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Supplement of

Unexplained hydrogen isotope offsets complicate the identification and quantification of tree water sources in a riparian forest

Adrià Barbeta et al.

Correspondence to: Adrià Barbeta (adria.barbeta-margarit@inra.fr) and Jérôme Ogée (jerome.ogee@inra.fr)

Table S1: Soil properties of the three differentiated horizons in the studied plots. Values are obtained from pooled samples from all the sites where soil was sampled for stable isotopes.

Horizon	Depth (cm)	Clay (g.kg^{-1})	Fine silt (g.kg-1)	Coarse silt (g.kg-1)	Fine sand (g.kg-1)	Coarse sand (g.kg-1)	Carbon (g.kg-1)	Nitrogen (g.kg-1)	CaCO3 (g.kg-1)	pH
A	0-10	44	16	9	106	825	17.3	0.52	75	8.05
B	10-50	37	24	6	115	818	19.4	0.792	37	7.93
C	50-120	81	93	39	455	332	52.2	0.467	388	8.24

Table S2: Output of the general linear model for the SW-excess and its explanatory variables. The β coefficient is the standardized correlation coefficient for each of the independent variables. The estimate of 'Sampled xylem' is the difference in SW-excess of coarse roots respect to twigs, and that of 'Species' is the difference in SW-excess between *Q. robur* respect to *F. sylvatica*.). The R^2 of the model was 33.3%.

Variable	Estimate	β coefficient	Std. Error	*t*-value	*P*-value
(Intercept)	-5.753	-	1.601	-3.593	<0.0001
Top soil water content (log)	2.024	0.180	0.612	3.305	0.001
Sampled xylem (coarse roots)	-6.720	-0.451	0.730	-9.210	<0.0001
Species (*Q. robur*)	1.069	0.092	0.562	1.901	0.058
Rainfall	-0.137	-0.407	0.019	-7.146	<0.0001
Top soil water δ^{2}H	-0.141	-0.244	0.030	-4.698	<0.0001
VPD	-2.184	-0.123	0.896	-2.437	0.015

Table S3. Intercepts, estimates (slopes), R^2 and P-values of the linear regression of soil water lines built with top and deep soil isotopic data, for each sampling date and plot separately.

| Date	Plot 1				Plot 2				Plot 3			
	Intercept	Estimate	R^2	P-value	Intercept	Estimate	R^2	P-value	Intercept	Estimate	R^2	P-value
4/19/2017	-26.612	2.971	0.544	0.263	-22.778	3.333	0.798	**0.017**	-28.795	2.367	0.945	**0.001**
5/5/2017	-3.840	5.998	0.997	**<0.00001**	-13.286	5.000	0.897	**0.004**	-10.519	4.689	0.952	**0.001**
5/23/2017	3.465	7.764	0.692	**0.040**	-20.144	4.259	0.741	0.061	-3.407	6.419	0.421	0.163
6/7/2017	-23.919	2.927	0.781	**0.019**	-33.387	0.248	0.005	0.891	-11.947	4.588	0.878	**0.002**
6/21/2017	-28.839	1.984	0.897	**0.004**	-23.417	2.533	0.679	**0.044**	-18.977	3.325	0.954	**0.001**
7/4/2017	13.527	9.097	0.741	**0.028**	-18.036	4.147	0.707	**0.036**	2.349	7.626	0.835	**0.004**
7/26/2017	-17.417	4.604	0.836	**0.004**	-26.810	2.456	0.603	0.069	-25.229	3.155	0.769	**0.010**
8/9/2017	-0.668	7.616	0.772	**0.050**	-29.539	2.333	0.931	**0.002**	-18.890	3.973	0.823	**0.013**
8/22/2017	-28.511	2.768	0.685	**0.042**	-31.312	1.931	0.763	**0.023**	-17.955	4.277	0.959	**0.004**
9/12/2017	-13.187	5.110	0.822	**0.013**	-28.886	2.680	0.579	0.239	-11.174	4.987	0.891	**0.001**
9/26/2017	-15.638	3.795	0.544	0.094	-22.838	2.262	0.291	0.211	-4.122	6.210	0.996	**<0.00001**
10/12/2017	-10.401	4.755	0.954	**0.001**	-14.206	4.071	0.853	**0.003**	-2.587	6.336	0.950	**0.001**
10/25/2017	-11.937	4.891	0.923	**0.002**	-14.937	4.381	0.837	**0.011**	-9.319	5.278	0.847	**0.009**
11/9/2017	-4.423	5.637	0.651	0.052	-1.214	6.529	0.879	0.062	-8.947	4.889	0.805	**0.039**
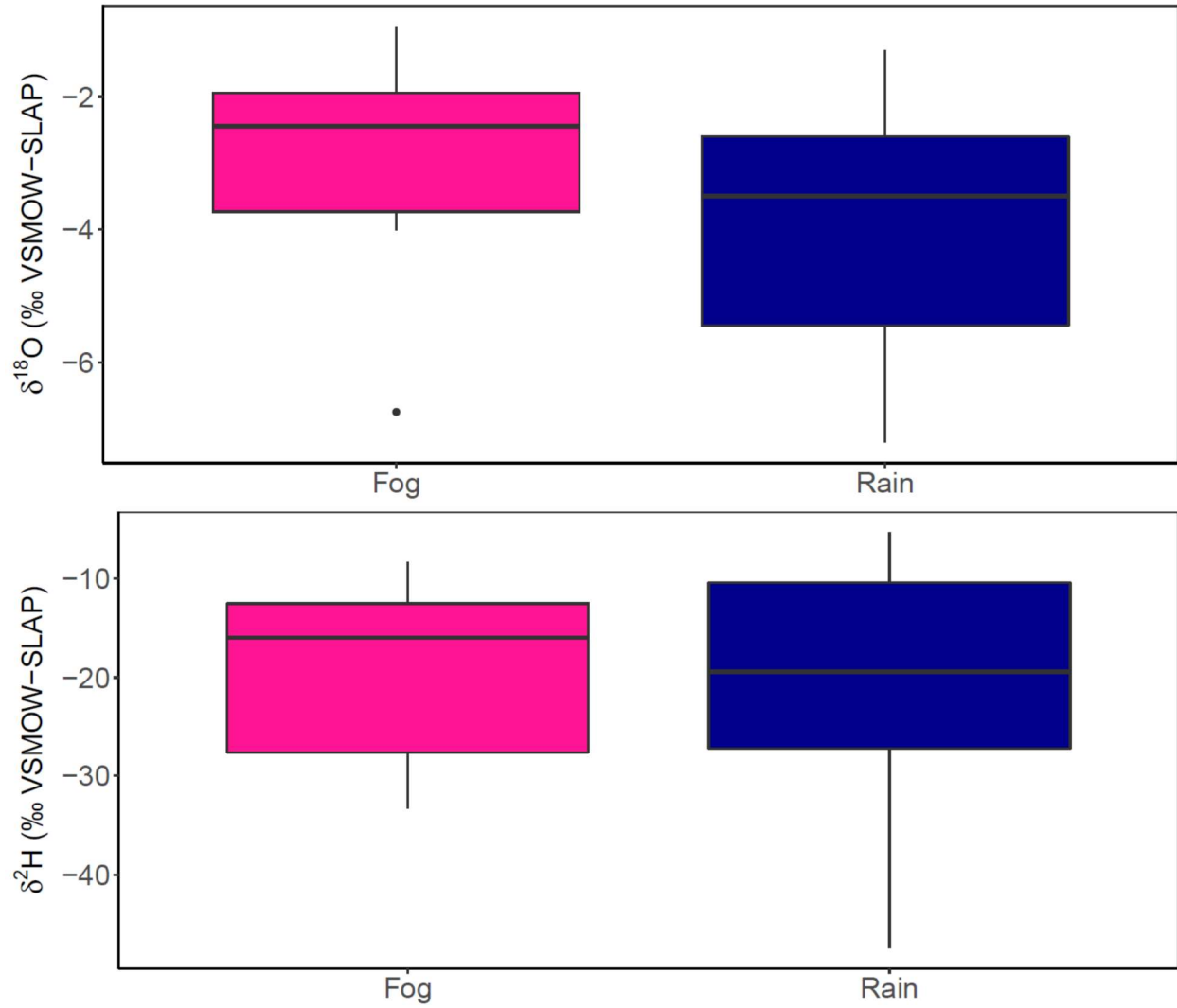
Figure S1: Comparison of water stable isotopes of fog and rain for the samples collected in 2017 in the Ciron. Box size represents the interquartile range, the black line is the median, the whiskers indicate variability outside the upper and lower quartiles, and individual points are outliers.
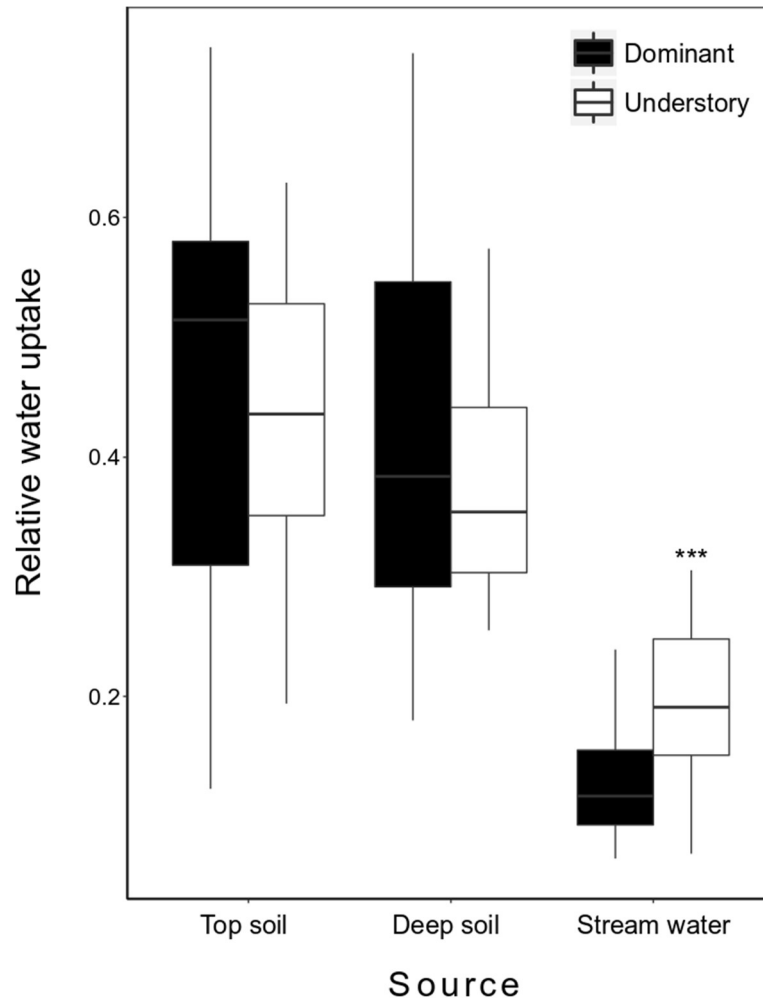
Figure S2: Comparison between the proportion of each plant-water source of dominant and understory. Box size represents the interquartile range, the black line is the median, the whiskers indicate variability outside the upper and lower quartiles, and individual points are outliers. Significant differences between canopy positions are highlighted with *** (*P*<0.001).