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**Origin of hydrogen isotopic variations in
chondritic water and organics**

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The hydrogen isotopic composition (D/H) of water in the different chondrite groups remains poorly constrained, due to the intimate mixture of hydrated minerals and organic compounds, the other main H-bearing phase in chondrites. We determined the H isotopic composition of water in a large set of chondritic samples (CI, CM, CO, CR, and C-ungrouped carbonaceous chondrites) and report that water in each group shows a distinct and unique D/H signature [1]. Our data do not support a preponderant role of parent-body processes in controlling the D/H variations among chondrites [1, 2]. Instead, we propose that the water and organic D/H signatures were mostly shaped by interactions between the protoplanetary disk and the molecular cloud that episodically fed the disk over several million years.

[1] Piani, L. et al. (2021) EPSL 567, 117008. [2] Marrocchi, Y. et al. (2021) ApJ Letters 913:L9.

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