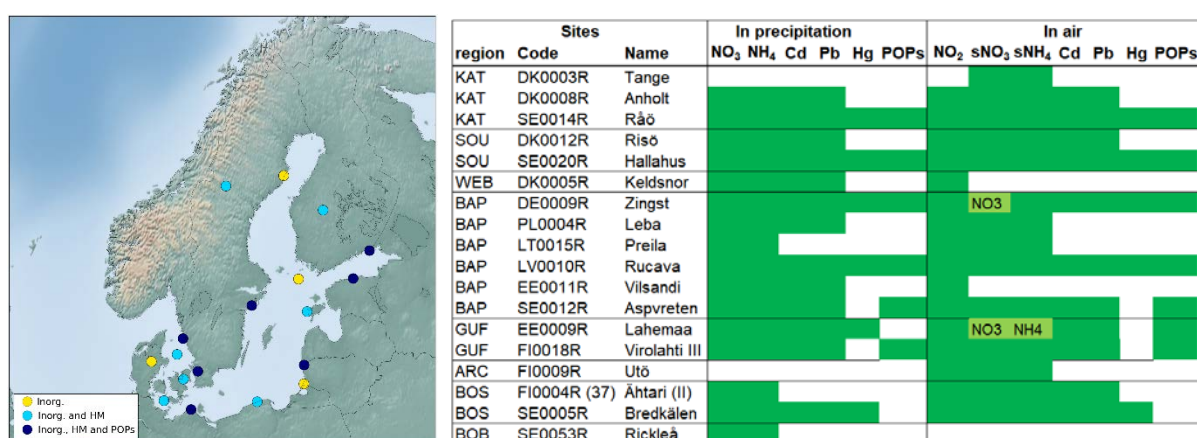


## Observations at HELCOM Stations in 2016

Eight countries have submitted data for 2016, from a total of eighteen HELCOM stations. This is one less than last year, as the Finnish site Hailuoto II has been closed down. In addition, one Swedish site has been closed down (Vavihill), but the measurements have been relocated to a new site in Hallahus, which is located close by. In the figure and overview table below (Figure 1), the measurements program is indicated. No changes in the methodology used in 2016 have been reported, compared to what was reported last year.

**Figure 1.** HELCOM sites and their measurement programme in 2016



Statistical details and information on measurement methods are found in the EMEP reports (Hjellbrekke, 2018; Aas and Nizzetto, 2018), and all the data are available from the web database at <http://ebas.nilu.no/>. The annual mean concentrations of nitrogen components and heavy metals in air and precipitation in 2016 are given in Tables 1 and 2. These are compared to the average of the five preceding years. As seen in the tables, for most components except mercury in precipitation, the majority of the sites have relatively low concentrations in 2016.

**Table 1.** Annual mean concentrations of different nitrogen components in air and precipitation measured at HELCOM sites in 2016 compared with the average of the 2011-2015 period. Green shaded areas indicate lower concentration than the preceding years.

Site	NH <sub>4</sub> <sup>+</sup> in precip. (mgN/L-y)		NO <sub>3</sub> <sup>-</sup> in precip. (mgN/L-y)		NO <sub>2</sub> in air (µgN/m <sup>3</sup> -y)		NH <sub>4</sub> <sup>+</sup> + NH <sub>3</sub> in air (µgN/m <sup>3</sup> -y)		NO <sub>3</sub> <sup>-</sup> + HNO <sub>3</sub> in air (µgN/m <sup>3</sup> -y)	
	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>
DE0009R	0.64	0.63	0.47	0.38	2.10	2.14	1.48	1.95		
DK0003R							1.63	1.77	0.57	0.71
DK0005R	0.59	0.56	0.44	0.41	2.46	2.51				
DK0008R	0.33	0.41	0.41	0.41	1.47	1.84	0.75	1.22	0.54	0.69
DK0012R	0.51		0.41		2.27	2.67	1.45	1.91	0.74	0.91
EE0009R	0.10	0.16	0.17	0.22	2.17	2.21				
EE0011R	0.36	0.31	0.32	0.32	1.51	1.87				
FI0009R					0.95	1.00	0.29	0.36	0.27	0.32
FI04(37)R	0.10	0.13	0.15	0.20	0.56	0.62	0.20	0.24	0.09	0.12
FI0018R	0.23	0.28	0.28	0.33	1.28	1.29	0.33	0.38	0.17	0.22
LT0015R	0.32	0.38	0.35	0.38	0.94	0.99	0.82	0.92	0.61	0.61
LV0010R	0.30	0.38	0.30	0.40	0.75	0.80	0.75	1.02	0.38	0.56
PL0004R	0.35	0.41	0.35	0.41	1.45	1.39	1.32	1.49	0.47	0.58
SE0005R	0.11	0.19	0.09	0.17	0.08	0.11	0.13	0.15	0.035	0.037
SE0012R	0.32	0.38	0.24	0.31	0.44	0.65	0.33	0.40	0.21	0.23
SE0014R	0.39	0.42	0.35	0.38	1.09	1.02	0.53	0.70	0.38	0.49
SE0020R <sup>2)</sup>	0.51	0.49	0.51	0.44	0.96	1.17	0.69	0.93	0.39	0.47
SE0053R	0.21	0.21	0.24	0.23						

<sup>1)</sup> The five year average of 2011-2015 are only calculated if there measurements in three of the years. For precipitation, the annual mean is volume weighted for the various years.

<sup>2)</sup> Compared to the measurements at SE0011 (Vavihill) the preceding years.

**Table 2.** Annual average mean concentrations of lead, cadmium and mercury in air and precipitation measured at HELCOM sites in 2016 compared with the average of the period 2011-2015. Green shaded area indicates lower concentration than the preceding years

Site	Cd in precip. (µg/L-y)		Pb in precip. (µg/L-y)		Hg in precip. (ng/L-y)		Cd in aerosol (ng/m <sup>3</sup> -y)		Pb in aerosol (ng/m <sup>3</sup> -y)		Hg in air (ng/m <sup>3</sup> -y)	
	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>	2016	2011-2015 <sup>1)</sup>
DE0009R	0.023	0.027	0.48	0.70	9.03	7.32	0.065	0.107	2.28	3.53	1.54	1.65
DK0005R	0.031	0.070	2.83	3.81								
DK0008R	0.024	0.030	0.66	1.01			0.032	0.069	1.16	2.30		
DK0012R	0.031		0.83				0.041	0.081	1.41	2.67		
EE0009R	0.021	0.029	0.40	0.27	5.61		0.257	0.064	6.59	1.91	1.13	1.56
EE0011R	0.018	0.080	0.29	0.61								
FI0018R	0.027	0.026	0.81	0.89			0.054	0.086	1.71	2.52		
FI0037R							0.034	0.052	1.00	1.34		
LV0010R	0.042	0.045	0.85	0.84	9.05	7.62	0.070	0.123	1.60	2.53		
PL0004R	0.016	0.031	0.30	0.53								
SE0005R	0.007	0.025	0.13	0.69	6.78	5.84	0.012	0.011	0.40	0.34	1.36	1.36
SE0012R	0.029		0.54		7.92	7.78	0.031	0.041	1.04	1.23		
SE0014R	0.063	0.040	0.43	0.41			0.032	0.050	1.04	1.64	1.34	1.51
SE0020R <sup>2)</sup>	0.034	0.102	0.50	0.55	8.64	8.41	0.018	0.021	0.68	0.62	1.37	1.82

<sup>1)</sup> The five year average 2011-2015 are only calculated if there measurements in three of the years. For precipitation, the annual mean is volume weighted for the various years.

<sup>2)</sup> Compared to the measurements at SE0011 (Vavihill) the preceding years.