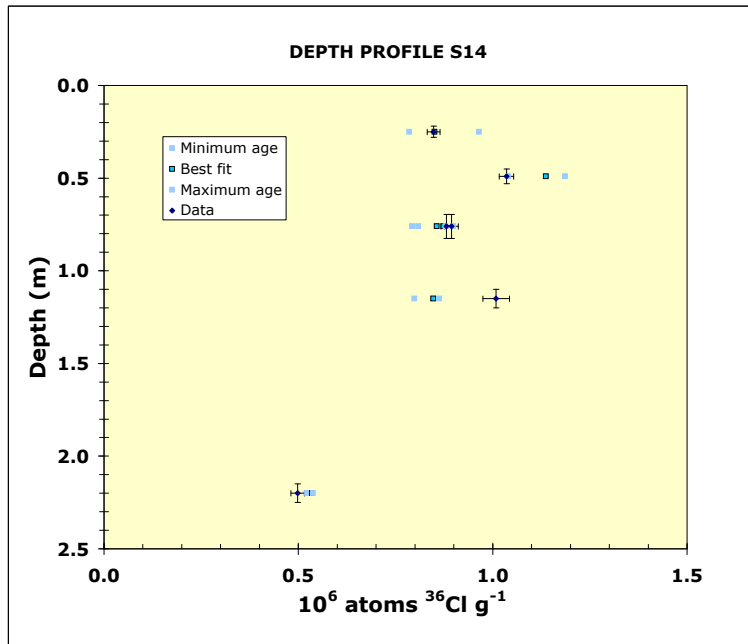
- 59±8 Inheritance (ka)
- 2.3 $\Delta\chi^2$ for two degrees of freedom (t_{min}, t_c)
- 5.3 Calculated chi-sqrd for minimum

Age = 65+16/-10 ka

e=-0.7 g/cm2/yr	e=-0.7 g/cm2/yr	e=0 g/cm2/yr	Depth (m)
t=55 ka	t=65 ka	t=81 ka	
7.8577E+05	8.5083E+05	9.6456E+05	0.25
1.0396E+06	1.1373E+06	1.1862E+06	0.49
8.0865E+05	8.7365E+05	8.9784E+05	0.76
7.9274E+05	8.5599E+05	8.7952E+05	0.76
7.9847E+05	8.4719E+05	8.6288E+05	1.15
5.2246E+05	5.3548E+05	5.3754E+05	2.20

36Cl/g	±	Depth (m)
8.480E+05	16112.00	0.25
1.035E+06	18634.00	0.49
8.940E+05	16985.00	0.76
8.807E+05	14090.00	0.76
1.009E+06	34300.00	1.15
4.979E+05	17473.00	2.20

Depth interval (cm)	±m	Depth (m)
22-28	0.03	0.25
45-53	0.04	0.49
70-83	0.065	0.76
70-83	0.065	0.76
110-120	0.05	1.15
215-225	0.05	2.20



Depth profile S15.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on 16-Jun-05

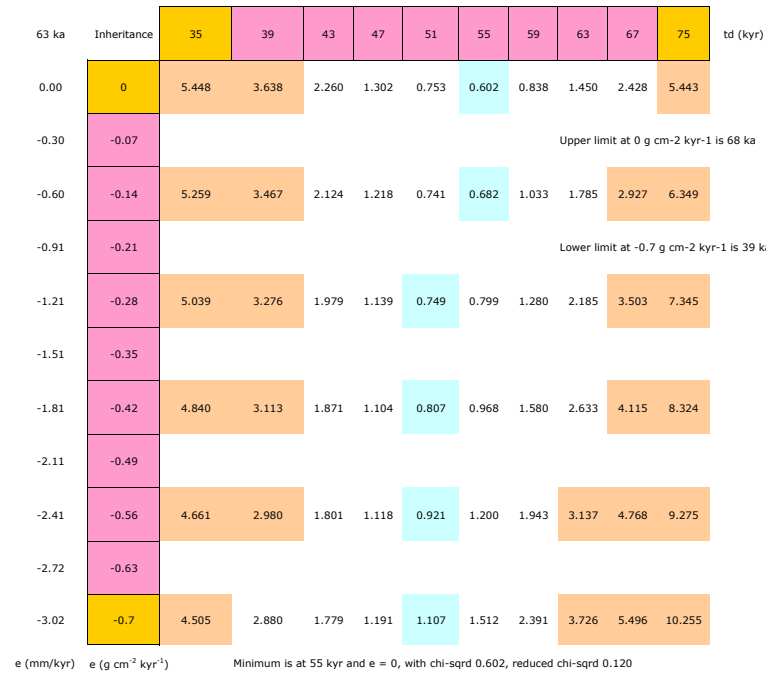
1.28E+20 K stoichiom conversion
1.07E+20 Ca stoichiom conversion
1.70E+16 Cl stoichiom conversion

Element	15a 15-25	15b 50-60	15c 83-92	15d 120-130	15e 190-205	Average	Std Dev	Coeff Var
C	4.93	3.45	1.34	1.38	6.15	3.45	2.134	61.86
Na	0.95	0.95	0.95	0.88	1.02	0.95	0.049	5.21
Mg	2.24	1.60	1.60	0.70	2.78	1.78	0.781	43.80
Al	5.40	6.80	6.80	6.85	6.37	6.44	0.615	9.55
Si	80.31	81.33	81.33	85.58	76.12	80.93	3.371	4.17
P	0.03	0.03	0.03	0.03	0.03	0.03	0.000	0.00
K	2.46	2.62	2.62	2.68	2.54	2.58	0.085	3.30
Ca	3.01	1.59	1.59	0.35	3.77	2.06	1.341	65.03
Ti	0.32	0.37	0.37	0.44	0.29	0.36	0.057	15.97
Mn	0.01	0.01	0.01	0.01	2.78	0.56	1.239	220.13
Fe	1.14	1.89	1.89	1.91	1.54	1.67	0.336	20.08
Cl	104.00	86.46	57.95	78.96	102.24	85.92	18.870	21.96
B	9.10	21.70	21.70	30.90	22.90	21.26	7.808	36.73
Sm	3.00	2.20	2.20	0.90	3.10	2.28	0.881	38.66
Gd	3.00	2.20	2.20	0.90	3.10	2.28	0.881	38.66
U	2.00	2.00	2.00	2.00	2.00	2.00	0.000	0.00
Th	5.00	9.00	9.00	7.00	8.00	7.60	1.673	22.02

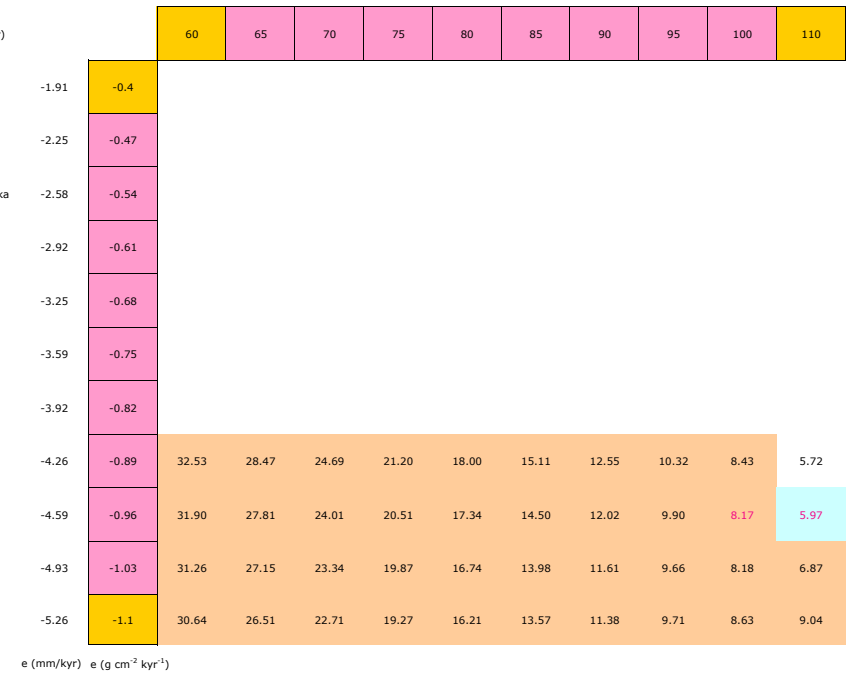
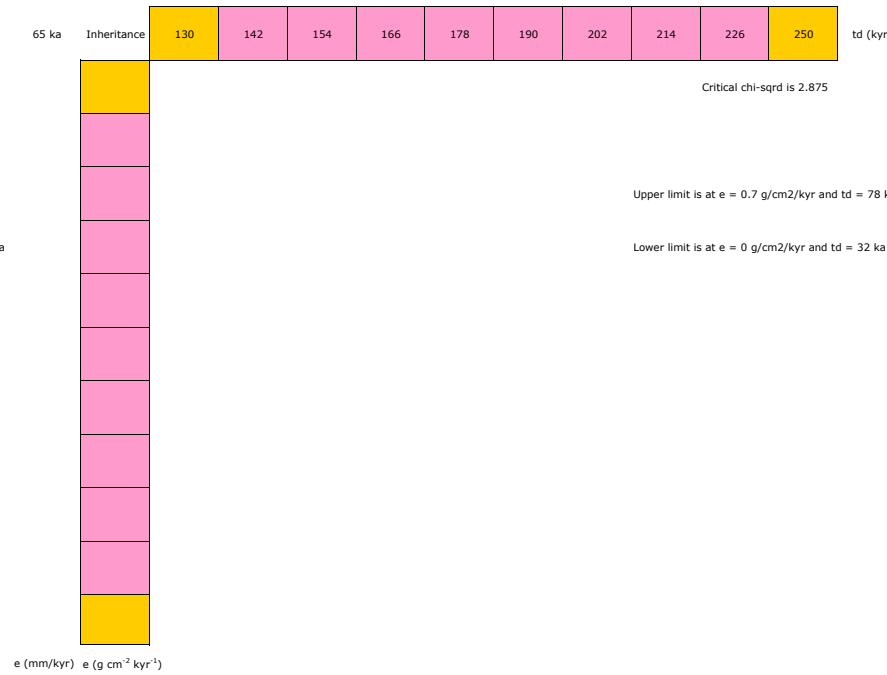
Depth (cm)	Atoms/g N_K	Atoms/g N_Ca	Atoms/g N_Cl	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
15-25	3.144E+20	3.23E+20	1.77E+18	15a	1.2E+06	35318.40	40.90	0.20
50-60	3.35E+20	1.71E+20	1.47E+18	15b	8.4E+05	30829.91	119.90	0.55
83-92	3.35E+20	1.71E+20	9.84E+17	15c	5.9E+05	21647.80	197.90	0.86
120-130	3.43E+20	3.76E+19	1.34E+18	15d	5.3E+05	17429.63	287.90	1.25
190-205	3.25E+20	4.05E+20	1.74E+18	15e	7.0E+05	20832.42	461.90	1.98

Chi-squared plot for depth-profile S15

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sothor	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

63±8 Inheritance (ka)
 2.3 Δχ² for two degrees of freedom (t_{min}, t_c)
 2.9 Calculated critical chi-sqrd

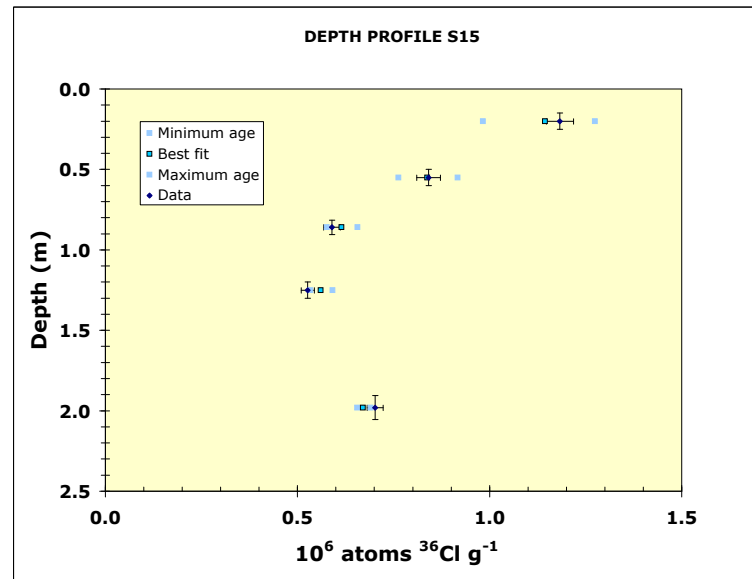
Age = 55±13/-16 ka

Calculated Inventories

e=-0.7 g/cm2	e=0 g/cm2/yr	e=0 g/cm2/yr	Depth (m)
t=-39 ka	t=55 ka	t=68 ka	
9.8301E+05	1.1440E+06	1.2742E+06	0.20
7.6299E+05	8.3805E+05	9.1710E+05	0.55
5.7618E+05	6.1450E+05	6.5649E+05	0.86
5.3399E+05	5.6059E+05	5.9102E+05	1.25
6.5519E+05	6.7035E+05	6.9012E+05	1.98

Measured inventories

³⁶ Cl/g	±	Depth (m)	Depth interval	±m	Depth (m)
1.183E+06	35318.40	0.20	15-25	0.05	0.20
8.413E+05	30829.91	0.55	50-60	0.05	0.55
5.894E+05	21647.80	0.86	83-92	0.045	0.86
5.268E+05	17429.63	1.25	120-130	0.05	1.25
7.018E+05	20832.42	1.98	190-205	0.075	1.98



Depth profile S16.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
16-Jun-05

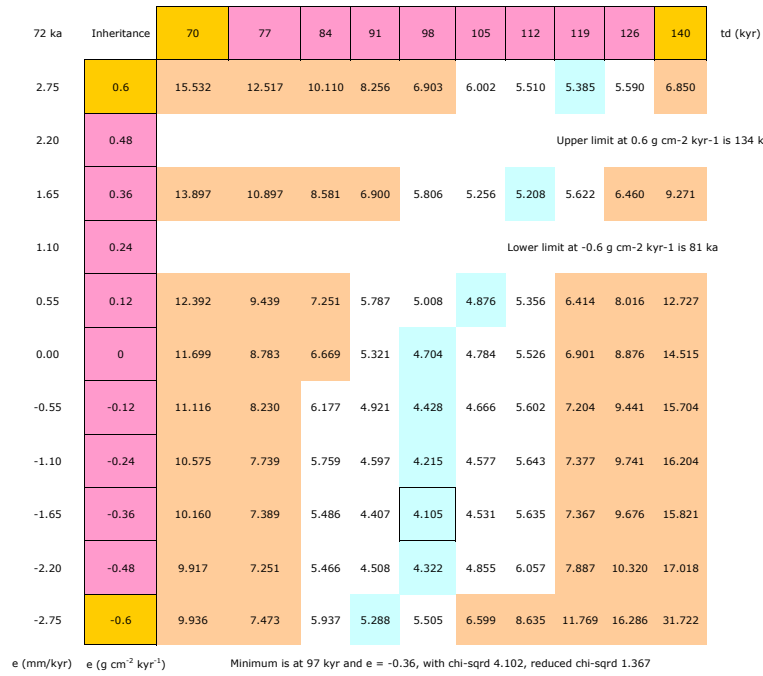
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	16a 16-24	16b 38-46	16c 70-80	16d 110-120	16e 170-175	Average	Std Dev	Coeff Var
C	0.56	0.86	0.57	0.73	0.64	0.67	0.125	18.63
Na	1.26	1.59	1.46	1.61	1.58	1.50	0.146	9.76
Mg	0.04	0.09	0.01	0.01	0.02	0.03	0.034	98.87
Al	3.44	4.41	3.98	4.32	4.37	4.10	0.408	9.95
Si	92.69	89.74	90.53	91.27	89.42	90.73	1.310	1.44
P	0.02	0.03	0.02	0.02	0.02	0.02	0.004	20.33
K	0.37	0.52	0.50	0.47	0.58	0.49	0.077	15.83
Ca	0.30	0.46	0.31	0.34	0.33	0.35	0.065	18.56
Ti	0.34	0.51	0.48	0.33	0.51	0.43	0.091	21.03
Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00
Fe	1.46	1.94	1.72	1.52	1.85	1.70	0.206	12.16
Cl	40.51	38.02	41.90	38.35	40.33	39.82	1.617	4.06
B	15.00	16.00	17.00	18.00	16.00	16.40	1.140	6.95
Sm	1.00	2.00	3.00	3.00	2.00	2.20	0.837	38.03
Gd	1.00	2.00	3.00	3.00	2.00	2.20	0.837	38.03
U	1.00	1.00	1.00	2.00	1.00	1.20	0.447	37.27
Th	5.00	5.00	4.00	5.00	4.00	4.60	0.548	11.91

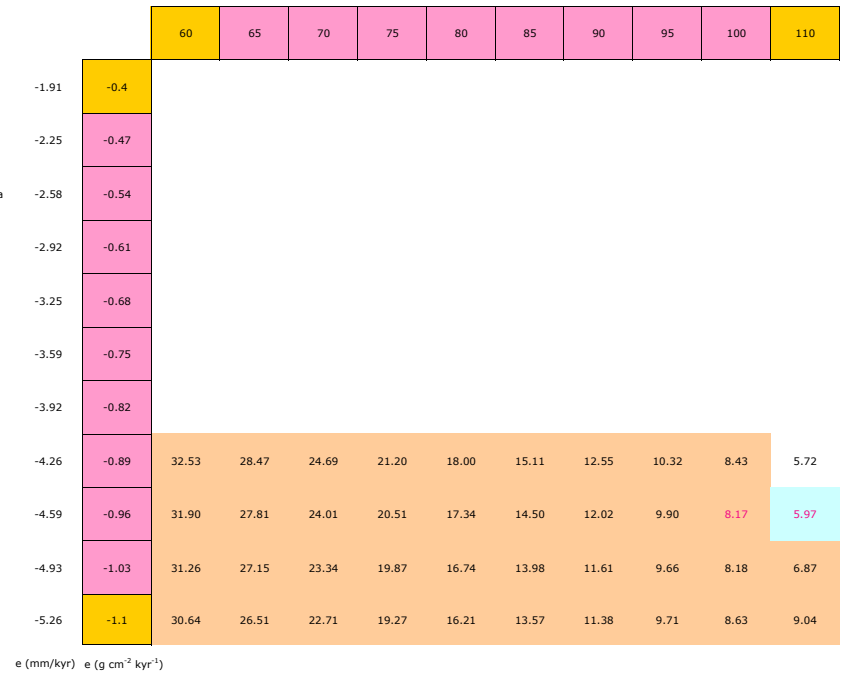
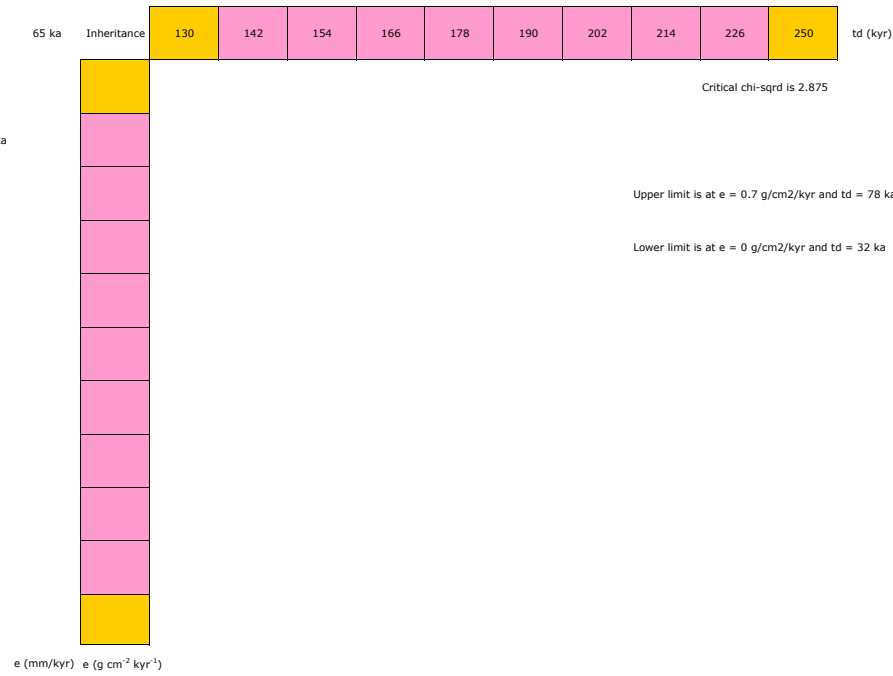
Depth (cm)	Atoms/gram N_K	Atoms/gram N_Ca	Atoms/gram N_Cl	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
16-24	4.7286E+19	3.22E+19	6.88E+17	16a	4.3E+05	19260.00	40.90	0.20
38-46	6.65E+19	4.94E+19	6.46E+17	16b	4.0E+05	11620.00	82.90	0.42
70-80	6.39E+19	3.33E+19	7.11E+17	16c	4.2E+05	18498.00	156.90	0.75
110-120	6.01E+19	3.65E+19	6.51E+17	16d	3.6E+05	24745.00	248.90	1.15
170-175	7.41E+19	3.54E+19	6.85E+17	16e	2.1E+05	10272.00	381.20	1.73

Chi-squared plot for depth-profile S16

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh	0.03	Fractional uncertainty due to variable inheritance
Sother	0.06	Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
Nsamp	5	Number of samples in the depth profile

72±17 Inheritance (ka)

2.3 Δχ² for two degrees of freedom (t_{min}, t_c)

6.4 Calculated chi-sqrd for minimum

Age = 97+37/-16 ka

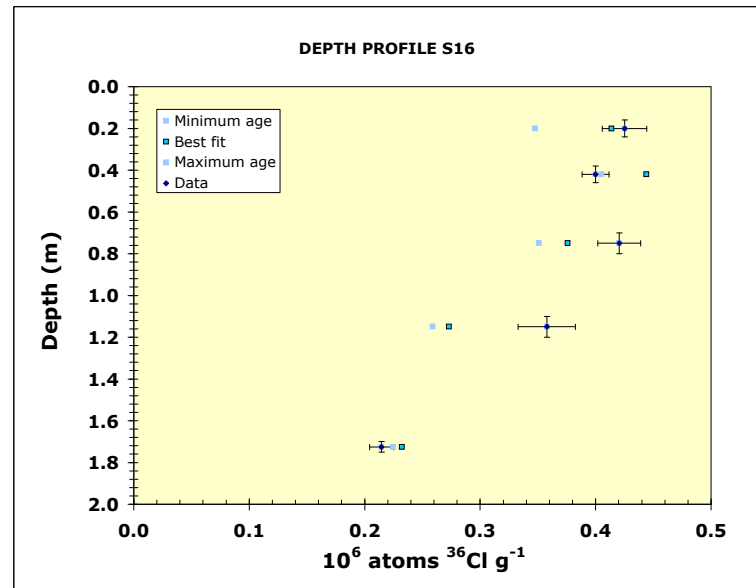
Calculated Inventories

e=-0.6 g/cm ² /yr	e=-0.36 g/cm ² /yr	e=0.6 g/cm ² /yr	Depth (m)
t=81 ka	t=97 ka	t=134 ka	
3.47478e+05	4.13818e+05	4.25128e+05	0.20
4.05118e+05	4.44098e+05	3.99938e+05	0.42
3.50808e+05	3.75778e+05	4.20438e+05	0.75
2.58858e+05	2.72898e+05	3.57688e+05	1.15
2.24458e+05	2.32348e+05	2.14668e+05	1.73

Measured inventories

36Cl/g	±	Depth (m)
4.2518e+05	19260.00	0.20
3.9998e+05	11620.00	0.42
4.2048e+05	18498.00	0.75
3.5778e+05	24745.00	1.15
2.1478e+05	10272.00	1.73

Depth interval (m)	±m	Depth (m)
16-24	0.04	0.20
38-46	0.04	0.42
70-80	0.05	0.75
110-120	0.05	1.15
170-175	0.025	1.73



Depth profile S17.

These are the results for the approach in which the chi-squared is minimized for samples at each depth by separate calculation, rather than normalization.

Calculated on
16-Jun-05

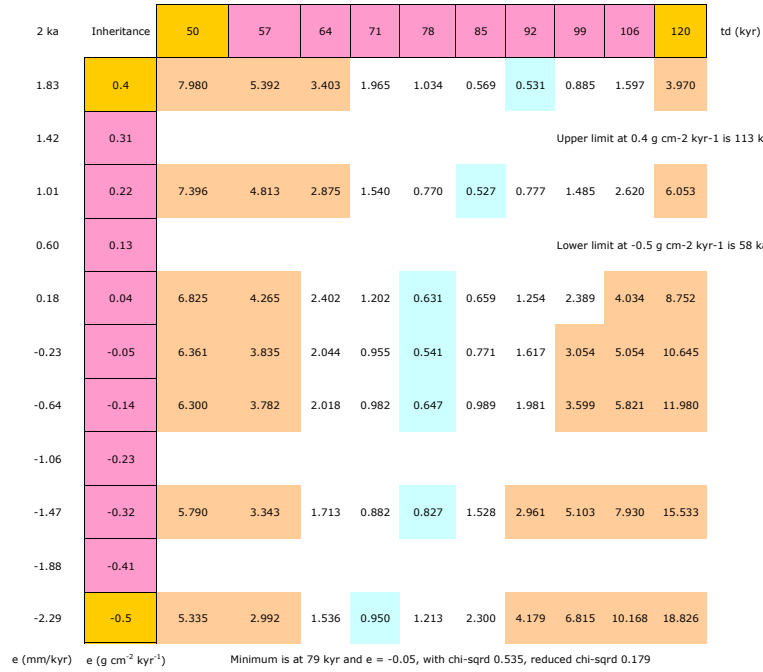
1.28E+20 K stoichiometry conversion
1.07E+20 Ca stoichiometry conversion
1.70E+16 Cl stoichiometry conversion

Element	17a 20-28	17b 55-65	17c 95-108	17d 140-155	17e 200-215	Average	Std Dev	Coeff Var
C	0.81	0.89	1.28	1.22	1.54	1.15	0.299	26.03
Na	0.91	1.00	1.06	0.98	1.02	0.99	0.055	5.58
Mg	0.54	0.50	0.83	0.75	0.93	0.71	0.185	26.10
Al	5.78	6.46	8.40	7.94	7.90	7.30	1.118	15.32
Si	87.14	86.32	81.27	81.38	80.85	83.39	3.067	3.68
P	0.05	0.05	0.04	0.08	0.09	0.06	0.022	34.97
K	2.12	2.48	2.99	2.95	2.82	2.67	0.368	13.77
Ca	0.08	0.07	0.05	0.19	0.36	0.15	0.129	86.28
Ti	0.64	0.76	1.13	1.19	1.06	0.96	0.242	25.31
Mn	0.02	0.01	0.02	0.02	0.03	0.02	0.007	35.36
Fe	2.58	2.42	3.79	3.47	3.96	3.24	0.704	21.70
Cl	47.43	40.98	38.69	36.41	43.82	41.47	4.319	10.42
B	20.00	21.00	31.00	33.00	31.00	27.20	6.181	22.72
Sm	3.00	3.00	5.00	5.00	4.00	4.00	1.000	25.00
Gd	3.00	3.00	5.00	5.00	4.00	4.00	1.000	25.00
U	0.00	1.00	2.00	2.00	2.00	1.40	0.894	63.89
Th	4.00	6.00	7.00	8.00	2.00	5.40	2.408	44.60

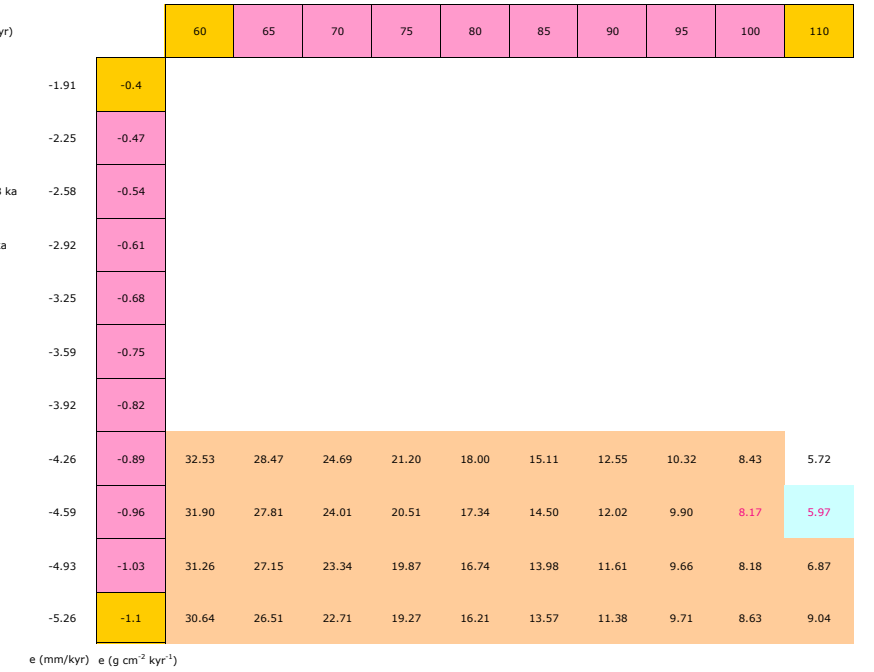
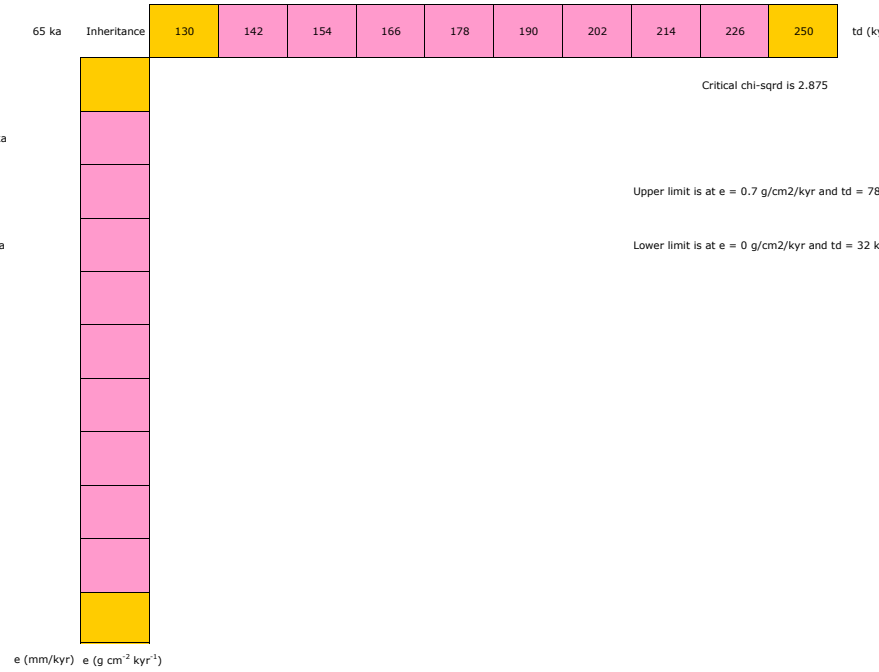
Depth (cm)	Atoms/g N_K	Atoms/g N_Ca	Atoms/g N_Cl	Sample	Sample Data N36	Uncert.	Depth in g/cm ³ based on density	Depth (m)
20-28	2.7094E+20	8.58E+18	8.05E+17	17a	5.2E+05	19860.00	49.40	0.24
55-65	3.17E+20	7.51E+18	6.96E+17	17b	4.0E+05	13556.00	129.10	0.60
95-108	3.82E+20	5.37E+18	6.57E+17	17c	3.6E+05	11160.00	224.60	1.01
140-155	3.77E+20	2.04E+19	6.18E+17	17d	3.2E+05	14383.00	334.10	1.47
200-215	3.60E+20	3.86E+19	7.44E+17	17e	3.1E+05	10500.00	478.10	2.07

Chi-squared plot for depth-profile S17

Plot to find the minimum chi squared.



Plot to find the limiting chi squared.



Sinh 0.03 Fractional uncertainty due to variable inheritance
 Sother 0.06 Fractional uncertainty due to other sources (mainly geochemical analyses and production rates)
 Nsamp 5 Number of samples in the depth profile

62±9 Inheritance (ka)
 2.3 Δχ², for two degrees of freedom (t_{low}, t_h)
 2.835 Calculated chi-sqrd for minimum
 Age = 79+34/-21 ka

Calculated Inventories				Measured inventories		Depth interval (m)	
e=-0.5 g/cm2/yr	e=-0.05 g/cm2/yr	e=0.4 g/cm2/yr	Depth (m)	36Cl/g ±	Depth (m)	Depth interval (m)	±m
t=58 ka	t=79 ka	t=113 ka				20-28	0.04
4.2414E+05	5.2268E+05	5.5603E+05	0.24	5.227E+05	19860.00		0.24
3.7661E+05	3.9872E+05	4.5330E+05	0.60	3.987E+05	13556.00	55-65	0.05
3.5310E+05	3.6001E+05	4.0347E+05	1.01	3.600E+05	11160.00	95-108	0.065
3.0804E+05	3.1963E+05	3.3744E+05	1.47	3.196E+05	14383.00	140-155	0.075
2.8914E+05	3.0879E+05	3.0678E+05	2.07	3.088E+05	10500.00	200-215	0.075

