

EMEP – 36th 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⁻ mg S/l	0.248	0.251	0.247	0.009	0.064	S
G2		0.361	0.366	0.364	0.023	-0.129	S
G3		0.545	0.527	0.525	0.025	0.829	S
G4		0.484	0.463	0.459	0.021	1.167	S
G1	NH ₄ ⁺ mg N/l	0.112	0.107	0.105	0.02	0.333	S
G2		0.137	0.134	0.134	0.015	0.188	S
G3		0.5	0.481	0.489	0.029	0.373	S
G4		0.583	0.561	0.574	0.036	0.248	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.259	0.26	0.263	0.014	-0.306	S
G3		0.569	0.577	0.575	0.027	-0.225	S
G4		0.654	0.67	0.665	0.028	-0.395	S
G1	Na ⁺ mg/l	0.279	0.286	0.28	0.021	-0.059	S
G2		0.406	0.408	0.405	0.021	0.05	S
G3		0.749	0.769	0.741	0.049	0.156	S
G4		1.009	1.019	0.982	0.03	0.917	S
G1	Mg ²⁺ mg/l	0.069	0.072	0.07	0.006	-0.189	S
G2		0.099	0.103	0.103	0.005	-0.718	S
G3		0.179	0.186	0.187	0.011	-0.738	S
G4		0.146	0.155	0.155	0.006	-1.51	S
G1	Cl ⁻ mg/l	0.337	0.386	0.377	0.027	-1.508	S
G2		0.417	0.463	0.451	0.027	-1.266	S
G3		1.103	1.16	1.136	0.075	-0.443	S
G4		1.489	1.54	1.488	0.083	0.017	S
G1	Ca ²⁺ mg/l	0.187	0.128	0.127	0.02	2.947	U
G2		0.194	0.153	0.152	0.018	2.376	U
G3		0.233	0.192	0.19	0.017	2.589	Q
G4		0.259	0.217	0.217	0.024	1.777	Q
G1	K ⁺ mg/l	0.097	0.102	0.096	0.012	0.072	S
G2		0.172	0.17	0.161	0.016	0.68	S
G3		0.227	0.238	0.23	0.021	-0.157	S
G4		0.262	0.272	0.267	0.02	-0.246	S
G1	pH pH units	5.24	5.29	5.32	0.136	-0.586	S
G2		5.138	5.14	5.153	0.097	-0.159	S
G3		5.057	5.1	5.068	0.1	-0.108	S
G4		5.16	5.17	5.164	0.102	-0.035	S
G1	Cond µS/cm	7.44	7.005	7.159	0.928	0.303	S
G2		9.97	9.7	9.727	0.649	0.375	S
G3		17.77	16.9	17.216	1.197	0.463	S
G4		18.69	18.37	18.377	0.882	0.355	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
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* Z score is unitless

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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 – 36th 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⁻ mg S/l	0.241	0.251	0.247	0.009	-0.709	S
G2		0.356	0.366	0.364	0.023	-0.343	S
G3		0.517	0.527	0.525	0.025	-0.304	S
G4		0.449	0.463	0.459	0.021	-0.475	S
G1	NH ₄ ⁺ mg N/l	0.11	0.107	0.105	0.02	0.231	S
G2		0.135	0.134	0.134	0.015	0.058	S
G3		0.485	0.481	0.489	0.029	-0.148	S
G4		0.565	0.561	0.574	0.036	-0.25	S
G1	NO ₃ ⁻ mg N/l	0.164	0.165	0.162	0.023	0.085	S
G2		0.265	0.26	0.263	0.014	0.126	S
G3		0.58	0.577	0.575	0.027	0.183	S
G4		0.674	0.67	0.665	0.028	0.325	S
G1	Na ⁺ mg/l	0.279	0.286	0.28	0.021	-0.059	S
G2		0.402	0.408	0.405	0.021	-0.141	S
G3		0.743	0.769	0.741	0.049	0.035	S
G4		0.989	1.019	0.982	0.03	0.242	S
G1	Mg ²⁺ mg/l	0.052	0.072	0.07	0.006	-2.87	U
G2		0.083	0.103	0.103	0.005	-3.921	Q
G3		0.155	0.186	0.187	0.011	-3.02	Q
G4		0.132	0.155	0.155	0.006	-3.906	S
G1	Cl ⁻ mg/l	0.392	0.386	0.377	0.027	0.541	S
G2		0.474	0.463	0.451	0.027	0.831	S
G3		1.14	1.16	1.136	0.075	0.049	S
G4		1.529	1.54	1.488	0.083	0.5	S
G1	Ca ²⁺ mg/l	0.084	0.128	0.127	0.02	-2.14	U
G2		0.121	0.153	0.152	0.018	-1.778	Q
G3		0.164	0.192	0.19	0.017	-1.579	S
G4		0.175	0.217	0.217	0.024	-1.743	Q
G1	K ⁺ mg/l	0.071	0.102	0.096	0.012	-2.038	U
G2		0.133	0.17	0.161	0.016	-1.713	Q
G3		0.197	0.238	0.23	0.021	-1.598	Q
G4		0.225	0.272	0.267	0.02	-2.083	Q
G1	pH pH units	5.3	5.29	5.32	0.136	-0.144	S
G2		5.13	5.14	5.153	0.097	-0.241	S
G3		5.07	5.1	5.068	0.1	0.021	S
G4		5.14	5.17	5.164	0.102	-0.232	S
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		-999	16.9	17.216	1.197		B
G4		-999	18.37	18.377	0.882		B

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NILU – Norsk institutt for luftforskning
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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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* Z score is unitless

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EMEP – 36th 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⁻ mg S/l	0.246	0.251	0.247	0.009	-0.157	S
G2		0.371	0.366	0.364	0.023	0.298	S
G3		0.523	0.527	0.525	0.025	-0.061	S
G4		0.465	0.463	0.459	0.021	0.276	S
G1	NH ₄ ⁺ mg N/l	0.105	0.107	0.105	0.02	-0.022	S
G2		0.132	0.134	0.134	0.015	-0.138	S
G3		0.48	0.481	0.489	0.029	-0.322	S
G4		0.559	0.561	0.574	0.036	-0.416	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.26	0.26	0.263	0.014	-0.234	S
G3		0.574	0.577	0.575	0.027	-0.04	S
G4		0.668	0.67	0.665	0.028	0.109	S
G1	Na ⁺ mg/l	0.285	0.286	0.28	0.021	0.228	S
G2		0.408	0.408	0.405	0.021	0.145	S
G3		0.751	0.769	0.741	0.049	0.197	S
G4		0.994	1.019	0.982	0.03	0.411	S
G1	Mg ²⁺ mg/l	0.075	0.072	0.07	0.006	0.758	S
G2		0.107	0.103	0.103	0.005	0.883	S
G3		0.193	0.186	0.187	0.011	0.593	S
G4		0.159	0.155	0.155	0.006	0.715	S
G1	Cl ⁻ mg/l	0.391	0.386	0.377	0.027	0.503	S
G2		0.463	0.463	0.451	0.027	0.426	S
G3		1.163	1.16	1.136	0.075	0.354	S
G4		1.534	1.54	1.488	0.083	0.56	S
G1	Ca ²⁺ mg/l	0.134	0.128	0.127	0.02	0.329	S
G2		0.159	0.153	0.152	0.018	0.385	S
G3		0.197	0.192	0.19	0.017	0.414	S
G4		0.222	0.217	0.217	0.024	0.227	S
G1	K ⁺ mg/l	0.102	0.102	0.096	0.012	0.478	S
G2		0.174	0.17	0.161	0.016	0.803	S
G3		0.243	0.238	0.23	0.021	0.611	S
G4		0.276	0.272	0.267	0.02	0.449	S
G1	pH pH units	5.19	5.29	5.32	0.136	-0.955	S
G2		5.02	5.14	5.153	0.097	-1.38	Q
G3		4.97	5.1	5.068	0.1	-0.975	Q
G4		5.11	5.17	5.164	0.102	-0.527	S
G1	Cond µS/cm	6.82	7.005	7.159	0.928	-0.365	S
G2		9.7	9.7	9.727	0.649	-0.041	S
G3		17.13	16.9	17.216	1.197	-0.071	S
G4		18.2	18.37	18.377	0.882	-0.201	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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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⁻ mg S/l	0.257	0.251	0.247	0.009	1.102	S
G2		0.381	0.366	0.364	0.023	0.73	S
G3		0.551	0.527	0.525	0.025	1.091	S
G4		0.479	0.463	0.459	0.021	0.956	S
G1	NH ₄ ⁺ mg N/l	0.122	0.107	0.105	0.02	0.82	S
G2		0.146	0.134	0.134	0.015	0.776	S
G3		0.441	0.481	0.489	0.029	-1.69	S
G4		0.5	0.561	0.574	0.036	-2.051	S
G1	NO ₃ ⁻ mg N/l	0.161	0.165	0.162	0.023	-0.03	S
G2		0.258	0.26	0.263	0.014	-0.363	S
G3		0.569	0.577	0.575	0.027	-0.21	S
G4		0.662	0.67	0.665	0.028	-0.092	S
G1	Na ⁺ mg/l	0.29	0.286	0.28	0.021	0.486	S
G2		0.413	0.408	0.405	0.021	0.364	S
G3		0.754	0.769	0.741	0.049	0.262	S
G4		1	1.019	0.982	0.03	0.596	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.411	S
G2		0.103	0.103	0.103	0.005	0.023	S
G3		0.187	0.186	0.187	0.011	0.061	S
G4		0.154	0.155	0.155	0.006	-0.09	S
G1	Cl ⁻ mg/l	0.378	0.386	0.377	0.027	0.034	S
G2		0.45	0.463	0.451	0.027	-0.059	S
G3		1.141	1.16	1.136	0.075	0.059	S
G4		1.516	1.54	1.488	0.083	0.34	S
G1	Ca ²⁺ mg/l	0.136	0.128	0.127	0.02	0.408	S
G2		0.157	0.153	0.152	0.018	0.294	S
G3		0.19	0.192	0.19	0.017	0.016	S
G4		0.222	0.217	0.217	0.024	0.222	S
G1	K ⁺ mg/l	0.104	0.102	0.096	0.012	0.664	S
G2		0.174	0.17	0.161	0.016	0.779	S
G3		0.241	0.238	0.23	0.021	0.515	S
G4		0.275	0.272	0.267	0.02	0.375	S
G1	pH pH units	6.29	5.29	5.32	0.136	7.157	U
G2		4.98	5.14	5.153	0.097	-1.794	Q
G3		4.88	5.1	5.068	0.1	-1.872	U
G4		4.96	5.17	5.164	0.102	-2.004	U
G1	Cond µS/cm	7.09	7.005	7.159	0.928	-0.074	S
G2		10	9.7	9.727	0.649	0.421	S
G3		17.38	16.9	17.216	1.197	0.137	S
G4		18.53	18.37	18.377	0.882	0.173	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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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 – 36th intercomparison of analytical methods

Laboratory 7, synlab Umweltinstitut GmbH, Niederlassung Leipzig (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⁻ mg S/l	0.239	0.251	0.247	0.009	-0.93	S
G2		0.344	0.366	0.364	0.023	-0.856	S
G3		0.509	0.527	0.525	0.025	-0.628	S
G4		0.441	0.463	0.459	0.021	-0.85	S
G1	NH ₄ ⁺ mg N/l	0.104	0.107	0.105	0.02	-0.073	S
G2		0.132	0.134	0.134	0.015	-0.138	S
G3		0.478	0.481	0.489	0.029	-0.391	S
G4		0.556	0.561	0.574	0.036	-0.499	S
G1	NO ₃ ⁻ mg N/l	0.162	0.165	0.162	0.023	-0.004	S
G2		0.257	0.26	0.263	0.014	-0.449	S
G3		0.577	0.577	0.575	0.027	0.072	S
G4		0.668	0.67	0.665	0.028	0.109	S
G1	Na ⁺ mg/l	0.249	0.286	0.28	0.021	-1.496	S
G2		0.357	0.408	0.405	0.021	-2.284	S
G3		0.653	0.769	0.741	0.049	-1.789	Q
G4		0.865	1.019	0.982	0.03	-3.938	Q
G1	Mg ²⁺ mg/l	0.067	0.072	0.07	0.006	-0.457	S
G2		0.098	0.103	0.103	0.005	-0.858	S
G3		0.186	0.186	0.187	0.011	-0.072	S
G4		0.15	0.155	0.155	0.006	-0.826	S
G1	Cl ⁻ mg/l	0.398	0.386	0.377	0.027	0.764	S
G2		0.474	0.463	0.451	0.027	0.831	S
G3		1.188	1.16	1.136	0.075	0.686	S
G4		1.558	1.54	1.488	0.083	0.85	S
G1	Ca ²⁺ mg/l	0.134	0.128	0.127	0.02	0.329	S
G2		0.161	0.153	0.152	0.018	0.498	S
G3		0.204	0.192	0.19	0.017	0.837	S
G4		0.225	0.217	0.217	0.024	0.352	S
G1	K ⁺ mg/l	0.133	0.102	0.096	0.012	2.994	U
G2		0.196	0.17	0.161	0.016	2.153	Q
G3		0.25	0.238	0.23	0.021	0.948	S
G4		0.281	0.272	0.267	0.02	0.698	S
G1	pH pH units	5.49	5.29	5.32	0.136	1.257	U
G2		5.2	5.14	5.153	0.097	0.483	S
G3		4.82	5.1	5.068	0.1	-2.469	U
G4		5.29	5.17	5.164	0.102	1.244	Q
G1	Cond µS/cm	6.52	7.005	7.159	0.928	-0.688	S
G2		8.97	9.7	9.727	0.649	-1.166	S
G3		15.8	16.9	17.216	1.197	-1.183	S
G4		17.2	18.37	18.377	0.882	-1.334	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
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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 – 36th 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⁻ mg S/l	0.253	0.251	0.247	0.009	0.616	S
G2		0.373	0.366	0.364	0.023	0.384	S
G3		0.539	0.527	0.525	0.025	0.586	S
G4		0.471	0.463	0.459	0.021	0.557	S
G1	NH ₄ ⁺ mg N/l	0.108	0.107	0.105	0.02	0.13	S
G2		0.136	0.134	0.134	0.015	0.123	S
G3		0.483	0.481	0.489	0.029	-0.218	S
G4		0.559	0.561	0.574	0.036	-0.416	S
G1	NO ₃ ⁻ mg N/l	0.166	0.165	0.162	0.023	0.173	S
G2		0.265	0.26	0.263	0.014	0.126	S
G3		0.557	0.577	0.575	0.027	-0.67	S
G4		0.646	0.67	0.665	0.028	-0.682	S
G1	Na ⁺ mg/l	0.284	0.286	0.28	0.021	0.18	S
G2		0.403	0.408	0.405	0.021	-0.093	S
G3		0.743	0.769	0.741	0.049	0.035	S
G4		0.978	1.019	0.982	0.03	-0.128	S
G1	Mg ²⁺ mg/l	0.072	0.072	0.07	0.006	0.285	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.189	0.186	0.187	0.011	0.213	S
G4		0.156	0.155	0.155	0.006	0.201	S
G1	Cl ⁻ mg/l	0.393	0.386	0.377	0.027	0.578	S
G2		0.472	0.463	0.451	0.027	0.757	S
G3		1.136	1.16	1.136	0.075	-0.005	S
G4		1.516	1.54	1.488	0.083	0.343	S
G1	Ca ²⁺ mg/l	0.131	0.128	0.127	0.02	0.181	S
G2		0.155	0.153	0.152	0.018	0.157	S
G3		0.195	0.192	0.19	0.017	0.294	S
G4		0.217	0.217	0.217	0.024	0.017	S
G1	K ⁺ mg/l	0.097	0.102	0.096	0.012	0.072	S
G2		0.16	0.17	0.161	0.016	-0.056	S
G3		0.246	0.238	0.23	0.021	0.755	S
G4		0.284	0.272	0.267	0.02	0.847	S
G1	pH pH units	5.28	5.29	5.32	0.136	-0.291	S
G2		5.13	5.14	5.153	0.097	-0.241	S
G3		5.06	5.1	5.068	0.1	-0.078	S
G4		5.19	5.17	5.164	0.102	0.26	S
G1	Cond µS/cm	7.6	7.005	7.159	0.928	0.475	S
G2		10.5	9.7	9.727	0.649	1.192	S
G3		18.1	16.9	17.216	1.197	0.739	S
G4		19.3	18.37	18.377	0.882	1.046	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
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EMEP – 36th 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⁻ mg S/l	0.26	0.251	0.247	0.009	1.389	S
G2		0.379	0.366	0.364	0.023	0.64	S
G3		0.549	0.527	0.525	0.025	0.99	S
G4		0.484	0.463	0.459	0.021	1.167	S
G1	NH ₄ ⁺ mg N/l	0.097	0.107	0.105	0.02	-0.428	S
G2		0.124	0.134	0.134	0.015	-0.66	S
G3		0.509	0.481	0.489	0.029	0.685	S
G4		0.589	0.561	0.574	0.036	0.414	S
G1	NO ₃ ⁻ mg N/l	0.169	0.165	0.162	0.023	0.306	S
G2		0.266	0.26	0.263	0.014	0.198	S
G3		0.593	0.577	0.575	0.027	0.665	S
G4		0.691	0.67	0.665	0.028	0.936	S
G1	Na ⁺ mg/l	0.295	0.286	0.28	0.021	0.707	S
G2		0.422	0.408	0.405	0.021	0.812	S
G3		0.774	0.769	0.741	0.049	0.663	S
G4		1.026	1.019	0.982	0.03	1.49	S
G1	Mg ²⁺ mg/l	0.074	0.072	0.07	0.006	0.6	S
G2		0.105	0.103	0.103	0.005	0.483	S
G3		0.192	0.186	0.187	0.011	0.498	S
G4		0.158	0.155	0.155	0.006	0.543	S
G1	Cl ⁻ mg/l	0.368	0.386	0.377	0.027	-0.353	S
G2		0.477	0.463	0.451	0.027	0.941	S
G3		1.128	1.16	1.136	0.075	-0.111	S
G4		1.5	1.54	1.488	0.083	0.15	S
G1	Ca ²⁺ mg/l	0.119	0.128	0.127	0.02	-0.412	S
G2		0.153	0.153	0.152	0.018	0.043	S
G3		0.195	0.192	0.19	0.017	0.294	S
G4		0.221	0.217	0.217	0.024	0.185	S
G1	K ⁺ mg/l	0.105	0.102	0.096	0.012	0.721	S
G2		0.173	0.17	0.161	0.016	0.742	S
G3		0.244	0.238	0.23	0.021	0.659	S
G4		0.279	0.272	0.267	0.02	0.598	S
G1	pH pH units	5.25	5.29	5.32	0.136	-0.513	S
G2		5.11	5.14	5.153	0.097	-0.448	S
G3		5.02	5.1	5.068	0.1	-0.477	S
G4		5.06	5.17	5.164	0.102	-1.019	Q
G1	Cond µS/cm	7.45	7.005	7.159	0.928	0.314	S
G2		10.27	9.7	9.727	0.649	0.838	S
G3		17.74	16.9	17.216	1.197	0.438	S
G4		19.16	18.37	18.377	0.882	0.887	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
nilu.tromso@nilu.no
Internet: www.nilu.no
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EMEP – 36th 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⁻ mg S/l	0.25	0.251	0.247	0.009	0.285	S
G2		0.36	0.366	0.364	0.023	-0.172	S
G3		0.51	0.527	0.525	0.025	-0.587	S
G4		0.45	0.463	0.459	0.021	-0.428	S
G1	NH ₄ ⁺ mg N/l	0.1	0.107	0.105	0.02	-0.276	S
G2		0.13	0.134	0.134	0.015	-0.268	S
G3		0.51	0.481	0.489	0.029	0.72	S
G4		0.58	0.561	0.574	0.036	0.165	S
G1	NO ₃ ⁻ mg N/l	0.15	0.165	0.162	0.023	-0.534	S
G2		0.25	0.26	0.263	0.014	-0.953	S
G3		0.56	0.577	0.575	0.027	-0.559	S
G4		0.65	0.67	0.665	0.028	-0.538	S
G1	Na ⁺ mg/l	0.26	0.286	0.28	0.021	-0.969	S
G2		0.38	0.408	0.405	0.021	-1.189	S
G3		0.71	0.769	0.741	0.049	-0.634	S
G4		0.95	1.019	0.982	0.03	-1.072	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.104	0.103	0.103	0.005	0.283	S
G3		0.186	0.186	0.187	0.011	-0.072	S
G4		0.154	0.155	0.155	0.006	-0.141	S
G1	Cl ⁻ mg/l	0.37	0.386	0.377	0.027	-0.279	S
G2		0.44	0.463	0.451	0.027	-0.42	S
G3		1.11	1.16	1.136	0.075	-0.35	S
G4		1.48	1.54	1.488	0.083	-0.091	S
G1	Ca ²⁺ mg/l	0.11	0.128	0.127	0.02	-0.856	S
G2		0.13	0.153	0.152	0.018	-1.266	Q
G3		0.17	0.192	0.19	0.017	-1.217	S
G4		0.19	0.217	0.217	0.024	-1.115	S
G1	K ⁺ mg/l	0.09	0.102	0.096	0.012	-0.496	S
G2		0.16	0.17	0.161	0.016	-0.056	S
G3		0.23	0.238	0.23	0.021	-0.013	S
G4		0.27	0.272	0.267	0.02	0.151	S
G1	pH pH units	5.45	5.29	5.32	0.136	0.962	Q
G2		5.19	5.14	5.153	0.097	0.38	S
G3		5.13	5.1	5.068	0.1	0.619	S
G4		5.2	5.17	5.164	0.102	0.359	S
G1	Cond µS/cm	6.9	7.005	7.159	0.928	-0.279	S
G2		9.7	9.7	9.727	0.649	-0.041	S
G3		17	16.9	17.216	1.197	-0.18	S
G4		18.3	18.37	18.377	0.882	-0.088	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 – 36th 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⁻ mg S/l	0.244	0.251	0.247	0.009	-0.378	S
G2		0.368	0.366	0.364	0.023	0.17	S
G3		0.519	0.527	0.525	0.025	-0.223	S
G4		0.45	0.463	0.459	0.021	-0.428	S
G1	NH ₄ ⁺ mg N/l	0.11	0.107	0.105	0.02	0.231	S
G2		0.136	0.134	0.134	0.015	0.123	S
G3		0.505	0.481	0.489	0.029	0.547	S
G4		0.59	0.561	0.574	0.036	0.442	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.286	0.26	0.263	0.014	1.636	S
G3		0.585	0.577	0.575	0.027	0.368	S
G4		0.675	0.67	0.665	0.028	0.361	S
G1	Na ⁺ mg/l	0.305	0.286	0.28	0.021	1.185	S
G2		0.435	0.408	0.405	0.021	1.431	S
G3		0.79	0.769	0.741	0.049	0.987	S
G4		1.044	1.019	0.982	0.03	2.097	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.105	0.103	0.103	0.005	0.483	S
G3		0.196	0.186	0.187	0.011	0.879	S
G4		0.161	0.155	0.155	0.006	1.057	S
G1	Cl ⁻ mg/l	0.39	0.386	0.377	0.027	0.466	S
G2		0.47	0.463	0.451	0.027	0.684	S
G3		1.133	1.16	1.136	0.075	-0.044	S
G4		1.508	1.54	1.488	0.083	0.247	S
G1	Ca ²⁺ mg/l	0.117	0.128	0.127	0.02	-0.51	S
G2		0.145	0.153	0.152	0.018	-0.412	S
G3		0.187	0.192	0.19	0.017	-0.19	S
G4		0.21	0.217	0.217	0.024	-0.276	S
G1	K ⁺ mg/l	0.098	0.102	0.096	0.012	0.153	S
G2		0.17	0.17	0.161	0.016	0.558	S
G3		0.249	0.238	0.23	0.021	0.899	S
G4		0.292	0.272	0.267	0.02	1.244	S
G1	pH pH units	5.27	5.29	5.32	0.136	-0.365	S
G2		5.1	5.14	5.153	0.097	-0.552	S
G3		5.06	5.1	5.068	0.1	-0.078	S
G4		5.15	5.17	5.164	0.102	-0.134	S
G1	Cond µS/cm	6.9	7.005	7.159	0.928	-0.279	S
G2		9.6	9.7	9.727	0.649	-0.195	S
G3		16.8	16.9	17.216	1.197	-0.347	S
G4		18.1	18.37	18.377	0.882	-0.314	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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B – Blank: You reported either no value or the detection limit

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EMEP – 36th 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⁻ mg S/l	0.246	0.251	0.247	0.009	-0.157	S
G2		0.351	0.366	0.364	0.023	-0.557	S
G3		0.505	0.527	0.525	0.025	-0.789	S
G4		0.444	0.463	0.459	0.021	-0.709	S
G1	NH ₄ ⁺ mg N/l	0.111	0.107	0.105	0.02	0.282	S
G2		0.136	0.134	0.134	0.015	0.123	S
G3		0.467	0.481	0.489	0.029	-0.773	S
G4		0.546	0.561	0.574	0.036	-0.775	S
G1	NO ₃ ⁻ mg N/l	0.164	0.165	0.162	0.023	0.085	S
G2		0.251	0.26	0.263	0.014	-0.881	S
G3		0.557	0.577	0.575	0.027	-0.67	S
G4		0.644	0.67	0.665	0.028	-0.754	S
G1	Na ⁺ mg/l	0.288	0.286	0.28	0.021	0.371	S
G2		0.404	0.408	0.405	0.021	-0.045	S
G3		0.718	0.769	0.741	0.049	-0.472	S
G4		0.961	1.019	0.982	0.03	-0.702	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.105	0.103	0.103	0.005	0.483	S
G3		0.185	0.186	0.187	0.011	-0.167	S
G4		0.155	0.155	0.155	0.006	0.03	S
G1	Cl ⁻ mg/l	0.379	0.386	0.377	0.027	0.056	S
G2		0.453	0.463	0.451	0.027	0.058	S
G3		1.124	1.16	1.136	0.075	-0.164	S
G4		1.486	1.54	1.488	0.083	-0.019	S
G1	Ca ²⁺ mg/l	0.132	0.128	0.127	0.02	0.231	S
G2		0.171	0.153	0.152	0.018	1.068	S
G3		0.219	0.192	0.19	0.017	1.743	S
G4		0.249	0.217	0.217	0.024	1.358	S
G1	K ⁺ mg/l	0.105	0.102	0.096	0.012	0.721	S
G2		0.175	0.17	0.161	0.016	0.865	S
G3		0.248	0.238	0.23	0.021	0.851	S
G4		0.279	0.272	0.267	0.02	0.598	S
G1	pH pH units	5.25	5.29	5.32	0.136	-0.513	S
G2		5.1	5.14	5.153	0.097	-0.552	S
G3		5.04	5.1	5.068	0.1	-0.278	S
G4		5.14	5.17	5.164	0.102	-0.232	S
G1	Cond µS/cm	7	7.005	7.159	0.928	-0.171	S
G2		9.7	9.7	9.727	0.649	-0.041	S
G3		17.2	16.9	17.216	1.197	-0.013	S
G4		18.4	18.37	18.377	0.882	0.026	S

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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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EMEP – 36th 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⁻ mg S/l	0.24	0.251	0.247	0.009	-0.82	S
G2		0.34	0.366	0.364	0.023	-1.027	S
G3		0.51	0.527	0.525	0.025	-0.587	S
G4		0.44	0.463	0.459	0.021	-0.897	S
G1	NH ₄ ⁺ mg N/l	0.146	0.107	0.105	0.02	2.057	U
G2		0.177	0.134	0.134	0.015	2.799	U
G3		0.569	0.481	0.489	0.029	2.769	Q
G4		0.651	0.561	0.574	0.036	2.129	Q
G1	NO ₃ ⁻ mg N/l	0.16	0.165	0.162	0.023	-0.092	S
G2		0.26	0.26	0.263	0.014	-0.234	S
G3		0.57	0.577	0.575	0.027	-0.188	S
G4		0.66	0.67	0.665	0.028	-0.179	S
G1	Na ⁺ mg/l	0.27	0.286	0.28	0.021	-0.49	S
G2		0.39	0.408	0.405	0.021	-0.712	S
G3		0.72	0.769	0.741	0.049	-0.431	S
G4		0.96	1.019	0.982	0.03	-0.735	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.16	0.155	0.155	0.006	0.886	S
G1	Cl ⁻ mg/l	0.41	0.386	0.377	0.027	1.211	S
G2		0.47	0.463	0.451	0.027	0.684	S
G3		1.07	1.16	1.136	0.075	-0.882	S
G4		1.42	1.54	1.488	0.083	-0.816	S
G1	Ca ²⁺ mg/l	0.12	0.128	0.127	0.02	-0.362	S
G2		0.15	0.153	0.152	0.018	-0.128	S
G3		0.19	0.192	0.19	0.017	-0.008	S
G4		0.22	0.217	0.217	0.024	0.143	S
G1	K ⁺ mg/l	0.1	0.102	0.096	0.012	0.316	S
G2		0.17	0.17	0.161	0.016	0.558	S
G3		0.24	0.238	0.23	0.021	0.467	S
G4		0.27	0.272	0.267	0.02	0.151	S
G1	pH pH units	5.25	5.29	5.32	0.136	-0.513	S
G2		5.06	5.14	5.153	0.097	-0.966	S
G3		5.01	5.1	5.068	0.1	-0.576	S
G4		5.1	5.17	5.164	0.102	-0.626	S
G1	Cond µS/cm	7.4	7.005	7.159	0.928	0.26	S
G2		10.4	9.7	9.727	0.649	1.038	S
G3		18	16.9	17.216	1.197	0.655	S
G4		19.5	18.37	18.377	0.882	1.273	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 – 36th 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⁻ mg S/l	0.258	0.251	0.247	0.009	1.168	S
G2		0.369	0.366	0.364	0.023	0.213	S
G3		0.463	0.527	0.525	0.025	-2.488	Q
G4		0.528	0.463	0.459	0.021	3.23	Q
G1	NH ₄ ⁺ mg N/l	0.133	0.107	0.105	0.02	1.398	Q
G2		0.161	0.134	0.134	0.015	1.755	Q
G3		0.52	0.481	0.489	0.029	1.068	S
G4		0.597	0.561	0.574	0.036	0.635	S
G1	NO ₃ ⁻ mg N/l	0.17	0.165	0.162	0.023	0.35	S
G2		0.264	0.26	0.263	0.014	0.054	S
G3		0.667	0.577	0.575	0.027	3.409	Q
G4		0.574	0.67	0.665	0.028	-3.272	Q
G1	Na ⁺ mg/l	0.277	0.286	0.28	0.021	-0.155	S
G2		0.405	0.408	0.405	0.021	0.002	S
G3		0.765	0.769	0.741	0.049	0.48	S
G4		0.916	1.019	0.982	0.03	-2.219	S
G1	Mg ²⁺ mg/l	0.071	0.072	0.07	0.006	0.127	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.185	0.186	0.187	0.011	-0.167	S
G4		0.153	0.155	0.155	0.006	-0.312	S
G1	Cl ⁻ mg/l	0.387	0.386	0.377	0.027	0.354	S
G2		0.471	0.463	0.451	0.027	0.72	S
G3		1.501	1.16	1.136	0.075	4.846	U
G4		1.167	1.54	1.488	0.083	-3.87	Q
G1	Ca ²⁺ mg/l	0.127	0.128	0.127	0.02	-0.016	S
G2		0.153	0.153	0.152	0.018	0.043	S
G3		0.192	0.192	0.19	0.017	0.112	S
G4		0.219	0.217	0.217	0.024	0.101	S
G1	K ⁺ mg/l	0.097	0.102	0.096	0.012	0.072	S
G2		0.169	0.17	0.161	0.016	0.496	S
G3		0.243	0.238	0.23	0.021	0.611	S
G4		0.285	0.272	0.267	0.02	0.896	S
G1	pH pH units	5.383	5.29	5.32	0.136	0.468	S
G2		5.2	5.14	5.153	0.097	0.483	S
G3		5.137	5.1	5.068	0.1	0.689	S
G4		5.2	5.17	5.164	0.102	0.359	S
G1	Cond µS/cm	7.233	7.005	7.159	0.928	0.08	S
G2		10.033	9.7	9.727	0.649	0.472	S
G3		17.4	16.9	17.216	1.197	0.154	S
G4		18.933	18.37	18.377	0.882	0.63	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.tromso@nilu.no
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EMEP – 36th 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⁻ mg S/l	0.224	0.251	0.247	0.009	-2.586	Q
G2		0.332	0.366	0.364	0.023	-1.369	S
G3		0.49	0.527	0.525	0.025	-1.396	S
G4		0.428	0.463	0.459	0.021	-1.459	S
G1	NH ₄ ⁺ mg N/l	0.1	0.107	0.105	0.02	-0.276	S
G2		0.127	0.134	0.134	0.015	-0.464	S
G3		0.486	0.481	0.489	0.029	-0.113	S
G4		0.563	0.561	0.574	0.036	-0.305	S
G1	NO ₃ ⁻ mg N/l	0.166	0.165	0.162	0.023	0.173	S
G2		0.261	0.26	0.263	0.014	-0.162	S
G3		0.58	0.577	0.575	0.027	0.183	S
G4		0.673	0.67	0.665	0.028	0.289	S
G1	Na ⁺ mg/l	0.274	0.286	0.28	0.021	-0.299	S
G2		0.395	0.408	0.405	0.021	-0.474	S
G3		0.738	0.769	0.741	0.049	-0.067	S
G4		0.994	1.019	0.982	0.03	0.411	S
G1	Mg ²⁺ mg/l	0.075	0.072	0.07	0.006	0.726	S
G2		0.099	0.103	0.103	0.005	-0.698	S
G3		0.173	0.186	0.187	0.011	-1.309	S
G4		0.144	0.155	0.155	0.006	-1.853	S
G1	Cl ⁻ mg/l	0.382	0.386	0.377	0.027	0.168	S
G2		0.462	0.463	0.451	0.027	0.389	S
G3		1.14	1.16	1.136	0.075	0.049	S
G4		1.51	1.54	1.488	0.083	0.271	S
G1	Ca ²⁺ mg/l	0.119	0.128	0.127	0.02	-0.412	S
G2		0.142	0.153	0.152	0.018	-0.583	S
G3		0.181	0.192	0.19	0.017	-0.552	S
G4		0.188	0.217	0.217	0.024	-1.198	S
G1	K ⁺ mg/l	0.083	0.102	0.096	0.012	-1.032	Q
G2		0.142	0.17	0.161	0.016	-1.16	Q
G3		0.203	0.238	0.23	0.021	-1.31	S
G4		0.234	0.272	0.267	0.02	-1.636	S
G1	pH pH units	5.21	5.29	5.32	0.136	-0.808	S
G2		5.08	5.14	5.153	0.097	-0.759	S
G3		5.06	5.1	5.068	0.1	-0.078	S
G4		5.1	5.17	5.164	0.102	-0.626	S
G1	Cond µS/cm	11.12	7.005	7.159	0.928	4.267	U
G2		10.54	9.7	9.727	0.649	1.254	S
G3		17.55	16.9	17.216	1.197	0.279	S
G4		19.87	18.37	18.377	0.882	1.692	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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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 – 36th intercomparison of analytical methods

Laboratory 24, Serbian Environmental Protection Agency (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⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	0.1	0.107	0.105	0.02	-0.276	S
G2		0.12	0.134	0.134	0.015	-0.921	S
G3		0.493	0.481	0.489	0.029	0.13	S
G4		0.581	0.561	0.574	0.036	0.193	S
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	0.282	0.286	0.28	0.021	0.084	S
G2		0.397	0.408	0.405	0.021	-0.379	S
G3		0.74	0.769	0.741	0.049	-0.026	S
G4		0.992	1.019	0.982	0.03	0.343	S
G1	Mg ²⁺ mg/l	0.066	0.072	0.07	0.006	-0.662	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.195	0.186	0.187	0.011	0.784	S
G4		0.161	0.155	0.155	0.006	1.057	S
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	0.123	0.128	0.127	0.02	-0.214	S
G2		0.154	0.153	0.152	0.018	0.1	S
G3		0.2	0.192	0.19	0.017	0.596	S
G4		0.238	0.217	0.217	0.024	0.897	S
G1	K ⁺ mg/l	0.093	0.102	0.096	0.012	-0.253	S
G2		0.166	0.17	0.161	0.016	0.312	S
G3		0.234	0.238	0.23	0.021	0.179	S
G4		0.276	0.272	0.267	0.02	0.449	S
G1	pH pH units	5.28	5.29	5.32	0.136	-0.291	S
G2		5.05	5.14	5.153	0.097	-1.07	S
G3		5.03	5.1	5.068	0.1	-0.377	S
G4		5.17	5.17	5.164	0.102	0.063	S
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		17.8	16.9	17.216	1.197	0.488	S
G4		19.2	18.37	18.377	0.882	0.933	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

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

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EMEP – 36th 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⁻ mg S/l	0.25	0.251	0.247	0.009	0.285	S
G2		0.364	0.366	0.364	0.023	-0.001	S
G3		0.524	0.527	0.525	0.025	-0.021	S
G4		0.46	0.463	0.459	0.021	0.041	S
G1	NH ₄ ⁺ mg N/l	0.107	0.107	0.105	0.02	0.079	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.487	0.481	0.489	0.029	-0.079	S
G4		0.564	0.561	0.574	0.036	-0.278	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.262	0.26	0.263	0.014	-0.09	S
G3		0.567	0.577	0.575	0.027	-0.299	S
G4		0.659	0.67	0.665	0.028	-0.215	S
G1	Na ⁺ mg/l	0.29	0.286	0.28	0.021	0.467	S
G2		0.418	0.408	0.405	0.021	0.621	S
G3		0.76	0.769	0.741	0.049	0.379	S
G4		1.006	1.019	0.982	0.03	0.815	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.106	0.103	0.103	0.005	0.683	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.157	0.155	0.155	0.006	0.372	S
G1	Cl ⁻ mg/l	0.388	0.386	0.377	0.027	0.392	S
G2		0.463	0.463	0.451	0.027	0.426	S
G3		1.144	1.16	1.136	0.075	0.102	S
G4		1.515	1.54	1.488	0.083	0.331	S
G1	Ca ²⁺ mg/l	0.129	0.128	0.127	0.02	0.082	S
G2		0.155	0.153	0.152	0.018	0.157	S
G3		0.195	0.192	0.19	0.017	0.294	S
G4		0.219	0.217	0.217	0.024	0.101	S
G1	K ⁺ mg/l	0.104	0.102	0.096	0.012	0.64	S
G2		0.176	0.17	0.161	0.016	0.926	S
G3		0.248	0.238	0.23	0.021	0.851	S
G4		0.282	0.272	0.267	0.02	0.747	S
G1	pH pH units	5.34	5.29	5.32	0.136	0.151	S
G2		5.18	5.14	5.153	0.097	0.276	S
G3		5.1	5.1	5.068	0.1	0.32	S
G4		5.24	5.17	5.164	0.102	0.752	S
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		-999	16.9	17.216	1.197		B
G4		-999	18.37	18.377	0.882		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 – 36th 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⁻ mg S/l	0.256	0.251	0.247	0.009	0.947	S
G2		0.373	0.366	0.364	0.023	0.384	S
G3		0.536	0.527	0.525	0.025	0.465	S
G4		0.47	0.463	0.459	0.021	0.51	S
G1	NH ₄ ⁺ mg N/l	0.112	0.107	0.105	0.02	0.333	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.508	0.481	0.489	0.029	0.651	S
G4		0.592	0.561	0.574	0.036	0.497	S
G1	NO ₃ ⁻ mg N/l	0.172	0.165	0.162	0.023	0.438	S
G2		0.27	0.26	0.263	0.014	0.485	S
G3		0.565	0.577	0.575	0.027	-0.373	S
G4		0.657	0.67	0.665	0.028	-0.287	S
G1	Na ⁺ mg/l	0.285	0.286	0.28	0.021	0.228	S
G2		0.408	0.408	0.405	0.021	0.145	S
G3		0.753	0.769	0.741	0.049	0.237	S
G4		0.992	1.019	0.982	0.03	0.343	S
G1	Mg ²⁺ mg/l	0.072	0.072	0.07	0.006	0.285	S
G2		0.104	0.103	0.103	0.005	0.283	S
G3		0.189	0.186	0.187	0.011	0.213	S
G4		0.157	0.155	0.155	0.006	0.372	S
G1	Cl ⁻ mg/l	0.404	0.386	0.377	0.027	0.987	S
G2		0.48	0.463	0.451	0.027	1.051	S
G3		1.157	1.16	1.136	0.075	0.275	S
G4		1.541	1.54	1.488	0.083	0.645	S
G1	Ca ²⁺ mg/l	0.131	0.128	0.127	0.02	0.181	S
G2		0.157	0.153	0.152	0.018	0.271	S
G3		0.196	0.192	0.19	0.017	0.354	S
G4		0.217	0.217	0.217	0.024	0.017	S
G1	K ⁺ mg/l	0.103	0.102	0.096	0.012	0.559	S
G2		0.173	0.17	0.161	0.016	0.742	S
G3		0.245	0.238	0.23	0.021	0.707	S
G4		0.277	0.272	0.267	0.02	0.499	S
G1	pH pH units	5.14	5.29	5.32	0.136	-1.324	Q
G2		5.03	5.14	5.153	0.097	-1.277	Q
G3		4.99	5.1	5.068	0.1	-0.776	Q
G4		5.12	5.17	5.164	0.102	-0.429	S
G1	Cond µS/cm	7.3	7.005	7.159	0.928	0.152	S
G2		10.2	9.7	9.727	0.649	0.73	S
G3		17.6	16.9	17.216	1.197	0.321	S
G4		18.7	18.37	18.377	0.882	0.366	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
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EMEP – 36th 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⁻ mg S/l	0.251	0.251	0.247	0.009	0.395	S
G2		0.358	0.366	0.364	0.023	-0.257	S
G3		0.53	0.527	0.525	0.025	0.222	S
G4		0.462	0.463	0.459	0.021	0.135	S
G1	NH ₄ ⁺ mg N/l	0.108	0.107	0.105	0.02	0.13	S
G2		0.132	0.134	0.134	0.015	-0.138	S
G3		0.487	0.481	0.489	0.029	-0.079	S
G4		0.569	0.561	0.574	0.036	-0.139	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.261	0.26	0.263	0.014	-0.162	S
G3		0.582	0.577	0.575	0.027	0.257	S
G4		0.679	0.67	0.665	0.028	0.505	S
G1	Na ⁺ mg/l	0.291	0.286	0.28	0.021	0.515	S
G2		0.413	0.408	0.405	0.021	0.383	S
G3		0.757	0.769	0.741	0.049	0.318	S
G4		1.009	1.019	0.982	0.03	0.917	S
G1	Mg ²⁺ mg/l	0.077	0.072	0.07	0.006	1.073	S
G2		0.108	0.103	0.103	0.005	1.084	S
G3		0.196	0.186	0.187	0.011	0.879	S
G4		0.162	0.155	0.155	0.006	1.228	S
G1	Cl ⁻ mg/l	0.401	0.386	0.377	0.027	0.876	S
G2		0.486	0.463	0.451	0.027	1.272	S
G3		1.283	1.16	1.136	0.075	1.949	S
G4		1.725	1.54	1.488	0.083	2.867	S
G1	Ca ²⁺ mg/l	0.147	0.128	0.127	0.02	0.971	S
G2		0.166	0.153	0.152	0.018	0.783	S
G3		0.209	0.192	0.19	0.017	1.139	S
G4		0.239	0.217	0.217	0.024	0.939	S
G1	K ⁺ mg/l	0.096	0.102	0.096	0.012	-0.009	S
G2		0.171	0.17	0.161	0.016	0.619	S
G3		0.241	0.238	0.23	0.021	0.515	S
G4		0.276	0.272	0.267	0.02	0.449	S
G1	pH pH units	5.2	5.29	5.32	0.136	-0.881	S
G2		5.15	5.14	5.153	0.097	-0.034	S
G3		4.97	5.1	5.068	0.1	-0.975	Q
G4		5.01	5.17	5.164	0.102	-1.512	Q
G1	Cond µS/cm	6	7.005	7.159	0.928	-1.248	S
G2		8.5	9.7	9.727	0.649	-1.89	S
G3		14.8	16.9	17.216	1.197	-2.018	S
G4		15.8	18.37	18.377	0.882	-2.921	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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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 – 36th 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⁻ mg S/l	0.335	0.251	0.247	0.009	9.672	U
G2		0.449	0.366	0.364	0.023	3.633	U
G3		0.587	0.527	0.525	0.025	2.527	Q
G4		0.452	0.463	0.459	0.021	-0.334	S
G1	NH ₄ ⁺ mg N/l	0.103	0.107	0.105	0.02	-0.124	S
G2		0.127	0.134	0.134	0.015	-0.464	S
G3		0.485	0.481	0.489	0.029	-0.148	S
G4		0.558	0.561	0.574	0.036	-0.444	S
G1	NO ₃ ⁻ mg N/l	0.173	0.165	0.162	0.023	0.483	S
G2		0.276	0.26	0.263	0.014	0.917	S
G3		0.6	0.577	0.575	0.027	0.924	S
G4		0.648	0.67	0.665	0.028	-0.61	S
G1	Na ⁺ mg/l	0.277	0.286	0.28	0.021	-0.155	S
G2		0.399	0.408	0.405	0.021	-0.284	S
G3		0.732	0.769	0.741	0.049	-0.188	S
G4		0.98	1.019	0.982	0.03	-0.061	S
G1	Mg ²⁺ mg/l	0.063	0.072	0.07	0.006	-1.135	S
G2		0.093	0.103	0.103	0.005	-1.919	S
G3		0.17	0.186	0.187	0.011	-1.594	S
G4		0.144	0.155	0.155	0.006	-1.853	S
G1	Cl ⁻ mg/l	0.363	0.386	0.377	0.027	-0.54	S
G2		0.441	0.463	0.451	0.027	-0.383	S
G3		1.102	1.16	1.136	0.075	-0.456	S
G4		1.372	1.54	1.488	0.083	-1.395	S
G1	Ca ²⁺ mg/l	0.116	0.128	0.127	0.02	-0.56	S
G2		0.14	0.153	0.152	0.018	-0.697	S
G3		0.163	0.192	0.19	0.017	-1.639	Q
G4		0.191	0.217	0.217	0.024	-1.073	S
G1	K ⁺ mg/l	0.09	0.102	0.096	0.012	-0.496	S
G2		0.162	0.17	0.161	0.016	0.067	S
G3		0.22	0.238	0.23	0.021	-0.493	S
G4		0.262	0.272	0.267	0.02	-0.246	S
G1	pH pH units	5.3	5.29	5.32	0.136	-0.144	S
G2		5.2	5.14	5.153	0.097	0.483	S
G3		5.2	5.1	5.068	0.1	1.317	Q
G4		5.3	5.17	5.164	0.102	1.343	Q
G1	Cond µS/cm	8.04	7.005	7.159	0.928	0.949	S
G2		10.4	9.7	9.727	0.649	1.038	S
G3		18.2	16.9	17.216	1.197	0.822	S
G4		19.6	18.37	18.377	0.882	1.386	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
nilu.tromso@nilu.no
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Bank: 5102.05.19030
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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:
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EMEP – 36th 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⁻ mg S/l	0.24	0.251	0.247	0.009	-0.82	S
G2		0.356	0.366	0.364	0.023	-0.343	S
G3		0.514	0.527	0.525	0.025	-0.425	S
G4		0.465	0.463	0.459	0.021	0.276	S
G1	NH ₄ ⁺ mg N/l	0.124	0.107	0.105	0.02	0.941	Q
G2		0.155	0.134	0.134	0.015	1.363	Q
G3		0.501	0.481	0.489	0.029	0.408	S
G4		0.582	0.561	0.574	0.036	0.22	S
G1	NO ₃ ⁻ mg N/l	0.154	0.165	0.162	0.023	-0.357	S
G2		0.253	0.26	0.263	0.014	-0.737	S
G3		0.575	0.577	0.575	0.027	-0.003	S
G4		0.67	0.67	0.665	0.028	0.181	S
G1	Na ⁺ mg/l	0.285	0.286	0.28	0.021	0.228	S
G2		0.39	0.408	0.405	0.021	-0.712	S
G3		0.73	0.769	0.741	0.049	-0.229	S
G4		0.97	1.019	0.982	0.03	-0.398	S
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	0.4	0.386	0.377	0.027	0.839	S
G2		0.465	0.463	0.451	0.027	0.5	S
G3		1.19	1.16	1.136	0.075	0.713	S
G4		1.57	1.54	1.488	0.083	0.995	S
G1	Ca ²⁺ mg/l	0.122	0.128	0.127	0.02	-0.263	S
G2		0.154	0.153	0.152	0.018	0.1	S
G3		0.176	0.192	0.19	0.017	-0.854	S
G4		0.239	0.217	0.217	0.024	0.939	S
G1	K ⁺ mg/l	0.11	0.102	0.096	0.012	1.127	S
G2		0.163	0.17	0.161	0.016	0.128	S
G3		0.245	0.238	0.23	0.021	0.707	S
G4		0.271	0.272	0.267	0.02	0.201	S
G1	pH pH units	5.41	5.29	5.32	0.136	0.667	Q
G2		5.22	5.14	5.153	0.097	0.69	S
G3		5.07	5.1	5.068	0.1	0.021	S
G4		5.17	5.17	5.164	0.102	0.063	S
G1	Cond µS/cm	7.05	7.005	7.159	0.928	-0.117	S
G2		9.4	9.7	9.727	0.649	-0.503	S
G3		17.6	16.9	17.216	1.197	0.321	S
G4		18.6	18.37	18.377	0.882	0.252	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

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EMEP – 36th 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⁻ mg S/l	0.261	0.251	0.247	0.009	1.5	S
G2		0.38	0.366	0.364	0.023	0.683	S
G3		0.593	0.527	0.525	0.025	2.77	Q
G4		0.48	0.463	0.459	0.021	0.979	S
G1	NH ₄ ⁺ mg N/l	0.064	0.107	0.105	0.02	-2.102	U
G2		0.081	0.134	0.134	0.015	-3.467	U
G3		0.44	0.481	0.489	0.029	-1.711	S
G4		0.549	0.561	0.574	0.036	-0.692	S
G1	NO ₃ ⁻ mg N/l	0.173	0.165	0.162	0.023	0.483	S
G2		0.267	0.26	0.263	0.014	0.27	S
G3		0.615	0.577	0.575	0.027	1.481	S
G4		0.705	0.67	0.665	0.028	1.44	S
G1	Na ⁺ mg/l	0.307	0.286	0.28	0.021	1.281	S
G2		0.443	0.408	0.405	0.021	1.812	S
G3		0.894	0.769	0.741	0.049	3.094	Q
G4		0.992	1.019	0.982	0.03	0.343	S
G1	Mg ²⁺ mg/l	0.072	0.072	0.07	0.006	0.285	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.182	0.186	0.187	0.011	-0.453	S
G4		0.155	0.155	0.155	0.006	0.03	S
G1	Cl ⁻ mg/l	0.382	0.386	0.377	0.027	0.168	S
G2		0.45	0.463	0.451	0.027	-0.052	S
G3		1.159	1.16	1.136	0.075	0.301	S
G4		1.477	1.54	1.488	0.083	-0.128	S
G1	Ca ²⁺ mg/l	0.135	0.128	0.127	0.02	0.379	S
G2		0.172	0.153	0.152	0.018	1.124	S
G3		0.209	0.192	0.19	0.017	1.139	S
G4		0.218	0.217	0.217	0.024	0.059	S
G1	K ⁺ mg/l	0.103	0.102	0.096	0.012	0.559	S
G2		0.163	0.17	0.161	0.016	0.128	S
G3		0.238	0.238	0.23	0.021	0.371	S
G4		0.264	0.272	0.267	0.02	-0.146	S
G1	pH pH units	5.31	5.29	5.32	0.136	-0.07	S
G2		5.21	5.14	5.153	0.097	0.587	S
G3		5.16	5.1	5.068	0.1	0.918	S
G4		5.24	5.17	5.164	0.102	0.752	S
G1	Cond µS/cm	7.27	7.005	7.159	0.928	0.12	S
G2		10.14	9.7	9.727	0.649	0.637	S
G3		17.74	16.9	17.216	1.197	0.438	S
G4		18.84	18.37	18.377	0.882	0.525	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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B – Blank: You reported either no value or the detection limit

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EMEP – 36th intercomparison of analytical methods

Laboratory 34, Ministry of Environment and Urbanisation (Turkey)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ^x
G1	SO ₄ ²⁻ mg S/l	0.06	0.251	0.247	0.009	-20.697	U
G2		0.09	0.366	0.364	0.023	-11.715	U
G3		0.13	0.527	0.525	0.025	-15.958	U
G4		0.11	0.463	0.459	0.021	-16.373	U
G1	NH ₄ ⁺ mg N/l	0.02	0.107	0.105	0.02	-4.333	U
G2		0.01	0.134	0.134	0.015	-8.101	U
G3		0.26	0.481	0.489	0.029	-7.963	U
G4		0.32	0.561	0.574	0.036	-7.027	U
G1	NO ₃ ⁻ mg N/l	0.02	0.165	0.162	0.023	-6.282	U
G2		0.04	0.26	0.263	0.014	-16.055	U
G3		0.1	0.577	0.575	0.027	-17.617	U
G4		0.12	0.67	0.665	0.028	-19.602	U
G1	Na ⁺ mg/l	0.36	0.286	0.28	0.021	3.818	U
G2		0.453	0.408	0.405	0.021	2.288	S
G3		0.768	0.769	0.741	0.049	0.541	S
G4		0.948	1.019	0.982	0.03	-1.14	S
G1	Mg ²⁺ mg/l	0.06	0.072	0.07	0.006	-1.608	Q
G2		0.087	0.103	0.103	0.005	-3.12	Q
G3		0.162	0.186	0.187	0.011	-2.355	S
G4		0.134	0.155	0.155	0.006	-3.564	S
G1	Cl ⁻ mg/l	0.28	0.386	0.377	0.027	-3.631	U
G2		0.34	0.463	0.451	0.027	-4.098	U
G3		0.95	1.16	1.136	0.075	-2.476	Q
G4		1.31	1.54	1.488	0.083	-2.144	S
G1	Ca ²⁺ mg/l	0.085	0.128	0.127	0.02	-2.091	U
G2		0.109	0.153	0.152	0.018	-2.461	U
G3		0.148	0.192	0.19	0.017	-2.546	Q
G4		0.167	0.217	0.217	0.024	-2.079	Q
G1	K ⁺ mg/l	0.103	0.102	0.096	0.012	0.559	S
G2		0.16	0.17	0.161	0.016	-0.056	S
G3		0.233	0.238	0.23	0.021	0.131	S
G4		0.249	0.272	0.267	0.02	-0.891	S
G1	pH pH units	6.36	5.29	5.32	0.136	7.673	U
G2		6.23	5.14	5.153	0.097	11.146	U
G3		5.12	5.1	5.068	0.1	0.519	S
G4		5.44	5.17	5.164	0.102	2.721	U
G1	Cond µS/cm	10.7	7.005	7.159	0.928	3.814	U
G2		10.1	9.7	9.727	0.649	0.576	S
G3		19.1	16.9	17.216	1.197	1.574	S
G4		20.4	18.37	18.377	0.882	2.293	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 – 36th 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⁻ mg S/l	0.256	0.251	0.247	0.009	0.947	S
G2		0.376	0.366	0.364	0.023	0.512	S
G3		0.541	0.527	0.525	0.025	0.667	S
G4		0.474	0.463	0.459	0.021	0.698	S
G1	NH ₄ ⁺ mg N/l	0.109	0.107	0.105	0.02	0.18	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.501	0.481	0.489	0.029	0.408	S
G4		0.584	0.561	0.574	0.036	0.276	S
G1	NO ₃ ⁻ mg N/l	0.169	0.165	0.162	0.023	0.306	S
G2		0.266	0.26	0.263	0.014	0.198	S
G3		0.586	0.577	0.575	0.027	0.405	S
G4		0.678	0.67	0.665	0.028	0.469	S
G1	Na ⁺ mg/l	0.291	0.286	0.28	0.021	0.515	S
G2		0.417	0.408	0.405	0.021	0.574	S
G3		0.763	0.769	0.741	0.049	0.44	S
G4		1.025	1.019	0.982	0.03	1.456	S
G1	Mg ²⁺ mg/l	0.068	0.072	0.07	0.006	-0.346	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.183	0.186	0.187	0.011	-0.358	S
G4		0.153	0.155	0.155	0.006	-0.312	S
G1	Cl ⁻ mg/l	0.392	0.386	0.377	0.027	0.541	S
G2		0.469	0.463	0.451	0.027	0.647	S
G3		1.173	1.16	1.136	0.075	0.487	S
G4		1.554	1.54	1.488	0.083	0.802	S
G1	Ca ²⁺ mg/l	0.119	0.128	0.127	0.02	-0.412	S
G2		0.144	0.153	0.152	0.018	-0.469	S
G3		0.184	0.192	0.19	0.017	-0.371	S
G4		0.204	0.217	0.217	0.024	-0.528	S
G1	K ⁺ mg/l	0.1	0.102	0.096	0.012	0.316	S
G2		0.168	0.17	0.161	0.016	0.435	S
G3		0.24	0.238	0.23	0.021	0.467	S
G4		0.274	0.272	0.267	0.02	0.35	S
G1	pH pH units	5.25	5.29	5.32	0.136	-0.513	S
G2		5.11	5.14	5.153	0.097	-0.448	S
G3		5.04	5.1	5.068	0.1	-0.278	S
G4		5.13	5.17	5.164	0.102	-0.33	S
G1	Cond µS/cm	7.3	7.005	7.159	0.928	0.152	S
G2		9.92	9.7	9.727	0.649	0.298	S
G3		17.2	16.9	17.216	1.197	-0.013	S
G4		18.34	18.37	18.377	0.882	-0.042	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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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 – 36th 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⁻ mg S/l	0.258	0.251	0.247	0.009	1.168	S
G2		0.381	0.366	0.364	0.023	0.726	S
G3		0.544	0.527	0.525	0.025	0.788	S
G4		0.471	0.463	0.459	0.021	0.557	S
G1	NH ₄ ⁺ mg N/l	0.105	0.107	0.105	0.02	-0.022	S
G2		0.131	0.134	0.134	0.015	-0.203	S
G3		0.418	0.481	0.489	0.029	-2.475	S
G4		0.572	0.561	0.574	0.036	-0.056	S
G1	NO ₃ ⁻ mg N/l	0.163	0.165	0.162	0.023	0.04	S
G2		0.258	0.26	0.263	0.014	-0.377	S
G3		0.577	0.577	0.575	0.027	0.072	S
G4		0.673	0.67	0.665	0.028	0.289	S
G1	Na ⁺ mg/l	0.289	0.286	0.28	0.021	0.419	S
G2		0.409	0.408	0.405	0.021	0.193	S
G3		0.743	0.769	0.741	0.049	0.035	S
G4		0.99	1.019	0.982	0.03	0.276	S
G1	Mg ²⁺ mg/l	0.074	0.072	0.07	0.006	0.6	S
G2		0.107	0.103	0.103	0.005	0.883	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.156	0.155	0.155	0.006	0.201	S
G1	Cl ⁻ mg/l	0.384	0.386	0.377	0.027	0.243	S
G2		0.446	0.463	0.451	0.027	-0.199	S
G3		1.099	1.16	1.136	0.075	-0.496	S
G4		1.467	1.54	1.488	0.083	-0.248	S
G1	Ca ²⁺ mg/l	0.125	0.128	0.127	0.02	-0.115	S
G2		0.157	0.153	0.152	0.018	0.271	S
G3		0.191	0.192	0.19	0.017	0.052	S
G4		0.219	0.217	0.217	0.024	0.101	S
G1	K ⁺ mg/l	0.101	0.102	0.096	0.012	0.397	S
G2		0.16	0.17	0.161	0.016	-0.056	S
G3		0.234	0.238	0.23	0.021	0.179	S
G4		0.266	0.272	0.267	0.02	-0.047	S
G1	pH pH units	5.28	5.29	5.32	0.136	-0.291	S
G2		5.17	5.14	5.153	0.097	0.173	S
G3		5.09	5.1	5.068	0.1	0.221	S
G4		5.19	5.17	5.164	0.102	0.26	S
G1	Cond µS/cm	6.93	7.005	7.159	0.928	-0.246	S
G2		9.68	9.7	9.727	0.649	-0.072	S
G3		17	16.9	17.216	1.197	-0.18	S
G4		18.1	18.37	18.377	0.882	-0.314	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
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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 – 36th 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⁻ mg S/l	0.243	0.251	0.247	0.009	-0.488	S
G2		0.357	0.366	0.364	0.023	-0.3	S
G3		0.515	0.527	0.525	0.025	-0.385	S
G4		0.448	0.463	0.459	0.021	-0.521	S
G1	NH ₄ ⁺ mg N/l	0.109	0.107	0.105	0.02	0.18	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.492	0.481	0.489	0.029	0.095	S
G4		0.569	0.561	0.574	0.036	-0.139	S
G1	NO ₃ ⁻ mg N/l	0.161	0.165	0.162	0.023	-0.048	S
G2		0.258	0.26	0.263	0.014	-0.377	S
G3		0.566	0.577	0.575	0.027	-0.336	S
G4		0.663	0.67	0.665	0.028	-0.071	S
G1	Na ⁺ mg/l	0.261	0.286	0.28	0.021	-0.921	S
G2		0.377	0.408	0.405	0.021	-1.331	S
G3		0.713	0.769	0.741	0.049	-0.573	S
G4		0.961	1.019	0.982	0.03	-0.702	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.184	0.186	0.187	0.011	-0.263	S
G4		0.15	0.155	0.155	0.006	-0.826	S
G1	Cl ⁻ mg/l	0.378	0.386	0.377	0.027	0.019	S
G2		0.454	0.463	0.451	0.027	0.095	S
G3		1.119	1.16	1.136	0.075	-0.23	S
G4		1.444	1.54	1.488	0.083	-0.526	S
G1	Ca ²⁺ mg/l	0.123	0.128	0.127	0.02	-0.214	S
G2		0.155	0.153	0.152	0.018	0.157	S
G3		0.185	0.192	0.19	0.017	-0.31	S
G4		0.206	0.217	0.217	0.024	-0.444	S
G1	K ⁺ mg/l	0.095	0.102	0.096	0.012	-0.09	S
G2		0.152	0.17	0.161	0.016	-0.547	S
G3		0.221	0.238	0.23	0.021	-0.445	S
G4		0.256	0.272	0.267	0.02	-0.544	S
G1	pH pH units	5.38	5.29	5.32	0.136	0.446	S
G2		5.45	5.14	5.153	0.097	3.071	U
G3		5.22	5.1	5.068	0.1	1.516	Q
G4		5.4	5.17	5.164	0.102	2.327	U
G1	Cond µS/cm	7.01	7.005	7.159	0.928	-0.16	S
G2		9.48	9.7	9.727	0.649	-0.38	S
G3		17.3	16.9	17.216	1.197	0.071	S
G4		18	18.37	18.377	0.882	-0.428	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@nilu.no
nilu@nilu.no
Internet: www.nilu.no
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th 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⁻ mg S/l	0.254	0.251	0.247	0.009	0.727	S
G2		0.355	0.366	0.364	0.023	-0.386	S
G3		0.511	0.527	0.525	0.025	-0.547	S
G4		0.466	0.463	0.459	0.021	0.323	S
G1	NH ₄ ⁺ mg N/l	0.117	0.107	0.105	0.02	0.586	S
G2		0.126	0.134	0.134	0.015	-0.53	S
G3		0.491	0.481	0.489	0.029	0.06	S
G4		0.567	0.561	0.574	0.036	-0.195	S
G1	NO ₃ ⁻ mg N/l	0.162	0.165	0.162	0.023	-0.004	S
G2		0.259	0.26	0.263	0.014	-0.306	S
G3		0.562	0.577	0.575	0.027	-0.485	S
G4		0.66	0.67	0.665	0.028	-0.179	S
G1	Na ⁺ mg/l	0.294	0.286	0.28	0.021	0.659	S
G2		0.42	0.408	0.405	0.021	0.717	S
G3		0.786	0.769	0.741	0.049	0.906	S
G4		0.984	1.019	0.982	0.03	0.074	S
G1	Mg ²⁺ mg/l	0.074	0.072	0.07	0.006	0.6	S
G2		0.102	0.103	0.103	0.005	-0.117	S
G3		0.191	0.186	0.187	0.011	0.403	S
G4		0.154	0.155	0.155	0.006	-0.141	S
G1	Cl ⁻ mg/l	0.371	0.386	0.377	0.027	-0.242	S
G2		0.451	0.463	0.451	0.027	-0.015	S
G3		1.102	1.16	1.136	0.075	-0.456	S
G4		1.48	1.54	1.488	0.083	-0.091	S
G1	Ca ²⁺ mg/l	0.133	0.128	0.127	0.02	0.28	S
G2		0.157	0.153	0.152	0.018	0.271	S
G3		0.197	0.192	0.19	0.017	0.414	S
G4		0.222	0.217	0.217	0.024	0.227	S
G1	K ⁺ mg/l	0.095	0.102	0.096	0.012	-0.09	S
G2		0.165	0.17	0.161	0.016	0.251	S
G3		0.238	0.238	0.23	0.021	0.371	S
G4		0.272	0.272	0.267	0.02	0.251	S
G1	pH pH units	5.25	5.29	5.32	0.136	-0.513	S
G2		5.1	5.14	5.153	0.097	-0.552	S
G3		5.06	5.1	5.068	0.1	-0.078	S
G4		5.13	5.17	5.164	0.102	-0.33	S
G1	Cond µS/cm	7.1	7.005	7.159	0.928	-0.063	S
G2		9.4	9.7	9.727	0.649	-0.503	S
G3		16.5	16.9	17.216	1.197	-0.598	S
G4		18.5	18.37	18.377	0.882	0.139	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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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

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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th intercomparison of analytical methods

Laboratory 40, Hydrometeorological Institute, Skopje (Macedonia)

Precipitation (G-samples)

Sample name	Determinand	Reported value	Expected value	Mean value	Standard deviation	Z score *	EMEP quality norm ^x
G1	SO ₄ ²⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	-999	0.102	0.096	0.012		B
G2		-999	0.17	0.161	0.016		B
G3		-999	0.238	0.23	0.021		B
G4		-999	0.272	0.267	0.02		B
G1	pH pH units	5.46	5.29	5.32	0.136	1.036	Q
G2		5.32	5.14	5.153	0.097	1.726	Q
G3		5.21	5.1	5.068	0.1	1.416	Q
G4		5.17	5.17	5.164	0.102	0.063	S
G1	Cond µS/cm	6	7.005	7.159	0.928	-1.248	S
G2		9	9.7	9.727	0.649	-1.12	S
G3		16	16.9	17.216	1.197	-1.016	S
G4		18	18.37	18.377	0.882	-0.428	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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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 – 36th 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⁻ mg S/l	0.352	0.251	0.247	0.009	11.593	U
G2		0.489	0.366	0.364	0.023	5.352	U
G3		0.702	0.527	0.525	0.025	7.171	U
G4		0.618	0.463	0.459	0.021	7.447	U
G1	NH ₄ ⁺ mg N/l	0.057	0.107	0.105	0.02	-2.472	U
G2		0.167	0.134	0.134	0.015	2.153	Q
G3		0.634	0.481	0.489	0.029	5.02	U
G4		0.73	0.561	0.574	0.036	4.303	U
G1	NO ₃ ⁻ mg N/l	0.196	0.165	0.162	0.023	1.517	Q
G2		0.302	0.26	0.263	0.014	2.758	Q
G3		0.679	0.577	0.575	0.027	3.858	Q
G4		0.764	0.67	0.665	0.028	3.562	Q
G1	Na ⁺ mg/l	0.454	0.286	0.28	0.021	8.333	U
G2		0.453	0.408	0.405	0.021	2.302	S
G3		0.834	0.769	0.741	0.049	1.868	S
G4		1.018	1.019	0.982	0.03	1.227	S
G1	Mg ²⁺ mg/l	0.135	0.072	0.07	0.006	10.176	U
G2		0.126	0.103	0.103	0.005	4.626	Q
G3		0.213	0.186	0.187	0.011	2.505	S
G4		0.177	0.155	0.155	0.006	3.795	S
G1	Cl ⁻ mg/l	7.905	0.386	0.377	0.027	280.405	U
G2		2.077	0.463	0.451	0.027	59.799	U
G3		2.704	1.16	1.136	0.075	20.838	U
G4		2.614	1.54	1.488	0.083	13.595	U
G1	Ca ²⁺ mg/l	0.512	0.128	0.127	0.02	19.001	U
G2		0.335	0.153	0.152	0.018	10.372	U
G3		0.346	0.192	0.19	0.017	9.391	U
G4		0.356	0.217	0.217	0.024	5.834	U
G1	K ⁺ mg/l	6.475	0.102	0.096	0.012	517.668	U
G2		1.351	0.17	0.161	0.016	73.035	U
G3		1.134	0.238	0.23	0.021	43.421	U
G4		0.644	0.272	0.267	0.02	18.74	U
G1	pH pH units	5.9	5.29	5.32	0.136	4.281	U
G2		5.29	5.14	5.153	0.097	1.415	Q
G3		5.11	5.1	5.068	0.1	0.42	S
G4		5.18	5.17	5.164	0.102	0.162	S
G1	Cond µS/cm	34.3	7.005	7.159	0.928	29.234	U
G2		19.8	9.7	9.727	0.649	15.525	U
G3		22.9	16.9	17.216	1.197	4.749	U
G4		18.3	18.37	18.377	0.882	-0.088	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-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 – 36th 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⁻ mg S/l	0.268	0.251	0.247	0.009	2.228	S
G2		0.393	0.366	0.364	0.023	1.247	S
G3		0.548	0.527	0.525	0.025	0.962	S
G4		0.478	0.463	0.459	0.021	0.909	S
G1	NH ₄ ⁺ mg N/l	0.548	0.107	0.105	0.02	22.445	U
G2		0.477	0.134	0.134	0.015	22.381	U
G3		0.098	0.481	0.489	0.029	-13.589	U
G4		0.079	0.561	0.574	0.036	-13.694	U
G1	NO ₃ ⁻ mg N/l	0.175	0.165	0.162	0.023	0.584	S
G2		0.277	0.26	0.263	0.014	0.996	S
G3		0.594	0.577	0.575	0.027	0.698	S
G4		0.685	0.67	0.665	0.028	0.717	S
G1	Na ⁺ mg/l	0.302	0.286	0.28	0.021	1.042	S
G2		0.432	0.408	0.405	0.021	1.288	S
G3		0.727	0.769	0.741	0.049	-0.289	S
G4		0.94	1.019	0.982	0.03	-1.41	S
G1	Mg ²⁺ mg/l	0.072	0.072	0.07	0.006	0.285	S
G2		0.107	0.103	0.103	0.005	0.883	S
G3		0.186	0.186	0.187	0.011	-0.072	S
G4		0.157	0.155	0.155	0.006	0.372	S
G1	Cl ⁻ mg/l	0.398	0.386	0.377	0.027	0.779	S
G2		0.466	0.463	0.451	0.027	0.518	S
G3		1.755	1.16	1.136	0.075	8.221	U
G4		1.588	1.54	1.488	0.083	1.21	S
G1	Ca ²⁺ mg/l	0.125	0.128	0.127	0.02	-0.115	S
G2		0.158	0.153	0.152	0.018	0.328	S
G3		0.189	0.192	0.19	0.017	-0.069	S
G4		0.219	0.217	0.217	0.024	0.101	S
G1	K ⁺ mg/l	0.095	0.102	0.096	0.012	-0.09	S
G2		0.171	0.17	0.161	0.016	0.619	S
G3		0.235	0.238	0.23	0.021	0.227	S
G4		0.279	0.272	0.267	0.02	0.598	S
G1	pH pH units	5.377	5.29	5.32	0.136	0.424	S
G2		5.437	5.14	5.153	0.097	2.937	U
G3		5.244	5.1	5.068	0.1	1.755	Q
G4		5.668	5.17	5.164	0.102	4.965	U
G1	Cond µS/cm	7.2	7.005	7.159	0.928	0.045	S
G2		10.1	9.7	9.727	0.649	0.576	S
G3		17.2	16.9	17.216	1.197	-0.013	S
G4		18.7	18.37	18.377	0.882	0.366	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
Internet: www.nilu.no
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EMEP – 36th 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⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	-999	0.102	0.096	0.012		B
G2		-999	0.17	0.161	0.016		B
G3		-999	0.238	0.23	0.021		B
G4		-999	0.272	0.267	0.02		B
G1	pH pH units	5.24	5.29	5.32	0.136	-0.586	S
G2		5.08	5.14	5.153	0.097	-0.759	S
G3		5.06	5.1	5.068	0.1	-0.078	S
G4		5.1	5.17	5.164	0.102	-0.626	S
G1	Cond µS/cm	7.07	7.005	7.159	0.928	-0.095	S
G2		9.54	9.7	9.727	0.649	-0.287	S
G3		16.5	16.9	17.216	1.197	-0.598	S
G4		18.5	18.37	18.377	0.882	0.139	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 – 36th 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⁻ mg S/l	0.249	0.251	0.247	0.009	0.174	S
G2		0.364	0.366	0.364	0.023	-0.001	S
G3		0.535	0.527	0.525	0.025	0.424	S
G4		0.467	0.463	0.459	0.021	0.37	S
G1	NH ₄ ⁺ mg N/l	0.114	0.107	0.105	0.02	0.434	S
G2		0.137	0.134	0.134	0.015	0.188	S
G3		0.509	0.481	0.489	0.029	0.685	S
G4		0.586	0.561	0.574	0.036	0.331	S
G1	NO ₃ ⁻ mg N/l	0.166	0.165	0.162	0.023	0.173	S
G2		0.261	0.26	0.263	0.014	-0.162	S
G3		0.569	0.577	0.575	0.027	-0.225	S
G4		0.66	0.67	0.665	0.028	-0.179	S
G1	Na ⁺ mg/l	0.301	0.286	0.28	0.021	0.994	S
G2		0.431	0.408	0.405	0.021	1.24	S
G3		0.768	0.769	0.741	0.049	0.541	S
G4		1.009	1.019	0.982	0.03	0.917	S
G1	Mg ²⁺ mg/l	0.072	0.072	0.07	0.006	0.285	S
G2		0.101	0.103	0.103	0.005	-0.318	S
G3		0.191	0.186	0.187	0.011	0.403	S
G4		0.158	0.155	0.155	0.006	0.543	S
G1	Cl ⁻ mg/l	0.383	0.386	0.377	0.027	0.205	S
G2		0.461	0.463	0.451	0.027	0.352	S
G3		1.152	1.16	1.136	0.075	0.208	S
G4		1.529	1.54	1.488	0.083	0.5	S
G1	Ca ²⁺ mg/l	0.142	0.128	0.127	0.02	0.725	S
G2		0.158	0.153	0.152	0.018	0.328	S
G3		0.194	0.192	0.19	0.017	0.233	S
G4		0.217	0.217	0.217	0.024	0.017	S
G1	K ⁺ mg/l	0.099	0.102	0.096	0.012	0.234	S
G2		0.136	0.17	0.161	0.016	-1.528	Q
G3		0.221	0.238	0.23	0.021	-0.445	S
G4		0.261	0.272	0.267	0.02	-0.295	S
G1	pH pH units	5.39	5.29	5.32	0.136	0.52	S
G2		5.16	5.14	5.153	0.097	0.069	S
G3		5.05	5.1	5.068	0.1	-0.178	S
G4		5.09	5.17	5.164	0.102	-0.724	S
G1	Cond µS/cm	6.71	7.005	7.159	0.928	-0.483	S
G2		9.36	9.7	9.727	0.649	-0.565	S
G3		16.41	16.9	17.216	1.197	-0.673	S
G4		17.64	18.37	18.377	0.882	-0.836	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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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 – 36th 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⁻ mg S/l	0.241	0.251	0.247	0.009	-0.709	S
G2		0.35	0.366	0.364	0.023	-0.599	S
G3		0.511	0.527	0.525	0.025	-0.547	S
G4		0.446	0.463	0.459	0.021	-0.615	S
G1	NH ₄ ⁺ mg N/l	0.124	0.107	0.105	0.02	0.941	Q
G2		0.149	0.134	0.134	0.015	0.972	S
G3		0.498	0.481	0.489	0.029	0.303	S
G4		0.568	0.561	0.574	0.036	-0.167	S
G1	NO ₃ ⁻ mg N/l	0.158	0.165	0.162	0.023	-0.181	S
G2		0.247	0.26	0.263	0.014	-1.169	S
G3		0.555	0.577	0.575	0.027	-0.744	S
G4		0.649	0.67	0.665	0.028	-0.574	S
G1	Na ⁺ mg/l	0.271	0.286	0.28	0.021	-0.442	S
G2		0.389	0.408	0.405	0.021	-0.76	S
G3		0.717	0.769	0.741	0.049	-0.492	S
G4		0.957	1.019	0.982	0.03	-0.836	S
G1	Mg ²⁺ mg/l	0.064	0.072	0.07	0.006	-0.977	S
G2		0.101	0.103	0.103	0.005	-0.318	S
G3		0.178	0.186	0.187	0.011	-0.833	S
G4		0.146	0.155	0.155	0.006	-1.51	S
G1	Cl ⁻ mg/l	0.364	0.386	0.377	0.027	-0.502	S
G2		0.42	0.463	0.451	0.027	-1.156	S
G3		1.12	1.16	1.136	0.075	-0.217	S
G4		1.488	1.54	1.488	0.083	0.005	S
G1	Ca ²⁺ mg/l	0.099	0.128	0.127	0.02	-1.399	Q
G2		0.132	0.153	0.152	0.018	-1.152	S
G3		0.171	0.192	0.19	0.017	-1.156	S
G4		0.176	0.217	0.217	0.024	-1.701	Q
G1	K ⁺ mg/l	0.099	0.102	0.096	0.012	0.234	S
G2		0.172	0.17	0.161	0.016	0.68	S
G3		0.221	0.238	0.23	0.021	-0.445	S
G4		0.256	0.272	0.267	0.02	-0.544	S
G1	pH pH units	5.163	5.29	5.32	0.136	-1.154	Q
G2		4.97	5.14	5.153	0.097	-1.898	Q
G3		4.937	5.1	5.068	0.1	-1.304	Q
G4		5.04	5.17	5.164	0.102	-1.216	Q
G1	Cond µS/cm	7.249	7.005	7.159	0.928	0.097	S
G2		10.303	9.7	9.727	0.649	0.888	S
G3		17.823	16.9	17.216	1.197	0.508	S
G4		19.07	18.37	18.377	0.882	0.785	S

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PO Box 100
NO-2027 KJELLER, Norway
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
nilu.tromso@nilu.no
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EMEP – 36th 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⁻ mg S/l	0.253	0.251	0.247	0.009	0.616	S
G2		0.367	0.366	0.364	0.023	0.127	S
G3		0.517	0.527	0.525	0.025	-0.304	S
G4		0.457	0.463	0.459	0.021	-0.099	S
G1	NH ₄ ⁺ mg N/l	0.101	0.107	0.105	0.02	-0.225	S
G2		0.132	0.134	0.134	0.015	-0.138	S
G3		0.505	0.481	0.489	0.029	0.547	S
G4		0.591	0.561	0.574	0.036	0.469	S
G1	NO ₃ ⁻ mg N/l	0.172	0.165	0.162	0.023	0.438	S
G2		0.273	0.26	0.263	0.014	0.701	S
G3		0.564	0.577	0.575	0.027	-0.411	S
G4		0.648	0.67	0.665	0.028	-0.61	S
G1	Na ⁺ mg/l	0.285	0.286	0.28	0.021	0.228	S
G2		0.408	0.408	0.405	0.021	0.145	S
G3		0.743	0.769	0.741	0.049	0.035	S
G4		0.973	1.019	0.982	0.03	-0.297	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.106	0.103	0.103	0.005	0.683	S
G3		0.191	0.186	0.187	0.011	0.403	S
G4		0.156	0.155	0.155	0.006	0.201	S
G1	Cl ⁻ mg/l	0.37	0.386	0.377	0.027	-0.279	S
G2		0.46	0.463	0.451	0.027	0.316	S
G3		1.19	1.16	1.136	0.075	0.713	S
G4		1.57	1.54	1.488	0.083	0.995	S
G1	Ca ²⁺ mg/l	0.126	0.128	0.127	0.02	-0.066	S
G2		0.153	0.153	0.152	0.018	0.043	S
G3		0.189	0.192	0.19	0.017	-0.069	S
G4		0.212	0.217	0.217	0.024	-0.193	S
G1	K ⁺ mg/l	< 0.100	0.102	0.096	0.012	-3.742	U
G2		0.159	0.17	0.161	0.016	-0.117	S
G3		0.23	0.238	0.23	0.021	-0.013	S
G4		0.257	0.272	0.267	0.02	-0.494	S
G1	pH pH units	5.28	5.29	5.32	0.136	-0.291	S
G2		5.13	5.14	5.153	0.097	-0.241	S
G3		5.08	5.1	5.068	0.1	0.121	S
G4		5.15	5.17	5.164	0.102	-0.134	S
G1	Cond µS/cm	6.7	7.005	7.159	0.928	-0.494	S
G2		9.6	9.7	9.727	0.649	-0.195	S
G3		17	16.9	17.216	1.197	-0.18	S
G4		18	18.37	18.377	0.882	-0.428	S

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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

e-mail: nilu@nilu.no
nilu.tromso@nilu.no
Internet: www.nilu.no
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EMEP – 36th 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⁻ mg S/l	0.25	0.251	0.247	0.009	0.285	S
G2		0.36	0.366	0.364	0.023	-0.172	S
G3		0.53	0.527	0.525	0.025	0.222	S
G4		0.46	0.463	0.459	0.021	0.041	S
G1	NH ₄ ⁺ mg N/l	0.11	0.107	0.105	0.02	0.231	S
G2		0.14	0.134	0.134	0.015	0.384	S
G3		0.51	0.481	0.489	0.029	0.72	S
G4		0.59	0.561	0.574	0.036	0.442	S
G1	NO ₃ ⁻ mg N/l	0.17	0.165	0.162	0.023	0.35	S
G2		0.26	0.26	0.263	0.014	-0.234	S
G3		0.58	0.577	0.575	0.027	0.183	S
G4		0.67	0.67	0.665	0.028	0.181	S
G1	Na ⁺ mg/l	0.3	0.286	0.28	0.021	0.946	S
G2		0.42	0.408	0.405	0.021	0.717	S
G3		0.77	0.769	0.741	0.049	0.582	S
G4		1.02	1.019	0.982	0.03	1.287	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.16	0.155	0.155	0.006	0.886	S
G1	Cl ⁻ mg/l	0.38	0.386	0.377	0.027	0.094	S
G2		0.46	0.463	0.451	0.027	0.316	S
G3		1.12	1.16	1.136	0.075	-0.217	S
G4		1.49	1.54	1.488	0.083	0.029	S
G1	Ca ²⁺ mg/l	0.13	0.128	0.127	0.02	0.132	S
G2		0.15	0.153	0.152	0.018	-0.128	S
G3		0.19	0.192	0.19	0.017	-0.008	S
G4		0.22	0.217	0.217	0.024	0.143	S
G1	K ⁺ mg/l	0.1	0.102	0.096	0.012	0.316	S
G2		0.16	0.17	0.161	0.016	-0.056	S
G3		0.23	0.238	0.23	0.021	-0.013	S
G4		0.27	0.272	0.267	0.02	0.151	S
G1	pH pH units	5.26	5.29	5.32	0.136	-0.439	S
G2		5.13	5.14	5.153	0.097	-0.241	S
G3		5.09	5.1	5.068	0.1	0.221	S
G4		5.22	5.17	5.164	0.102	0.555	S
G1	Cond µS/cm	6.7	7.005	7.159	0.928	-0.494	S
G2		9	9.7	9.727	0.649	-1.12	S
G3		16	16.9	17.216	1.197	-1.016	S
G4		17.4	18.37	18.377	0.882	-1.108	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

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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th intercomparison of analytical methods

Laboratory 114, C.N.R. Institute of Water Research (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⁻ mg S/l	0.25	0.251	0.247	0.009	0.285	S
G2		0.35	0.366	0.364	0.023	-0.599	S
G3		0.51	0.527	0.525	0.025	-0.587	S
G4		0.45	0.463	0.459	0.021	-0.428	S
G1	NH ₄ ⁺ mg N/l	0.11	0.107	0.105	0.02	0.231	S
G2		0.14	0.134	0.134	0.015	0.384	S
G3		0.49	0.481	0.489	0.029	0.026	S
G4		0.55	0.561	0.574	0.036	-0.665	S
G1	NO ₃ ⁻ mg N/l	0.17	0.165	0.162	0.023	0.35	S
G2		0.26	0.26	0.263	0.014	-0.234	S
G3		0.57	0.577	0.575	0.027	-0.188	S
G4		0.65	0.67	0.665	0.028	-0.538	S
G1	Na ⁺ mg/l	0.28	0.286	0.28	0.021	-0.012	S
G2		0.4	0.408	0.405	0.021	-0.236	S
G3		0.72	0.769	0.741	0.049	-0.431	S
G4		0.98	1.019	0.982	0.03	-0.061	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.18	0.186	0.187	0.011	-0.643	S
G4		0.15	0.155	0.155	0.006	-0.826	S
G1	Cl ⁻ mg/l	0.39	0.386	0.377	0.027	0.466	S
G2		0.44	0.463	0.451	0.027	-0.42	S
G3		1.15	1.16	1.136	0.075	0.181	S
G4		1.48	1.54	1.488	0.083	-0.091	S
G1	Ca ²⁺ mg/l	0.17	0.128	0.127	0.02	2.108	U
G2		0.21	0.153	0.152	0.018	3.287	U
G3		0.31	0.192	0.19	0.017	7.241	U
G4		0.28	0.217	0.217	0.024	2.657	U
G1	K ⁺ mg/l	0.09	0.102	0.096	0.012	-0.496	S
G2		0.18	0.17	0.161	0.016	1.171	S
G3		0.25	0.238	0.23	0.021	0.948	S
G4		0.31	0.272	0.267	0.02	2.137	S
G1	pH pH units	5.36	5.29	5.32	0.136	0.299	S
G2		5.15	5.14	5.153	0.097	-0.034	S
G3		5.13	5.1	5.068	0.1	0.619	S
G4		5.17	5.17	5.164	0.102	0.063	S
G1	Cond µS/cm	6.9	7.005	7.159	0.928	-0.279	S
G2		9.8	9.7	9.727	0.649	0.113	S
G3		17.1	16.9	17.216	1.197	-0.097	S
G4		18.6	18.37	18.377	0.882	0.252	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
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 – 36th 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⁻ mg S/l	0.238	0.251	0.247	0.009	-1.04	S
G2		0.349	0.366	0.364	0.023	-0.642	S
G3		0.515	0.527	0.525	0.025	-0.385	S
G4		0.442	0.463	0.459	0.021	-0.803	S
G1	NH ₄ ⁺ mg N/l	0.106	0.107	0.105	0.02	0.028	S
G2		0.135	0.134	0.134	0.015	0.058	S
G3		0.482	0.481	0.489	0.029	-0.252	S
G4		0.559	0.561	0.574	0.036	-0.416	S
G1	NO ₃ ⁻ mg N/l	0.155	0.165	0.162	0.023	-0.313	S
G2		0.252	0.26	0.263	0.014	-0.809	S
G3		0.56	0.577	0.575	0.027	-0.559	S
G4		0.657	0.67	0.665	0.028	-0.287	S
G1	Na ⁺ mg/l	0.286	0.286	0.28	0.021	0.276	S
G2		0.41	0.408	0.405	0.021	0.24	S
G3		0.719	0.769	0.741	0.049	-0.452	S
G4		0.966	1.019	0.982	0.03	-0.533	S
G1	Mg ²⁺ mg/l	0.067	0.072	0.07	0.006	-0.504	S
G2		0.095	0.103	0.103	0.005	-1.519	S
G3		0.176	0.186	0.187	0.011	-1.023	S
G4		0.146	0.155	0.155	0.006	-1.51	S
G1	Cl ⁻ mg/l	0.358	0.386	0.377	0.027	-0.726	S
G2		0.417	0.463	0.451	0.027	-1.266	S
G3		1.113	1.16	1.136	0.075	-0.31	S
G4		1.51	1.54	1.488	0.083	0.271	S
G1	Ca ²⁺ mg/l	0.123	0.128	0.127	0.02	-0.214	S
G2		0.144	0.153	0.152	0.018	-0.469	S
G3		0.172	0.192	0.19	0.017	-1.096	S
G4		0.198	0.217	0.217	0.024	-0.779	S
G1	K ⁺ mg/l	0.098	0.102	0.096	0.012	0.153	S
G2		0.158	0.17	0.161	0.016	-0.179	S
G3		0.167	0.238	0.23	0.021	-3.039	U
G4		0.198	0.272	0.267	0.02	-3.423	U
G1	pH pH units	5.22	5.29	5.32	0.136	-0.734	S
G2		5.09	5.14	5.153	0.097	-0.655	S
G3		5.05	5.1	5.068	0.1	-0.178	S
G4		5.11	5.17	5.164	0.102	-0.527	S
G1	Cond µS/cm	6.8	7.005	7.159	0.928	-0.386	S
G2		9.4	9.7	9.727	0.649	-0.503	S
G3		16.3	16.9	17.216	1.197	-0.765	S
G4		17.3	18.37	18.377	0.882	-1.221	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
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EMEP – 36th 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⁻ mg S/l	0.247	0.251	0.247	0.009	-0.035	S
G2		0.367	0.366	0.364	0.023	0.114	S
G3		0.528	0.527	0.525	0.025	0.157	S
G4		0.465	0.463	0.459	0.021	0.29	S
G1	NH ₄ ⁺ mg N/l	0.11	0.107	0.105	0.02	0.231	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.485	0.481	0.489	0.029	-0.148	S
G4		0.573	0.561	0.574	0.036	-0.029	S
G1	NO ₃ ⁻ mg N/l	0.157	0.165	0.162	0.023	-0.229	S
G2		0.248	0.26	0.263	0.014	-1.111	S
G3		0.512	0.577	0.575	0.027	-2.343	Q
G4		0.639	0.67	0.665	0.028	-0.923	S
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	0.35	0.386	0.377	0.027	-1.035	S
G2		0.421	0.463	0.451	0.027	-1.122	S
G3		1.048	1.16	1.136	0.075	-1.179	S
G4		1.379	1.54	1.488	0.083	-1.311	S
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	-999	0.102	0.096	0.012		B
G2		-999	0.17	0.161	0.016		B
G3		-999	0.238	0.23	0.021		B
G4		-999	0.272	0.267	0.02		B
G1	pH pH units	5.38	5.29	5.32	0.136	0.446	S
G2		5.11	5.14	5.153	0.097	-0.448	S
G3		4.97	5.1	5.068	0.1	-0.975	Q
G4		5.12	5.17	5.164	0.102	-0.429	S
G1	Cond µS/cm	6.9	7.005	7.159	0.928	-0.279	S
G2		8.9	9.7	9.727	0.649	-1.274	S
G3		15.3	16.9	17.216	1.197	-1.6	S
G4		16.6	18.37	18.377	0.882	-2.015	S

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NO-9296 TROMSØ, Norway
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Besøk/visit: Hjalmar Johansens gt. 14, 9007 Tromsø

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EMEP – 36th 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⁻ mg S/l	0.239	0.251	0.247	0.009	-0.93	S
G2		0.355	0.366	0.364	0.023	-0.386	S
G3		0.518	0.527	0.525	0.025	-0.264	S
G4		0.452	0.463	0.459	0.021	-0.334	S
G1	NH ₄ ⁺ mg N/l	0.093	0.107	0.105	0.02	-0.631	S
G2		0.116	0.134	0.134	0.015	-1.182	S
G3		0.476	0.481	0.489	0.029	-0.461	S
G4		0.549	0.561	0.574	0.036	-0.692	S
G1	NO ₃ ⁻ mg N/l	0.156	0.165	0.162	0.023	-0.269	S
G2		0.248	0.26	0.263	0.014	-1.097	S
G3		0.544	0.577	0.575	0.027	-1.152	S
G4		0.644	0.67	0.665	0.028	-0.754	S
G1	Na ⁺ mg/l	0.232	0.286	0.28	0.021	-2.31	Q
G2		0.336	0.408	0.405	0.021	-3.284	Q
G3		0.635	0.769	0.741	0.049	-2.153	Q
G4		0.836	1.019	0.982	0.03	-4.916	Q
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.101	0.103	0.103	0.005	-0.318	S
G3		0.184	0.186	0.187	0.011	-0.263	S
G4		0.152	0.155	0.155	0.006	-0.483	S
G1	Cl ⁻ mg/l	0.337	0.386	0.377	0.027	-1.508	S
G2		0.403	0.463	0.451	0.027	-1.781	S
G3		1.077	1.16	1.136	0.075	-0.789	S
G4		1.357	1.54	1.488	0.083	-1.576	S
G1	Ca ²⁺ mg/l	0.124	0.128	0.127	0.02	-0.165	S
G2		0.147	0.153	0.152	0.018	-0.298	S
G3		0.189	0.192	0.19	0.017	-0.069	S
G4		0.213	0.217	0.217	0.024	-0.151	S
G1	K ⁺ mg/l	0.078	0.102	0.096	0.012	-1.47	Q
G2		0.13	0.17	0.161	0.016	-1.897	Q
G3		0.195	0.238	0.23	0.021	-1.694	Q
G4		0.22	0.272	0.267	0.02	-2.331	Q
G1	pH pH units	5.18	5.29	5.32	0.136	-1.029	Q
G2		5.06	5.14	5.153	0.097	-0.966	S
G3		5.07	5.1	5.068	0.1	0.021	S
G4		5.17	5.17	5.164	0.102	0.063	S
G1	Cond µS/cm	7.8	7.005	7.159	0.928	0.691	S
G2		9.3	9.7	9.727	0.649	-0.657	S
G3		16.5	16.9	17.216	1.197	-0.598	S
G4		18	18.37	18.377	0.882	-0.428	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 – 36th 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⁻ mg S/l	0.26	0.251	0.247	0.009	1.389	S
G2		0.38	0.366	0.364	0.023	0.683	S
G3		0.53	0.527	0.525	0.025	0.222	S
G4		0.46	0.463	0.459	0.021	0.041	S
G1	NH ₄ ⁺ mg N/l	0.116	0.107	0.105	0.02	0.535	S
G2		0.142	0.134	0.134	0.015	0.515	S
G3		0.503	0.481	0.489	0.029	0.477	S
G4		0.587	0.561	0.574	0.036	0.359	S
G1	NO ₃ ⁻ mg N/l	0.176	0.165	0.162	0.023	0.615	S
G2		0.271	0.26	0.263	0.014	0.557	S
G3		0.596	0.577	0.575	0.027	0.776	S
G4		0.68	0.67	0.665	0.028	0.541	S
G1	Na ⁺ mg/l	0.25	0.286	0.28	0.021	-1.448	S
G2		0.36	0.408	0.405	0.021	-2.141	S
G3		0.68	0.769	0.741	0.049	-1.242	S
G4		0.9	1.019	0.982	0.03	-2.758	S
G1	Mg ²⁺ mg/l	0.059	0.072	0.07	0.006	-1.766	Q
G2		0.095	0.103	0.103	0.005	-1.519	S
G3		0.175	0.186	0.187	0.011	-1.118	S
G4		0.144	0.155	0.155	0.006	-1.853	S
G1	Cl ⁻ mg/l	0.365	0.386	0.377	0.027	-0.465	S
G2		0.455	0.463	0.451	0.027	0.132	S
G3		1.135	1.16	1.136	0.075	-0.018	S
G4		1.515	1.54	1.488	0.083	0.331	S
G1	Ca ²⁺ mg/l	0.1	0.128	0.127	0.02	-1.35	Q
G2		0.135	0.153	0.152	0.018	-0.981	S
G3		0.18	0.192	0.19	0.017	-0.612	S
G4		0.19	0.217	0.217	0.024	-1.115	S
G1	K ⁺ mg/l	0.09	0.102	0.096	0.012	-0.496	S
G2		0.15	0.17	0.161	0.016	-0.669	S
G3		0.22	0.238	0.23	0.021	-0.493	S
G4		0.255	0.272	0.267	0.02	-0.593	S
G1	pH pH units	5.36	5.29	5.32	0.136	0.299	S
G2		5.18	5.14	5.153	0.097	0.276	S
G3		5.1	5.1	5.068	0.1	0.32	S
G4		5.23	5.17	5.164	0.102	0.654	S
G1	Cond µS/cm	7	7.005	7.159	0.928	-0.171	S
G2		9	9.7	9.727	0.649	-1.12	S
G3		16	16.9	17.216	1.197	-1.016	S
G4		17	18.37	18.377	0.882	-1.561	S

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Framsenteret / The Fram Centre
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Phone: +47 77 75 03 75/Fax: +47 77 75 03 76
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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 – 36th 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⁻ mg S/l	0.243	0.251	0.247	0.009	-0.488	S
G2		0.349	0.366	0.364	0.023	-0.642	S
G3		0.505	0.527	0.525	0.025	-0.789	S
G4		0.447	0.463	0.459	0.021	-0.568	S
G1	NH ₄ ⁺ mg N/l	0.13	0.107	0.105	0.02	1.246	Q
G2		0.14	0.134	0.134	0.015	0.384	S
G3		0.5	0.481	0.489	0.029	0.373	S
G4		0.59	0.561	0.574	0.036	0.442	S
G1	NO ₃ ⁻ mg N/l	0.17	0.165	0.162	0.023	0.35	S
G2		0.27	0.26	0.263	0.014	0.485	S
G3		0.58	0.577	0.575	0.027	0.183	S
G4		0.69	0.67	0.665	0.028	0.9	S
G1	Na ⁺ mg/l	0.285	0.286	0.28	0.021	0.228	S
G2		0.411	0.408	0.405	0.021	0.288	S
G3		0.751	0.769	0.741	0.049	0.197	S
G4		0.995	1.019	0.982	0.03	0.445	S
G1	Mg ²⁺ mg/l	0.074	0.072	0.07	0.006	0.6	S
G2		0.106	0.103	0.103	0.005	0.683	S
G3		0.192	0.186	0.187	0.011	0.498	S
G4		0.159	0.155	0.155	0.006	0.715	S
G1	Cl ⁻ mg/l	0.34	0.386	0.377	0.027	-1.396	S
G2		0.45	0.463	0.451	0.027	-0.052	S
G3		1.21	1.16	1.136	0.075	0.979	S
G4		1.51	1.54	1.488	0.083	0.271	S
G1	Ca ²⁺ mg/l	0.131	0.128	0.127	0.02	0.181	S
G2		0.155	0.153	0.152	0.018	0.157	S
G3		0.193	0.192	0.19	0.017	0.173	S
G4		0.221	0.217	0.217	0.024	0.185	S
G1	K ⁺ mg/l	0.101	0.102	0.096	0.012	0.397	S
G2		0.166	0.17	0.161	0.016	0.312	S
G3		0.233	0.238	0.23	0.021	0.131	S
G4		0.272	0.272	0.267	0.02	0.251	S
G1	pH pH units	5.22	5.29	5.32	0.136	-0.734	S
G2		5.15	5.14	5.153	0.097	-0.034	S
G3		5.05	5.1	5.068	0.1	-0.178	S
G4		5.09	5.17	5.164	0.102	-0.724	S
G1	Cond µS/cm	7	7.005	7.159	0.928	-0.171	S
G2		10	9.7	9.727	0.649	0.421	S
G3		18	16.9	17.216	1.197	0.655	S
G4		19	18.37	18.377	0.882	0.706	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
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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 – 36th 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⁻ mg S/l	0.325	0.251	0.247	0.009	8.567	U
G2		0.455	0.366	0.364	0.023	3.889	U
G3		0.59	0.527	0.525	0.025	2.649	Q
G4		0.53	0.463	0.459	0.021	3.324	Q
G1	NH ₄ ⁺ mg N/l	0.106	0.107	0.105	0.02	0.028	S
G2		0.123	0.134	0.134	0.015	-0.725	S
G3		0.487	0.481	0.489	0.029	-0.079	S
G4		0.565	0.561	0.574	0.036	-0.25	S
G1	NO ₃ ⁻ mg N/l	0.166	0.165	0.162	0.023	0.173	S
G2		0.263	0.26	0.263	0.014	-0.018	S
G3		0.569	0.577	0.575	0.027	-0.225	S
G4		0.657	0.67	0.665	0.028	-0.287	S
G1	Na ⁺ mg/l	0.268	0.286	0.28	0.021	-0.586	S
G2		0.379	0.408	0.405	0.021	-1.236	S
G3		0.706	0.769	0.741	0.049	-0.715	S
G4		0.928	1.019	0.982	0.03	-1.814	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.187	0.186	0.187	0.011	0.023	S
G4		0.156	0.155	0.155	0.006	0.201	S
G1	Cl ⁻ mg/l	0.36	0.386	0.377	0.027	-0.651	S
G2		0.421	0.463	0.451	0.027	-1.119	S
G3		1.08	1.16	1.136	0.075	-0.749	S
G4		1.45	1.54	1.488	0.083	-0.454	S
G1	Ca ²⁺ mg/l	0.128	0.128	0.127	0.02	0.033	S
G2		0.149	0.153	0.152	0.018	-0.185	S
G3		0.188	0.192	0.19	0.017	-0.129	S
G4		0.212	0.217	0.217	0.024	-0.193	S
G1	K ⁺ mg/l	0.097	0.102	0.096	0.012	0.072	S
G2		0.158	0.17	0.161	0.016	-0.179	S
G3		0.228	0.238	0.23	0.021	-0.109	S
G4		0.257	0.272	0.267	0.02	-0.494	S
G1	pH pH units	4.26	5.29	5.32	0.136	-7.813	U
G2		4.44	5.14	5.153	0.097	-7.385	U
G3		4.03	5.1	5.068	0.1	-10.34	U
G4		4	5.17	5.164	0.102	-11.453	U
G1	Cond µS/cm	33.4	7.005	7.159	0.928	28.264	U
G2		21.8	9.7	9.727	0.649	18.607	U
G3		55.4	16.9	17.216	1.197	31.903	U
G4		57.9	18.37	18.377	0.882	44.801	U

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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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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th 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⁻ mg S/l	0.238	0.251	0.247	0.009	-1.04	S
G2		0.343	0.366	0.364	0.023	-0.899	S
G3		0.505	0.527	0.525	0.025	-0.789	S
G4		0.443	0.463	0.459	0.021	-0.756	S
G1	NH ₄ ⁺ mg N/l	0.106	0.107	0.105	0.02	0.028	S
G2		0.132	0.134	0.134	0.015	-0.138	S
G3		0.498	0.481	0.489	0.029	0.303	S
G4		0.577	0.561	0.574	0.036	0.082	S
G1	NO ₃ ⁻ mg N/l	0.167	0.165	0.162	0.023	0.217	S
G2		0.252	0.26	0.263	0.014	-0.809	S
G3		0.574	0.577	0.575	0.027	-0.04	S
G4		0.67	0.67	0.665	0.028	0.181	S
G1	Na ⁺ mg/l	0.279	0.286	0.28	0.021	-0.059	S
G2		0.386	0.408	0.405	0.021	-0.903	S
G3		0.716	0.769	0.741	0.049	-0.512	S
G4		0.959	1.019	0.982	0.03	-0.769	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	0.048	S
G2		0.097	0.103	0.103	0.005	-1.058	S
G3		0.178	0.186	0.187	0.011	-0.833	S
G4		0.148	0.155	0.155	0.006	-1.168	S
G1	Cl ⁻ mg/l	0.364	0.386	0.377	0.027	-0.502	S
G2		0.434	0.463	0.451	0.027	-0.641	S
G3		1.098	1.16	1.136	0.075	-0.51	S
G4		1.493	1.54	1.488	0.083	0.065	S
G1	Ca ²⁺ mg/l	0.125	0.128	0.127	0.02	-0.115	S
G2		0.142	0.153	0.152	0.018	-0.583	S
G3		0.187	0.192	0.19	0.017	-0.19	S
G4		0.213	0.217	0.217	0.024	-0.151	S
G1	K ⁺ mg/l	0.099	0.102	0.096	0.012	0.218	S
G2		0.161	0.17	0.161	0.016	0.006	S
G3		0.227	0.238	0.23	0.021	-0.157	S
G4		0.259	0.272	0.267	0.02	-0.395	S
G1	pH pH units	5.36	5.29	5.32	0.136	0.299	S
G2		5.14	5.14	5.153	0.097	-0.138	S
G3		5.01	5.1	5.068	0.1	-0.576	S
G4		5.09	5.17	5.164	0.102	-0.724	S
G1	Cond µS/cm	21.2	7.005	7.159	0.928	15.124	U
G2		12.6	9.7	9.727	0.649	4.428	U
G3		18.5	16.9	17.216	1.197	1.073	S
G4		19.5	18.37	18.377	0.882	1.273	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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EMEP – 36th 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⁻ mg S/l	0.228	0.251	0.247	0.009	-2.145	S
G2		0.343	0.366	0.364	0.023	-0.899	S
G3		0.488	0.527	0.525	0.025	-1.477	S
G4		0.413	0.463	0.459	0.021	-2.163	Q
G1	NH ₄ ⁺ mg N/l	0.082	0.107	0.105	0.02	-1.189	Q
G2		0.093	0.134	0.134	0.015	-2.684	U
G3		0.385	0.481	0.489	0.029	-3.621	Q
G4		0.466	0.561	0.574	0.036	-2.989	Q
G1	NO ₃ ⁻ mg N/l	0.158	0.165	0.162	0.023	-0.181	S
G2		0.26	0.26	0.263	0.014	-0.234	S
G3		0.55	0.577	0.575	0.027	-0.93	S
G4		0.646	0.67	0.665	0.028	-0.682	S
G1	Na ⁺ mg/l	0.221	0.286	0.28	0.021	-2.836	Q
G2		0.371	0.408	0.405	0.021	-1.617	S
G3		0.709	0.769	0.741	0.049	-0.654	S
G4		1.087	1.019	0.982	0.03	3.546	S
G1	Mg ²⁺ mg/l	0.057	0.072	0.07	0.006	-2.082	Q
G2		0.133	0.103	0.103	0.005	6.088	U
G3		0.182	0.186	0.187	0.011	-0.453	S
G4		0.151	0.155	0.155	0.006	-0.655	S
G1	Cl ⁻ mg/l	0.377	0.386	0.377	0.027	-0.018	S
G2		0.44	0.463	0.451	0.027	-0.42	S
G3		1.067	1.16	1.136	0.075	-0.921	S
G4		1.54	1.54	1.488	0.083	0.633	S
G1	Ca ²⁺ mg/l	0.303	0.128	0.127	0.02	8.677	U
G2		0.325	0.153	0.152	0.018	9.832	U
G3		0.339	0.192	0.19	0.017	8.993	U
G4		0.387	0.217	0.217	0.024	7.142	U
G1	K ⁺ mg/l	0.07	0.102	0.096	0.012	-2.119	U
G2		0.137	0.17	0.161	0.016	-1.467	Q
G3		0.196	0.238	0.23	0.021	-1.646	Q
G4		0.303	0.272	0.267	0.02	1.79	S
G1	pH pH units	5.28	5.29	5.32	0.136	-0.291	S
G2		5.28	5.14	5.153	0.097	1.312	Q
G3		5.08	5.1	5.068	0.1	0.121	S
G4		5.21	5.17	5.164	0.102	0.457	S
G1	Cond µS/cm	6.7	7.005	7.159	0.928	-0.494	S
G2		9.4	9.7	9.727	0.649	-0.503	S
G3		15.9	16.9	17.216	1.197	-1.099	S
G4		16.9	18.37	18.377	0.882	-1.675	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

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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 – 36th 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⁻ mg S/l	0.234	0.251	0.247	0.009	-1.482	S
G2		0.348	0.366	0.364	0.023	-0.685	S
G3		0.514	0.527	0.525	0.025	-0.425	S
G4		0.445	0.463	0.459	0.021	-0.662	S
G1	NH ₄ ⁺ mg N/l	0.104	0.107	0.105	0.02	-0.073	S
G2		0.122	0.134	0.134	0.015	-0.791	S
G3		0.514	0.481	0.489	0.029	0.859	S
G4		0.6	0.561	0.574	0.036	0.718	S
G1	NO ₃ ⁻ mg N/l	0.154	0.165	0.162	0.023	-0.357	S
G2		0.247	0.26	0.263	0.014	-1.169	S
G3		0.562	0.577	0.575	0.027	-0.485	S
G4		0.653	0.67	0.665	0.028	-0.431	S
G1	Na ⁺ mg/l	0.27	0.286	0.28	0.021	-0.49	S
G2		0.392	0.408	0.405	0.021	-0.617	S
G3		0.738	0.769	0.741	0.049	-0.067	S
G4		0.99	1.019	0.982	0.03	0.276	S
G1	Mg ²⁺ mg/l	0.085	0.072	0.07	0.006	2.335	Q
G2		0.11	0.103	0.103	0.005	1.484	S
G3		0.204	0.186	0.187	0.011	1.64	S
G4		0.171	0.155	0.155	0.006	2.768	S
G1	Cl ⁻ mg/l	0.363	0.386	0.377	0.027	-0.54	S
G2		0.439	0.463	0.451	0.027	-0.457	S
G3		1.141	1.16	1.136	0.075	0.062	S
G4		1.508	1.54	1.488	0.083	0.247	S
G1	Ca ²⁺ mg/l	0.194	0.128	0.127	0.02	3.293	U
G2		0.182	0.153	0.152	0.018	1.694	Q
G3		0.211	0.192	0.19	0.017	1.26	S
G4		0.261	0.217	0.217	0.024	1.861	Q
G1	K ⁺ mg/l	0.085	0.102	0.096	0.012	-0.902	Q
G2		0.146	0.17	0.161	0.016	-0.915	S
G3		0.226	0.238	0.23	0.021	-0.205	S
G4		0.262	0.272	0.267	0.02	-0.246	S
G1	pH pH units	5.425	5.29	5.32	0.136	0.778	Q
G2		5.155	5.14	5.153	0.097	0.017	S
G3		5.12	5.1	5.068	0.1	0.519	S
G4		5.367	5.17	5.164	0.102	2.002	Q
G1	Cond µS/cm	6.7	7.005	7.159	0.928	-0.494	S
G2		9.5	9.7	9.727	0.649	-0.349	S
G3		16.7	16.9	17.216	1.197	-0.431	S
G4		18.1	18.37	18.377	0.882	-0.314	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
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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 – 36th 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⁻ mg S/l	0.236	0.251	0.247	0.009	-1.261	S
G2		0.345	0.366	0.364	0.023	-0.813	S
G3		0.502	0.527	0.525	0.025	-0.911	S
G4		0.433	0.463	0.459	0.021	-1.225	S
G1	NH ₄ ⁺ mg N/l	0.087	0.107	0.105	0.02	-0.935	Q
G2		0.138	0.134	0.134	0.015	0.254	S
G3		0.452	0.481	0.489	0.029	-1.294	S
G4		0.535	0.561	0.574	0.036	-1.08	S
G1	NO ₃ ⁻ mg N/l	0.153	0.165	0.162	0.023	-0.402	S
G2		0.245	0.26	0.263	0.014	-1.312	S
G3		0.539	0.577	0.575	0.027	-1.338	S
G4		0.642	0.67	0.665	0.028	-0.826	S
G1	Na ⁺ mg/l	0.349	0.286	0.28	0.021	3.292	Q
G2		0.424	0.408	0.405	0.021	0.907	S
G3		0.855	0.769	0.741	0.049	2.304	S
G4		1.082	1.019	0.982	0.03	3.378	S
G1	Mg ²⁺ mg/l	0.057	0.072	0.07	0.006	-2.082	Q
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.153	0.155	0.155	0.006	-0.312	S
G1	Cl ⁻ mg/l	0.35	0.386	0.377	0.027	-1.024	S
G2		0.424	0.463	0.451	0.027	-1.008	S
G3		1.058	1.16	1.136	0.075	-1.041	S
G4		1.412	1.54	1.488	0.083	-0.912	S
G1	Ca ²⁺ mg/l	0.145	0.128	0.127	0.02	0.873	S
G2		0.171	0.153	0.152	0.018	1.068	S
G3		0.216	0.192	0.19	0.017	1.562	S
G4		0.27	0.217	0.217	0.024	2.238	Q
G1	K ⁺ mg/l	0.094	0.102	0.096	0.012	-0.171	S
G2		0.17	0.17	0.161	0.016	0.558	S
G3		0.232	0.238	0.23	0.021	0.083	S
G4		0.275	0.272	0.267	0.02	0.4	S
G1	pH pH units	5.52	5.29	5.32	0.136	1.478	U
G2		5.14	5.14	5.153	0.097	-0.138	S
G3		5.12	5.1	5.068	0.1	0.519	S
G4		5.24	5.17	5.164	0.102	0.752	S
G1	Cond µS/cm	6.85	7.005	7.159	0.928	-0.332	S
G2		9.75	9.7	9.727	0.649	0.036	S
G3		17.92	16.9	17.216	1.197	0.589	S
G4		19.23	18.37	18.377	0.882	0.967	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
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th 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⁻ mg S/l	0.244	0.251	0.247	0.009	-0.378	S
G2		0.347	0.366	0.364	0.023	-0.728	S
G3		0.511	0.527	0.525	0.025	-0.547	S
G4		0.442	0.463	0.459	0.021	-0.803	S
G1	NH ₄ ⁺ mg N/l	0.105	0.107	0.105	0.02	-0.022	S
G2		0.135	0.134	0.134	0.015	0.058	S
G3		0.489	0.481	0.489	0.029	-0.009	S
G4		0.566	0.561	0.574	0.036	-0.222	S
G1	NO ₃ ⁻ mg N/l	0.165	0.165	0.162	0.023	0.129	S
G2		0.255	0.26	0.263	0.014	-0.593	S
G3		0.565	0.577	0.575	0.027	-0.373	S
G4		0.657	0.67	0.665	0.028	-0.287	S
G1	Na ⁺ mg/l	0.292	0.286	0.28	0.021	0.563	S
G2		0.412	0.408	0.405	0.021	0.336	S
G3		0.752	0.769	0.741	0.049	0.217	S
G4		0.995	1.019	0.982	0.03	0.445	S
G1	Mg ²⁺ mg/l	0.071	0.072	0.07	0.006	0.127	S
G2		0.101	0.103	0.103	0.005	-0.318	S
G3		0.183	0.186	0.187	0.011	-0.358	S
G4		0.152	0.155	0.155	0.006	-0.483	S
G1	Cl ⁻ mg/l	0.364	0.386	0.377	0.027	-0.502	S
G2		0.436	0.463	0.451	0.027	-0.567	S
G3		1.13	1.16	1.136	0.075	-0.084	S
G4		1.531	1.54	1.488	0.083	0.524	S
G1	Ca ²⁺ mg/l	0.131	0.128	0.127	0.02	0.181	S
G2		0.154	0.153	0.152	0.018	0.1	S
G3		0.2	0.192	0.19	0.017	0.596	S
G4		0.216	0.217	0.217	0.024	-0.025	S
G1	K ⁺ mg/l	0.092	0.102	0.096	0.012	-0.334	S
G2		0.155	0.17	0.161	0.016	-0.363	S
G3		0.222	0.238	0.23	0.021	-0.397	S
G4		0.253	0.272	0.267	0.02	-0.693	S
G1	pH pH units	5.4	5.29	5.32	0.136	0.593	Q
G2		5.23	5.14	5.153	0.097	0.794	S
G3		5.21	5.1	5.068	0.1	1.416	Q
G4		5.27	5.17	5.164	0.102	1.048	S
G1	Cond µS/cm	6.81	7.005	7.159	0.928	-0.376	S
G2		9.72	9.7	9.727	0.649	-0.01	S
G3		17.25	16.9	17.216	1.197	0.029	S
G4		18.33	18.37	18.377	0.882	-0.054	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
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th 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⁻ mg S/l	0.245	0.251	0.247	0.009	-0.267	S
G2		0.36	0.366	0.364	0.023	-0.172	S
G3		0.517	0.527	0.525	0.025	-0.304	S
G4		0.453	0.463	0.459	0.021	-0.287	S
G1	NH ₄ ⁺ mg N/l	0.109	0.107	0.105	0.02	0.18	S
G2		0.134	0.134	0.134	0.015	-0.007	S
G3		0.485	0.481	0.489	0.029	-0.148	S
G4		0.563	0.561	0.574	0.036	-0.305	S
G1	NO ₃ ⁻ mg N/l	0.168	0.165	0.162	0.023	0.262	S
G2		0.263	0.26	0.263	0.014	-0.018	S
G3		0.566	0.577	0.575	0.027	-0.336	S
G4		0.652	0.67	0.665	0.028	-0.467	S
G1	Na ⁺ mg/l	0.292	0.286	0.28	0.021	0.563	S
G2		0.415	0.408	0.405	0.021	0.478	S
G3		0.754	0.769	0.741	0.049	0.258	S
G4		1.008	1.019	0.982	0.03	0.883	S
G1	Mg ²⁺ mg/l	0.077	0.072	0.07	0.006	1.073	S
G2		0.108	0.103	0.103	0.005	1.084	S
G3		0.192	0.186	0.187	0.011	0.498	S
G4		0.16	0.155	0.155	0.006	0.886	S
G1	Cl ⁻ mg/l	0.389	0.386	0.377	0.027	0.429	S
G2		0.465	0.463	0.451	0.027	0.5	S
G3		1.169	1.16	1.136	0.075	0.434	S
G4		1.486	1.54	1.488	0.083	-0.019	S
G1	Ca ²⁺ mg/l	0.131	0.128	0.127	0.02	0.181	S
G2		0.155	0.153	0.152	0.018	0.157	S
G3		0.197	0.192	0.19	0.017	0.414	S
G4		0.219	0.217	0.217	0.024	0.101	S
G1	K ⁺ mg/l	0.103	0.102	0.096	0.012	0.559	S
G2		0.173	0.17	0.161	0.016	0.742	S
G3		0.239	0.238	0.23	0.021	0.419	S
G4		0.274	0.272	0.267	0.02	0.35	S
G1	pH pH units	5.57	5.29	5.32	0.136	1.847	U
G2		5.28	5.14	5.153	0.097	1.312	Q
G3		5.23	5.1	5.068	0.1	1.615	Q
G4		5.75	5.17	5.164	0.102	5.772	U
G1	Cond µS/cm	6.8	7.005	7.159	0.928	-0.386	S
G2		9.7	9.7	9.727	0.649	-0.041	S
G3		17.2	16.9	17.216	1.197	-0.013	S
G4		17.7	18.37	18.377	0.882	-0.768	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 – 36th 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⁻ mg S/l	0.244	0.251	0.247	0.009	-0.378	S
G2		0.361	0.366	0.364	0.023	-0.129	S
G3		0.522	0.527	0.525	0.025	-0.102	S
G4		0.453	0.463	0.459	0.021	-0.287	S
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	0.163	0.165	0.162	0.023	0.04	S
G2		0.262	0.26	0.263	0.014	-0.09	S
G3		0.58	0.577	0.575	0.027	0.183	S
G4		0.675	0.67	0.665	0.028	0.361	S
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	0.082	0.072	0.07	0.006	1.862	S
G2		0.116	0.103	0.103	0.005	2.685	S
G3		0.218	0.186	0.187	0.011	2.971	Q
G4		0.187	0.155	0.155	0.006	5.506	Q
G1	Cl ⁻ mg/l	0.379	0.386	0.377	0.027	0.056	S
G2		0.454	0.463	0.451	0.027	0.095	S
G3		1.145	1.16	1.136	0.075	0.115	S
G4		1.529	1.54	1.488	0.083	0.5	S
G1	Ca ²⁺ mg/l	0.12	0.128	0.127	0.02	-0.362	S
G2		0.13	0.153	0.152	0.018	-1.266	Q
G3		0.204	0.192	0.19	0.017	0.837	S
G4		0.222	0.217	0.217	0.024	0.227	S
G1	K ⁺ mg/l	0.107	0.102	0.096	0.012	0.884	S
G2		0.14	0.17	0.161	0.016	-1.283	Q
G3		0.257	0.238	0.23	0.021	1.284	S
G4		0.281	0.272	0.267	0.02	0.698	S
G1	pH pH units	-999	5.29	5.32	0.136		B
G2		-999	5.14	5.153	0.097		B
G3		-999	5.1	5.068	0.1		B
G4		-999	5.17	5.164	0.102		B
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		-999	16.9	17.216	1.197		B
G4		-999	18.37	18.377	0.882		B

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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
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* Z score is unitless

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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 – 36th 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 [†]
G1	SO ₄ ²⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	0.28	0.286	0.28	0.021	-0.012	S
G2		0.4	0.408	0.405	0.021	-0.236	S
G3		0.72	0.769	0.741	0.049	-0.431	S
G4		0.97	1.019	0.982	0.03	-0.398	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.11	0.103	0.103	0.005	1.484	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.16	0.155	0.155	0.006	0.886	S
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	0.14	0.128	0.127	0.02	0.626	S
G2		0.16	0.153	0.152	0.018	0.441	S
G3		0.2	0.192	0.19	0.017	0.596	S
G4		0.23	0.217	0.217	0.024	0.562	S
G1	K ⁺ mg/l	0.1	0.102	0.096	0.012	0.316	S
G2		0.18	0.17	0.161	0.016	1.171	S
G3		0.25	0.238	0.23	0.021	0.948	S
G4		0.29	0.272	0.267	0.02	1.144	S
G1	pH pH units	5.22	5.29	5.32	0.136	-0.734	S
G2		5.06	5.14	5.153	0.097	-0.966	S
G3		5.02	5.1	5.068	0.1	-0.477	S
G4		5.1	5.17	5.164	0.102	-0.626	S
G1	Cond µS/cm	7.34	7.005	7.159	0.928	0.195	S
G2		10.21	9.7	9.727	0.649	0.745	S
G3		17.91	16.9	17.216	1.197	0.58	S
G4		19.07	18.37	18.377	0.882	0.785	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
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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 – 36th 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⁻ mg S/l	0.255	0.251	0.247	0.009	0.837	S
G2		0.352	0.366	0.364	0.023	-0.514	S
G3		0.534	0.527	0.525	0.025	0.384	S
G4		0.449	0.463	0.459	0.021	-0.475	S
G1	NH ₄ ⁺ mg N/l	0.114	0.107	0.105	0.02	0.434	S
G2		0.133	0.134	0.134	0.015	-0.073	S
G3		0.515	0.481	0.489	0.029	0.894	S
G4		0.595	0.561	0.574	0.036	0.58	S
G1	NO ₃ ⁻ mg N/l	0.17	0.165	0.162	0.023	0.35	S
G2		0.392	0.26	0.263	0.014	9.259	U
G3		0.574	0.577	0.575	0.027	-0.04	S
G4		0.65	0.67	0.665	0.028	-0.538	S
G1	Na ⁺ mg/l	0.241	0.286	0.28	0.021	-1.879	Q
G2		0.259	0.408	0.405	0.021	-6.951	U
G3		0.573	0.769	0.741	0.049	-3.41	U
G4		0.849	1.019	0.982	0.03	-4.477	Q
G1	Mg ²⁺ mg/l	0.081	0.072	0.07	0.006	1.704	S
G2		0.11	0.103	0.103	0.005	1.484	S
G3		0.192	0.186	0.187	0.011	0.498	S
G4		0.166	0.155	0.155	0.006	1.912	S
G1	Cl ⁻ mg/l	0.47	0.386	0.377	0.027	3.446	Q
G2		0.509	0.463	0.451	0.027	2.118	S
G3		1.089	1.16	1.136	0.075	-0.629	S
G4		1.417	1.54	1.488	0.083	-0.852	S
G1	Ca ²⁺ mg/l	0.11	0.128	0.127	0.02	-0.856	S
G2		0.129	0.153	0.152	0.018	-1.323	Q
G3		0.154	0.192	0.19	0.017	-2.183	Q
G4		0.173	0.217	0.217	0.024	-1.827	Q
G1	K ⁺ mg/l	0.105	0.102	0.096	0.012	0.721	S
G2		0.108	0.17	0.161	0.016	-3.247	U
G3		0.152	0.238	0.23	0.021	-3.759	U
G4		0.236	0.272	0.267	0.02	-1.537	S
G1	pH pH units	-999	5.29	5.32	0.136		B
G2		-999	5.14	5.153	0.097		B
G3		-999	5.1	5.068	0.1		B
G4		-999	5.17	5.164	0.102		B
G1	Cond µS/cm	6.5	7.005	7.159	0.928	-0.709	S
G2		8.8	9.7	9.727	0.649	-1.428	S
G3		16.3	16.9	17.216	1.197	-0.765	S
G4		17.6	18.37	18.377	0.882	-0.881	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
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Please check the EMEP intercalibration website for more statistics, Youden plots, updated expected values ect:
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EMEP – 36th 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⁻ mg S/l	0.25	0.251	0.247	0.009	0.285	S
G2		0.34	0.366	0.364	0.023	-1.027	S
G3		0.51	0.527	0.525	0.025	-0.587	S
G4		0.45	0.463	0.459	0.021	-0.428	S
G1	NH ₄ ⁺ mg N/l	0.12	0.107	0.105	0.02	0.738	S
G2		0.14	0.134	0.134	0.015	0.384	S
G3		0.5	0.481	0.489	0.029	0.373	S
G4		0.58	0.561	0.574	0.036	0.165	S
G1	NO ₃ ⁻ mg N/l	0.15	0.165	0.162	0.023	-0.534	S
G2		0.25	0.26	0.263	0.014	-0.953	S
G3		0.56	0.577	0.575	0.027	-0.559	S
G4		0.63	0.67	0.665	0.028	-1.258	S
G1	Na ⁺ mg/l	0.29	0.286	0.28	0.021	0.467	S
G2		0.4	0.408	0.405	0.021	-0.236	S
G3		0.75	0.769	0.741	0.049	0.177	S
G4		0.99	1.019	0.982	0.03	0.276	S
G1	Mg ²⁺ mg/l	0.07	0.072	0.07	0.006	-0.031	S
G2		0.1	0.103	0.103	0.005	-0.518	S
G3		0.19	0.186	0.187	0.011	0.308	S
G4		0.16	0.155	0.155	0.006	0.886	S
G1	Cl ⁻ mg/l	0.4	0.386	0.377	0.027	0.839	S
G2		0.48	0.463	0.451	0.027	1.051	S
G3		1.13	1.16	1.136	0.075	-0.084	S
G4		1.45	1.54	1.488	0.083	-0.454	S
G1	Ca ²⁺ mg/l	0.13	0.128	0.127	0.02	0.132	S
G2		0.15	0.153	0.152	0.018	-0.128	S
G3		0.19	0.192	0.19	0.017	-0.008	S
G4		0.22	0.217	0.217	0.024	0.143	S
G1	K ⁺ mg/l	0.1	0.102	0.096	0.012	0.316	S
G2		0.17	0.17	0.161	0.016	0.558	S
G3		0.24	0.238	0.23	0.021	0.467	S
G4		0.27	0.272	0.267	0.02	0.151	S
G1	pH pH units	5.36	5.29	5.32	0.136	0.299	S
G2		5.19	5.14	5.153	0.097	0.38	S
G3		5.13	5.1	5.068	0.1	0.619	S
G4		5.24	5.17	5.164	0.102	0.752	S
G1	Cond µS/cm	5.4	7.005	7.159	0.928	-1.894	Q
G2		9	9.7	9.727	0.649	-1.12	S
G3		18.2	16.9	17.216	1.197	0.822	S
G4		19.5	18.37	18.377	0.882	1.273	S

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PO Box 100
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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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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 – 36th 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⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	1.731	0.165	0.162	0.023	69.369	U
G2		0.298	0.26	0.263	0.014	2.499	Q
G3		0.768	0.577	0.575	0.027	7.154	U
G4		0.72	0.67	0.665	0.028	1.979	S
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	-999	0.102	0.096	0.012		B
G2		-999	0.17	0.161	0.016		B
G3		-999	0.238	0.23	0.021		B
G4		-999	0.272	0.267	0.02		B
G1	pH pH units	4.51	5.29	5.32	0.136	-5.97	U
G2		4.6	5.14	5.153	0.097	-5.728	U
G3		4.64	5.1	5.068	0.1	-4.263	U
G4		4.96	5.17	5.164	0.102	-2.004	U
G1	Cond µS/cm	7.5	7.005	7.159	0.928	0.368	S
G2		9.3	9.7	9.727	0.649	-0.657	S
G3		16	16.9	17.216	1.197	-1.016	S
G4		17.5	18.37	18.377	0.882	-0.994	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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EMEP – 36th 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⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	-999	0.286	0.28	0.021		B
G2		-999	0.408	0.405	0.021		B
G3		-999	0.769	0.741	0.049		B
G4		-999	1.019	0.982	0.03		B
G1	Mg ²⁺ mg/l	-999	0.072	0.07	0.006		B
G2		-999	0.103	0.103	0.005		B
G3		-999	0.186	0.187	0.011		B
G4		-999	0.155	0.155	0.006		B
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	-999	0.102	0.096	0.012		B
G2		-999	0.17	0.161	0.016		B
G3		-999	0.238	0.23	0.021		B
G4		-999	0.272	0.267	0.02		B
G1	pH pH units	5.33	5.29	5.32	0.136	0.077	S
G2		5.13	5.14	5.153	0.097	-0.241	S
G3		5.16	5.1	5.068	0.1	0.918	S
G4		5.2	5.17	5.164	0.102	0.359	S
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		18	16.9	17.216	1.197	0.655	S
G4		19	18.37	18.377	0.882	0.706	S

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

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EMEP – 36th 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⁻ mg S/l	-999	0.251	0.247	0.009		B
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G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	-999	0.165	0.162	0.023		B
G2		-999	0.26	0.263	0.014		B
G3		-999	0.577	0.575	0.027		B
G4		-999	0.67	0.665	0.028		B
G1	Na ⁺ mg/l	0.257	0.286	0.28	0.021	-1.113	S
G2		0.38	0.408	0.405	0.021	-1.189	S
G3		0.743	0.769	0.741	0.049	0.035	S
G4		1.002	1.019	0.982	0.03	0.681	S
G1	Mg ²⁺ mg/l	0.069	0.072	0.07	0.006	-0.189	S
G2		0.102	0.103	0.103	0.005	-0.117	S
G3		0.188	0.186	0.187	0.011	0.118	S
G4		0.154	0.155	0.155	0.006	-0.141	S
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	0.094	0.128	0.127	0.02	-1.646	U
G2		0.123	0.153	0.152	0.018	-1.664	Q
G3		0.163	0.192	0.19	0.017	-1.639	Q
G4		0.182	0.217	0.217	0.024	-1.45	Q
G1	K ⁺ mg/l	0.087	0.102	0.096	0.012	-0.74	S
G2		0.155	0.17	0.161	0.016	-0.363	S
G3		0.23	0.238	0.23	0.021	-0.013	S
G4		0.267	0.272	0.267	0.02	0.003	S
G1	pH pH units	-999	5.29	5.32	0.136		B
G2		-999	5.14	5.153	0.097		B
G3		-999	5.1	5.068	0.1		B
G4		-999	5.17	5.164	0.102		B
G1	Cond µS/cm	-999	7.005	7.159	0.928		B
G2		-999	9.7	9.727	0.649		B
G3		-999	16.9	17.216	1.197		B
G4		-999	18.37	18.377	0.882		B

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EMEP – 36th 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⁻ mg S/l	0.252	0.251	0.247	0.009	0.506	S
G2		0.369	0.366	0.364	0.023	0.213	S
G3		0.537	0.527	0.525	0.025	0.505	S
G4		0.463	0.463	0.459	0.021	0.182	S
G1	NH ₄ ⁺ mg N/l	0.111	0.107	0.105	0.02	0.282	S
G2		0.136	0.134	0.134	0.015	0.123	S
G3		0.509	0.481	0.489	0.029	0.685	S
G4		0.587	0.561	0.574	0.036	0.359	S
G1	NO ₃ ⁻ mg N/l	0.168	0.165	0.162	0.023	0.262	S
G2		0.263	0.26	0.263	0.014	-0.018	S
G3		0.578	0.577	0.575	0.027	0.109	S
G4		0.667	0.67	0.665	0.028	0.073	S
G1	Na ⁺ mg/l	0.283	0.286	0.28	0.021	0.132	S
G2		0.41	0.408	0.405	0.021	0.24	S
G3		0.755	0.769	0.741	0.049	0.278	S
G4		0.98	1.019	0.982	0.03	-0.061	S
G1	Mg ²⁺ mg/l	0.073	0.072	0.07	0.006	0.442	S
G2		0.103	0.103	0.103	0.005	0.083	S
G3		0.186	0.186	0.187	0.011	-0.072	S
G4		0.154	0.155	0.155	0.006	-0.141	S
G1	Cl ⁻ mg/l	0.395	0.386	0.377	0.027	0.652	S
G2		0.473	0.463	0.451	0.027	0.794	S
G3		1.159	1.16	1.136	0.075	0.301	S
G4		1.529	1.54	1.488	0.083	0.5	S
G1	Ca ²⁺ mg/l	0.129	0.128	0.127	0.02	0.082	S
G2		0.157	0.153	0.152	0.018	0.271	S
G3		0.199	0.192	0.19	0.017	0.535	S
G4		0.22	0.217	0.217	0.024	0.143	S
G1	K ⁺ mg/l	0.114	0.102	0.096	0.012	1.452	S
G2		0.178	0.17	0.161	0.016	1.049	S
G3		0.254	0.238	0.23	0.021	1.14	S
G4		0.289	0.272	0.267	0.02	1.095	S
G1	pH pH units	5.379	5.29	5.32	0.136	0.439	S
G2		5.189	5.14	5.153	0.097	0.369	S
G3		5.108	5.1	5.068	0.1	0.4	S
G4		5.228	5.17	5.164	0.102	0.634	S
G1	Cond µS/cm	7.145	7.005	7.159	0.928	-0.015	S
G2		9.95	9.7	9.727	0.649	0.344	S
G3		17.155	16.9	17.216	1.197	-0.051	S
G4		18.26	18.37	18.377	0.882	-0.133	S

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

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EMEP – 36th 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⁻ mg S/l	-999	0.251	0.247	0.009		B
G2		-999	0.366	0.364	0.023		B
G3		-999	0.527	0.525	0.025		B
G4		-999	0.463	0.459	0.021		B
G1	NH ₄ ⁺ mg N/l	-999	0.107	0.105	0.02		B
G2		-999	0.134	0.134	0.015		B
G3		-999	0.481	0.489	0.029		B
G4		-999	0.561	0.574	0.036		B
G1	NO ₃ ⁻ mg N/l	1.62	0.165	0.162	0.023	64.461	U
G2		0.314	0.26	0.263	0.014	3.65	U
G3		0.8	0.577	0.575	0.027	8.341	U
G4		0.732	0.67	0.665	0.028	2.411	S
G1	Na ⁺ mg/l	0.27	0.286	0.28	0.021	-0.49	S
G2		0.386	0.408	0.405	0.021	-0.903	S
G3		9.92	0.769	0.741	0.049	185.971	U
G4		0.95	1.019	0.982	0.03	-1.072	S
G1	Mg ²⁺ mg/l	0.06	0.072	0.07	0.006	-1.608	Q
G2		0.085	0.103	0.103	0.005	-3.52	Q
G3		1.29	0.186	0.187	0.011	104.92	U
G4		0.13	0.155	0.155	0.006	-4.249	Q
G1	Cl ⁻ mg/l	-999	0.386	0.377	0.027		B
G2		-999	0.463	0.451	0.027		B
G3		-999	1.16	1.136	0.075		B
G4		-999	1.54	1.488	0.083		B
G1	Ca ²⁺ mg/l	-999	0.128	0.127	0.02		B
G2		-999	0.153	0.152	0.018		B
G3		-999	0.192	0.19	0.017		B
G4		-999	0.217	0.217	0.024		B
G1	K ⁺ mg/l	0.081	0.102	0.096	0.012	-1.226	Q
G2		0.125	0.17	0.161	0.016	-2.203	U
G3		1.25	0.238	0.23	0.021	48.973	U
G4		0.25	0.272	0.267	0.02	-0.842	S
G1	pH pH units	5	5.29	5.32	0.136	-2.356	U
G2		4.51	5.14	5.153	0.097	-6.66	U
G3		4.69	5.1	5.068	0.1	-3.765	U
G4		4.93	5.17	5.164	0.102	-2.299	U
G1	Cond µS/cm	7.35	7.005	7.159	0.928	0.206	S
G2		9.31	9.7	9.727	0.649	-0.642	S
G3		16	16.9	17.216	1.197	-1.016	S
G4		17.8	18.37	18.377	0.882	-0.654	S

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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>