

Hydrogen isotopic analysis of seafloor basalts and evolution of Earth's seawater

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as observed in modern seafloor. On the other hand, as observed in modern seafloor. On the other hand, samples from the in 3.2 Ga Pilbara Cleaverville Formation, Western Australia showed clear correlation between metamorphic assemblages in ocean-floor minerals and H/O isotopic compositions. The measured δD values are positively correlated with $\delta^{18}O$ values and H_2O content in response to metamorphic grade. These results indicate that the basalts from the Cleaverville Fm. preserve original isotopic ratio acquired from the 3.2 Ga seawater. Based on the results, we estimate that 3.2 Ga seawater was depleted in deuterium by more than 20‰ compared to modern seawater. To obtain secular variation, further analysis with more rigorous criteria for sample selection is necessary.