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Constraints on the delivery of volatile elements to Earth from analysis of the coma of comet 67P/Churyumov-Gerasimenko.

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Understanding the origin and evolution of life-bearing volatile elements (water, carbon, nitrogen) on Earth is a fruitful and debated area of research. We now have evidence that several cosmochemical sources contributed water and other volatiles at different stages of Earth's accretion. Potential contributors include the protosolar nebula gas that equilibrated with magma oceans, inner solar system bodies now represented by chondrites, and comets. Stable isotope ratios suggest volatiles were primarily sourced by planetary bodies from the inner solar system. However, recent measurements by the European Space Agency Rosetta probe on the coma of Comet 67P/Churyumov-Gerasimenko permit to set quantitative constraints on the cometary contribution to the surface of our planet [1]. Such constraints will be discussed in this talk.

[1] Marty, B. et al. *Science* 356, 1069-1072.

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