

## Sub-monthly $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ records from *Melanopsis* of the upper Jordan River valley, 25-13ka

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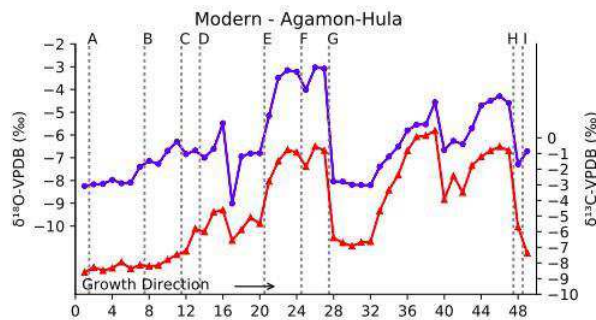
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*Melanopsis* shells from the Jordan River Dureijat Epipaleolithic archaeological site in the upper Jordan River valley were sampled at high resolution to achieve sub-monthly records of  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  values in the gastropod's habitat, and these records are compared to results from one modern shell, collected in May 2017 from Agamon-Hula, an artificially drained and partially re-flooded wetland lake (Figure 1).



**Figure 1:** Modern shell results with growth marks A-I.

Mean  $\delta^{18}\text{O}$  values do not exhibit large changes among sedimentary layers (-6.8, -6.8, -7.3, -6.2‰ for layers dated 23.8, 18.6, 16.3, 14.5cal ka BP, respectively), and are remarkably similar to the modern shell mean  $\delta^{18}\text{O}$  (-6.4‰). The relative similarity of these values is evidence that oxygen isotopes of water in the upper Jordan River valley have not changed greatly since the Late Pleistocene. Mean  $\delta^{13}\text{C}$  values are more dissimilar (-6.6, -7.5, -6.4, -4.3, -4.5‰ for layers dated 23.8, 18.6, 16.3, 14.5cal ka BP, and the modern shell, respectively).

The ranges of  $\delta^{18}\text{O}$  values are much smaller for the fossil shells (2.4-3.8‰) than for the modern (6.0‰), which reflects a larger seasonality in  $\delta^{18}\text{O}$  values in Agamon-Hula than in the Jordan River Dureijat paleoenvironment.