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Le transport de l'eau dans les plantes vu sous l'angle de la géochimie isotopique

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Due to kinetic isotope effects water isotopologues (H_2^{16}O , H_2^{18}O , HDO) are not distributed evenly across the soil rooting depth or within a leaf. Progressive enrichment in heavy water isotopes are commonly observed when we move from deep to shallow soil layers or from the base to the tip of a leaf. This non-uniformity in water isotopologues can be exploited to study the transport of water in the soil-plant-atmosphere continuum. During this presentation, I will combine field and laboratory datasets and process-based models of water movement in the soil-plant system or inside a single monocot leaf in order to answer two questions: (1) what soil layers contribute the most to water uptake of a Maritime pine stand? and (2) is leaf water redistribution at night a purely diffusive process?