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Applying stable water isotopes to determine root water uptake patterns in an urban forest land

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Urban forest land water consumption accounts for a large part of urban water resources, the study of water uptake patterns in urban forest area is crucial for urban water saving and precision irrigation. Our study will reveal the dynamic replenishment of the root zone water in urban forest land.

In our study, we measured the deuterium isotope ratio (δD) and the oxygen isotope ratio (δ18O) of precipitation, irrigation water, xylem water and soil water sources in a locust tree forest in Jinnan District of Tianjin City, China across years. Water sources proportion in the root zone area of different growing seasons were obtained by IsoSource model, MixSIR model and SIAR model.