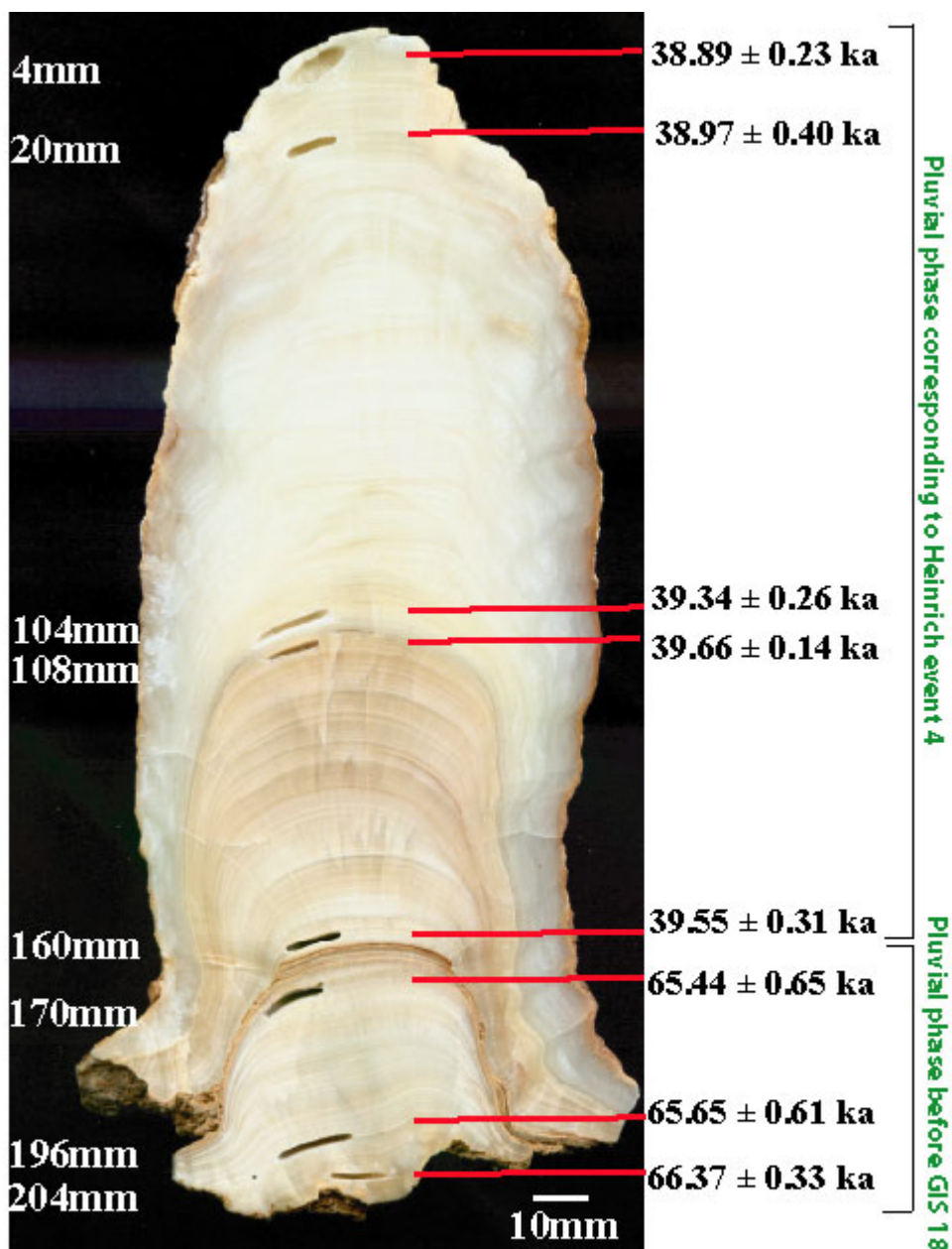


**Figure S1 (Supplementary Figure 1):** Plot of measured  $\delta^{234}\text{U}$  versus  $^{230}\text{Th}/^{238}\text{U}$  activity ratio<sup>6, 7</sup> of northeastern Brazil travertine samples TVT26 - 52. Analytical errors are  $2\sigma$  of the mean. Green lines are contours of  $^{230}\text{Th}$  age and heavy gray line gives a very large age. The area without contours represents isotopic compositions that cannot be attained through closed-system decay.



**Figure S2 (Supplementary Figure 2):** Stalagmite TBV-40 with ages and depths (collected from Toca da Boa Vista cave). Uranium concentration changed more than one hundred folds from 7.8 ppm at the bottom to 64 ppb at the top (Table S1). GIS, Greenland Interstadial.<sup>8</sup>



**Figure S3 (Supplementary Figure 3)** Young travertine deposit from the Salitre river valley. Plant remains (leaf, trunk and root casts) are characteristic of a dense mesophilic semideciduous forest not related to the modern caatinga vegetation.

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