

Supplementary Part 1: Characteristics of δD and $\delta^{18}O$ of Precipitation, Surface Waters (Rivers, Lakes and WSP) and Groundwater (Well Water)

Table S1. Characteristics of δD and $\delta^{18}O$ of water from river and lake (Unit: ‰) *.

Time		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	L1	L2
5 January 2017	dD	-49.85	-49.19	-35.79	-41.75	-40.38	-40.37	-36.48	-28.46	-38.74	-36.50	-36.10	-37.31	-37.54	-40.23	-47.74	-41.82	-46.76	-44.78	-43.02
	d ¹⁸ O	-6.24	-6.28	-5.71	-5.98	-5.13	-5.16	-4.43	-2.75	-4.39	-4.56	-4.21	-4.23	-4.18	-4.73	-6.21	-6.55	-7.35	-7.53	-7.49
5 February 2017	dD	-43.08	-41.20	-40.71	-40.63	-40.59	-40.18	-39.57	-39.46	-41.39	-35.18	-37.44	-36.32	-36.32	-41.04	-39.65	-37.36	-38.83	-45.78	-46.01
	d ¹⁸ O	-6.07	-6.03	-5.86	-5.82	-5.72	-5.68	-5.53	-5.41	-5.68	-4.43	-5.07	-4.84	-4.84	-5.17	-4.78	-4.88	-5.05	-6.25	-6.26
5 March 2017	dD	-40.16	-41.85	-40.95	-38.60	-39.49	-39.95	-37.39	-36.95	-34.33	-34.39	-34.03	-33.77	-33.76	-34.05	-30.85	-35.89	-35.74	-42.20	-40.07
	d ¹⁸ O	-6.35	-6.54	-6.28	-5.83	-5.62	-5.77	-5.34	-4.79	-4.87	-5.61	-5.53	-5.22	-5.15	-5.22	-3.74	-4.91	-4.85	-5.55	-4.84
5 May 2017	dD	-39.47	-38.81	-35.41	-38.22	-39.11	-39.57	-36.10	-28.08	-33.95	-34.01	-33.65	-33.39	-33.38	-33.67	-30.47	-34.78	-35.36	-41.44	-39.69
	d ¹⁸ O	-5.69	-5.65	-5.33	-5.60	-5.75	-5.78	-5.05	-4.27	-4.01	-4.58	-4.83	-4.85	-4.20	-4.35	-4.36	-4.51	-4.47	-5.17	-4.46
5 July 2017	dD	-43.95	-46.45	-48.03	-48.30	-49.98	-49.59	-55.85	-43.12	-62.12	-41.38	-39.63	-41.22	-51.68	-51.70	-56.40	-67.32	-71.64	-64.03	-47.63
	d ¹⁸ O	-6.24	-6.37	-6.57	-6.45	-6.18	-6.27	-7.22	-6.01	-8.19	-4.76	-4.92	-5.24	-7.11	-6.96	-7.89	-8.01	-8.43	-7.33	-6.23
5 September 2017	dD	-47.57	-47.30	-48.24	-50.02	-49.46	-50.48	-54.87	-53.81	-52.74	-54.46	-50.06	-50.42	-51.06	-52.48	-59.55	-59.97	-59.90	-56.91	-54.91
	d ¹⁸ O	-6.88	-6.79	-6.74	-6.66	-6.69	-6.85	-6.62	-6.52	-6.22	-6.94	-6.15	-6.05	-5.99	-5.70	-6.13	-6.24	-6.20	-8.98	-8.87
5 November 2017	dD	-51.67	-51.22	-50.91	-50.05	-50.38	-50.09	-49.47	-39.72	-46.61	-47.13	-45.00	-50.50	-46.50	-46.44	-41.00	-49.97	-53.41	-50.08	-51.90
	d ¹⁸ O	-6.35	-6.33	-6.29	-6.05	-6.35	-6.20	-5.87	-5.74	-5.77	-6.17	-6.14	-6.69	-6.02	-5.92	-5.67	-5.89	-6.37	-5.84	-6.00

*R1–R17 are river sampling sites and L1–L2 are lake sampling sites.

Table S2. Characteristics of δD and $\delta^{18}O$ of water from subsidence pit (WSP) (Unit: ‰) *.

Time		S1	S2	S3	S4	S5	S6
5 January 2017	dD	-44.94	-45.91	-41.41	-39.17	-38.40	-38.20
	d ¹⁸ O	-5.71	-5.79	-5.13	-5.58	-5.48	-5.46
5 February 2017	dD	-43.09	-43.46	-44.24	-44.43	-46.94	-57.96
	d ¹⁸ O	-5.53	-5.60	-5.66	-5.80	-5.41	-5.87
5 March 2017	dD	-31.17	-35.55	-33.87	-31.23	-35.95	-34.96
	d ¹⁸ O	-4.15	-4.20	-4.03	-4.86	-4.99	-4.67
5 May 2017	dD	-30.79	-38.77	-37.69	-30.85	-35.57	-34.58
	d ¹⁸ O	-4.12	-4.84	-4.65	-3.42	-4.03	-3.80
5 July 2017	dD	-41.42	-39.15	-38.07	-37.65	-36.25	-35.50
	d ¹⁸ O	-5.50	-5.22	-5.03	-5.00	-4.61	-4.49
5 September 2017	dD	-48.16	-48.69	-47.21	-47.11	-39.81	-39.26
	d ¹⁸ O	-5.69	-6.03	-6.08	-5.86	-4.84	-4.54
5 November 2017	dD	-47.85	-47.54	-47.64	-47.00	-46.00	-41.82
	d ¹⁸ O	-6.35	-6.30	-6.17	-6.20	-6.30	-4.18

*S1–S6 are sampling plots for water from subsidence pits.

Table S3. Characteristics of δD and $\delta^{18}O$ of groundwater (Unit: ‰) *.

Time		G1	GG2
5 January 2017	dD	-70.19	-9.84
	d ¹⁸ O	-80.18	-10.95
5 February 2017	dD	-72.23	-10.55
	d ¹⁸ O	-73.25	-10.63
5 March 2017	dD	-70.05	-10.20
	d ¹⁸ O	-67.73	-9.95
5 May 2017	dD	-57.61	-8.96
	d ¹⁸ O	-57.35	-7.57
5 July 2017	dD	-57.60	-8.43
	d ¹⁸ O	-57.45	-8.40
5 September 2017	dD	-67.99	-9.34
	d ¹⁸ O	-66.86	-9.36
5 November 2017	dD	-50.58	-7.68
	d ¹⁸ O	-56.60	-7.59

* G1–G2 are groundwater sampling plots.

Supplementary Part 2: Raw Data for Water Content of RMS Soil water content profile data in different land use soils (Plot 1–5) with three parallel replicates during the whole research period (No1, 2, 5 are cultivated land, No.3 is forest land, and No.4 is wasteland; plots locations are shown in Fig. 1).

Table S4. Soil water content profile data with three replicates at plot No.1 (cultivated land).

Table S4a. Soil water content profile at plot No.1 of replicate 1 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.31	0.21	0.17	0.11	0.17	0.17	0.24
10–20	0.25	0.18	0.16	0.12	0.19	0.18	0.23
20–30	0.29	0.2	0.17	0.09	0.25	0.24	0.22
30–40	0.26	0.21	0.2	0.17	0.27	0.25	0.25
40–50	0.26	0.25	0.25	0.19	0.28	0.21	0.26
50–60	0.27	0.26	0.23	0.18	0.28	0.2	0.27
60–70	0.26	0.27	0.23	0.22	0.27	0.21	0.27
70–80	0.24	0.26	0.22	0.2	0.26	0.21	0.25
80–90	0.23	0.27	0.24	0.19	0.26	0.22	0.26
90–100	0.28	0.26	0.24	0.18	0.25	0.22	0.23

Table S4b. Soil water content profile at plot No.1 of replicate 2 (Unit: %).

Depth: cm	5 January 2017	5 January 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.26	0.22	0.17	0.13	0.17	0.17	0.24
10–20	0.25	0.2	0.18	0.12	0.18	0.18	0.23
20–30	0.24	0.19	0.16	0.09	0.19	0.2	0.22
30–40	0.23	0.23	0.2	0.15	0.2	0.22	0.27
40–50	0.22	0.25	0.25	0.2	0.25	0.21	0.28
50–60	0.27	0.24	0.27	0.21	0.26	0.23	0.24
60–70	0.25	0.27	0.27	0.23	0.28	0.22	0.25
70–80	0.24	0.26	0.23	0.2	0.25	0.21	0.27
80–90	0.26	0.28	0.24	0.17	0.26	0.22	0.28
90–100	0.28	0.27	0.25	0.18	0.23	0.23	0.26

Table S4c. Soil water content profile at plot No.1 of replicate 3 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 February 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.28	0.17	0.15	0.11	0.19	0.19	0.26
10–20	0.19	0.13	0.15	0.11	0.22	0.21	0.29
20–30	0.28	0.20	0.22	0.07	0.34	0.30	0.28
30–40	0.30	0.23	0.24	0.26	0.39	0.31	0.36
40–50	0.28	0.27	0.35	0.23	0.31	0.19	0.19
50–60	0.21	0.33	0.29	0.21	0.32	0.22	0.29
60–70	0.34	0.29	0.29	0.24	0.23	0.21	0.31
70–80	0.21	0.24	0.25	0.18	0.23	0.21	0.27
80–90	0.23	0.25	0.27	0.18	0.27	0.19	0.28
90–100	0.32	0.27	0.26	0.21	0.27	0.21	0.27

Table S5. Soil water content profile data with three replicates at plot No.2 (cultivated land).**Table S5a.** Soil water content profile at plot No.2 of replicate 1 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 February 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.2	0.25	0.22	0.1	0.23	0.22	0.25
10–20	0.19	0.24	0.21	0.09	0.25	0.23	0.27
20–30	0.2	0.27	0.21	0.1	0.27	0.25	0.28
30–40	0.23	0.3	0.23	0.22	0.26	0.27	0.25
40–50	0.22	0.31	0.24	0.23	0.28	0.28	0.25
50–60	0.21	0.31	0.25	0.25	0.23	0.29	0.27
60–70	0.19	0.28	0.28	0.24	0.28	0.28	0.25
70–80	0.23	0.27	0.27	0.27	0.3	0.23	0.29
80–90	0.24	0.26	0.25	0.28	0.31	0.27	0.28
90–100	0.26	0.27	0.26	0.27	0.29	0.28	0.3

Table S5b. Soil water content profile at plot No.2 of replicate2 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.22	0.23	0.22	0.1	0.26	0.22	0.22
10–20	0.23	0.25	0.23	0.07	0.27	0.23	0.23
20–30	0.23	0.27	0.22	0.15	0.28	0.25	0.27
30–40	0.24	0.3	0.24	0.2	0.29	0.24	0.25
40–50	0.23	0.29	0.25	0.22	0.3	0.25	0.26
50–60	0.21	0.27	0.26	0.23	0.26	0.26	0.27
60–70	0.25	0.27	0.27	0.25	0.25	0.26	0.28
70–80	0.26	0.26	0.28	0.26	0.29	0.27	0.26
80–90	0.27	0.27	0.26	0.27	0.3	0.28	0.3
90–100	0.25	0.27	0.27	0.28	0.31	0.29	0.29

Table S5c. Soil water content profile at plot No.2 of replicate 3 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.22	0.25	0.25	0.08	0.25	0.20	0.22
10–20	0.20	0.29	0.26	0.07	0.31	0.27	0.28
20–30	0.24	0.30	0.21	0.08	0.29	0.28	0.26
30–40	0.26	0.37	0.27	0.33	0.32	0.34	0.22
40–50	0.24	0.37	0.23	0.33	0.30	0.27	0.21
50–60	0.28	0.33	0.31	0.31	0.29	0.26	0.32
60–70	0.17	0.32	0.31	0.31	0.33	0.26	0.31
70–80	0.28	0.30	0.28	0.33	0.35	0.33	0.25
80–90	0.23	0.31	0.30	0.33	0.35	0.31	0.31
90–100	0.24	0.32	0.25	0.30	0.31	0.25	0.24

Table S6. Soil water content profile data with three replicates at plot No.3 (forest land).**Table S6a.** Soil water content profile at plot No.3 of replicate 1 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.21	0.22	0.17	0.15	0.18	0.15	0.28
10–20	0.2	0.25	0.2	0.15	0.22	0.17	0.31
20–30	0.19	0.26	0.22	0.17	0.23	0.17	0.3
30–40	0.22	0.25	0.23	0.19	0.23	0.25	0.28
40–50	0.23	0.27	0.28	0.2	0.22	0.22	0.31
50–60	0.24	0.26	0.29	0.15	0.23	0.2	0.25
60–70	0.23	0.24	0.25	0.18	0.24	0.19	0.23
70–80	0.22	0.25	0.24	0.18	0.25	0.25	0.24
80–90	0.25	0.23	0.23	0.19	0.26	0.23	0.25
90–100	0.26	0.22	0.23	0.18	0.25	0.24	0.27

Table S6a. Soil water content profile at plot No.3 of replicate 2 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.23	0.24	0.17	0.15	0.19	0.15	0.21
10–20	0.22	0.28	0.21	0.14	0.22	0.16	0.29
20–30	0.21	0.27	0.23	0.16	0.21	0.17	0.32
30–40	0.23	0.27	0.24	0.2	0.22	0.18	0.29
40–50	0.22	0.28	0.27	0.19	0.23	0.29	0.28
50–60	0.23	0.26	0.26	0.15	0.24	0.18	0.27
60–70	0.24	0.25	0.25	0.17	0.26	0.17	0.25
70–80	0.25	0.26	0.24	0.19	0.23	0.23	0.26
80–90	0.26	0.25	0.23	0.18	0.25	0.24	0.25
90–100	0.26	0.24	0.23	0.18	0.26	0.23	0.26

Table S6c. Soil water content profile at plot No.3 of replicate 3 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.23	0.30	0.19	0.19	0.24	0.12	0.37
10–20	0.20	0.28	0.25	0.19	0.28	0.21	0.35
20–30	0.21	0.32	0.31	0.21	0.27	0.20	0.43
30–40	0.27	0.28	0.32	0.22	0.22	0.69	0.33
40–50	0.27	0.28	0.25	0.21	0.17	0.05	0.22
50–60	0.28	0.33	0.19	0.19	0.20	0.15	0.11
60–70	0.25	0.26	0.29	0.16	0.27	0.11	0.30
70–80	0.26	0.29	0.22	0.18	0.24	0.31	0.31
80–90	0.26	0.24	0.22	0.21	0.25	0.28	0.24
90–100	0.28	0.23	0.27	0.21	0.28	0.27	0.26

Table S7. Soil water content profile data with three replicates at plot No.4 (wasteland).**Table S7a.** Soil water content profile at plot No.4 of replicate 1 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.25	0.21	0.21	0.18	0.23	0.15	0.22
10–20	0.24	0.19	0.22	0.18	0.27	0.18	0.23
20–30	0.23	0.21	0.2	0.17	0.28	0.17	0.25
30–40	0.27	0.2	0.22	0.19	0.22	0.16	0.27
40–50	0.29	0.22	0.23	0.18	0.23	0.19	0.25
50–60	0.26	0.25	0.25	0.2	0.24	0.21	0.24
60–70	0.25	0.23	0.21	0.23	0.25	0.18	0.23
70–80	0.27	0.27	0.2	0.22	0.27	0.21	0.24
80–90	0.26	0.26	0.22	0.21	0.28	0.23	0.26
90–100	0.28	0.27	0.22	0.21	0.28	0.22	0.24

Table S7b. Soil water content profile at plot No.4 of replicate 2 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.26	0.2	0.2	0.18	0.27	0.21	0.25
10–20	0.23	0.19	0.21	0.16	0.28	0.17	0.23
20–30	0.25	0.2	0.23	0.17	0.27	0.15	0.25
30–40	0.25	0.21	0.24	0.19	0.22	0.17	0.22
40–50	0.27	0.22	0.22	0.2	0.25	0.19	0.27
50–60	0.28	0.25	0.23	0.22	0.24	0.2	0.28
60–70	0.25	0.23	0.22	0.21	0.22	0.22	0.25
70–80	0.26	0.21	0.21	0.21	0.25	0.2	0.28
80–90	0.25	0.25	0.22	0.2	0.26	0.21	0.26
90–100	0.27	0.26	0.22	0.2	0.28	0.22	0.26

Table S7c. Soil water content profile at plot No.4 of replicate 3 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.30	0.16	0.16	0.16	0.28	0.04	0.26
10–20	0.28	0.16	0.17	0.17	0.28	0.16	0.31
20–30	0.31	0.21	0.23	0.24	0.10	0.15	0.35
30–40	0.29	0.20	0.23	0.19	0.29	0.19	0.33
40–50	0.27	0.25	0.26	0.29	0.25	0.22	0.24
50–60	0.23	0.28	0.17	0.25	0.27	0.28	0.23
60–70	0.27	0.27	0.22	0.19	0.30	0.16	0.26
70–80	0.21	0.18	0.21	0.18	0.26	0.26	0.27
80–90	0.31	0.23	0.20	0.21	0.31	0.17	0.24
90–100	0.32	0.32	0.26	0.22	0.32	0.20	0.28

Table S8. Soil water content profile data with three replicates at plot No.5 (cultivated land).**Table S8a.** Soil water content profile at plot No.5 of replicate 1 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.21	0.24	0.15	0.18	0.22	0.22	0.21
10–20	0.22	0.23	0.17	0.17	0.23	0.21	0.25
20–30	0.23	0.25	0.16	0.15	0.24	0.23	0.27
30–40	0.24	0.24	0.2	0.19	0.22	0.22	0.28
40–50	0.22	0.23	0.19	0.2	0.25	0.25	0.25
50–60	0.23	0.22	0.18	0.23	0.24	0.26	0.27
60–70	0.21	0.23	0.16	0.22	0.22	0.27	0.28
70–80	0.22	0.25	0.17	0.23	0.25	0.23	0.29
80–90	0.22	0.24	0.19	0.23	0.23	0.22	0.25
90–100	0.26	0.26	0.2	0.25	0.22	0.22	0.26

Table S8b. Soil water content profile at plot No.5 of replicate 2 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.23	0.26	0.15	0.16	0.22	0.22	0.23
10–20	0.24	0.22	0.17	0.18	0.23	0.21	0.26
20–30	0.25	0.23	0.18	0.17	0.24	0.23	0.27
30–40	0.26	0.27	0.18	0.2	0.24	0.24	0.28
40–50	0.26	0.26	0.2	0.18	0.23	0.25	0.27
50–60	0.22	0.26	0.21	0.22	0.26	0.26	0.29
60–70	0.23	0.25	0.19	0.23	0.25	0.23	0.25
70–80	0.24	0.24	0.2	0.22	0.26	0.23	0.26
80–90	0.25	0.23	0.21	0.26	0.27	0.22	0.25
90–100	0.26	0.24	0.2	0.25	0.25	0.23	0.26

Table S8c. Soil water content profile at plot No.5 of replicate 3 (Unit: %).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	0.23	0.25	0.18	0.17	0.19	0.19	0.22
10–20	0.25	0.27	0.20	0.23	0.22	0.24	0.28
20–30	0.27	0.34	0.23	0.27	0.21	0.26	0.28
30–40	0.28	0.24	0.22	0.25	0.23	0.31	0.29
40–50	0.23	0.27	0.24	0.31	0.30	0.30	0.34
50–60	0.23	0.28	0.18	0.08	0.21	0.21	0.27
60–70	0.25	0.24	0.16	0.28	0.33	0.20	0.29
70–80	0.25	0.23	0.17	0.27	0.29	0.23	0.26
80–90	0.26	0.27	0.20	0.18	0.23	0.21	0.26
90–100	0.28	0.31	0.26	0.28	0.25	0.21	0.27

Supplementary Part 3: Raw Data for $\delta^{18}\text{O}$ profile characteristics of RMS soil water $\delta^{18}\text{O}$ profile characteristics of RMS soil water in three different land use types (Plot 1–5) with three parallel replicates (No.1, 2, 5 are cultivated land, No.3 is forest land, and No.4 is wasteland; plots locations are shown in Fig. 1).

Table S9. $\delta^{18}\text{O}$ profile of RMS soil water with three parallel replicates at plot No.1 (cultivated land).

Table S9a. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.1) replicate 1 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−12.99	−7.47	−7.48	−8.42	−13.57	−12.57	−11.01
10–20	−10.00	−10.15	−7.56	−9.35	−10.01	−10.88	−9.02
20–30	−10.25	−9.97	−7.35	−10.21	−10.99	−11.48	−11.13
30–40	−9.90	−11.23	−7.54	−9.57	−12.01	−10.68	−11.78
40–50	−9.40	−11.47	−8.01	−9.29	−11.02	−13.53	−11.57
50–60	−9.01	−10.57	−7.57	−9.01	−11.35	−10.95	−9.78
60–70	−8.54	−9.98	−7.49	−8.10	−10.52	−11.51	−11.50
70–80	−9.13	−9.05	−7.67	−7.92	−9.53	−10.95	−10.29
80–90	−10.79	−9.50	−7.40	−7.41	−11.02	−7.98	−10.51
90–100	−10.47	−10.17	−7.01	−7.99	−9.38	−9.02	−9.89

Table S9b. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.1) replicate 2 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−13.59	−7.41	−7.40	−8.35	−13.59	−12.59	−11.56
10–20	−11.26	−9.98	−7.53	−9.48	−9.58	−10.58	−8.25
20–30	−10.96	−8.96	−7.35	−9.97	−12.01	−11.47	−10.99
30–40	−8.65	−10.78	−7.79	−9.42	−12.06	−10.06	−12.06
40–50	−8.59	−10.59	−8.29	−9.31	−11.56	−12.99	−11.97
50–60	−9.14	−11.02	−7.58	−8.96	−11.36	−10.57	−10.05
60–70	−8.15	−10.20	−7.92	−7.85	−10.25	−11.98	−11.58
70–80	−9.21	−9.01	−7.52	−7.39	−9.26	−10.01	−9.48
80–90	−11.05	−9.52	−7.49	−7.15	−11.86	−7.31	−9.97
90–100	−9.98	−10.06	−6.86	−8.26	−9.37	−7.96	−9.06

Table S9c. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.1) replicate 3 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−10.77	−8.34	−7.92	−8.70	−13.88	−13.00	−10.73
10–20	−7.27	−10.02	−7.86	−9.76	−9.45	−10.61	−9.13
20–30	−10.23	−10.44	−6.99	−9.94	−11.83	−12.69	−11.81
30–40	−14.00	−11.95	−8.10	−10.14	−11.87	−10.40	−11.86
40–50	−8.62	−11.90	−8.75	−9.87	−10.93	−14.79	−11.29
50–60	−10.44	−8.62	−8.10	−8.13	−11.91	−10.43	−8.34
60–70	−8.42	−8.62	−7.27	−7.81	−9.98	−10.47	−10.01
70–80	−9.59	−8.70	−8.09	−6.92	−8.72	−10.72	−10.29
80–90	−11.49	−10.29	−7.64	−7.04	−11.35	−7.60	−10.39
90–100	−11.08	−9.80	−6.53	−7.93	−8.88	−9.48	−9.37

Table S10. $\delta^{18}\text{O}$ profile of RMS soil water with three parallel replicates at plot No.2 (cultivated land).**Table S10a.** $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.2) replicate 1 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−8.30	−10.43	−5.01	−7.89	−10.97	−13.01	−9.23
10–20	−8.47	−10.01	−7.59	−8.21	−11.50	−10.98	−9.25
20–30	−12.24	−12.02	−7.47	−7.99	−11.98	−11.41	−9.57
30–40	−12.14	−11.98	−7.52	−7.94	−12.24	−10.25	−9.57
40–50	−12.02	−12.01	−8.01	−8.01	−11.02	−11.87	−8.01
50–60	−12.59	−12.39	−8.53	−7.45	−11.56	−12.01	−6.78
60–70	−10.95	−13.01	−7.98	−7.20	−9.59	−11.40	−8.59
70–80	−10.10	−13.54	−8.01	−6.84	−12.20	−11.52	−8.54
80–90	−12.59	−10.95	−7.89	−6.20	−9.89	−11.14	−8.81
90–100	−11.79	−9.94	−7.76	−5.98	−8.72	−11.34	−9.71

Table S10b. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.2) replicate 2 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−8.01	−10.29	−5.01	−8.01	−10.97	−12.20	−9.21
10–20	−8.26	−9.41	−7.70	−8.15	−11.56	−10.89	−9.22
20–30	−12.15	−12.09	−7.25	−8.02	−11.89	−11.64	−9.50
30–40	−12.01	−11.89	−7.85	−7.99	−12.20	−10.10	−9.89
40–50	−12.36	−12.06	−7.50	−7.95	−11.05	−11.56	−8.23
50–60	−11.98	−12.99	−7.92	−7.63	−11.50	−11.84	−7.00
60–70	−10.18	−14.01	−8.00	−7.21	−9.68	−11.00	−8.40
70–80	−9.58	−13.00	−8.47	−6.59	−12.43	−11.59	−8.51
80–90	−12.42	−11.02	−8.00	−6.25	−9.90	−11.30	−8.79
90–100	−11.02	−9.98	−7.86	−5.99	−8.94	−11.15	−9.69

Table S10c. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.2) replicate 3 (Unit: ‰).

Depth: cm	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−8.47	−10.30	−3.57	−7.86	−10.43	−13.67	−8.95
10–20	−8.41	−10.22	−7.87	−7.64	−12.61	−9.72	−9.01
20–30	−12.87	−11.92	−7.48	−7.81	−11.86	−11.33	−9.73
30–40	−12.90	−11.53	−8.45	−7.89	−13.00	−9.68	−10.48
40–50	−11.86	−11.54	−7.20	−7.74	−10.84	−10.59	−7.91
50–60	−13.68	−12.30	−7.82	−7.42	−12.91	−11.91	−6.32
60–70	−10.79	−12.22	−10.60	−6.92	−8.12	−10.72	−8.81
70–80	−10.26	−12.88	−8.39	−5.92	−13.62	−10.28	−8.60
80–90	−13.87	−9.02	−7.87	−6.12	−9.13	−10.98	−9.04
90–100	−12.71	−9.03	−7.15	−5.52	−8.41	−11.14	−10.06

Table S11. $\delta^{18}\text{O}$ profile of RMS soil water with three parallel replicates at plot No.3 (forest land).**Table S11a.** $\delta^{18}\text{O}$ profile of RMS soil water in forest land (plot No.3) replicate 1 (Unit: ‰).

NO.3	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−9.71	−9.59	−6.89	−7.98	−12.05	−10.10	−9.91
10–20	−10.29	−10.47	−7.64	−8.21	−12.01	−10.30	−10.00
20–30	−10.89	−12.12	−8.50	−8.18	−12.95	−12.99	−12.21
30–40	−9.01	−9.51	−8.59	−7.79	−12.59	−12.04	−11.08
40–50	−11.05	−9.57	−8.71	−7.29	−12.01	−12.01	−11.04
50–60	−9.01	−11.01	−8.50	−7.59	−13.59	−8.99	−10.98
60–70	−9.99	−9.95	−7.89	−7.02	−15.95	−10.59	−10.15
70–80	−10.86	−11.87	−7.85	−8.01	−15.39	−11.05	−10.25
80–90	−10.02	−10.93	−8.01	−8.02	−11.01	−11.76	−10.05
90–100	−10.29	−11.01	−7.02	−8.01	−10.64	−12.85	−10.01

Table S11b. $\delta^{18}\text{O}$ profile of RMS soil water in forest land (plot No.3) replicate 2 (Unit: ‰).

NO.3	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−9.48	−9.58	−6.55	−7.48	−12.10	−9.50	−9.01
10–20	−10.02	−10.59	−7.28	−8.01	−12.05	−10.39	−9.10
20–30	−10.96	−12.00	−8.56	−8.08	−13.25	−13.00	−12.00
30–40	−8.59	−9.43	−8.37	−7.59	−12.50	−11.59	−11.05
40–50	−11.02	−9.58	−8.36	−7.21	−11.99	−11.67	−10.79
50–60	−8.89	−11.32	−8.30	−7.52	−13.59	−9.02	−10.45
60–70	−9.18	−9.50	−7.76	−7.06	−15.30	−10.50	−10.39
70–80	−10.48	−11.65	−8.19	−7.69	−15.00	−11.05	−10.17
80–90	−9.90	−10.99	−8.19	−7.89	−11.20	−11.35	−10.00
90–100	−10.01	−11.00	−7.00	−7.47	−10.80	−12.21	−9.89

Table S11c. $\delta^{18}\text{O}$ profile of RMS soil water in forest land (plot No.3) replicate 3 (Unit: ‰).

NO.3	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−9.88	−10.68	−6.66	−8.06	−12.48	−9.86	−10.75
10–20	−10.20	−11.34	−7.46	−9.25	−11.97	−10.63	−10.87
20–30	−11.30	−12.51	−9.43	−7.98	−14.21	−13.25	−13.38
30–40	−8.65	−9.08	−9.23	−7.45	−12.71	−12.13	−9.64
40–50	−11.56	−10.82	−8.82	−6.83	−11.73	−12.05	−9.79
50–60	−9.04	−11.36	−7.68	−8.02	−15.30	−8.39	−9.65
60–70	−10.26	−8.99	−7.33	−6.86	−16.09	−11.43	−10.24
70–80	−10.70	−10.86	−8.02	−8.78	−15.48	−10.90	−10.15
80–90	−10.08	−10.39	−8.22	−7.88	−10.46	−11.72	−10.22
90–100	−9.91	−10.84	−6.44	−6.09	−9.94	−12.68	−10.01

Table S12. $\delta^{18}\text{O}$ profile of RMS soil water with three parallel replicates at plot No.4 (waste land).**Table S12a.** $\delta^{18}\text{O}$ profile of RMS soil water in waste land (plot No.4) replicate 1 (Unit: ‰).

NO.4	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−12.59	−12.64	−7.89	−8.58	−10.91	−12.54	−11.21
10–20	−11.86	−12.30	−8.29	−9.40	−15.99	−12.32	−10.24
20–30	−9.01	−12.57	−8.54	−8.59	−16.23	−12.84	−11.59
30–40	−9.29	−10.02	−7.59	−9.58	−13.54	−12.01	−10.60
40–50	−12.45	−11.99	−8.50	−9.20	−12.02	−11.36	−9.01
50–60	−10.59	−11.02	−8.24	−9.05	−13.52	−12.99	−10.12
60–70	−8.98	−10.98	−8.02	−9.03	−13.01	−12.01	−10.59
70–80	−8.98	−10.82	−7.98	−9.00	−14.25	−11.87	−11.77
80–90	−9.59	−11.89	−8.69	−8.95	−10.59	−11.51	−10.98
90–100	−10.01	−11.42	−8.54	−9.02	−10.89	−10.56	−12.91

Table S12b. $\delta^{18}\text{O}$ profile of RMS soil water in waste land (plot No.4) replicate 2 (Unit: ‰).

NO.4	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−12.59	−12.64	−7.81	−8.51	−10.58	−12.39	−11.19
10–20	−11.86	−12.12	−8.21	−9.00	−16.00	−12.12	−10.31
20–30	−8.90	−12.00	−8.82	−8.49	−16.56	−12.59	−11.29
30–40	−9.41	−10.97	−7.71	−9.57	−13.59	−12.63	−10.58
40–50	−12.49	−12.93	−7.95	−9.34	−16.58	−12.00	−9.02
50–60	−10.21	−11.00	−8.30	−9.00	−13.80	−11.53	−10.00
60–70	−12.59	−11.01	−8.21	−9.12	−13.00	−13.09	−10.59
70–80	−8.80	−11.05	−7.98	−9.05	−14.21	−11.99	−11.57
80–90	−9.58	−11.98	−8.49	−8.70	−10.20	−11.50	−10.90
90–100	−9.98	−12.00	−8.35	−8.89	−10.52	−10.58	−11.68

Table S12c. $\delta^{18}\text{O}$ profile of RMS soil water in waste land (plot No.4) replicate 3 (Unit: ‰).

NO.4	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	−12.80	−12.10	−7.37	−8.35	−11.06	−12.42	−11.26
10–20	−11.32	−12.21	−8.31	−8.72	−16.52	−12.19	−9.84
20–30	−8.97	−13.23	−9.28	−8.51	−17.91	−12.01	−11.80
30–40	−9.26	−9.19	−7.56	−10.31	−13.22	−12.98	−10.77
40–50	−12.71	−12.25	−9.65	−8.91	−6.38	−11.62	−8.76
50–60	−10.22	−10.26	−8.96	−9.07	−14.62	−8.66	−10.45
60–70	−18.24	−10.35	−8.13	−9.48	−13.83	−15.73	−11.28
70–80	−8.74	−10.32	−7.38	−9.07	−15.04	−11.27	−12.06
80–90	−10.38	−10.78	−8.53	−8.33	−10.20	−10.98	−10.76
90–100	−10.16	−10.30	−8.46	−9.00	−10.90	−9.73	−13.81

Table S13. $\delta^{18}\text{O}$ profile of RMS soil water with three parallel replicates at plot No.5 (cultivated land).**Table S13a.** $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.5) replicate 1 (Unit: ‰).

NO.5	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	–11.58	–11.41	–7.39	–8.64	–10.02	–5.98	–7.98
10–20	–11.21	–12.05	–8.25	–8.23	–10.91	–5.91	–7.42
20–30	–9.01	–10.13	–7.21	–8.71	–12.98	–9.01	–7.24
30–40	–11.00	–9.74	–7.59	–7.98	–10.56	–10.57	–7.49
40–50	–10.51	–9.54	–7.05	–9.01	–14.00	–8.87	–8.21
50–60	–9.59	–9.58	–7.48	–7.02	–11.85	–9.57	–8.41
60–70	–9.47	–9.10	–7.22	–5.36	–13.02	–8.09	–7.01
70–80	–9.21	–10.21	–7.01	–5.80	–12.04	–9.59	–7.50
80–90	–12.99	–10.28	–7.58	–5.90	–9.89	–7.01	–7.59
90–100	–12.05	–10.43	–7.49	–5.99	–10.55	–9.61	–7.39

Table S13b. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.5) replicate2 (Unit: ‰).

NO.5	5 January 2017	5 February 2017	5 May 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	–10.98	–11.00	–7.39	–8.49	–9.98	–5.78	–7.59
10–20	–11.15	–12.23	–8.30	–8.26	–10.79	–5.89	–7.54
20–30	–8.67	–10.13	–7.13	–8.89	–12.59	–9.31	–7.20
30–40	–11.29	–9.74	–7.32	–8.10	–10.29	–10.89	–7.45
40–50	–10.00	–9.59	–7.02	–7.75	–13.58	–8.95	–8.20
50–60	–9.40	–9.66	–7.01	–8.50	–12.36	–10.01	–8.34
60–70	–9.36	–10.01	–7.21	–6.78	–12.98	–8.48	–7.00
70–80	–9.21	–10.56	–6.99	–5.95	–12.01	–9.50	–7.21
80–90	–13.01	–10.75	–7.61	–5.80	–10.00	–7.05	–7.39
90–100	–13.06	–10.88	–7.55	–6.01	–10.52	–9.50	–7.31

Table S13c. $\delta^{18}\text{O}$ profile of RMS soil water in cultivated land (plot No.5) replicate 3 (Unit: ‰).

NO.5	5 January 2017	5 February 2017	5 March 2017	5 May 2017	5 July 2017	5 September 2017	5 November 2017
0–10	–13.14	–11.01	–7.48	–8.55	–10.03	–5.85	–7.53
10–20	–11.24	–11.96	–8.53	–8.47	–10.94	–5.60	–6.76
20–30	–8.54	–10.67	–7.02	–8.50	–14.63	–9.52	–6.71
30–40	–11.85	–9.74	–6.78	–6.93	–10.20	–10.37	–7.71
40–50	–9.76	–9.04	–6.81	–10.06	–15.41	–7.74	–7.65
50–60	–9.27	–9.71	–7.71	–3.29	–9.45	–9.82	–8.51
60–70	–9.13	–10.74	–7.53	–4.93	–13.81	–7.67	–6.48
70–80	–8.94	–9.89	–6.73	–5.95	–11.20	–10.64	–7.88
80–90	–13.78	–10.59	–7.88	–6.18	–8.46	–6.76	–7.70
90–100	–13.86	–10.31	–7.88	–6.24	–11.54	–10.32	–7.08