

EMEP – 34th intercomparison of analytical methods

Laboratory 3, Czech Hydrometeorological Institute, Praha (Czech Republic)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.888	0.927	0.93	0.034	-1.26	S
G2		0.595	0.618	0.624	0.035	-0.822	S
G3		1.563	1.603	1.627	0.06	-1.071	S
G4		1.463	1.498	1.513	0.064	-0.783	S
G1	NH ₄ ⁺	0.221	0.160	0.16	0.012	4.975	U
G2		0.281	0.214	0.216	0.013	5.164	U
G3		0.378	0.321	0.326	0.014	3.634	Q
G4		0.504	0.481	0.489	0.021	0.718	S
G1	NO ₃ ⁻	0.371	0.364	0.367	0.011	0.348	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.736	0.729	0.739	0.031	-0.108	S
G4		0.825	0.821	0.828	0.035	-0.075	S
G1	Na ⁺	0.367	0.365	0.361	0.021	0.273	S
G2		0.346	0.343	0.339	0.02	0.359	S
G3		0.793	0.780	0.778	0.03	0.506	S
G4		0.606	0.608	0.604	0.024	0.078	S
G1	Mg ²⁺	0.118	0.124	0.122	0.007	-0.637	S
G2		0.099	0.083	0.082	0.004	3.823	Q
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.181	0.186	0.186	0.008	-0.621	S
G1	Cl ⁻	0.233	0.232	0.233	0.016	-0.027	S
G2		0.304	0.309	0.306	0.014	-0.157	S
G3		0.522	0.540	0.537	0.024	-0.602	S
G4		0.387	0.386	0.386	0.022	0.068	S
G1	Ca ²⁺	0.147	0.153	0.149	0.021	-0.083	S
G2		0.123	0.102	0.1	0.024	0.952	Q
G3		0.24	0.230	0.228	0.021	0.575	S
G4		0.245	0.230	0.229	0.023	0.679	S
G1	K ⁺	0.205	0.204	0.195	0.018	0.56	S
G2		0.266	0.272	0.261	0.023	0.219	S
G3		0.408	0.407	0.399	0.026	0.339	S
G4		0.336	0.340	0.332	0.022	0.168	S
G1	pH	4.473	4.40	4.443	0.088	0.338	S
G2		4.674	4.57	4.586	0.057	1.528	Q
G3		4.138	4.10	4.114	0.038	0.629	S
G4		4.201	4.18	4.186	0.04	0.368	S
G1	Cond	21.85	24.0	22.637	2.391	-0.329	S
G2		16.95	18.1	17.637	1.435	-0.479	S
G3		43.9	45.1	44.427	3.539	-0.149	S
G4		40.2	41.7	40.361	2.811	-0.057	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

If your laboratory reported values as less than the detection limit, and your detection limit is lower than the expected value, $\frac{1}{2}$ DL is taken as the reported value in further calculations.

✕ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 4, Aarhus University, Department of Environmental Science (Denmark)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.962	0.927	0.93	0.034	0.936	S
G2		0.64	0.618	0.624	0.035	0.468	S
G3		1.678	1.603	1.627	0.06	0.858	S
G4		1.561	1.498	1.513	0.064	0.741	S
G1	NH ₄ ⁺	0.164	0.160	0.16	0.012	0.302	S
G2		0.214	0.214	0.216	0.013	-0.134	S
G3		0.323	0.321	0.326	0.014	-0.21	S
G4		0.475	0.481	0.489	0.021	-0.677	S
G1	NO ₃ ⁻	0.374	0.364	0.367	0.011	0.609	S
G2		0.406	0.398	0.401	0.014	0.367	S
G3		0.735	0.729	0.739	0.031	-0.14	S
G4		0.829	0.821	0.828	0.035	0.04	S
G1	Na ⁺	0.38	0.365	0.361	0.021	0.9	S
G2		0.35	0.343	0.339	0.02	0.556	S
G3		0.8	0.780	0.778	0.03	0.741	S
G4		0.63	0.608	0.604	0.024	1.069	S
G1	Mg ²⁺	0.13	0.124	0.122	0.007	1.096	S
G2		0.09	0.083	0.082	0.004	1.741	S
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.18	0.186	0.186	0.008	-0.744	S
G1	Cl ⁻	0.241	0.232	0.233	0.016	0.475	S
G2		0.328	0.309	0.306	0.014	1.509	S
G3		0.536	0.540	0.537	0.024	-0.029	S
G4		0.365	0.386	0.386	0.022	-0.935	S
G1	Ca ²⁺	0.19	0.153	0.149	0.021	2.01	Q
G2		0.13	0.102	0.1	0.024	1.243	U
G3		0.25	0.230	0.228	0.021	1.054	S
G4		0.26	0.230	0.229	0.023	1.327	S
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.42	4.40	4.443	0.088	-0.262	S
G2		4.59	4.57	4.586	0.057	0.065	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 5, Finnish Meteorological Institute. Air Quality Department (Finland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.927	0.927	0.93	0.034	-0.103	S
G2		0.626	0.618	0.624	0.035	0.067	S
G3		1.612	1.603	1.627	0.06	-0.249	S
G4		1.51	1.498	1.513	0.064	-0.052	S
G1	NH ₄ ⁺	0.166	0.160	0.16	0.012	0.466	S
G2		0.215	0.214	0.216	0.013	-0.055	S
G3		0.337	0.321	0.326	0.014	0.769	S
G4		0.483	0.481	0.489	0.021	-0.292	S
G1	NO ₃ ⁻	0.372	0.364	0.367	0.011	0.435	S
G2		0.405	0.398	0.401	0.014	0.294	S
G3		0.746	0.729	0.739	0.031	0.213	S
G4		0.841	0.821	0.828	0.035	0.384	S
G1	Na ⁺	0.378	0.365	0.361	0.021	0.804	S
G2		0.352	0.343	0.339	0.02	0.655	S
G3		0.814	0.780	0.778	0.03	1.211	S
G4		0.618	0.608	0.604	0.024	0.573	S
G1	Mg ²⁺	0.126	0.124	0.122	0.007	0.518	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.105	0.103	0.104	0.004	0.327	S
G4		0.189	0.186	0.186	0.008	0.357	S
G1	Cl ⁻	0.233	0.232	0.233	0.016	-0.027	S
G2		0.312	0.309	0.306	0.014	0.398	S
G3		0.541	0.540	0.537	0.024	0.176	S
G4		0.387	0.386	0.386	0.022	0.068	S
G1	Ca ²⁺	0.156	0.153	0.149	0.021	0.355	S
G2		0.108	0.102	0.1	0.024	0.329	S
G3		0.232	0.230	0.228	0.021	0.192	S
G4		0.234	0.230	0.229	0.023	0.204	S
G1	K ⁺	0.215	0.204	0.195	0.018	1.115	S
G2		0.295	0.272	0.261	0.023	1.503	S
G3		0.454	0.407	0.399	0.026	2.118	S
G4		0.362	0.340	0.332	0.022	1.345	S
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.57	4.57	4.586	0.057	-0.283	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.18	4.18	4.186	0.04	-0.157	S
G1	Cond	24.35	24.0	22.637	2.391	0.716	S
G2		18.61	18.1	17.637	1.435	0.679	S
G3		46.5	45.1	44.427	3.539	0.586	S
G4		42	41.7	40.361	2.811	0.583	S

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NILU – Norsk institutt for luftforskning
PO Box 100
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NILU – Norsk institutt for luftforskning
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NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 6, SGS Multilab (France)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.941	0.927	0.93	0.034	0.313	S
G2		0.607	0.618	0.624	0.035	-0.478	S
G3		1.609	1.603	1.627	0.06	-0.3	S
G4		1.494	1.498	1.513	0.064	-0.301	S
G1	NH ₄ ⁺	0.166	0.160	0.16	0.012	0.466	S
G2		0.213	0.214	0.216	0.013	-0.214	S
G3		0.308	0.321	0.326	0.014	-1.258	S
G4		0.441	0.481	0.489	0.021	-2.314	S
G1	NO ₃ ⁻	0.357	0.364	0.367	0.011	-0.872	S
G2		0.397	0.398	0.401	0.014	-0.289	S
G3		0.731	0.729	0.739	0.031	-0.269	S
G4		0.82	0.821	0.828	0.035	-0.218	S
G1	Na ⁺	0.363	0.365	0.361	0.021	0.08	S
G2		0.355	0.343	0.339	0.02	0.803	S
G3		0.77	0.780	0.778	0.03	-0.266	S
G4		0.604	0.608	0.604	0.024	-0.005	S
G1	Mg ²⁺	0.118	0.124	0.122	0.007	-0.637	S
G2		0.079	0.083	0.082	0.004	-0.803	S
G3		0.098	0.103	0.104	0.004	-1.285	S
G4		0.177	0.186	0.186	0.008	-1.11	S
G1	Cl ⁻	0.234	0.232	0.233	0.016	0.036	S
G2		0.314	0.309	0.306	0.014	0.537	S
G3		0.538	0.540	0.537	0.024	0.053	S
G4		0.38	0.386	0.386	0.022	-0.251	S
G1	Ca ²⁺	0.149	0.153	0.149	0.021	0.014	S
G2		0.114	0.102	0.1	0.024	0.578	S
G3		0.226	0.230	0.228	0.021	-0.096	S
G4		0.231	0.230	0.229	0.023	0.075	S
G1	K ⁺	0.202	0.204	0.195	0.018	0.393	S
G2		0.275	0.272	0.261	0.023	0.617	S
G3		0.4	0.407	0.399	0.026	0.03	S
G4		0.333	0.340	0.332	0.022	0.032	S
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.57	4.57	4.586	0.057	-0.283	S
G3		4.15	4.10	4.114	0.038	0.944	S
G4		4.22	4.18	4.186	0.04	0.842	S
G1	Cond	23.93	24.0	22.637	2.391	0.541	S
G2		19.19	18.1	17.637	1.435	1.083	S
G3		44.4	45.1	44.427	3.539	-0.008	S
G4		40.2	41.7	40.361	2.811	-0.057	S

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 8, Umweltbundesamt, Langen (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.888	0.927	0.93	0.034	-1.26	S
G2		0.632	0.618	0.624	0.035	0.239	S
G3		1.556	1.603	1.627	0.06	-1.189	S
G4		1.444	1.498	1.513	0.064	-1.078	S
G1	NH ₄ ⁺	0.129	0.160	0.16	0.012	-2.568	Q
G2		0.183	0.214	0.216	0.013	-2.586	S
G3		0.303	0.321	0.326	0.014	-1.607	S
G4		0.473	0.481	0.489	0.021	-0.774	S
G1	NO ₃ ⁻	0.383	0.364	0.367	0.011	1.393	S
G2		0.411	0.398	0.401	0.014	0.732	S
G3		0.716	0.729	0.739	0.031	-0.751	S
G4		0.801	0.821	0.828	0.035	-0.763	S
G1	Na ⁺	0.358	0.365	0.361	0.021	-0.161	S
G2		0.334	0.343	0.339	0.02	-0.234	S
G3		0.791	0.780	0.778	0.03	0.439	S
G4		0.605	0.608	0.604	0.024	0.037	S
G1	Mg ²⁺	0.119	0.124	0.122	0.007	-0.493	S
G2		0.077	0.083	0.082	0.004	-1.265	S
G3		0.099	0.103	0.104	0.004	-1.055	S
G4		0.181	0.186	0.186	0.008	-0.621	S
G1	Cl ⁻	0.213	0.232	0.233	0.016	-1.28	S
G2		0.292	0.309	0.306	0.014	-0.99	S
G3		0.537	0.540	0.537	0.024	0.012	S
G4		0.372	0.386	0.386	0.022	-0.616	S
G1	Ca ²⁺	0.13	0.153	0.149	0.021	-0.911	Q
G2		0.087	0.102	0.1	0.024	-0.544	S
G3		0.206	0.230	0.228	0.021	-1.054	S
G4		0.204	0.230	0.229	0.023	-1.091	S
G1	K ⁺	0.192	0.204	0.195	0.018	-0.162	S
G2		0.264	0.272	0.261	0.023	0.13	S
G3		0.388	0.407	0.399	0.026	-0.434	S
G4		0.345	0.340	0.332	0.022	0.576	S
G1	pH	4.43	4.40	4.443	0.088	-0.149	S
G2		4.61	4.57	4.586	0.057	0.413	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	24	24.0	22.637	2.391	0.57	S
G2		18.4	18.1	17.637	1.435	0.532	S
G3		45.8	45.1	44.427	3.539	0.388	S
G4		41.5	41.7	40.361	2.811	0.405	S

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NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 10, Institute for Atmospheric Physics (Hungary)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.979	0.927	0.93	0.034	1.44	S
G2		0.665	0.618	0.624	0.035	1.185	S
G3		1.75	1.603	1.627	0.06	2.065	S
G4		1.648	1.498	1.513	0.064	2.094	Q
G1	NH ₄ ⁺	0.159	0.160	0.16	0.012	-0.108	S
G2		0.212	0.214	0.216	0.013	-0.293	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.479	0.481	0.489	0.021	-0.485	S
G1	NO ₃ ⁻	0.391	0.364	0.367	0.011	2.09	S
G2		0.434	0.398	0.401	0.014	2.41	S
G3		0.815	0.729	0.739	0.031	2.431	Q
G4		0.928	0.821	0.828	0.035	2.878	Q
G1	Na ⁺	0.343	0.365	0.361	0.021	-0.885	S
G2		0.339	0.343	0.339	0.02	0.013	S
G3		0.76	0.780	0.778	0.03	-0.602	S
G4		0.599	0.608	0.604	0.024	-0.211	S
G1	Mg ²⁺	0.126	0.124	0.122	0.007	0.518	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.102	0.103	0.104	0.004	-0.364	S
G4		0.184	0.186	0.186	0.008	-0.254	S
G1	Cl ⁻	0.266	0.232	0.233	0.016	2.041	S
G2		0.373	0.309	0.306	0.014	4.632	Q
G3		0.656	0.540	0.537	0.024	4.887	Q
G4		0.491	0.386	0.386	0.022	4.809	U
G1	Ca ²⁺	0.097	0.153	0.149	0.021	-2.517	U
G2		0.051	0.102	0.1	0.024	-2.04	U
G3		0.166	0.230	0.228	0.021	-2.971	U
G4		0.181	0.230	0.229	0.023	-2.084	Q
G1	K ⁺	0.225	0.204	0.195	0.018	1.67	S
G2		0.302	0.272	0.261	0.023	1.813	S
G3		0.441	0.407	0.399	0.026	1.615	S
G4		0.371	0.340	0.332	0.022	1.753	S
G1	pH	4.34	4.40	4.443	0.088	-1.168	S
G2		4.52	4.57	4.586	0.057	-1.154	S
G3		4.02	4.10	4.114	0.038	-2.471	S
G4		4.11	4.18	4.186	0.04	-1.906	S
G1	Cond	24.1	24.0	22.637	2.391	0.612	S
G2		18.3	18.1	17.637	1.435	0.462	S
G3		46.3	45.1	44.427	3.539	0.529	S
G4		41.9	41.7	40.361	2.811	0.547	S

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PO Box 100
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Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 12, Met Eireann, Dublin (Ireland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.93	0.927	0.93	0.034	-0.014	S
G2		0.61	0.618	0.624	0.035	-0.392	S
G3		1.62	1.603	1.627	0.06	-0.115	S
G4		1.51	1.498	1.513	0.064	-0.052	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.22	0.214	0.216	0.013	0.34	S
G3		0.33	0.321	0.326	0.014	0.28	S
G4		0.5	0.481	0.489	0.021	0.526	S
G1	NO ₃ ⁻	0.37	0.364	0.367	0.011	0.261	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.75	0.729	0.739	0.031	0.342	S
G4		0.85	0.821	0.828	0.035	0.642	S
G1	Na ⁺	0.34	0.365	0.361	0.021	-1.029	S
G2		0.32	0.343	0.339	0.02	-0.925	S
G3		0.76	0.780	0.778	0.03	-0.602	S
G4		0.59	0.608	0.604	0.024	-0.583	S
G1	Mg ²⁺	0.127	0.124	0.122	0.007	0.663	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.107	0.103	0.104	0.004	0.787	S
G4		0.193	0.186	0.186	0.008	0.847	S
G1	Cl ⁻	0.23	0.232	0.233	0.016	-0.215	S
G2		0.31	0.309	0.306	0.014	0.259	S
G3		0.55	0.540	0.537	0.024	0.545	S
G4		0.39	0.386	0.386	0.022	0.204	S
G1	Ca ²⁺	0.14	0.153	0.149	0.021	-0.424	S
G2		0.09	0.102	0.1	0.024	-0.419	S
G3		0.21	0.230	0.228	0.021	-0.862	S
G4		0.21	0.230	0.229	0.023	-0.832	S
G1	K ⁺	0.19	0.204	0.195	0.018	-0.273	S
G2		0.26	0.272	0.261	0.023	-0.047	S
G3		0.4	0.407	0.399	0.026	0.03	S
G4		0.33	0.340	0.332	0.022	-0.104	S
G1	pH	4.61	4.40	4.443	0.088	1.89	U
G2		4.7	4.57	4.586	0.057	1.981	Q
G3		4.16	4.10	4.114	0.038	1.207	S
G4		4.23	4.18	4.186	0.04	1.092	S
G1	Cond	20.1	24.0	22.637	2.391	-1.061	Q
G2		16.9	18.1	17.637	1.435	-0.514	S
G3		45.4	45.1	44.427	3.539	0.275	S
G4		41	41.7	40.361	2.811	0.227	S

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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 13, C.N.R. Istituto Inquinamento Atmosferico (Italy)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.91	0.927	0.93	0.034	-0.607	S
G2		0.6	0.618	0.624	0.035	-0.679	S
G3		1.59	1.603	1.627	0.06	-0.618	S
G4		1.51	1.498	1.513	0.064	-0.052	S
G1	NH ₄ ⁺	0.17	0.160	0.16	0.012	0.794	S
G2		0.23	0.214	0.216	0.013	1.131	S
G3		0.33	0.321	0.326	0.014	0.28	S
G4		0.49	0.481	0.489	0.021	0.044	S
G1	NO ₃ ⁻	0.37	0.364	0.367	0.011	0.261	S
G2		0.41	0.398	0.401	0.014	0.659	S
G3		0.8	0.729	0.739	0.031	1.949	S
G4		0.89	0.821	0.828	0.035	1.788	S
G1	Na ⁺	0.37	0.365	0.361	0.021	0.418	S
G2		0.35	0.343	0.339	0.02	0.556	S
G3		0.81	0.780	0.778	0.03	1.077	S
G4		0.63	0.608	0.604	0.024	1.069	S
G1	Mg ²⁺	0.13	0.124	0.122	0.007	1.096	S
G2		0.09	0.083	0.082	0.004	1.741	S
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.2	0.186	0.186	0.008	1.703	S
G1	Cl ⁻	0.22	0.232	0.233	0.016	-0.842	S
G2		0.29	0.309	0.306	0.014	-1.129	S
G3		0.43	0.540	0.537	0.024	-4.37	Q
G4		0.36	0.386	0.386	0.022	-1.163	S
G1	Ca ²⁺	0.16	0.153	0.149	0.021	0.55	S
G2		0.12	0.102	0.1	0.024	0.828	Q
G3		0.24	0.230	0.228	0.021	0.575	S
G4		0.25	0.230	0.229	0.023	0.895	S
G1	K ⁺	0.19	0.204	0.195	0.018	-0.273	S
G2		0.26	0.272	0.261	0.023	-0.047	S
G3		0.41	0.407	0.399	0.026	0.416	S
G4		0.34	0.340	0.332	0.022	0.349	S
G1	pH	4.66	4.40	4.443	0.088	2.457	U
G2		4.96	4.57	4.586	0.057	6.51	U
G3		4.27	4.10	4.114	0.038	4.097	Q
G4		4.4	4.18	4.186	0.04	5.339	U
G1	Cond	21.6	24.0	22.637	2.391	-0.434	S
G2		15.6	18.1	17.637	1.435	-1.42	S
G3		39.9	45.1	44.427	3.539	-1.279	S
G4		36	41.7	40.361	2.811	-1.551	S

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NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu-tromso@nilu.no
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 15, Norwegian Institute for Air Research NILU (Norway)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.96	0.927	0.93	0.034	0.876	S
G2		0.65	0.618	0.624	0.035	0.755	S
G3		1.65	1.603	1.627	0.06	0.388	S
G4		1.55	1.498	1.513	0.064	0.57	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.214	0.214	0.216	0.013	-0.134	S
G3		0.323	0.321	0.326	0.014	-0.21	S
G4		0.474	0.481	0.489	0.021	-0.726	S
G1	NO ₃ ⁻	0.365	0.364	0.367	0.011	-0.175	S
G2		0.402	0.398	0.401	0.014	0.075	S
G3		0.739	0.729	0.739	0.031	-0.012	S
G4		0.84	0.821	0.828	0.035	0.355	S
G1	Na ⁺	0.37	0.365	0.361	0.021	0.418	S
G2		0.346	0.343	0.339	0.02	0.359	S
G3		0.787	0.780	0.778	0.03	0.305	S
G4		0.61	0.608	0.604	0.024	0.243	S
G1	Mg ²⁺	0.125	0.124	0.122	0.007	0.374	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.103	0.103	0.104	0.004	-0.134	S
G4		0.187	0.186	0.186	0.008	0.113	S
G1	Cl ⁻	0.238	0.232	0.233	0.016	0.286	S
G2		0.316	0.309	0.306	0.014	0.676	S
G3		0.54	0.540	0.537	0.024	0.135	S
G4		0.391	0.386	0.386	0.022	0.25	S
G1	Ca ²⁺	0.149	0.153	0.149	0.021	0.014	S
G2		0.101	0.102	0.1	0.024	0.038	S
G3		0.222	0.230	0.228	0.021	-0.287	S
G4		0.221	0.230	0.229	0.023	-0.357	S
G1	K ⁺	0.196	0.204	0.195	0.018	0.06	S
G2		0.259	0.272	0.261	0.023	-0.091	S
G3		0.384	0.407	0.399	0.026	-0.589	S
G4		0.323	0.340	0.332	0.022	-0.421	S
G1	pH	4.43	4.40	4.443	0.088	-0.149	S
G2		4.54	4.57	4.586	0.057	-0.806	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.19	4.18	4.186	0.04	0.093	S
G1	Cond	24.5	24.0	22.637	2.391	0.779	S
G2		18.4	18.1	17.637	1.435	0.532	S
G3		46.1	45.1	44.427	3.539	0.473	S
G4		41.9	41.7	40.361	2.811	0.547	S

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PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
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S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 16, Institute of Meteorology and Water Management, Warsaw (Poland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.906	0.927	0.93	0.034	-0.726	S
G2		0.602	0.618	0.624	0.035	-0.621	S
G3		1.588	1.603	1.627	0.06	-0.652	S
G4		1.477	1.498	1.513	0.064	-0.565	S
G1	NH ₄ ⁺	0.163	0.160	0.16	0.012	0.22	S
G2		0.209	0.214	0.216	0.013	-0.53	S
G3		0.31	0.321	0.326	0.014	-1.118	S
G4		0.469	0.481	0.489	0.021	-0.966	S
G1	NO ₃ ⁻	0.359	0.364	0.367	0.011	-0.697	S
G2		0.385	0.398	0.401	0.014	-1.165	S
G3		0.711	0.729	0.739	0.031	-0.912	S
G4		0.806	0.821	0.828	0.035	-0.62	S
G1	Na ⁺	0.368	0.365	0.361	0.021	0.321	S
G2		0.339	0.343	0.339	0.02	0.013	S
G3		0.747	0.780	0.778	0.03	-1.038	S
G4		0.584	0.608	0.604	0.024	-0.83	S
G1	Mg ²⁺	0.123	0.124	0.122	0.007	0.085	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.104	0.103	0.104	0.004	0.097	S
G4		0.182	0.186	0.186	0.008	-0.499	S
G1	Cl ⁻	0.237	0.232	0.233	0.016	0.224	S
G2		0.308	0.309	0.306	0.014	0.12	S
G3		0.53	0.540	0.537	0.024	-0.274	S
G4		0.383	0.386	0.386	0.022	-0.115	S
G1	Ca ²⁺	0.159	0.153	0.149	0.021	0.501	S
G2		0.106	0.102	0.1	0.024	0.246	S
G3		0.235	0.230	0.228	0.021	0.335	S
G4		0.234	0.230	0.229	0.023	0.204	S
G1	K ⁺	0.204	0.204	0.195	0.018	0.504	S
G2		0.267	0.272	0.261	0.023	0.263	S
G3		0.407	0.407	0.399	0.026	0.3	S
G4		0.336	0.340	0.332	0.022	0.168	S
G1	pH	4.42	4.40	4.443	0.088	-0.262	S
G2		4.58	4.57	4.586	0.057	-0.109	S
G3		4.09	4.10	4.114	0.038	-0.632	S
G4		4.17	4.18	4.186	0.04	-0.407	S
G1	Cond	23.9	24.0	22.637	2.391	0.528	S
G2		18.3	18.1	17.637	1.435	0.462	S
G3		46	45.1	44.427	3.539	0.445	S
G4		41.6	41.7	40.361	2.811	0.441	S

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PO Box 100
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Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
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EMEP – 34th intercomparison of analytical methods

Laboratory 18, National Environment Protection Agency (Romania)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.964	0.927	0.93	0.034	0.995	S
G2		0.646	0.618	0.624	0.035	0.641	S
G3		1.653	1.603	1.627	0.06	0.438	S
G4		1.554	1.498	1.513	0.064	0.632	S
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	0.38	0.364	0.367	0.011	1.132	S
G2		0.415	0.398	0.401	0.014	1.024	S
G3		0.744	0.729	0.739	0.031	0.149	S
G4		0.832	0.821	0.828	0.035	0.126	S
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	0.226	0.232	0.233	0.016	-0.466	S
G2		0.304	0.309	0.306	0.014	-0.157	S
G3		0.536	0.540	0.537	0.024	-0.029	S
G4		0.381	0.386	0.386	0.022	-0.206	S
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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B – Blank: You reported either no value or the detection limit

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EMEP – 34th intercomparison of analytical methods

Laboratory 19, Centro Nacional de Sanidad Ambiental (Spain)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.89	0.927	0.93	0.034	-1.2	S
G2		0.57	0.618	0.624	0.035	-1.539	S
G3		1.53	1.603	1.627	0.06	-1.625	S
G4		1.5	1.498	1.513	0.064	-0.207	S
G1	NH ₄ ⁺	0.167	0.160	0.16	0.012	0.548	S
G2		0.234	0.214	0.216	0.013	1.447	S
G3		0.348	0.321	0.326	0.014	1.537	S
G4		0.515	0.481	0.489	0.021	1.247	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.38	0.398	0.401	0.014	-1.529	S
G3		0.7	0.729	0.739	0.031	-1.265	S
G4		0.81	0.821	0.828	0.035	-0.505	S
G1	Na ⁺	0.38	0.365	0.361	0.021	0.9	S
G2		0.36	0.343	0.339	0.02	1.05	S
G3		0.81	0.780	0.778	0.03	1.077	S
G4		0.64	0.608	0.604	0.024	1.481	S
G1	Mg ²⁺	0.13	0.124	0.122	0.007	1.096	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.19	0.186	0.186	0.008	0.48	S
G1	Cl ⁻	< 0.300	0.232	0.233	0.016		B
G2		< 0.300	0.309	0.306	0.014	-10.846	U
G3		0.56	0.540	0.537	0.024	0.954	S
G4		0.44	0.386	0.386	0.022	2.484	S
G1	Ca ²⁺	0.2	0.153	0.149	0.021	2.497	U
G2		0.12	0.102	0.1	0.024	0.828	Q
G3		0.26	0.230	0.228	0.021	1.533	S
G4		0.26	0.230	0.229	0.023	1.327	S
G1	K ⁺	0.21	0.204	0.195	0.018	0.837	S
G2		0.27	0.272	0.261	0.023	0.396	S
G3		0.4	0.407	0.399	0.026	0.03	S
G4		0.34	0.340	0.332	0.022	0.349	S
G1	pH	4.32	4.40	4.443	0.088	-1.395	S
G2		4.47	4.57	4.586	0.057	-2.025	Q
G3		4.03	4.10	4.114	0.038	-2.209	S
G4		4.11	4.18	4.186	0.04	-1.906	S
G1	Cond	23.7	24.0	22.637	2.391	0.444	S
G2		18.2	18.1	17.637	1.435	0.393	S
G3		45.4	45.1	44.427	3.539	0.275	S
G4		40.9	41.7	40.361	2.811	0.192	S

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EMEP – 34th intercomparison of analytical methods

Laboratory 20, Swedish Environmental Research Institute IVL, Gothenburg (Sweden)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.927	0.927	0.93	0.034	-0.103	S
G2		0.618	0.618	0.624	0.035	-0.162	S
G3		1.62	1.603	1.627	0.06	-0.115	S
G4		1.51	1.498	1.513	0.064	-0.052	S
G1	NH ₄ ⁺	0.174	0.160	0.16	0.012	1.121	S
G2		0.226	0.214	0.216	0.013	0.814	S
G3		0.334	0.321	0.326	0.014	0.559	S
G4		0.493	0.481	0.489	0.021	0.189	S
G1	NO ₃ ⁻	0.374	0.364	0.367	0.011	0.609	S
G2		0.415	0.398	0.401	0.014	1.024	S
G3		0.751	0.729	0.739	0.031	0.374	S
G4		0.834	0.821	0.828	0.035	0.183	S
G1	Na ⁺	0.355	0.365	0.361	0.021	-0.306	S
G2		0.336	0.343	0.339	0.02	-0.135	S
G3		0.767	0.780	0.778	0.03	-0.367	S
G4		0.593	0.608	0.604	0.024	-0.459	S
G1	Mg ²⁺	0.121	0.124	0.122	0.007	-0.204	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.096	0.103	0.104	0.004	-1.745	S
G4		0.184	0.186	0.186	0.008	-0.254	S
G1	Cl ⁻	0.239	0.232	0.233	0.016	0.349	S
G2		0.317	0.309	0.306	0.014	0.745	S
G3		0.559	0.540	0.537	0.024	0.914	S
G4		0.401	0.386	0.386	0.022	0.706	S
G1	Ca ²⁺	0.143	0.153	0.149	0.021	-0.278	S
G2		0.109	0.102	0.1	0.024	0.371	S
G3		0.223	0.230	0.228	0.021	-0.24	S
G4		0.219	0.230	0.229	0.023	-0.444	S
G1	K ⁺	0.197	0.204	0.195	0.018	0.115	S
G2		0.268	0.272	0.261	0.023	0.307	S
G3		0.417	0.407	0.399	0.026	0.687	S
G4		0.345	0.340	0.332	0.022	0.576	S
G1	pH	4.43	4.40	4.443	0.088	-0.149	S
G2		4.62	4.57	4.586	0.057	0.587	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	24.1	24.0	22.637	2.391	0.612	S
G2		18.5	18.1	17.637	1.435	0.602	S
G3		45.8	45.1	44.427	3.539	0.388	S
G4		41.4	41.7	40.361	2.811	0.37	S

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Framsenteret / The Fram Centre
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Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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EMEP – 34th intercomparison of analytical methods

Laboratory 21, Swiss Federal Laboratories for Materials Testing EMPA (Switzerland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.93	0.927	0.93	0.034	-0.014	S
G2		0.623	0.618	0.624	0.035	-0.019	S
G3		1.608	1.603	1.627	0.06	-0.316	S
G4		1.501	1.498	1.513	0.064	-0.192	S
G1	NH ₄ ⁺	0.165	0.160	0.16	0.012	0.384	S
G2		0.223	0.214	0.216	0.013	0.577	S
G3		0.335	0.321	0.326	0.014	0.629	S
G4		0.501	0.481	0.489	0.021	0.574	S
G1	NO ₃ ⁻	0.365	0.364	0.367	0.011	-0.175	S
G2		0.398	0.398	0.401	0.014	-0.216	S
G3		0.738	0.729	0.739	0.031	-0.044	S
G4		0.831	0.821	0.828	0.035	0.097	S
G1	Na ⁺	0.363	0.365	0.361	0.021	0.08	S
G2		0.34	0.343	0.339	0.02	0.062	S
G3		0.783	0.780	0.778	0.03	0.17	S
G4		0.606	0.608	0.604	0.024	0.078	S
G1	Mg ²⁺	0.124	0.124	0.122	0.007	0.229	S
G2		0.082	0.083	0.082	0.004	-0.109	S
G3		0.101	0.103	0.104	0.004	-0.594	S
G4		0.185	0.186	0.186	0.008	-0.132	S
G1	Cl ⁻	0.231	0.232	0.233	0.016	-0.152	S
G2		0.309	0.309	0.306	0.014	0.19	S
G3		0.539	0.540	0.537	0.024	0.094	S
G4		0.384	0.386	0.386	0.022	-0.069	S
G1	Ca ²⁺	0.156	0.153	0.149	0.021	0.355	S
G2		0.108	0.102	0.1	0.024	0.329	S
G3		0.234	0.230	0.228	0.021	0.287	S
G4		0.234	0.230	0.229	0.023	0.204	S
G1	K ⁺	0.2	0.204	0.195	0.018	0.282	S
G2		0.258	0.272	0.261	0.023	-0.135	S
G3		0.385	0.407	0.399	0.026	-0.55	S
G4		0.329	0.340	0.332	0.022	-0.149	S
G1	pH	4.44	4.40	4.443	0.088	-0.036	S
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.13	4.10	4.114	0.038	0.419	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	24.23	24.0	22.637	2.391	0.666	S
G2		18.42	18.1	17.637	1.435	0.546	S
G3		46.69	45.1	44.427	3.539	0.639	S
G4		42.08	41.7	40.361	2.811	0.611	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

If your laboratory reported values as less than the detection limit, and your detection limit is lower than the expected value, $\frac{1}{2}$ DL is taken as the reported value in further calculations.

✕ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 22, Institute of Global Climate and Ecology (Russian Federation)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.46	4.40	4.443	0.088	0.191	S
G2		4.64	4.57	4.586	0.057	0.936	S
G3		4.2	4.10	4.114	0.038	2.258	Q
G4		4.26	4.18	4.186	0.04	1.842	S
G1	Cond	16.9	24.0	22.637	2.391	-2.399	U
G2		13.7	18.1	17.637	1.435	-2.744	Q
G3		35	45.1	44.427	3.539	-2.664	Q
G4		32.5	41.7	40.361	2.811	-2.796	Q

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 23, Ricardo-AEA Limited (United Kingdom)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	1.035	0.927	0.93	0.034	3.102	Q
G2		0.695	0.618	0.624	0.035	2.046	Q
G3		1.784	1.603	1.627	0.06	2.636	Q
G4		1.648	1.498	1.513	0.064	2.094	Q
G1	NH ₄ ⁺	0.234	0.160	0.16	0.012	6.04	U
G2		0.293	0.214	0.216	0.013	6.112	U
G3		0.399	0.321	0.326	0.014	5.101	Q
G4		0.545	0.481	0.489	0.021	2.691	S
G1	NO ₃ ⁻	0.41	0.364	0.367	0.011	3.745	Q
G2		0.445	0.398	0.401	0.014	3.212	Q
G3		0.812	0.729	0.739	0.031	2.334	Q
G4		0.905	0.821	0.828	0.035	2.218	Q
G1	Na ⁺	0.414	0.365	0.361	0.021	2.54	S
G2		0.399	0.343	0.339	0.02	2.976	Q
G3		0.833	0.780	0.778	0.03	1.849	S
G4		0.638	0.608	0.604	0.024	1.399	S
G1	Mg ²⁺	0.113	0.124	0.122	0.007	-1.36	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.099	0.103	0.104	0.004	-1.055	S
G4		0.17	0.186	0.186	0.008	-1.967	S
G1	Cl ⁻	0.232	0.232	0.233	0.016	-0.09	S
G2		0.313	0.309	0.306	0.014	0.468	S
G3		0.554	0.540	0.537	0.024	0.709	S
G4		0.389	0.386	0.386	0.022	0.159	S
G1	Ca ²⁺	0.121	0.153	0.149	0.021	-1.349	Q
G2		0.083	0.102	0.1	0.024	-0.71	Q
G3		0.196	0.230	0.228	0.021	-1.533	S
G4		0.185	0.230	0.229	0.023	-1.912	Q
G1	K ⁺	0.197	0.204	0.195	0.018	0.115	S
G2		0.26	0.272	0.261	0.023	-0.047	S
G3		0.388	0.407	0.399	0.026	-0.434	S
G4		0.322	0.340	0.332	0.022	-0.466	S
G1	pH	4.36	4.40	4.443	0.088	-0.942	S
G2		4.54	4.57	4.586	0.057	-0.806	S
G3		4.05	4.10	4.114	0.038	-1.683	S
G4		4.12	4.18	4.186	0.04	-1.656	S
G1	Cond	22.6	24.0	22.637	2.391	-0.016	S
G2		18.1	18.1	17.637	1.435	0.323	S
G3		44.7	45.1	44.427	3.539	0.077	S
G4		41.4	41.7	40.361	2.811	0.37	S

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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B – Blank: You reported either no value or the detection limit

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EMEP – 34th intercomparison of analytical methods

Laboratory 26, Environment Canada, Ontario (Canada)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.921	0.927	0.93	0.034	-0.281	S
G2		0.613	0.618	0.624	0.035	-0.306	S
G3		1.602	1.603	1.627	0.06	-0.417	S
G4		1.478	1.498	1.513	0.064	-0.549	S
G1	NH ₄ ⁺	0.162	0.160	0.16	0.012	0.138	S
G2		0.217	0.214	0.216	0.013	0.103	S
G3		0.328	0.321	0.326	0.014	0.14	S
G4		0.49	0.481	0.489	0.021	0.044	S
G1	NO ₃ ⁻	0.365	0.364	0.367	0.011	-0.175	S
G2		0.396	0.398	0.401	0.014	-0.362	S
G3		0.732	0.729	0.739	0.031	-0.237	S
G4		0.814	0.821	0.828	0.035	-0.391	S
G1	Na ⁺	0.371	0.365	0.361	0.021	0.466	S
G2		0.347	0.343	0.339	0.02	0.408	S
G3		0.787	0.780	0.778	0.03	0.305	S
G4		0.602	0.608	0.604	0.024	-0.087	S
G1	Mg ²⁺	0.127	0.124	0.122	0.007	0.663	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.107	0.103	0.104	0.004	0.787	S
G4		0.188	0.186	0.186	0.008	0.235	S
G1	Cl ⁻	0.233	0.232	0.233	0.016	-0.027	S
G2		0.309	0.309	0.306	0.014	0.19	S
G3		0.541	0.540	0.537	0.024	0.176	S
G4		0.384	0.386	0.386	0.022	-0.069	S
G1	Ca ²⁺	0.16	0.153	0.149	0.021	0.55	S
G2		0.106	0.102	0.1	0.024	0.246	S
G3		0.235	0.230	0.228	0.021	0.335	S
G4		0.234	0.230	0.229	0.023	0.204	S
G1	K ⁺	0.209	0.204	0.195	0.018	0.782	S
G2		0.277	0.272	0.261	0.023	0.706	S
G3		0.418	0.407	0.399	0.026	0.726	S
G4		0.348	0.340	0.332	0.022	0.711	S
G1	pH	4.45	4.40	4.443	0.088	0.078	S
G2		4.62	4.57	4.586	0.057	0.587	S
G3		4.15	4.10	4.114	0.038	0.944	S
G4		4.24	4.18	4.186	0.04	1.342	S
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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B – Blank: You reported either no value or the detection limit

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EMEP – 34th intercomparison of analytical methods

Laboratory 27, Illinois State Water Survey (United States of America)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.903	0.927	0.93	0.034	-0.815	S
G2		0.613	0.618	0.624	0.035	-0.306	S
G3		1.561	1.603	1.627	0.06	-1.105	S
G4		1.492	1.498	1.513	0.064	-0.332	S
G1	NH ₄ ⁺	0.164	0.160	0.16	0.012	0.302	S
G2		0.218	0.214	0.216	0.013	0.182	S
G3		0.33	0.321	0.326	0.014	0.28	S
G4		0.495	0.481	0.489	0.021	0.285	S
G1	NO ₃ ⁻	0.367	0.364	0.367	0.011	-0.001	S
G2		0.396	0.398	0.401	0.014	-0.362	S
G3		0.708	0.729	0.739	0.031	-1.008	S
G4		0.817	0.821	0.828	0.035	-0.304	S
G1	Na ⁺	0.351	0.365	0.361	0.021	-0.499	S
G2		0.323	0.343	0.339	0.02	-0.777	S
G3		0.75	0.780	0.778	0.03	-0.938	S
G4		0.581	0.608	0.604	0.024	-0.954	S
G1	Mg ²⁺	0.12	0.124	0.122	0.007	-0.348	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.181	0.186	0.186	0.008	-0.621	S
G1	Cl ⁻	0.249	0.232	0.233	0.016	0.976	S
G2		0.313	0.309	0.306	0.014	0.468	S
G3		0.55	0.540	0.537	0.024	0.545	S
G4		0.402	0.386	0.386	0.022	0.751	S
G1	Ca ²⁺	0.15	0.153	0.149	0.021	0.063	S
G2		0.103	0.102	0.1	0.024	0.121	S
G3		0.227	0.230	0.228	0.021	-0.048	S
G4		0.226	0.230	0.229	0.023	-0.141	S
G1	K ⁺	0.205	0.204	0.195	0.018	0.56	S
G2		0.269	0.272	0.261	0.023	0.352	S
G3		0.416	0.407	0.399	0.026	0.648	S
G4		0.343	0.340	0.332	0.022	0.485	S
G1	pH	4.43	4.40	4.443	0.088	-0.149	S
G2		4.58	4.57	4.586	0.057	-0.109	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	24.6	24.0	22.637	2.391	0.821	S
G2		18.8	18.1	17.637	1.435	0.811	S
G3		47.3	45.1	44.427	3.539	0.812	S
G4		42.4	41.7	40.361	2.811	0.725	S

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PO Box 100
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu@nilu.no
nilu@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 30, Joint Research Centre, Ispra (Italy)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	1.004	0.927	0.93	0.034	2.182	S
G2		0.734	0.618	0.624	0.035	3.164	Q
G3		1.841	1.603	1.627	0.06	3.592	Q
G4		1.728	1.498	1.513	0.064	3.337	Q
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.211	0.214	0.216	0.013	-0.372	S
G3		0.324	0.321	0.326	0.014	-0.14	S
G4		0.483	0.481	0.489	0.021	-0.292	S
G1	NO ₃ ⁻	0.375	0.364	0.367	0.011	0.696	S
G2		0.423	0.398	0.401	0.014	1.607	S
G3		0.816	0.729	0.739	0.031	2.463	Q
G4		0.922	0.821	0.828	0.035	2.706	Q
G1	Na ⁺	0.364	0.365	0.361	0.021	0.128	S
G2		0.339	0.343	0.339	0.02	0.013	S
G3		0.787	0.780	0.778	0.03	0.305	S
G4		0.606	0.608	0.604	0.024	0.078	S
G1	Mg ²⁺	0.124	0.124	0.122	0.007	0.229	S
G2		0.075	0.083	0.082	0.004	-1.728	S
G3		0.096	0.103	0.104	0.004	-1.745	S
G4		0.18	0.186	0.186	0.008	-0.744	S
G1	Cl ⁻	0.224	0.232	0.233	0.016	-0.591	S
G2		0.297	0.309	0.306	0.014	-0.643	S
G3		0.551	0.540	0.537	0.024	0.586	S
G4		0.384	0.386	0.386	0.022	-0.069	S
G1	Ca ²⁺	0.151	0.153	0.149	0.021	0.112	S
G2		0.087	0.102	0.1	0.024	-0.544	S
G3		0.215	0.230	0.228	0.021	-0.623	S
G4		0.217	0.230	0.229	0.023	-0.53	S
G1	K ⁺	0.2	0.204	0.195	0.018	0.282	S
G2		0.269	0.272	0.261	0.023	0.352	S
G3		0.414	0.407	0.399	0.026	0.571	S
G4		0.339	0.340	0.332	0.022	0.304	S
G1	pH	4.28	4.40	4.443	0.088	-1.848	Q
G2		4.43	4.57	4.586	0.057	-2.722	Q
G3		4	4.10	4.114	0.038	-2.997	S
G4		4.03	4.18	4.186	0.04	-3.904	Q
G1	Cond	26	24.0	22.637	2.391	1.406	S
G2		19.7	18.1	17.637	1.435	1.438	S
G3		48.9	45.1	44.427	3.539	1.264	S
G4		44.6	41.7	40.361	2.811	1.508	S

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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 31, Slovak Hydrometeorological Institute (Slovakia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.984	0.927	0.93	0.034	1.588	S
G2		0.656	0.618	0.624	0.035	0.927	S
G3		1.666	1.603	1.627	0.06	0.656	S
G4		1.449	1.498	1.513	0.064	-1	S
G1	NH ₄ ⁺	0.166	0.160	0.16	0.012	0.466	S
G2		0.224	0.214	0.216	0.013	0.656	S
G3		0.338	0.321	0.326	0.014	0.839	S
G4		0.499	0.481	0.489	0.021	0.477	S
G1	NO ₃ ⁻	0.348	0.364	0.367	0.011	-1.656	S
G2		0.387	0.398	0.401	0.014	-1.019	S
G3		0.693	0.729	0.739	0.031	-1.49	S
G4		0.749	0.821	0.828	0.035	-2.254	S
G1	Na ⁺	0.336	0.365	0.361	0.021	-1.222	S
G2		0.315	0.343	0.339	0.02	-1.172	S
G3		0.723	0.780	0.778	0.03	-1.844	S
G4		0.564	0.608	0.604	0.024	-1.656	S
G1	Mg ²⁺	0.113	0.124	0.122	0.007	-1.36	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.097	0.103	0.104	0.004	-1.515	S
G4		0.184	0.186	0.186	0.008	-0.254	S
G1	Cl ⁻	0.251	0.232	0.233	0.016	1.101	S
G2		0.311	0.309	0.306	0.014	0.329	S
G3		0.52	0.540	0.537	0.024	-0.684	S
G4		0.381	0.386	0.386	0.022	-0.206	S
G1	Ca ²⁺	0.127	0.153	0.149	0.021	-1.057	Q
G2		0.081	0.102	0.1	0.024	-0.793	Q
G3		0.178	0.230	0.228	0.021	-2.396	Q
G4		0.206	0.230	0.229	0.023	-1.005	S
G1	K ⁺	0.172	0.204	0.195	0.018	-1.272	Q
G2		0.237	0.272	0.261	0.023	-1.065	S
G3		0.368	0.407	0.399	0.026	-1.207	S
G4		0.313	0.340	0.332	0.022	-0.873	S
G1	pH	4.48	4.40	4.443	0.088	0.418	S
G2		4.66	4.57	4.586	0.057	1.284	S
G3		4.16	4.10	4.114	0.038	1.207	S
G4		4.32	4.18	4.186	0.04	3.34	Q
G1	Cond	24.2	24.0	22.637	2.391	0.653	S
G2		18.41	18.1	17.637	1.435	0.539	S
G3		46	45.1	44.427	3.539	0.445	S
G4		41.61	41.7	40.361	2.811	0.444	S

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Besøk/visit: Instituttveien 18, 2007 Kjeller

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 32, Atmospheric Pollution Research Laboratory, Institute of Physics, Vilnius (Lithuania)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.905	0.927	0.93	0.034	-0.755	S
G2		0.607	0.618	0.624	0.035	-0.478	S
G3		1.628	1.603	1.627	0.06	0.019	S
G4		1.522	1.498	1.513	0.064	0.135	S
G1	NH ₄ ⁺	0.163	0.160	0.16	0.012	0.22	S
G2		0.202	0.214	0.216	0.013	-1.083	S
G3		0.334	0.321	0.326	0.014	0.559	S
G4		0.497	0.481	0.489	0.021	0.381	S
G1	NO ₃ ⁻	0.373	0.364	0.367	0.011	0.522	S
G2		0.407	0.398	0.401	0.014	0.44	S
G3		0.766	0.729	0.739	0.031	0.856	S
G4		0.872	0.821	0.828	0.035	1.272	S
G1	Na ⁺	0.35	0.365	0.361	0.021	-0.547	S
G2		0.33	0.343	0.339	0.02	-0.431	S
G3		0.8	0.780	0.778	0.03	0.741	S
G4		0.605	0.608	0.604	0.024	0.037	S
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	0.234	0.232	0.233	0.016	0.036	S
G2		0.304	0.309	0.306	0.014	-0.157	S
G3		0.544	0.540	0.537	0.024	0.299	S
G4		0.393	0.386	0.386	0.022	0.341	S
G1	Ca ²⁺	0.18	0.153	0.149	0.021	1.523	Q
G2		0.048	0.102	0.1	0.024	-2.164	U
G3		0.19	0.230	0.228	0.021	-1.821	Q
G4		0.24	0.230	0.229	0.023	0.463	S
G1	K ⁺	0.203	0.204	0.195	0.018	0.448	S
G2		0.27	0.272	0.261	0.023	0.396	S
G3		0.42	0.407	0.399	0.026	0.803	S
G4		0.34	0.340	0.332	0.022	0.349	S
G1	pH	4.38	4.40	4.443	0.088	-0.715	S
G2		4.55	4.57	4.586	0.057	-0.632	S
G3		4.13	4.10	4.114	0.038	0.419	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	23.6	24.0	22.637	2.391	0.403	S
G2		18	18.1	17.637	1.435	0.253	S
G3		45	45.1	44.427	3.539	0.162	S
G4		41.2	41.7	40.361	2.811	0.298	S

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NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 33, Environmental Pollution Observ. Centre (Latvia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.937	0.927	0.93	0.034	0.194	S
G2		0.63	0.618	0.624	0.035	0.182	S
G3		1.635	1.603	1.627	0.06	0.136	S
G4		1.515	1.498	1.513	0.064	0.026	S
G1	NH ₄ ⁺	0.15	0.160	0.16	0.012	-0.846	S
G2		0.2	0.214	0.216	0.013	-1.241	S
G3		0.31	0.321	0.326	0.014	-1.118	S
G4		0.47	0.481	0.489	0.021	-0.918	S
G1	NO ₃ ⁻	0.363	0.364	0.367	0.011	-0.349	S
G2		0.407	0.398	0.401	0.014	0.44	S
G3		0.73	0.729	0.739	0.031	-0.301	S
G4		0.811	0.821	0.828	0.035	-0.477	S
G1	Na ⁺	0.38	0.365	0.361	0.021	0.9	S
G2		0.347	0.343	0.339	0.02	0.408	S
G3		0.851	0.780	0.778	0.03	2.454	S
G4		0.644	0.608	0.604	0.024	1.646	S
G1	Mg ²⁺	0.123	0.124	0.122	0.007	0.085	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.108	0.103	0.104	0.004	1.018	S
G4		0.187	0.186	0.186	0.008	0.113	S
G1	Cl ⁻	0.238	0.232	0.233	0.016	0.286	S
G2		0.301	0.309	0.306	0.014	-0.365	S
G3		0.51	0.540	0.537	0.024	-1.094	S
G4		0.35	0.386	0.386	0.022	-1.619	S
G1	Ca ²⁺	0.15	0.153	0.149	0.021	0.063	S
G2		0.105	0.102	0.1	0.024	0.204	S
G3		0.234	0.230	0.228	0.021	0.287	S
G4		0.222	0.230	0.229	0.023	-0.314	S
G1	K ⁺	0.212	0.204	0.195	0.018	0.948	S
G2		0.279	0.272	0.261	0.023	0.794	S
G3		0.431	0.407	0.399	0.026	1.228	S
G4		0.354	0.340	0.332	0.022	0.983	S
G1	pH	4.44	4.40	4.443	0.088	-0.036	S
G2		4.61	4.57	4.586	0.057	0.413	S
G3		4.13	4.10	4.114	0.038	0.419	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	24.5	24.0	22.637	2.391	0.779	S
G2		18.8	18.1	17.637	1.435	0.811	S
G3		47.5	45.1	44.427	3.539	0.868	S
G4		42.8	41.7	40.361	2.811	0.868	S

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NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

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S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 35, Meteorological and Hydrological Service of Croatia (Croatia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.962	0.927	0.93	0.034	0.936	S
G2		0.642	0.618	0.624	0.035	0.526	S
G3		1.688	1.603	1.627	0.06	1.025	S
G4		1.582	1.498	1.513	0.064	1.068	S
G1	NH ₄ ⁺	0.158	0.160	0.16	0.012	-0.19	S
G2		0.215	0.214	0.216	0.013	-0.055	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.516	0.481	0.489	0.021	1.295	S
G1	NO ₃ ⁻	0.376	0.364	0.367	0.011	0.783	S
G2		0.41	0.398	0.401	0.014	0.659	S
G3		0.758	0.729	0.739	0.031	0.599	S
G4		0.849	0.821	0.828	0.035	0.613	S
G1	Na ⁺	0.373	0.365	0.361	0.021	0.562	S
G2		0.349	0.343	0.339	0.02	0.507	S
G3		0.784	0.780	0.778	0.03	0.204	S
G4		0.604	0.608	0.604	0.024	-0.005	S
G1	Mg ²⁺	0.121	0.124	0.122	0.007	-0.204	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.186	0.186	0.186	0.008	-0.01	S
G1	Cl ⁻	0.212	0.232	0.233	0.016	-1.343	S
G2		0.32	0.309	0.306	0.014	0.953	S
G3		0.558	0.540	0.537	0.024	0.873	S
G4		0.399	0.386	0.386	0.022	0.615	S
G1	Ca ²⁺	0.146	0.153	0.149	0.021	-0.132	S
G2		0.098	0.102	0.1	0.024	-0.087	S
G3		0.229	0.230	0.228	0.021	0.048	S
G4		0.231	0.230	0.229	0.023	0.075	S
G1	K ⁺	0.204	0.204	0.195	0.018	0.504	S
G2		0.274	0.272	0.261	0.023	0.573	S
G3		0.417	0.407	0.399	0.026	0.687	S
G4		0.34	0.340	0.332	0.022	0.349	S
G1	pH	4.59	4.40	4.443	0.088	1.664	Q
G2		4.65	4.57	4.586	0.057	1.11	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.22	4.18	4.186	0.04	0.842	S
G1	Cond	24	24.0	22.637	2.391	0.57	S
G2		18.26	18.1	17.637	1.435	0.435	S
G3		45.9	45.1	44.427	3.539	0.416	S
G4		41.7	41.7	40.361	2.811	0.476	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
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EMEP – 34th intercomparison of analytical methods

Laboratory 36, Hydrometeorological Institute of Slovenia (Slovenia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.974	0.927	0.93	0.034	1.292	S
G2		0.675	0.618	0.624	0.035	1.472	S
G3		1.69	1.603	1.627	0.06	1.059	S
G4		1.57	1.498	1.513	0.064	0.881	S
G1	NH ₄ ⁺	0.155	0.160	0.16	0.012	-0.436	S
G2		0.206	0.214	0.216	0.013	-0.767	S
G3		0.316	0.321	0.326	0.014	-0.699	S
G4		0.471	0.481	0.489	0.021	-0.87	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.393	0.398	0.401	0.014	-0.581	S
G3		0.745	0.729	0.739	0.031	0.181	S
G4		0.87	0.821	0.828	0.035	1.215	S
G1	Na ⁺	0.362	0.365	0.361	0.021	0.032	S
G2		0.343	0.343	0.339	0.02	0.211	S
G3		0.782	0.780	0.778	0.03	0.137	S
G4		0.604	0.608	0.604	0.024	-0.005	S
G1	Mg ²⁺	0.126	0.124	0.122	0.007	0.518	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.103	0.103	0.104	0.004	-0.134	S
G4		0.183	0.186	0.186	0.008	-0.377	S
G1	Cl ⁻	0.236	0.232	0.233	0.016	0.161	S
G2		0.295	0.309	0.306	0.014	-0.782	S
G3		0.515	0.540	0.537	0.024	-0.889	S
G4		0.381	0.386	0.386	0.022	-0.206	S
G1	Ca ²⁺	0.154	0.153	0.149	0.021	0.258	S
G2		0.108	0.102	0.1	0.024	0.329	S
G3		0.228	0.230	0.228	0.021	0	S
G4		0.238	0.230	0.229	0.023	0.377	S
G1	K ⁺	0.186	0.204	0.195	0.018	-0.495	S
G2		0.251	0.272	0.261	0.023	-0.445	S
G3		0.411	0.407	0.399	0.026	0.455	S
G4		0.322	0.340	0.332	0.022	-0.466	S
G1	pH	4.37	4.40	4.443	0.088	-0.828	S
G2		4.52	4.57	4.586	0.057	-1.154	S
G3		4.02	4.10	4.114	0.038	-2.471	S
G4		4.22	4.18	4.186	0.04	0.842	S
G1	Cond	22.8	24.0	22.637	2.391	0.068	S
G2		17.8	18.1	17.637	1.435	0.114	S
G3		44.3	45.1	44.427	3.539	-0.036	S
G4		39.6	41.7	40.361	2.811	-0.271	S

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PO Box 100
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Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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EMEP – 34th intercomparison of analytical methods

Laboratory 38, Estonian Environmental Research Centre, Tallinn (Estonia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.939	0.927	0.93	0.034	0.253	S
G2		0.626	0.618	0.624	0.035	0.067	S
G3		1.63	1.603	1.627	0.06	0.053	S
G4		1.52	1.498	1.513	0.064	0.104	S
G1	NH ₄ ⁺	0.161	0.160	0.16	0.012	0.056	S
G2		0.216	0.214	0.216	0.013	0.024	S
G3		0.329	0.321	0.326	0.014	0.21	S
G4		0.484	0.481	0.489	0.021	-0.244	S
G1	NO ₃ ⁻	0.362	0.364	0.367	0.011	-0.436	S
G2		0.394	0.398	0.401	0.014	-0.508	S
G3		0.727	0.729	0.739	0.031	-0.398	S
G4		0.822	0.821	0.828	0.035	-0.161	S
G1	Na ⁺	0.333	0.365	0.361	0.021	-1.367	S
G2		0.322	0.343	0.339	0.02	-0.827	S
G3		0.75	0.780	0.778	0.03	-0.938	S
G4		0.581	0.608	0.604	0.024	-0.954	S
G1	Mg ²⁺	0.119	0.124	0.122	0.007	-0.493	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.179	0.186	0.186	0.008	-0.866	S
G1	Cl ⁻	0.212	0.232	0.233	0.016	-1.343	S
G2		0.29	0.309	0.306	0.014	-1.129	S
G3		0.531	0.540	0.537	0.024	-0.233	S
G4		0.373	0.386	0.386	0.022	-0.571	S
G1	Ca ²⁺	0.149	0.153	0.149	0.021	0.014	S
G2		0.07	0.102	0.1	0.024	-1.25	U
G3		0.197	0.230	0.228	0.021	-1.485	S
G4		0.186	0.230	0.229	0.023	-1.869	Q
G1	K ⁺	0.184	0.204	0.195	0.018	-0.606	S
G2		0.259	0.272	0.261	0.023	-0.091	S
G3		0.4	0.407	0.399	0.026	0.03	S
G4		0.332	0.340	0.332	0.022	-0.013	S
G1	pH	4.5	4.40	4.443	0.088	0.644	S
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	22	24.0	22.637	2.391	-0.267	S
G2		17	18.1	17.637	1.435	-0.444	S
G3		45	45.1	44.427	3.539	0.162	S
G4		41	41.7	40.361	2.811	0.227	S

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NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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EMEP – 34th intercomparison of analytical methods

Laboratory 39, Environmental Monitoring Laboratory, Institute of Environmental Protection (Poland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.93	0.927	0.93	0.034	-0.014	S
G2		0.632	0.618	0.624	0.035	0.239	S
G3		1.647	1.603	1.627	0.06	0.338	S
G4		1.502	1.498	1.513	0.064	-0.176	S
G1	NH ₄ ⁺	0.159	0.160	0.16	0.012	-0.108	S
G2		0.218	0.214	0.216	0.013	0.182	S
G3		0.334	0.321	0.326	0.014	0.559	S
G4		0.505	0.481	0.489	0.021	0.766	S
G1	NO ₃ ⁻	0.368	0.364	0.367	0.011	0.086	S
G2		0.407	0.398	0.401	0.014	0.44	S
G3		0.778	0.729	0.739	0.031	1.242	S
G4		0.87	0.821	0.828	0.035	1.215	S
G1	Na ⁺	0.362	0.365	0.361	0.021	0.032	S
G2		0.323	0.343	0.339	0.02	-0.777	S
G3		0.773	0.780	0.778	0.03	-0.165	S
G4		0.679	0.608	0.604	0.024	3.091	S
G1	Mg ²⁺	0.13	0.124	0.122	0.007	1.096	S
G2		0.086	0.083	0.082	0.004	0.816	S
G3		0.106	0.103	0.104	0.004	0.557	S
G4		0.193	0.186	0.186	0.008	0.847	S
G1	Cl ⁻	0.221	0.232	0.233	0.016	-0.779	S
G2		0.296	0.309	0.306	0.014	-0.712	S
G3		0.527	0.540	0.537	0.024	-0.397	S
G4		0.372	0.386	0.386	0.022	-0.616	S
G1	Ca ²⁺	0.152	0.153	0.149	0.021	0.16	S
G2		0.104	0.102	0.1	0.024	0.163	S
G3		0.229	0.230	0.228	0.021	0.048	S
G4		0.229	0.230	0.229	0.023	-0.012	S
G1	K ⁺	0.193	0.204	0.195	0.018	-0.107	S
G2		0.258	0.272	0.261	0.023	-0.135	S
G3		0.391	0.407	0.399	0.026	-0.318	S
G4		0.323	0.340	0.332	0.022	-0.421	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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EMEP – 34th intercomparison of analytical methods

Laboratory 42, State Hydrometeorological Service, Chisnau (Moldova)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.39	4.40	4.443	0.088	-0.602	S
G2		4.57	4.57	4.586	0.057	-0.283	S
G3		4.11	4.10	4.114	0.038	-0.107	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	23.5	24.0	22.637	2.391	0.361	S
G2		27.3	18.1	17.637	1.435	6.736	U
G3		43.5	45.1	44.427	3.539	-0.262	S
G4		41.4	41.7	40.361	2.811	0.37	S

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PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

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S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 43, Centre for Monitoring and Prognostication, Tbilisi (Georgia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.938	0.927	0.93	0.034	0.224	S
G2		0.633	0.618	0.624	0.035	0.268	S
G3		1.405	1.603	1.627	0.06	-3.721	Q
G4		1.387	1.498	1.513	0.064	-1.964	S
G1	NH ₄ ⁺	0.225	0.160	0.16	0.012	5.302	U
G2		0.226	0.214	0.216	0.013	0.814	S
G3		0.256	0.321	0.326	0.014	-4.891	Q
G4		0.327	0.481	0.489	0.021	-7.799	U
G1	NO ₃ ⁻	0.367	0.364	0.367	0.011	-0.001	S
G2		0.365	0.398	0.401	0.014	-2.624	S
G3		0.688	0.729	0.739	0.031	-1.651	S
G4		0.77	0.821	0.828	0.035	-1.652	S
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	0.243	0.232	0.233	0.016	0.6	S
G2		0.321	0.309	0.306	0.014	1.023	S
G3		0.708	0.540	0.537	0.024	7.017	U
G4		0.516	0.386	0.386	0.022	5.948	U
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.75	4.40	4.443	0.088	3.476	U
G2		4.67	4.57	4.586	0.057	1.458	S
G3		4.15	4.10	4.114	0.038	0.944	S
G4		4.08	4.18	4.186	0.04	-2.655	S
G1	Cond	14.3	24.0	22.637	2.391	-3.487	U
G2		12.4	18.1	17.637	1.435	-3.65	U
G3		24.7	45.1	44.427	3.539	-5.574	U
G4		27	41.7	40.361	2.811	-4.753	U

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 45, Environmental Impact Monitoring Center, Yerevan (Armenia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	1.006	0.927	0.93	0.034	2.241	S
G2		0.676	0.618	0.624	0.035	1.507	S
G3		1.774	1.603	1.627	0.06	2.475	Q
G4		1.651	1.498	1.513	0.064	2.143	Q
G1	NH ₄ ⁺	0.152	0.160	0.16	0.012	-0.682	S
G2		0.21	0.214	0.216	0.013	-0.451	S
G3		0.326	0.321	0.326	0.014	0	S
G4		0.49	0.481	0.489	0.021	0.044	S
G1	NO ₃ ⁻	0.378	0.364	0.367	0.011	0.992	S
G2		0.415	0.398	0.401	0.014	1.046	S
G3		0.767	0.729	0.739	0.031	0.895	S
G4		0.86	0.821	0.828	0.035	0.937	S
G1	Na ⁺	0.372	0.365	0.361	0.021	0.514	S
G2		0.33	0.343	0.339	0.02	-0.431	S
G3		0.821	0.780	0.778	0.03	1.446	S
G4		0.582	0.608	0.604	0.024	-0.913	S
G1	Mg ²⁺	0.119	0.124	0.122	0.007	-0.493	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.109	0.103	0.104	0.004	1.248	S
G4		0.197	0.186	0.186	0.008	1.336	S
G1	Cl ⁻	0.239	0.232	0.233	0.016	0.324	S
G2		0.32	0.309	0.306	0.014	0.933	S
G3		0.565	0.540	0.537	0.024	1.151	S
G4		0.403	0.386	0.386	0.022	0.811	S
G1	Ca ²⁺	0.152	0.153	0.149	0.021	0.16	S
G2		0.109	0.102	0.1	0.024	0.371	S
G3		0.236	0.230	0.228	0.021	0.383	S
G4		0.242	0.230	0.229	0.023	0.55	S
G1	K ⁺	0.217	0.204	0.195	0.018	1.226	S
G2		0.282	0.272	0.261	0.023	0.927	S
G3		0.426	0.407	0.399	0.026	1.035	S
G4		0.358	0.340	0.332	0.022	1.164	S
G1	pH	4.44	4.40	4.443	0.088	-0.036	S
G2		4.596	4.57	4.586	0.057	0.169	S
G3		4.145	4.10	4.114	0.038	0.813	S
G4		4.173	4.18	4.186	0.04	-0.332	S
G1	Cond	21.1	24.0	22.637	2.391	-0.643	S
G2		17.3	18.1	17.637	1.435	-0.235	S
G3		44.2	45.1	44.427	3.539	-0.064	S
G4		41.3	41.7	40.361	2.811	0.334	S

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NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 46, Diabla Gora Station (Poland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.45	4.40	4.443	0.088	0.078	S
G2		4.62	4.57	4.586	0.057	0.587	S
G3		4.15	4.10	4.114	0.038	0.944	S
G4		4.22	4.18	4.186	0.04	0.842	S
G1	Cond	23.78	24.0	22.637	2.391	0.478	S
G2		17.96	18.1	17.637	1.435	0.225	S
G3		45.55	45.1	44.427	3.539	0.317	S
G4		41.32	41.7	40.361	2.811	0.341	S

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NO-2027 KJELLER, Norway
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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
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Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 49, The Cyprus Institute (Cyl) (Cyprus)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.944	0.927	0.93	0.034	0.402	S
G2		0.632	0.618	0.624	0.035	0.239	S
G3		1.638	1.603	1.627	0.06	0.187	S
G4		1.521	1.498	1.513	0.064	0.119	S
G1	NH ₄ ⁺	0.137	0.160	0.16	0.012	-1.912	S
G2		0.193	0.214	0.216	0.013	-1.795	S
G3		0.323	0.321	0.326	0.014	-0.21	S
G4		0.489	0.481	0.489	0.021	-0.004	S
G1	NO ₃ ⁻	0.374	0.364	0.367	0.011	0.609	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.732	0.729	0.739	0.031	-0.237	S
G4		0.822	0.821	0.828	0.035	-0.161	S
G1	Na ⁺	0.371	0.365	0.361	0.021	0.466	S
G2		0.345	0.343	0.339	0.02	0.309	S
G3		0.791	0.780	0.778	0.03	0.439	S
G4		0.612	0.608	0.604	0.024	0.325	S
G1	Mg ²⁺	0.129	0.124	0.122	0.007	0.952	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.109	0.103	0.104	0.004	1.248	S
G4		0.191	0.186	0.186	0.008	0.602	S
G1	Cl ⁻	0.226	0.232	0.233	0.016	-0.466	S
G2		0.303	0.309	0.306	0.014	-0.227	S
G3		0.537	0.540	0.537	0.024	0.012	S
G4		0.38	0.386	0.386	0.022	-0.251	S
G1	Ca ²⁺	0.171	0.153	0.149	0.021	1.085	S
G2		0.103	0.102	0.1	0.024	0.121	S
G3		0.251	0.230	0.228	0.021	1.102	S
G4		0.253	0.230	0.229	0.023	1.025	S
G1	K ⁺	0.214	0.204	0.195	0.018	1.059	S
G2		0.282	0.272	0.261	0.023	0.927	S
G3		0.418	0.407	0.399	0.026	0.726	S
G4		0.358	0.340	0.332	0.022	1.164	S
G1	pH	4.38	4.40	4.443	0.088	-0.715	S
G2		4.5	4.57	4.586	0.057	-1.503	S
G3		4.08	4.10	4.114	0.038	-0.895	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	23.4	24.0	22.637	2.391	0.319	S
G2		17.9	18.1	17.637	1.435	0.184	S
G3		45.3	45.1	44.427	3.539	0.247	S
G4		40.9	41.7	40.361	2.811	0.192	S

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NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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Bank: 5102.05.19030
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 50, CEA Saclay - Orme des Merisiers (France)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.916	0.927	0.93	0.034	-0.429	S
G2		0.609	0.618	0.624	0.035	-0.421	S
G3		1.6	1.603	1.627	0.06	-0.451	S
G4		1.49	1.498	1.513	0.064	-0.363	S
G1	NH ₄ ⁺	0.196	0.160	0.16	0.012	2.925	Q
G2		0.235	0.214	0.216	0.013	1.526	S
G3		0.336	0.321	0.326	0.014	0.699	S
G4		0.473	0.481	0.489	0.021	-0.774	S
G1	NO ₃ ⁻	0.369	0.364	0.367	0.011	0.174	S
G2		0.407	0.398	0.401	0.014	0.44	S
G3		0.744	0.729	0.739	0.031	0.149	S
G4		0.845	0.821	0.828	0.035	0.498	S
G1	Na ⁺	0.358	0.365	0.361	0.021	-0.161	S
G2		0.334	0.343	0.339	0.02	-0.234	S
G3		0.75	0.780	0.778	0.03	-0.938	S
G4		0.588	0.608	0.604	0.024	-0.665	S
G1	Mg ²⁺	0.105	0.124	0.122	0.007	-2.515	Q
G2		0.079	0.083	0.082	0.004	-0.803	S
G3		0.104	0.103	0.104	0.004	0.097	S
G4		0.187	0.186	0.186	0.008	0.113	S
G1	Cl ⁻	0.242	0.232	0.233	0.016	0.537	S
G2		0.332	0.309	0.306	0.014	1.786	S
G3		0.6	0.540	0.537	0.024	2.593	S
G4		0.435	0.386	0.386	0.022	2.256	S
G1	Ca ²⁺	0.153	0.153	0.149	0.021	0.209	S
G2		0.125	0.102	0.1	0.024	1.035	Q
G3		0.239	0.230	0.228	0.021	0.527	S
G4		0.305	0.230	0.229	0.023	3.27	U
G1	K ⁺	0.198	0.204	0.195	0.018	0.171	S
G2		0.267	0.272	0.261	0.023	0.263	S
G3		0.396	0.407	0.399	0.026	-0.125	S
G4		0.335	0.340	0.332	0.022	0.123	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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PO Box 100
NO-2027 KJELLER, Norway
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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 110, Thüringer Landesanstalt für Landwirtschaft TTL, Jena (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.83	0.927	0.93	0.034	-2.98	Q
G2		0.64	0.618	0.624	0.035	0.468	S
G3		1.61	1.603	1.627	0.06	-0.283	S
G4		1.45	1.498	1.513	0.064	-0.985	S
G1	NH ₄ ⁺	0.116	0.160	0.16	0.012	-3.633	U
G2		0.173	0.214	0.216	0.013	-3.376	Q
G3		0.285	0.321	0.326	0.014	-2.865	S
G4		0.449	0.481	0.489	0.021	-1.929	S
G1	NO ₃ ⁻	0.4	0.364	0.367	0.011	2.874	S
G2		0.42	0.398	0.401	0.014	1.388	S
G3		0.69	0.729	0.739	0.031	-1.587	S
G4		0.77	0.821	0.828	0.035	-1.652	S
G1	Na ⁺	0.377	0.365	0.361	0.021	0.755	S
G2		0.358	0.343	0.339	0.02	0.951	S
G3		0.798	0.780	0.778	0.03	0.674	S
G4		0.615	0.608	0.604	0.024	0.449	S
G1	Mg ²⁺	0.125	0.124	0.122	0.007	0.374	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.104	0.103	0.104	0.004	0.097	S
G4		0.189	0.186	0.186	0.008	0.357	S
G1	Cl ⁻	0.27	0.232	0.233	0.016	2.292	Q
G2		0.32	0.309	0.306	0.014	0.953	S
G3		0.64	0.540	0.537	0.024	4.231	Q
G4		0.41	0.386	0.386	0.022	1.116	S
G1	Ca ²⁺	0.155	0.153	0.149	0.021	0.306	S
G2		0.105	0.102	0.1	0.024	0.204	S
G3		0.235	0.230	0.228	0.021	0.335	S
G4		0.234	0.230	0.229	0.023	0.204	S
G1	K ⁺	0.202	0.204	0.195	0.018	0.393	S
G2		0.259	0.272	0.261	0.023	-0.091	S
G3		0.416	0.407	0.399	0.026	0.648	S
G4		0.358	0.340	0.332	0.022	1.164	S
G1	pH	4.73	4.40	4.443	0.088	3.249	U
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.09	4.10	4.114	0.038	-0.632	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	21.6	24.0	22.637	2.391	-0.434	S
G2		18.5	18.1	17.637	1.435	0.602	S
G3		42.7	45.1	44.427	3.539	-0.488	S
G4		39.1	41.7	40.361	2.811	-0.449	S

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 112, Niedersächsische Forstliche Versuchsanstalt NVF (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.937	0.927	0.93	0.034	0.194	S
G2		0.63	0.618	0.624	0.035	0.182	S
G3		1.599	1.603	1.627	0.06	-0.467	S
G4		1.493	1.498	1.513	0.064	-0.316	S
G1	NH ₄ ⁺	0.152	0.160	0.16	0.012	-0.682	S
G2		0.207	0.214	0.216	0.013	-0.688	S
G3		0.314	0.321	0.326	0.014	-0.839	S
G4		0.474	0.481	0.489	0.021	-0.726	S
G1	NO ₃ ⁻	0.369	0.364	0.367	0.011	0.174	S
G2		0.402	0.398	0.401	0.014	0.075	S
G3		0.734	0.729	0.739	0.031	-0.173	S
G4		0.819	0.821	0.828	0.035	-0.247	S
G1	Na ⁺	0.368	0.365	0.361	0.021	0.321	S
G2		0.347	0.343	0.339	0.02	0.408	S
G3		0.781	0.780	0.778	0.03	0.103	S
G4		0.606	0.608	0.604	0.024	0.078	S
G1	Mg ²⁺	0.127	0.124	0.122	0.007	0.663	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.106	0.103	0.104	0.004	0.557	S
G4		0.186	0.186	0.186	0.008	-0.01	S
G1	Cl ⁻	0.233	0.232	0.233	0.016	-0.027	S
G2		0.312	0.309	0.306	0.014	0.398	S
G3		0.549	0.540	0.537	0.024	0.504	S
G4		0.39	0.386	0.386	0.022	0.204	S
G1	Ca ²⁺	0.149	0.153	0.149	0.021	0.014	S
G2		0.102	0.102	0.1	0.024	0.08	S
G3		0.228	0.230	0.228	0.021	0	S
G4		0.224	0.230	0.229	0.023	-0.228	S
G1	K ⁺	0.198	0.204	0.195	0.018	0.171	S
G2		0.265	0.272	0.261	0.023	0.174	S
G3		0.404	0.407	0.399	0.026	0.184	S
G4		0.336	0.340	0.332	0.022	0.168	S
G1	pH	4.43	4.40	4.443	0.088	-0.149	S
G2		4.63	4.57	4.586	0.057	0.762	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	22.6	24.0	22.637	2.391	-0.016	S
G2		16.6	18.1	17.637	1.435	-0.723	S
G3		45.4	45.1	44.427	3.539	0.275	S
G4		40.1	41.7	40.361	2.811	-0.093	S

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 114, C.N.R. Istituto Italiano di Idrobiologia (Italy)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.91	0.927	0.93	0.034	-0.607	S
G2		0.6	0.618	0.624	0.035	-0.679	S
G3		1.59	1.603	1.627	0.06	-0.618	S
G4		1.47	1.498	1.513	0.064	-0.674	S
G1	NH ₄ ⁺	0.15	0.160	0.16	0.012	-0.846	S
G2		0.21	0.214	0.216	0.013	-0.451	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.47	0.481	0.489	0.021	-0.918	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.39	0.398	0.401	0.014	-0.8	S
G3		0.73	0.729	0.739	0.031	-0.301	S
G4		0.82	0.821	0.828	0.035	-0.218	S
G1	Na ⁺	0.3	0.365	0.361	0.021	-2.958	Q
G2		0.31	0.343	0.339	0.02	-1.419	S
G3		0.72	0.780	0.778	0.03	-1.945	S
G4		0.56	0.608	0.604	0.024	-1.821	S
G1	Mg ²⁺	0.1	0.124	0.122	0.007	-3.237	Q
G2		0.09	0.083	0.082	0.004	1.741	S
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.18	0.186	0.186	0.008	-0.744	S
G1	Cl ⁻	0.22	0.232	0.233	0.016	-0.842	S
G2		0.29	0.309	0.306	0.014	-1.129	S
G3		0.51	0.540	0.537	0.024	-1.094	S
G4		0.36	0.386	0.386	0.022	-1.163	S
G1	Ca ²⁺	0.13	0.153	0.149	0.021	-0.911	Q
G2		0.11	0.102	0.1	0.024	0.412	S
G3		0.22	0.230	0.228	0.021	-0.383	S
G4		0.23	0.230	0.229	0.023	0.031	S
G1	K ⁺	0.18	0.204	0.195	0.018	-0.828	S
G2		0.28	0.272	0.261	0.023	0.839	S
G3		0.3	0.407	0.399	0.026	-3.837	U
G4		0.3	0.340	0.332	0.022	-1.462	S
G1	pH	4.42	4.40	4.443	0.088	-0.262	S
G2		4.57	4.57	4.586	0.057	-0.283	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.18	4.18	4.186	0.04	-0.157	S
G1	Cond	24.4	24.0	22.637	2.391	0.737	S
G2		18.6	18.1	17.637	1.435	0.672	S
G3		46.9	45.1	44.427	3.539	0.699	S
G4		42.4	41.7	40.361	2.811	0.725	S

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Framsenteret / The Fram Centre
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✕ EMEP quality norm; the letters in the column indicates:

S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 115, Bayerische Landesanstalt f. Wald- und Forstwirtschaft (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.877	0.927	0.93	0.034	-1.586	S
G2		0.571	0.618	0.624	0.035	-1.51	S
G3		1.58	1.603	1.627	0.06	-0.786	S
G4		1.468	1.498	1.513	0.064	-0.705	S
G1	NH ₄ ⁺	0.157	0.160	0.16	0.012	-0.272	S
G2		0.225	0.214	0.216	0.013	0.735	S
G3		0.312	0.321	0.326	0.014	-0.978	S
G4		0.471	0.481	0.489	0.021	-0.87	S
G1	NO ₃ ⁻	0.323	0.364	0.367	0.011	-3.833	Q
G2		0.354	0.398	0.401	0.014	-3.426	Q
G3		0.687	0.729	0.739	0.031	-1.683	S
G4		0.769	0.821	0.828	0.035	-1.681	S
G1	Na ⁺	0.362	0.365	0.361	0.021	0.032	S
G2		0.35	0.343	0.339	0.02	0.556	S
G3		0.794	0.780	0.778	0.03	0.54	S
G4		0.62	0.608	0.604	0.024	0.656	S
G1	Mg ²⁺	0.117	0.124	0.122	0.007	-0.782	S
G2		0.078	0.083	0.082	0.004	-1.034	S
G3		0.099	0.103	0.104	0.004	-1.055	S
G4		0.179	0.186	0.186	0.008	-0.866	S
G1	Cl ⁻	0.215	0.232	0.233	0.016	-1.155	S
G2		0.281	0.309	0.306	0.014	-1.754	S
G3		0.48	0.540	0.537	0.024	-2.322	S
G4		0.349	0.386	0.386	0.022	-1.665	S
G1	Ca ²⁺	0.149	0.153	0.149	0.021	0.014	S
G2		< 0.100	0.102	0.1	0.024	-2.081	U
G3		0.223	0.230	0.228	0.021	-0.24	S
G4		0.225	0.230	0.229	0.023	-0.184	S
G1	K ⁺	0.124	0.204	0.195	0.018	-3.937	U
G2		0.178	0.272	0.261	0.023	-3.677	U
G3		0.335	0.407	0.399	0.026	-2.483	Q
G4		0.258	0.340	0.332	0.022	-3.364	Q
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.56	4.57	4.586	0.057	-0.458	S
G3		4.08	4.10	4.114	0.038	-0.895	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	22.3	24.0	22.637	2.391	-0.141	S
G2		17.1	18.1	17.637	1.435	-0.374	S
G3		44.6	45.1	44.427	3.539	0.049	S
G4		39.8	41.7	40.361	2.811	-0.2	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

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EMEP – 34th intercomparison of analytical methods

Laboratory 116, Institute for Applied Plant Biology (Switzerland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.903	0.927	0.93	0.034	-0.815	S
G2		0.591	0.618	0.624	0.035	-0.937	S
G3		1.523	1.603	1.627	0.06	-1.742	S
G4		1.411	1.498	1.513	0.064	-1.591	S
G1	NH ₄ ⁺	0.177	0.160	0.16	0.012	1.367	S
G2		0.233	0.214	0.216	0.013	1.368	S
G3		0.353	0.321	0.326	0.014	1.887	S
G4		0.531	0.481	0.489	0.021	2.017	S
G1	NO ₃ ⁻	0.342	0.364	0.367	0.011	-2.178	S
G2		0.374	0.398	0.401	0.014	-1.967	S
G3		0.703	0.729	0.739	0.031	-1.169	S
G4		0.787	0.821	0.828	0.035	-1.165	S
G1	Na ⁺	0.368	0.365	0.361	0.021	0.321	S
G2		0.354	0.343	0.339	0.02	0.754	S
G3		0.777	0.780	0.778	0.03	-0.031	S
G4		0.599	0.608	0.604	0.024	-0.211	S
G1	Mg ²⁺	0.122	0.124	0.122	0.007	-0.059	S
G2		0.082	0.083	0.082	0.004	-0.109	S
G3		0.103	0.103	0.104	0.004	-0.134	S
G4		0.179	0.186	0.186	0.008	-0.866	S
G1	Cl ⁻	0.219	0.232	0.233	0.016	-0.904	S
G2		0.278	0.309	0.306	0.014	-1.962	S
G3		0.517	0.540	0.537	0.024	-0.807	S
G4		0.358	0.386	0.386	0.022	-1.254	S
G1	Ca ²⁺	0.081	0.153	0.149	0.021	-3.296	U
G2		0.027	0.102	0.1	0.024	-3.037	U
G3		0.252	0.230	0.228	0.021	1.15	S
G4		0.231	0.230	0.229	0.023	0.075	S
G1	K ⁺	0.163	0.204	0.195	0.018	-1.772	Q
G2		0.229	0.272	0.261	0.023	-1.419	Q
G3		0.349	0.407	0.399	0.026	-1.942	S
G4		0.286	0.340	0.332	0.022	-2.096	Q
G1	pH	4.38	4.40	4.443	0.088	-0.715	S
G2		4.58	4.57	4.586	0.057	-0.109	S
G3		4.07	4.10	4.114	0.038	-1.158	S
G4		4.16	4.18	4.186	0.04	-0.657	S
G1	Cond	20	24.0	22.637	2.391	-1.103	Q
G2		15.1	18.1	17.637	1.435	-1.768	Q
G3		37.1	45.1	44.427	3.539	-2.07	Q
G4		33.9	41.7	40.361	2.811	-2.298	Q

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PO Box 100
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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EMEP – 34th intercomparison of analytical methods

Laboratory 117, Standortserkundung/Bodenmonitoring Forsten, Graupa (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.93	0.927	0.93	0.034	-0.014	S
G2		0.64	0.618	0.624	0.035	0.468	S
G3		1.6	1.603	1.627	0.06	-0.451	S
G4		1.49	1.498	1.513	0.064	-0.363	S
G1	NH ₄ ⁺	0.15	0.160	0.16	0.012	-0.846	S
G2		0.21	0.214	0.216	0.013	-0.451	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.48	0.481	0.489	0.021	-0.437	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.72	0.729	0.739	0.031	-0.623	S
G4		0.81	0.821	0.828	0.035	-0.505	S
G1	Na ⁺	0.33	0.365	0.361	0.021	-1.512	S
G2		0.31	0.343	0.339	0.02	-1.419	S
G3		0.74	0.780	0.778	0.03	-1.274	S
G4		0.57	0.608	0.604	0.024	-1.408	S
G1	Mg ²⁺	0.13	0.124	0.122	0.007	1.096	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.19	0.186	0.186	0.008	0.48	S
G1	Cl ⁻	< 0.350	0.232	0.233	0.016		B
G2		0.38	0.309	0.306	0.014	5.118	Q
G3		0.53	0.540	0.537	0.024	-0.274	S
G4		0.38	0.386	0.386	0.022	-0.251	S
G1	Ca ²⁺	0.14	0.153	0.149	0.021	-0.424	S
G2		0.09	0.102	0.1	0.024	-0.419	S
G3		0.22	0.230	0.228	0.021	-0.383	S
G4		0.22	0.230	0.229	0.023	-0.4	S
G1	K ⁺	0.19	0.204	0.195	0.018	-0.273	S
G2		0.26	0.272	0.261	0.023	-0.047	S
G3		0.39	0.407	0.399	0.026	-0.357	S
G4		0.32	0.340	0.332	0.022	-0.556	S
G1	pH	4.46	4.40	4.443	0.088	0.191	S
G2		4.5	4.57	4.586	0.057	-1.503	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.19	4.18	4.186	0.04	0.093	S
G1	Cond	23.4	24.0	22.637	2.391	0.319	S
G2		15.7	18.1	17.637	1.435	-1.35	S
G3		46.6	45.1	44.427	3.539	0.614	S
G4		42	41.7	40.361	2.811	0.583	S

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NO-2027 KJELLER, Norway
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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 118, Forstliche Versuchs-und Forschungsanstalt (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.9	0.927	0.93	0.034	-0.904	S
G2		0.62	0.618	0.624	0.035	-0.105	S
G3		1.91	1.603	1.627	0.06	4.749	Q
G4		1.74	1.498	1.513	0.064	3.524	Q
G1	NH ₄ ⁺	0.158	0.160	0.16	0.012	-0.19	S
G2		0.205	0.214	0.216	0.013	-0.846	S
G3		0.311	0.321	0.326	0.014	-1.048	S
G4		0.467	0.481	0.489	0.021	-1.062	S
G1	NO ₃ ⁻	0.35	0.364	0.367	0.011	-1.481	S
G2		0.38	0.398	0.401	0.014	-1.529	S
G3		0.72	0.729	0.739	0.031	-0.623	S
G4		0.81	0.821	0.828	0.035	-0.505	S
G1	Na ⁺	0.35	0.365	0.361	0.021	-0.547	S
G2		0.33	0.343	0.339	0.02	-0.431	S
G3		0.75	0.780	0.778	0.03	-0.938	S
G4		0.59	0.608	0.604	0.024	-0.583	S
G1	Mg ²⁺	0.123	0.124	0.122	0.007	0.085	S
G2		0.082	0.083	0.082	0.004	-0.109	S
G3		0.104	0.103	0.104	0.004	0.097	S
G4		0.185	0.186	0.186	0.008	-0.132	S
G1	Cl ⁻	0.24	0.232	0.233	0.016	0.412	S
G2		0.3	0.309	0.306	0.014	-0.435	S
G3		0.52	0.540	0.537	0.024	-0.684	S
G4		0.37	0.386	0.386	0.022	-0.707	S
G1	Ca ²⁺	0.15	0.153	0.149	0.021	0.063	S
G2		0.1	0.102	0.1	0.024	-0.003	S
G3		0.22	0.230	0.228	0.021	-0.383	S
G4		0.22	0.230	0.229	0.023	-0.4	S
G1	K ⁺	0.2	0.204	0.195	0.018	0.282	S
G2		0.27	0.272	0.261	0.023	0.396	S
G3		0.41	0.407	0.399	0.026	0.416	S
G4		0.34	0.340	0.332	0.022	0.349	S
G1	pH	4.36	4.40	4.443	0.088	-0.942	S
G2		4.56	4.57	4.586	0.057	-0.458	S
G3		4.05	4.10	4.114	0.038	-1.683	S
G4		4.14	4.18	4.186	0.04	-1.156	S
G1	Cond	23	24.0	22.637	2.391	0.152	S
G2		18	18.1	17.637	1.435	0.253	S
G3		46	45.1	44.427	3.539	0.445	S
G4		41	41.7	40.361	2.811	0.227	S

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PO Box 100
NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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EMEP – 34th intercomparison of analytical methods

Laboratory 120, Landwirtschaftliche Untersuchungs- und Forschungsanstalt LUFA (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.883	0.927	0.93	0.034	-1.408	S
G2		0.577	0.618	0.624	0.035	-1.338	S
G3		1.565	1.603	1.627	0.06	-1.038	S
G4		1.434	1.498	1.513	0.064	-1.233	S
G1	NH ₄ ⁺	0.19	0.160	0.16	0.012	2.433	Q
G2		0.24	0.214	0.216	0.013	1.922	S
G3		0.36	0.321	0.326	0.014	2.376	S
G4		0.52	0.481	0.489	0.021	1.488	S
G1	NO ₃ ⁻	0.39	0.364	0.367	0.011	2.003	S
G2		0.41	0.398	0.401	0.014	0.659	S
G3		0.77	0.729	0.739	0.031	0.985	S
G4		0.85	0.821	0.828	0.035	0.642	S
G1	Na ⁺	0.365	0.365	0.361	0.021	0.177	S
G2		0.353	0.343	0.339	0.02	0.704	S
G3		0.784	0.780	0.778	0.03	0.204	S
G4		0.602	0.608	0.604	0.024	-0.087	S
G1	Mg ²⁺	0.119	0.124	0.122	0.007	-0.493	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.101	0.103	0.104	0.004	-0.594	S
G4		0.179	0.186	0.186	0.008	-0.866	S
G1	Cl ⁻	0.26	0.232	0.233	0.016	1.665	S
G2		0.28	0.309	0.306	0.014	-1.823	S
G3		0.56	0.540	0.537	0.024	0.954	S
G4		0.44	0.386	0.386	0.022	2.484	S
G1	Ca ²⁺	0.148	0.153	0.149	0.021	-0.034	S
G2		0.101	0.102	0.1	0.024	0.038	S
G3		0.224	0.230	0.228	0.021	-0.192	S
G4		0.226	0.230	0.229	0.023	-0.141	S
G1	K ⁺	0.168	0.204	0.195	0.018	-1.495	Q
G2		0.245	0.272	0.261	0.023	-0.711	S
G3		0.384	0.407	0.399	0.026	-0.589	S
G4		0.314	0.340	0.332	0.022	-0.828	S
G1	pH	4.41	4.40	4.443	0.088	-0.375	S
G2		4.61	4.57	4.586	0.057	0.413	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.18	4.18	4.186	0.04	-0.157	S
G1	Cond	25	24.0	22.637	2.391	0.988	S
G2		19	18.1	17.637	1.435	0.95	S
G3		47	45.1	44.427	3.539	0.727	S
G4		43	41.7	40.361	2.811	0.939	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu-tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

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S – Satisfactory: Your result deviates less than $\pm 10\%$ of the expected value for SO_4^{2-} and NO_3^- , less than $\pm 15\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and less than ± 0.1 pH-units for pH

Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 121, Landeslabor Schleswig-Holsteinmwelt (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.95	0.927	0.93	0.034	0.58	S
G2		0.657	0.618	0.624	0.035	0.956	S
G3		1.59	1.603	1.627	0.06	-0.618	S
G4		1.49	1.498	1.513	0.064	-0.363	S
G1	NH ₄ ⁺	0.162	0.160	0.16	0.012	0.138	S
G2		0.213	0.214	0.216	0.013	-0.214	S
G3		0.329	0.321	0.326	0.014	0.21	S
G4		0.503	0.481	0.489	0.021	0.67	S
G1	NO ₃ ⁻	0.37	0.364	0.367	0.011	0.261	S
G2		0.403	0.398	0.401	0.014	0.148	S
G3		0.724	0.729	0.739	0.031	-0.494	S
G4		0.808	0.821	0.828	0.035	-0.563	S
G1	Na ⁺	0.346	0.365	0.361	0.021	-0.74	S
G2		0.324	0.343	0.339	0.02	-0.728	S
G3		0.763	0.780	0.778	0.03	-0.501	S
G4		0.587	0.608	0.604	0.024	-0.707	S
G1	Mg ²⁺	0.12	0.124	0.122	0.007	-0.348	S
G2		0.079	0.083	0.082	0.004	-0.803	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.184	0.186	0.186	0.008	-0.254	S
G1	Cl ⁻	0.243	0.232	0.233	0.016	0.6	S
G2		0.296	0.309	0.306	0.014	-0.712	S
G3		0.5	0.540	0.537	0.024	-1.503	S
G4		0.37	0.386	0.386	0.022	-0.707	S
G1	Ca ²⁺	0.129	0.153	0.149	0.021	-0.959	Q
G2		0.084	0.102	0.1	0.024	-0.668	Q
G3		0.207	0.230	0.228	0.021	-1.006	S
G4		0.207	0.230	0.229	0.023	-0.962	S
G1	K ⁺	0.189	0.204	0.195	0.018	-0.329	S
G2		0.223	0.272	0.261	0.023	-1.685	Q
G3		0.35	0.407	0.399	0.026	-1.903	S
G4		0.281	0.340	0.332	0.022	-2.322	Q
G1	pH	4.45	4.40	4.443	0.088	0.078	S
G2		4.62	4.57	4.586	0.057	0.587	S
G3		4.13	4.10	4.114	0.038	0.419	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	25.2	24.0	22.637	2.391	1.072	S
G2		19.5	18.1	17.637	1.435	1.299	S
G3		47.3	45.1	44.427	3.539	0.812	S
G4		43.6	41.7	40.361	2.811	1.152	S

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PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 124, Laboratorium voor Bondemkunde, Gent (Belgium)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.934	0.927	0.93	0.034	0.105	S
G2		0.634	0.618	0.624	0.035	0.296	S
G3		1.648	1.603	1.627	0.06	0.354	S
G4		1.53	1.498	1.513	0.064	0.259	S
G1	NH ₄ ⁺	0.164	0.160	0.16	0.012	0.302	S
G2		0.227	0.214	0.216	0.013	0.894	S
G3		0.356	0.321	0.326	0.014	2.096	S
G4		0.542	0.481	0.489	0.021	2.547	S
G1	NO ₃ ⁻	0.359	0.364	0.367	0.011	-0.697	S
G2		0.392	0.398	0.401	0.014	-0.654	S
G3		0.743	0.729	0.739	0.031	0.117	S
G4		0.84	0.821	0.828	0.035	0.355	S
G1	Na ⁺	0.38	0.365	0.361	0.021	0.9	S
G2		0.353	0.343	0.339	0.02	0.704	S
G3		0.806	0.780	0.778	0.03	0.943	S
G4		0.628	0.608	0.604	0.024	0.986	S
G1	Mg ²⁺	0.121	0.124	0.122	0.007	-0.204	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.104	0.103	0.104	0.004	0.097	S
G4		0.184	0.186	0.186	0.008	-0.254	S
G1	Cl ⁻	0.248	0.232	0.233	0.016	0.913	S
G2		0.313	0.309	0.306	0.014	0.468	S
G3		0.571	0.540	0.537	0.024	1.405	S
G4		0.405	0.386	0.386	0.022	0.888	S
G1	Ca ²⁺	0.148	0.153	0.149	0.021	-0.034	S
G2		0.101	0.102	0.1	0.024	0.038	S
G3		0.228	0.230	0.228	0.021	0	S
G4		0.228	0.230	0.229	0.023	-0.055	S
G1	K ⁺	0.207	0.204	0.195	0.018	0.671	S
G2		0.271	0.272	0.261	0.023	0.44	S
G3		0.412	0.407	0.399	0.026	0.494	S
G4		0.342	0.340	0.332	0.022	0.44	S
G1	pH	4.45	4.40	4.443	0.088	0.078	S
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.11	4.10	4.114	0.038	-0.107	S
G4		4.19	4.18	4.186	0.04	0.093	S
G1	Cond	25	24.0	22.637	2.391	0.988	S
G2		19	18.1	17.637	1.435	0.95	S
G3		46	45.1	44.427	3.539	0.445	S
G4		42	41.7	40.361	2.811	0.583	S

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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 125, Bayerisches Landesamt für Umweltschutz, Augsburg (Germany)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.947	0.927	0.93	0.034	0.491	S
G2		0.63	0.618	0.624	0.035	0.182	S
G3		1.67	1.603	1.627	0.06	0.723	S
G4		1.55	1.498	1.513	0.064	0.57	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.22	0.214	0.216	0.013	0.34	S
G3		0.34	0.321	0.326	0.014	0.978	S
G4		0.5	0.481	0.489	0.021	0.526	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.74	0.729	0.739	0.031	0.02	S
G4		0.83	0.821	0.828	0.035	0.068	S
G1	Na ⁺	0.339	0.365	0.361	0.021	-1.077	S
G2		0.323	0.343	0.339	0.02	-0.777	S
G3		0.742	0.780	0.778	0.03	-1.206	S
G4		0.583	0.608	0.604	0.024	-0.872	S
G1	Mg ²⁺	0.12	0.124	0.122	0.007	-0.348	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.103	0.103	0.104	0.004	-0.134	S
G4		0.187	0.186	0.186	0.008	0.113	S
G1	Cl ⁻	0.25	0.232	0.233	0.016	1.039	S
G2		0.32	0.309	0.306	0.014	0.953	S
G3		0.55	0.540	0.537	0.024	0.545	S
G4		0.4	0.386	0.386	0.022	0.66	S
G1	Ca ²⁺	0.145	0.153	0.149	0.021	-0.181	S
G2		0.101	0.102	0.1	0.024	0.038	S
G3		0.221	0.230	0.228	0.021	-0.335	S
G4		0.224	0.230	0.229	0.023	-0.228	S
G1	K ⁺	0.209	0.204	0.195	0.018	0.782	S
G2		0.28	0.272	0.261	0.023	0.839	S
G3		0.426	0.407	0.399	0.026	1.035	S
G4		0.36	0.340	0.332	0.022	1.255	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 126, APPA Laboratorio Biologico Provinciale (Italy)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.914	0.927	0.93	0.034	-0.488	S
G2		0.62	0.618	0.624	0.035	-0.105	S
G3		1.685	1.603	1.627	0.06	0.975	S
G4		1.585	1.498	1.513	0.064	1.114	S
G1	NH ₄ ⁺	0.134	0.160	0.16	0.012	-2.158	Q
G2		0.175	0.214	0.216	0.013	-3.218	Q
G3		0.26	0.321	0.326	0.014	-4.612	Q
G4		0.412	0.481	0.489	0.021	-3.709	S
G1	NO ₃ ⁻	0.356	0.364	0.367	0.011	-0.959	S
G2		0.42	0.398	0.401	0.014	1.388	S
G3		0.798	0.729	0.739	0.031	1.884	S
G4		0.941	0.821	0.828	0.035	3.25	Q
G1	Na ⁺	0.39	0.365	0.361	0.021	1.382	S
G2		0.32	0.343	0.339	0.02	-0.925	S
G3		0.77	0.780	0.778	0.03	-0.266	S
G4		0.55	0.608	0.604	0.024	-2.234	S
G1	Mg ²⁺	0.07	0.124	0.122	0.007	-7.571	U
G2		0.07	0.083	0.082	0.004	-2.884	Q
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.14	0.186	0.186	0.008	-5.636	Q
G1	Cl ⁻	0.29	0.232	0.233	0.016	3.546	Q
G2		0.33	0.309	0.306	0.014	1.647	S
G3		0.56	0.540	0.537	0.024	0.954	S
G4		0.41	0.386	0.386	0.022	1.116	S
G1	Ca ²⁺	0.37	0.153	0.149	0.021	10.772	U
G2		0.32	0.102	0.1	0.024	9.138	U
G3		0.61	0.230	0.228	0.021	18.303	U
G4		0.61	0.230	0.229	0.023	16.441	U
G1	K ⁺	0.15	0.204	0.195	0.018	-2.494	U
G2		0.24	0.272	0.261	0.023	-0.932	S
G3		0.4	0.407	0.399	0.026	0.03	S
G4		0.31	0.340	0.332	0.022	-1.009	S
G1	pH	4.45	4.40	4.443	0.088	0.078	S
G2		4.63	4.57	4.586	0.057	0.762	S
G3		4.14	4.10	4.114	0.038	0.682	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	21.2	24.0	22.637	2.391	-0.601	S
G2		16.33	18.1	17.637	1.435	-0.911	S
G3		41.3	45.1	44.427	3.539	-0.883	S
G4		36.6	41.7	40.361	2.811	-1.338	S

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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 145, Estonian Environmental Research Centre, Tartu laboratory (Estonia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	1.02	0.927	0.93	0.034	2.657	Q
G2		0.672	0.618	0.624	0.035	1.386	S
G3		1.74	1.603	1.627	0.06	1.898	S
G4		1.62	1.498	1.513	0.064	1.658	S
G1	NH ₄ ⁺	0.156	0.160	0.16	0.012	-0.354	S
G2		0.214	0.214	0.216	0.013	-0.134	S
G3		0.329	0.321	0.326	0.014	0.21	S
G4		0.501	0.481	0.489	0.021	0.574	S
G1	NO ₃ ⁻	0.432	0.364	0.367	0.011	5.661	Q
G2		0.472	0.398	0.401	0.014	5.182	Q
G3		0.875	0.729	0.739	0.031	4.359	U
G4		0.986	0.821	0.828	0.035	4.541	U
G1	Na ⁺	0.348	0.365	0.361	0.021	-0.643	S
G2		0.324	0.343	0.339	0.02	-0.728	S
G3		0.769	0.780	0.778	0.03	-0.3	S
G4		0.586	0.608	0.604	0.024	-0.748	S
G1	Mg ²⁺	0.124	0.124	0.122	0.007	0.229	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.102	0.103	0.104	0.004	-0.364	S
G4		0.193	0.186	0.186	0.008	0.847	S
G1	Cl ⁻	0.233	0.232	0.233	0.016	-0.027	S
G2		0.31	0.309	0.306	0.014	0.259	S
G3		0.543	0.540	0.537	0.024	0.258	S
G4		0.387	0.386	0.386	0.022	0.068	S
G1	Ca ²⁺	0.131	0.153	0.149	0.021	-0.862	S
G2		0.113	0.102	0.1	0.024	0.537	S
G3		0.258	0.230	0.228	0.021	1.437	S
G4		0.259	0.230	0.229	0.023	1.284	S
G1	K ⁺	0.184	0.204	0.195	0.018	-0.606	S
G2		0.237	0.272	0.261	0.023	-1.065	S
G3		0.384	0.407	0.399	0.026	-0.589	S
G4		0.311	0.340	0.332	0.022	-0.964	S
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	23.2	24.0	22.637	2.391	0.235	S
G2		18	18.1	17.637	1.435	0.253	S
G3		46.2	45.1	44.427	3.539	0.501	S
G4		42.2	41.7	40.361	2.811	0.654	S

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 153, Slovenian Forestry Institute, Ljubljana (Slovenia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.899	0.927	0.93	0.034	-0.933	S
G2		0.592	0.618	0.624	0.035	-0.908	S
G3		1.585	1.603	1.627	0.06	-0.702	S
G4		1.468	1.498	1.513	0.064	-0.705	S
G1	NH ₄ ⁺	0.135	0.160	0.16	0.012	-2.076	Q
G2		0.191	0.214	0.216	0.013	-1.953	S
G3		0.297	0.321	0.326	0.014	-2.026	S
G4		0.454	0.481	0.489	0.021	-1.688	S
G1	NO ₃ ⁻	0.347	0.364	0.367	0.011	-1.743	S
G2		0.375	0.398	0.401	0.014	-1.894	S
G3		0.711	0.729	0.739	0.031	-0.912	S
G4		0.798	0.821	0.828	0.035	-0.849	S
G1	Na ⁺	0.372	0.365	0.361	0.021	0.514	S
G2		0.353	0.343	0.339	0.02	0.704	S
G3		0.798	0.780	0.778	0.03	0.674	S
G4		0.624	0.608	0.604	0.024	0.821	S
G1	Mg ²⁺	0.127	0.124	0.122	0.007	0.663	S
G2		0.081	0.083	0.082	0.004	-0.34	S
G3		0.105	0.103	0.104	0.004	0.327	S
G4		0.185	0.186	0.186	0.008	-0.132	S
G1	Cl ⁻	0.203	0.232	0.233	0.016	-1.907	S
G2		0.27	0.309	0.306	0.014	-2.517	S
G3		0.486	0.540	0.537	0.024	-2.077	S
G4		0.341	0.386	0.386	0.022	-2.029	S
G1	Ca ²⁺	0.178	0.153	0.149	0.021	1.426	Q
G2		0.114	0.102	0.1	0.024	0.578	S
G3		0.234	0.230	0.228	0.021	0.287	S
G4		0.243	0.230	0.229	0.023	0.593	S
G1	K ⁺	0.188	0.204	0.195	0.018	-0.384	S
G2		0.254	0.272	0.261	0.023	-0.313	S
G3		0.386	0.407	0.399	0.026	-0.512	S
G4		0.315	0.340	0.332	0.022	-0.783	S
G1	pH	4.48	4.40	4.443	0.088	0.418	S
G2		4.65	4.57	4.586	0.057	1.11	S
G3		4.16	4.10	4.114	0.038	1.207	S
G4		4.25	4.18	4.186	0.04	1.592	S
G1	Cond	23.51	24.0	22.637	2.391	0.365	S
G2		18.21	18.1	17.637	1.435	0.4	S
G3		46.54	45.1	44.427	3.539	0.597	S
G4		41.45	41.7	40.361	2.811	0.387	S

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 155, Environmental Research Branch, Farnheim (UK)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.924	0.927	0.93	0.034	-0.192	S
G2		0.614	0.618	0.624	0.035	-0.277	S
G3		1.638	1.603	1.627	0.06	0.187	S
G4		1.523	1.498	1.513	0.064	0.15	S
G1	NH ₄ ⁺	0.163	0.160	0.16	0.012	0.22	S
G2		0.221	0.214	0.216	0.013	0.419	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.489	0.481	0.489	0.021	-0.004	S
G1	NO ₃ ⁻	0.374	0.364	0.367	0.011	0.609	S
G2		0.409	0.398	0.401	0.014	0.586	S
G3		0.729	0.729	0.739	0.031	-0.333	S
G4		0.822	0.821	0.828	0.035	-0.161	S
G1	Na ⁺	0.373	0.365	0.361	0.021	0.562	S
G2		0.349	0.343	0.339	0.02	0.507	S
G3		0.786	0.780	0.778	0.03	0.271	S
G4		0.607	0.608	0.604	0.024	0.119	S
G1	Mg ²⁺	0.121	0.124	0.122	0.007	-0.204	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.101	0.103	0.104	0.004	-0.594	S
G4		0.182	0.186	0.186	0.008	-0.499	S
G1	Cl ⁻	0.219	0.232	0.233	0.016	-0.904	S
G2		0.304	0.309	0.306	0.014	-0.157	S
G3		0.541	0.540	0.537	0.024	0.176	S
G4		0.377	0.386	0.386	0.022	-0.388	S
G1	Ca ²⁺	0.154	0.153	0.149	0.021	0.258	S
G2		0.103	0.102	0.1	0.024	0.121	S
G3		0.222	0.230	0.228	0.021	-0.287	S
G4		0.226	0.230	0.229	0.023	-0.141	S
G1	K ⁺	0.195	0.204	0.195	0.018	0.004	S
G2		0.251	0.272	0.261	0.023	-0.445	S
G3		0.385	0.407	0.399	0.026	-0.55	S
G4		0.307	0.340	0.332	0.022	-1.145	S
G1	pH	4.46	4.40	4.443	0.088	0.191	S
G2		4.62	4.57	4.586	0.057	0.587	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	23.2	24.0	22.637	2.391	0.235	S
G2		18.1	18.1	17.637	1.435	0.323	S
G3		46.1	45.1	44.427	3.539	0.473	S
G4		41.5	41.7	40.361	2.811	0.405	S

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
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<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 158, Asia Center for Air Pollution Research (ACAP) (Japan)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.963	0.927	0.93	0.034	0.965	S
G2		0.641	0.618	0.624	0.035	0.497	S
G3		1.698	1.603	1.627	0.06	1.193	S
G4		1.588	1.498	1.513	0.064	1.161	S
G1	NH ₄ ⁺	0.157	0.160	0.16	0.012	-0.272	S
G2		0.213	0.214	0.216	0.013	-0.214	S
G3		0.312	0.321	0.326	0.014	-0.978	S
G4		0.494	0.481	0.489	0.021	0.237	S
G1	NO ₃ ⁻	0.371	0.364	0.367	0.011	0.348	S
G2		0.406	0.398	0.401	0.014	0.367	S
G3		0.762	0.729	0.739	0.031	0.727	S
G4		0.863	0.821	0.828	0.035	1.014	S
G1	Na ⁺	0.372	0.365	0.361	0.021	0.514	S
G2		0.349	0.343	0.339	0.02	0.507	S
G3		0.796	0.780	0.778	0.03	0.607	S
G4		0.632	0.608	0.604	0.024	1.151	S
G1	Mg ²⁺	0.135	0.124	0.122	0.007	1.818	S
G2		0.091	0.083	0.082	0.004	1.973	S
G3		0.116	0.103	0.104	0.004	2.86	S
G4		0.199	0.186	0.186	0.008	1.581	S
G1	Cl ⁻	0.235	0.232	0.233	0.016	0.098	S
G2		0.316	0.309	0.306	0.014	0.676	S
G3		0.563	0.540	0.537	0.024	1.077	S
G4		0.399	0.386	0.386	0.022	0.615	S
G1	Ca ²⁺	0.181	0.153	0.149	0.021	1.572	Q
G2		0.13	0.102	0.1	0.024	1.243	U
G3		0.259	0.230	0.228	0.021	1.485	S
G4		0.264	0.230	0.229	0.023	1.5	S
G1	K ⁺	0.206	0.204	0.195	0.018	0.615	S
G2		0.277	0.272	0.261	0.023	0.706	S
G3		0.418	0.407	0.399	0.026	0.726	S
G4		0.348	0.340	0.332	0.022	0.711	S
G1	pH	4.52	4.40	4.443	0.088	0.871	Q
G2		4.65	4.57	4.586	0.057	1.11	S
G3		4.16	4.10	4.114	0.038	1.207	S
G4		4.25	4.18	4.186	0.04	1.592	S
G1	Cond	22.4	24.0	22.637	2.391	-0.099	S
G2		17.6	18.1	17.637	1.435	-0.026	S
G3		45	45.1	44.427	3.539	0.162	S
G4		39.8	41.7	40.361	2.811	-0.2	S

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 166, Forest Research Institute, Laboratory of Forest Environment Chemistry (Poland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.942	0.927	0.93	0.034	0.342	S
G2		0.637	0.618	0.624	0.035	0.382	S
G3		1.659	1.603	1.627	0.06	0.539	S
G4		1.515	1.498	1.513	0.064	0.026	S
G1	NH ₄ ⁺	0.159	0.160	0.16	0.012	-0.108	S
G2		0.212	0.214	0.216	0.013	-0.293	S
G3		0.332	0.321	0.326	0.014	0.419	S
G4		0.475	0.481	0.489	0.021	-0.677	S
G1	NO ₃ ⁻	0.375	0.364	0.367	0.011	0.696	S
G2		0.408	0.398	0.401	0.014	0.513	S
G3		0.755	0.729	0.739	0.031	0.502	S
G4		0.841	0.821	0.828	0.035	0.384	S
G1	Na ⁺	0.374	0.365	0.361	0.021	0.611	S
G2		0.357	0.343	0.339	0.02	0.902	S
G3		0.77	0.780	0.778	0.03	-0.266	S
G4		0.613	0.608	0.604	0.024	0.367	S
G1	Mg ²⁺	0.124	0.124	0.122	0.007	0.229	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.105	0.103	0.104	0.004	0.327	S
G4		0.173	0.186	0.186	0.008	-1.6	S
G1	Cl ⁻	0.222	0.232	0.233	0.016	-0.716	S
G2		0.313	0.309	0.306	0.014	0.468	S
G3		0.544	0.540	0.537	0.024	0.299	S
G4		0.387	0.386	0.386	0.022	0.068	S
G1	Ca ²⁺	0.275	0.153	0.149	0.021	6.147	U
G2		0.257	0.102	0.1	0.024	6.52	U
G3		0.402	0.230	0.228	0.021	8.337	U
G4		0.376	0.230	0.229	0.023	6.336	U
G1	K ⁺	0.202	0.204	0.195	0.018	0.393	S
G2		0.26	0.272	0.261	0.023	-0.047	S
G3		0.393	0.407	0.399	0.026	-0.241	S
G4		0.351	0.340	0.332	0.022	0.847	S
G1	pH	4.46	4.40	4.443	0.088	0.191	S
G2		4.64	4.57	4.586	0.057	0.936	S
G3		4.16	4.10	4.114	0.038	1.207	S
G4		4.24	4.18	4.186	0.04	1.342	S
G1	Cond	23.9	24.0	22.637	2.391	0.528	S
G2		17.98	18.1	17.637	1.435	0.239	S
G3		44.9	45.1	44.427	3.539	0.134	S
G4		41	41.7	40.361	2.811	0.227	S

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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EMEP – 34th intercomparison of analytical methods

Laboratory 176, Main Geophysical Observatory, Saint-Petersburg (Russian Federation)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.738	0.927	0.93	0.034	-5.71	U
G2		0.501	0.618	0.624	0.035	-3.518	Q
G3		1.268	1.603	1.627	0.06	-6.019	U
G4		1.241	1.498	1.513	0.064	-4.234	Q
G1	NH ₄ ⁺	0.171	0.160	0.16	0.012	0.876	S
G2		0.226	0.214	0.216	0.013	0.814	S
G3		0.342	0.321	0.326	0.014	1.118	S
G4		0.482	0.481	0.489	0.021	-0.341	S
G1	NO ₃ ⁻	0.32	0.364	0.367	0.011	-4.094	Q
G2		0.353	0.398	0.401	0.014	-3.499	Q
G3		0.633	0.729	0.739	0.031	-3.419	Q
G4		0.755	0.821	0.828	0.035	-2.082	S
G1	Na ⁺	0.36	0.365	0.361	0.021	-0.065	S
G2		0.34	0.343	0.339	0.02	0.062	S
G3		0.8	0.780	0.778	0.03	0.741	S
G4		0.62	0.608	0.604	0.024	0.656	S
G1	Mg ²⁺	0.11	0.124	0.122	0.007	-1.793	S
G2		0.08	0.083	0.082	0.004	-0.571	S
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.17	0.186	0.186	0.008	-1.967	S
G1	Cl ⁻	0.2	0.232	0.233	0.016	-2.095	S
G2		0.28	0.309	0.306	0.014	-1.823	S
G3		0.46	0.540	0.537	0.024	-3.142	S
G4		0.34	0.386	0.386	0.022	-2.075	S
G1	Ca ²⁺	< 0.200	0.153	0.149	0.021		B
G2		< 0.200	0.102	0.1	0.024		B
G3		< 0.200	0.230	0.228	0.021	-6.133	U
G4		< 0.200	0.230	0.229	0.023	-5.582	U
G1	K ⁺	< 0.300	0.204	0.195	0.018		B
G2		< 0.300	0.272	0.261	0.023		B
G3		0.39	0.407	0.399	0.026	-0.357	S
G4		0.32	0.340	0.332	0.022	-0.556	S
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.55	4.57	4.586	0.057	-0.632	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.14	4.18	4.186	0.04	-1.156	S
G1	Cond	20.43	24.0	22.637	2.391	-0.923	S
G2		16.31	18.1	17.637	1.435	-0.925	S
G3		40.56	45.1	44.427	3.539	-1.093	S
G4		37.07	41.7	40.361	2.811	-1.171	S

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 178, Environmental Chemistry and EANET Monitoring Laboratory, Limnological Institute
RAS/SB, Irkutsk (Russian Federation)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm st
G1	SO ₄ ²⁻	0.874	0.927	0.93	0.034	-1.675	S
G2		0.606	0.618	0.624	0.035	-0.507	S
G3		1.566	1.603	1.627	0.06	-1.021	S
G4		1.468	1.498	1.513	0.064	-0.705	S
G1	NH ₄ ⁺	0.18	0.160	0.16	0.012	1.613	S
G2		0.226	0.214	0.216	0.013	0.814	S
G3		0.325	0.321	0.326	0.014	-0.07	S
G4		0.498	0.481	0.489	0.021	0.429	S
G1	NO ₃ ⁻	0.344	0.364	0.367	0.011	-2.004	S
G2		0.394	0.398	0.401	0.014	-0.508	S
G3		0.733	0.729	0.739	0.031	-0.205	S
G4		0.826	0.821	0.828	0.035	-0.046	S
G1	Na ⁺	0.368	0.365	0.361	0.021	0.321	S
G2		0.347	0.343	0.339	0.02	0.408	S
G3		0.787	0.780	0.778	0.03	0.305	S
G4		0.605	0.608	0.604	0.024	0.037	S
G1	Mg ²⁺	0.121	0.124	0.122	0.007	-0.204	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.105	0.103	0.104	0.004	0.327	S
G4		0.191	0.186	0.186	0.008	0.602	S
G1	Cl ⁻	0.211	0.232	0.233	0.016	-1.406	S
G2		0.303	0.309	0.306	0.014	-0.227	S
G3		0.538	0.540	0.537	0.024	0.053	S
G4		0.384	0.386	0.386	0.022	-0.069	S
G1	Ca ²⁺	0.153	0.153	0.149	0.021	0.209	S
G2		0.116	0.102	0.1	0.024	0.661	S
G3		0.26	0.230	0.228	0.021	1.533	S
G4		0.244	0.230	0.229	0.023	0.636	S
G1	K ⁺	0.207	0.204	0.195	0.018	0.671	S
G2		0.275	0.272	0.261	0.023	0.617	S
G3		0.413	0.407	0.399	0.026	0.532	S
G4		0.349	0.340	0.332	0.022	0.757	S
G1	pH	4.42	4.40	4.443	0.088	-0.262	S
G2		4.61	4.57	4.586	0.057	0.413	S
G3		4.13	4.10	4.114	0.038	0.419	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	24	24.0	22.637	2.391	0.57	S
G2		18.5	18.1	17.637	1.435	0.602	S
G3		46	45.1	44.427	3.539	0.445	S
G4		41	41.7	40.361	2.811	0.227	S

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NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 179, Murmansk Environmental Monitoring Center, Murmansk (Russian Federation)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	1.038	0.927	0.93	0.034	3.191	Q
G2		1.748	0.618	0.624	0.035	32.242	U
G3		1.857	1.603	1.627	0.06	3.86	Q
G4		1.672	1.498	1.513	0.064	2.467	Q
G1	NH ₄ ⁺	0.167	0.160	0.16	0.012	0.548	S
G2		0.229	0.214	0.216	0.013	1.052	S
G3		0.344	0.321	0.326	0.014	1.258	S
G4		0.508	0.481	0.489	0.021	0.91	S
G1	NO ₃ ⁻	0.38	0.364	0.367	0.011	1.132	S
G2		0.417	0.398	0.401	0.014	1.17	S
G3		0.733	0.729	0.739	0.031	-0.205	S
G4		0.814	0.821	0.828	0.035	-0.391	S
G1	Na ⁺	0.332	0.365	0.361	0.021	-1.415	S
G2		0.31	0.343	0.339	0.02	-1.419	S
G3		0.705	0.780	0.778	0.03	-2.449	S
G4		0.546	0.608	0.604	0.024	-2.399	S
G1	Mg ²⁺	0.112	0.124	0.122	0.007	-1.504	S
G2		0.083	0.083	0.082	0.004	0.122	S
G3		0.101	0.103	0.104	0.004	-0.594	S
G4		0.173	0.186	0.186	0.008	-1.6	S
G1	Cl ⁻	0.266	0.232	0.233	0.016	2.041	S
G2		0.33	0.309	0.306	0.014	1.647	S
G3		0.555	0.540	0.537	0.024	0.75	S
G4		0.419	0.386	0.386	0.022	1.526	S
G1	Ca ²⁺	0.153	0.153	0.149	0.021	0.209	S
G2		0.146	0.102	0.1	0.024	1.908	U
G3		0.234	0.230	0.228	0.021	0.287	S
G4		0.209	0.230	0.229	0.023	-0.875	S
G1	K ⁺	0.192	0.204	0.195	0.018	-0.162	S
G2		0.262	0.272	0.261	0.023	0.042	S
G3		0.388	0.407	0.399	0.026	-0.434	S
G4		0.31	0.340	0.332	0.022	-1.009	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	19	24.0	22.637	2.391	-1.521	Q
G2		17	18.1	17.637	1.435	-0.444	S
G3		45.1	45.1	44.427	3.539	0.19	S
G4		40.8	41.7	40.361	2.811	0.156	S

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U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
<http://www.nilu.no/projects/ccc/intercomparison.html>

EMEP – 34th intercomparison of analytical methods

Laboratory 181, TNO innovation for life (The Netherlands)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.91	0.927	0.93	0.034	-0.607	S
G2		0.61	0.618	0.624	0.035	-0.392	S
G3		1.6	1.603	1.627	0.06	-0.451	S
G4		1.5	1.498	1.513	0.064	-0.207	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.22	0.214	0.216	0.013	0.34	S
G3		0.32	0.321	0.326	0.014	-0.419	S
G4		0.47	0.481	0.489	0.021	-0.918	S
G1	NO ₃ ⁻	0.37	0.364	0.367	0.011	0.261	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.71	0.729	0.739	0.031	-0.944	S
G4		0.81	0.821	0.828	0.035	-0.505	S
G1	Na ⁺	0.37	0.365	0.361	0.021	0.418	S
G2		0.37	0.343	0.339	0.02	1.544	S
G3		0.78	0.780	0.778	0.03	0.07	S
G4		0.61	0.608	0.604	0.024	0.243	S
G1	Mg ²⁺	0.12	0.124	0.122	0.007	-0.348	S
G2		0.09	0.083	0.082	0.004	1.741	S
G3		0.1	0.103	0.104	0.004	-0.824	S
G4		0.19	0.186	0.186	0.008	0.48	S
G1	Cl ⁻	0.26	0.232	0.233	0.016	1.665	S
G2		0.32	0.309	0.306	0.014	0.953	S
G3		0.53	0.540	0.537	0.024	-0.274	S
G4		0.39	0.386	0.386	0.022	0.204	S
G1	Ca ²⁺	0.16	0.153	0.149	0.021	0.55	S
G2		0.15	0.102	0.1	0.024	2.074	U
G3		0.26	0.230	0.228	0.021	1.533	S
G4		0.25	0.230	0.229	0.023	0.895	S
G1	K ⁺	0.21	0.204	0.195	0.018	0.837	S
G2		0.28	0.272	0.261	0.023	0.839	S
G3		0.41	0.407	0.399	0.026	0.416	S
G4		0.35	0.340	0.332	0.022	0.802	S
G1	pH	4.46	4.40	4.443	0.088	0.191	S
G2		4.64	4.57	4.586	0.057	0.936	S
G3		4.15	4.10	4.114	0.038	0.944	S
G4		4.2	4.18	4.186	0.04	0.343	S
G1	Cond	26	24.0	22.637	2.391	1.406	S
G2		20	18.1	17.637	1.435	1.647	S
G3		49	45.1	44.427	3.539	1.292	S
G4		45	41.7	40.361	2.811	1.65	S

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Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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Internet: www.nilu.no
Bank: 5102.05.19030
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EMEP – 34th intercomparison of analytical methods

Laboratory 185, Public Health Centre - Cacak, Department for Sanitary Chemistry and Ecotoxicology
(Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm st
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	0.358	0.364	0.367	0.011	-0.785	S
G2		0.371	0.398	0.401	0.014	-2.186	S
G3		0.638	0.729	0.739	0.031	-3.258	Q
G4		0.784	0.821	0.828	0.035	-1.251	S
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	4.42	4.40	4.443	0.088	-0.262	S
G2		4.51	4.57	4.586	0.057	-1.329	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	17	24.0	22.637	2.391	-2.358	U
G2		15	18.1	17.637	1.435	-1.838	Q
G3		34.5	45.1	44.427	3.539	-2.805	Q
G4		34	41.7	40.361	2.811	-2.263	Q

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 186, Public Health Institute - Kralevo (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	0.295	0.365	0.361	0.021	-3.2	Q
G2		0.271	0.343	0.339	0.02	-3.345	Q
G3		0.693	0.780	0.778	0.03	-2.852	S
G4		0.525	0.608	0.604	0.024	-3.266	S
G1	Mg ²⁺	0.088	0.124	0.122	0.007	-4.971	U
G2		0.049	0.083	0.082	0.004	-7.741	U
G3		0.081	0.103	0.104	0.004	-5.199	Q
G4		0.127	0.186	0.186	0.008	-7.227	U
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	0.169	0.204	0.195	0.018	-1.439	Q
G2		0.202	0.272	0.261	0.023	-2.615	U
G3		0.375	0.407	0.399	0.026	-0.937	S
G4		0.308	0.340	0.332	0.022	-1.1	S
G1	pH	4.38	4.40	4.443	0.088	-0.715	S
G2		4.47	4.57	4.586	0.057	-2.025	Q
G3		4.06	4.10	4.114	0.038	-1.42	S
G4		4.11	4.18	4.186	0.04	-1.906	S
G1	Cond	17.2	24.0	22.637	2.391	-2.274	U
G2		14.3	18.1	17.637	1.435	-2.326	Q
G3		35.1	45.1	44.427	3.539	-2.635	Q
G4		33.3	41.7	40.361	2.811	-2.512	Q

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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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EMEP – 34th intercomparison of analytical methods

Laboratory 187, Public Health Institute - Nis, Department for Sanitary Chemistry (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	0.58	0.365	0.361	0.021	10.546	U
G2		0.65	0.343	0.339	0.02	15.372	U
G3		1.8	0.780	0.778	0.03	34.322	U
G4		0.823	0.608	0.604	0.024	9.035	U
G1	Mg ²⁺	0.128	0.124	0.122	0.007	0.807	S
G2		0.09	0.083	0.082	0.004	1.741	S
G3		0.124	0.103	0.104	0.004	4.702	Q
G4		0.199	0.186	0.186	0.008	1.581	S
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	0.114	0.153	0.149	0.021	-1.689	U
G2		0.055	0.102	0.1	0.024	-1.873	U
G3		0.267	0.230	0.228	0.021	1.869	Q
G4		0.173	0.230	0.229	0.023	-2.43	Q
G1	K ⁺	1.415	0.204	0.195	0.018	67.733	U
G2		2.97	0.272	0.261	0.023	119.928	U
G3		3.803	0.407	0.399	0.026	131.601	U
G4		1.141	0.340	0.332	0.022	36.62	U
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	16.8	24.0	22.637	2.391	-2.441	U
G2		15	18.1	17.637	1.435	-1.838	Q
G3		33.5	45.1	44.427	3.539	-3.087	U
G4		35.9	41.7	40.361	2.811	-1.587	S

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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

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EMEP – 34th intercomparison of analytical methods

Laboratory 191, Institute for Public Health - Pancevo (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
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G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	6.18	4.40	4.443	0.088	19.674	U
G2		5.62	4.57	4.586	0.057	18.007	U
G3		4.3	4.10	4.114	0.038	4.885	U
G4		4.17	4.18	4.186	0.04	-0.407	S
G1	Cond	33.8	24.0	22.637	2.391	4.668	U
G2		18.9	18.1	17.637	1.435	0.881	S
G3		32.3	45.1	44.427	3.539	-3.426	U
G4		34.2	41.7	40.361	2.811	-2.192	Q

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NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 193, Institute of Public Health of Vojvodina (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.911	0.927	0.93	0.034	-0.577	S
G2		0.598	0.618	0.624	0.035	-0.736	S
G3		1.6	1.603	1.627	0.06	-0.451	S
G4		1.525	1.498	1.513	0.064	0.181	S
G1	NH ₄ ⁺	0.162	0.160	0.16	0.012	0.138	S
G2		0.221	0.214	0.216	0.013	0.419	S
G3		0.323	0.321	0.326	0.014	-0.21	S
G4		0.487	0.481	0.489	0.021	-0.1	S
G1	NO ₃ ⁻	0.358	0.364	0.367	0.011	-0.785	S
G2		0.405	0.398	0.401	0.014	0.294	S
G3		0.749	0.729	0.739	0.031	0.31	S
G4		0.856	0.821	0.828	0.035	0.814	S
G1	Na ⁺	0.38	0.365	0.361	0.021	0.9	S
G2		0.3	0.343	0.339	0.02	-1.913	S
G3		0.79	0.780	0.778	0.03	0.405	S
G4		0.63	0.608	0.604	0.024	1.069	S
G1	Mg ²⁺	0.12	0.124	0.122	0.007	-0.348	S
G2		0.07	0.083	0.082	0.004	-2.884	Q
G3		0.11	0.103	0.104	0.004	1.478	S
G4		0.21	0.186	0.186	0.008	2.926	S
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	0.21	0.204	0.195	0.018	0.837	S
G2		0.29	0.272	0.261	0.023	1.281	S
G3		0.41	0.407	0.399	0.026	0.416	S
G4		0.36	0.340	0.332	0.022	1.255	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 194, Institute of Public Health - Zrenjanin (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	-999	0.160	0.16	0.012		B
G2		-999	0.214	0.216	0.013		B
G3		-999	0.321	0.326	0.014		B
G4		-999	0.481	0.489	0.021		B
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	0.34	0.365	0.361	0.021	-1.029	S
G2		0.32	0.343	0.339	0.02	-0.925	S
G3		0.77	0.780	0.778	0.03	-0.266	S
G4		0.59	0.608	0.604	0.024	-0.583	S
G1	Mg ²⁺	0.126	0.124	0.122	0.007	0.518	S
G2		0.084	0.083	0.082	0.004	0.354	S
G3		0.106	0.103	0.104	0.004	0.557	S
G4		0.191	0.186	0.186	0.008	0.602	S
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	0.145	0.153	0.149	0.021	-0.181	S
G2		0.099	0.102	0.1	0.024	-0.045	S
G3		0.221	0.230	0.228	0.021	-0.335	S
G4		0.221	0.230	0.229	0.023	-0.357	S
G1	K ⁺	0.197	0.204	0.195	0.018	0.115	S
G2		0.261	0.272	0.261	0.023	-0.003	S
G3		0.413	0.407	0.399	0.026	0.532	S
G4		0.336	0.340	0.332	0.022	0.168	S
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
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EMEP – 34th intercomparison of analytical methods

Laboratory 197, Institute of Occupational Health - Novi Sad (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.89	0.927	0.93	0.034	-1.2	S
G2		0.6	0.618	0.624	0.035	-0.679	S
G3		1.65	1.603	1.627	0.06	0.388	S
G4		1.51	1.498	1.513	0.064	-0.052	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.225	0.214	0.216	0.013	0.735	S
G3		0.325	0.321	0.326	0.014	-0.07	S
G4		0.482	0.481	0.489	0.021	-0.341	S
G1	NO ₃ ⁻	0.36	0.364	0.367	0.011	-0.61	S
G2		0.4	0.398	0.401	0.014	-0.071	S
G3		0.75	0.729	0.739	0.031	0.342	S
G4		0.864	0.821	0.828	0.035	1.043	S
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
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Laboratory 198, Institute for public health - Sremska Mitrovica (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	-999	0.927	0.93	0.034		B
G2		-999	0.618	0.624	0.035		B
G3		-999	1.603	1.627	0.06		B
G4		-999	1.498	1.513	0.064		B
G1	NH ₄ ⁺	0.141	0.160	0.16	0.012	-1.584	S
G2		0.156	0.214	0.216	0.013	-4.721	U
G3		0.256	0.321	0.326	0.014	-4.891	Q
G4		0.381	0.481	0.489	0.021	-5.201	Q
G1	NO ₃ ⁻	-999	0.364	0.367	0.011		B
G2		-999	0.398	0.401	0.014		B
G3		-999	0.729	0.739	0.031		B
G4		-999	0.821	0.828	0.035		B
G1	Na ⁺	-999	0.365	0.361	0.021		B
G2		-999	0.343	0.339	0.02		B
G3		-999	0.780	0.778	0.03		B
G4		-999	0.608	0.604	0.024		B
G1	Mg ²⁺	-999	0.124	0.122	0.007		B
G2		-999	0.083	0.082	0.004		B
G3		-999	0.103	0.104	0.004		B
G4		-999	0.186	0.186	0.008		B
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	-999	0.204	0.195	0.018		B
G2		-999	0.272	0.261	0.023		B
G3		-999	0.407	0.399	0.026		B
G4		-999	0.340	0.332	0.022		B
G1	pH	-999	4.40	4.443	0.088		B
G2		-999	4.57	4.586	0.057		B
G3		-999	4.10	4.114	0.038		B
G4		-999	4.18	4.186	0.04		B
G1	Cond	-999	24.0	22.637	2.391		B
G2		-999	18.1	17.637	1.435		B
G3		-999	45.1	44.427	3.539		B
G4		-999	41.7	40.361	2.811		B

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Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
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Q – Questionable: Your result deviates between $\pm 10\text{-}20\%$ of the expected value for SO_4^{2-} and NO_3^- , between $\pm 15\text{-}25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and between $\pm 0.1\text{-}0.2$ pH-units for pH

U – Unsatisfactory: Your result deviates more than $\pm 20\%$ of the expected value for SO_4^{2-} and NO_3^- , more than $\pm 25\%$ of the expected value for NH_4^+ , Cl^- , Na^+ , Mg^{2+} , Ca^{2+} , K^+ and cond and more than ± 0.2 pH-units for pH

B – Blank: You reported either no value or the detection limit

Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 34th intercomparison of analytical methods

Laboratory 200, FUB AG (Switzerland)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.939	0.927	0.93	0.034	0.253	S
G2		0.616	0.618	0.624	0.035	-0.22	S
G3		1.64	1.603	1.627	0.06	0.22	S
G4		1.511	1.498	1.513	0.064	-0.036	S
G1	NH ₄ ⁺	0.16	0.160	0.16	0.012	-0.026	S
G2		0.213	0.214	0.216	0.013	-0.214	S
G3		0.325	0.321	0.326	0.014	-0.07	S
G4		0.491	0.481	0.489	0.021	0.092	S
G1	NO ₃ ⁻	0.369	0.364	0.367	0.011	0.174	S
G2		0.413	0.398	0.401	0.014	0.878	S
G3		0.743	0.729	0.739	0.031	0.117	S
G4		0.858	0.821	0.828	0.035	0.871	S
G1	Na ⁺	0.367	0.365	0.361	0.021	0.273	S
G2		0.345	0.343	0.339	0.02	0.309	S
G3		0.786	0.780	0.778	0.03	0.271	S
G4		0.616	0.608	0.604	0.024	0.491	S
G1	Mg ²⁺	0.125	0.124	0.122	0.007	0.374	S
G2		0.082	0.083	0.082	0.004	-0.109	S
G3		0.101	0.103	0.104	0.004	-0.594	S
G4		0.186	0.186	0.186	0.008	-0.01	S
G1	Cl ⁻	0.225	0.232	0.233	0.016	-0.528	S
G2		0.306	0.309	0.306	0.014	-0.018	S
G3		0.527	0.540	0.537	0.024	-0.397	S
G4		0.377	0.386	0.386	0.022	-0.388	S
G1	Ca ²⁺	0.153	0.153	0.149	0.021	0.209	S
G2		0.11	0.102	0.1	0.024	0.412	S
G3		0.223	0.230	0.228	0.021	-0.24	S
G4		0.25	0.230	0.229	0.023	0.895	S
G1	K ⁺	0.211	0.204	0.195	0.018	0.893	S
G2		0.277	0.272	0.261	0.023	0.706	S
G3		0.416	0.407	0.399	0.026	0.648	S
G4		0.35	0.340	0.332	0.022	0.802	S
G1	pH	4.38	4.40	4.443	0.088	-0.715	S
G2		4.6	4.57	4.586	0.057	0.239	S
G3		4.12	4.10	4.114	0.038	0.156	S
G4		4.21	4.18	4.186	0.04	0.593	S
G1	Cond	23.93	24.0	22.637	2.391	0.541	S
G2		18.64	18.1	17.637	1.435	0.699	S
G3		46.5	45.1	44.427	3.539	0.586	S
G4		42.28	41.7	40.361	2.811	0.683	S

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
Phone: +47 63 89 80 00/Fax: +47 63 89 80 50
Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

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EMEP – 34th intercomparison of analytical methods

Laboratory 203, The Public Health Institute Vranje (Republic of Serbia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score	EMEP quality norm ^x
G1	SO ₄ ²⁻	0.901	0.927	0.93	0.034	-0.874	S
G2		0.6	0.618	0.624	0.035	-0.679	S
G3		1.51	1.603	1.627	0.06	-1.96	S
G4		1.35	1.498	1.513	0.064	-2.539	S
G1	NH ₄ ⁺	0.165	0.160	0.16	0.012	0.384	S
G2		0.225	0.214	0.216	0.013	0.735	S
G3		0.331	0.321	0.326	0.014	0.349	S
G4		0.501	0.481	0.489	0.021	0.574	S
G1	NO ₃ ⁻	0.359	0.364	0.367	0.011	-0.697	S
G2		0.395	0.398	0.401	0.014	-0.435	S
G3		0.705	0.729	0.739	0.031	-1.105	S
G4		0.825	0.821	0.828	0.035	-0.075	S
G1	Na ⁺	0.393	0.365	0.361	0.021	1.527	S
G2		0.373	0.343	0.339	0.02	1.692	S
G3		0.801	0.780	0.778	0.03	0.775	S
G4		0.62	0.608	0.604	0.024	0.656	S
G1	Mg ²⁺	0.14	0.124	0.122	0.007	2.541	S
G2		0.085	0.083	0.082	0.004	0.585	S
G3		0.12	0.103	0.104	0.004	3.781	Q
G4		0.207	0.186	0.186	0.008	2.559	S
G1	Cl ⁻	-999	0.232	0.233	0.016		B
G2		-999	0.309	0.306	0.014		B
G3		-999	0.540	0.537	0.024		B
G4		-999	0.386	0.386	0.022		B
G1	Ca ²⁺	-999	0.153	0.149	0.021		B
G2		-999	0.102	0.1	0.024		B
G3		-999	0.230	0.228	0.021		B
G4		-999	0.230	0.229	0.023		B
G1	K ⁺	0.17	0.204	0.195	0.018	-1.384	Q
G2		0.21	0.272	0.261	0.023	-2.26	Q
G3		0.395	0.407	0.399	0.026	-0.164	S
G4		0.342	0.340	0.332	0.022	0.44	S
G1	pH	4.4	4.40	4.443	0.088	-0.489	S
G2		4.5	4.57	4.586	0.057	-1.503	S
G3		4.1	4.10	4.114	0.038	-0.369	S
G4		4.15	4.18	4.186	0.04	-0.906	S
G1	Cond	16.9	24.0	22.637	2.391	-2.399	U
G2		15	18.1	17.637	1.435	-1.838	Q
G3		34.6	45.1	44.427	3.539	-2.777	Q
G4		33.5	41.7	40.361	2.811	-2.441	Q

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NILU – Norsk institutt for luftforskning
PO Box 100
NO-2027 KJELLER, Norway
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Besøk/visit: Instituttveien 18, 2007 Kjeller

NILU – Norsk institutt for luftforskning
Framsenteret / The Fram Centre
NO-9296 TROMSØ, Norway
Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
Bank: 5102.05.19030
Foretaksnr./Enterprise no. 941705561

Vennligst adresser post til NILU, ikke til enkeltpersoner/Please reply to the institute.

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