



Isotope analysis of water trapped in fluid inclusions in deep sea corals

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Extant *Lophelia pertusa* deep sea coral specimens from the Loachev mound region in the North Atlantic Ocean contain water filled fluid inclusions in their skeleton. This fluid inclusion water was extracted with a crushing device, and its hydrogen and oxygen isotope ratios analysed. The resulting data span a wide range of isotope values which are remarkably different from the seawater isotope composition of the sites studied. Comparison with food source isotope signatures suggests that coral inclusion water contains a high, but variable proportion of metabolic water. The isotope composition of the inclusion water appears to vary with the position on the deep sea coral reef, and shows a correlation with the stable isotope composition of the coral aragonite. This correlation seems to suggest that growth rate and other ecological factors play an important role in determining the isotope composition of fluids trapped in the coral skeleton, which can potentially be developed as a proxy for non-equilibrium isotope fractionation observed in the aragonite skeleton of many of the common deep sea coral species.