

Supplementary material for: **Earliest lithic heat treatment in Australia is the World's oldest known treatment of chert**

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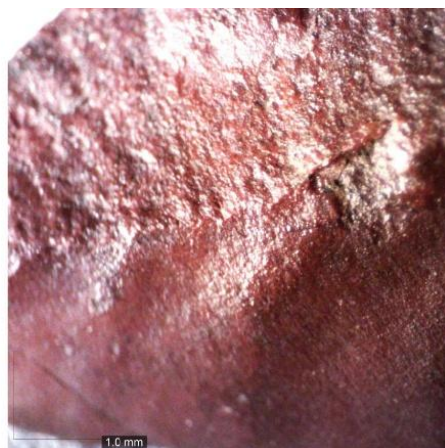
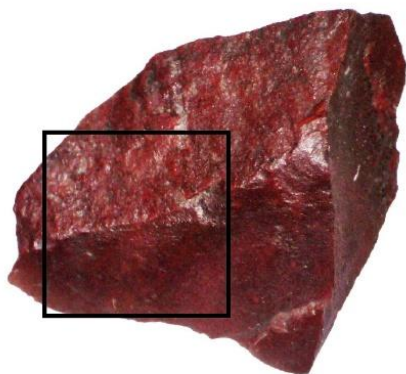
Table S1. Count of diagnostic chert artefacts, i.e. showing roughness contrast, in each analysed spit in squares L29; K28, 28. Dates from (Bird et al., 2002).

Age as per OSL	Spit	<i>n</i> chert	<i>n</i> diagnostic pieces
	1	10	1
	2	4	2
0.29±0.06 Ka BP	3	6	0
	4	10	2
	5		
	6		
	7	3	0
	8	7	2
	9	24	2
	10	15	3
	11	11	2
	12	4	1
	13	10	1
	14	6	1
	15	12	2
	16	16	0
	17	6	1
	18	4	1
	19	6	2
	20	3	1
	21	4	0
	22	2	0
	23	2	1
	24		
	25		
	26		
	27	12	1

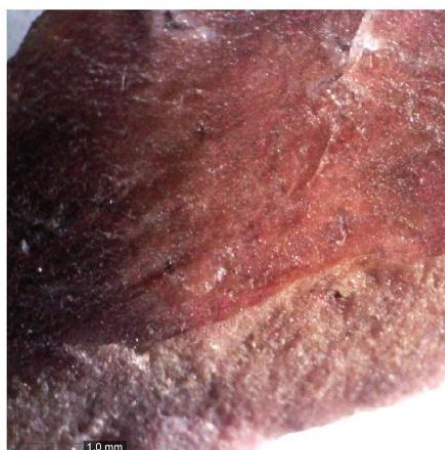
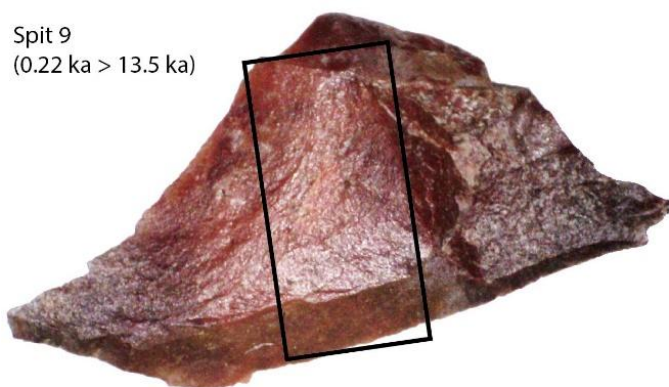
	28	20	4
	29	12	3
	30	33	5
	31	48	7
	32	40	4
	33	13	1
13.5±0.9 Ka BP	34	22	1
	35	3	0
	36	7	0
	37	7	2
	38	9	0
	39	5	1
	40	7	2
	41	16	2
	42	3	1
	43	12	0
	44	11	4
	45	7	1
	46	3	0
	47	1	0
	48	5	0
	49	0	-
	50	0	-
30±2.4 Ka BP	51	1	0
	52	0	-
	53	0	-
	54	0	-
	55	0	-
	56	2	1
	57	3	2
	58	6	0
	59	8	1
	60	2	0
	61	0	-
	62	0	-
	63	1	0
	64	0	-
	65	2	0
	66	3	0
53.4±5.4 Ka BP	67	0	-
	68	3	0
	69	1	0
	70	5	1
	71	0	-
	72	1	1
	73	0	-

	74	0	-
	75	2	0
	76	1	0
	77	0	-
	78	0	-
	79	0	-
	80	0	-
60.3±6.7 Ka BP	81	0	-
	Totals:	502	70

Spit 1
($<0.22\text{ka}$)



Spit 9
($0.22\text{ ka} > 13.5\text{ ka}$)



Spit 29
($0.22\text{ ka} > 13.5\text{ ka}$)

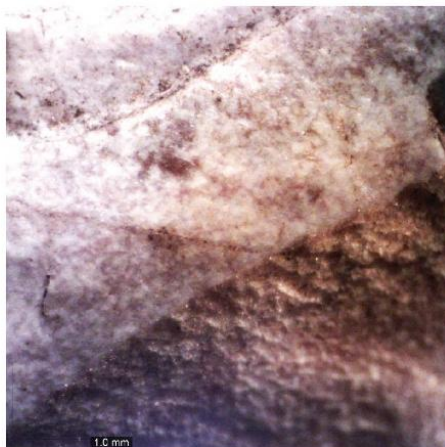
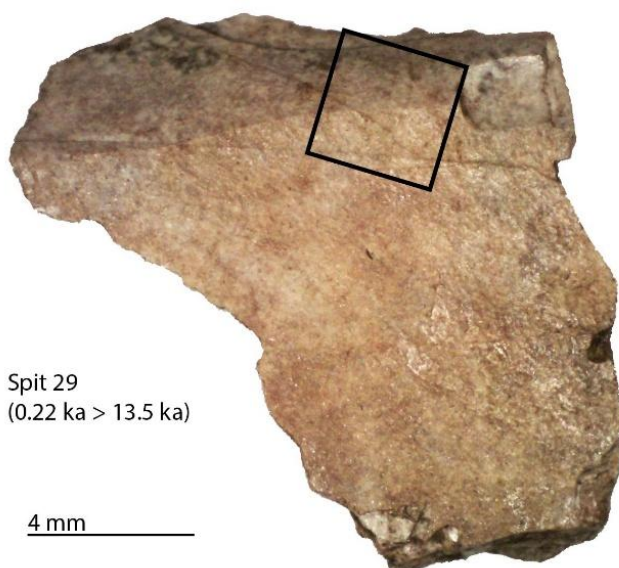
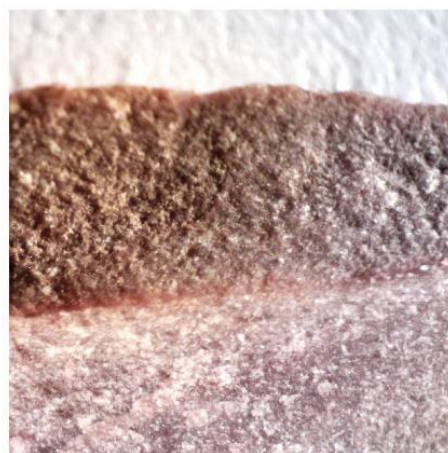
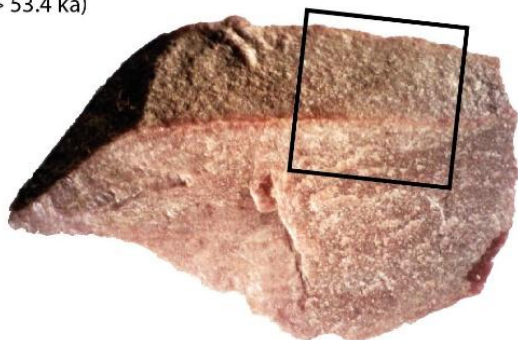
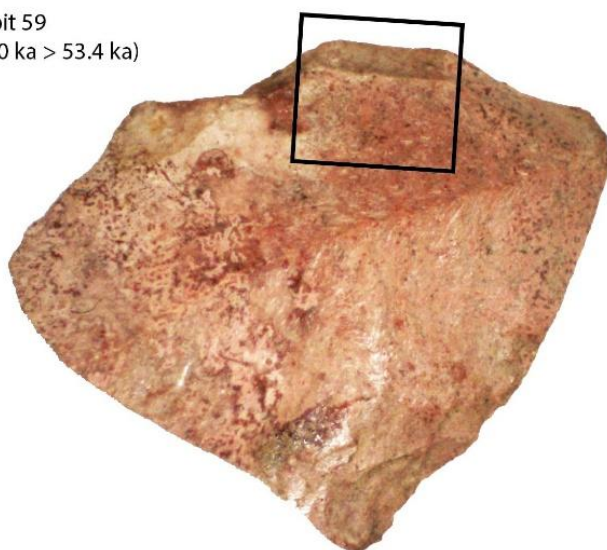


Figure S1. Photos and microscopic views of roughness contrast on diagnostic chert artefacts from Nauwalabila I; spits 1, 9 and 29. Scale bare is valid for all three photos.

Spit 57
(30 ka > 53.4 ka)



Spit 59
(30 ka > 53.4 ka)



Spit 70
(53.4 ka > 60.3 ka)

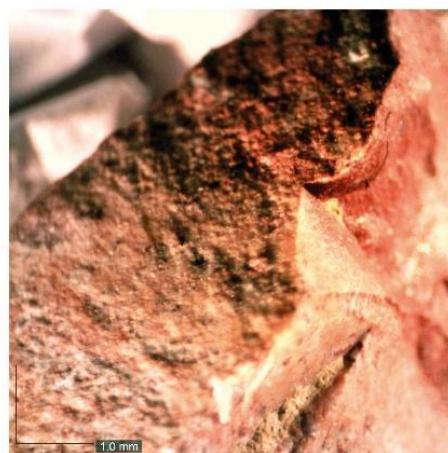
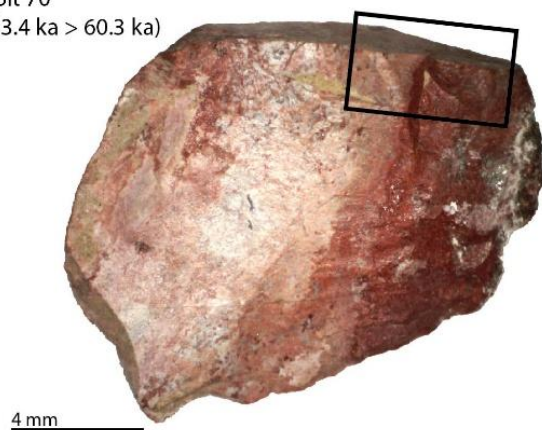


Figure S2. Photos and microscopic views of roughness contrast on diagnostic chert artefacts from Nauwalabila I; spits 57, 59 and 70. Scale bar is valid for all three photos.

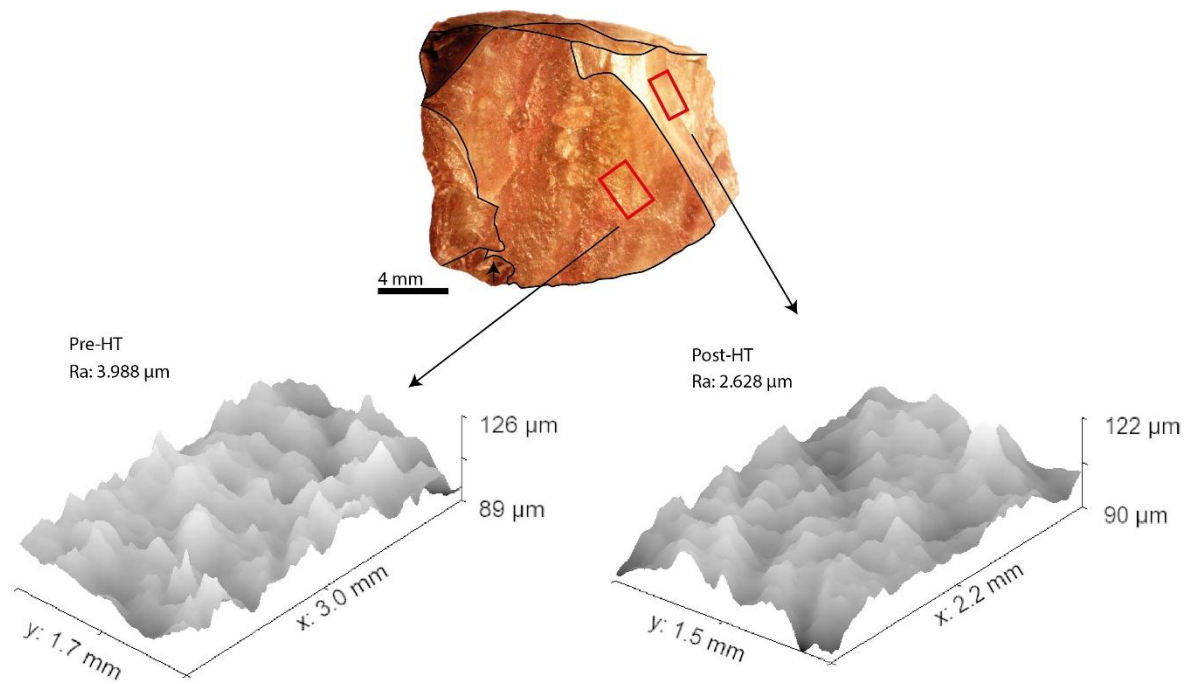


Figure S3. Photos and 3D surface data files recorded on roughness contrast on diagnostic chert artefacts from Nauwalabila I, spits 13. The red rectangles correspond to the zones on which the replica tape was applied.

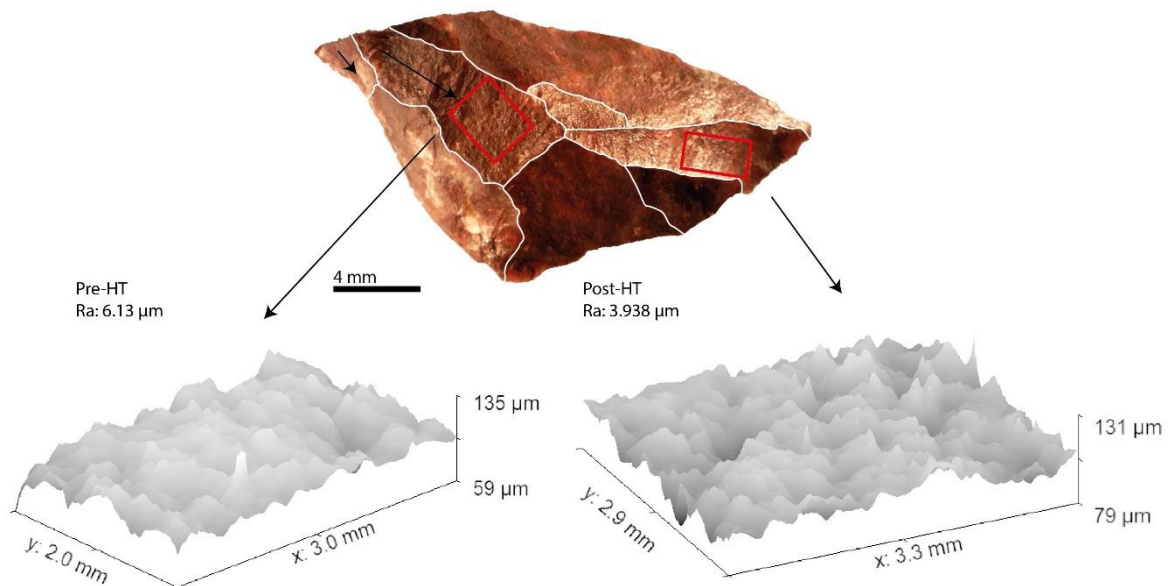


Figure S4. Photos and 3D surface data files recorded on roughness contrast on diagnostic chert artefacts from Nauwalabila I, spits 17. The red rectangles correspond to the zones on which the replica tape was applied.

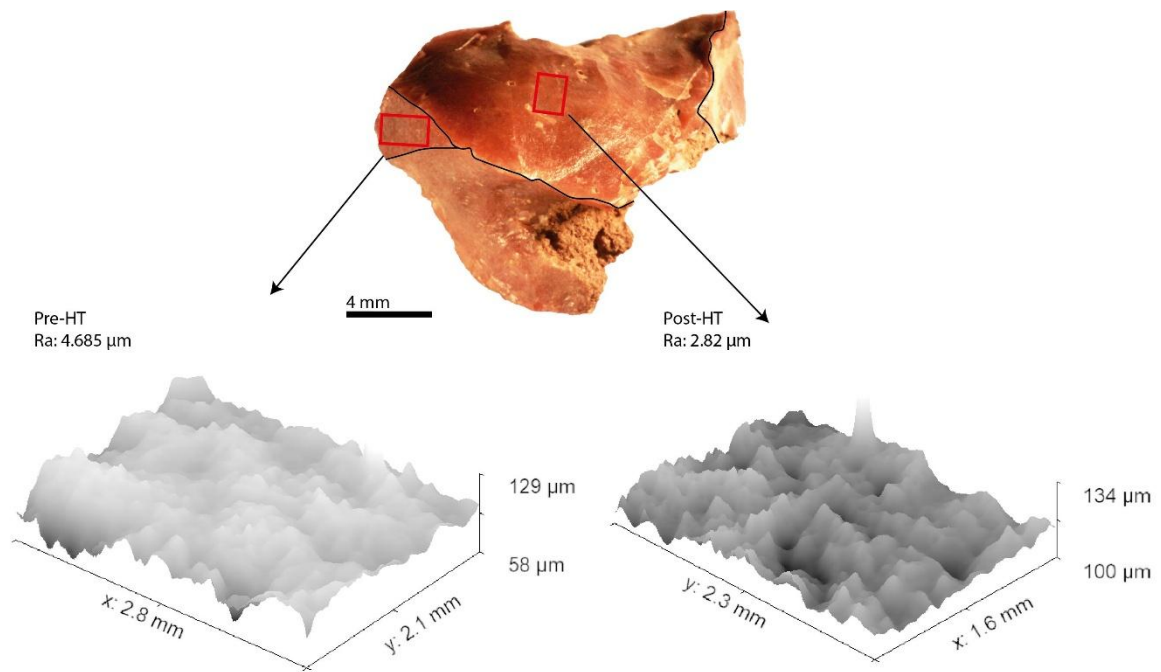


Figure S5. Photos and 3D surface data files recorded on roughness contrast on diagnostic chert artefacts from Nauwalabila I, spits 41. The red rectangles correspond to the zones on which the replica tape was applied.

Supplementary reference

Bird, M.I., Turney, C.S.M., Fifield, L.K., Jones, R., Ayliffe, L.K., Palmer, A., Cresswell, R., Robertson, S., 2002. Radiocarbon analysis of the early archaeological site of Nauwalabila I, Arnhem Land, Australia: implications for sample suitability and stratigraphic integrity. *Quaternary Science Reviews* 21, 1061-1075.