



Supplement of

A European map of groundwater pH and calcium

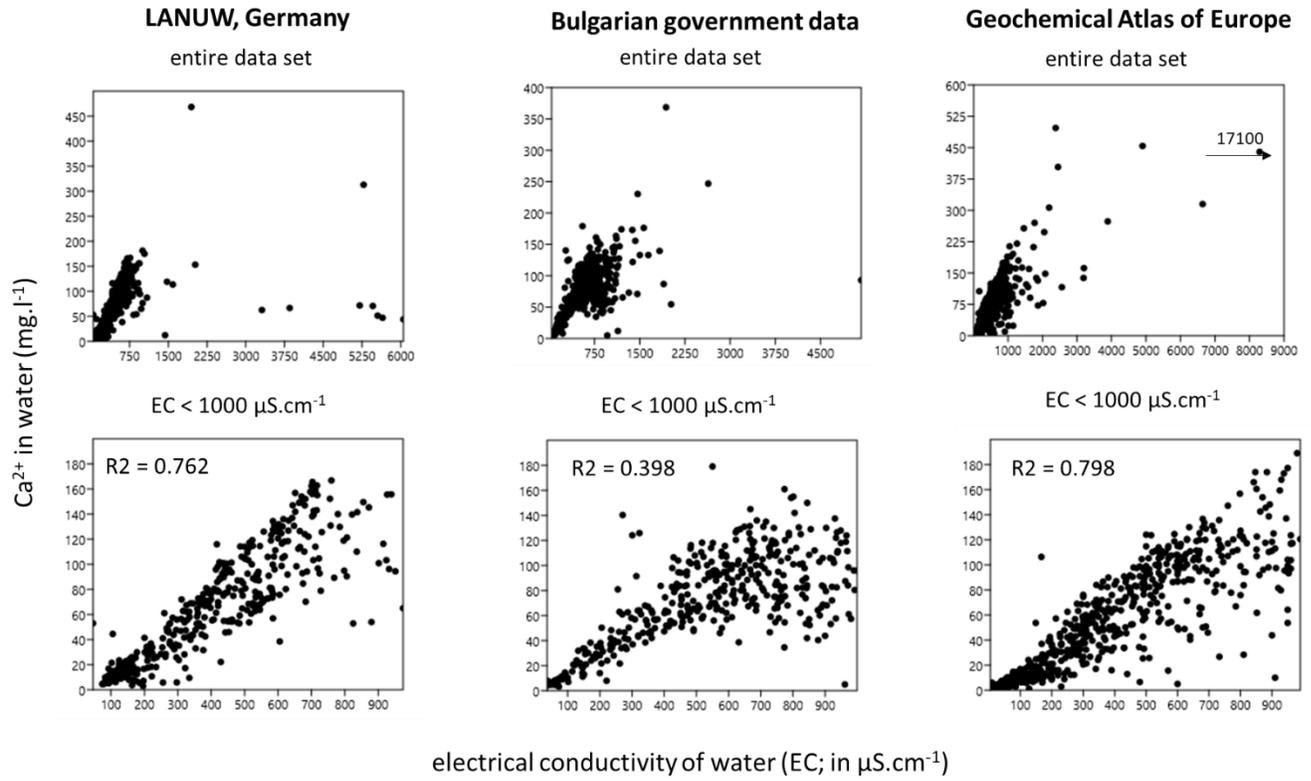
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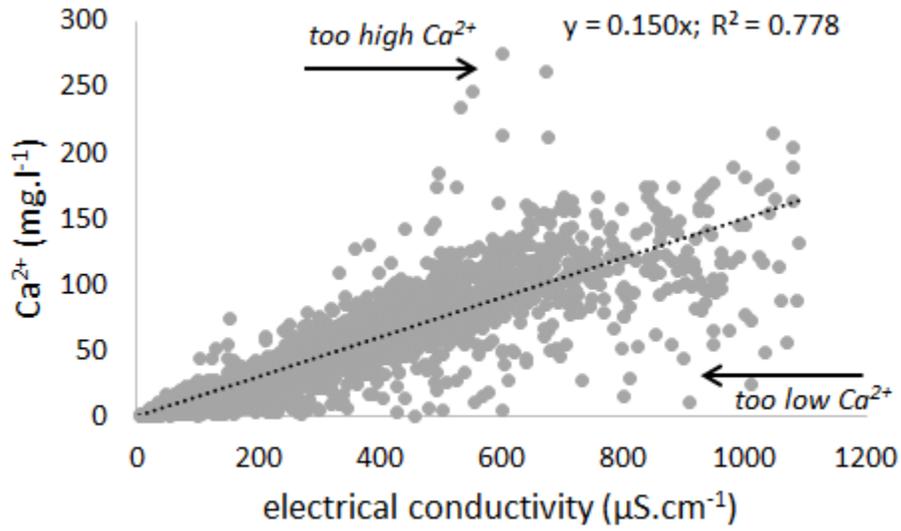
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Supplementary Figure 1: The relationship between water electrical conductivity of water (EC; in $\mu\text{S}\cdot\text{cm}^{-1}$) and concentration of Ca^{2+} in water ($\text{mg}\cdot\text{l}^{-1}$) concentration in the three public data sets.

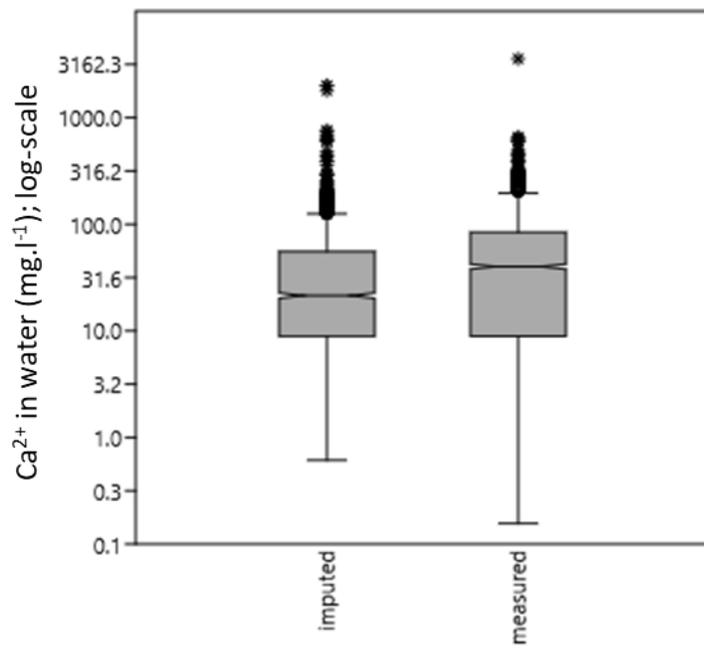
The upper scatters represent the entire data sets, while lower scatters represent the subsets restricted by the upper EC limit of $1,000\ \mu\text{S}\cdot\text{cm}^{-1}$.



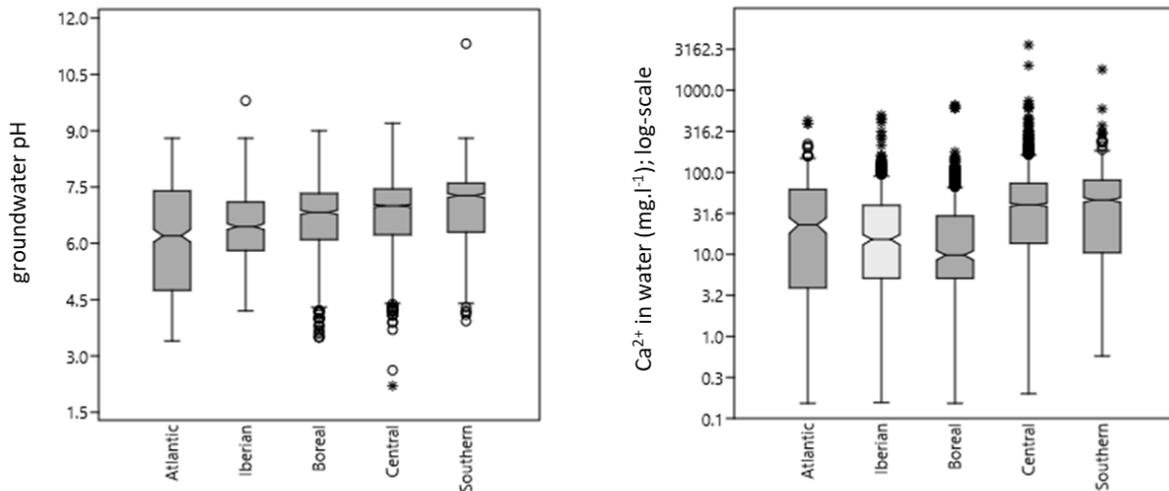
Supplementary Figure 2: Relationship between electrical conductivity (EC) and measured Ca^{2+} concentration when the upper limit of EC ($1,000 \mu\text{S}\cdot\text{cm}^{-1}$) was adopted ($n = 2,319$).



Supplementary Figure 3: Box-and-whisker plots showing the distribution of measured and imputed Ca^{2+} values (log-scale). Graph shows the lower and upper quartiles, non-outlier maxima and minima, and outliers.



Supplementary Figure 4: Box-and-whisker plots showing the distribution of pH and Ca²⁺ (log-scale, including imputed values) across Europe. European continent was arbitrarily divided into the five regions based on longitude and latitude: Atlantic (< 5° E, > 45° N; n = 621 for pH and 345 for Ca²⁺, respectively); Iberian (< 5° E, < 45° N; n = 642, 640); Boreal (> 5° E, > 55° N; n = 1128, 925); Central (> 5° E, = 44–55° N; n = 2796, 2762) and Southern (> 5° E, < 45° N; n = 1272, 1255). Graph shows the lower and upper quartiles, non-outlier maxima and minima, and outliers.



Supplementary Figure 5. Spatial distribution of the calibration data, presented separately for groundwater pH (left) and Ca²⁺ (right).

