

14-Apr-15

ICP-MS Results -- School of Earth and Ocean Sciences, University of Victoria

Instrument: Thermo X-Series 2, quadrupole ICP-MS

External calibration by NIST Traceable mixed element standards. Internal standard (Rh, In, Re) added on-line using a mixing tee.

"Semi-Quant" analytes were calibrated indirectly by sensitivity / mass curve.

"ud" = below detection limit.

Accuracy and precision determined by repeat measurement of the certified reference material SLRS-5 (Ottawa River Water).

	7Li	9Be	11B	23Na	25Mg	27Al	34S	43Ca	45Sc	47Ti	51V	52Cr	55Mn	57Fe	59Co	60Ni	63Cu	64Zn	69Ga	72Ge	75As	78Se	81Br	85Rb	88Sr	89Y	90Zr	93Nb	95Mo	105Pd	107Ag	108Cd	111Cd	
Limit of Detection (3 x stdev blank)	0.001	0.003	0.377	0.232	0.089	0.042	196.2	0.846	0.017	0.032	0.003	0.004	0.01	0.197	0.003	0.005	0.009	0.01	0	0	0.049	0.008	0.967	0	0.001	0	0.001	0.0001	0.01	0.001	0.001	0.006	0.002	
Blank 14/04/2015 17:36:11	ud	ud	ud	ud	ud	0.055	ud	ud	ud	ud	0.005	0.005	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud
SL Plat - filtered 14/04/2015 17:45:17	0.199	ud	65.08	27570	23430	1.779	10980	107400	1.085	0.768	2.313	0.272	0.308	112.6	0.148	2.564	5.269	0.729	0.695	0.016	0.193	ud	228.3	1.088	467.1	0.008	0.27	0.005	2.024	0.189	ud	0.158	0.005	
SL Plat - unfiltered 14/04/2015 17:54:21	0.2	ud	65.52	27780	23840	7.423	11140	109700	1.209	0.964	2.331	0.281	10.51	119.0	0.161	2.547	5.574	3.498	0.709	0.015	0.176	0.014	226.5	1.094	472.8	0.016	0.259	0.005	2.028	0.192	0.002	0.174	0.008	
SL Outflow - filtered 14/04/2015 18:03:25	0.039	ud	13.21	15940	9920	6.845	6865	34470	0.599	0.608	0.394	0.108	0.317	101.6	0.048	0.513	0.631	0.085	0.188	0.004	0.117	ud	324.9	1.564	121.4	0.014	0.025	0.001	0.114	0.053	ud	0.011	ud	
SL Outflow - unfiltered 14/04/2015 18:12:30	0.344	0.036	12.12	15580	9967	736	6696	35660	1.119	24.24	4.885	1.35	1685	18300	6.756	2.464	3.743	5.244	1.046	0.598	0.192	0.016	334.4	2.051	133.4	0.955	0.404	0.017	0.069	0.098	0.01	0.149	0.034	
AVERAGE SLRS5 (n = 6)	0.529	0.006	5.587	4915	2534	49.9	2536.7	10322	0.286	2.065	0.554	0.254	4.083	99.403	0.048	0.583	17.155	1.115	0.382	0.023	0.086	0.011	16.993	1.226	54.090	0.100	0.032	0.004	0.221	0.025	0.000	0.023	0.010	
STDEV	0.01	0.00	0.28	126.01	56.85	0.76	152.99	149.32	0.02	0.07	0.03	0.01	0.09	2.87	0.00	0.02	0.48	0.03	0.01	0.00	0.01	0.01	3.36	0.02	1.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
RSD (1 sigma)	5%	30%	10%	5%	4%	3%	12%	3%	16%	6%	12%	7%	4%	6%	11%	8%	6%	6%	3%	13%	20%	110%	40%	3%	6%	5%	26%	24%	4%	14%	#DIV/0!	42%	13%	

CERTIFIED VALUES	(information values)		0.008	5380	2540	49.5	10500	0.317	0.208	4.33	91.2	0.05	0.476	17.4	0.845	0.413	53.6	0.476	
uncertainty (+/- ug/kg)			100	160	5.0	400	0.033	0.023	0.18	5.8	0.064	1.3	0.095	0.039	1.3	0.064	1.3	0.064	
OTHER PUBLISHED VALUES	0.46	6.66	2368	0.01	1.8	0.02	0.01	18.8	1.3	0.112	0.02	0.0036	0.008	0.007					
http://georem.mpch-mainz.gwdg.de/sample_query.asp																			

Schedule 6 Drinking Water	118Sn	121Sb	127I	133Cs	138Ba	139La	140Ce	141Pr	146Nd	147Sm	151Eu	157Gd	159Tb	163Dy	165Ho	166Er	169Tm	172Yb	175Lu	178Hf	181Ta	182W	193Ir	195Pt	197Au	202Hg	205Tl	208Pb	209Bi	220Bkg	232Th	238U	
Drinking water standards are for unfiltered samples obtained at the point of consumption.				5000	200000	100000	9500					50	550	6500					1000	5000		10	10						250			5	
Limit of Detection (3 x stdev blank)	0.003	0.001	0.011	0.001	0.001	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0	0.002	0.001	0.007	0.001	0.001	0.001	0	0.001	0.001	
Blank 14/04/2015 17:36:11	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud
SL Plat - filtered 14/04/2015 17:45:17	0.148	0.635	25.73	0.016	37.21	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	0.014	ud	ud	ud	ud	0.002	0.005	ud	ud	ud	2.053
SL Plat - unfiltered 14/04/2015 17:54:21	0.159	0.664	27.48	0.018	38.81	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	0.015	ud	ud	ud	ud	0.002	0.085	ud	ud	ud	2.046
SL Outflow - filtered 14/04/2015 18:03:25	0.01	0.054	143.2	0.015	8.999	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	ud	0.01	ud	ud	ud	0.034	
SL Outflow - unfiltered 14/04/2015 18:12:30	0.036	0.096	192.9	0.198	52.37	0.989	1.727	0.256	1.097	0.253	0.064	0.272	0.036	0.206	0.039	0.107	0.014	0.086	0.012	0.016	ud	ud	ud	ud	ud	0.038	ud	2.808	0.002	ud	0.041	0.083	
AVERAGE SLRS5 (n = 6)	0.006	0.328	1.562	0.024	17.282	0.275	0.336	0.061	0.233	0.039	0.007	0.035	0.004	0.021	0.004	0.012	0.002	0.011	0.002	0.001	0.000	0.009	0.000	0.001	0.001	0.013	0.004	0.087	0.001	0.000	0.009	0.108	
STDEV	0.00	0.01	0.21	0.00	0.50	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	
RSD (1 sigma)	26%	6%	26%	3%	6%	5%	6%	4%	5%	9%	0%	7%	0%	8%	0%	10%	0%	10%	0%	0%	#DIV/0!	12%	#DIV/0!	363%	98%	63%	0%	5%	98%	#DIV/0!	112%	10%	

CERTIFIED VALUES	(information values)		0.3	14	0.081	0.093
uncertainty (+/- ug/kg)			0.5	0.006	0.0009	0.006
OTHER PUBLISHED VALUES	0.005	0.005	0.014	0.0009	0.01	
http://georem.mpch-mainz.gwdg.de/sample_query.asp						

Schedule 6 Drinking Water	6	1000	1	10	20
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