

Fig. S1 (a) The map showing the location of Kikai Island. Thick arrow shows the Kuroshio Current. (b) Study sites in Kikai Island. Solid circles indicate coral sampling locations.

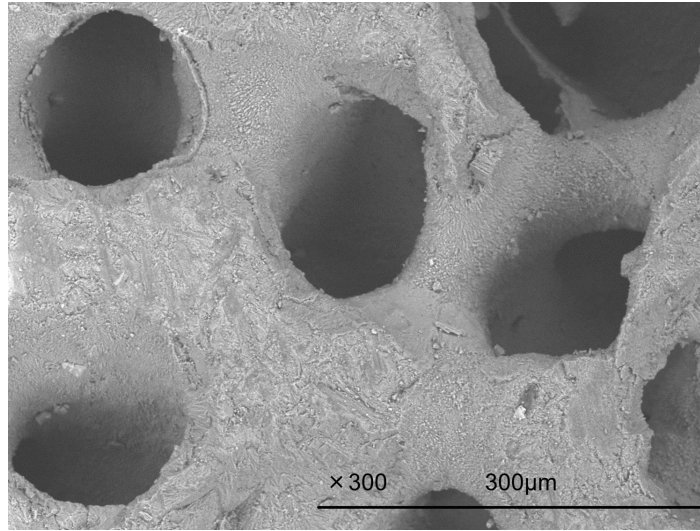


Fig. S2 Scanning electron microscope (SEM) images of the fossil coral skeleton.

Table S1. Uranium and Thorium isotopic compositions and ^{230}Th ages of the fossil coral

core KSOM141006

Weight	^{238}U	^{232}Th	$d^{234}\text{U}$	$[\text{}^{230}\text{Th}/\text{}^{238}\text{U}]$	$[\text{}^{230}\text{Th}/\text{}^{232}\text{Th}]$	Age	Age	$d^{234}\text{U}_{\text{initial}}$
g	ppb ^a	ppt	measured ^a	activity ^c	Atomic($\times 10^{-6}$)	Uncorrected	corrected ^{c,d}	corrected ^b
						d		
0.22448	2565.5 \pm 2.8	35.6 \pm 2.1	145.0 \pm 1.8	0.050956 \pm 0.000089	60512 \pm 3514	4,960 \pm 12	4,959 \pm 12	147.0 \pm 1.8

Note: Analytical errors are 2s of the mean values.

^a $[\text{}^{238}\text{U}] = [\text{}^{235}\text{U}] \times 137.77 (\pm 0.11\%)$; $d^{234}\text{U} = ([\text{}^{234}\text{U}/\text{}^{238}\text{U}] \text{activity} - 1) \times 1000$.

^b $d^{234}\text{U}_{\text{initial}}$ corrected was calculated based on ^{230}Th age (T), i.e., $d^{234}\text{U}_{\text{initial}} = d^{234}\text{U}_{\text{measured}} \times e^{l_{234} * T}$, and T is corrected age.

^c $[\text{}^{230}\text{Th}/\text{}^{238}\text{U}]_{\text{activity}} = 1 - e^{-l_{230}T} + (d^{234}\text{U}_{\text{measured}}/1000)[l_{230}/(l_{230} - l_{234})](1 - e^{-(l_{230} - l_{234})T})$, where T is the age.

^d Age, relative to chemistry date (March 2015), corrections for samples were calculated using an estimated atomic $^{230}\text{Th}/\text{}^{232}\text{Th}$ ratio of 4 ± 2 ppm.