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**Volatility-controlled rare earth element
fractionation – meteorites and Earth**

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We present our data of rare earth elements (REE) from a large set of meteoritic and terrestrial samples. Our bulk samples were prepared by containerless melting [1] and were then measured by LA-ICPMS (ANU, Canberra). The goal of this study is to find systematic distinctions of REEs between different chondrite groups (CC, OC, EC), achondrites (from Moon, Mars and Vesta) and the Earth. Our CC's show variable Tm anomalies from large positive (CV) to large negative (NWA 3003, CO3) when normalizing to Orgueil. In contrast, our analyzed OC's and EC's, achondrites and terrestrial samples show a uniform depletion in Tm ($-4.4 \pm 0.2\%$). Recent data obtained in solution ICPMS studies [2, 3] agree with our data. We assume that OC's, EC's, achondrites and the Earth have unfractionated REE relative to the Sun and thus we conclude that CI chondrites have a Tm excess of +4.4% relative to the Sun. This excess may be inherited from high-T fractional condensation processes.

[1] Pack, A. et al. (2010) *Geochem Trans.* 11:4. [2]

Pourmand, A. et al. (2012) *Chemical Geology* 291, 38–54.

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[3] Barrat, J. A. et al. (2012) *GCA* 83, 79-92.

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