

# STANDARD BIOGEOCHEMICAL REFERENCE MATERIAL FOR Au DEPOSITS

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UPDEEP\_SPRU\_NEED\_DRY

KAVA Reference: 16329, UpDeep, Upscaling deep buried geochemical exploration techniques into European business

Name of the authors/Responsible partners: Maarit Middleton, Antti Taskinen, Tero Korhonen, Anne Taivalkoski/Geological Survey of Finland, Jens Rönngqvist/Scandinavian GeoPool, Dominika Miksova/Vienna University of Technology

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## 1. INTRODUCTION

UpDeep standard reference materials (SRM) are intended to be used in vegetation (i.e. biogeochemical) analysis for providing an affordable method of controlling the quality of plant samples for mineral exploration purposes. SRMs are produced less rigorously compared to e.g certified reference materials. The UpDeep SRM samples do not follow the ISO standardization and are therefore not certified reference materials (CRM). However, the UpDeep standard reference materials are more affordable and can thus be inserted in the analysis sequence more frequently than CRMs. For the user of the UpDeep SRMs, the purpose is to externally quantify laboratory accuracy and precision.

## 2. SOURCE MATERIALS

UPDEEP\_SPRU\_BARK\_NEED SRM is Norway spruce (*Picea abies*) needles (foliage) collected on top of a Au bearing Tiira prospect in year 2017. UPDEEP\_SPRU\_NEED\_DRY is one of six reference materials (soil Ah- and B-horizon, common juniper foliage, Scots pine bark, Norway spruce bark and foliage) collected in the UpDeep project on the Mäkärä and Tiira exploration targets in northern Finland.

## 3. COMMINUTION AND HOMOGENISATION PROCEDURES

The UPDEEP\_SPRU\_NEED\_DRY SRM was prepared as follows:

- sampling of the common juniper foliage samples in the field
- drying at 40°C for 48 h
- separating the needles and the twigs manually
- milling with Retsch SM 300 heavy metal free cutting mill to 0.5 mm
- homogenizing the milled material by mixing in a mill

- 2 g aliquots were taken from the split homogenized material to be sent to commercial analytical laboratories

## 4. ANALYTICAL PROGRAM

UPDEEP\_SPRU\_NEED\_DRY SRM samples were analyzed in three geochemical analytical laboratories:

- Activation Laboratories Ltd. (Actlabs, Ancaster, ON, Canada)
- ALS Minerals/ALS Global (ALS, Vancouver, Canada through, ALS, Sodankylä, Finland)
- Bureau Veritas Minerals Acmelabs (BVAcme labs, Shaughnessy St., Vancouver, BC, Canada)

The analytical methods are presented in table 1.

*Table 1. Laboratories, analytical packages and analytical details used to analyse the UPDEEP\_SPRU\_NEED\_DRY.*

Laboratory	Analytical package	pretreatment	sample weight (g)	leaching	Instrumentation	# of elements
ALS	ME-VEG41	drying and milling to 0.5 mm	1	cold digested with nitric acid for 8 hours before being transferred to hot block for 15 minutes at 85°C followed by 2 hours at 115°C	Agilent 725-ES (ICP-OES) ja Agilent 7900 (ICP-MS) corrected for spectral interferences	64
BVAcme labs	VG101-EXT-REE	drying and milling to 0.5 mm	1	HNO <sub>3</sub> then aqua regia	ICP-MS/ICP-OES	63
Actlabs	2F-Special	drying and milling to 0.5 mm	0.5	aqua regia at 95°C for 2 hours	Finnegan Mat Element 2 High Resolution	61

					ICP/MS (HR-ICP/MS)	
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Ten UPDEEP\_SPRU\_NEED\_DRY SRM aliquots were sent to each laboratory. Tables 2, 3 and 4 present information values for the laboratory results. The RSD% values < 5 are marked as green, the  $5 \leq \text{RSD}\% \leq 15$  are marked with orange and the  $\text{RSD}\% > 15$  are marked with red. Elements having less than four observations between the detection limits are coloured grey.

## 5. STATISTICAL ANALYSIS

Analysed elements, units, lower (LDL) and upper detection limits (UDL), percentage of <LDL, >UDL and discretized values, mean, median, standard deviation (SD), relative standard deviation (RSD%) and median absolute deviation (MAD) are presented in Chapter 6. Original data, quality control monitoring results and statistical measures are available upon request.

## 6. PARTICIPANT LABORATORIES

### 6.1. Actlabs, Ancaster, Canada

*Table 2. Statistics for UPDEEP\_SPRU\_NEED\_DRY\_Actlabs based on 10 aliquots. LDL = lower detection limit, pct\_LDL = percent of samples under lower detection limit, UDL = upper detection limit, pct\_UDL = percent of samples over upper detection limit, pct\_discr = percent of discretized values, SD = standard deviation, RSD% = relative standard deviation percent and MAD= median absolute deviation. The RSD% values < 5 are marked as green, the  $5 \leq \text{RSD}\% \leq 15$  are marked with orange and the  $\text{RSD}\% > 15$  are marked with red. Elements having less than four observations between the detection limits are coloured grey.*

element	unit	LDL_ppm	pct_LDL	UDL	pct_UDL	pct_discr	MEAN	MEDIAN	SD	RSD %	MAD
Ag	ppb	200	100	NA	0	100	150	150	0	0	0
As	ppb	4	0	NA	0	0	131.5	128.5	16.4874	12.5379	8.8956

Au	ppb	NA	0	NA	0	0						
B	ppb	3000	0	NA	0	0	8717	8680	228.4756	2.621	214.977	
Ba	ppb	100	0	NA	0	0	38770	38950	1098.5344	2.8335	815.43	
Be	ppb	30	100	NA	0	100	22.5	22.5	0	0	0	
Bi	ppb	5	100	NA	0	100	3.75	3.75	0	0	0	
Ca	ppb	10000	0	NA	0	0	5413000	5440000	112649.9001	2.0811	133434	
Cd	ppb	3	0	NA	0	0	15.56	15.95	1.2903	8.2925	0.7413	
Ce	ppb	1	0	NA	0	0	23.43	20	6.713	28.6514	1.2602	
Co	ppb	0.9	0	NA	0	30	83.05	82	4.6524	5.6019	0.2965	
Cr	ppb	7	0	NA	0	0	39.13	39	1.8215	4.655	2.1498	
Cs	ppb	1	0	NA	0	0	70.81	70.45	2.0755	2.9311	1.7791	
Cu	ppb	10	0	NA	0	0	1578	1570	63.7356	4.039	59.304	
Dy	ppb	1	0	NA	0	0	3.605	3.625	0.2874	7.9715	0.3039	
Er	ppb	0.3	0	NA	0	0	2.065	2.075	0.1331	6.4457	0.1112	
Eu	ppb	0.6	0	NA	0	0	1.1082	1.12	0.1671	15.0829	0.1408	
Fe	ppb	200	0	NA	0	0	33200	33450	907.9892	2.7349	296.52	
Ga	ppb	3	0	NA	0	0	14.412	14.2	2.7989	19.4207	2.7428	
Gd	ppb	1	0	NA	0	0	4.043	3.94	0.5166	12.7769	0.3558	
Ge	ppb	2	90	NA	0	90	1.566	1.5	0.2087	13.3276	0	
Hf	ppb	1	100	NA	0	100	0.75	0.75	0	0	0	
Hg	ppb	100	100	NA	0	100	75	75	0	0	0	
Ho	ppb	0.4	0	NA	0	0	0.7486	0.746	0.0456	6.0878	0.0363	
In	ppb	1	100	NA	0	100	0.75	0.75	0	0	0	
K	ppb	600	0	NA	0	0	3714000	3670000	111474.9598	3.0015	59304	
La	ppb	1	0	NA	0	0	25.38	23.9	4.1314	16.2782	2.3722	
Li	ppb	300	100	NA	0	100	225	225	0	0	0	
Lu	ppb	0.6	70	NA	0	70	2.3248	0.45	5.5475	238.6247	0	
Mg	ppb	200	0	NA	0	0	837100	840000	12731.8498	1.5209	12602.1	
Mn	ppb	10	0	NA	0	30	1075	1070	27.1825	2.5286	14.826	
Mo	ppb	3	0	NA	0	0	28.18	28.25	1.3113	4.6534	1.4826	
Na	ppb	1000	0	NA	0	0	25980	25100	2522.697	9.7101	296.52	
Nb	ppb	2	0	NA	0	0	2.907	2.82	0.2958	10.1763	0.2002	
Nd	ppb	1	0	NA	0	0	19.12	18.5	3.4724	18.1609	2.9652	
Ni	ppb	30	0	NA	0	0	705.3	677.5	64.0816	9.0857	21.4977	
Pb	ppb	4	30	NA	0	30	96.37	46.55	118.9017	123.3804	64.5672	
Pd	ppb	10	100	NA	0	100	7.5	7.5	0	0	0	
Pr	ppb	0.7	0	NA	0	0	4.762	4.43	0.9502	19.9548	0.5041	

Pt	ppb	300	100	NA	0	100	225	225	0	0	0
Rb	ppb	2	0	NA	0	0	9697	9720	109.4481	1.1287	111.195
Re	ppb	0.4	100	NA	0	100	0.3	0.3	0	0	0
Sb	ppb	8	100	NA	0	100	6	6	0	0	0
Sc	ppb	20	100	NA	0	100	15	15	0	0	0
Se	ppb	20	60	NA	0	60	20.16	15	8.6348	42.8315	0
Sm	ppb	1	0	NA	0	0	3.361	3.255	0.7152	21.2782	0.5263
Sn	ppb	40	100	NA	0	100	30	30	0	0	0
Sr	ppb	20	0	NA	0	30	19630	19600	182.8782	0.9316	148.26
Ta	ppb	0.2	0	NA	0	0	0.7289	0.709	0.1158	15.8858	0.1075
Tb	ppb	0.6	40	NA	0	40	0.6105	0.6365	0.1493	24.4493	0.238
Te	ppb	20	80	NA	0	80	16.62	15	3.4698	20.8773	0
Th	ppb	0.6	0	NA	0	0	8.936	5.79	5.9409	66.4833	2.6168
Ti	ppb	40	0	NA	0	0	416.9	408	68.395	16.4056	70.4235
Tl	ppb	0.7	0	NA	0	0	39.84	39.65	0.8488	2.1305	0.593
Tm	ppb	0.5	100	NA	0	100	0.375	0.375	0	0	0
U	ppb	0.4	0	NA	0	0	4.3726	1.69	5.7483	131.4623	1.5441
V	ppb	6	0	NA	0	0	38.96	39.65	2.28	5.8521	0.5189
W	ppb	3	90	NA	0	90	14.125	2.25	37.552	265.8552	0
Y	ppb	1	0	NA	0	0	35.31	35.1	1.4271	4.0416	1.6309
Yb	ppb	0.4	0	NA	0	0	1.226	1.195	0.1239	10.1089	0.126
Zn	ppb	400	0	NA	0	0	54480	54400	841.6914	1.545	1111.95
Zr	ppb	10	0	NA	0	0	14.65	14.5	1.5436	10.5367	1.8532

## 6.2. ALS, Vancouver, Canada

Table 3. Statistics for UPDEEP\_SPRU\_NEED\_DRY\_ALS based on 10 aliquots. LDL = lower detection limit, pct\_LDL = percent of samples under lower detection limit, UDL = upper detection limit, pct\_UDL = percent of samples over upper detection limit, pct\_discr = percent of discretized values, SD = standard deviation, RSD% = relative standard deviation percent and MAD= median absolute deviation. The RSD% values < 5 are marked as green, the  $5 \leq RSD\% \leq 15$  are marked with orange and the  $RSD\% > 15$  are marked with red. Elements having less than four observations between the detection limits are coloured grey.

element	unit	LDL_ppm	pct_LDL	UDL	pct_UDL	pct_discr	MEAN	MEDIAN	SD	RSD %	MAD
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Ag	ppm	NA	0	NA	0	60	0.0049	0.005	0.0009	17.8693	0
Al	%	NA	0	NA	0	100	0.01	0.01	0	0	0
As	ppm	NA	0	NA	0	30	0.117	0.12	0.0216	18.4856	0.0297
Au	ppm	0.0002	70	NA	0	70	0.0002	0.0001	0.0001	42.3519	0
B	ppm	NA	0	NA	0	80	9.2	9	0.4216	4.583	0
Ba	ppm	NA	0	NA	0	0	42.14	42.05	0.6802	1.6141	0.7413
Be	ppm	0.01	10	NA	0	90	0.0098	0.01	0.0008	8.1084	0
Bi	ppm	0.001	50	NA	0	100	0.0009	0.0009	0.0001	15.0585	0.0002
Ca	%	NA	0	NA	0	50	0.619	0.62	0.011	1.7779	0.0074
Cd	ppm	NA	0	NA	0	80	0.0146	0.015	0.0008	5.7758	0.0007
Ce	ppm	NA	0	NA	0	50	0.0196	0.019	0.0012	5.9887	0.0007
Co	ppm	NA	0	NA	0	70	0.0792	0.08	0.0028	3.5613	0.003
Cr	ppm	NA	0	NA	0	30	0.089	0.08	0.0423	47.508	0.0148
Cs	ppm	NA	0	NA	0	0	0.0783	0.0785	0.0057	7.3007	0.0074
Cu	ppm	NA	0	NA	0	0	1.549	1.555	0.0576	3.7204	0.0445
Dy	ppm	NA	0	NA	0	80	0.0032	0.003	0.0004	13.1762	0
Er	ppm	0.002	40	NA	0	80	0.0024	0.0025	0.0009	37.7819	0.0011
Eu	ppm	0.002	90	NA	0	90	0.0016	0.0015	0.0002	10.2009	0
Fe	ppm	NA	0	NA	0	80	32.8	33	1.3166	4.0139	0.7413
Ga	ppm	NA	0	NA	0	100	0.0055	0.0055	0.0005	9.5827	0.0007
Gd	ppm	NA	0	NA	0	70	0.0039	0.004	0.001	25.4982	0.0015
Ge	ppm	0.005	100	NA	0	100	0.0038	0.0038	0	0	0
Hf	ppm	0.002	100	NA	0	100	0.0015	0.0015	0	0	0
Hg	ppm	NA	0	NA	0	40	0.0254	0.026	0.0017	6.7429	0.0015
Ho	ppm	0.001	20	NA	0	80	0.001	0.001	0.0001	11.0957	0
In	ppm	0.005	100	NA	0	100	0.0038	0.0038	0	0	0
K	%	NA	0	NA	0	60	0.423	0.42	0.0082	1.9463	0
La	ppm	NA	0	NA	0	60	0.0241	0.024	0.0017	6.9018	0.0022
Li	ppm	0.1	100	NA	0	100	0.075	0.075	0	0	0
Lu	ppm	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
Mg	%	NA	0	NA	0	70	0.0904	0.09	0.0016	1.7452	0.0015
Mn	ppm	NA	0	NA	0	0	1159	1160	23.6643	2.0418	25.9455
Mo	ppm	NA	0	NA	0	100	0.033	0.03	0.0048	14.6378	0
Na	%	NA	0	NA	0	60	0.0227	0.0225	0.0014	6.2473	0.0007
Nb	ppm	0.002	10	NA	0	70	0.0022	0.002	0.0005	22.0624	0
Nd	ppm	NA	0	NA	0	30	0.0177	0.018	0.0032	18.2684	0.0037
Ni	ppm	NA	0	NA	0	30	0.683	0.685	0.0368	5.3928	0.0222



P	%	NA	0	NA	0	0	0.1613	0.161	0.0028	1.7547	0.003
Pb	ppm	NA	0	NA	0	70	0.047	0.05	0.0095	20.1848	0.0148
Pd	ppm	0.001	90	NA	0	90	0.0008	0.0008	0.0001	10.2009	0
Pr	ppm	NA	0	NA	0	90	0.0043	0.004	0.0007	15.6965	0.0007
Pt	ppm	NA	0	NA	0	60	0.002	0.002	0.0007	33.3333	0
Rb	ppm	NA	0	NA	0	0	9.982	9.995	0.1596	1.5986	0.2076
Re	ppm	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
S	%	NA	0	NA	0	90	0.079	0.08	0.0032	4.0029	0
Sb	ppm	NA	0	NA	0	90	0.021	0.02	0.0032	15.0585	0
Sc	ppm	NA	0	NA	0	60	0.15	0.15	0.0067	4.4444	0
Se	ppm	NA	0	NA	0	30	0.0222	0.02	0.0098	44.1247	0.0067
Sm	ppm	0.003	30	NA	0	90	0.0033	0.003	0.0009	28.6641	0.0011
Sn	ppm	NA	0	NA	0	90	0.011	0.01	0.0032	28.748	0
Sr	ppm	NA	0	NA	0	30	19.93	19.975	0.2869	1.4397	0.1853
Ta	ppm	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
Tb	ppm	0.001	30	NA	0	100	0.0009	0.001	0.0001	13.0553	0
Te	ppm	0.02	100	NA	0	100	0.015	0.015	0	0	0
Th	ppm	0.002	90	NA	0	90	0.0016	0.0015	0.0002	10.2009	0
Ti	%	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
Tl	ppm	NA	0	NA	0	80	0.04	0.0395	0.0012	2.8868	0.0007
Tm	ppm	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
U	ppm	0.005	90	NA	0	90	0.0043	0.0038	0.0017	38.835	0
V	ppm	NA	0	NA	0	70	0.082	0.08	0.0114	13.845	0.0148
W	ppm	0.01	100	NA	0	100	0.0075	0.0075	0	0	0
Y	ppm	NA	0	NA	0	30	0.0367	0.037	0.0027	7.2718	0.003
Yb	ppm	0.003	100	NA	0	100	0.0022	0.0022	0	0	0
Zn	ppm	NA	0	NA	0	0	56.02	56.1	0.7729	1.3796	0.6672
Zr	ppm	0.02	30	NA	0	100	0.0185	0.02	0.0024	13.0553	0

### 6.3. Bureau Veritas Acmelabs, Vancouver, Canada

Table 4. Statistics for UPDEEP\_SPRU\_NEED\_DRY\_BVAcmelabs based on 10 aliquots. LDL = lower detection limit, pct\_LDL = percent of samples under lower detection limit, UDL = upper detection limit, pct\_UDL = percent of samples over upper detection limit, pct\_discr = percent of discretized

values, SD = standard deviation, RSD% = relative standard deviation percent and MAD= median absolute deviation. The RSD% values < 5 are marked as green, the  $5 \leq \text{RSD}\% \leq 15$  are marked with orange and the  $\text{RSD}\% > 15$  are marked with red. Elements having less than four observations between the detection limits are coloured grey.

element	unit	LDL_ppm	pct_LDL	UDL	pct_UDL	pct_discr	MEAN	MEDIAN	SD	RSD %	MAD
Ag	PPB	2	0	NA	0	90	4.7	5	0.6749	14.3606	0.7413
Al	%	0.01	100	NA	0	100	0.0075	0.0075	0	0	0
As	PPM	0.1	60	NA	0	60	0.105	0.075	0.0511	48.6657	0
Au	PPB	0.2	20	NA	0	70	0.26	0.25	0.1049	40.3388	0.0741
B	PPM	1	0	NA	0	80	9.2	9	0.7888	8.574	1.4826
Ba	PPM	0.1	0	NA	0	0	41	41.05	1.6499	4.0242	2.2239
Be	PPM	0.1	100	NA	0	100	0.075	0.075	0	0	0
Bi	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Ca	%	0.01	0	NA	0	30	0.585	0.58	0.0292	4.9837	0.0297
Cd	PPM	0.01	0	NA	0	90	0.019	0.02	0.0032	16.6436	0
Ce	PPM	0.1	100	NA	0	100	0.075	0.075	0	0	0
Co	PPM	0.01	0	NA	0	70	0.09	0.09	0.0105	11.7121	0.0148
Cr	PPM	0.1	0	NA	0	80	1.2	1.2	0.0471	3.9284	0
Cs	PPM	0.02	0	NA	0	100	0.08	0.08	0	0	0
Cu	PPM	0.01	0	NA	0	0	1.947	1.835	0.6152	31.5963	0.2076
Dy	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Er	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Eu	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Fe	%	0.001	0	NA	0	90	0.0065	0.006	0.0007	10.8786	0
Ga	PPM	0.1	100	NA	0	100	0.075	0.075	0	0	0
Gd	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Ge	PPM	0.01	100	NA	0	100	0.0075	0.0075	0	0	0
Hf	PPM	0.001	80	NA	0	80	0.0008	0.0008	0.0001	13.1762	0
Hg	PPB	1	0	NA	0	0	27.7	27.5	2.3594	8.5176	2.9652
Ho	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
In	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
K	%	0.01	0	NA	0	30	0.404	0.405	0.0284	7.0205	0.0371
La	PPM	0.01	0	NA	0	100	0.015	0.015	0.0053	35.1364	0.0074
Li	PPM	0.01	0	NA	0	80	0.032	0.03	0.0079	24.6503	0.0148
Lu	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Mg	%	0.001	0	NA	0	30	0.0922	0.093	0.004	4.3624	0.0037
Mn	PPM	1	0	NA	0	0	1180.3	1185.5	37.5886	3.1847	28.9107

Mo	PPM	0.01	0	NA	0	90	0.045	0.05	0.0071	15.7135	0
Na	%	0.001	0	NA	0	80	0.0032	0.003	0.0004	13.1762	0
Nb	PPM	0.01	100	NA	0	100	0.0075	0.0075	0	0	0
Nd	PPM	0.02	90	NA	0	90	0.0155	0.015	0.0016	10.2009	0
Ni	PPM	0.1	0	NA	0	100	0.7	0.7	0	0	0
P	%	0.001	0	NA	0	0	0.1449	0.1455	0.0073	5.0237	0.0082
Pb	PPM	0.01	0	NA	0	60	0.09	0.09	0.0125	13.858	0.0148
Pd	PPB	2	100	NA	0	100	1.5	1.5	0	0	0
Pr	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Pt	PPB	1	100	NA	0	100	0.75	0.75	0	0	0
Rb	PPM	0.1	0	NA	0	0	10.92	10.9	0.4392	4.0219	0.3706
Re	PPB	1	100	NA	0	100	0.75	0.75	0	0	0
S	%	0.05	20	NA	0	0	0.0665	0.065	0.0228	34.3276	0.0222
Sb	PPM	0.02	70	NA	0	100	0.0165	0.015	0.0024	14.6378	0
Sc	PPM	0.1	0	NA	0	90	0.22	0.2	0.0632	28.748	0
Se	PPM	0.1	10	NA	0	90	0.2175	0.2	0.0688	31.6179	0
Sm	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Sn	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Sr	PPM	0.5	0	NA	0	0	21.32	21.35	0.9612	4.5087	0.8154
Ta	PPM	0.001	100	NA	0	100	0.0008	0.0008	0	0	0
Tb	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Te	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Th	PPM	0.1	100	NA	0	100	0.075	0.075	0	0	0
Ti	PPM	1	0	NA	0	100	1.5	1.5	0.527	35.1364	0.7413
Tl	PPM	0.02	0	NA	0	90	0.041	0.04	0.0032	7.7129	0
Tm	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
U	PPM	0.01	30	NA	0	30	0.0562	0.015	0.115	204.3612	0.0111
V	PPM	2	100	NA	0	100	1.5	1.5	0	0	0
W	PPM	0.1	100	NA	0	100	0.075	0.075	0	0	0
Y	PPM	0.001	0	NA	0	0	0.0361	0.036	0.0041	11.3427	0.0044
Yb	PPM	0.02	100	NA	0	100	0.015	0.015	0	0	0
Zn	PPM	0.1	0	NA	0	0	57.7	55.6	5.0704	8.7875	4.2254
Zr	PPM	0.01	0	NA	0	90	0.021	0.02	0.0145	69.0066	0

## 7. PREPARER AND SUPPLIER

UPDEEP\_SPRU\_NEED\_DRY SRMs are prepared by the Geological Survey of Finland (GTK) in a project Upscaling deep buried geochemical exploration techniques into European business (UpDeep) and supplied by GTK and Scandinavian Geopool.

Contact information:

Ab Scandinavian GeoPool Ltd, Merilokinkaari 15a, 67200 KOKKOLA, Finland,  
jens.rönnqvist(at)geopool.fi, tel. +358 50 337 7116.

Geological Survey of Finland, Mintec, Tutkijankatu 1, 83500 OUTOKUMPU, Finland,  
antti.taskinen(at)gtk.fi, tero.korhonen(at)gtk.fi, maarit.middleton(at)gtk.fi, +358 29 5035819.

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## 8. INTENDED USE

UPDEEP\_SPRU\_NEED\_DRY SRM is intended to quantify laboratory accuracy and to monitor laboratory precision, drift, periodic concentration shifts, unusual breaks and outliers in analytical results of vegetation samples for mineral exploration.

## 9. STABILITY AND STORAGE INSTRUCTIONS

UPDEEP\_SPRU\_NEED\_DRY SRM should be stored in a room temperature unopened in their own plastic containers. Stability of the materials is not tested.

## 10. INSTRUCTIONS FOR CORRECT USE

UPDEEP\_SPRU\_NEED\_DRY SRM should be only be used to monitor the quality of dry weight biogeochemical samples of the similar matrix and concentration ranges.

## 11. HANDLING INSTRUCTIONS

Keep dry and do not touch with bare hands to avoid SRM contamination.

## 12. TRACEABILITY

The analyzed SRM samples represent the entire batch of prepared SRM. All the analyzed samples have individual names and can be traced back into the original analytical results. The laboratories were chosen on the basis of the availability of the analytical services specific to plants and offered range of elements usable for mineral exploration. The laboratories have ISO/IEC 17025:2005 accreditation (ALS Minerals/ALS Global), Quality ISO9001:2008, Environmental Management: ISO14001, Safety Management OH SAS 18001 and AS4801 certificates (Bureau Veritas Minerals Acmelabs) and ISO/IEC 17025 (Activation Laboratories Ltd).

## 13. LEGAL NOTICE

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## 14. REFERENCES

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