EMEP – 42nd intercomparison of analytical methods - % deviation from expected value

Precipitation

Lab no	SO_4^{2-} % deviation from expected				NH_4^+ % deviation from expected				NO_3^- % deviation from expected				Na^+ % deviation from expected				Mg^{2+} % deviation from expected				Cl^- % deviation from expected				Ca^{2+} % deviation from expected				K^+ % deviation from expected				pH pH-units from expected				Cond % deviation from expected			
	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4	G1	G2	G3	G4
3	1	0	-1	2	4	-2	2	-1	0	1	1	0	-8	1	-13	-13	5	3	2	-1	-2	-3	-1	-3	4	7	27	12	0	1	-3	-1	0.2	0.1	0.1	0.0	2	2	1	1
4	2	2	2	17	-4	-6	-5	-6	0	1	1	0	0	2	1	1	-6	-7	-4	-6	3	3	4	2	-4	-4	-2	-3	-9	-9	-11	-12	0.0	0.0	0.0	0.0				
5	-2	-2	-1	-1	4	5	2	3	-3	-2	-3	-3	0	1	1	0	1	2	3	2	-2	0	0	-1	-2	-1	-2	-3	8	9	6	7	0.0	0.0	0.1	0.0	3	3	2	1
6	0	0	1	1	3	-1	-3	-4	0	1	1	1	-1	-2	-2	-3	-8	-10	-10	-11	3	2	2	2	-8	-10	-11	-12	12	2	0	1	-0.2	0.0	0.1	0.0	2	-3	-3	-2
8	-5	-7	-6	-6	-8	-5	-3	-4	-7	3	-1	-1	-3	-2	-3	-4	-10	-11	-9	-11	-7	-5	-5	-6	-11	-9	-11	-10	-7	-4	-4	-4	0.0	-0.1	-0.1	-0.1	-2	-3	-3	-4
10	2	3	6	7	-28	-15	-12	-19	-1	-4	-5	-6	1	2	0	-2	-5	-7	-9	-11	-3	-4	-4	-4	-6	-21	-17	-22	1	4	1	1	-0.1	0.1	0.1	0.1	4	3	2	2
12	-15	-18	-21	-19	-60	-43	-13	-24	-10	-8	-8	-11	-14	-11	-12	-12	-16	-17	-14	-14	-4	-3	-4	-4	-22	-21	-17	-12	-23	-12	-14	-11	-0.2	-0.3	-0.2	-0.3	-1	-2	-2	-2
15	3	2	4	3	19	26	16	18	-2	-2	-2	-2	1	4	3	2	-8	-10	-11	-13	0	1	1	1	-14	-17	-17	-21	-7	-1	1	0	0.1	0.0	0.0	0.0	4	-3	0	2
16	0	-1	1	3	-6	-5	-6	-9	-2	-3	-3	-3	-6	-2	-2	-3	-3	-2	1	0	-4	-3	-2	-3	1	-1	2	4	6	6	2	1	0.0	0.0	0.0	0.0	-1	-3	-5	-4
19	-4	-3	-1	0		-1	3	1	-3	-3	-1	-4	-5	-4	-4	-4	2	3	4	3	-6	-7	-6	-4	-5	0	-4	-4	-3	-1	-4	-4	0.2	0.2	0.2	0.2	10	7	7	6
20	1	2	0	0	-1	1	1	-1	-1	-1	-1	-2	-10	-11	-10	-11	-3	-4	-2	-2	-1	0	1	-1	-7	-9	-7	-8	1	2	1	1	0.1	0.0	0.0	0.0	8	3	4	3
21	2	1	3	3	5	3	2	-2	-1	-1	-1	-2	1	2	1	0	2	2	3	2	-1	-1	-1	-2	-19	-19	-27	-25	6	7	4	6	0.0	0.0	0.0	0.0	-1	-1	-2	-1
22	-9	-10	-11	-11	10	28	9	3	-1	-3	-4	-4	13	-4	-1	3	-13	-3	-1	-14	-10	-10	-11	-12	-17	-1	2	18	-5	11	2	-6	0.0	-0.1	0.0	0.0	25	13	19	30
23	-14	-15	-17	-15	-1	-11	-8	-9	-9	-9	-9	-9	-4	-5	-6	-6	-17	-19	-16	-20	-8	-8	-7	-8	-22	-3	-8	-14	5	-7	-8	-6	-0.1	-0.1	-0.1	0.0	-2	-2	-2	-2
26	-1	-1	0	0	-1	0	2	0	-2	0	-2	-2	-1	0	-1	-2	-1	0	1	1	-1	-1	-1	-1	-2	0	1	0	6	4	1	0	-0.4	0.0	-0.1	-0.4				
27	-1	-1	2	2	6	7	4	3	-1	1	2	2	-4	-4	-4	-6	1	2	6	-1	1	2	3	2	4	-2	-1	-4	5	4	3	2	-0.1	-0.1	-0.1	-0.1	-1	-3	-3	-3
30	-2	-3	-2	-3	-4	1	-1	3	-6	-2	0	0	-3	-1	-1	-2	4	3	4	1	-5	-2	-2	-3	10	5	7	3	-5	-2	0	-10	0.0	0.1	-0.1	0.2	-5	-6	-6	-7
31	-21	-19	-12	-14	1	0	-3	-2	-13	-12	-9	-10	-2	-1	-1	-2	-3	-5	-5	-5	-6	-5	-3	-5	-5	-6	-5	-6	-5	-2	-2	-4	0.0	0.0	-0.1	0.0	6	7	6	9
32	-2	-3	-4	-2	13	9	1	8	-5	-5	-5	-2	0	-3	-3	-4	4	22	36	29	-3	-3	-3	-3	-43	-15	-1	-9	-16	-8	2	1	0.0	0.0	0.0	0.0	1	0	1	1
33	-18	-20	-22	-19	-8	-9	-9	-7	-8	-7	-9	-8	-1	1	1	1	0	6	16	11	-7	-5	-6	-6	-30	-5	-12	-32	10	9	10	11	-0.3	-0.1	-0.1	-0.1	8	8	8	11
34	-17	-20	-19	-17	46	49	31	29	-12	-9	-8	-9	-19	-22	-23	-25	-23	-25	142	197	-27	-24	-22	-24	-31	-17	163	225	164	43	113	194	-0.4	-0.3	-0.2	-0.2	110	15	22	16
35	0	0	0	0	-4	-5	-4	-5	-2	-1	-1	-2	-1	1	0	0	-3	-4	-4	-5	2	1	2	1	-6	-2	-7	-7	-3	2	1	1	0.1	0.1	0.1	0.1	6	3	4	3
36	-5	-6	-4	-4	2	6	-1	-1	-4	-3	-4	-4	-2	-1	-1	-2	0	-3	1	0	-3	-1	0	-1	-1	-2	5	3	3	-1	0	-3	0.0	0.0	-0.1	0.0	0	-2	-1	-1
38	-3	0	1	1	54	37	14	23	-5	-3	-3	-3	-12	-7	-3	-4	-32	6	14	10	-4	-1	-1	-2	22	52	49	32	-9	-4	-15	-14	-0.1	0.0	-0.1	-0.1	3	3	0	1
39	0	-4	-1	2	1	-2	-3	-36	-1	-5	-3	-3	-7	-10	-10	-11	-3	5	2	9	-3	-2	-2	-2	-4	-7	-9	-4	3	5	5	3	-0.4	-0.4	-0.5	-0.6	-1	1	-1	-1
42	-51	-89	-89	-89					-85	-91	-91	-91									-2	-92	-91	-91									-0.1	-0.1	-0.1	0.0	11	9	6	11
45	7	8	11	8	-70	-64	-65	-63	12	9	11	7	-5	-10	-16	-13	-1	-2	0	3	0	2	2	-1	-16	-15	-4	-6	0	-3	-3	0	0.0	0.2	0.2	-0.1	5	3	3	2
46																																	0.1	0.1	0.1	0.1	-4	-4	-5	-5
47	-3	-6	-4	-3	31	27	13	18	3	-1	-3	-2	-2	-3	-4	-6	-2	-2	-1	-1	-5	-4	-4	-5	-11	-1	-7	3	3	0	-1	12	0.2	0.2	0.2	0.2	1	-1	3	0
48	78	13	53	-5	15	8	7	6	8	11	8	5									3	-6	-4	-8																
49	-1	1	3	4	10	12	8	7	0	1	1	1	1	2	2	1	-1	0	0	0	1	1	1	1	-5	-6	-7	-8	3	-1	-2	-3								
50	3	0	0	-1	15	19	16	16	-2	-9	-8	-8	-3	0	-1	-2	1	-1	0	-1	-3	-2	-2	-3	-7	-4	-7	-7	-5	0	-4	-3								
54	-4	-4	-1	0	8	10	5	5	-3	-2	-1	-1	-6	-5	-7	-9	0	-3	-3	-2	-3	-2	-2	-2	-17	-13	-12	-14	1	1	-4	0	0.3	0.3	0.2	0.2	4	8	14	3
110	-15	-4	-1	-3	-14	-14	-12	-12	-5	-2	-3	-3	-5	-4	-4	-5	2	2	4	3	-2	-3	-1	-2	-5	-6	-4	-4	3	1	0	1	0.0	0.0	0.1	0.0		-9	-9	-7
112	2	1	2	2	0	1	2	-1	-1	-2	-3	-4	2	3	3	2	2	1	2	1	2	-1	0	0	-5	-7	-6	-7	8	8	5	8	-0.1	0.1	0.1	0.2	-6	-7	-7	-6
114	-6	-7	-6	-7	4	4	4	2	-3	-3	-3	-3	-9	-8	-7	-7	19	-4	12	31	-1	-1	-1	-2	33	50	57	40	-15	-12	-14	-16	0.1	0.0	0.0	0.0	5	1	0	0
115	-4	-5	-3	-3	7	7	5	5	-7	-6	-6	-6	5	7	6	4	-1	2	4	3	-6	-3	-3	-5	-2	2	2	-4	5	-14	15	-4	0.2	0.2	0.1	0.1	-8	-7	-7	-6
120	-11	-9	-15	-4	42	54	28	17	-5	2	-8	-6	8	8	6	8	9	5	2	18	-5	-3	-5	-6	12	7	3	18	-6	-2	-8	1	0.0	-0.1	0.1	-0.3	21	11	15	17
121	-15	-15	-20	-20	-3	0	-3	-4	-1	-1	-1	-2	-14	-13	-13	-14	-14	-16	-15	-18	-9	-6	-7	-8	-39	-34	-36	-40	-9	-8	-10	-9	0.0	0.0	0.0	0.0	-9	-10	-9	-10
125	-4	-5	-4	-4	1	-2	0	-4	-3	-2	-1	-1	-3	-4	-2	-3	-1	-4	0	-2	-3	-2	-1	-2	-5	-8	-4	-4	0	-1	0	0	0.1	0.1	0.1	0.1	3	2	1	2
145	-5	-5	-3	1	-5	-5	-4	-4	-4	-5	-7	-7	-6	-3	-4	-5	1	-5	-9	-9	-5	-4	-5	-5	-13	-16	-11	-11	-2	-2	-2	-3	-0.1	-0.1	-0.1	-0.2	-1	-3	-2	-3
153	-6	-6	-5	-6	-12	-15	-15	-12	-8	-6	-7	-5	-9	-7	-6	-9	1	29	10	4	-5	-5	-5	-5	11	4	50	30	8	1	3	-1	-0.1	0.0	0.0	-0.1	10	8	8	15
155	2	5	2	8	-11	-15	-10	-12	-1	0	0	0	-3	-3	-3	-4	-1	-1	0	-1	-7	-7	-6	-7	-7	-6	-8	-4	1	1	-1	-1	0.0	0.1	0.0	0.0	2	0	2	2
158	-2	-2	-1	-1	-3	-2	-3	-4	-3	-3	-3	-3	-1	0	0	-1	-2	0	2	2	1	1	1	0	-4	-4	-4	-4	3	3	1	1	0.0	0.0	-0.1	-0.1	4	1	2	3
166	-2	-4	-3	-3	-9	-8	-4	-5	-2	-1	-1	-2	-8	-6	-6	-8	1	2	3	1	-3	-2	-1	-2	-2	4	9	8					0.1	0.1	0.1	0.1	3	2	3	2
178	-12	-11	-7	-3	-49	-19	-8	-6	-13	-11	-8	-5	-17	-10	-10	-14	-3	5	2	9	-9	-9	-4	0	-4	0	7	-4	-23	-6	0	-11	-0.1	0.1	0.1	0.1	1	-4	-7	-9
187					22	-16	-22	-3	-23	-19	-16	-17																									17	6	11	12
200	-4	-5	-5	-4	7	7	4	4	-6	-4	-4	-2	-3	-1	-1	-1	12	14	15	16	-2	-1	-1	0	-8	-7	-7	1	-3	1	0	1					0	0	1	0
203									-7	-5	-5	-5	-3	-9	-8	-11	-10	-4	0	-11					11	4	7	9	-2	1	16	5								
207	-5	1	0	6	-13	1	9	4	-9	-9	-8	-10	-2	-1	1	-1	-9	-9	-8	-11	-3	-4	-3	-3	-22	-24	-23	-27	-9	-2	-3	-6								
209	-5	-22	-7	-6	-21	2	25	24	15	2	-2	-4	8	3	5	12					4	-9	-6	0					224	112	85	183	-0.3	-0.3	-0.3	-0.5	-1	-3	-1	9
211	-3	-5	-3	-8	1	-3	-12	-5	-5	1	-1	-9	7	8	9	7	10	13	12	16	-4	-5	-2	-9	0	1	4	1	13	8	13	14	0.0	-0.1	-0.1	-0.1	-4	-3	-4	-4

SO_4^{2-} and NO_3^-: between ±10 and 20%

SO_4^{2-} and NO_3^-: more than ±20%

NH_4^+, Cl^-, Na^+, Mg^{2+}, Ca^{2+}, K^+ and cond: between ±15 and 25%

NH_4^+, Cl^-, Na^+, Mg^{2+}, Ca^{2+}, K^+ and cond: more than ±25%

pH: between ±0.1 -0.2 pH-units

pH: more than ±0.2 pH-units