

Pitfalls, questions and solutions when sampling water for stable isotope analyses along complex riverine systems

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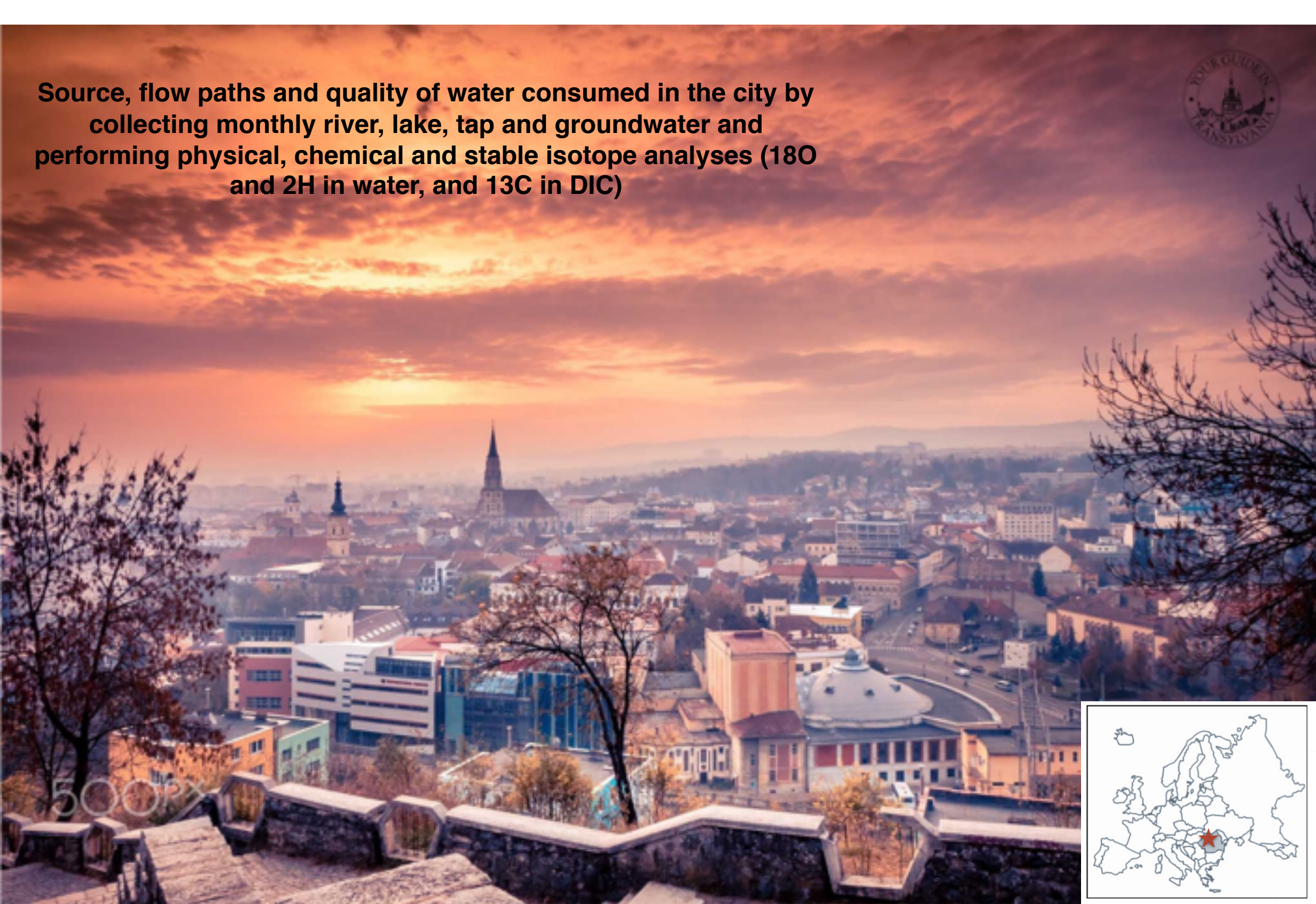
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Source, flow paths and quality of water consumed in the city by collecting monthly river, lake, tap and groundwater and performing physical, chemical and stable isotope analyses (^{18}O and 2H in water, and ^{13}C in DIC)



Cluj Napoca

Separate source (groundwater)

Main source (reservoir)

Tertiary source (river water)

Secondary source (reservoir, used when the main source is low)

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Is this sample representative?



Km 0



Km 0+250 m



Km 0+500 m (no tributaries)



$\delta^{18}\text{O}_w = -15.1 \text{ ‰}$

Cluj Napoca

Cluj-Napoca

Baciu

Baciu

Rădaia

Suceagu

Florești

$\delta^{18}\text{O}_w = -9.2 \text{ ‰}$

Tăuți

Ciurila

Nădășelu

Luna de Sus

Vlaha

Săvădisla

Savadisla

Gilău

$\delta^{18}\text{O}_w = -9.3 \text{ ‰}$

Someșu Rece

$\delta^{18}\text{O}_w = -11.5 \text{ ‰}$

Someșu Cald

Gilau

$\delta^{18}\text{O}_w = -12.2 \text{ ‰}$

Valea Ierii

Muntele Rece

$\delta^{18}\text{O}_w = -12.2 \text{ to } -15.1 \text{ ‰}$

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How do you sample river water in winter, with the river partly frozen?
Are the samples representative?