EMEP – 40th intercomparison of analytical methods - % deviation from expected value

Precipitation

Lab no	SO₄²⁻ G1	G2	G3	G4	NH₄⁺ G1	G2	G3	G4	NO₃⁻ G1	G2	G3	G4	Na⁺ G1	G2	G3	G4	Mg²⁺ G1	G2	G3	G4	Cl⁻ G1	G2	G3	G4	Ca²⁺ G1	G2	G3	G4	K⁺ G1	G2	G3	G4	pH G1	G2	G3	G4	Cond G1	G2	G3	G4
3	-3	-1	-3	-7	12	16	18	18	-1	-1	-3	-3	20	-3	-5	-3	-3	-6	-5	-3	-6	-4	-3	-4	2	-8	-7	-5	2	-3	-4	-5	-0.36	0.00	0.00	-0.05	0	0	2	3
4	1	-2	-2	-1	-2	-4	-3	-4	1	0	1	1	0	1	0	1	-10	-7	-10	-9	1	-1	1	0	-11	-16	-16	-15	-14	-13	-15	-14	0.07	0.07	0.11	0.06				
5	-1	-1	3	3	0	-1	-2	-2	1	0	2	0	1	1	1	1	2	0	1	-2	-2	-2	-2	-2	3	3	3	3	3	3	3	3	0.08	0.01	0.10	0.05	3	1	2	3
6	1	1	1	1	7	6	-5	6	-6	0	0	0	-2	-2	-2	-8	-2	-5	-5	-8	-2	-1	-1	-1	-14	-14	-15	-23	-1	-1	-1	-2	-0.05	-0.10	0.05	0.05	-8	-7	1	3
7	0	-7	-13	0	-1	-3	-5	-4	0	0	-3	-4	-5	-5	-6	-5	-3	-1	2	8	1	-1	3	2	-8	-8	-8	-6	-2	-3	-2	-2								
8	-3	-1	-3	-4	-2	-3	-4	-4	-4	-5	-1	0	-1	0	-1	0	-1	-6	-7	-10	-1	0	-1	-1	-4	-11	-6	-6					-0.02	0.00	0.05	0.00	0	2	2	2
10	1	3	2	6	-5	-9	-10	-9	-3	-1	-1	0	1	1	4	0	-3	-8	-6	-14	0	3	8	0	-11	-14	-19	-30	-2	-2	-4	-5	0.07	0.01	0.03	0.06	4	2	6	6
12	-3	-8	-20	-15	12	10	7	9	2	0	1	2	-5	-7	-6	-4	-6	2	-3	-14	-4	-5	-3	-3	-14	-14	-17	-22	-4	-3	-5	-5	0.37	0.30	0.28	0.33	3	2	8	12
15	-5	-4	-5	-5	14	11	10	13	0	-1	1	-1	1	1	0	1	0	-4	-8	-10	-6	-5	-5	-5	-8	-11	-17	-16	-1	0	-2	-3	-0.06	-0.06	0.02	-0.03	-3	3		
16	0	-1	0	-2	0	0	-3	2	-1	-1	0	0	3	3	-1	0	-3	-4	-5	-3	-2	-2	-1	-1	0	-4	-2	-3	-1	-1	-1	-2	0.11	0.14	0.09	0.06	2	4	2	1
19	-3	-6	-7	-11	-5	-9	-9	-8	-3	-2	-4	-4	-1	-3	-2	-2	4	3	8	6	-11	-8	-7	-7	-2	-2	-3	-3	-4	-6	-6	-6	-0.11	-0.17	-0.08	-0.09	-2	-1	16	14
20	0	0	0	-2	1	2	2	2	-2	-2	-1	-1	-6	-6	-5	-7	-2	-3	-1	-2	1	0	-1	-1	-5	-5	-9	-9	-2	-3	-3	-1	0.02	0.01	0.06	0.01	5	5	9	8
21	1	0	0	-2	2	1	-1	-2	1	0	1	1	-2	-1	-1	-1	4	3	2	3	-1	-1	-1	-1	-3	-5	-8	-12	3	3	3	3	0.01	0.00	0.04	0.01	1	0	2	2
22	-18	-78	-87	-89	-32	-6	-4	-9	8	-36	-5	-6	-13	-10	-11	-12	131	137	154	175	10	-14	-9	-10	23	49	49	73	-6	-8	-9	-7	0.04	0.00	0.00	0.01	11	7	14	17
23	-8	-11	-11	-15	-12	-6	-7	-7	4	3	4	4	-7	-10	-9	-7	-43	-17	-23	-10	-6	-7	-6	-7	-27	-35	-37	-36	-11	-15	-20	-14	0.44	0.43	0.40	0.38	-10	-11	-8	-8
24	3	1	1	0					3	2	2	2									6	2	0	2													6	2	1	3
26	-1	-1	-2	0	-5	0	1	1	-1	-2	0	1									0	-1	2	2									0.22	-0.26	-0.18	-0.19				
27	3	4	3	1	1	-2	-3	-4	1	-1	-2	2	-4	-7	-5	-6	1	-1	0	1	2	0	2	3	-2	-3	-2	-2	-2	-3	-2	-2	0.01	0.01	0.05	0.03	0	0	5	3
30	3	-7	-10	-16	11	10	9	10	-3	-3	-5	-5	-2	-2	-2	-2	16	12	8	8	0	2	-3	-1	56	54	48	60	25	22	23	25	-0.15	-0.08	-0.06	-0.06	-1	-2	0	0
31	-9	-9	-9	-8	7	6	6	17	-2	-2	-2	-2	-4	-4	-4	-4	-2	-5	-6	-5	-5	-5	-6	-5	-4	-6	-4	-4	-1	-4	-5	-4	-0.17	-0.11	-0.09	-0.08	6	5	11	9
32	0	0	0	-1	0	0	0	0	0	0	-1	-1	-2	-1	2	3					0	0	-1	-1	-1	1	0	1					-0.20	-0.45	-0.49	-0.03	0	0	0	2
33	-1	-4	-5	-2	3	5	3	-1	-3	-3	-3	-2	-8	-5	-8	-5	2	2	6	12	-11	-10	-11	-9	-1	-6	-17	-10	-3	-3	-2	-2	-0.17	-0.05	0.01	-0.02	-1	5	7	7
34	-3	7	12	33	-46	-37	-41	-83	-5	-5	-3	-3	5	24	3	6	20	33	20	18	-7	10	-8	-10	1	12	13	13	456	64	108	74	-0.01	-0.45	-0.06	-0.33	882	470	1613	555
35	2	1	3	3	1	-1	0	0	4	3	5	4	2	1	2	2	4	3	3	1	0	1	0	0	2	1	1	1					-0.40	-0.40	-0.49	-0.39				
36	0	-1	-1	-2	-17	-2	-2	0	-3	-3	-2	-2	0	-1	1	0	1	1	3	5	-3	-2	-3	-2	1	-2	1	2	-2	-6	-3	-7	0.10	-0.19	-0.07	-0.05	4	0	2	1
38	1	-1	0	0	6	5	5	-5	0	-1	-2	-2	-9	-8	-11	-10	-1	5	5	12	-2	-2	-1	-2		10	20	62	-2	0	-4	-3	-0.02	-0.02	0.00	0.06	1	0	4	7
39	6	5	4	-4	2	2	2	2	-3	-3	-4	-3	-1	-1	0	0	2	2	3	3	-3	-3	0	0	0	-1	0	5	0	-1	0	1	0.08	0.17	0.12	0.07	6	1	3	3
40	7	17	-23	66	-28	-32	-45	-40	-5	2	16	4									3	11	12	18									0.21	0.11	0.07	0.15	-8	-8	-8	-1
43	1	0	-2	1	135	91	36	8	-7	72	47	55									32	-31	-22	24									0.27	0.30	0.41	0.39	-1	-1	2	4
45													12	7	12	7	11	9	12	12	1	1	1	1	5	4	6	7	7	6	7	3								
46																																	0.04	0.04	0.08	0.12	-1	0	0	1
49	-2	-5	-7	-7	8	2	6	6	-1	-3	-5	-5	0	1	0	2	5	3	3	6	0	-2	-4	-3	-4	-4	-6	-6												
50	-4	-7	-9	-11	-1	-2	0	-12	-1	0	-2	-2	-8	-7	-7	-7	-4	-9	-10	-13	-3	-2	-4	-2	-35	-35	-35	-33	-6	-17	-7	-4	-0.11	-0.07	0.20	-0.08	5	4	9	8
53	3	20	28	53	-79	-72	-89	-89	13	12	21	22	-11	-9	-12	-9	9	12	16	18	11	-1	4	2	16	32	46	57	-4	-1	1	1	-0.38	-0.20	-0.07	-0.05	-1	1	3	2
54	174	162	147	166	12	11	14	11	-7	-10	-16	-20	-12	-13	-16	-16	-6	-9	-10	-11	-4	-7	-6	-4	-13	-14	-19	-21	-6	-8	-10	-11								
110	-5	-2	-6	-13	-4	-6	-6	-13	-5	-5	-9	-8	-6	-6	-6	-4	0	-1	0	2	-5	-10	-14	-10	-15	-16	-19	-29	-11	-9	-12	-15	0.20	0.23	0.21	0.23	-5	-6	-5	-4
112	3	3	3	2	2	2	1	-6	-1	-2	-1	-1	2	3	3	4	2	1	1	1	-4	-5	-1	-2	-4	-4	-5	0	1	2	0	4	-0.13	-0.07	-0.05	0.01	-7	-7	-8	-7
114	-4	-4	-3	-2	-5	-6	-9	-8	-1	-2	0	-1	-2	-1	-1	3	9	17	10	8	-7	-6	0	-6	8	3	20	30	-1	-3	1	1	-0.16	-0.12	-0.02	-0.04	-2	-2	-1	0
115	-4	-7	-7	-6	0	-3	-3	-1	-6	-7	-8	-10	-1	-3	-3	-3	-5	-7	-9	-8	-6	-5	-7	-5	-6	-7	-10	-8	13	-2	17	10	-0.02	0.00	0.05	0.03	-9	-9	-9	-8
116	-4	-3	-1	-4	-4	-3	-1	-1	-6	-5	0	-5	7	11	7	5	6	17	16	18	-6	-3	1	-4	8	11	9	13	10	12	8	8	-0.05	-0.03	0.00	0.07	-8	-9	-6	-7
117	1	1	1	-2	0	0	1	2	0	0	0	2	6	6	6	6	2	2	0	-1	-5	-11	-6	-6	-8	-8	-10	-13	-6	-9	-9	-9	0.01	0.02	0.00	0.03	-8	-12	-13	-7
118	15	9	9	15	-34	-7	-6	-9	-3	-4	-4	-1	-9	-9	-11	-12	-7	-11	-13	-19	-16	-18	-19	-22	-6	-6	-9	-35					0.04	-0.04	-0.03	-0.06				
120					4	2	2	3	-5	-4	-5	-4	-2	-2	-2	-2	1	1	1	5	-3	-2	1	1	-3	-3	-2	-1	-13	-13	-15	-15	-0.10	-0.09	-0.04	-0.07	2	0	1	3
121	15	-2	26	12	-5	-6	-7	-6	-1	-1	-1	-2	-3	-2	9	9	-1	-2	1	2	-12	-12	-14	-12	5	5	4	1	6	1	3	5	-0.03	-0.04	-0.03	-0.03	-9	-10	-11	-11
124	-1	-4	-7	-8					-5	-8	-5	-10	4	3	0	-2	1	0	-2	-1	-5	-4	-7	-6	-3	-4	-6	-4	5	4	-3	-3	-0.15	-0.16	-0.16	-0.15	55	12		
125	-2	-3	-3	-4	11	6	6	9	-2	-2	0	-2	-7	-6	-6	-5	-2	-2	-2	1	-2	-2	0	-1	-4	-11	-7	-4	-1	0	0	0	-0.08	-0.02	0.04	0.00	2	2	3	5
145	1	1	4	1	2	4	4	0	1	0	0	1	-3	-3	-10	-6	-5	-8	-17	-10	-5	-7	-20	-20	-2	0	-3	0	-2	0	-3	-4	-0.11	-0.08	-0.08	-0.24	0	-1	0	0
153	1	1	3	1	4	-1	1	0	-1	-1	-1	1	11	12	11	11	6	7	8	3	6	4	7	33	22	87	387	92	-3	-2	-3	-4	0.06	0.15	0.20	0.20	5	6	9	10
155	-1	-3	-5	-7	6	2	5	9	-4	-4	-4	-4	1	0	1	-2	2	1	0	1	-3	-2	-4	-4	-5	-6	-5	-5	-1	0	-1	0	-0.17	-0.10	-0.05	-0.01	-1	-2	-1	0
158	-1	0	1	-1	-1	-4	-2	-3	-1	-2	0	-1	0	0	0	0	3	2	3	3	-1	-2	-2	-1	2	73	-2	-2	1	0	1	1	-0.19	-0.14	-0.05	-0.11	0	0	0	3
166	1	1	0	0	4	3	5	5	-1	-1	-1	0	2	4	3	0	11	8	6	8	-2	-1	0	0	-6	-5	-6	-7					0.12	0.12	0.09	0.07	2	3	3	5
179	-9	-7	-15	-7					-13	-10	-16	-15									-4	-6	-4	-4									-0.14	0.08	0.11	0.18	1	11	2	8
187													-22	-24	-30	-29	-3	-13	-16	-14					-14	-19	-32	-48	-38	-39	-45	-48								
189													2	8	2	-8	-5	-5	-16	-15					44	49	72	130	-5	-7	-2	-7								
198													3	8	7	-4													-3	-4	2	-2								
200	4	-1	0	0	2	0	-1	0					8	6	6	3					-4	-6	-6	-6	7	17	9	10	-1	1	3	3					1	1	3	3
203													1	7	1	-12													-3	-7	3	-11								
207	4	1	7	11					-5	-4	-2	-4	-15	-9	-17	-9	-3	1	-3	-3					2	2	4	1	-12	-9	-2	-12								
208	-2	-18	-5	-6					-10	-10	-3	-3	-25	-8	-14	-11	-53				-1	-3	-2	-3					-12	-9	-12	-5	-0.07	-0.05	0.01	-0.02				
209	0	-18	-3	16					-10	-12	-6	-10	-15	-12	-14	0	-2				-5	-10	-6	-10					-3	-3	8	49	-0.07	-0.05	0.01	-0.02	-13	-7	-4	-9

Legend:
- 🟨 SO₄²⁻ and NO₃⁻: between ±10 and 20%
- 🟨 NH₄⁺, Cl⁻, Na⁺, Mg²⁺, Ca²⁺, K⁺ and cond: between ±15 and 25%
- 🟨 pH: between ±0.1 -0.2 pH-units
- 🟥 SO₄²⁻ and NO₃⁻: more than ±20%
- 🟥 NH₄⁺, Cl⁻, Na⁺, Mg²⁺, Ca²⁺, K⁺ and cond: more than ±25%
- 🟥 pH: more than ±0.2 pH-units