



## Revisiting of paleoclimate recording $\delta^{18}\text{chO}$ as passive scalar turbulence

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Multifractality feature has been identified in the historical recording of  $\delta^{18}\text{O}$  ( $^{18}\text{O}/^{16}\text{O}$  ratios), which has been considered as a climate proxy of temperature. However, two facts are still unclear. One is the Hurst number, and the other one is the multifractal strength. In this work, we revisit a high-resolution paleoclimate historical recording of  $\delta^{18}\text{O}$  obtained from the North Greenland Ice-Core Project (NGRIP) with a time resolution 50 years. The multifractality property of this data is then concerned by extremal-point-density analysis and Hilbert-Huang transform. A Hurst number  $H = 1/3$  and intermittency parameter  $\mu = 0.64$  are determined. It leads new insight to the paleoclimate dynamics and bring new challenge to the climate model simulation that a physical constrain reported in this paper must be taken into account.