

Supplement 1. Holocene notches of the southern Perachora peninsula coastline.

Marine notches preserved on the NW Perachora peninsula and Heraion (Fig S1) are described by Pirazzoli *et al.* (1994), Kershaw & Guo (2001) and Leeder *et al.* (2003). The highest notch at Mylokopi near Sterna is at 3.0 m elevation and at Cape Heraion is 3.2 m dated to the early Holocene (5.1 to 4.9 ka and 6.39 to 6.27 ka respectively) by Pirazzoli *et al.* (1994). The flight of distinct notches clearly indicates pulsed uplift of the Perachora peninsular at rates of 0.50 ± 0.05 to 0.59 ± 0.1 mm a⁻¹.

At Makrugoaz Ridge (Fig. S1) a 3.0 m Holocene notch has been identified by Vita-Finzi & King (1985). This is ¹⁴C dated as 7931 to 7584 yr from *Notirus irus* shells sampled at 1.7 m elevation. However, this is an intertidal species and given the maximum tidal range of 0.9 m, the sample probably dates a lower notch, at an inner edge elevation of 1.7 ± 0.9 m. Leeder *et al.* (2003, 2007 fig. 4.13) describe a raised platform at c. 1.0 m at this location, evidence of an inner edge interpreted here at 1.0 m elevation that may be contemporaneous with the *N. irus*. This inner edge and the 3.0 m notch, which must pre-date it, are evidence of at least two uplift events during the early Holocene highstand. The highest elevation here is important as evidence of displacement to elevations above 1.5 m that is not recognised in some uplift models for the SW coastline of the Perachora peninsula (Morewood & Roberts 1999; Cooper *et al.* 2007; Roberts *et al.* 2009).

The symmetrical profile of Holocene notches with preservation of delicate fauna indicate pulsed uplift (Laborel & Laborel-Deguen 1994; Pirazzoli 2005;) of the Perachora peninsular, at rates of 0.50 ± 0.05 to 0.59 ± 0.1 mm a⁻¹ between Mylokopi, Heraion and Agriliou Bay (Fig. S1). The 3 m high notches continue to Agriliou Bay where uplift rates slow to 0.22 ± 0.01 mm a⁻¹.

Between Makrugoaz Ridge and Agriliou Bay (Fig. S1), notches are mapped at 3.0 m and 1.5 m whilst on the east side of Agriliou Bay maximum observed Holocene notch elevations are 1.6 m, ¹⁴C dated to 6810 to 6727 cal BP and a slowed uplift of 0.22 ± 0.01 mm a⁻¹ (Leeder *et al.* 2007). A lower notch with associated platform eroded in cemented beach pebbles and cobbles with a storm berm that partially onlaps the 1.6 m notch, has an inner edge at 0.3 m. We revise Leeder *et al.*'s (2007) 3.0 m shoreline at this location as a karstic surface rather than evidence of a marine platform.

Continuing east for 1 km notches with prominent inner edges closest to sea level occur at 0.3 and 1.5 m elevations, the latter with a 3 to 4 m wide abrasion

platform. Closer to Loutraki Bay the maximum notch elevation is to 2.4 ± 0.5 m whilst at Loutraki Bay *Lithophaga* bored holes into a fossiliferous cliff face to 3.5 m. A *Lithophaga* shell from 3.15 m yielded a calibrated ^{14}C age of $35\,790\pm 320$ BP, an oyster shell from 2.85 m $37\,450\pm 360$ BP and *Lithophaga* from 2.2 m was dated to 2420 ± 40 BP. The first two ages are near the limits of ^{14}C dating and give ages for the MIS 3 lowstand so are considered unreliable as the Gulf of Corinth becomes a brackish lake during eustatic lowstands and *Lithophaga* are a fully marine species. The associated inner edge at 10.0 ± 0.5 m, gives an uplift rate of 0.3 mm a^{-1} , this is exceptional for the Perachora peninsula, and the ^{14}C age may be an anomalous.

The trend is for uniform uplift rates between the west tip of the Perachora peninsula and Agriliou Bay, but lower uplift at Agriliou Bay and eastwards to Loutraki. This apparent tectonic boundary at Agriliou Bay may mark the location where uplift on the footwall of the Perachora fault is to the west but not the east, the fault slip uplift model places the contribution of uplift grading to zero at Agriliou Bay. However, we expect a gradient of decreasing influence of uplift on the Perachora fault footwall, rather than the observed change over a few 100 m, and instead propose that this marks the east tip of the off shore Heraion fault (Fig. S1). Uplift of the coast east of Agriliou Bay may be on the footwall of an active Atlae fault, tilt on the Pisia fault or isostatic uplift.

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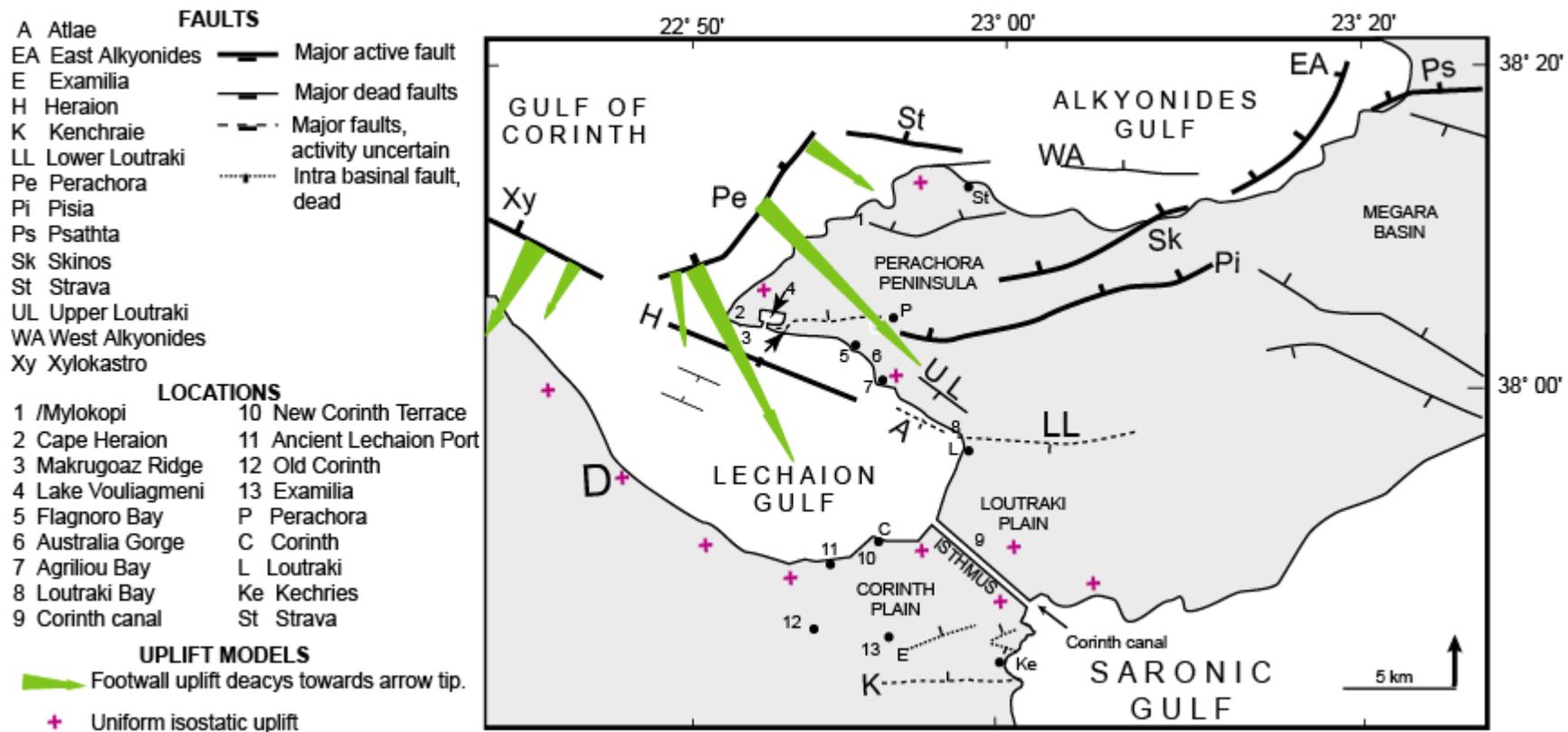


Fig. S1. Map of the Perachora peninsula, east of the main Gulf of Corinth, showing the locations of places and faults named in the text