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### Data Article

# Data on soil physicochemical properties and chemical composition of rainfall and of throughfall and stemflow generated by Turkey oak trees (*Quercus cerris* L.) in acid and sub-alkaline soils



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### ABSTRACT

We report data on the physicochemical properties of soils collected in two adjacent areas, one acid and one sub-alkaline, both developed on sequential beds of Plio-pleistocene marine sediments, and on the chemical composition of ecological solutions (rainfall, throughfall and stemflow) separately collected in the two areas. Throughfall and stemflow were generated by Turkey oak trees (*Quercus cerris* L.), which was the dominant tree species in both study areas.

These data are related to the original article “Soil affects throughfall and stemflow under Turkey oak (*Quercus cerris* L.)” (Corti et al., 2019) [1].

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## Specifications Table

Subject area	Soil-plant relationship
More specific subject area	Forest hydrology
Type of data	Table
How data was acquired	Liquid chemistry, atomic absorption spectrophotometer, dry combustion analyzer, x-ray diffractometer
Data format	Analyzed
Experimental factors	Soil samples were sieved at 2 mm. Solutions were filtered through a 0.45- $\mu\text{m}$ polycarbonate membrane (Millipore).
Experimental features	Ecological solutions (rainfall, throughfall and stemflow) were collected during a full annual hydrological cycle (from March 10, 2004 to February 28, 2005) from two adjacent areas that differed for the type of soil.
Data source location	Gallignano Forest, Ancona, Italy. (43°33'42" N, 13°25'47" E).
Data accessibility	Data are with this article.
Related research article	This is a direct submission to Data in Brief as a companion paper to the submitted manuscript titled "Soil affects throughfall and stemflow under Turkey oak ( <i>Quercus cerris</i> L.)" 2019 333:43–56.

## Value of the data

- The data are of values for the scientific community since:
- researchers can use and contrast these results with their own
- they represent a benchmark for the investigated situation useful for other researchers;
- modelers can use these data to refine their predictive models;
- we hope that making these data available may favor new collaborations.

## 1. Data

Here we show data referring to soil and ecological solutions (rainfall, throughfall and stemflow). [Tables S1 and S2](#) refer to the physicochemical properties of soils from two adjacent forested areas with different soil reaction, one acid (area A) and one sub-alkaline (area B), which host a similar vegetation dominated by turkey oak.

[Table S3, S4, and S5](#) refer to the chemical composition of rainfall ([Tables S3a and S3b](#)), throughfall ([Tables S4a and S4b](#)), and stemflow ([Tables S5a and S5b](#)) solutions collected in the two adjacent areas with different soil reaction and similar Turkey oak vegetation.

## 2. Experimental design, materials, and methods

### 2.1. Soil

Three different soil profiles were dug in area A (acid) and in area B (sub-alkaline) and each profile was sampled by horizons. All the analyses were run in duplicate and the results averaged for each horizon. These averages were used to calculate the mean and the standard deviation ( $n = 3$ ) for each horizon of a given soil.

## 2.2. Ecological solutions (rainfall, throughfall, and stemflow)

Rainfall, throughfall and stemflow solutions were collected in the two areas during a full annual hydrological cycle, from March 10, 2004 to February 28, 2005. The three ecological solutions were collected for a total of 20 different sampling periods: six during spring, from March 23 to June 8, 2004; two during summer, from June 22 to September 20, 2004; seven during autumn, from September 29 to December 7, 2004; and five during winter, from December 23, 2004 to February 28, 2005 (plus the March 10, 2004 event). All the solutions were analyzed in triplicate. These analytical triplicates were averaged for each collector. The mean and standard deviation of each event were then calculated for area A and area B using the analytical mean obtained from all collectors of a given type (rainfall = 1; throughfall = 6; stemflow = 3).

For details on methodologies see [1].

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## Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at <https://doi.org/10.1016/j.dib.2018.08.050>.

## Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at <https://doi.org/10.1016/j.dib.2018.08.050>.

## Reference

- [1] G. Corti, A. Agnelli, S. Cocco, V. Cardelli, J. Masse, F. Courchesne, Soil affects throughfall and stemflow under Turkey oak (*Quercus cerris* L.), *Geoderma* 333 (2019) 43–56.