

Table S5: Comparison between the different strategies for age definition of ash beds

Sample number	Youngest grain	Preferred mean age (2σ)	Mean age calculated with maximal MSWD (2s) *				
			MSWD	N		MSWD	N
<i>Qiakong section</i>							
QIA13T	248.09±0.09 Ma	248.250±0.065/0.091/0.28 Ma	1.2	3	248.287±0.056/0.085/0.28 Ma	2.5	4
QIA12T	248.76±0.05 Ma	248.893±0.069/0.094/0.28 Ma	0.56	3	248.921±0.063/0.093/0.28 Ma	1.6	4
QIA11T	248.87±0.30 Ma	248.95±0.49/0.50/0.57 M	0.0056	2	249.57±0.12 Ma	2	7
QIA09T	248.77±0.11 Ma	249.110±0.088/0.11/0.29 Ma	1.8	7	no alternative		
QIA07T	249.15±0.07 Ma	249.292±0.063/0.091/0.28 Ma	0.36	4	no alternative		
<i>Laren section</i>							
CHIN10	248.80±0.06 Ma	248.853±0.086/0.11/0.29 Na	0.51	3	248.956±0.048/0.081/0.28 Ma	1.8	8
230214AT	248.72±0.25 Ma	248.86±0.23/0.33/0.35 Ma	0.06	3	249.02±0.19/0.20/0.33 Ma	2.3	4
230214BT	248.87±0.11 Ma	248.97±0.13/0.16/0.31 Ma	0.18	3	249.11±0.11/0.12/0.29 Ma	1.7	5
LAR206T	249.24±0.11 Ma	249.35±0.13/0.15/0.30 Ma	0.079	3	249.476±0.074/0.099/0.28 Ma	1.5	6
CHIN40	250.51±0.05 Ma	250.647±0.064/0.09/0.28 Ma	0.84	4	no alternative		
<i>Shanggang section</i>							
SHA301T	248.86±0.22 Ma	248.860±0.11/0.13/0.30 Ma	0.21	4	no alternative		
SHA306T	248.92±0.08 Ma	249.071±0.092/0.11/0.29 Ma	0.66	5	all analyses		
SHA359T	249.08±0.25 Ma	249.330±0.10/0.12/0.29 Ma	0.25	6	all analyses		
SHA339T	249.54±0.16 Ma	249.74±0.12/0.13/0.30 Ma	0.62	6	all analyses		
SHA303T	249.84±0.13 Ma	250.142±0.082/0.10/0.29 Ma	1.1	8	all analyses		

* after Carl and Wendt (1991)