

Table S2 Descriptive statistics for trace elements and comparison with literature data

Table S2 Descriptive statistics for trace elements and comparison with literature data														Quality class adapted from Müller's Igeo based on upper limit reported by Gaillardet et al. (2005)									
														Class	Value		Exceedance of upper limit						
Water constituent	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd		Range	upper limit	I	value ≤ 0		Non						
														I-II	0 < value ≤ 1		Non to moderate						
														II	1 < value ≤ 2		Moderate						
														II-III	2 < value ≤ 3		Moderate to strong						
														III	3 < value ≤ 4		Strong						
														III-IV	4 < value ≤ 5		Strong to extreme						
														IV	value > 5		Extreme						
														min	p10	Q1	media	Q3		p90	max		
														Gaillardet et al. (2005)									
Al	Argichi-1	75	10.9	30.7	50.5	94.0	149.0	237	461.0	90.7		3-400	400	-5.2	-3.7	-3.0	-2.1	-1.4		-0.8	0.2		
Al	Argichi-2	122	0.0	11.3	20.6	46.9	92.7	158	312.4	66.5				-15.3	-5.2	-4.3	-3.1	-2.1		-1.3	-0.4		
Al	Dzknaget-1	81	12.9	33.7	52.0	110.6	243.0	349	837.7	177.8				-5.0	-3.6	-2.9	-1.9	-0.7		-0.2	1.1		
Al	Dzknaget-2	122	9.3	31.4	58.5	168.9	350.4	469	1001.3	219.9				-5.4	-3.7	-2.8	-1.2	-0.2		0.2	1.3		
Al	Gavaraget-1	43	3.0	56.2	116.0	162.7	253.7	347	659.4	145.5				-7.0	-2.8	-1.8	-1.3	-0.7		-0.2	0.7		
Al	Gavaraget-2	121	2.0	15.8	25.2	37.1	67.7	133	189.7	45.8				-7.6	-4.7	-4.0	-3.4	-2.6		-1.6	-1.1		
Al	Karchaghbyur-1	72	0.0	23.1	40.0	59.3	90.4	144	878.8	107.2				-15.3	-4.1	-3.3	-2.8	-2.1		-1.5	1.1		
Al	Karchaghbyur-2	120	2.6	13.7	23.2	34.3	55.2	94	284.7	38.2				-7.3	-4.9	-4.1	-3.5	-2.9		-2.1	-0.5		
Al	Martuni-1	81	16.1	24.6	41.2	113.2	230.2	341	696.5	148.2				-4.6	-4.0	-3.3	-1.8	-0.8		-0.2	0.8		
Al	Martuni-2	106	0.0	12.7	37.5	76.9	196.6	326	620.6	133.5				-15.3	-5.0	-3.4	-2.4	-1.0		-0.3	0.6		
Al	Masrik-2	120	5.6	37.2	59.1	115.8	174.3	281	510.9	105.4				-6.1	-3.4	-2.8	-1.8	-1.2		-0.5	0.4		
Al	Shoghvag-2	121	6.6	18.0	27.5	42.6	63.9	95	178.2	35.2				-5.9	-4.5	-3.9	-3.2	-2.6		-2.1	-1.2		
Al	Sotk-2	111	5.0	20.3	73.5	172.2	364.6	567	1246.8	254.7				-6.3	-4.3	-2.4	-1.2	-0.1		0.5	1.6		
Al	Tsakkar-2	115	0.1	7.7	13.2	25.4	76.1	149	255.0	59.6				-11.5	-5.7	-4.9	-4.0	-2.4		-1.4	-0.6		
Al	Vardenis-1	81	0.0	33.7	48.4	68.4	107.3	194	279.2	63.8				-15.3	-3.6	-3.0	-2.5	-1.9		-1.0	-0.5		
Al	Vardenis-2	116	6.8	20.0	31.9	49.0	98.7	207	302.4	73.4				-5.9	-4.3	-3.6	-3.0	-2.0		-1.0	-0.4		
As	Argichi-1	75	0.08	0.47	0.61	0.82	0.96	1.2	1.88	0.32		0.1-1	1	-3.6	-1.1	-0.7	-0.3	-0.1		0.2	0.9		
As	Argichi-2	122	0.39	0.83	1.33	2.06	2.67	3.2	4.59	0.93				-1.4	-0.3	0.4	1.0	1.4		1.7	2.2		
As	Dzknaget-1	81	0.01	0.31	0.41	0.53	0.75	0.9	1.31	0.26				-6.1	-1.7	-1.3	-0.9	-0.4		-0.1	0.4		
As	Dzknaget-2	122	0.33	0.49	0.62	0.79	1.13	1.5	2.49	0.47				-1.6	-1.0	-0.7	-0.3	0.2		0.6	1.3		
As	Gavaraget-1	44	0.09	0.14	0.17	0.19	0.28	0.3	0.52	0.09				-3.5	-2.8	-2.6	-2.4	-1.8		-1.6	-0.9		
As	Gavaraget-2	121	0.36	0.85	1.11	1.26	1.39	1.5	1.91	0.26				-1.5	-0.2	0.1	0.3	0.5		0.6	0.9		
As	Karchaghbyur-1	72	0.21	0.42	0.55	0.85	1.11	1.2	1.82	0.33				-2.2	-1.2	-0.9	-0.2	0.1		0.3	0.9		
As	Karchaghbyur-2	120	0.63	1.18	1.42	1.71	2.03	2.2	2.89	0.43				-0.7	0.2	0.5	0.8	1.0		1.1	1.5		
As	Martuni-1	83	0.21	0.27	0.31	0.43	0.67	0.7	1.04	0.20				-2.3	-1.9	-1.7	-1.2	-0.6		-0.4	0.1		
As	Martuni-2	106	0.27	0.38	0.49	0.83	1.04	1.2	1.70	0.33				-1.9	-1.4	-1.0	-0.3	0.1		0.3	0.8		
As	Masrik-2	121	0.63	2.09	2.69	3.81	5.48	8.2	13.72	2.64				-0.7	1.1	1.4	1.9	2.5		3.0	3.8		
As	Shoghvag-2	121	0.22	0.79	0.97	1.22	1.36	1.6	2.07	0.32				-2.2	-0.3	0.0	0.3	0.4		0.6	1.1		
As	Sotk-2	112	1.13	5.11	8.03	11.25	15.27	30.1	37.78	9.15				0.2	2.4	3.0	3.5	3.9		4.9	5.2		
As	Tsakkar-2	115	0.17	0.31	0.77	1.07	1.38	1.8	2.47	0.52				-2.5	-1.7	-0.4	0.1	0.5		0.9	1.3		
As	Vardenis-1	82	0.02	0.32	0.38	0.51	0.61	0.8	1.01	0.18				-5.8	-1.6	-1.4	-1.0	-0.7		-0.4	0.0		
As	Vardenis-2	117	0.13	0.38	0.45	0.60	0.77	1.1	2.05	0.36				-3.0	-1.4	-1.1	-0.7	-0.4		0.2	1.0		

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Water constituent	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd		Range	upper limit	min	p10	Q1	media	Q3		p90			
B	Argichi-1	75	2.63	6.54	9.58	11.9	13.7	15.4	18.65	3.38		1-25	25	-3.3	-1.9	-1.4	-1.1	-0.9		-0.7			
B	Argichi-2	122	7.25	14.03	18.83	31.6	43.5	61.6	97.30	18.92				-1.8	-0.8	-0.4	0.3	0.8		1.3			2.0
B	Dzknaget-1	81	1.78	7.37	11.85	20.2	25.7	30.3	38.57	8.98				-3.8	-1.8	-1.1	-0.3	0.0		0.3			0.6
B	Dzknaget-2	122	4.94	11.63	18.36	33.7	41.7	49.8	78.39	14.81				-2.3	-1.1	-0.4	0.4	0.7		1.0			1.6
B	Gavaraget-1	44	3.28	5.01	5.84	7.6	12.0	13.5	26.04	4.26				-2.9	-2.3	-2.1	-1.7	-1.1		-0.9			0.1
B	Gavaraget-2	121	24.64	50.87	65.93	79.0	90.8	100.9	156.74	20.01				0.0	1.0	1.4	1.7	1.9		2.0			2.6
B	Karchaghbyur-1	72	1.98	3.63	5.48	7.2	9.4	10.2	20.92	3.14				-3.7	-2.8	-2.2	-1.8	-1.4		-1.3			-0.3
B	Karchaghbyur-2	120	9.17	13.69	17.36	22.5	27.1	30.8	53.03	7.93				-1.4	-0.9	-0.5	-0.1	0.1		0.3			1.1
B	Martuni-1	83	1.65	4.29	5.80	7.6	10.4	13.2	18.21	3.47				-3.9	-2.5	-2.1	-1.7	-1.3		-0.9			-0.5
B	Martuni-2	106	2.18	7.41	9.69	17.9	24.4	42.4	66.27	14.21				-3.5	-1.8	-1.4	-0.5	0.0		0.8			1.4
B	Masrik-2	121	0.00	17.15	20.68	26.0	29.4	34.3	50.09	7.48				-14.6	-0.5	-0.3	0.1	0.2		0.5			1.0
B	Shoghvag-2	121	20.06	164.41	247.30	372.3	429.9	497.8	909.77	145.28				-0.3	2.7	3.3	3.9	4.1		4.3			5.2
B	Sotk-2	112	12.59	21.35	29.13	40.2	53.7	65.0	94.44	16.61				-1.0	-0.2	0.2	0.7	1.1		1.4			1.9
B	Tsakkar-2	115	6.85	25.91	108.99	191.2	344.5	435.6	806.16	155.75				-1.9	0.1	2.1	2.9	3.8		4.1			5.0
B	Vardenis-1	82	1.50	3.25	4.66	6.9	8.5	11.0	16.64	3.08				-4.1	-2.9	-2.4	-1.9	-1.5		-1.2			-0.6
B	Vardenis-2	117	0.86	4.25	6.12	8.3	11.8	17.1	29.02	5.36				-4.9	-2.6	-2.0	-1.6	-1.1		-0.5			0.2
Ba	Argichi-1	75	6.65	7.93	8.88	10.63	12.84	15.2	20.58	2.99		8-90	90	-3.8	-1.7	-1.5	-1.2	-1.0		-0.7			-0.3
Ba	Argichi-2	122	5.12	9.69	10.78	12.77	14.92	17.2	23.28	3.19				-4.1	-1.4	-1.2	-1.0	-0.7		-0.5			-0.1
Ba	Dzknaget-1	81	0.36	5.34	5.84	7.26	9.22	10.0	14.95	2.35				-8.0	-2.2	-2.1	-1.8	-1.4		-1.3			-0.7
Ba	Dzknaget-2	122	6.84	9.90	12.75	16.37	20.09	23.0	34.77	5.55				-3.7	-1.3	-1.0	-0.6	-0.3		-0.1			0.5
Ba	Gavaraget-1	44	5.62	6.78	8.73	9.97	12.88	16.5	22.16	3.89				-4.0	-1.9	-1.5	-1.3	-1.0		-0.6			-0.2
Ba	Gavaraget-2	121	6.38	9.01	10.00	10.80	11.88	13.0	23.22	2.00				-3.8	-1.5	-1.3	-1.2	-1.1		-0.9			-0.1
Ba	Karchaghbyur-1	72	2.17	3.49	4.25	5.07	6.11	9.9	10.31	2.05				-5.4	-2.8	-2.6	-2.3	-2.0		-1.3			-1.3
Ba	Karchaghbyur-2	120	2.02	4.13	4.76	5.59	7.49	10.0	10.00	2.17				-5.5	-2.6	-2.4	-2.2	-1.7		-1.3			-1.3
Ba	Martuni-1	83	9.34	13.50	16.09	18.30	20.94	23.1	27.35	3.67				-3.3	-0.9	-0.6	-0.5	-0.3		-0.1			0.1
Ba	Martuni-2	106	9.35	14.10	17.31	22.05	27.13	32.2	51.31	7.84				-3.3	-0.8	-0.5	-0.2	0.1		0.4			1.0
Ba	Masrik-2	121	2.05	16.98	19.35	22.05	24.66	27.9	57.36	5.83				-5.5	-0.6	-0.4	-0.2	0.0		0.2			1.2
Ba	Shoghvag-2	121	2.18	7.30	8.35	10.00	10.94	13.5	18.50	2.94				-5.4	-1.8	-1.6	-1.3	-1.2		-0.9			-0.4
Ba	Sotk-2	112	8.57	19.16	21.60	27.10	31.03	35.9	51.37	6.95				-3.4	-0.4	-0.2	0.1	0.3		0.5			1.0
Ba	Tsakkar-2	115	3.10	7.81	10.73	16.44	25.02	31.0	35.82	8.46				-4.9	-1.7	-1.2	-0.6	0.0		0.3			0.5
Ba	Vardenis-1	82	6.11	9.17	10.36	11.94	14.12	15.6	25.23	2.96				-3.9	-1.4	-1.3	-1.1	-0.8		-0.7			0.0
Ba	Vardenis-2	117	5.75	9.78	11.63	13.84	17.25	24.9	47.72	7.09				-4.0	-1.4	-1.1	-0.9	-0.5		0.0			0.9

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Class	Value	Exceedance of upper limit
I	value ≤ 0	Non
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II-III	2 < value ≤ 3	Moderate to strong
III	3 < value ≤ 4	Strong
III-IV	4 < value ≤ 5	Strong to extreme
IV	value > 5	Extreme

Gaillardet et al. (2005)													IV	value > 5			Extreme				
Water constituent	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd		Range	upper limit	min	p10	Q1	media	Q3		p90	max
Cr	Argichi-1	75	0.000	0.1927	0.27	0.4416	0.6192	0.82	1.4603	0.2911		0.2-2(6)	2	-17.6	-3.4	-2.9	-2.2	-1.7		-1.3	-0.5
Cr	Argichi-2	120	0.000	0.2689	0.432	0.5897	0.8202	1.15	1.9643	0.3714				-17.6	-2.9	-2.2	-1.8	-1.3		-0.8	0.0
Cr	Dzknaget-1	81	0.000	0.1596	0.2675	0.4911	0.6098	0.95	1.8618	0.3592				-17.6	-3.6	-2.9	-2.0	-1.7		-1.1	-0.1
Cr	Dzknaget-2	121	0.000	0.2815	0.439	0.6553	0.922	1.27	2.2032	0.4496				-17.6	-2.8	-2.2	-1.6	-1.1		-0.7	0.1
Cr	Gavaraget-1	44	0.000	0.2215	0.2977	0.5479	0.8286	1.74	2.0528	0.5681				-17.6	-3.2	-2.7	-1.9	-1.3		-0.2	0.0
Cr	Gavaraget-2	119	0.000	0.5641	0.8012	1.1196	1.3373	1.76	4.6818	0.6259				-17.6	-1.8	-1.3	-0.8	-0.6		-0.2	1.2
Cr	Karchaghbyur-1	72	0.000	0.2116	0.3668	0.4943	0.6671	0.85	1.3586	0.2822				-17.6	-3.2	-2.4	-2.0	-1.6		-1.2	-0.6
Cr	Karchaghbyur-2	118	0.000	0.349	0.4761	0.7013	0.9158	1.11	2.1123	0.3389				-17.6	-2.5	-2.1	-1.5	-1.1		-0.8	0.1
Cr	Martuni-1	83	0.000	0.113	0.2093	0.3171	0.4243	0.62	0.9684	0.2058				-17.6	-4.1	-3.3	-2.7	-2.2		-1.7	-1.0
Cr	Martuni-2	104	0.000	0.1992	0.3155	0.5448	0.728	0.99	2.0241	0.3829				-17.6	-3.3	-2.7	-1.9	-1.5		-1.0	0.0
Cr	Masrik-2	120	0.000	0.8511	1.1011	1.4998	1.9962	2.90	5.0761	0.9378				-17.6	-1.2	-0.9	-0.4	0.0		0.5	1.3
Cr	Shoghvag-2	119	0.000	0.5499	0.844	1.117	1.436	1.67	2.8534	0.5255				-17.6	-1.9	-1.2	-0.8	-0.5		-0.3	0.5
Cr	Sotk-2	111	0.1613	1.2366	1.6161	2.3804	3.3733	4.88	7.304	1.493				-3.6	-0.7	-0.3	0.3	0.8		1.3	1.9
Cr	Tsakkar-2	113	0.000	0.3551	0.4526	0.8099	1.3844	1.69	4.6326	0.7214				-17.6	-2.5	-2.1	-1.3	-0.5		-0.2	1.2
Cr	Vardenis-1	82	0.000	0.2015	0.2786	0.3797	0.5185	0.77	1.3286	0.2717				-17.6	-3.3	-2.8	-2.4	-1.9		-1.4	-0.6
Cr	Vardenis-2	115	0.0408	0.1899	0.2966	0.4275	0.5913	0.87	1.6187	0.301				-5.6	-3.4	-2.8	-2.2	-1.8		-1.2	-0.3
Cu	Argichi-1	75	0.1161	0.4751	0.6082	0.7595	1.0029	1.4	2.1349	0.3651		0.2-1	1	-3.1	-1.1	-0.7	-0.4	0.0		0.5	1.1
Cu	Argichi-2	122	0.403	0.8327	1.0241	1.3137	1.8004	2.3	4.0338	0.6536				-1.3	-0.3	0.0	0.4	0.8		1.2	2.0
Cu	Dzknaget-1	81	0.0631	0.5553	0.911	1.2489	1.8194	2.2	3.5012	0.6966				-4.0	-0.8	-0.1	0.3	0.9		1.2	1.8
Cu	Dzknaget-2	122	0.1	0.788	1.1291	1.6273	2.4047	2.9	6.0256	0.9615				-3.3	-0.3	0.2	0.7	1.3		1.6	2.6
Cu	Gavaraget-1	44	0.1091	0.7591	0.9917	1.2479	1.4735	1.7	2.0141	0.405				-3.2	-0.4	0.0	0.3	0.6		0.8	1.0
Cu	Gavaraget-2	121	0.3572	0.9464	1.2031	1.4295	1.768	2.4	3.1829	0.5551				-1.5	-0.1	0.3	0.5	0.8		1.3	1.7
Cu	Karchaghbyur-1	71	0.0201	0.2035	0.3958	0.578	0.7996	1.0	1.7294	0.3378				-5.6	-2.3	-1.3	-0.8	-0.3		0.0	0.8
Cu	Karchaghbyur-2	120	0.3427	0.8646	1.0071	1.168	1.3999	1.7	2.4335	0.3573				-1.5	-0.2	0.0	0.2	0.5		0.8	1.3
Cu	Martuni-1	83	0.0554	0.4825	0.67	0.9574	1.2013	1.5	2.1108	0.4159				-4.2	-1.1	-0.6	-0.1	0.3		0.6	1.1
Cu	Martuni-2	106	0.047	0.9174	1.1313	1.4339	1.8666	2.2	3.1599	0.5605				-4.4	-0.1	0.2	0.5	0.9		1.2	1.7
Cu	Masrik-2	121	0.2399	0.8483	1.0842	1.5974	2.1124	2.8	4.6291	0.8852				-2.1	-0.2	0.1	0.7	1.1		1.5	2.2
Cu	Shoghvag-2	121	0.2344	0.526	0.7289	0.9373	1.2937	1.8	2.881	0.5168				-2.1	-0.9	-0.5	-0.1	0.4		0.8	1.5
Cu	Sotk-2	112	0.2143	1.3352	1.7329	2.2177	2.9617	4.3	6.5836	1.156				-2.2	0.4	0.8	1.1	1.6		2.1	2.7
Cu	Tsakkar-2	115	0.2057	0.7787	1.082	1.2863	1.5764	2.0	2.5539	0.4699				-2.3	-0.4	0.1	0.4	0.7		1.0	1.4
Cu	Vardenis-1	82	0.1076	0.6397	0.8799	1.0657	1.4994	2.1	2.959	0.5717				-3.2	-0.6	-0.2	0.1	0.6		1.1	1.6
Cu	Vardenis-2	117	0.3652	0.8248	1.0734	1.5413	1.9366	2.4	4.0649	0.6851				-1.5	-0.3	0.1	0.6	1.0		1.3	2.0

Table S2 Descriptive statistics for trace elements and comparison with literature data

Quality class adapted from Müller's Igeo based on upper limit reported by Gaillardet et al. (2005)

Class	Value	Exceedance of upper limit
I	value ≤ 0	Non
I-II	0 < value ≤ 1	Non to moderate
II	1 < value ≤ 2	Moderate
II-III	2 < value ≤ 3	Moderate to strong
III	3 < value ≤ 4	Strong
III-IV	4 < value ≤ 5	Strong to extreme
IV	value > 5	Extreme

Water constitue nt	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd		Gaillardet et al. (2005)		IV	value > 5			Extreme			
												Range	upper limit	min	p10	Q1	media	Q3		p90	max
Fe	Argichi-1	73	0.0392	0.2869	0.3781	0.4898	0.6242	0.72	1.157	0.2035		0.0015-0.4	0.4	-3.4	-0.5	-0.1	0.3	0.6		0.9	1.5
Fe	Argichi-2	122	0.0017	0.0888	0.1573	0.2511	0.3433	0.44	0.8083	0.1394				-7.9	-2.2	-1.3	-0.7	-0.2		0.1	1.0
Fe	Dzknaget-1	81	0.0121	0.0523	0.0997	0.1705	0.223	0.32	0.5448	0.1233				-5.0	-2.9	-2.0	-1.2	-0.8		-0.3	0.4
Fe	Dzknaget-2	122	0.0291	0.0832	0.1451	0.2563	0.3873	0.56	1.0465	0.2034				-3.8	-2.3	-1.5	-0.6	0.0		0.5	1.4
Fe	Gavaraget-1	43	0.0097	0.0675	0.0868	0.1288	0.1636	0.30	0.3841	0.087				-5.4	-2.6	-2.2	-1.6	-1.3		-0.4	-0.1
Fe	Gavaraget-2	121	0.0045	0.0383	0.0663	0.1104	0.1582	0.23	0.3456	0.0747				-6.5	-3.4	-2.6	-1.9	-1.3		-0.8	-0.2
Fe	Karchaghbyur-1	72	0.00001	0.0491	0.0714	0.1206	0.1654	0.21	0.3565	0.0673				-15.3	-3.0	-2.5	-1.7	-1.3		-1.0	-0.2
Fe	Karchaghbyur-2	120	0.003	0.0242	0.0399	0.0756	0.1055	0.14	0.2571	0.0539				-7.1	-4.0	-3.3	-2.4	-1.9		-1.5	-0.6
Fe	Martuni-1	83	0.0014	0.0345	0.0578	0.0994	0.1393	0.19	0.3286	0.0675				-8.2	-3.5	-2.8	-2.0	-1.5		-1.1	-0.3
Fe	Martuni-2	106	0.00001	0.0197	0.0445	0.0882	0.1424	0.24	0.412	0.0945				-15.3	-4.3	-3.2	-2.2	-1.5		-0.7	0.0
Fe	Masrik-2	120	0.0003	0.0661	0.1068	0.1781	0.288	0.38	0.7832	0.1487				-10.4	-2.6	-1.9	-1.2	-0.5		-0.1	1.0
Fe	Shoghvag-2	121	0.01	0.0317	0.059	0.0884	0.1172	0.16	0.2437	0.0484				-5.3	-3.7	-2.8	-2.2	-1.8		-1.3	-0.7
Fe	Sotk-2	111	0.0091	0.0555	0.1399	0.2611	0.5255	0.79	1.5034	0.3317				-5.5	-2.8	-1.5	-0.6	0.4		1.0	1.9
Fe	Tsakkar-2	115	0.003	0.0284	0.0445	0.0987	0.1674	0.20	0.4239	0.0801				-7.1	-3.8	-3.2	-2.0	-1.3		-1.0	0.1
Fe	Vardenis-1	82	0.0113	0.0373	0.0607	0.0913	0.1162	0.16	0.2404	0.049				-5.1	-3.4	-2.7	-2.1	-1.8		-1.3	-0.7
Fe	Vardenis-2	117	0.0022	0.0225	0.0503	0.0767	0.1477	0.23	0.4852	0.0893				-7.5	-4.2	-3.0	-2.4	-1.4		-0.8	0.3
Mn	Argichi-1	75	0.19	4.13	7.10	10.80	15.66	21.7	37.81	7.22		0.3-30	30	-7.3	-2.9	-2.1	-1.5	-0.9		-0.5	0.3
Mn	Argichi-2	122	1.32	3.95	5.72	8.24	11.85	17.1	28.65	5.36				-4.5	-2.9	-2.4	-1.9	-1.3		-0.8	-0.1
Mn	Dzknaget-1	81	0.47	4.14	6.86	9.68	14.83	31.1	39.16	9.72				-6.0	-2.9	-2.1	-1.6	-1.0		0.1	0.4
Mn	Dzknaget-2	122	0.05	9.53	16.05	29.41	71.79	133.6	226.29	50.70				-9.2	-1.7	-0.9	0.0	1.3		2.2	2.9
Mn	Gavaraget-1	44	0.70	1.47	2.00	3.05	3.86	5.2	9.45	1.72				-5.4	-4.3	-3.9	-3.3	-3.0		-2.5	-1.7
Mn	Gavaraget-2	121	1.36	6.87	14.50	24.22	28.73	34.2	53.55	10.58				-4.5	-2.1	-1.0	-0.3	-0.1		0.2	0.8
Mn	Karchaghbyur-1	72	0.52	1.71	2.25	2.80	5.44	8.1	13.85	2.81				-5.8	-4.1	-3.7	-3.4	-2.5		-1.9	-1.1
Mn	Karchaghbyur-2	120	0.37	1.11	1.78	2.63	3.84	4.9	8.90	1.68				-6.4	-4.8	-4.1	-3.5	-3.0		-2.6	-1.8
Mn	Martuni-1	83	0.33	1.72	4.56	8.91	13.78	21.3	30.58	7.31				-6.5	-4.1	-2.7	-1.8	-1.1		-0.5	0.0
Mn	Martuni-2	106	0.41	1.80	2.70	4.20	7.21	13.3	23.54	4.85				-6.2	-4.1	-3.5	-2.8	-2.1		-1.2	-0.3
Mn	Masrik-2	121	1.06	3.20	7.13	11.90	18.90	24.9	48.57	9.14				-4.8	-3.2	-2.1	-1.3	-0.7		-0.3	0.7
Mn	Shoghvag-2	121	0.66	2.74	4.38	6.75	9.29	10.5	20.66	3.51				-5.5	-3.5	-2.8	-2.2	-1.7		-1.5	-0.5
Mn	Sotk-2	112	0.52	1.68	3.70	9.12	19.49	31.8	54.64	12.66				-5.8	-4.2	-3.0	-1.7	-0.6		0.1	0.9
Mn	Tsakkar-2	115	0.38	1.71	2.69	4.21	5.52	7.9	13.35	2.39				-6.3	-4.1	-3.5	-2.8	-2.4		-1.9	-1.2
Mn	Vardenis-1	82	0.59	1.86	3.20	4.60	7.08	8.9	10.56	2.53				-5.7	-4.0	-3.2	-2.7	-2.1		-1.7	-1.5
Mn	Vardenis-2	117	0.02	2.37	3.67	6.03	9.95	15.9	34.16	6.65				-10.6	-3.7	-3.0	-2.3	-1.6		-0.9	0.2

Table S2 Descriptive statistics for trace elements and comparison with literature data

Quality class adapted from Müller's Igeo based on upper limit reported by Gaillardet et al. (2005)

Class	Value	Exceedance of upper limit
I	value ≤ 0	Non
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III-IV	4 < value ≤ 5	Strong to extreme
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Water constitue nt	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd		Gaillardet et al. (2005)		IV	value > 5		Extreme				
												Range	upper limit	min	p10	Q1	media	Q3		p90	max
Mo	Argichi-1	75	0.021	0.285	0.450	0.667	0.850	1.0	1.347	0.286		0.06-1.5	1.5	-6.2	-2.4	-1.7	-1.2	-0.8		-0.7	-0.2
Mo	Argichi-2	122	0.067	0.381	0.677	1.045	1.232	1.7	2.748	0.505				-4.5	-2.0	-1.1	-0.5	-0.3		0.1	0.9
Mo	Dzknaget-1	81	0.167	0.263	0.411	0.839	1.226	1.6	3.098	0.542				-3.2	-2.5	-1.9	-0.8	-0.3		0.1	1.0
Mo	Dzknaget-2	122	0.228	0.392	0.627	1.046	1.352	1.8	3.158	0.541				-2.7	-1.9	-1.3	-0.5	-0.1		0.2	1.1
Mo	Gavaraget-1	44	0.089	0.149	0.180	0.238	0.308	0.4	0.483	0.088				-4.1	-3.3	-3.1	-2.7	-2.3		-2.1	-1.6
Mo	Gavaraget-2	121	0.890	1.406	1.940	2.188	2.437	2.7	4.058	0.561				-0.8	-0.1	0.4	0.5	0.7		0.8	1.4
Mo	Karchaghbyur-1	72	0.087	0.229	0.299	0.394	0.490	0.6	0.704	0.141				-4.1	-2.7	-2.3	-1.9	-1.6		-1.4	-1.1
Mo	Karchaghbyur-2	120	0.161	0.668	0.882	1.037	1.200	1.4	2.081	0.323				-3.2	-1.2	-0.8	-0.5	-0.3		-0.1	0.5
Mo	Martuni-1	83	0.023	0.225	0.290	0.538	0.913	1.1	1.567	0.359				-6.0	-2.7	-2.4	-1.5	-0.7		-0.5	0.1
Mo	Martuni-2	106	0.093	0.282	0.400	0.710	0.856	1.1	2.128	0.351				-4.0	-2.4	-1.9	-1.1	-0.8		-0.4	0.5
Mo	Masrik-2	121	0.359	1.036	1.408	1.678	1.859	2.1	2.450	0.392				-2.1	-0.5	-0.1	0.2	0.3		0.5	0.7
Mo	Shoghvag-2	121	0.155	0.875	1.126	1.344	1.533	1.7	2.354	0.357				-3.3	-0.8	-0.4	-0.2	0.0		0.2	0.7
Mo	Sotk-2	112	0.137	0.367	0.543	0.726	0.961	1.1	2.099	0.330				-3.5	-2.0	-1.5	-1.0	-0.6		-0.4	0.5
Mo	Tsakkar-2	115	0.172	0.353	0.867	1.222	1.497	1.8	2.214	0.500				-3.1	-2.1	-0.8	-0.3	0.0		0.2	0.6
Mo	Vardenis-1	82	0.038	0.226	0.278	0.366	0.452	0.5	0.760	0.146				-5.3	-2.7	-2.4	-2.0	-1.7		-1.5	-1.0
Mo	Vardenis-2	117	0.090	0.234	0.320	0.472	0.603	0.8	1.401	0.262				-4.1	-2.7	-2.2	-1.7	-1.3		-0.8	-0.1
Ni	Argichi-1	75	0.3747	0.614	0.7285	0.9091	1.175	1.6	2.49	0.4412		0.2-2(6)	2	-2.4	-1.7	-1.5	-1.1	-0.8		-0.4	0.3
Ni	Argichi-2	122	0.3812	0.6409	0.7759	1.0205	1.336	1.7	2.4637	0.4429				-2.4	-1.6	-1.4	-1.0	-0.6		-0.2	0.3
Ni	Dzknaget-1	81	0.19	0.5404	0.7446	1.0421	1.3553	1.7	2.9173	0.4638				-3.4	-1.9	-1.4	-0.9	-0.6		-0.3	0.5
Ni	Dzknaget-2	122	0.00001	1.0552	1.2787	1.7201	2.1104	2.4	4.2417	0.664				-17.6	-0.9	-0.6	-0.2	0.1		0.3	1.1
Ni	Gavaraget-1	44	0.5769	0.6812	0.8488	1.0578	1.2526	1.4	2.0242	0.3322				-1.8	-1.6	-1.2	-0.9	-0.7		-0.5	0.0
Ni	Gavaraget-2	121	0.2575	0.8435	1.0154	1.1918	1.45	1.8	2.3065	0.361				-3.0	-1.2	-1.0	-0.7	-0.5		-0.2	0.2
Ni	Karchaghbyur-1	72	0.0398	0.3342	0.4459	0.6048	0.8283	1.1	1.6309	0.3262				-5.7	-2.6	-2.2	-1.7	-1.3		-0.9	-0.3
Ni	Karchaghbyur-2	120	0.1606	0.4087	0.504	0.6224	0.8605	1.0	1.9211	0.2836				-3.6	-2.3	-2.0	-1.7	-1.2		-0.9	-0.1
Ni	Martuni-1	83	0.4396	0.738	1.0095	1.383	1.6253	2.0	3.4692	0.567				-2.2	-1.4	-1.0	-0.5	-0.3		0.0	0.8
Ni	Martuni-2	106	0.1293	0.7631	1.0219	1.2903	1.598	1.9	3.0641	0.5039				-4.0	-1.4	-1.0	-0.6	-0.3		-0.1	0.6
Ni	Masrik-2	121	0.00001	1.3319	1.7991	2.4261	3.1219	4.8	9.7432	1.5768				-17.6	-0.6	-0.2	0.3	0.6		1.3	2.3
Ni	Shoghvag-2	121	0.3149	0.6424	0.7769	0.9727	1.2347	1.6	2.3474	0.3991				-2.7	-1.6	-1.4	-1.0	-0.7		-0.3	0.2
Ni	Sotk-2	112	3.1422	7.5749	8.946	11.8002	15.0933	20.6	28.3753	5.3451				0.7	1.9	2.2	2.6	2.9		3.4	3.8
Ni	Tsakkar-2	115	0.1427	0.6525	0.8549	1.1232	1.3968	1.8	2.9476	0.4956				-3.8	-1.6	-1.2	-0.8	-0.5		-0.2	0.6
Ni	Vardenis-1	82	0.1358	0.3473	0.5081	0.6661	0.9056	1.3	2.0003	0.3812				-3.9	-2.5	-2.0	-1.6	-1.1		-0.7	0.0
Ni	Vardenis-2	117	0.2314	0.4525	0.5504	0.7529	1.28	1.9	3.4681	0.6367				-3.1	-2.1	-1.9	-1.4	-0.6		-0.1	0.8

Table S2 Descriptive statistics for trace elements and comparison with literature data

Quality class adapted from Müller's Igeo based on upper limit reported by Gaillardet et al. (2005)

Water constituent	Sampling site	n	min	p10	Q1	median	Q3	p90	max	sd	Range	upper limit	Gaillardet et al. (2005)							
													Class	Value	Exceedance of upper limit					
													I	value ≤ 0	Non					
													I-II	0 < value ≤ 1	Non to moderate					
													II	1 < value ≤ 2	Moderate					
													II-III	2 < value ≤ 3	Moderate to strong					
													III	3 < value ≤ 4	Strong					
													III-IV	4 < value ≤ 5	Strong to extreme					
													IV	value > 5	Extreme					
													min	p10	Q1	media	Q3		p90	max
V	Argichi-1	75	0.3544	2.3871	3.007	4.1021	5.1708	5.8	8.9354	1.6271	0.1-2	2	-2.5	0.3	0.6	1.0	1.4		1.5	2.2
V	Argichi-2	122	0.00001	3.6227	4.9313	7.9441	10.4614	13.9	19.151	3.9483			-17.6	0.9	1.3	2.0	2.4		2.8	3.3
V	Dzknaget-1	81	0.5947	0.9636	1.1754	1.5576	2.1119	2.7	3.7495	0.6624			-1.7	-1.1	-0.8	-0.4	0.1		0.4	0.9
V	Dzknaget-2	122	0.2836	1.6058	1.8767	2.2568	2.8361	3.6	5.7321	0.8472			-2.8	-0.3	-0.1	0.2	0.5		0.8	1.5
V	Gavaraget-1	44	0.4175	0.8233	0.9933	1.3462	1.6794	1.8	3.0445	0.4904			-2.3	-1.3	-1.0	-0.6	-0.3		-0.2	0.6
V	Gavaraget-2	121	11.5898	15.0963	19.697	24.1793	26.6471	28.8	37.6212	5.4009			2.5	2.9	3.3	3.6	3.7		3.8	4.2
V	Karchaghbyur-1	72	0.0336	1.9333	2.6565	3.7252	4.8875	5.4	7.2287	1.4338			-5.9	0.0	0.4	0.9	1.3		1.4	1.9
V	Karchaghbyur-2	120	2.7656	7.2652	8.9141	10.4637	12.0905	13.5	17.9856	2.5636			0.5	1.9	2.2	2.4	2.6		2.8	3.2
V	Martuni-1	83	0.4287	0.9725	1.3257	2.1308	3.1201	3.7	5.872	1.1018			-2.2	-1.0	-0.6	0.1	0.6		0.9	1.6
V	Martuni-2	106	0.0194	1.548	2.0518	2.9589	3.9274	4.4	7.6021	1.3011			-6.7	-0.4	0.0	0.6	1.0		1.1	1.9
V	Masrik-2	121	4.9255	8.3053	10.6054	13.0792	14.9639	17.0	20.7191	3.2603			1.3	2.1	2.4	2.7	2.9		3.1	3.4
V	Shoghvag-2	121	2.0631	5.5476	7.1455	9.616	10.8241	11.7	16.0173	2.5163			0.0	1.5	1.8	2.3	2.4		2.5	3.0
V	Sotk-2	112	1.671	3.2085	4.154	5.1268	6.6945	8.3	11.3444	1.9899			-0.3	0.7	1.1	1.4	1.7		2.0	2.5
V	Tsakkar-2	115	1.2121	2.7863	5.631	7.4789	10.5264	13.0	17.3245	3.7261			-0.7	0.5	1.5	1.9	2.4		2.7	3.1
V	Vardenis-1	82	1.0296	1.4578	1.7086	2.2504	2.5477	3.1	4.9206	0.7022			-1.0	-0.5	-0.2	0.2	0.3		0.6	1.3
V	Vardenis-2	117	1.1869	1.622	1.9017	2.6339	3.2798	5.3	7.766	1.583			-0.8	-0.3	-0.1	0.4	0.7		1.4	2.0
Zn	Argichi-1	75	0.00001	0.2884	0.4848	0.7927	1.4122	2.8	5.5373	1.3054	0.06-2(8)	2	-17.6	-2.8	-2.0	-1.3	-0.5		0.5	1.5
Zn	Argichi-2	122	0.00001	0.6634	1.0091	1.8558	3.5729	7.9	16.0505	3.6347			-17.6	-1.6	-1.0	-0.1	0.8		2.0	3.0
Zn	Dzknaget-1	81	0.00001	0.1739	0.6343	1.4397	2.883	6.0	10.7255	2.7038			-17.6	-3.5	-1.7	-0.5	0.5		1.6	2.4
Zn	Dzknaget-2	122	0.00001	0.4106	0.9949	1.997	3.5917	7.4	13.4541	2.8758			-17.6	-2.3	-1.0	0.0	0.8		1.9	2.7
Zn	Gavaraget-1	44	0.034	0.4083	0.8186	1.1789	1.9056	2.7	4.4736	1.0012			-5.9	-2.3	-1.3	-0.8	-0.1		0.4	1.2
Zn	Gavaraget-2	121	0.3367	1.2865	2.0156	2.9342	5.2473	10.7	18.5048	3.7872			-2.6	-0.6	0.0	0.6	1.4		2.4	3.2
Zn	Karchaghbyur-1	71	0.00001	0.1517	0.3354	0.6047	0.8972	1.4	3.2275	0.61			-17.6	-3.7	-2.6	-1.7	-1.2		-0.5	0.7
Zn	Karchaghbyur-2	120	0.00001	0.4869	0.7262	1.1571	1.8447	3.3	17.421	1.9437			-17.6	-2.0	-1.5	-0.8	-0.1		0.7	3.1
Zn	Martuni-1	83	0.00001	0.4272	0.9259	1.5253	3.1329	6.0	11.2675	2.4908			-17.6	-2.2	-1.1	-0.4	0.6		1.6	2.5
Zn	Martuni-2	106	0.1607	1.026	1.6287	2.3608	4.2503	7.2	19.0824	3.4626			-3.6	-1.0	-0.3	0.2	1.1		1.8	3.3
Zn	Masrik-2	121	0.0454	0.5935	1.1386	2.1104	4.3555	9.0	18.6817	3.6345			-5.5	-1.8	-0.8	0.1	1.1		2.2	3.2
Zn	Shoghvag-2	121	0.00001	0.5039	0.8597	1.4253	2.3468	5.0	12.7491	2.7624			-17.6	-2.0	-1.2	-0.5	0.2		1.3	2.7
Zn	Sotk-2	112	0.00001	0.4337	0.9081	1.5992	3.1622	5.7	15.2244	2.4638			-17.6	-2.2	-1.1	-0.3	0.7		1.5	2.9
Zn	Tsakkar-2	115	0.00001	0.505	0.9665	1.6625	3.3388	7.3	12.8276	3.0496			-17.6	-2.0	-1.0	-0.3	0.7		1.9	2.7
Zn	Vardenis-1	82	0.0465	0.5153	0.8566	1.6074	2.5648	5.0	8.5256	1.9891			-5.4	-2.0	-1.2	-0.3	0.4		1.3	2.1
Zn	Vardenis-2	117	0.00001	0.7585	1.351	2.1319	3.1825	6.2	15.623	2.8024			-17.6	-1.4	-0.6	0.1	0.7		1.6	3.0