

## **Supplementary Information for Controls on Erosion in the Western Tarim Basin: Implications for the Uplift of Northwest Tibet and Pamirs**

### *Major and Trace Element Geochemistry*

Each bulk, unsieved sediment sample was analyzed for major and trace elements to provide a basic characterization of the material that was also assessed with other isotopic and thermochronologic methods. Carbonate was not removed prior to digestion. For elemental analysis all samples were freeze-dried and ground before mixing 600 mg of sample with 3600 mg of lithium tetraborate ( $\text{Li}_2\text{B}_4\text{O}_7$ , Spektromelt). The samples were pre-oxidized at 500°C with  $\text{NH}_4\text{NO}_3$  and fused to glass-beads. Samples were then analyzed for Si, Al, Ti, Fe, Na, Ca, K, P and Rb by X-Ray Fluorescence (XRF) using a Philips PW 2400 X-Ray spectrometer at the Institut für Chemie und Biologie des Meeres (ICBM) at the Carl von Ossietzky Universität, Oldenburg, Germany. XRF measurements were performed using the method of Böning *et al.* (2009). Overall analytical precision and accuracy were monitored by measurements of several in-house standards and the certified standard GSD-12, and were better than 3%. All data are presented in Table 2.

### *Isotope Geochemistry*

Sediments were also analyzed for Sr and Nd isotopes because these systems have an established track record of being reliable provenance and chemical weathering proxies in sedimentary systems. Nd is a water-immobile element and is generally considered not to experience isotopic fractionation during weathering and erosion processes (Goldstein *et al.*, 1984). The Nd isotopic composition broadly reflects the average age and lithology of the crust being

eroded so that sediments from ancient continental crust have different signatures compared to those derived from younger igneous bodies. Sr is water mobile and may be affected by weathering processes, as well as the provenance (Derry and France-Lanord, 1996). Unweathered rocks show correlation between Nd and Sr isotopes, but  $^{87}\text{Sr}/^{86}\text{Sr}$  values tend to increase with stronger alteration (Derry and France-Lanord, 1996). Sr isotopes are strongly affected by the presence of carbonate and care was taken to decarbonate samples prior to analysis. This was especially important in the Tarim Basin because of the presence of common carbonate grains in the sediment. This means that our isotopic analysis only constrains the provenance of the siliciclastic fraction.

Prior to total digestion all samples were leached using buffered acetic acid to remove any carbonate-bound Sr. This was followed by a leach with 25% (v/v) acetic acid and 0.02 M hydroxylamine hydrochloride (HH) to remove Sr contained in authigenic Mn-Fe-oxides, which may also concentrate Nd. Hence, the Sr and Nd isotopic signatures are assumed to result solely from the silicate fraction (plus perhaps fractions of dolomite). The leached sediments were then digested in closed PTFE vessels (Böning et al., 2004). The samples and the certified standard BCR-2 (50 mg), as well as a blank, were treated with  $\text{HNO}_3$  overnight to oxidize any organic matter. After that HF and  $\text{HClO}_4$  were added and the vessels were heated for 12 h at 180°C. All acids were of ultra-pure quality. After digestion, acids were evaporated on a heated metal block (180°C), residues were redissolved and fumed off three times with 6N HCl, and finally taken up in 1N  $\text{HNO}_3$ .

From the resulting solutions, rare earth elements (REEs) and Sr were isolated from major elements and separated from each other by two-step column chemistry using Eichrom TRU-Spec resin. Nd was then isolated from interfering REEs using Eichrom LN-Spec resin with 0.23–0.25

N HCl as eluant. The TRU-Spec Sr-Rb cut was loaded on Eichrom Sr-Spec columns to isolate Sr using Milli-Q water. The isotopic compositions of Nd and Sr were analyzed on a Thermo Neptune Plus Multicollector ICP-MS at the ICBM, Oldenburg. For Nd isotope analyses, all samples were corrected for internal mass fractionation using  $^{146}\text{Nd}/^{144}\text{Nd} = 0.7219$  and an exponential law. Each measurement session was accompanied by multiple analyses of the Nd standard JNd-1 with sample-like concentrations, and  $^{143}\text{Nd}/^{144}\text{Nd}$  ratios of all samples were normalized to the reported JNd-1 value of  $^{143}\text{Nd}/^{144}\text{Nd} = 0.512115$  (Tanaka et al., 2000). The Nd isotopic composition is expressed in  $\varepsilon_{\text{Nd}}$  notation:

$$\varepsilon_{\text{Nd}} = [(^{143}\text{Nd}/^{144}\text{Nd})_{\text{sample}} / (^{143}\text{Nd}/^{144}\text{Nd})_{\text{CHUR}} - 1] * 10^4$$

$(^{143}\text{Nd}/^{144}\text{Nd})_{\text{CHUR}}$  is the Chondritic Uniform Reservoir with a value of 0.512638 (Jacobsen and Wasserburg, 1980). The external reproducibility is calculated for each session separately using the analyses of JNd-1 and was generally better than  $\pm 0.000015$  or  $\pm 0.3 \varepsilon_{\text{Nd}}$  units ( $2\sigma$ ). The BCR-2 standard ( $n = 4$ ) had an  $\varepsilon_{\text{Nd}}$  value of 0.1 ( $\pm 0.3, 2\sigma$ ) and was well within the reported  $\varepsilon_{\text{Nd}}$  value of  $0.0 \pm 0.2$  (Raczek et al., 2003). The procedural blank was  $\leq 30 \text{ pg Nd}$ .

For Sr isotope analyses, all samples were corrected for mass fractionation using  $^{86}\text{Sr}/^{88}\text{Sr} = 0.1194$  and the exponential law. Measurements were accompanied by multiple analyses of NBS987 with sample-like concentrations, and  $^{87}\text{Sr}/^{86}\text{Sr}$  ratios of all samples were normalized to the reported value of 0.710248 (Thirlwall, 1991). Furthermore, Kr, Rb and Ba contents were monitored and found to be negligible. The external reproducibility is calculated using the analyses of NBS987 and was generally better than 50 ppm ( $2\sigma$ ). The BCR-2 standard ( $n = 4$ ) had a  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of  $0.70502 \pm 0.00004$  ( $2\sigma$ ) and was within the reported  $^{87}\text{Sr}/^{86}\text{Sr}$  ratio of  $0.70496 \pm 0.00002$  (Raczek et al., 2003). The procedural blanks were negligible throughout. Results are reported in Table 2.

## *Detrital zircon U-Pb geochronology*

Detrital zircon U-Pb dating has become a popular and effective technique for evaluating sediment provenance in clastic systems because zircon is a common mineral in continental rocks of many compositions, and is chemically and mechanically durable enough to survive multiple cycles of erosion, transport and sedimentation (Gehrels, 2014). Grains >50 µm across were analyzed, reflecting the spot size of the laser employed. Samples were separated for zircon using standard magnetic and heavy liquid separation techniques at Birkbeck, University of London, UK. The >#40 sieve-fraction was separated using a vibrating Gemini® Mineral Separation table. The densest fraction was collected, washed with ethanol, and dried in an oven at 100°C. Once dry, a rare-earth element hand magnet was passed several times over the sample to remove extremely magnetic material and sieved again to 63–250 µm before passing through a Frantz® Magnetic Barrier Laboratory Separator Model LB-1 to isolate nonmagnetic (>1.6 Å) grains. Prior to heavy liquid separation, all samples were pre-treated using hydrogen peroxide, acetic acid, and oxalic acid to remove organic material, carbonate, and Fe-oxides, respectively. Extracted detrital zircons were picked and mounted in epoxy resin, polished, and imaged by reflected light and cathodoluminescence.

Detrital zircons were dated using the U-Pb method at the London Geochronology Centre facilities at University College London, using a New Wave Nd:YAG 193 nm laser ablation system, coupled to an Agilent 7700 quadrupole ICP-MS. Around 100–120 grains are considered generally sufficient for characterizing sand eroded from a geologically complicated drainage basin (Vermeesch, 2004). Real time U-Pb data were processed using GLITTER 4.4 data

reduction software. Repeated measurements of external zircon standard Plesovice (TIMS reference age  $337.13 \pm 0.37$  Ma)(Sláma et al., 2008) and NIST 612 silicate glass (Pearce et al., 1997) were used to correct for instrumental mass bias and depth-dependent inter-element fractionation of Pb, Th and U. For this study  $^{206}\text{Pb}/^{238}\text{U}$  ages are used for grains younger than 1000 Ma, and for zircon grains older than 1000 Ma we used the  $^{207}\text{Pb}/^{206}\text{Pb}$  ages to calculate the crystallization age. Because some grains are discordant we chose to only plot those grains when the discordance was less than 15%. Table 4.

#### *Detrital Apatite Fission Track Geochronology*

Three samples were analyzed for apatite fission track dating. The low-temperature apatite fission-track method, which records cooling through  $\sim 60\text{--}125^\circ\text{C}$  over timescales of 1–10 m.y. (Green et al., 1989) is particularly sensitive to exhumation driven by erosion and has been widely used in exhumation studies worldwide. Apatites were picked, mounted, and analyzed after heavy mineral extraction at University College, London, UK. Polished grain mounts of apatite were etched with 5N HNO<sub>3</sub> at  $20^\circ\text{C}$  for 20 s to reveal the spontaneous fission-tracks. Etched grain mounts were packed with mica external detectors and corning glass (CN5) dosimeters and irradiated in the FRM 11 thermal neutron facility at the University of Munich in Germany. Following irradiation the external detectors were etched using 48% HF at  $20^\circ\text{C}$  for 25 minutes. Sample ages were determined using the zeta calibration method and IUGS recommended age standards (Hurford, 1990). The results of the fission track analyses are presented in Table 5.

### *Optically Stimulated Luminescence Dating*

Depositional ages of sediment in the terraces were determined by optically stimulated luminescence (OSL) dating of quartz sand. While OSL dating can be challenging in fluvial environments, deposits from these settings can be accurately dated by selecting depositional facies most likely to have been reset by sunlight exposure (Fuchs and Owen, 2008; Rittenour, 2008; Wyshnytzky et al., 2015). We preferentially targeted well-sorted, horizontally bedded sand lenses from fluvial deposits to reduce the influence of incomplete resetting (partial bleaching) of the luminescence signal.

Six OSL samples were collected by pounding metal pipes into surface exposures and were shipped to the Utah State University (USU) Luminescence Laboratory for optically stimulated luminescence (OSL) dating of quartz sand (Huntley et al., 1985; Murray and Wintle, 2000). Samples were opened under dim amber light (~590 nm) and sediment from the inner portions of the sample tubes was sieved and treated with hydrochloric acid to dissolve carbonates and chlorine bleach to remove organic material. Heavy mineral separation (sodium polytungstate, 2.7 g/cm<sup>3</sup>) and concentrated hydrofluoric and hydrochloric acids were used to remove feldspars, etched the quartz grains, and prevented formation of fluorite precipitates (see Rittenour et al. 2005 for details). The samples were re-sieved to remove the <63µm grain-size fraction of etched quartz and any partially dissolved feldspars (Wintle, 1997). Purity of the samples was checked using infrared (IR) stimulation on all aliquots.

Representative sediment surrounding the sample tubes was collected for dose rate analysis and submitted for ICP-MS and ICP-AES analyses of K, Rb, Th, and U content. In-situ gravimetric moisture content was measured for all samples. For those with <5.8% measured water content, we used an average value of 5.8±3.0% to represent the moisture content over

burial history. Dose rate calculations include cosmic dose rate contribution by using sample depth, elevation, and longitude/latitude following Prescott and Hutton (1994), influence of water attenuation, uncertainty in elemental measurements and dose rate conversion factors (Aitken, 1998; Guerin et al., 2011).

The OSL age (ka) is determined by dividing the lab-derived radiation dose required to replicate the natural luminescence signal (in greys, Gy), termed equivalent dose ( $D_E$ ), by the environmental dose rate (in Gy/ka) of the surrounding sediments (Aitken, 1998). Individual aliquot  $D_E$ 's were calculated using the SAR technique of Murray and Wintle (2000) on 2-mm diameter aliquots (~35 grains per disk). Optical measurements were performed on Risø TL/OSL Model DA-20 readers with blue-green light emitting diodes (LED) ( $470\pm30$  nm) as the stimulation source, and reader dose rates of 0.12-0.13 Gy/sec from a decaying  $^{90}\text{Sr}$  beta source (Bøtter-Jensen et al., 2000). The luminescence signal was measured through 7.5-mm UV filters (U-340) over 40 seconds (250 channels) at  $125^\circ\text{C}$  with LED diodes ( $\sim45 \text{ mW/cm}^2$ ), and calculated by subtracting the average of the last five seconds (background signal) from the first 0.7 seconds (4 channels) of the signal decay curve.

A preheat-plateau (PP) test was performed on USU-1490 to determine the proper preheat temperature(Murray and Wintle, 2003). For the PP test, five 1-mm aliquots were used at each temperature step with preheat temperatures increased by  $20^\circ\text{C}$  increments from  $180^\circ\text{C}$  to  $260^\circ\text{C}$ , and held for 10 seconds. First, each non-heated and non-irradiated aliquot was optically bleached at room temperature twice using blue-green LED diodes at 90% power for 40 seconds, each followed by a 990-second pause to let unstable, thermally-transferred charges decay (Li and Li, 2006). Aliquots were then irradiated with 11.8 Gy of beta radiation. A thermal transfer (TT) test was also conducted on sample USU-1490. This test was similar to the PP test except no dose

was given following bleaching. Recovered PP and TT doses were measured using the SAR protocol with a 160°C preheat following each test doses (each held for 10 seconds), and preheat temperatures ranging from 180 to 260°C (held for 10s). Results from these tests were variable with preheat temperature but suggest that preheat temperatures between 200°C and 260°C are optimal for dose recovery near unity and minimal thermal transfer. A preheat temperature of 200°C was used for all samples except USU-1495 where a 260°C preheat temperature was used.

Cumulative D<sub>E</sub> values were calculated using the central age model (CAM) and the 3-parameter of Galbraith and Roberts (2012)(Fig. S2). Samples with high overdispersion (>30%) and positive skew of the D<sub>E</sub> data distribution were calculated using the minimum age model. Aliquots were rejected if they had evidence of feldspar contamination, > 20% recycling ratio or recuperated signal, natural D<sub>E</sub> greater than the highest regenerative dose given, or poor dose response curve fit. Errors on D<sub>E</sub> and age estimates are reported at 2-sigma standard error and were calculated in quadrature using the methods of Aitken and Allred (1972) and Guerin et al. (2011).

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doi:10.1016/j.quaint.2014.08.024.

### Supplementary Figure Captions

Figure S1. Microscope images of sands considered in this study. Photogarph taken of the 63–125  $\mu\text{m}$  fraction. (A) Sample 13062101, Yarkand River (x35), (B) Sample 13062401, Hotan River (x40), Sample 13062403, Downstream Hotan River (x35), (D) Sample 13062503, Dune Sand (x50), (E) Sample 13062701, Kashgar River (x40).

Figure S2. Equivalent dose ( $D_E$ ) distributions, calculated  $D_E$  values, age model used for  $D_E$  calculation (MAM = minimum age model, CAM = central age model) and overdispersion (OD) values for OSL samples. Shaded region and filled points represents the 2-sigma range of the  $D_E$  values used for age calculation. The MAM age model was used for samples with high OD (>30%) and positive skew in the  $D_E$  values, both indicative of partial bleaching (incomplete solar resetting).

Table S1. Analytical data for U-Pb dating of detrital zircon grains from the river sediment samples.

Table S2. Analytical data related to apatite fission track analysis of samples from the western Tarim Desert.

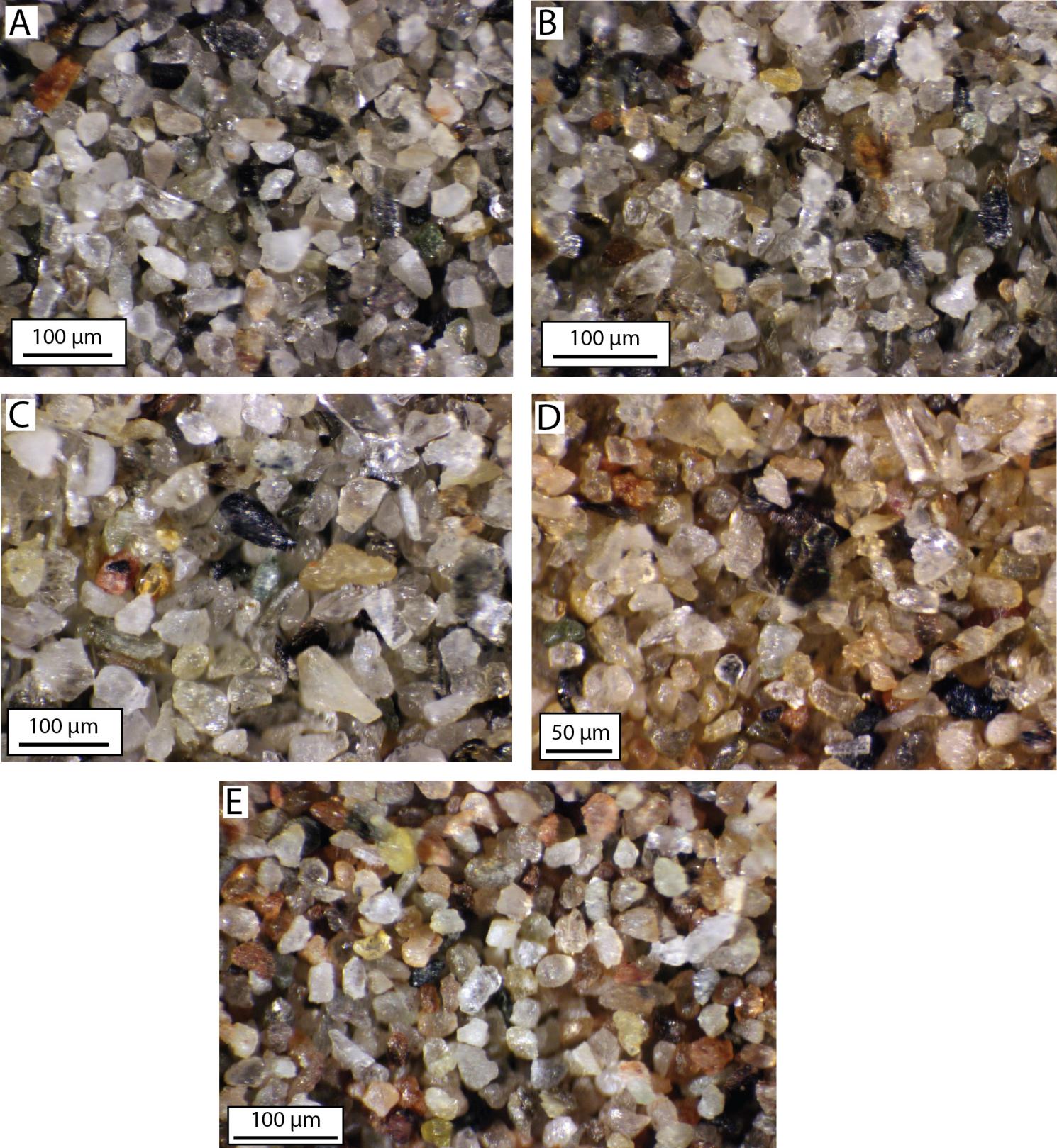


Figure S1  
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## Equivalent Dose ( $D_E$ ) Radial Plots

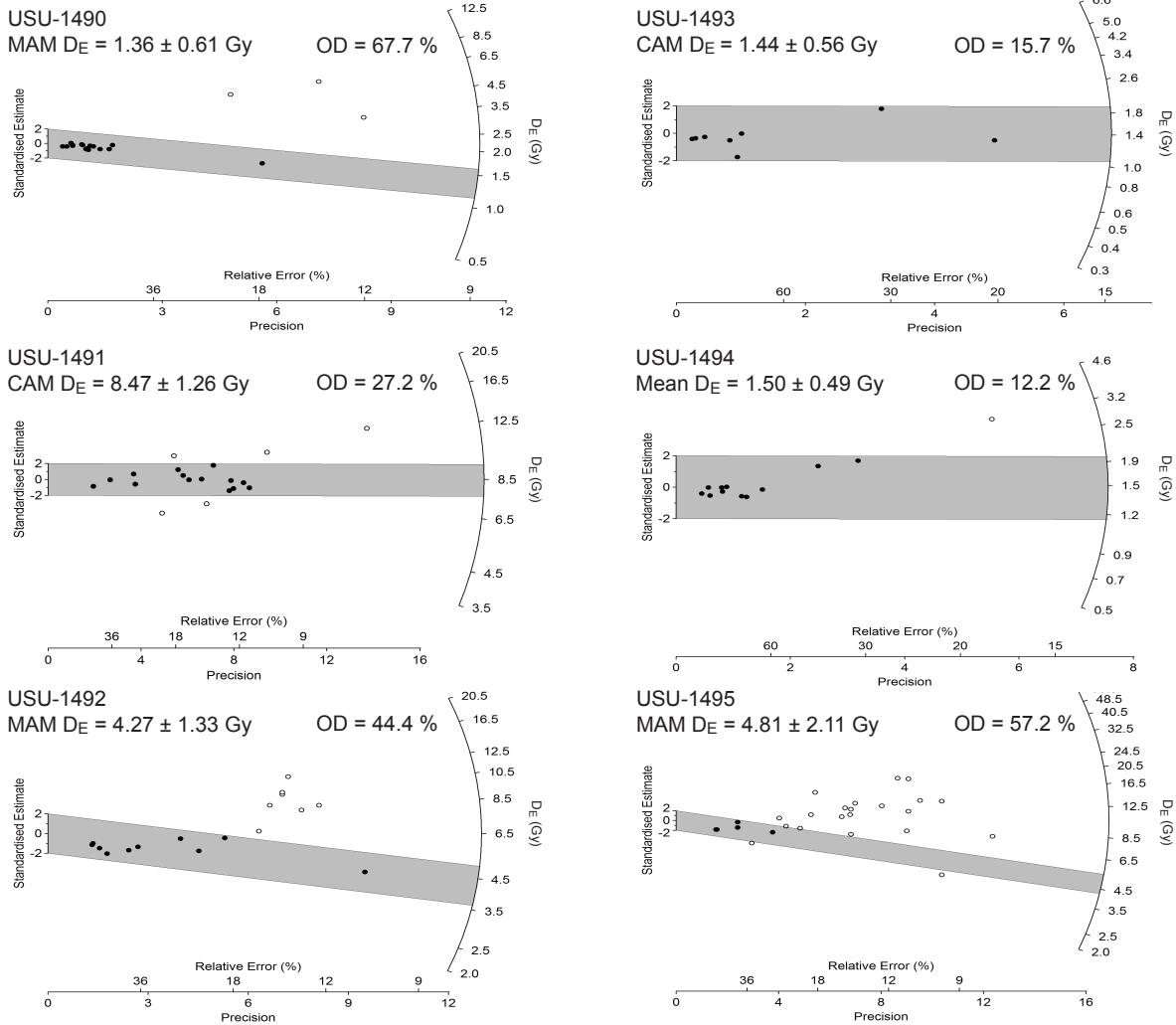


Figure S2  
Clift et al.

Table S1

Grain No.	U (ppm)	Pb (ppm)	Atomic Th/U	Ratios				Ages (Ma)				% concord.		% concord.		Best Age (Ma)	±2s		
				206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s				
<b>Sample 13062401 - Upper Hotan River</b>																			
G1	18.0	416.1	0.38	0.0416	0.0005	0.3017	0.0067	0.0526	0.0012	262.9	6.2	267.7	11.8	310.7	11.8	15.4	262.9	6.2	
G2	16.6	483.9	0.49	0.0321	0.0004	0.2232	0.0052	0.0505	0.0012	203.4	4.9	204.6	9.7	218.5	9.1	0.6	6.9	203.4	4.9
G3	15.2	486.7	0.10	0.0332	0.0004	0.2250	0.0054	0.0492	0.0012	210.4	5.0	206.0	9.9	157.4	6.9	-2.1	-33.7	210.4	5.0
G4	11.5	376.2	0.17	0.0317	0.0004	0.2146	0.0072	0.0492	0.0017	200.9	5.2	197.4	13.0	155.9	9.8	-1.8	-28.8	200.9	5.2
G5	16.9	209.1	0.26	0.0813	0.0010	0.6190	0.0174	0.0552	0.0016	503.9	12.3	489.2	24.0	421.9	19.5	-3.0	-19.4	503.9	12.3
G6	13.7	421.7	0.17	0.0336	0.0005	0.2348	0.0094	0.0507	0.0021	213.3	5.9	214.2	16.5	224.9	16.3	0.4	5.2	213.3	5.9
G7	10.0	314.7	0.33	0.0313	0.0004	0.2131	0.0063	0.0494	0.0015	198.5	4.9	196.1	11.5	168.3	9.2	-1.2	-18.0	198.5	4.9
G8	14.8	474.2	0.21	0.0319	0.0004	0.2200	0.0054	0.0501	0.0012	202.3	4.9	201.9	10.0	197.8	8.8	-0.2	-2.3	202.3	4.9
G9	12.9	401.4	0.17	0.0335	0.0004	0.2326	0.0059	0.0505	0.0013	212.1	5.1	212.3	10.8	216.2	9.9	0.1	1.9	212.1	5.1
G10	14.5	360.9	0.83	0.0343	0.0004	0.2412	0.0071	0.0510	0.0015	217.5	5.5	219.4	12.7	239.9	12.6	0.8	9.3	217.5	5.5
G11	10.5	377.6	0.48	0.0259	0.0004	0.1819	0.0064	0.0510	0.0018	164.6	4.4	169.7	12.0	242.2	15.5	3.0	32.0	164.6	4.4
G12	131.2	1526.7	0.20	0.0873	0.0010	0.7742	0.0109	0.0644	0.0009	539.3	11.7	582.2	15.4	753.8	14.1	7.4	28.5	539.3	11.7
G13	92.6	269.2	0.83	0.2881	0.0034	4.5956	0.0750	0.1157	0.0018	1632.1	34.3	1748.5	33.1	1891.3	27.3	6.7	13.7	1891.3	27.3
G14	8.6	255.3	0.13	0.0335	0.0004	0.2269	0.0074	0.0491	0.0016	212.7	5.5	207.6	13.3	151.7	9.2	-2.4	-40.2	212.7	5.5
G15	18.1	597.9	0.09	0.0322	0.0004	0.2270	0.0051	0.0511	0.0012	204.5	4.9	207.7	9.6	245.3	9.8	1.5	16.7	204.5	4.9
G16	15.4	507.0	0.21	0.0311	0.0004	0.2150	0.0053	0.0501	0.0012	197.7	4.8	197.7	9.9	199.6	8.9	0.0	1.0	197.7	4.8
G17	4.5	121.7	0.88	0.0313	0.0005	0.2167	0.0103	0.0503	0.0024	198.6	5.8	199.2	18.3	206.6	18.1	0.3	3.9	198.6	5.8
G18	13.4	432.9	0.21	0.0318	0.0004	0.2196	0.0058	0.0502	0.0013	201.6	4.9	201.6	10.6	202.9	9.6	0.0	0.7	201.6	4.9
G19	18.5	535.0	0.40	0.0333	0.0004	0.2246	0.0053	0.0489	0.0012	211.2	5.0	205.7	9.8	144.0	6.3	-2.7	-46.7	211.2	5.0
G20	15.3	465.8	0.40	0.0318	0.0004	0.2240	0.0056	0.0512	0.0013	201.6	4.9	205.3	10.4	248.9	11.1	1.8	19.0	201.6	4.9
G21	9.1	283.9	0.30	0.0319	0.0004	0.2050	0.0069	0.0466	0.0016	202.4	5.2	189.3	12.5	30.8	2.0	-6.9	-556.3	202.4	5.2
G22	31.8	409.8	0.32	0.0766	0.0009	0.5968	0.0113	0.0566	0.0011	475.6	10.8	475.2	16.7	474.0	14.1	-0.1	-0.3	475.6	10.8
G23	30.1	1003.6	0.06	0.0323	0.0004	0.2180	0.0044	0.0490	0.0010	204.9	4.7	200.2	8.3	147.8	5.4	-2.3	-38.6	204.9	4.7
G24	63.1	305.6	0.96	0.1696	0.0020	1.7518	0.0302	0.0749	0.0013	1010.1	22.0	1027.8	26.6	1066.9	22.2	1.7	5.3	1066.9	22.2
G25	108.3	1572.1	0.43	0.0658	0.0008	0.4987	0.0082	0.0550	0.0009	410.5	9.2	410.8	13.3	413.8	10.9	0.1	0.8	410.5	9.2
G26	4.9	131.5	0.50	0.0376	0.0005	0.2542	0.0108	0.0491	0.0021	237.6	6.6	229.9	18.6	153.6	12.2	-3.3	-54.7	237.6	6.6
G27	7.6	240.6	0.24	0.0318	0.0004	0.2216	0.0076	0.0506	0.0018	201.8	5.2	203.2	13.7	220.8	13.7	0.7	8.6	201.8	5.2
G28	14.0	151.1	0.22	0.0945	0.0013	0.8316	0.0265	0.0639	0.0021	581.9	15.2	614.5	32.3	738.0	33.8	5.3	21.2	581.9	15.2
G29	12.6	410.5	0.13	0.0303	0.0004	0.2058	0.0058	0.0493	0.0014	192.6	4.8	190.0	10.7	159.7	8.3	-1.3	-20.5	192.6	4.8
G30	27.6	361.6	0.40	0.0734	0.0009	0.5744	0.0117	0.0568	0.0011	456.8	10.6	460.9	17.3	482.2	15.4	0.9	5.3	456.8	10.6
G31	90.2	1435.1	0.09	0.0668	0.0008	0.5142	0.0078	0.0559	0.0008	416.7	9.3	421.3	12.8	448.0	10.5	1.1	7.0	416.7	9.3
G32	265.4	3767.4	0.46	0.0665	0.0008	0.5061	0.0070	0.0552	0.0007	415.0	9.2	415.8	11.8	421.5	9.0	0.2	1.5	415.0	9.2
G33	15.7	550.4	0.09	0.0304	0.0004	0.2088	0.0052	0.0498	0.0012	193.2	4.6	192.6	9.7	186.1	8.5	-0.3	-3.8	193.2	4.6
G34	14.8	226.6	0.51	0.0609	0.0008	0.4723	0.0142	0.0563	0.0017	381.0	9.6	392.8	21.4	464.2	22.5	3.0	17.9	381.0	9.6
G35	78.4	2566.6	0.02	0.0333	0.0004	0.2269	0.0036	0.0494	0.0008	211.4	4.7	207.7	7.2	166.4	4.7	-1.8	-27.1	211.4	4.7
G36	40.7	536.4	0.57	0.0694	0.0008	0.5342	0.0099	0.0559	0.0010	432.2	9.9	434.6	15.3	448.4	13.1	0.5	3.6	432.2	9.9
G37	40.8	998.7	0.24	0.0400	0.0005	0.2913	0.0054	0.0529	0.0010	252.8	5.8	259.5	9.8	322.4	9.9	2.6	21.6	252.8	5.8
G38	89.1	752.5	0.49	0.1103	0.0013	0.9574	0.0148	0.0630	0.0009	674.3	14.7	682.0	18.6	708.9	15.1	1.1	4.9	674.3	14.7

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$		
				206/238			207/235			207/206			206/238			207/235			(206/238)				
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s	(206/238)	(207/235)	
G39	63.6	851.8	0.56	0.0687	0.0008	0.5220	0.0089	0.0552	0.0009	0.0518	0.0010	0.0550	0.0008	428.0	9.7	426.5	14.1	419.5	11.3	-0.4	-2.0	428.0	9.7
G40	33.4	1098.7	0.09	0.0324	0.0004	0.2309	0.0045	0.0518	0.0010	0.0509	0.0011	0.0500	0.0008	205.2	4.7	210.9	8.5	277.0	9.2	2.7	25.9	205.2	4.7
G41	107.4	1568.6	0.34	0.0673	0.0008	0.5099	0.0078	0.0550	0.0009	0.0503	0.0010	0.0500	0.0008	420.0	9.4	418.3	12.8	411.0	9.8	-0.4	-2.2	420.0	9.4
G42	22.5	758.1	0.05	0.0321	0.0004	0.2200	0.0048	0.0498	0.0011	0.0499	0.0012	0.0499	0.0009	203.4	4.9	201.9	9.1	185.7	7.4	-0.8	-9.6	203.4	4.9
G43	19.0	453.9	0.70	0.0367	0.0005	0.2523	0.0063	0.0499	0.0012	0.0499	0.0012	0.0499	0.0009	232.1	5.6	228.4	11.3	192.2	8.7	-1.6	-20.8	232.1	5.6
G44	13.8	455.3	0.11	0.0320	0.0004	0.2229	0.0059	0.0506	0.0013	0.0506	0.0013	0.0506	0.0009	202.9	5.0	204.3	10.8	221.7	10.6	0.7	8.5	202.9	5.0
G45	33.5	105.6	0.51	0.2889	0.0036	4.3289	0.0811	0.1088	0.0020	1635.8	35.7	1698.9	36.6	1779.1	30.9	3.7	8.1	1779.1	30.9				
G46	25.2	853.9	0.07	0.0318	0.0004	0.2221	0.0062	0.0508	0.0014	201.5	5.0	203.7	11.3	230.9	11.5	1.1	12.7	201.5	5.0				
G47	57.0	404.2	0.68	0.1248	0.0015	1.1203	0.0212	0.0651	0.0012	758.3	17.1	763.1	23.6	778.9	20.0	0.6	2.6	758.3	17.1				
G48	15.5	469.3	0.44	0.0314	0.0004	0.2179	0.0058	0.0503	0.0013	199.6	4.9	200.1	10.6	208.4	10.0	0.3	4.3	199.6	4.9				
G49	23.9	827.3	0.03	0.0315	0.0004	0.2194	0.0047	0.0506	0.0011	199.8	4.7	201.4	8.9	222.2	8.4	0.8	10.1	199.8	4.7				
G50	19.4	643.4	0.06	0.0326	0.0004	0.2265	0.0053	0.0505	0.0012	206.6	5.0	207.3	9.8	218.1	9.1	0.4	5.3	206.6	5.0				
G51	36.2	455.3	0.76	0.0691	0.0008	0.5342	0.0107	0.0561	0.0011	430.6	10.0	434.6	16.3	457.5	14.4	0.9	5.9	430.6	10.0				
G52	7.9	244.8	0.32	0.0318	0.0004	0.2196	0.0077	0.0502	0.0018	201.5	5.4	201.6	13.8	205.2	13.1	0.1	1.8	201.5	5.4				
G53	15.0	443.4	0.32	0.0334	0.0004	0.2343	0.0062	0.0509	0.0014	211.9	5.2	213.8	11.3	236.3	11.2	0.9	10.3	211.9	5.2				
G54	501.5	7936.9	0.07	0.0676	0.0008	0.5141	0.0073	0.0552	0.0007	421.6	9.4	421.2	12.1	420.3	9.1	-0.1	-0.3	421.6	9.4				
G55	11.5	338.5	0.40	0.0329	0.0004	0.2267	0.0070	0.0500	0.0016	208.8	5.4	207.5	12.6	194.1	11.0	-0.6	-7.6	208.8	5.4				
G56	9.0	242.0	0.76	0.0324	0.0004	0.2293	0.0084	0.0514	0.0019	205.4	5.5	209.6	14.9	259.7	16.8	2.0	20.9	205.4	5.5				
G57	35.2	463.0	0.52	0.0708	0.0009	0.5510	0.0114	0.0565	0.0011	441.2	10.2	445.6	17.0	470.5	15.2	1.0	6.2	441.2	10.2				
G58	144.0	1512.0	0.77	0.0840	0.0010	0.6831	0.0126	0.0590	0.0011	519.9	11.9	528.7	17.8	568.6	15.6	1.7	8.6	519.9	11.9				
G59	14.6	217.5	0.35	0.0658	0.0008	0.4937	0.0136	0.0545	0.0015	410.5	10.2	407.4	20.4	391.8	17.9	-0.8	-4.8	410.5	10.2				
G60	36.6	470.0	0.50	0.0728	0.0009	0.5548	0.0115	0.0553	0.0011	453.0	10.6	448.1	17.1	425.2	14.1	-1.1	-6.5	453.0	10.6				
G61	83.0	1444.9	1.19	0.0450	0.0005	0.3223	0.0058	0.0520	0.0009	283.8	6.5	283.6	10.4	285.0	8.6	0.0	0.4	283.8	6.5				
G62	40.7	521.7	1.00	0.0639	0.0008	0.5098	0.0120	0.0579	0.0014	399.4	9.6	418.3	18.1	526.4	19.2	4.5	24.1	399.4	9.6				
G63	57.3	1241.3	0.50	0.0435	0.0005	0.3110	0.0058	0.0519	0.0009	274.5	6.4	275.0	10.5	281.0	8.9	0.2	2.3	274.5	6.4				
G64	71.8	1110.6	0.35	0.0634	0.0008	0.4919	0.0097	0.0564	0.0011	396.1	9.2	406.2	15.2	466.2	14.5	2.5	15.0	396.1	9.2				
G65	28.8	915.4	0.10	0.0335	0.0004	0.2303	0.0051	0.0500	0.0011	212.1	5.1	210.5	9.5	194.5	7.6	-0.8	-9.0	212.1	5.1				
G66	42.5	1356.7	0.15	0.0329	0.0004	0.2288	0.0045	0.0505	0.0010	208.4	4.9	209.2	8.5	219.9	7.6	0.4	5.2	208.4	4.9				
G67	31.1	824.5	0.49	0.0357	0.0005	0.2684	0.0072	0.0547	0.0015	225.8	5.6	241.4	12.6	397.9	17.5	6.5	43.3	225.8	5.6				
G68	40.1	1272.1	0.01	0.0345	0.0004	0.2444	0.0049	0.0515	0.0010	218.4	5.1	222.0	9.1	262.4	9.0	1.6	16.8	218.4	5.1				
G69	24.2	761.6	0.06	0.0343	0.0004	0.2417	0.0056	0.0512	0.0012	217.2	5.2	219.8	10.3	249.8	10.1	1.2	13.1	217.2	5.2				
G70	146.7	1648.4	0.84	0.0760	0.0009	0.5738	0.0099	0.0548	0.0009	472.0	10.8	460.5	15.1	405.3	11.1	-2.5	-16.5	472.0	10.8				
G71	23.8	337.1	0.56	0.0654	0.0008	0.4983	0.0115	0.0553	0.0013	408.1	9.8	410.6	17.5	426.0	15.8	0.6	4.2	408.1	9.8				
G72	40.6	1239.9	0.09	0.0349	0.0004	0.2416	0.0047	0.0502	0.0010	221.3	5.2	219.7	8.9	205.2	7.0	-0.7	-7.8	221.3	5.2				
G73	10.3	233.6	0.54	0.0410	0.0005	0.2839	0.0092	0.0503	0.0016	259.1	6.7	253.8	15.8	207.0	12.2	-2.1	-25.1	259.1	6.7				
G74	44.0	585.4	0.37	0.0729	0.0009	0.6003	0.0137	0.0597	0.0014	453.8	10.8	477.4	19.6	594.2	20.3	4.9	23.6	453.8	10.8				
G75	43.5	81.8	0.94	0.4296	0.0053	9.2277	0.1559	0.1559	0.0025	2303.9	47.3	2360.9	37.1	2412.0	29.8	2.4	4.5	2412.0	29.8				
G76	79.0	2289.0	0.48	0.0328	0.0004	0.2269	0.0040	0.0503	0.0009	207.8	4.9	207.7	7.8	208.4	6.4	-0.1	0.3	207.8	4.9				
G77	32.3	441.3	0.50	0.0688	0.0008	0.5189	0.0110	0.0548	0.0011	428.7	10.1	424.4	16.6	403.3	13.7	-1.0	-6.3	428.7	10.1				

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$	
				206/238			207/235			207/206			206/238			207/235			(206/238)			
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s	(206/238)	(207/235)
G78	32.8	622.4	0.83	0.0452	0.0006	0.3205	0.0071	0.0515	0.0011	285.0	6.8	282.3	12.3	262.4	10.1	-1.0	-8.6	285.0	6.8			
G79	256.3	4018.5	0.05	0.0686	0.0008	0.5293	0.0082	0.0560	0.0008	427.6	9.7	431.3	13.1	453.2	10.6	0.9	5.6	427.6	9.7			
G80	16.9	492.3	0.12	0.0347	0.0004	0.2402	0.0062	0.0502	0.0013	220.0	5.5	218.6	11.3	205.7	9.6	-0.7	-7.0	220.0	5.5			
G81	295.0	9720.2	0.01	0.0333	0.0004	0.2331	0.0036	0.0509	0.0007	210.9	4.9	212.8	7.2	236.3	6.1	0.9	10.8	210.9	4.9			
G82	27.3	910.6	0.07	0.0322	0.0004	0.2283	0.0049	0.0515	0.0011	204.4	4.9	208.8	9.2	261.0	9.8	2.1	21.7	204.4	4.9			
G83	3.8	76.2	0.64	0.0452	0.0008	0.3195	0.0191	0.0514	0.0031	284.7	9.5	281.5	31.0	256.6	27.6	-1.2	-11.0	284.7	9.5			
G84	24.8	355.3	0.54	0.0647	0.0008	0.5052	0.0135	0.0567	0.0015	403.9	10.1	415.2	20.2	480.3	20.4	2.7	15.9	403.9	10.1			
G85	33.7	511.9	0.23	0.0667	0.0008	0.5064	0.0105	0.0551	0.0011	416.2	9.8	416.0	16.1	416.7	13.8	-0.1	0.1	416.2	9.8			
G86	130.0	1621.1	0.89	0.0680	0.0008	0.5262	0.0092	0.0562	0.0009	424.1	9.8	429.3	14.4	459.5	12.4	1.2	7.7	424.1	9.8			
G87	311.3	4611.5	0.19	0.0695	0.0008	0.5135	0.0084	0.0536	0.0008	433.4	9.9	420.8	13.3	354.3	9.2	-3.0	-22.3	433.4	9.9			
G88	10.9	350.4	0.16	0.0324	0.0004	0.2423	0.0078	0.0542	0.0018	205.7	5.4	220.3	13.9	380.6	20.6	6.6	45.9	205.7	5.4			
G89	81.0	985.4	0.76	0.0719	0.0009	0.6051	0.0121	0.0611	0.0012	447.3	10.5	480.5	17.6	643.8	18.6	6.9	30.5	447.3	10.5			
G90	23.9	105.6	0.41	0.2082	0.0026	2.3261	0.0498	0.0811	0.0017	1219.1	27.9	1220.3	34.7	1224.1	29.8	0.1	0.4	1224.1	29.8			
G91	54.9	833.6	0.23	0.0672	0.0008	0.5145	0.0098	0.0556	0.0010	419.4	9.8	421.5	15.1	435.2	12.9	0.5	3.6	419.4	9.8			
G92	11.7	159.5	0.53	0.0687	0.0010	0.5283	0.0188	0.0558	0.0020	428.2	11.6	430.7	27.0	446.0	25.9	0.6	4.0	428.2	11.6			
G93	114.2	1521.8	0.56	0.0695	0.0008	0.5358	0.0093	0.0560	0.0009	433.3	10.0	435.7	14.4	450.4	12.0	0.5	3.8	433.3	10.0			
G94	84.0	963.7	0.40	0.0848	0.0010	0.7096	0.0131	0.0607	0.0011	524.8	12.1	544.5	18.0	630.0	16.5	3.6	16.7	524.8	12.1			
G95	41.6	194.4	0.97	0.1763	0.0022	1.8482	0.0366	0.0761	0.0015	1046.7	23.7	1062.8	30.0	1097.7	25.7	1.5	4.6	1097.7	25.7			
G96	17.3	563.7	0.14	0.0321	0.0004	0.2282	0.0059	0.0516	0.0013	203.7	5.1	208.7	10.9	267.3	12.1	2.4	23.8	203.7	5.1			
G97	85.1	1300.8	0.18	0.0676	0.0008	0.5190	0.0093	0.0557	0.0010	421.6	9.8	424.4	14.5	442.0	12.2	0.7	4.6	421.6	9.8			
G98	63.6	2057.5	0.05	0.0335	0.0004	0.2366	0.0045	0.0513	0.0009	212.3	5.0	215.6	8.4	253.9	8.1	1.5	16.4	212.3	5.0			
G99	36.8	1211.3	0.07	0.0327	0.0004	0.2299	0.0048	0.0511	0.0010	207.2	5.0	210.1	9.0	244.9	8.9	1.4	15.4	207.2	5.0			
G100	66.2	880.5	0.25	0.0759	0.0009	0.6063	0.0126	0.0580	0.0012	471.5	11.1	481.2	18.1	529.8	16.7	2.0	11.0	471.5	11.1			
G101	20.7	604.2	0.49	0.0323	0.0004	0.2305	0.0059	0.0519	0.0013	204.7	5.1	210.6	10.8	279.7	12.4	2.8	26.8	204.7	5.1			
G102	9.9	281.8	0.51	0.0330	0.0004	0.2339	0.0079	0.0515	0.0017	209.0	5.5	213.4	14.0	264.2	15.7	2.0	20.9	209.0	5.5			
G103	22.7	693.1	0.13	0.0342	0.0004	0.2416	0.0058	0.0513	0.0012	216.6	5.4	219.8	10.6	255.7	10.7	1.4	15.3	216.6	5.4			
G104	148.5	2152.6	0.37	0.0675	0.0008	0.5169	0.0091	0.0556	0.0009	421.0	9.7	423.1	14.1	436.4	11.7	0.5	3.5	421.0	9.7			
G105	33.5	1132.2	0.07	0.0319	0.0004	0.2241	0.0049	0.0510	0.0011	202.4	4.9	205.3	9.1	239.9	9.1	1.4	15.6	202.4	4.9			
G106	41.9	1258.1	0.35	0.0332	0.0004	0.2352	0.0050	0.0515	0.0011	210.3	5.0	214.5	9.2	262.4	9.4	1.9	19.9	210.3	5.0			
G107	27.7	573.5	0.39	0.0468	0.0006	0.3470	0.0080	0.0538	0.0012	295.1	7.1	302.4	13.5	361.4	13.8	2.4	18.4	295.1	7.1			
G108	32.3	92.3	0.59	0.3120	0.0039	5.0924	0.0995	0.1185	0.0022	1750.4	38.4	1834.8	38.4	1933.6	32.5	4.6	9.5	1933.6	32.5			
G109	15.9	307.7	1.07	0.0416	0.0005	0.3134	0.0090	0.0547	0.0016	262.7	6.7	276.8	15.3	399.2	19.0	5.1	34.2	262.7	6.7			
G110	56.0	1919.7	0.05	0.0316	0.0004	0.2230	0.0044	0.0512	0.0010	200.6	4.7	204.4	8.3	250.3	8.4	1.9	19.8	200.6	4.7			
G111	106.8	1633.0	0.27	0.0658	0.0008	0.5058	0.0100	0.0558	0.0011	410.6	9.7	415.6	15.3	445.2	13.6	1.2	7.8	410.6	9.7			
G112	62.8	786.8	0.83	0.0685	0.0008	0.5469	0.0117	0.0579	0.0012	427.3	10.1	442.9	17.3	526.7	17.0	3.5	18.9	427.3	10.1			
G113	39.9	528.7	0.48	0.0714	0.0009	0.5705	0.0147	0.0580	0.0015	444.5	11.1	458.3	21.1	530.1	21.1	3.0	16.1	444.5	11.1			
G114	21.2	684.7	0.08	0.0332	0.0004	0.2324	0.0058	0.0508	0.0013	210.6	5.2	212.2	10.6	231.8	10.2	0.8	9.1	210.6	5.2			
G115	69.9	539.9	0.72	0.1135	0.0014	1.0615	0.0234	0.0679	0.0015	693.0	16.4	734.5	25.9	864.9	24.9	5.6	19.9	693.0	16.4			
G116	11.2	344.1	0.17	0.0323	0.0004	0.2266	0.0072	0.0509	0.0016	205.0	5.4	207.3	12.9	235.9	13.3	1.1	13.1	205.0	5.4			

Table S1

Grain	Pb (ppm)	U (ppm)	Th/U	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$		
				Atomic			206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm 2s$	207/235	$\pm 2s$	207/206	$\pm 2s$	(206/238)	(206/238)			
				No.												207/235	207/206	(Ma)	$\pm 2s$				
G117	188.4	2707.2	0.62	0.0642	0.0008	0.4758	0.0087	0.0538	0.0009	0.0546	0.0101	0.0546	9.3	401.1	395.2	13.8	362.7	10.5	-1.5	-10.6	401.1	9.3	
G118	62.0	1200.1	0.87	0.0436	0.0005	0.3401	0.0069	0.0566	0.0011	0.275.1	6.5	297.2	11.9	476.4	14.9	7.4	42.2	275.1	6.5				
G119	15.7	304.9	0.63	0.0468	0.0006	0.3523	0.0101	0.0546	0.0016	0.295.0	7.5	306.4	16.5	395.5	18.6	3.7	25.4	295.0	7.5				
G120	83.9	1175.6	0.35	0.0700	0.0009	0.5414	0.0106	0.0561	0.0010	0.436.3	10.2	439.4	15.8	456.7	13.6	0.7	4.5	436.3	10.2				
G121	140.4	442.7	0.88	0.2662	0.0032	3.7493	0.0683	0.1022	0.0018	1521.7	32.9	1582.0	33.6	1664.6	28.0	3.8	8.6	1664.6	28.0				
G122	32.3	464.4	0.38	0.0677	0.0009	0.5508	0.0125	0.0591	0.0013	422.2	10.3	445.5	18.3	569.7	19.2	5.2	25.9	422.2	10.3				
G123	91.8	1384.0	0.13	0.0698	0.0009	0.5435	0.0105	0.0565	0.0010	435.0	10.2	440.7	15.7	472.1	13.8	1.3	7.9	435.0	10.2				
G124	47.2	954.6	0.53	0.0464	0.0006	0.3451	0.0085	0.0540	0.0013	292.3	7.3	301.1	14.2	371.5	15.0	2.9	21.3	292.3	7.3				
G125	12.2	378.3	0.38	0.0315	0.0005	0.2206	0.0097	0.0509	0.0023	199.7	5.9	202.4	17.2	236.3	18.7	1.4	15.5	199.7	5.9				
G126	36.6	1158.8	0.17	0.0329	0.0004	0.2299	0.0054	0.0507	0.0011	208.9	5.1	210.1	9.8	226.3	9.1	0.6	7.7	208.9	5.1				
G127	13.1	376.9	0.29	0.0349	0.0005	0.2522	0.0097	0.0525	0.0020	221.0	6.2	228.4	16.8	305.9	20.3	3.2	27.8	221.0	6.2				
G128	57.7	1884.0	0.03	0.0334	0.0004	0.2355	0.0055	0.0512	0.0012	211.5	5.2	214.7	10.1	250.7	10.2	1.5	15.6	211.5	5.2				
G129	131.5	186.7	1.22	0.5223	0.0065	13.1355	0.2524	0.1825	0.0033	2709.0	55.3	2689.4	41.5	2675.7	34.1	-0.7	-1.2	2675.7	34.1				
G130	19.5	162.2	0.42	0.1146	0.0016	1.0852	0.0341	0.0687	0.0022	699.6	18.4	746.2	36.2	889.7	37.1	6.2	21.4	699.6	18.4				
G131	20.4	283.2	0.44	0.0692	0.0009	0.5417	0.0162	0.0568	0.0017	431.3	11.2	439.6	23.2	484.6	22.8	1.9	11.0	431.3	11.2				
G132	70.4	1065.1	0.15	0.0691	0.0009	0.5384	0.0112	0.0565	0.0011	430.9	10.3	437.3	16.5	472.5	14.8	1.5	8.8	430.9	10.3				
G133	13.3	202.1	0.54	0.0638	0.0010	0.5107	0.0208	0.0581	0.0024	398.5	11.5	418.9	29.9	534.3	34.0	4.9	25.4	398.5	11.5				
<b>Sample 13062402 - Dune Sand</b>																							
G1	10.6	281.1	0.63	0.0342	0.0005	0.2515	0.0107	0.0534	0.0023	216.8	6.4	227.8	18.7	344.6	25.3	4.8	37.1	216.8	6.4				
G2	81.2	738.5	0.45	0.1043	0.0013	0.8922	0.0189	0.0621	0.0013	639.4	15.1	647.6	23.2	676.5	20.5	1.3	5.5	639.4	15.1				
G3	447.0	6606.0	0.23	0.0686	0.0008	0.5266	0.0074	0.0557	0.0007	427.8	9.7	429.6	12.1	439.6	9.1	0.4	2.7	427.8	9.7				
G4	23.5	620.3	0.27	0.0380	0.0005	0.2687	0.0063	0.0513	0.0012	240.5	5.8	241.7	11.2	254.3	10.4	0.5	5.4	240.5	5.8				
G5	63.0	759.5	0.70	0.0731	0.0009	0.5576	0.0100	0.0554	0.0010	454.6	10.6	449.9	15.4	426.8	12.1	-1.0	-6.5	454.6	10.6				
G6	74.8	833.6	0.82	0.0767	0.0009	0.5954	0.0104	0.0563	0.0009	476.5	11.0	474.3	15.6	464.6	12.4	-0.5	-2.6	476.5	11.0				
G7	14.5	330.8	0.45	0.0417	0.0005	0.2961	0.0083	0.0515	0.0014	263.6	6.7	263.4	14.3	261.9	12.9	-0.1	-0.6	263.6	6.7				
G8	20.5	400.7	0.62	0.0463	0.0006	0.3376	0.0083	0.0529	0.0013	291.8	7.1	295.3	14.1	324.1	13.5	1.2	10.0	291.8	7.1				
G9	44.2	871.4	0.58	0.0470	0.0006	0.3468	0.0069	0.0535	0.0010	296.0	7.0	302.3	11.9	351.8	11.4	2.1	15.8	296.0	7.0				
G10	98.8	183.2	1.60	0.3766	0.0047	7.8954	0.1302	0.1521	0.0024	2060.3	43.7	2219.1	36.2	2369.7	28.9	7.2	13.1	2369.7	28.9				
G11	168.5	341.3	0.34	0.4527	0.0054	10.0818	0.1420	0.1616	0.0021	2407.3	47.6	2442.3	32.4	2472.1	24.0	1.4	2.6	2472.1	24.0				
G12	72.3	265.1	0.53	0.2476	0.0030	3.1026	0.0493	0.0909	0.0014	1425.9	30.7	1433.3	29.5	1444.9	23.1	0.5	1.3	1444.9	23.1				
G13	91.4	1256.7	0.42	0.0696	0.0008	0.5348	0.0087	0.0557	0.0009	433.9	10.0	435.0	13.8	441.2	11.0	0.2	1.7	433.9	10.0				
G14	48.0	1183.3	0.72	0.0358	0.0005	0.2566	0.0064	0.0519	0.0013	226.9	5.6	231.9	11.5	282.8	12.2	2.1	19.7	226.9	5.6				
G15	49.5	632.2	0.49	0.0732	0.0009	0.5627	0.0105	0.0558	0.0010	455.5	10.6	453.3	15.8	442.8	12.9	-0.5	-2.9	455.5	10.6				
G16	54.1	694.5	0.38	0.0753	0.0009	0.5834	0.0104	0.0562	0.0010	468.0	10.9	466.7	15.7	460.7	12.6	-0.3	-1.6	468.0	10.9				
G17	70.1	871.4	0.40	0.0774	0.0009	0.6159	0.0104	0.0577	0.0009	480.6	11.1	487.3	15.6	519.1	13.1	1.4	7.4	480.6	11.1				
G18	26.6	532.2	0.52	0.0463	0.0006	0.3414	0.0076	0.0535	0.0012	291.7	7.0	298.3	13.1	350.9	13.1	2.2	16.9	291.7	7.0				
G19	83.0	1149.0	0.37	0.0704	0.0009	0.5458	0.0109	0.0563	0.0011	438.3	10.4	442.2	16.4	463.4	14.4	0.9	5.4	438.3	10.4				
G20	18.2	258.1	0.38	0.0681	0.0009	0.5206	0.0159	0.0554	0.0017	424.9	11.0	425.6	23.3	429.6	21.5	0.2	1.1	424.9	11.0				
G21	6.4	86.7	0.60	0.0675	0.0010	0.5136	0.0207	0.0552	0.0022	421.2	12.0	420.8	29.7	419.5	27.9	-0.1	-0.4	421.2	12.0				

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$		
				206/238			207/235			207/206			206/238			207/235			(206/238)				
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s			
G22	55.6	771.4	0.30	0.0715	0.0009	0.5503	0.0099	0.0559	0.0010	444.9	10.3	445.2	15.2	447.6	12.6	0.1	0.6	444.9	10.3				
G23	11.7	335.7	0.36	0.0338	0.0005	0.2523	0.0098	0.0541	0.0021	214.3	6.1	228.5	17.2	376.9	24.8	6.2	43.1	214.3	6.1				
G24	48.5	1188.9	0.60	0.0371	0.0005	0.2829	0.0063	0.0554	0.0012	234.6	5.7	252.9	11.3	427.2	15.4	7.3	45.1	234.6	5.7				
G25	131.3	1453.9	0.98	0.0741	0.0009	0.5774	0.0091	0.0566	0.0008	460.6	10.6	462.8	14.1	474.4	11.3	0.5	2.9	460.6	10.6				
G26	23.6	330.8	0.10	0.0756	0.0009	0.5973	0.0132	0.0573	0.0013	469.6	11.3	475.5	19.1	504.6	17.3	1.2	6.9	469.6	11.3				
G27	12.7	263.7	0.65	0.0430	0.0006	0.3060	0.0095	0.0517	0.0016	271.2	7.0	271.1	16.0	270.4	14.7	-0.1	-0.3	271.2	7.0				
G28	39.6	1001.5	0.56	0.0365	0.0005	0.2589	0.0053	0.0515	0.0010	231.0	5.6	233.8	9.7	262.4	9.2	1.2	12.0	231.0	5.6				
G29	88.2	800.1	0.40	0.1056	0.0013	0.9218	0.0161	0.0634	0.0011	646.9	14.8	663.3	20.1	720.3	17.3	2.5	10.2	646.9	14.8				
G30	68.2	113.3	1.07	0.4713	0.0057	10.9410	0.1688	0.1684	0.0024	2489.2	50.3	2518.1	35.2	2542.0	27.0	1.1	2.1	2542.0	27.0				
G31	188.8	2316.9	0.21	0.0831	0.0010	0.6614	0.0099	0.0577	0.0008	514.7	11.7	515.5	14.7	519.5	11.3	0.1	0.9	514.7	11.7				
G32	49.4	1299.4	0.51	0.0353	0.0004	0.2694	0.0063	0.0553	0.0013	223.8	5.5	242.2	11.3	424.8	15.9	7.6	47.3	223.8	5.5				
G33	61.0	730.8	0.89	0.0695	0.0009	0.5895	0.0127	0.0615	0.0013	433.3	10.5	470.6	18.5	657.5	20.5	7.9	34.1	433.3	10.5				
G34	181.6	2733.0	0.32	0.0657	0.0008	0.5047	0.0077	0.0557	0.0008	410.3	9.4	414.9	12.6	440.8	10.1	1.1	6.9	410.3	9.4				
G35	93.8	994.5	0.65	0.0843	0.0010	0.6756	0.0112	0.0581	0.0009	521.9	12.0	524.1	16.3	534.3	13.2	0.4	2.3	521.9	12.0				
G36	90.4	301.4	0.87	0.2512	0.0031	3.3151	0.0614	0.0957	0.0017	1444.8	32.3	1484.6	34.1	1542.5	28.5	2.7	6.3	1542.5	28.5				
G37	48.1	318.2	0.81	0.1288	0.0016	1.1467	0.0254	0.0646	0.0014	781.0	18.5	775.7	27.3	761.0	23.4	-0.7	-2.6	781.0	18.5				
G38	33.4	698.6	0.40	0.0461	0.0006	0.3437	0.0075	0.0541	0.0012	290.5	7.0	300.0	12.8	375.2	13.3	3.2	22.6	290.5	7.0				
G39	11.4	164.3	0.58	0.0631	0.0009	0.4866	0.0167	0.0560	0.0019	394.3	10.7	402.6	24.7	450.8	25.1	2.1	12.5	394.3	10.7				
G40	57.8	770.7	0.55	0.0690	0.0008	0.5327	0.0103	0.0560	0.0011	430.0	10.1	433.6	15.8	453.2	13.7	0.8	5.1	430.0	10.1				
G41	27.5	225.2	0.42	0.1164	0.0015	1.0357	0.0230	0.0646	0.0014	709.7	17.0	721.8	26.1	760.0	23.4	1.7	6.6	709.7	17.0				
G42	111.0	1197.3	0.59	0.0846	0.0010	0.6735	0.0121	0.0578	0.0010	523.6	12.1	522.9	17.2	520.3	14.1	-0.1	-0.6	523.6	12.1				
G43	10.4	206.3	0.53	0.0467	0.0007	0.3502	0.0138	0.0545	0.0022	294.0	8.4	304.9	22.3	389.7	25.7	3.6	24.6	294.0	8.4				
G44	161.0	758.8	0.37	0.2027	0.0024	2.3410	0.0366	0.0838	0.0012	1190.0	25.9	1224.8	26.9	1287.2	21.4	2.8	7.6	1287.2	21.4				
G45	49.4	602.1	0.40	0.0788	0.0010	0.6190	0.0115	0.0570	0.0010	488.8	11.4	489.2	16.8	491.5	13.9	0.1	0.5	488.8	11.4				
G46	8.0	62.9	0.30	0.1241	0.0017	1.2169	0.0375	0.0711	0.0022	754.3	19.8	808.4	38.0	960.9	38.6	6.7	21.5	754.3	19.8				
G47	22.9	476.3	0.37	0.0466	0.0006	0.3776	0.0097	0.0588	0.0015	293.7	7.4	325.3	15.9	559.0	21.9	9.7	47.5	293.7	7.4				
G48	9.9	114.7	0.65	0.0769	0.0012	0.6188	0.0276	0.0584	0.0026	477.5	14.5	489.1	37.2	544.4	38.1	2.4	12.3	477.5	14.5				
G49	75.1	1016.2	0.46	0.0697	0.0008	0.5249	0.0092	0.0546	0.0009	434.2	10.1	428.4	14.4	397.5	11.0	-1.4	-9.2	434.2	10.1				
G50	24.9	193.0	0.92	0.1070	0.0015	0.9364	0.0307	0.0635	0.0021	655.1	17.5	671.0	35.3	725.4	34.3	2.4	9.7	655.1	17.5				
G51	82.9	451.8	0.73	0.1594	0.0020	1.5714	0.0302	0.0715	0.0013	953.5	21.8	959.0	27.7	972.0	23.3	0.6	1.9	972.0	23.3				
G52	325.9	4033.1	0.45	0.0764	0.0009	0.6186	0.0094	0.0588	0.0008	474.5	10.8	489.0	14.3	557.8	12.1	3.0	14.9	474.5	10.8				
G53	62.6	816.8	0.12	0.0803	0.0010	0.6477	0.0131	0.0585	0.0012	498.1	11.8	507.1	18.5	548.5	16.7	1.8	9.2	498.1	11.8				
G54	120.4	2284.8	0.63	0.0474	0.0006	0.3435	0.0057	0.0526	0.0008	298.3	6.9	299.8	10.2	312.0	8.4	0.5	4.4	298.3	6.9				
G55	72.4	1449.7	0.50	0.0467	0.0006	0.3365	0.0060	0.0523	0.0009	293.9	6.9	294.5	10.6	299.9	8.8	0.2	2.0	293.9	6.9				
G56	30.9	497.9	0.98	0.0505	0.0007	0.3753	0.0098	0.0539	0.0014	317.5	8.0	323.6	16.1	368.5	16.0	1.9	13.9	317.5	8.0				
G57	49.2	930.8	0.20	0.0541	0.0007	0.4126	0.0077	0.0553	0.0010	339.9	8.1	350.7	12.9	424.0	12.4	3.1	19.8	339.9	8.1				
G58	56.6	816.8	0.45	0.0655	0.0008	0.4937	0.0098	0.0547	0.0011	408.9	9.7	407.4	15.3	400.0	12.7	-0.4	-2.2	408.9	9.7				
G59	49.2	614.7	0.80	0.0688	0.0009	0.5340	0.0124	0.0563	0.0013	428.7	10.5	434.5	18.5	465.8	17.1	1.3	8.0	428.7	10.5				
G60	22.0	264.4	0.81	0.0711	0.0010	0.5876	0.0170	0.0600	0.0017	442.5	11.4	469.3	24.0	603.2	26.4	5.7	26.6	442.5	11.4				

Table S1

Grain	Pb (ppm)	U (ppm)	Ratios						Ages (Ma)						% concord.		% concord.		(206/238)		(206/238)		Best Age						
			Atomic			Th/U			206/238			207/235			207/206			206/238			207/235			(206/238)		(206/238)		Best Age	
			No.	206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s	206/238	207/235	207/206	207/235	207/206	207/235	207/206	(Ma)	±2s	Best Age				
G61	30.4	611.9	0.75	0.0422	0.0005	0.3074	0.0077	0.0528	0.0013	266.5	6.7	272.2	13.2	321.5	13.6	2.1	17.1	266.5	6.7	20.0	17.1	266.5	6.7	20.0	17.1	266.5	6.7		
G62	10.0	90.9	0.13	0.1145	0.0017	1.0814	0.0410	0.0685	0.0026	698.5	20.0	744.3	43.5	884.9	45.3	6.2	21.1	698.5	20.0	29.2	21.1	698.5	20.0	29.2	21.1	698.5	20.0		
G63	12.2	88.8	0.71	0.1195	0.0011	1.2104	0.0246	0.0735	0.0024	727.5	12.7	805.4	38.0	1028.0	42.6	9.7	29.2	727.5	12.7	29.2	29.2	727.5	12.7	29.2	29.2	727.5	12.7		
G64	65.9	1333.7	0.51	0.0462	0.0017	0.3396	0.0379	0.0533	0.0023	291.2	20.8	296.9	29.3	342.4	25.3	1.9	15.0	291.2	20.8	29.2	15.0	291.2	20.8	29.2	15.0	291.2	20.8		
G65	26.4	307.0	0.69	0.0762	0.0006	0.5895	0.0324	0.0562	0.0065	473.1	7.2	470.5	87.9	458.7	86.0	-0.5	-3.1	473.1	7.2	473.1	7.2	473.1	7.2	473.1	7.2	473.1	7.2		
G66	27.8	118.2	0.45	0.2161	0.0010	2.5403	0.0230	0.0853	0.0026	1261.3	10.3	1283.7	44.2	1321.9	44.4	1.7	4.6	1321.9	44.4	1321.9	44.4	1321.9	44.4	1321.9	44.4	1321.9	44.4		
G67	170.0	2712.8	0.27	0.0630	0.0029	0.4828	0.0651	0.0556	0.0022	393.5	35.4	400.0	40.2	438.0	27.9	1.6	10.2	393.5	35.4	393.5	35.4	393.5	35.4	393.5	35.4	393.5	35.4		
G68	318.9	3065.2	1.41	0.0759	0.0008	0.5978	0.0144	0.0572	0.0017	471.4	9.3	475.8	23.8	497.7	23.3	0.9	5.3	471.4	9.3	471.4	9.3	471.4	9.3	471.4	9.3	471.4	9.3		
G69	9.3	228.7	0.84	0.0348	0.0006	0.2538	0.0189	0.0529	0.0038	220.3	6.9	229.6	29.9	326.2	39.6	4.0	32.5	220.3	6.9	220.3	6.9	220.3	6.9	220.3	6.9	220.3	6.9		
G70	36.2	445.5	0.85	0.0705	0.0006	0.5593	0.0136	0.0575	0.0029	439.4	7.0	451.0	37.1	511.5	40.4	2.6	14.1	439.4	7.0	439.4	7.0	439.4	7.0	439.4	7.0	439.4	7.0		
G71	17.1	163.6	0.28	0.1042	0.0009	0.8979	0.0165	0.0625	0.0017	638.9	11.0	650.6	27.5	691.9	27.3	1.8	7.7	638.9	11.0	638.9	11.0	638.9	11.0	638.9	11.0	638.9	11.0		
G72	27.7	349.7	0.59	0.0717	0.0014	0.5506	0.0283	0.0557	0.0020	446.3	17.3	445.4	29.4	441.2	25.4	-0.2	-1.1	446.3	17.3	446.3	17.3	446.3	17.3	446.3	17.3	446.3	17.3		
G73	66.1	346.9	1.29	0.1500	0.0009	1.4277	0.0126	0.0691	0.0013	900.8	10.1	900.6	22.8	900.5	21.6	0.0	0.0	900.5	21.6	900.5	21.6	900.5	21.6	900.5	21.6	900.5	21.6		
G74	13.2	379.0	0.56	0.0317	0.0019	0.2292	0.0298	0.0525	0.0014	201.1	23.4	209.5	24.6	305.5	14.2	4.0	34.2	201.1	23.4	201.1	23.4	201.1	23.4	201.1	23.4	201.1	23.4		
G75	42.7	577.0	0.48	0.0686	0.0004	0.5357	0.0073	0.0566	0.0017	427.8	5.2	435.6	21.5	477.2	22.6	1.8	10.3	427.8	5.2	427.8	5.2	427.8	5.2	427.8	5.2	427.8	5.2		
G76	103.6	1291.7	0.50	0.0754	0.0006	0.6106	0.0166	0.0588	0.0031	468.5	7.2	484.0	41.6	558.6	45.9	3.2	16.1	468.5	7.2	468.5	7.2	468.5	7.2	468.5	7.2	468.5	7.2		
G77	858.0	###	1.05	0.0651	0.0009	0.4996	0.0190	0.0556	0.0022	406.8	11.1	411.5	28.6	438.0	28.4	1.1	7.1	406.8	11.1	406.8	11.1	406.8	11.1	406.8	11.1	406.8	11.1		
G78	274.7	3240.8	0.59	0.0765	0.0009	0.6056	0.0164	0.0575	0.0019	475.0	10.2	480.8	26.3	508.8	26.1	1.2	6.6	475.0	10.2	475.0	10.2	475.0	10.2	475.0	10.2	475.0	10.2		
G79	101.8	1437.9	0.58	0.0649	0.0009	0.5061	0.0104	0.0566	0.0009	405.2	11.1	415.8	14.9	475.6	12.6	2.6	14.8	405.2	11.1	405.2	11.1	405.2	11.1	405.2	11.1	405.2	11.1		
G80	48.1	646.9	0.57	0.0680	0.0007	0.5347	0.0178	0.0571	0.0026	423.9	8.2	435.0	32.5	494.2	35.1	2.5	14.2	423.9	8.2	423.9	8.2	423.9	8.2	423.9	8.2	423.9	8.2		
G81	35.7	499.3	0.51	0.0662	0.0009	0.5171	0.0124	0.0567	0.0013	413.3	10.4	423.2	18.3	477.9	17.5	2.3	13.5	413.3	10.4	413.3	10.4	413.3	10.4	413.3	10.4	413.3	10.4		
G82	36.1	203.5	1.39	0.1322	0.0005	1.3046	0.0061	0.0716	0.0010	800.1	5.7	847.8	17.1	975.2	18.0	5.6	18.0	800.1	5.7	800.1	5.7	800.1	5.7	800.1	5.7	800.1	5.7		
G83	64.0	911.9	0.53	0.0646	0.0017	0.5116	0.0316	0.0575	0.0017	403.2	20.7	419.5	27.5	510.4	24.0	3.9	21.0	403.2	20.7	403.2	20.7	403.2	20.7	403.2	20.7	403.2	20.7		
G84	112.7	2384.1	0.52	0.0456	0.0010	0.3280	0.0198	0.0522	0.0018	287.4	12.6	288.0	20.9	293.7	18.0	0.2	2.2	287.4	12.6	287.4	12.6	287.4	12.6	287.4	12.6	287.4	12.6		
G85	173.9	1270.7	0.28	0.1357	0.0022	1.3996	0.0594	0.0748	0.0023	820.5	25.2	888.7	41.8	1063.1	41.2	7.7	22.8	820.5	25.2	820.5	25.2	820.5	25.2	820.5	25.2	820.5	25.2		
G86	29.3	219.6	0.36	0.1284	0.0008	1.2094	0.0242	0.0683	0.0025	778.8	9.5	804.9	42.0	878.3	43.7	3.2	11.3	778.8	9.5	778.8	9.5	778.8	9.5	778.8	9.5	778.8	9.5		
G87	67.7	482.5	0.44	0.1330	0.0004	1.2916	0.0047	0.0705	0.0010	804.7	4.7	842.0	16.8	942.4	17.6	4.4	14.6	804.7	4.7	804.7	4.7	804.7	4.7	804.7	4.7	804.7	4.7		
G88	47.1	985.4	0.32	0.0471	0.0017	0.3444	0.0273	0.0530	0.0015	296.9	20.6	300.5	23.4	328.8	15.5	1.2	9.7	296.9	20.6	296.9	20.6	296.9	20.6	296.9	20.6	296.9	20.6		
G89	38.1	223.8	0.60	0.1537	0.0010	1.4898	0.0231	0.0703	0.0023	921.8	11.3	926.2	40.7	937.4	40.2	0.5	1.7	937.4	40.2	937.4	40.2	937.4	40.2	937.4	40.2	937.4	40.2		
G90	13.6	164.3	0.60	0.0750	0.0019	0.6109	0.0320	0.0591	0.0015	466.4	23.1	484.1	27.7	569.3	21.8	3.6	18.1	466.4	23.1	466.4	23.1	466.4	23.1	466.4	23.1	466.4	23.1		
G91	77.2	2064.5	0.51	0.0348	0.0011	0.2523	0.0229	0.0525	0.0022	220.8	13.6	228.4	21.6	309.0	22.6	3.4	28.5	220.8	13.6	220.8	13.6	220.8	13.6	220.8	13.6	220.8	13.6		
G92	77.3	611.9	0.49	0.1166	0.0004	1.0606	0.0050	0.0660	0.0010	711.1	5.0	734.1	16.5	805.7	17.0	3.1	11.7	711.1	5.0	711.1	5.0	711.1	5.0	711.1	5.0	711.1	5.0		
G93	48.4	1575.6	0.03	0.0334	0.0014	0.2353	0.0210	0.0512	0.0013	211.5	18.0	214.5	19.3	248.0	10.9	1.4	14.7	211.5	18.0	211.5	18.0	211.5	18.0	211.5	18.0	211.5	18.0		
G94	48.5	590.2	0.67	0.0738	0.0004	0.6205	0.0053	0.0610	0.0011	458.8	5.0	490.2	15.1	639.9	17.6	6.4	28.3	458.8	5.0	458.8	5.0	458.8	5.0	458.8	5.0	458.8	5.0		
G95	52.1	765.1	0.09	0.0719	0.0009	0.5713	0.0144	0.0577	0.0014	447.3	11.3	458.8	20.4	517.6	19.7	2.5	13.6	447.3	11.3	447.3	11.3	447.3	11.3	447.3	11.3	447.3	11.3		
G96	175.5	2179.2	0.42	0.0771	0.0009	0.6209	0.0120	0.0584	0.0012	478.9	10.7	490.4	18.1	545.2	17.0	2.3	12												

Table S1

Grain	Pb (ppm)	U (ppm)	Ratios						Ages (Ma)						% concord.		% concord.												
			Atomic			Th/U			206/238			207/235			207/206			206/238			207/235			(206/238)		(206/238)		Best Age	
			No.	Th/U	206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s	206/238	207/235	207/206	(Ma)	±2s								
G100	15.5	519.6	0.09	0.0317	0.0010	0.2226	0.0124	0.0509	0.0010	201.4	12.6	204.1	14.0	236.8	8.6	1.3	14.9	201.4	12.6										
G101	44.5	564.4	0.56	0.0722	0.0004	0.5597	0.0062	0.0562	0.0014	449.4	4.9	451.3	18.9	461.5	18.7	0.4	2.6	449.4	4.9										
G102	127.4	1904.3	0.14	0.0696	0.0000	0.5804	0.0007	0.0605	0.0029	433.7	0.4	464.7	35.5	621.9	44.3	6.7	30.3	433.7	0.4										
G103	35.6	509.1	0.45	0.0663	0.0009	0.5002	0.0122	0.0548	0.0012	413.7	10.4	411.8	17.7	402.0	15.0	-0.5	-2.9	413.7	10.4										
G104	49.2	942.7	0.56	0.0480	0.0008	0.3590	0.0113	0.0543	0.0012	302.2	10.2	311.4	15.2	381.4	14.3	3.0	20.8	302.2	10.2										
G105	31.3	148.3	0.97	0.1729	0.0006	1.7564	0.0077	0.0737	0.0011	1028.2	6.6	1029.5	20.5	1033.0	20.1	0.1	0.5	1033.0	20.1										
<b>Sample 13062403 - Downstream Hotan River</b>																													
G1	81.4	927.4	0.96	0.0719	0.0009	0.5451	0.0109	0.0550	0.0011	447.8	10.7	441.8	16.4	411.0	13.0	-1.4	-9.0	447.83	10.70										
G2	28.9	710.1	0.77	0.0337	0.0004	0.2318	0.0065	0.0498	0.0014	213.9	5.5	211.7	11.8	187.5	9.6	-1.1	-14.1	213.91	5.49										
G3	134.5	1521.5	1.26	0.0677	0.0008	0.5026	0.0091	0.0539	0.0009	422.3	9.9	413.4	14.4	365.2	10.7	-2.1	-15.6	422.28	9.90										
G4	39.8	1237.0	0.05	0.0348	0.0004	0.2372	0.0053	0.0494	0.0011	220.7	5.5	216.1	9.9	166.9	6.8	-2.1	-32.3	220.71	5.48										
G5	12.0	232.8	0.56	0.0474	0.0007	0.3661	0.0148	0.0561	0.0023	298.5	8.7	316.8	23.7	454.3	29.9	5.8	34.3	298.54	8.74										
G6	50.2	586.0	0.94	0.0700	0.0009	0.5364	0.0119	0.0556	0.0012	436.0	10.6	436.0	17.8	437.2	15.5	0.0	0.3	435.97	10.60										
G7	70.9	943.6	0.48	0.0703	0.0009	0.5486	0.0108	0.0567	0.0011	437.7	10.5	444.1	16.4	478.3	14.5	1.4	8.5	437.66	10.48										
G8	49.3	570.5	0.57	0.0779	0.0010	0.6084	0.0132	0.0567	0.0012	483.5	11.6	482.6	18.9	479.1	16.2	-0.2	-0.9	483.46	11.60										
G9	45.8	561.6	0.84	0.0686	0.0009	0.5639	0.0151	0.0596	0.0016	427.7	10.9	454.0	21.8	590.5	23.9	5.8	27.6	427.66	10.86										
G10	142.0	1479.3	1.32	0.0722	0.0009	0.5587	0.0099	0.0561	0.0010	449.6	10.6	450.7	15.2	456.7	12.5	0.2	1.6	449.64	10.58										
G11	18.6	472.2	0.72	0.0342	0.0005	0.2393	0.0077	0.0508	0.0016	216.8	5.7	217.8	13.7	229.5	13.3	0.5	5.5	216.84	5.73										
G12	8.2	132.3	0.84	0.0532	0.0010	0.3927	0.0235	0.0535	0.0033	334.3	11.6	336.3	36.4	350.9	36.1	0.6	4.7	334.32	11.63										
G13	31.6	374.6	0.92	0.0701	0.0009	0.5489	0.0141	0.0568	0.0015	436.7	11.0	444.3	20.6	484.2	19.7	1.7	9.8	436.70	10.96										
G14	31.9	223.2	2.55	0.0839	0.0011	0.6798	0.0195	0.0588	0.0017	519.2	13.3	526.6	25.9	559.7	24.6	1.4	7.2	519.24	13.32										
G15	90.7	1227.4	0.37	0.0716	0.0009	0.5522	0.0103	0.0559	0.0010	446.0	10.5	446.5	15.6	449.6	13.0	0.1	0.8	446.03	10.47										
G16	164.4	2624.0	0.45	0.0599	0.0007	0.4457	0.0076	0.0540	0.0009	374.8	8.8	374.2	12.6	371.5	10.0	-0.2	-0.9	374.83	8.76										
G17	4.4	63.5	0.55	0.0642	0.0014	0.4833	0.0400	0.0546	0.0046	401.3	17.3	400.4	57.8	395.9	55.4	-0.2	-1.4	401.30	17.32										
G18	192.8	337.7	1.19	0.4365	0.0056	9.8535	0.1733	0.1638	0.0028	2334.7	49.8	2421.2	39.0	2495.3	31.4	3.6	6.4	2495.27	31.40										
G19	34.3	417.5	1.00	0.0668	0.0009	0.5152	0.0130	0.0560	0.0014	416.7	10.4	422.0	19.4	451.2	18.2	1.2	7.6	416.73	10.39										
G20	582.5	2454.0	0.16	0.2401	0.0029	2.9441	0.0450	0.0890	0.0013	1387.1	29.8	1393.3	28.2	1403.5	21.7	0.4	1.2	1403.51	21.71										
G21	80.2	264.5	0.28	0.2928	0.0036	4.2874	0.0737	0.1062	0.0017	1655.5	36.0	1691.0	33.8	1735.9	27.2	2.1	4.6	1735.87	27.24										
G22	41.4	839.4	0.56	0.0452	0.0006	0.3283	0.0077	0.0527	0.0012	284.8	7.0	288.3	13.2	317.2	12.6	1.2	10.2	284.80	7.03										
G23	38.2	123.4	0.16	0.3083	0.0041	4.6133	0.0983	0.1086	0.0023	1732.5	40.0	1751.7	41.4	1775.2	35.2	1.1	2.4	1775.22	35.23										
G24	25.1	509.1	0.46	0.0466	0.0006	0.3406	0.0093	0.0531	0.0014	293.4	7.5	297.6	15.5	332.2	15.4	1.4	11.7	293.37	7.51										
G25	45.6	264.5	0.49	0.1600	0.0020	1.5897	0.0334	0.0721	0.0015	956.9	22.5	966.2	30.1	988.2	25.9	1.0	3.2	988.20	25.94										
G26	36.3	184.7	1.12	0.1540	0.0020	1.5040	0.0368	0.0709	0.0017	923.2	22.5	932.0	33.6	953.4	30.0	0.9	3.2	953.38	30.02										
G27	99.5	3246.9	0.08	0.0328	0.0004	0.2281	0.0041	0.0504	0.0009	208.2	5.0	208.6	7.9	214.9	6.6	0.2	3.1	208.17	4.99										
G28	60.5	368.0	1.26	0.1242	0.0016	1.1114	0.0226	0.0649	0.0013	754.9	17.8	758.9	25.0	771.1	21.3	0.5	2.1	754.92	17.78										
G29	22.6	445.6	0.23	0.0529	0.0007	0.4338	0.0110	0.0595	0.0015	332.2	8.3	365.9	17.4	586.2	22.4	9.2	43.3	332.18	8.33										
G30	43.0	1264.3	0.08	0.0362	0.0005	0.2524	0.0056	0.0505	0.0011	229.5	5.6	228.5	10.2	219.9	8.5	-0.4	-4.4	229.48	5.60										

Table S1

Grain	Pb (ppm)	U (ppm)	Ratios						Ages (Ma)						% concord.		% concord.												
			Atomic			Th/U			206/238			207/235			207/206			206/238			207/235			(206/238)		(206/238)		Best Age	
			No.	Th/U	206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s	206/238	207/235	207/206	(Ma)	±2s								
G33	31.2	861.6	0.03	0.0393	0.0005	0.2632	0.0080	0.0486	0.0015	248.5	6.5	237.2	14.0	128.1	7.3	-4.7	-94.0	248.49	6.45										
G34	177.3	709.4	0.67	0.2190	0.0027	2.5372	0.0424	0.0840	0.0013	1276.8	28.1	1282.8	29.1	1293.5	23.1	0.5	1.3	1293.48	23.15										
G35	286.5	672.4	0.55	0.3782	0.0046	6.7214	0.1101	0.1289	0.0020	2068.1	43.2	2075.4	34.9	2083.4	27.5	0.4	0.7	2083.43	27.45										
G36	17.7	211.3	0.47	0.0790	0.0011	0.6273	0.0191	0.0576	0.0018	490.3	12.8	494.4	26.2	514.2	24.7	0.8	4.7	490.27	12.79										
G37	40.2	498.8	0.56	0.0737	0.0009	0.5694	0.0132	0.0560	0.0013	458.6	11.2	457.6	19.2	453.2	16.7	-0.2	-1.2	458.65	11.17										
G38	151.2	1660.4	0.09	0.0949	0.0012	0.7909	0.0135	0.0605	0.0010	584.5	13.5	591.7	18.2	620.4	15.0	1.2	5.8	584.45	13.54										
G39	19.7	181.8	0.99	0.0883	0.0012	0.7134	0.0221	0.0586	0.0018	545.5	14.2	546.8	28.7	552.6	26.5	0.2	1.3	545.53	14.22										
G40	19.8	253.5	0.78	0.0672	0.0009	0.5210	0.0162	0.0563	0.0018	419.0	11.0	425.8	23.7	463.8	23.3	1.6	9.7	418.96	10.99										
G41	195.3	719.0	0.41	0.2547	0.0031	3.2902	0.0535	0.0937	0.0014	1462.9	31.6	1478.7	30.5	1502.3	24.1	1.1	2.6	1502.28	24.10										
G42	453.8	1676.6	0.19	0.2697	0.0032	3.5215	0.0546	0.0947	0.0014	1539.2	32.8	1532.1	29.7	1522.9	22.8	-0.5	-1.1	1522.91	22.81										
G43	15.1	160.3	1.00	0.0767	0.0011	0.5995	0.0230	0.0567	0.0022	476.3	13.4	476.9	31.6	480.7	29.7	0.1	0.9	476.28	13.41										
G44	26.1	844.6	0.09	0.0330	0.0004	0.2301	0.0061	0.0505	0.0013	209.5	5.2	210.2	11.1	219.9	10.4	0.4	4.7	209.48	5.24										
G45	347.8	4969.3	0.13	0.0734	0.0009	0.5652	0.0091	0.0559	0.0008	456.5	10.6	454.9	14.1	447.6	10.9	-0.3	-2.0	456.49	10.57										
G46	23.0	269.0	1.05	0.0687	0.0009	0.5177	0.0155	0.0547	0.0016	428.4	11.1	423.6	22.8	398.3	19.8	-1.1	-7.6	428.44	11.10										
G47	6.1	53.2	0.76	0.0991	0.0017	0.8827	0.0458	0.0646	0.0034	609.2	20.3	642.5	53.1	761.7	56.7	5.2	20.0	609.25	20.29										
G48	41.9	563.8	0.49	0.0693	0.0009	0.5239	0.0122	0.0548	0.0013	432.1	10.6	427.7	18.3	405.3	15.4	-1.0	-6.6	432.06	10.61										
G49	13.1	264.5	0.57	0.0453	0.0006	0.3261	0.0122	0.0522	0.0020	285.8	7.9	286.6	20.1	293.7	19.3	0.3	2.7	285.79	7.89										
G50	64.6	816.5	0.60	0.0716	0.0009	0.5683	0.0122	0.0576	0.0012	445.9	10.7	456.9	18.0	513.4	16.9	2.4	13.2	445.91	10.71										
G51	41.2	573.4	0.51	0.0668	0.0009	0.5079	0.0120	0.0552	0.0013	416.7	10.3	417.0	18.2	419.5	16.1	0.1	0.7	416.73	10.27										
G52	69.2	597.1	0.64	0.1037	0.0013	0.8693	0.0176	0.0608	0.0012	636.2	15.0	635.2	22.0	632.2	18.6	-0.2	-0.6	636.23	14.95										
G53	5.5	2295.9	0.68	0.0022	0.0000	0.0145	0.0009	0.0491	0.0030	13.8	0.5	14.6	1.8	153.1	17.2	5.5	91.0	13.84	0.51										
G54	14.5	206.9	0.45	0.0665	0.0009	0.5198	0.0175	0.0567	0.0019	415.1	11.1	425.0	25.4	479.9	25.9	2.3	13.5	415.10	11.12										
G55	91.5	1315.3	0.42	0.0663	0.0008	0.5164	0.0109	0.0565	0.0012	414.1	9.9	422.7	16.6	470.9	15.5	2.0	12.1	414.07	9.91										
G56	58.3	769.2	0.47	0.0710	0.0009	0.5391	0.0117	0.0551	0.0012	441.9	10.6	437.8	17.5	417.1	14.5	-0.9	-6.0	441.94	10.59										
G57	142.3	359.1	0.49	0.3558	0.0043	5.8862	0.0994	0.1200	0.0019	1962.4	41.3	1959.2	35.0	1956.4	27.9	-0.2	-0.3	1956.37	27.90										
G58	81.7	1349.3	1.19	0.0469	0.0006	0.3361	0.0071	0.0520	0.0011	295.5	7.1	294.2	12.3	285.0	10.2	-0.4	-3.7	295.46	7.14										
G59	40.7	843.1	0.38	0.0468	0.0006	0.3368	0.0082	0.0522	0.0013	294.7	7.3	294.7	13.8	295.9	12.3	0.0	0.4	294.66	7.27										
G60	128.8	982.0	0.67	0.1152	0.0014	1.0481	0.0200	0.0660	0.0012	703.1	16.3	728.0	23.0	806.1	20.6	3.4	12.8	703.11	16.30										
G61	44.2	538.7	0.82	0.0701	0.0009	0.5383	0.0130	0.0557	0.0013	436.6	10.7	437.3	19.2	441.6	17.1	0.2	1.1	436.64	10.72										
G62	9.3	267.5	0.53	0.0321	0.0005	0.2159	0.0097	0.0488	0.0022	203.7	6.0	198.5	17.2	137.8	11.7	-2.6	-47.9	203.68	6.00										
G63	37.3	150.7	0.57	0.2229	0.0031	2.4626	0.0705	0.0802	0.0023	1296.9	32.8	1261.1	46.1	1201.2	40.4	-2.8	-8.0	1201.17	40.41										
G64	23.3	664.3	0.41	0.0336	0.0004	0.2392	0.0071	0.0517	0.0015	212.8	5.5	217.8	12.7	273.1	14.2	2.3	22.1	212.79	5.49										
G65	38.3	495.8	0.71	0.0680	0.0009	0.5181	0.0132	0.0553	0.0014	423.8	10.5	423.9	19.7	425.2	17.6	0.0	0.3	423.79	10.50										
G66	18.0	263.8	0.42	0.0653	0.0009	0.4948	0.0161	0.0550	0.0018	407.8	10.8	408.2	23.8	411.0	22.1	0.1	0.8	407.84	10.77										
G67	38.1	728.6	0.76	0.0451	0.0006	0.3307	0.0114	0.0532	0.0019	284.2	7.8	290.1	18.9	338.6	20.0	2.0	16.1	284.18	7.77										
G68	13.3	359.1	0.61	0.0336	0.0005	0.2395	0.0093	0.0517	0.0020	213.0	6.0	218.0	16.3	273.5	18.7	2.3	22.1	213.04	5.99										
G69	144.6	1152.7	0.15	0.1296	0.0016	1.2095	0.0219	0.0677	0.0012	785.8	18.0	804.9	23.6	859.1	20.2	2.4	8.5	785.81	18.03										

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$	
				206/238			207/235			207/206			206/238			207/235			(206/238)			
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s	(206/238)	(207/235)
G72	89.0	200.3	0.34	0.4138	0.0052		8.8020	0.1582	0.1543	0.0027	2232.2	47.1	2317.7	38.9	2394.5	31.8	3.7	6.8	2394.47	31.81		
G73	14.7	98.3	0.99	0.1216	0.0019		1.0868	0.0439	0.0648	0.0027	739.8	21.5	746.9	46.3	769.1	44.3	1.0	3.8	739.77	21.50		
G74	11.3	135.2	0.81	0.0712	0.0011		0.5510	0.0241	0.0562	0.0025	443.3	13.1	445.6	33.9	458.3	32.7	0.5	3.3	443.32	13.12		
G75	36.2	206.9	1.20	0.1353	0.0018		1.2489	0.0336	0.0670	0.0018	818.0	20.4	822.9	33.8	836.8	30.6	0.6	2.2	818.03	20.44		
G76	48.2	780.3	0.08	0.0657	0.0008		0.5069	0.0118	0.0560	0.0013	410.1	10.0	416.3	18.0	452.0	16.8	1.5	9.3	410.08	10.04		
G77	51.3	580.1	0.46	0.0845	0.0011		0.7681	0.0198	0.0659	0.0017	523.2	13.1	578.6	25.4	803.8	28.5	9.6	34.9	523.16	13.08		
G78	22.4	62.8	0.97	0.2882	0.0041		4.1708	0.1154	0.1050	0.0029	1632.7	41.3	1668.3	51.3	1714.1	46.0	2.1	4.8	1714.14	46.04		
G79	80.4	226.1	0.90	0.2916	0.0038		4.0124	0.0869	0.0998	0.0021	1649.5	37.6	1636.7	40.6	1620.9	34.5	-0.8	-1.8	1620.92	34.55		
G80	51.6	1789.7	0.05	0.0311	0.0004		0.2134	0.0052	0.0498	0.0012	197.4	4.9	196.4	9.8	184.3	8.2	-0.5	-7.1	197.43	4.88		
G81	12.7	317.0	0.96	0.0331	0.0005		0.2321	0.0106	0.0509	0.0024	209.7	6.2	211.9	18.7	237.2	19.6	1.0	11.6	209.67	6.24		
G82	37.2	772.9	0.40	0.0461	0.0006		0.3349	0.0092	0.0527	0.0014	290.3	7.4	293.3	15.4	317.6	14.9	1.0	8.6	290.35	7.40		
G83	191.7	2106.7	1.45	0.0669	0.0008		0.5270	0.0112	0.0572	0.0012	417.3	10.0	429.8	17.0	498.1	16.4	2.9	16.2	417.33	10.03		
G84	115.3	1386.2	0.38	0.0804	0.0010		0.6348	0.0130	0.0573	0.0011	498.7	11.8	499.1	18.5	501.6	15.8	0.1	0.6	498.69	11.81		
G85	7.7	142.6	1.23	0.0412	0.0007		0.2986	0.0162	0.0526	0.0029	260.4	8.4	265.3	26.9	309.4	29.4	1.8	15.8	260.39	8.42		
G86	53.9	632.5	0.86	0.0719	0.0009		0.5701	0.0135	0.0575	0.0013	447.7	10.9	458.0	19.6	511.1	18.7	2.3	12.4	447.71	10.95		
G87	111.2	297.1	0.96	0.3003	0.0038		4.6037	0.0948	0.1112	0.0023	1692.7	38.0	1749.9	39.9	1819.6	34.2	3.3	7.0	1819.61	34.23		
G88	197.6	545.3	0.26	0.3488	0.0043		6.1540	0.1089	0.1280	0.0022	1928.8	40.6	1997.9	36.5	2070.8	29.9	3.5	6.9	2070.82	29.95		
G89	53.5	645.1	0.99	0.0677	0.0009		0.5225	0.0140	0.0560	0.0015	422.5	10.6	426.8	20.8	450.8	19.5	1.0	6.3	422.53	10.63		
G90	60.5	627.4	0.31	0.0945	0.0012		0.7973	0.0178	0.0612	0.0013	582.3	14.0	595.3	22.8	645.9	20.9	2.2	9.9	582.27	14.02		
G91	94.7	328.1	0.65	0.2530	0.0032		3.2965	0.0645	0.0945	0.0018	1454.1	32.4	1480.2	35.5	1518.5	30.0	1.8	4.2	1518.53	30.01		
G92	66.9	974.7	0.47	0.0646	0.0008		0.4905	0.0109	0.0551	0.0012	403.2	9.8	405.3	16.8	417.5	14.9	0.5	3.4	403.24	9.81		
G93	20.4	147.8	0.80	0.1176	0.0017		1.0600	0.0380	0.0654	0.0024	716.9	19.8	733.8	40.9	786.6	39.7	2.3	8.9	716.85	19.84		
G94	84.3	1466.0	0.38	0.0557	0.0007		0.4061	0.0090	0.0529	0.0012	349.3	8.4	346.0	14.7	324.9	12.1	-0.9	-7.5	349.30	8.43		
G95	270.4	3978.4	0.40	0.0652	0.0008		0.5077	0.0104	0.0565	0.0011	407.2	9.7	416.9	16.1	471.7	15.1	2.3	13.7	407.23	9.68		
G96	208.8	2873.7	0.45	0.0691	0.0009		0.5297	0.0113	0.0556	0.0012	430.6	10.3	431.6	17.0	438.0	14.8	0.2	1.7	430.55	10.25		
G97	103.1	1408.4	0.56	0.0671	0.0008		0.5150	0.0111	0.0557	0.0012	418.4	10.0	421.8	16.9	441.2	15.2	0.8	5.2	418.36	10.03		
G98	175.9	2751.8	0.22	0.0652	0.0008		0.4962	0.0097	0.0552	0.0010	407.0	9.7	409.1	15.1	421.9	13.0	0.5	3.5	406.99	9.68		
G99	25.5	399.8	0.37	0.0616	0.0009		0.4977	0.0189	0.0586	0.0023	385.5	10.9	410.1	27.7	551.9	32.7	6.0	30.1	385.53	10.93		
G100	343.0	4585.1	0.41	0.0714	0.0009		0.5125	0.0102	0.0521	0.0010	444.5	10.5	420.1	15.8	289.4	9.8	-5.8	-53.6	444.46	10.47		
G101	486.7	6100.6	0.44	0.0760	0.0009		0.6002	0.0111	0.0573	0.0010	472.2	11.0	477.4	16.4	503.1	14.1	1.1	6.1	472.20	11.02		
G102	42.2	1332.3	0.07	0.0338	0.0004		0.2504	0.0067	0.0537	0.0014	214.5	5.5	226.9	12.1	358.1	16.1	5.5	40.1	214.54	5.49		
G103	20.2	100.5	0.32	0.1935	0.0027		2.1738	0.0658	0.0815	0.0025	1140.5	29.5	1172.7	46.7	1233.3	43.5	2.7	7.5	1233.29	43.46		
G104	47.8	589.7	0.80	0.0693	0.0009		0.5299	0.0141	0.0555	0.0015	431.6	10.9	431.8	20.9	433.2	18.8	0.0	0.4	431.64	10.85		
G105	135.9	279.3	1.37	0.3547	0.0045		6.0583	0.1206	0.1239	0.0024	1957.1	42.4	1984.3	40.3	2013.4	34.1	1.4	2.8	2013.42	34.06		
G106	28.8	790.7	0.62	0.0327	0.0004		0.2395	0.0078	0.0531	0.0017	207.6	5.5	218.0	13.8	332.2	18.5	4.8	37.5	207.61	5.49		
G107	44.6	1446.8	0.04	0.0335	0.0004		0.2284	0.0062	0.0495	0.0013	212.2	5.4	208.9	11.2	172.5	8.5	-1.6	-23.0	212.23	5.36		
G108	50.0	1348.6	0.32	0.0368	0.0005		0.2594	0.0069	0.0512	0.0014	232.8	5.8	234.2	12.3	249.4	11.7	0.6	6.7	232.78	5.84		
G109	162.2	1520.0	0.64	0.0953	0.0012		0.7900	0.0165	0.0602	0.0012	586.6	13.9	591.2	21.4	609.7	18.7	0.8	3.8	586.63	13.89		
G110	111.6	1404.7	0.35	0.0775	0.0010		0.6055	0.0133	0.0567	0.0012	481.0	11.5	480.7	19.0	480.3	16.5	-0.1	-0.2	481.00	11.49		

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.	
				206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s	(206/238)	(206/238)	Best Age	
	No.	Th/U														207/235	207/206	(Ma)	±2s
G111	19.0	192.1	1.03	0.0729	0.0011	0.5543	0.0212	0.0552	0.0021	453.7	12.6	447.8	29.9	418.3	26.5	-1.3	-8.5	453.72	12.62
G112	237.4	3602.3	0.24	0.0666	0.0008	0.5167	0.0105	0.0563	0.0011	415.3	9.9	423.0	16.2	465.4	14.8	1.8	10.8	415.34	9.91
G113	6.3	110.8	0.41	0.0543	0.0010	0.4016	0.0258	0.0536	0.0035	341.1	12.0	342.8	39.4	355.1	39.1	0.5	3.9	341.11	11.98
G114	35.8	444.1	0.71	0.0702	0.0009	0.5352	0.0164	0.0553	0.0017	437.4	11.3	435.3	23.7	424.8	21.3	-0.5	-3.0	437.36	11.32
G115	64.7	334.7	0.79	0.1655	0.0021	1.6643	0.0405	0.0730	0.0018	987.3	23.6	995.0	34.7	1012.8	30.9	0.8	2.5	1012.84	30.92
G116	262.3	387.2	1.26	0.4913	0.0061	11.3084	0.2215	0.1670	0.0032	2576.5	52.7	2548.9	42.4	2527.6	35.5	-1.1	-1.9	2527.60	35.47
G117	105.5	3399.8	0.57	0.0283	0.0004	0.2053	0.0048	0.0525	0.0012	180.2	4.5	189.6	9.2	309.0	12.4	5.0	41.7	180.15	4.51
G118	113.0	342.9	0.71	0.2826	0.0035	3.9203	0.0822	0.1007	0.0021	1604.4	35.6	1617.9	39.0	1636.1	33.4	0.8	1.9	1636.13	33.43
G119	15.7	144.8	0.78	0.0933	0.0014	0.7679	0.0314	0.0597	0.0025	574.8	16.5	578.6	38.8	594.2	37.2	0.7	3.3	574.79	16.51
G120	23.9	306.7	0.61	0.0698	0.0010	0.5449	0.0221	0.0566	0.0023	435.0	12.5	441.6	31.3	477.2	31.3	1.5	8.8	434.95	12.53
G121	102.8	1280.6	0.63	0.0717	0.0009	0.5681	0.0132	0.0575	0.0013	446.5	10.8	456.8	19.3	509.2	18.4	2.2	12.3	446.51	10.83
G122	26.6	661.3	0.51	0.0374	0.0005	0.2836	0.0101	0.0551	0.0020	236.5	6.5	253.5	17.3	414.3	24.5	6.7	42.9	236.51	6.46
G123	32.0	322.2	0.34	0.0968	0.0014	0.8706	0.0321	0.0652	0.0024	595.7	16.7	635.9	37.8	782.1	40.6	6.3	23.8	595.75	16.69
G124	128.3	1123.2	0.29	0.1123	0.0014	0.9859	0.0218	0.0637	0.0014	686.2	16.2	696.6	25.3	731.0	22.7	1.5	6.1	686.21	16.23
G125	2.0	154.4	1.81	0.1715	0.0024	1.6849	0.0506	0.0713	0.0022	1020.4	26.0	1002.8	42.3	965.5	37.6	-1.7	-5.7	965.45	37.58
G126	46.5	554.2	0.81	0.0714	0.0009	0.5651	0.0163	0.0575	0.0017	444.3	11.3	454.8	23.3	508.8	23.1	2.3	12.7	444.34	11.31
G127	82.8	914.1	1.04	0.0725	0.0009	0.5897	0.0146	0.0590	0.0015	451.1	11.1	470.7	20.8	567.8	21.4	4.2	20.6	451.14	11.06
G128	219.0	798.8	0.22	0.2696	0.0033	3.6138	0.0745	0.0973	0.0020	1538.7	33.9	1552.6	37.6	1572.2	32.2	0.9	2.1	1572.23	32.22
G129	41.7	247.5	1.19	0.1297	0.0017	1.2195	0.0350	0.0682	0.0020	786.0	19.9	809.6	35.4	875.9	33.7	2.9	10.3	785.98	19.86
G130	51.1	628.1	0.65	0.0720	0.0010	0.5696	0.0177	0.0574	0.0018	448.4	11.7	457.7	25.0	505.8	24.9	2.0	11.4	448.37	11.67
G131	86.0	273.4	1.18	0.2405	0.0033	3.2258	0.0853	0.0973	0.0026	1389.1	33.9	1463.4	46.2	1573.6	42.4	5.1	11.7	1573.58	42.40
G132	127.5	1827.4	0.28	0.0693	0.0009	0.5389	0.0129	0.0564	0.0013	432.0	10.5	437.7	19.1	468.5	17.8	1.3	7.8	432.00	10.49
<b>Sample 13062701 - Kashgar River</b>																			
G1	7.0	45.0	2.16	0.0984	0.0020	0.8159	0.0556	0.0602	0.0042	604.8	23.4	605.7	66.0	609.7	63.7	0.1	0.8	604.8	23.4
G2	21.0	231.6	0.92	0.0753	0.0010	0.5632	0.0170	0.0543	0.0016	467.9	12.0	453.6	24.2	381.9	19.2	-3.2	-22.5	467.9	12.0
G3	121.1	302.5	0.33	0.3746	0.0044	6.4849	0.0920	0.1256	0.0016	2050.9	41.6	2043.8	31.0	2037.3	23.0	-0.3	-0.7	2037.3	23.0
G4	36.6	474.1	0.61	0.0698	0.0009	0.5404	0.0108	0.0562	0.0011	434.7	10.2	438.7	16.4	460.3	14.5	0.9	5.6	434.7	10.2
G5	370.5	977.4	0.15	0.3765	0.0044	7.6000	0.1033	0.1464	0.0018	2060.1	41.5	2184.9	30.6	2304.6	22.5	5.7	10.6	2304.6	22.5
G6	37.9	219.1	0.42	0.1637	0.0021	1.6386	0.0356	0.0726	0.0016	977.1	22.9	985.2	31.3	1003.6	27.2	0.8	2.6	1003.6	27.2
G7	18.8	319.1	0.80	0.0507	0.0007	0.3755	0.0097	0.0537	0.0014	319.0	8.0	323.7	15.9	358.5	15.5	1.5	11.0	319.0	8.0
G8	11.6	255.8	0.56	0.0416	0.0006	0.3090	0.0109	0.0539	0.0019	262.7	7.2	273.4	18.3	366.9	21.8	3.9	28.4	262.7	7.2
G9	7.9	220.8	0.25	0.0363	0.0005	0.2483	0.0091	0.0497	0.0018	229.5	6.2	225.2	15.9	180.0	12.2	-1.9	-27.5	229.5	6.2
G10	12.7	314.1	0.88	0.0339	0.0005	0.2316	0.0076	0.0495	0.0016	215.0	5.6	211.5	13.5	173.5	10.4	-1.6	-23.9	215.0	5.6
G11	46.0	248.3	1.31	0.1392	0.0017	1.3009	0.0248	0.0678	0.0013	840.2	19.4	846.1	25.4	862.1	21.4	0.7	2.5	840.2	19.4
G12	21.4	238.3	0.88	0.0752	0.0010	0.6334	0.0200	0.0611	0.0019	467.5	12.4	498.2	27.2	642.1	30.2	6.2	27.2	467.5	12.4
G13	5.7	111.7	0.44	0.0481	0.0007	0.3457	0.0147	0.0521	0.0023	302.9	8.7	301.5	23.8	291.1	21.8	-0.5	-4.1	302.9	8.7
G14	17.3	322.5	0.51	0.0498	0.0006	0.3677	0.0097	0.0536	0.0014	313.3	7.9	318.0	15.9	353.0	15.6	1.5	11.3	313.3	7.9
G15	45.1	285.8	0.88	0.1349	0.0016	1.2306	0.0227	0.0662	0.0012	815.9	18.6	814.6	24.2	811.8	19.9	-0.2	-0.5	815.9	18.6
G16	21.7	353.3	0.85	0.0519	0.0007	0.3893	0.0095	0.0544	0.0013	326.2	8.0	333.9	15.4	388.1	15.5	2.3	15.9	326.2	8.0

Table S1

Grain	Pb (ppm)	U (ppm)	Th/U	Ratios						Ages (Ma)						% concord.		% concord.		Best Age			
				Atomic		206/238		207/235		207/206		206/238		207/235		207/206		(206/238)		(206/238)		Best Age	
				No.	(ppm)	± s.e.	± s.e.	± s.e.	± s.e.	± s.e.	± s.e.	± 2s	± 2s	± 2s	± 2s	207/235	(206/238)	207/206	(206/238)	(Ma)	±2s		
G17	11.9	279.1	0.56	0.0391	0.0005	0.2696	0.0084	0.0501	0.0016	247.1	6.5	242.4	14.7	197.3	11.3	-1.9	-25.2	247.1	6.5				
G18	5.7	76.7	0.92	0.0623	0.0009	0.4994	0.0212	0.0581	0.0025	389.8	11.4	411.3	30.8	533.9	35.7	5.2	27.0	389.8	11.4				
G19	39.6	616.6	0.27	0.0644	0.0008	0.4951	0.0112	0.0558	0.0012	402.3	9.7	408.4	17.1	443.6	16.0	1.5	9.3	402.3	9.7				
G20	13.9	179.2	0.80	0.0662	0.0009	0.5123	0.0144	0.0561	0.0016	413.3	10.4	420.0	21.2	457.5	20.6	1.6	9.7	413.3	10.4				
G21	262.9	680.8	0.72	0.3286	0.0039	5.2087	0.0717	0.1150	0.0014	1831.5	37.5	1854.0	29.3	1879.9	21.4	1.2	2.6	1879.9	21.4				
G22	24.8	458.3	0.80	0.0465	0.0006	0.3464	0.0107	0.0541	0.0017	293.0	7.6	302.0	17.7	373.1	19.4	3.0	21.5	293.0	7.6				
G23	13.4	68.3	0.83	0.1655	0.0024	1.6379	0.0546	0.0718	0.0024	987.0	26.6	984.9	46.3	980.8	42.4	-0.2	-0.6	980.8	42.4				
G24	226.5	624.9	0.14	0.3581	0.0043	6.5565	0.0949	0.1328	0.0018	1973.0	40.4	2053.5	31.6	2135.8	23.9	3.9	7.6	2135.8	23.9				
G25	5.9	144.2	0.40	0.0393	0.0006	0.2655	0.0114	0.0490	0.0021	248.7	7.1	239.1	19.5	146.9	11.8	-4.0	-69.3	248.7	7.1				
G26	65.8	636.6	0.16	0.1064	0.0013	0.9157	0.0153	0.0625	0.0010	651.5	14.8	660.1	19.3	690.2	15.9	1.3	5.6	651.5	14.8				
G27	34.5	882.4	0.39	0.0377	0.0005	0.2679	0.0055	0.0516	0.0010	238.3	5.7	241.0	10.1	269.1	9.5	1.2	11.5	238.3	5.7				
G28	20.0	102.5	0.45	0.1824	0.0025	1.9271	0.0528	0.0767	0.0021	1079.9	27.2	1090.5	40.9	1112.4	37.0	1.0	2.9	1112.4	37.0				
G29	34.7	229.1	0.56	0.1380	0.0017	1.2758	0.0266	0.0671	0.0014	833.2	19.5	835.0	27.2	840.3	23.3	0.2	0.8	833.2	19.5				
G30	32.9	355.8	0.86	0.0775	0.0010	0.6129	0.0136	0.0574	0.0013	481.4	11.6	485.4	19.5	505.0	17.5	0.8	4.7	481.4	11.6				
G31	54.2	331.6	1.21	0.1275	0.0016	1.1487	0.0248	0.0654	0.0014	773.5	18.2	776.6	26.8	785.9	23.3	0.4	1.6	773.5	18.2				
G32	58.3	384.1	0.59	0.1376	0.0017	1.2853	0.0236	0.0678	0.0012	831.2	18.9	839.2	24.5	861.2	20.6	1.0	3.5	831.2	18.9				
G33	16.8	95.8	1.64	0.1229	0.0017	1.0867	0.0338	0.0641	0.0020	747.3	19.4	746.9	36.0	746.3	33.0	-0.1	-0.1	747.3	19.4				
G34	500.0	1076.6	0.44	0.4238	0.0050	9.3444	0.1296	0.1600	0.0020	2277.8	45.2	2372.4	31.8	2455.1	23.5	4.0	7.2	2455.1	23.5				
G35	41.8	653.3	0.51	0.0596	0.0007	0.4517	0.0094	0.0550	0.0011	373.2	8.9	378.4	14.9	411.4	13.7	1.4	9.3	373.2	8.9				
G36	193.3	3638.0	0.06	0.0570	0.0007	0.4554	0.0070	0.0580	0.0008	357.1	8.2	381.0	11.8	529.8	11.8	6.3	32.6	357.1	8.2				
G37	19.9	172.5	0.46	0.1086	0.0015	0.9591	0.0277	0.0641	0.0019	664.6	17.0	682.8	31.7	743.9	30.5	2.7	10.7	664.6	17.0				
G38	17.3	110.0	1.20	0.1220	0.0017	1.0943	0.0359	0.0651	0.0022	742.0	19.8	750.6	38.1	776.9	35.9	1.1	4.5	742.0	19.8				
G39	10.4	124.2	0.81	0.0710	0.0011	0.5861	0.0248	0.0599	0.0026	442.3	13.0	468.3	34.2	598.9	38.8	5.6	26.1	442.3	13.0				
G40	19.8	418.3	0.62	0.0428	0.0006	0.3051	0.0082	0.0517	0.0014	270.4	6.8	270.4	14.2	271.7	12.8	0.0	0.5	270.4	6.8				
G41	39.9	749.1	0.73	0.0468	0.0006	0.3381	0.0081	0.0524	0.0012	294.7	7.3	295.8	13.8	304.6	12.4	0.3	3.3	294.7	7.3				
G42	88.3	240.0	0.28	0.3512	0.0043	5.4586	0.0945	0.1128	0.0019	1940.3	41.4	1894.1	35.5	1844.4	28.2	-2.4	-5.2	1844.4	28.2				
G43	68.7	281.6	1.10	0.1940	0.0024	2.0767	0.0400	0.0777	0.0015	1143.1	25.9	1141.1	30.7	1137.9	25.6	-0.2	-0.5	1137.9	25.6				
G44	36.1	231.6	0.62	0.1396	0.0018	1.3090	0.0295	0.0681	0.0015	842.2	20.0	849.7	29.4	870.1	25.9	0.9	3.2	842.2	20.0				
G45	94.5	1450.7	0.80	0.0560	0.0007	0.4104	0.0069	0.0532	0.0009	351.2	8.2	349.2	11.8	336.5	9.2	-0.6	-4.4	351.2	8.2				
G46	86.0	931.6	0.53	0.0858	0.0010	0.6987	0.0127	0.0591	0.0010	530.5	12.2	538.0	17.8	570.4	15.4	1.4	7.0	530.5	12.2				
G47	90.9	870.8	0.62	0.0935	0.0011	0.7682	0.0127	0.0596	0.0009	576.2	13.1	578.7	17.3	589.1	13.9	0.4	2.2	576.2	13.1				
G48	34.8	530.8	0.16	0.0678	0.0008	0.5174	0.0105	0.0554	0.0011	422.9	10.0	423.4	16.1	426.4	13.7	0.1	0.8	422.9	10.0				
G49	42.5	595.0	0.60	0.0650	0.0008	0.4977	0.0100	0.0555	0.0011	406.0	9.6	410.1	15.6	433.6	13.9	1.0	6.4	406.0	9.6				
G50	143.3	400.8	0.21	0.3491	0.0042	5.9640	0.0915	0.1240	0.0018	1930.2	39.9	1970.6	32.5	2013.8	25.1	2.1	4.2	2013.8	25.1				
G51	33.9	370.0	1.13	0.0721	0.0009	0.5737	0.0134	0.0578	0.0013	448.6	10.8	460.4	19.4	520.3	18.8	2.6	13.8	448.6	10.8				
G52	51.5	774.9	0.18	0.0682	0.0008	0.5253	0.0096	0.0559	0.0010	425.2	9.9	428.7	14.9	448.4	12.7	0.8	5.2	425.2	9.9				
G53	15.3	290.0	0.62	0.0474	0.0006	0.3520	0.0107	0.0538	0.0016	298.7	7.8	306.2	17.6	364.4	18.7	2.5	18.0	298.7	7.8				
G54	30.9	615.8	1.01	0.0407	0.0005	0.2913	0.0085	0.0520	0.0015	256.9	6.6	259.6	14.6	285.4	14.4	1.1	10.0	256.9	6.6				
G55	23.0	492.5	0.92	0.0390	0.0005	0.2773	0.0082	0.0515	0.0015	246.9	6.3	248.5	14.3	264.2	13.8	0.7	6.5	246.9	6.3				

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$	
				206/238			207/235			207/206			206/238			207/235			(206/238)			
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s	(206/238)	(207/235)
G56	32.7	644.1	1.24	0.0389	0.0005	0.2774	0.0065	0.0518	0.0012	245.9	6.0	248.6	11.5	274.4	11.1	1.1	10.4	245.9	6.0			
G57	16.4	248.3	0.32	0.0651	0.0008	0.4907	0.0132	0.0547	0.0015	406.5	10.2	405.4	19.9	399.6	17.8	-0.3	-1.7	406.5	10.2			
G58	29.9	660.8	0.87	0.0379	0.0005	0.2709	0.0069	0.0519	0.0013	239.7	6.0	243.4	12.3	280.6	12.5	1.5	14.6	239.7	6.0			
G59	84.0	455.0	1.01	0.1498	0.0018	1.4658	0.0262	0.0710	0.0012	900.0	20.3	916.4	25.4	956.8	21.3	1.8	5.9	956.8	21.3			
G60	113.2	697.4	0.90	0.1358	0.0017	1.2508	0.0241	0.0668	0.0013	821.0	18.8	823.8	25.2	831.9	21.2	0.3	1.3	821.0	18.8			
G61	56.9	735.8	0.51	0.0718	0.0009	0.5483	0.0102	0.0554	0.0010	446.8	10.5	443.9	15.6	429.6	12.6	-0.7	-4.0	446.8	10.5			
G62	14.6	188.3	0.53	0.0716	0.0009	0.5332	0.0151	0.0541	0.0015	445.5	11.2	433.9	22.0	373.1	17.7	-2.7	-19.4	445.5	11.2			
G63	9.5	84.2	0.66	0.1004	0.0015	0.8539	0.0320	0.0617	0.0023	616.8	17.2	626.8	38.0	663.7	37.0	1.6	7.1	616.8	17.2			
G64	13.7	285.8	0.57	0.0438	0.0006	0.3141	0.0094	0.0520	0.0016	276.6	7.2	277.3	15.8	284.1	14.8	0.3	2.6	276.6	7.2			
G65	142.4	799.1	0.33	0.1730	0.0021	1.8228	0.0298	0.0765	0.0012	1028.3	22.8	1053.7	25.6	1107.1	20.8	2.4	7.1	1107.1	20.8			
G66	95.9	599.1	0.59	0.1450	0.0017	1.3950	0.0230	0.0698	0.0011	872.8	19.5	886.8	23.2	922.5	18.9	1.6	5.4	872.8	19.5			
G67	51.8	132.5	0.98	0.3129	0.0039	4.7429	0.0870	0.1100	0.0020	1755.2	38.3	1774.9	36.4	1798.7	29.9	1.1	2.4	1798.7	29.9			
G68	48.2	974.1	0.79	0.0422	0.0005	0.3018	0.0060	0.0518	0.0010	266.6	6.3	267.8	10.7	278.4	9.4	0.4	4.2	266.6	6.3			
G69	367.5	1787.4	0.50	0.1901	0.0022	2.1881	0.0329	0.0835	0.0012	1121.9	24.3	1177.2	25.5	1281.2	20.4	4.7	12.4	1281.2	20.4			
G70	27.8	302.5	1.25	0.0702	0.0009	0.5608	0.0138	0.0579	0.0014	437.6	10.7	452.0	20.0	526.7	20.0	3.2	16.9	437.6	10.7			
G71	79.6	149.2	0.52	0.4667	0.0056	10.9503	0.1694	0.1702	0.0025	2469.1	49.4	2518.9	35.1	2559.8	27.1	2.0	3.5	2559.8	27.1			
G72	93.9	626.6	0.21	0.1513	0.0018	1.4372	0.0235	0.0689	0.0011	908.0	20.2	904.6	23.4	896.9	18.5	-0.4	-1.2	896.9	18.5			
G73	19.1	59.2	1.03	0.2582	0.0036	3.4258	0.0883	0.0963	0.0025	1480.5	36.4	1510.3	45.9	1553.0	41.0	2.0	4.7	1553.0	41.0			
G74	9.2	183.3	0.85	0.0423	0.0006	0.3021	0.0108	0.0519	0.0019	266.9	7.3	268.0	18.2	278.8	17.6	0.4	4.3	266.9	7.3			
G75	85.1	265.8	1.09	0.2535	0.0031	3.3050	0.0611	0.0946	0.0017	1456.3	32.2	1482.2	33.9	1520.1	28.2	1.7	4.2	1520.1	28.2			
G76	84.5	210.8	1.08	0.3164	0.0039	4.7402	0.0868	0.1087	0.0019	1772.3	38.5	1774.4	36.2	1777.2	29.6	0.1	0.3	1777.2	29.6			
G77	10.6	160.0	0.87	0.0558	0.0009	0.4130	0.0192	0.0537	0.0025	350.0	10.6	351.0	29.5	358.5	28.5	0.3	2.4	350.0	10.6			
G78	61.7	1689.9	0.62	0.0331	0.0004	0.2420	0.0074	0.0530	0.0016	210.1	5.5	220.0	13.1	327.9	17.0	4.5	35.9	210.1	5.5			
G79	30.7	878.3	0.45	0.0332	0.0004	0.2389	0.0053	0.0522	0.0012	210.7	5.1	217.5	9.9	293.3	11.2	3.2	28.2	210.7	5.1			
G80	44.5	471.6	1.48	0.0684	0.0008	0.5286	0.0111	0.0561	0.0012	426.3	10.1	430.9	16.8	455.5	15.1	1.1	6.4	426.3	10.1			
G81	25.3	436.6	1.21	0.0451	0.0006	0.3329	0.0094	0.0536	0.0015	284.2	7.3	291.8	15.7	353.9	16.7	2.6	19.7	284.2	7.3			
G82	45.5	696.6	0.50	0.0609	0.0007	0.4588	0.0093	0.0547	0.0011	381.0	9.0	383.4	14.8	398.3	13.0	0.6	4.3	381.0	9.0			
G83	32.0	325.0	0.33	0.0976	0.0012	0.8780	0.0191	0.0653	0.0014	600.1	14.3	639.9	23.6	783.7	23.4	6.2	23.4	600.1	14.3			
G84	46.9	248.3	1.99	0.1231	0.0016	1.0835	0.0306	0.0638	0.0018	748.6	18.8	745.3	33.1	736.3	29.7	-0.4	-1.7	748.6	18.8			
G85	20.4	125.8	0.78	0.1401	0.0020	1.3046	0.0410	0.0675	0.0021	845.4	22.1	847.8	39.6	854.5	36.4	0.3	1.1	845.4	22.1			
G86	22.6	286.6	0.41	0.0755	0.0010	0.5799	0.0166	0.0558	0.0016	468.9	11.9	464.4	23.5	442.8	20.6	-1.0	-5.9	468.9	11.9			
G87	20.2	277.5	0.62	0.0653	0.0009	0.5571	0.0179	0.0619	0.0020	407.7	10.9	449.6	25.5	670.3	31.7	9.3	39.2	407.7	10.9			
G88	18.4	203.3	0.93	0.0707	0.0009	0.5498	0.0162	0.0564	0.0017	440.4	11.2	444.8	23.2	468.5	22.1	1.0	6.0	440.4	11.2			
G89	21.0	398.3	1.02	0.0429	0.0006	0.3152	0.0099	0.0533	0.0017	270.8	7.0	278.2	16.7	341.6	18.3	2.7	20.7	270.8	7.0			
G90	19.9	220.8	0.48	0.0847	0.0011	0.6820	0.0185	0.0584	0.0016	524.4	13.1	528.0	24.7	544.4	22.8	0.7	3.7	524.4	13.1			
G91	35.1	770.8	0.71	0.0401	0.0005	0.2935	0.0065	0.0531	0.0012	253.5	6.1	261.3	11.5	332.2	12.3	3.0	23.7	253.5	6.1			
G92	34.4	415.0	1.05	0.0666	0.0008	0.5192	0.0117	0.0566	0.0013	415.5	10.0	424.6	17.7	474.8	16.9	2.1	12.5	415.5	10.0			
G93	7.0	144.2	0.77	0.0446	0.0007	0.3297	0.0135	0.0536	0.0022	281.3	8.0	289.3	22.0	355.5	24.7	2.8	20.9	281.3	8.0			
G94	9.8	114.2	0.99	0.0699	0.0010	0.5276	0.0195	0.0548	0.0020	435.3	11.9	430.2	27.9	403.7	24.8	-1.2	-7.8	435.3	11.9			

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$	
				206/238			207/235			207/206			206/238			207/235			(206/238)			
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm$ 2s	207/235	$\pm$ 2s	207/206	$\pm$ 2s	207/235	$\pm$ 2s	(206/238)	(207/235)
G95	14.2	300.0	0.60	0.0429	0.0006	0.3191	0.0116	0.0540	0.0020	270.7	7.4	281.2	19.4	370.2	22.9	3.7	26.9	270.7	7.4			
G96	66.2	382.5	1.11	0.1373	0.0017	1.2716	0.0261	0.0672	0.0014	829.3	19.2	833.1	26.8	844.0	23.0	0.5	1.7	829.3	19.2			
G97	23.5	296.6	0.68	0.0705	0.0009	0.5403	0.0139	0.0556	0.0014	438.9	10.8	438.6	20.5	437.6	18.3	-0.1	-0.3	438.9	10.8			
G98	54.3	366.6	0.57	0.1350	0.0017	1.2580	0.0264	0.0676	0.0014	816.2	19.0	827.0	27.1	856.9	23.8	1.3	4.8	816.2	19.0			
G99	18.2	120.0	0.48	0.1403	0.0020	1.3767	0.0447	0.0712	0.0023	846.5	22.6	879.0	42.0	962.3	40.7	3.7	12.0	846.5	22.6			
G100	251.2	750.8	0.18	0.3296	0.0039	5.2227	0.0827	0.1150	0.0017	1836.3	37.9	1856.3	32.4	1879.4	25.5	1.1	2.3	1879.4	25.5			
G101	188.0	1657.4	0.13	0.1191	0.0014	1.1990	0.0213	0.0731	0.0012	725.2	16.5	800.1	23.0	1015.6	21.8	9.4	28.6	725.2	16.5			
G102	29.1	555.8	0.39	0.0505	0.0007	0.4082	0.0112	0.0587	0.0016	317.3	8.1	347.6	17.9	556.0	23.5	8.7	42.9	317.3	8.1			
G103	123.5	736.6	0.12	0.1738	0.0021	1.8391	0.0316	0.0768	0.0013	1032.9	22.8	1059.5	26.7	1115.5	22.2	2.5	7.4	1115.5	22.2			
G104	25.4	159.2	1.15	0.1260	0.0016	1.1380	0.0279	0.0655	0.0016	764.8	18.4	771.6	29.6	791.7	26.7	0.9	3.4	764.8	18.4			
G105	61.7	825.8	0.40	0.0721	0.0009	0.5491	0.0111	0.0553	0.0011	448.6	10.6	444.4	16.7	423.2	13.6	-0.9	-6.0	448.6	10.6			
G106	182.7	1131.6	0.89	0.1350	0.0016	1.2509	0.0212	0.0672	0.0011	816.0	18.3	823.8	22.6	845.2	18.4	0.9	3.5	816.0	18.3			
G107	99.2	634.1	0.96	0.1287	0.0016	1.2284	0.0254	0.0692	0.0014	780.5	18.2	813.6	26.5	905.9	24.2	4.1	13.8	780.5	18.2			
G108	65.8	120.0	0.68	0.4628	0.0059	10.4460	0.1934	0.1638	0.0029	2451.7	51.6	2475.1	40.7	2494.9	33.3	0.9	1.7	2494.9	33.3			
G109	10.6	164.2	0.31	0.0642	0.0010	0.5032	0.0212	0.0569	0.0024	401.2	11.8	413.9	30.7	486.1	32.9	3.1	17.5	401.2	11.8			
G110	85.2	135.8	1.37	0.4531	0.0056	10.0117	0.1802	0.1603	0.0028	2409.0	50.0	2435.9	39.4	2458.9	32.1	1.1	2.0	2458.9	32.1			
G111	42.5	897.4	0.49	0.0444	0.0006	0.3288	0.0075	0.0537	0.0012	280.2	6.8	288.6	12.9	358.1	13.6	2.9	21.8	280.2	6.8			
G112	40.9	117.5	0.99	0.2844	0.0036	3.9621	0.0820	0.1011	0.0021	1613.6	36.2	1626.5	38.8	1643.7	33.0	0.8	1.8	1643.7	33.0			
G113	31.3	215.0	0.66	0.1293	0.0018	1.2030	0.0364	0.0675	0.0021	783.6	20.2	802.0	36.9	853.9	35.1	2.3	8.2	783.6	20.2			
G114	166.6	872.4	0.89	0.1585	0.0019	1.5746	0.0278	0.0721	0.0012	948.6	21.1	960.2	25.8	987.6	21.4	1.2	4.0	987.6	21.4			
G115	21.1	442.5	0.53	0.0432	0.0006	0.3214	0.0109	0.0540	0.0019	272.5	7.3	283.0	18.2	371.9	21.3	3.7	26.7	272.5	7.3			
G116	85.2	225.0	0.95	0.3073	0.0038	4.6011	0.0838	0.1086	0.0019	1727.6	37.1	1749.5	35.7	1776.2	29.5	1.3	2.7	1776.2	29.5			
G117	94.8	654.1	0.15	0.1492	0.0018	1.4313	0.0263	0.0696	0.0012	896.4	20.2	902.1	25.6	916.6	21.3	0.6	2.2	896.4	20.2			
G118	18.7	351.6	1.13	0.0421	0.0006	0.3050	0.0107	0.0526	0.0019	265.5	7.2	270.3	18.0	312.0	19.0	1.8	14.9	265.5	7.2			
G119	15.7	135.0	0.71	0.1012	0.0014	0.8943	0.0300	0.0641	0.0022	621.3	16.6	648.7	35.1	745.9	35.8	4.2	16.7	621.3	16.6			
G120	22.4	505.8	0.74	0.0386	0.0005	0.2783	0.0076	0.0523	0.0014	244.2	6.2	249.3	13.4	298.1	14.1	2.0	18.1	244.2	6.2			
G121	9.9	195.8	0.87	0.0424	0.0006	0.3118	0.0112	0.0533	0.0019	267.8	7.3	275.5	18.7	342.4	21.0	2.8	21.8	267.8	7.3			
G122	10.7	256.6	0.55	0.0386	0.0005	0.2722	0.0092	0.0512	0.0017	244.1	6.5	244.4	15.9	247.6	14.9	0.1	1.4	244.1	6.5			
G123	18.6	92.5	0.82	0.1710	0.0024	1.7391	0.0558	0.0738	0.0024	1017.8	26.8	1023.1	45.5	1034.9	41.9	0.5	1.6	1034.9	41.9			
G124	41.3	455.0	0.93	0.0749	0.0010	0.6154	0.0163	0.0596	0.0016	465.5	11.6	486.9	22.8	589.8	23.7	4.4	21.1	465.5	11.6			
G125	47.6	300.0	0.42	0.1512	0.0019	1.4838	0.0333	0.0712	0.0016	907.8	21.3	923.8	30.8	962.9	27.4	1.7	5.7	962.9	27.4			
G126	15.4	262.5	1.09	0.0466	0.0006	0.3377	0.0102	0.0526	0.0016	293.7	7.6	295.5	16.9	309.8	16.2	0.6	5.2	293.7	7.6			
G127	23.7	453.3	0.74	0.0456	0.0006	0.3465	0.0097	0.0551	0.0015	287.5	7.3	302.1	16.1	417.1	19.1	4.8	31.1	287.5	7.3			
G128	117.4	734.9	0.84	0.1365	0.0017	1.2526	0.0241	0.0666	0.0012	824.7	18.8	824.6	25.1	824.7	21.0	0.0	0.0	824.7	18.8			
G129	61.4	95.0	0.89	0.5602	0.0070	19.8868	0.3571	0.2575	0.0045	2867.6	57.8	3085.9	41.2	3231.7	33.6	7.1	11.3	3231.7	33.6			
G130	63.1	8375.1	0.91	0.0063	0.0001	0.0411	0.0009	0.0477	0.0010	40.2	1.0	40.9	1.9	82.4	3.3	1.7	51.2	40.2	1.0			
<b>Sample 13062101 - Yarkand River</b>																						
G1	8.7	710.9	0.43	0.0118	0.0002	0.0806	0.0030	0.0496	0.0019	75.5	2.0	78.7	6.1	175.8	12.2	4.0	57.1	75.5	2.0			
G2	75.1	2524.3	0.05	0.0320	0.0004	0.2223	0.0036	0.0505	0.0008	202.8	4.5	203.8	7.1	216.2	6.1	0.5	6.2	202.8	4.5			

Table S1

Grain	Pb (ppm)	U (ppm)	Atomic	Ratios						Ages (Ma)						% concord.		% concord.		Best Age (Ma)	$\pm 2s$		
				206/238			207/235			207/206			206/238			207/235			(206/238)				
				No.	Th/U	$\pm$ s.e.	206/238	$\pm$ s.e.	207/235	$\pm$ s.e.	207/206	$\pm$ s.e.	206/238	$\pm 2s$	207/235	$\pm 2s$	207/206	$\pm 2s$	207/235	$\pm 2s$			
G3	4.0	116.6	0.40	0.0310	0.0005	0.2121	0.0116	0.0497	0.0028	196.7	6.1	195.3	20.5	179.6	18.3	-0.7	-9.5	196.7	6.1				
G4	371.2	597.7	0.57	0.5567	0.0062	19.6798	0.2667	0.2565	0.0033	2853.0	51.3	3075.8	33.0	3225.2	25.2	7.2	11.5	3225.2	25.2				
G5	10.9	688.8	0.60	0.0145	0.0002	0.1004	0.0030	0.0501	0.0015	93.0	2.3	97.2	6.0	201.0	10.9	4.3	53.7	93.0	2.3				
G6	53.5	296.3	0.95	0.1503	0.0017	1.4630	0.0249	0.0706	0.0012	902.6	19.4	915.3	24.5	946.7	20.6	1.4	4.7	946.7	20.6				
G7	25.7	1542.7	0.44	0.0160	0.0002	0.1072	0.0023	0.0486	0.0011	102.5	2.4	103.4	4.9	126.2	5.1	0.9	18.8	102.5	2.4				
G8	4.1	237.5	0.54	0.0160	0.0002	0.1064	0.0052	0.0482	0.0024	102.3	3.0	102.6	10.0	109.6	10.2	0.3	6.6	102.3	3.0				
G9	5.1	299.7	0.65	0.0152	0.0002	0.1031	0.0045	0.0493	0.0022	97.1	2.8	99.6	8.8	160.2	13.1	2.5	39.4	97.1	2.8				
G10	50.9	658.1	0.38	0.0751	0.0009	0.5920	0.0104	0.0572	0.0010	466.9	10.3	472.2	15.6	498.9	13.5	1.1	6.4	466.9	10.3				
G11	11.6	77.5	1.21	0.1160	0.0015	1.0381	0.0293	0.0649	0.0019	707.5	17.3	723.0	32.4	772.1	30.8	2.1	8.4	707.5	17.3				
G12	35.4	1566.5	1.59	0.0161	0.0002	0.1074	0.0023	0.0485	0.0010	102.6	2.4	103.6	4.8	125.7	5.1	0.9	18.3	102.6	2.4				
G13	12.6	778.2	0.44	0.0155	0.0002	0.1013	0.0037	0.0474	0.0018	99.2	2.7	97.9	7.4	68.9	4.9	-1.2	-43.9	99.2	2.7				
G14	16.1	222.2	0.52	0.0675	0.0009	0.5265	0.0183	0.0566	0.0020	421.3	11.1	429.5	26.4	474.8	26.7	1.9	11.3	421.3	11.1				
G15	10.6	131.1	0.66	0.0725	0.0009	0.5561	0.0171	0.0557	0.0017	451.1	11.3	449.0	24.3	438.8	22.0	-0.5	-2.8	451.1	11.3				
G16	65.1	848.0	0.46	0.0728	0.0009	0.5638	0.0107	0.0562	0.0011	453.0	10.2	454.0	16.1	459.9	13.8	0.2	1.5	453.0	10.2				
G17	101.4	1307.7	0.05	0.0834	0.0010	0.7019	0.0117	0.0611	0.0010	516.3	11.4	539.9	16.5	641.7	15.3	4.4	19.5	516.3	11.4				
G18	83.7	1042.9	0.80	0.0696	0.0008	0.5390	0.0092	0.0562	0.0009	433.6	9.6	437.8	14.3	460.7	12.3	1.0	5.9	433.6	9.6				
G19	31.7	391.6	0.24	0.0818	0.0010	0.6555	0.0131	0.0582	0.0011	506.7	11.6	511.8	18.4	535.4	16.3	1.0	5.4	506.7	11.6				
G20	4.7	369.5	0.71	0.0111	0.0002	0.0804	0.0064	0.0525	0.0043	71.2	2.9	78.5	12.7	306.8	43.2	9.3	76.8	71.2	2.9				
G21	34.7	269.0	0.63	0.1162	0.0015	1.0179	0.0246	0.0636	0.0015	708.5	16.7	712.9	27.8	727.4	25.0	0.6	2.6	708.5	16.7				
G22	1.4	413.8	0.55	0.0031	0.0001	0.0208	0.0022	0.0495	0.0054	19.6	0.9	20.9	4.6	170.6	34.2	6.0	88.5	19.6	0.9				
G23	108.6	400.1	0.02	0.2840	0.0033	4.1480	0.0675	0.1060	0.0017	1611.5	33.3	1663.8	32.0	1731.2	26.0	3.1	6.9	1731.2	26.0				
G24	6.3	64.7	0.80	0.0817	0.0013	0.6933	0.0318	0.0616	0.0029	506.1	15.4	534.8	41.0	659.9	45.4	5.4	23.3	506.1	15.4				
G25	10.9	608.7	0.26	0.0181	0.0002	0.1199	0.0037	0.0482	0.0015	115.3	2.9	115.0	7.3	109.1	6.4	-0.3	-5.7	115.3	2.9				
G26	18.8	1071.9	0.08	0.0189	0.0002	0.1288	0.0032	0.0496	0.0012	120.4	2.9	123.0	6.4	175.4	8.0	2.1	31.3	120.4	2.9				
G27	5.0	269.9	0.72	0.0162	0.0003	0.1208	0.0056	0.0540	0.0026	103.8	3.2	115.8	10.9	369.8	29.4	10.3	71.9	103.8	3.2				
G28	26.4	678.5	0.81	0.0330	0.0004	0.2273	0.0055	0.0500	0.0012	209.1	5.0	207.9	10.1	195.9	8.5	-0.6	-6.7	209.1	5.0				
G29	31.7	762.8	0.68	0.0371	0.0005	0.2638	0.0059	0.0516	0.0011	234.7	5.6	237.7	10.6	269.1	10.3	1.3	12.8	234.7	5.6				
G30	34.9	303.1	0.70	0.1020	0.0013	0.8509	0.0200	0.0605	0.0014	626.2	14.7	625.2	24.6	622.2	21.7	-0.2	-0.6	626.2	14.7				
G31	79.6	2245.1	0.45	0.0336	0.0004	0.2362	0.0045	0.0510	0.0010	213.1	5.0	215.3	8.6	240.8	8.0	1.0	11.5	213.1	5.0				
G32	33.3	321.8	1.41	0.0768	0.0009	0.5986	0.0135	0.0565	0.0013	477.1	11.3	476.3	19.2	473.6	16.7	-0.2	-0.7	477.1	11.3				
G33	4.3	252.0	0.62	0.0152	0.0003	0.1001	0.0064	0.0477	0.0031	97.4	3.3	96.9	12.3	85.9	10.6	-0.5	-13.3	97.4	3.3				
G34	96.5	3272.7	0.30	0.0293	0.0004	0.2033	0.0037	0.0503	0.0009	186.2	4.4	187.9	7.3	209.3	6.6	0.9	11.0	186.2	4.4				
G35	31.3	75.8	1.15	0.3181	0.0040	4.9672	0.1031	0.1133	0.0023	1780.6	39.3	1813.8	40.4	1852.8	34.6	1.8	3.9	1852.8	34.6				
G36	8.4	404.4	1.41	0.0154	0.0002	0.1014	0.0043	0.0478	0.0021	98.5	2.8	98.1	8.5	89.4	7.3	-0.4	-10.2	98.5	2.8				
G37	59.7	412.9	0.81	0.1232	0.0015	1.1088	0.0220	0.0653	0.0013	748.7	17.1	757.6	24.2	784.7	20.9	1.2	4.6	748.7	17.1				
G38	50.9	637.7	0.75	0.0692	0.0008	0.5351	0.0112	0.0562	0.0011	431.0	10.1	435.2	16.8	458.3	15.0	1.0	6.0	431.0	10.1				
G39	6.3	1557.2	0.97	0.0033	0.0001	0.0220	0.0010	0.0481	0.0023	21.4	0.6	22.1	2.2	103.7	9.2	3.2	79.3	21.4	0.6				
G40	141.6	3600.5	0.55	0.0362	0.0004	0.2513	0.0047	0.0504	0.0009	229.0	5.4	227.7	8.8	214.4	7.0	-0.6	-6.8	229.0	5.4				
G41	10.2	470.0	1.45	0.0157	0.0002	0.1044	0.0043	0.0481	0.0020	100.6	2.8	100.8	8.3	105.2	8.2	0.2	4.3	100.6	2.8				

Table S1

Grain	Pb No.	U (ppm)	Atomic Th/U	Ratios				Ages (Ma)								% concord.		% concord.	
				206/238	± s.e.	207/235	± s.e.	207/206	± s.e.	206/238	± 2s	207/235	± 2s	207/206	± 2s	207/238 207/235	207/206 207/206	(Ma)	Best Age
G42	91.4	1164.7	0.67	0.0700	0.0009	0.5392	0.0108	0.0559	0.0011	436.1	10.2	437.9	16.1	448.0	13.9	0.4	2.7	436.1	10.2
G43	51.0	333.7	0.77	0.1311	0.0016	1.2208	0.0270	0.0676	0.0015	793.9	18.6	810.2	27.8	856.0	25.0	2.0	7.3	793.9	18.6

Table S2

<b>Sample No.</b>	<b>13062401</b>	<b>Summary</b>		
Irrad. No.	GAR 60	Central age	$9.9 \pm 2.4$ Ma	
Position	0	age dispersion	180.5 %	
Date	23/04/19			
Analyst	AC	Pooled age	$8.2 \pm 0.5$ Ma	
zeta (CN5)	338	Mean age	$11.6 \pm 3.3$ Ma	
zeta error	5			
No. of grains	62	Chi squared P(chi-sq)	1172.91 with 0.00 %	61 df
Total Ns	309.00016 tr			
Total Ni	10676 tr			
Total Nd	4640 tr			
rho-d (CN5)	1.674E+06 tr/cm <sup>2</sup>			
mean rho-s	2.396E+05 tr/cm <sup>2</sup>			
mean rho-i	4.979E+06 tr/cm <sup>2</sup>			
mean U	37.2 ppm			

<b>Crystal</b>	<b>Ng</b>	<b>Ns</b>	<b>rho-s</b>	<b>Ni</b>	<b>rho-i</b>	<b>Ns/Ni</b>	<b>U (ppm)</b>	<b>Age (Ma)</b>	<b>Error</b>
1	60	3	3.608E+04	192	2.309E+06	0.0156	17.2	4.4	2.6
2	40	3	5.411E+04	202	3.644E+06	0.0149	27.2	4.2	2.4
3	21	1	3.436E+04	84	2.886E+06	0.0119	21.6	3.4	3.4
4	20	5	1.804E+05	280	1.010E+07	0.0179	75.4	5.0	2.3
5	14	1	5.154E+04	124	6.390E+06	0.0081	47.7	2.3	2.3
6	20	0	3.608E-01	54	1.948E+06	0.0000	14.5	0.0	0.0
7	15	2	9.620E+04	60	2.886E+06	0.0333	21.6	9.4	6.8
8	25	2	5.772E+04	114	3.290E+06	0.0175	24.6	5.0	3.5
9	12	5	3.006E+05	146	8.778E+06	0.0342	65.5	9.7	4.4
10	25	1	2.886E+04	150	4.329E+06	0.0067	32.3	1.9	1.9
11	40	2	3.608E+04	98	1.768E+06	0.0204	13.2	5.8	4.1
12	21	20	6.871E+05	354	1.216E+07	0.0565	90.8	16.0	3.7
13	20	3	1.082E+05	212	7.648E+06	0.0142	57.1	4.0	2.3
14	8	15	1.353E+06	43	3.878E+06	0.3488	29.0	97.9	29.4
15	60	2	2.405E+04	88	1.058E+06	0.0227	7.9	6.4	4.6
16	30	1	2.405E+04	66	1.587E+06	0.0152	11.9	4.3	4.3
17	30	1	2.405E+04	43	1.034E+06	0.0233	7.7	6.6	6.7
18	30	9	2.165E+05	460	1.106E+07	0.0196	82.6	5.5	1.9
19	40	6	1.082E+05	456	8.225E+06	0.0132	61.4	3.7	1.5
20	60	2	2.405E+04	138	1.659E+06	0.0145	12.4	4.1	2.9
21	15	2	9.620E+04	142	6.830E+06	0.0141	51.0	4.0	2.8
22	14	1	5.154E+04	15	7.730E+05	0.0667	5.8	18.8	19.5
23	15	4	1.924E+05	82	3.944E+06	0.0488	29.5	13.8	7.1
24	36	4	8.017E+04	318	6.373E+06	0.0126	47.6	3.6	1.8
25	30	3	7.215E+04	108	2.597E+06	0.0278	19.4	7.9	4.6
26	16	5	2.255E+05	64	2.886E+06	0.0781	21.6	22.1	10.3
27	15	1	4.810E+04	87	4.185E+06	0.0115	31.2	3.3	3.3
28	15	1	4.810E+04	135	6.494E+06	0.0074	48.5	2.1	2.1
29	36	4	8.017E+04	296	5.932E+06	0.0135	44.3	3.8	1.9
30	40	1	1.804E+04	148	2.670E+06	0.0068	19.9	1.9	1.9
31	36	4	8.017E+04	216	4.329E+06	0.0185	32.3	5.2	2.6
32	27	2	5.344E+04	276	7.375E+06	0.0072	55.1	2.0	1.5

Table S2

<b>Crystal</b>	<b>Ng</b>	<b>Ns</b>	<b>rho-s</b>	<b>Ni</b>	<b>rho-i</b>	<b>Ns/Ni</b>	<b>U (ppm)</b>	<b>Age (Ma)</b>	<b>Error</b>
33	10	13	9.380E+05	176	1.270E+07	0.0739	94.8	20.9	6.0
34	30	3	7.215E+04	208	5.002E+06	0.0144	37.4	4.1	2.4
35	10	3	2.165E+05	84	6.061E+06	0.0357	45.3	10.1	5.9
36	12	3	1.804E+05	135	8.117E+06	0.0222	60.6	6.3	3.7
37	28	2	5.154E+04	140	3.608E+06	0.0143	26.9	4.0	2.9
38	9	45	3.608E+06	165	1.323E+07	0.2727	98.8	76.7	12.9
39	60	11	1.323E+05	1320	1.587E+07	0.0083	118.5	2.4	0.7
40	40	0	1.804E-01	136	2.453E+06	0.0000	18.3	0.0	0.0
41	40	1	1.804E+04	408	7.359E+06	0.0025	55.0	0.7	0.7
42	12	7	4.209E+05	103	6.193E+06	0.0680	46.2	19.2	7.5
43	21	12	4.123E+05	100	3.436E+06	0.1200	25.7	33.9	10.4
44	24	0	3.006E-01	41	1.233E+06	0.0000	9.2	0.0	0.0
45	21	0	3.436E-01	79	2.714E+06	0.0000	20.3	0.0	0.0
46	12	3	1.804E+05	56	3.367E+06	0.0536	25.1	15.1	9.0
47	30	2	4.810E+04	243	5.844E+06	0.0082	43.6	2.3	1.7
48	16	1	4.509E+04	53	2.390E+06	0.0189	17.8	5.3	5.4
49	40	0	1.804E+00	88	1.587E+06	0.0000	11.9	0.0	0.0
50	30	2	4.810E+04	128	3.078E+06	0.0156	23.0	4.4	3.1
51	20	4	1.443E+05	256	9.235E+06	0.0156	69.0	4.4	2.2
52	30	3	7.215E+04	230	5.532E+06	0.0130	41.3	3.7	2.1
53	14	54	2.783E+06	90	4.638E+06	0.6000	34.6	167.5	28.9
54	60	4	4.810E+04	124	1.491E+06	0.0323	11.1	9.1	4.6
55	20	1	3.608E+04	101	3.644E+06	0.0099	27.2	2.8	2.8
56	12	9	5.411E+05	182	1.094E+07	0.0495	81.7	14.0	4.8
57	18	3	1.203E+05	138	5.532E+06	0.0217	41.3	6.1	3.6
58	30	0	2.405E-01	50	1.203E+06	0.0000	9.0	0.0	0.0
59	100	1	7.215E+03	204	1.472E+06	0.0049	11.0	1.4	1.4
60	15	2	9.620E+04	63	3.030E+06	0.0317	22.6	9.0	6.4
61	100	0	7.215E-02	172	1.241E+06	0.0000	9.3	0.0	0.0
62	20	4	1.443E+05	152	5.483E+06	0.0263	40.9	7.4	3.8

Table S2

<b>Sample No.</b>	<b>WC13062403</b>	Central age	$28.0 \pm 7.4$ Ma
Irrad. No.	GAR 60	age dispersion	148.4 %
Position	0		
Date	25/04/19	Pooled age	$22.4 \pm 1.3$ Ma
Analyst	AC	Mean age	$37.0 \pm 11.0$ Ma
zeta (CN5)	338	Chi squared	816.82 with
zeta error	5	P(chi-sq)	0.00 %
No. of grains	33		32 df
Total Ns	372.00001 tr		
Total Ni	4683 tr		
Total Nd	4640 tr		
rho-d (CN5)	1.674E+06 tr/cm <sup>2</sup>		
mean rho-s	7.514E+05 tr/cm <sup>2</sup>		
mean rho-i	6.568E+06 tr/cm <sup>2</sup>		
mean U	49.0 ppm		

<b>Crystal</b>	<b>Ng</b>	<b>Ns</b>	<b>rho-s</b>	<b>Ni</b>	<b>rho-i</b>	<b>Ns/Ni</b>	<b>U (ppm)</b>	<b>Age (Ma)</b>	<b>Error</b>
1	8	1	9.019E+04	17	1.533E+06	0.0588	11.4	16.6	17.1
2	10	2	1.443E+05	49	3.535E+06	0.0408	26.4	11.5	8.3
3	18	1	4.008E+04	107	4.289E+06	0.0093	32.0	2.6	2.7
4	24	2	6.013E+04	167	5.020E+06	0.0120	37.5	3.4	2.4
5	20	1	3.608E+04	162	5.844E+06	0.0062	43.6	1.7	1.8
6	28	3	7.730E+04	110	2.834E+06	0.0273	21.2	7.7	4.5
7	15	4	1.924E+05	146	7.023E+06	0.0274	52.4	7.7	3.9
8	10	20	1.443E+06	58	4.185E+06	0.3448	31.2	96.8	25.1
9	9	29	2.325E+06	110	8.818E+06	0.2636	65.8	74.2	15.5
10	8	16	1.443E+06	35	3.157E+06	0.4571	23.6	128.0	38.7
11	21	1	3.436E+04	68	2.336E+06	0.0147	17.4	4.2	4.2
12	9	51	4.089E+06	88	7.055E+06	0.5795	52.7	161.9	28.6
13	30	5	1.203E+05	234	5.628E+06	0.0214	42.0	6.0	2.7
14	24	12	3.608E+05	211	6.343E+06	0.0569	47.4	16.1	4.8
15	27	3	8.017E+04	147	3.928E+06	0.0204	29.3	5.8	3.4
16	8	14	1.263E+06	220	1.984E+07	0.0636	148.2	18.0	5.0
17	20	12	4.329E+05	212	7.648E+06	0.0566	57.1	16.0	4.8
18	8	22	1.984E+06	22	1.984E+06	1.0000	14.8	276.9	83.6
19	10	13	9.380E+05	166	1.198E+07	0.0783	89.4	22.1	6.4
20	28	23	5.927E+05	384	9.895E+06	0.0599	73.9	16.9	3.6
21	25	14	4.040E+05	480	1.385E+07	0.0292	103.4	8.2	2.2
22	10	12	8.658E+05	178	1.284E+07	0.0674	95.9	19.0	5.7
23	15	0	4.810E-01	87	4.185E+06	0.0000	31.2	0.0	0.0
24	8	7	6.313E+05	43	3.878E+06	0.1628	29.0	45.9	18.7
25	21	3	1.031E+05	169	5.806E+06	0.0178	43.4	5.0	2.9
26	16	1	4.509E+04	110	4.960E+06	0.0091	37.0	2.6	2.6
27	32	1	2.255E+04	128	2.886E+06	0.0078	21.6	2.2	2.2
28	8	6	5.411E+05	114	1.028E+07	0.0526	76.8	14.9	6.2
29	21	2	6.871E+04	181	6.219E+06	0.0110	46.4	3.1	2.2
30	12	11	6.614E+05	168	1.010E+07	0.0655	75.4	18.5	5.8
31	10	4	2.886E+05	82	5.916E+06	0.0488	44.2	13.8	7.1
32	10	74	5.339E+06	116	8.369E+06	0.6379	62.5	178.0	26.6
33	18	2	8.017E+04	114	4.570E+06	0.0175	34.1	5.0	3.5

Table S2

<b>Sample No.</b>	<b>WC13062402</b>	<b>Summary</b>		
Irrad. No.	GAR 60	Central age	$37.3 \pm 7.5$ Ma	
Position	0	age dispersion	138.8 %	
Date	28/04/19			
Analyst	AC	Pooled age	$29.1 \pm 1.3$ Ma	
zeta (CN5)	338	Mean age	$50.8 \pm 10.4$ Ma	
zeta error	5			
No. of grains	50	Chi squared P(chi-sq)	1328.88 with 0.00 %	49 df
Total Ns	642.00001 tr			
Total Ni	6217 tr			
Total Nd	4640 tr			
rho-d (CN5)	1.674E+06 tr/cm <sup>2</sup>			
mean rho-s	5.632E+05 tr/cm <sup>2</sup>			
mean rho-i	4.202E+06 tr/cm <sup>2</sup>			
mean U	31.4 ppm			

<b>Crystal</b>	<b>Ng</b>	<b>Ns</b>	<b>rho-s</b>	<b>Ni</b>	<b>rho-i</b>	<b>Ns/Ni</b>	<b>U (ppm)</b>	<b>Age (Ma)</b>	<b>Error</b>
1	20	9	3.247E+05	29	1.046E+06	0.3103	7.8	87.2	33.3
2	16	1	4.509E+04	58	2.615E+06	0.0172	19.5	4.9	4.9
3	36	5	1.002E+05	95	1.904E+06	0.0526	14.2	14.9	6.8
4	36	6	1.203E+05	182	3.648E+06	0.0330	27.2	9.3	3.9
5	8	70	6.313E+06	94	8.478E+06	0.7447	63.3	207.3	32.9
6	40	3	5.411E+04	120	2.165E+06	0.0250	16.2	7.1	4.1
7	12	6	3.608E+05	144	8.658E+06	0.0417	64.7	11.8	4.9
8	24	2	6.013E+04	156	4.690E+06	0.0128	35.0	3.6	2.6
9	49	2	2.945E+04	226	3.328E+06	0.0088	24.8	2.5	1.8
10	10	9	6.494E+05	49	3.535E+06	0.1837	26.4	51.8	18.8
11	50	4	5.772E+04	144	2.078E+06	0.0278	15.5	7.9	4.0
12	24	1	3.006E+04	75	2.255E+06	0.0133	16.8	3.8	3.8
13	35	2	4.123E+04	33	6.803E+05	0.0606	5.1	17.1	12.5
14	30	6	1.443E+05	98	2.357E+06	0.0612	17.6	17.3	7.3
15	30	2	4.810E+04	85	2.044E+06	0.0235	15.3	6.7	4.8
16	20	2	7.215E+04	82	2.958E+06	0.0244	22.1	6.9	4.9
17	16	16	7.215E+05	288	1.299E+07	0.0556	97.0	15.7	4.0
18	40	0	1.804E-01	168	3.030E+06	0.0000	22.6	0.0	0.0
19	20	4	1.443E+05	234	8.442E+06	0.0171	63.0	4.8	2.4
20	21	30	1.031E+06	190	6.528E+06	0.1579	48.7	44.5	8.8
21	12	3	1.804E+05	150	9.019E+06	0.0200	67.3	5.7	3.3
22	16	81	3.653E+06	102	4.600E+06	0.7941	34.3	220.8	33.0
23	20	2	7.215E+04	78	2.814E+06	0.0256	21.0	7.2	5.2
24	16	5	2.255E+05	173	7.801E+06	0.0289	58.3	8.2	3.7
25	60	62	7.456E+05	615	7.395E+06	0.1008	55.2	28.5	3.8
26	14	15	7.730E+05	25	1.288E+06	0.6000	9.6	167.5	54.8
27	25	5	1.443E+05	125	3.608E+06	0.0400	26.9	11.3	5.2
28	50	1	1.443E+04	130	1.876E+06	0.0077	14.0	2.2	2.2
29	40	96	1.732E+06	162	2.922E+06	0.5926	21.8	165.5	21.5
30	30	1	2.405E+04	77	1.852E+06	0.0130	13.8	3.7	3.7
31	20	3	1.082E+05	218	7.864E+06	0.0138	58.7	3.9	2.3
32	12	16	9.620E+05	268	1.611E+07	0.0597	120.3	16.9	4.3

Table S2

<b>Crystal</b>	<b>Ng</b>	<b>Ns</b>	<b>rho-s</b>	<b>Ni</b>	<b>rho-i</b>	<b>Ns/Ni</b>	<b>U (ppm)</b>	<b>Age (Ma)</b>	<b>Error</b>
33	15	1	4.810E+04	21	1.010E+06	0.0476	7.5	13.5	13.8
34	15	33	1.587E+06	41	1.972E+06	0.8049	14.7	223.8	52.4
35	15	11	5.291E+05	132	6.349E+06	0.0833	47.4	23.5	7.4
36	14	16	8.246E+05	23	1.185E+06	0.6957	8.9	193.9	63.2
37	9	6	4.810E+05	7	5.612E+05	0.8571	4.2	238.0	132.5
38	12	6	3.608E+05	56	3.367E+06	0.1071	25.1	30.2	13.0
39	12	22	1.323E+06	54	3.247E+06	0.4074	24.2	114.2	28.9
40	8	18	1.623E+06	32	2.886E+06	0.5625	21.6	157.2	46.4
41	18	19	7.616E+05	33	1.323E+06	0.5758	9.9	160.9	46.4
42	12	6	3.608E+05	163	9.800E+06	0.0368	73.2	10.4	4.3
43	50	2	2.886E+04	136	1.962E+06	0.0147	14.7	4.2	3.0
44	25	5	1.443E+05	142	4.098E+06	0.0352	30.6	10.0	4.5
45	30	1	2.405E+04	96	2.309E+06	0.0104	17.2	2.9	3.0
46	15	7	3.367E+05	117	5.628E+06	0.0598	42.0	16.9	6.6
47	40	4	7.215E+04	164	2.958E+06	0.0244	22.1	6.9	3.5
48	20	2	7.215E+04	94	3.391E+06	0.0213	25.3	6.0	4.3
49	12	7	4.209E+05	15	9.019E+05	0.4667	6.7	130.7	59.9
50	24	6	1.804E+05	218	6.554E+06	0.0275	48.9	7.8	3.2