Supplementary data

Defining a precipitation stable isotope framework in the wider Carpathian Region

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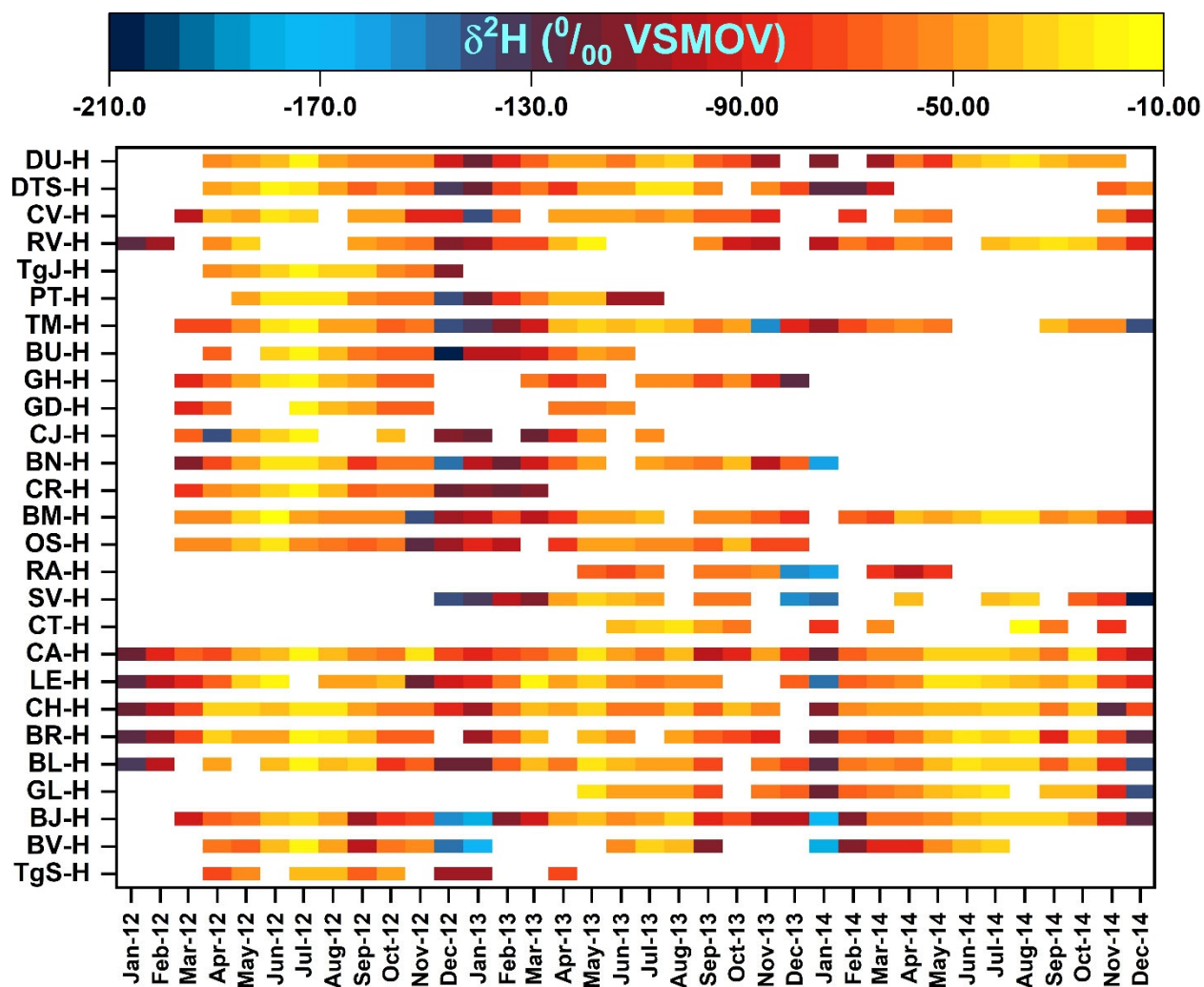
FigureS1. The temporal variation of stable δ²H at the analyzed stations for the January 2012 – December 2014 period
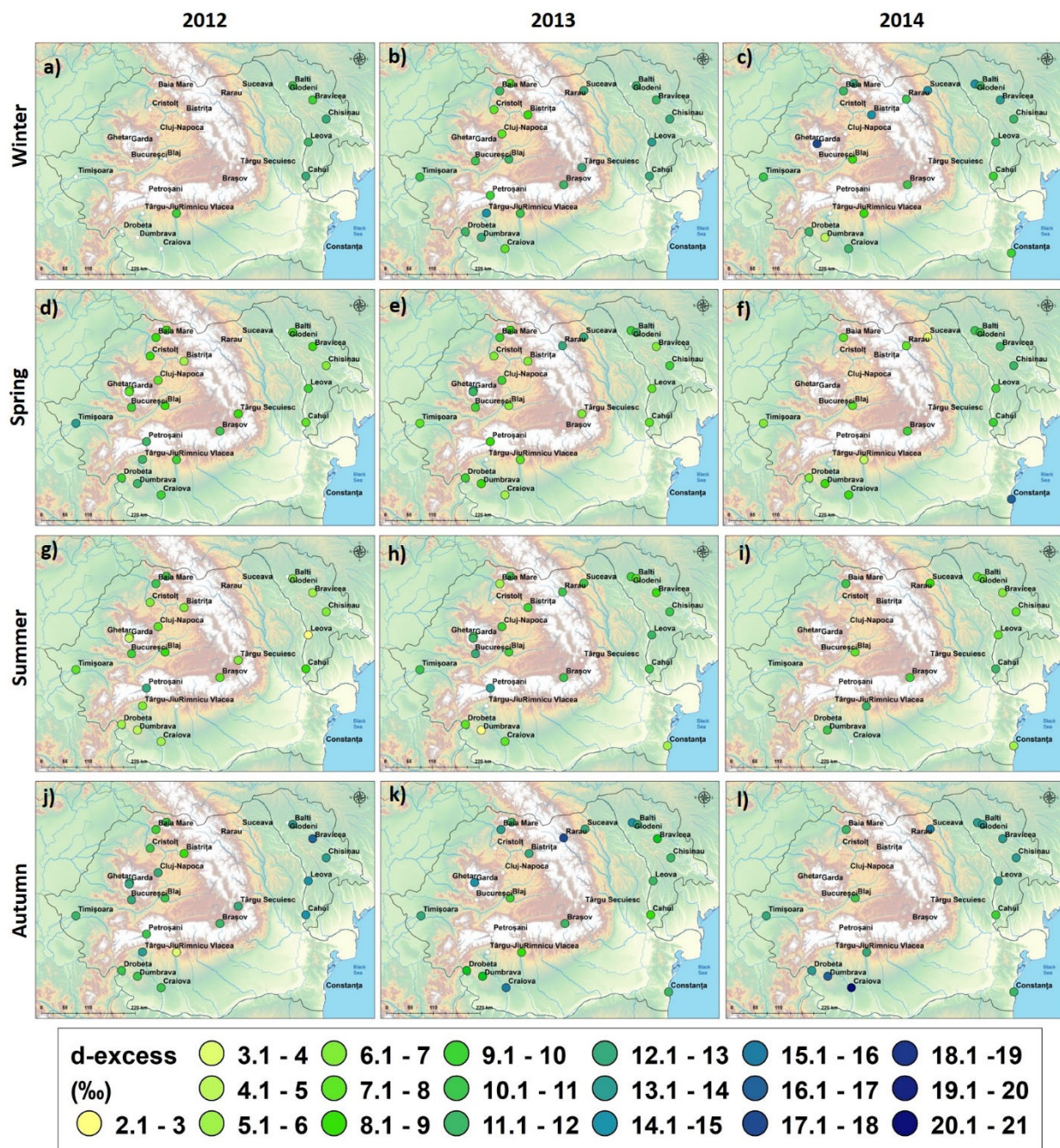
Figure S2. Seasoal spatial distribution of the mean d-excess values in Romania and the Republic of Moldova, for the January 2012 – December 2014 period
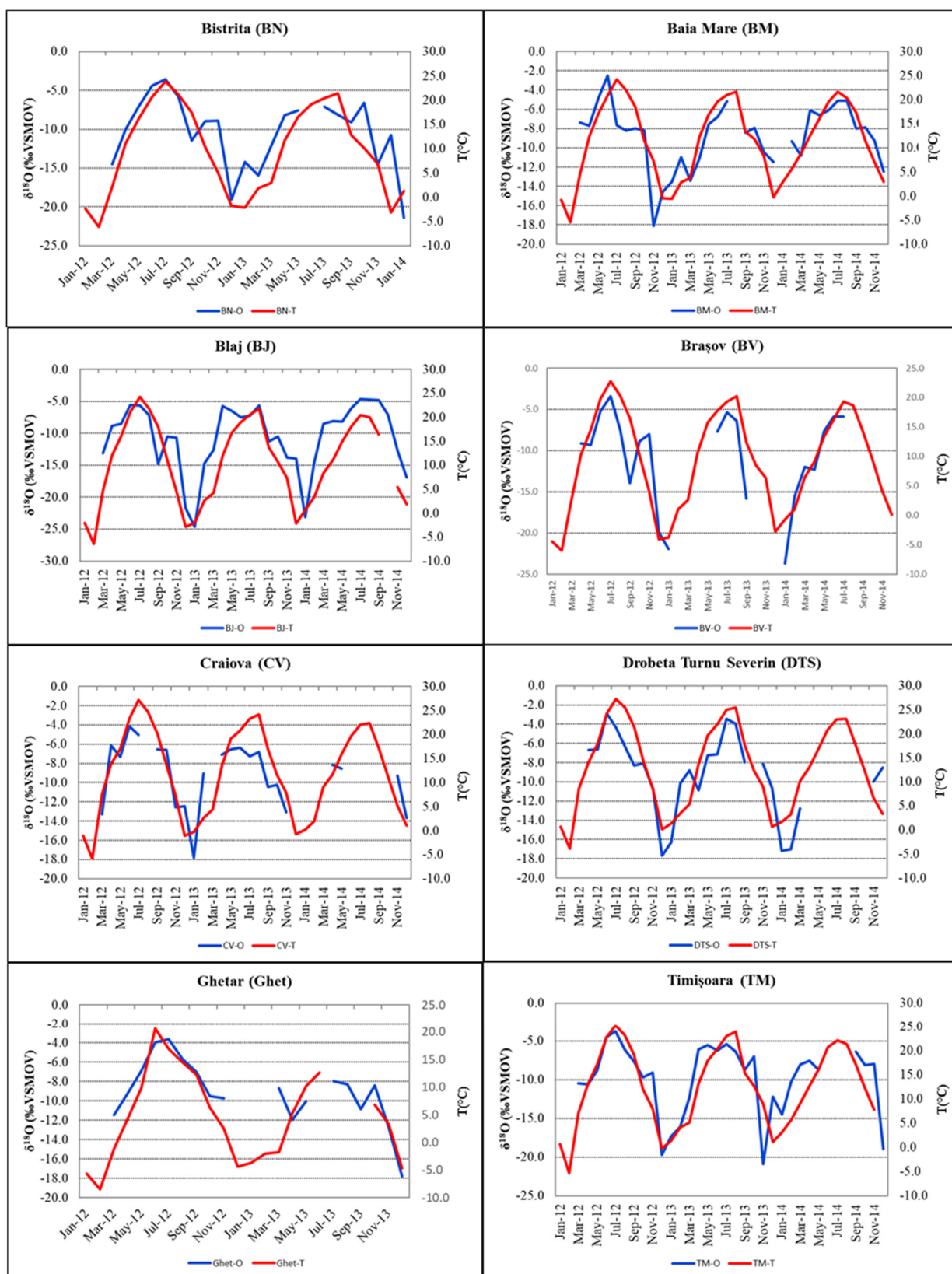
Figure S3. Measured monthly δ¹⁸O values in precipitation (blue line) and mean temperature (red line) for analysed period at Bistita, Baia Mare, Blaj, Brasov, Craiova, Drobeta Turnu Severin, Ghetar and Timisoara stations

Table S1. Local Meteoric Water Lines (LMWL) using ordinary least squares regression (OLSR) method, and precipitation amount weighted least squares regression (PWLSR) method, and the data sources, ds - differences in the slopes, di - differences in the intercepts

	Station name	OLSR	PWLSR	ds	di	Study / Reference
West	Baia Mare	$\delta^2H = \delta^{18}O * (7.83 \pm 0.17) + (8.70 \pm 0.51)$	$\delta^2H = \delta^{18}O * (7.88 \pm 0.15) + (9.35 \pm 1.44)$	0.05	0.65	This study
	Bistrița	$\delta^2H = \delta^{18}O * (7.87 \pm 0.19) + (7.46 \pm 0.54)$	$\delta^2H = \delta^{18}O * (7.90 \pm 0.20) + (7.83 \pm 2.31)$	0.03	0.37	This study
	Timișoara	$\delta^2H = \delta^{18}O * (7.82 \pm 0.12) + (8.49 \pm 0.43)$	$\delta^2H = \delta^{18}O * (7.90 \pm 0.11) + (9.39 \pm 1.21)$	0.08	0.9	This study
	Cristolț	$\delta^2H = \delta^{18}O * (7.96 \pm 0.20) + (7.66 \pm 0.72)$				This study
	Gârda	$\delta^2H = \delta^{18}O * (7.90 \pm 0.48) + (9.31 \pm 1.4)$				This study
	Ghețar	$\delta^2H = \delta^{18}O * (7.70 \pm 0.13) + (9.18 \pm 0.42)$				Badaluta et al., 2020 [1]
	Petroșani	$\delta^2H = \delta^{18}O * (7.89 \pm 0.19) + (9.72 \pm 0.63)$	$\delta^2H = \delta^{18}O * (7.88 \pm 0.20) + (9.65 \pm 2.13)$	-0.01	-0.07	This study
	Cluj-Napoca	$\delta^2H = \delta^{18}O * (7.99 \pm 0.19) + (9.16 \pm 0.70)$	$\delta^2H = \delta^{18}O * (8.06 \pm 0.16) + (9.69 \pm 1.80)$	0.07	0.53	This study
	Cluj-Napoca	$\delta^2H = \delta^{18}O * (8.13 \pm 0.20) + (10.80 \pm 0.66)$	$\delta^2H = \delta^{18}O * (8.10 \pm 0.24) + (10.75 \pm 2.31)$	-0.03	-0.05	GNIP, 2015-2016 [2]
	Bucureșci	$\delta^2H = \delta^{18}O * (7.86 \pm 0.11) + (9.25 \pm 0.57)$				This study
	Hateg	$\delta^2H = \delta^{18}O * (8.04 \pm 0.22) + (10.21 \pm 0.51)$				Bojar et al., 2009 [3]
	Rosia Montana	$\delta^2H = \delta^{18}O * (7.85 \pm 0.13) + (10.75 \pm 0.71)$	$\delta^2H = \delta^{18}O * (7.78 \pm 0.14) + (10.18 \pm 1.48)$	-0.07	-0.57	GNIP, 2015-2016 [2]
Centre	Blaj	$\delta^2H = \delta^{18}O * (7.70 \pm 0.10) + (5.73 \pm 0.39)$	$\delta^2H = \delta^{18}O * (7.68 \pm 0.15) + (6.24 \pm 1.26)$	-0.02	0.51	This study
	Brașov	$\delta^2H = \delta^{18}O * (7.82 \pm 0.09) + (8.07 \pm 0.47)$	$\delta^2H = \delta^{18}O * (7.80 \pm 0.09) + (8.34 \pm 0.96)$	-0.08	0.27	This study
	Târgu Secuiesc	$\delta^2H = \delta^{18}O * (7.32 \pm 0.28) + (3.10 \pm 1.03)$	$\delta^2H = \delta^{18}O * (7.43 \pm 0.27) + (4.46 \pm 2.69)$	0.12	1.36	This study
East	Glodeni	$\delta^2H = \delta^{18}O * (7.75 \pm 0.19) + (9.38 \pm 0.62)$				This study
	Constanța	$\delta^2H = \delta^{18}O * (7.05 \pm 0.37) + (2.27 \pm 0.89)$	$\delta^2H = \delta^{18}O * (7.03 \pm 0.35) + (2.55 \pm 2.77)$	-0.02	0.28	This study
	Leova	$\delta^2H = \delta^{18}O * (7.73 \pm 0.11) + (7.76 \pm 0.31)$	$\delta^2H = \delta^{18}O * (7.59 \pm 0.11) + (6.77 \pm 1.04)$	-0.14	-0.99	GNIP [2]
	Chișinău	$\delta^2H = \delta^{18}O * (7.64 \pm 0.11) + (7.25 \pm 0.29)$	$\delta^2H = \delta^{18}O * (7.63 \pm 0.10) + (7.14 \pm 0.93)$	-0.01	-0.11	GNIP [2]
	Cahul	$\delta^2H = \delta^{18}O * (7.68 \pm 0.11) + (6.63 \pm 0.31)$	$\delta^2H = \delta^{18}O * (7.70 \pm 0.10) + (6.98 \pm 0.96)$	0.02	0.35	GNIP [2]
	Bravicea	$\delta^2H = \delta^{18}O * (7.79 \pm 0.12) + (7.83 \pm 0.32)$	$\delta^2H = \delta^{18}O * (7.76 \pm 0.12) + (8.03 \pm 1.12)$	-0.03	0.2	GNIP [2]
	Balti	$\delta^2H = \delta^{18}O * (7.75 \pm 0.09) + (7.43 \pm 0.29)$	$\delta^2H = \delta^{18}O * (7.64 \pm 0.08) + (6.89 \pm 0.80)$	-0.09	-0.54	GNIP [2]
SW	Craiova	$\delta^2H = \delta^{18}O * (7.53 \pm 0.25) + (5.58 \pm 0.61)$	$\delta^2H = \delta^{18}O * (7.33 \pm 0.24) + (4.01 \pm 2.32)$	-0.2	-1.57	This study
	DTS	$\delta^2H = \delta^{18}O * (7.58 \pm 0.16) + (5.59 \pm 0.49)$	$\delta^2H = \delta^{18}O * (7.82 \pm 0.14) + (8.77 \pm 1.36)$	0.24	3.18	This study
	Târgu-Jiu	$\delta^2H = \delta^{18}O * (7.06 \pm 0.31) + (3.75 \pm 0.78)$	$\delta^2H = \delta^{18}O * (7.08 \pm 0.34) + (4.30 \pm 2.95)$	0.02	0.55	This study
	Dumbrava	$\delta^2H = \delta^{18}O * (7.41 \pm 0.20) + (4.41 \pm 0.44)$	$\delta^2H = \delta^{18}O * (7.70 \pm 0.18) + (7.81 \pm 1.77)$	0.29	3.4	Bojar et al., 2017 [4]
N	Suceava	$\delta^2H = \delta^{18}O * (7.74 \pm 0.11) + (8.99 \pm 0.50)$	$\delta^2H = \delta^{18}O * (7.75 \pm 0.13) + (9.09 \pm 1.41)$	0.01	0.1	Nagavciuc et al (2019) [5]
	Ocna Şugatag	$\delta^2H = \delta^{18}O * (7.98 \pm 0.15) + (9.77 \pm 0.71)$	$\delta^2H = \delta^{18}O * (7.96 \pm 0.14) + (9.41 \pm 1.25)$	-0.02	-0.26	This study
	Rarau	$\delta^2H = \delta^{18}O * (8.14 \pm 0.24) + (13.72 \pm 0.67)$	$\delta^2H = \delta^{18}O * (8.00 \pm 0.25) + (12.19 \pm 2.90)$	-0.14	-1.53	Nagavciuc et al (2019) [5]

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