3. Observed Concentrations of Nitrogen, Cadmium, Lead, Mercury and Lindane at HELCOM Stations in 2001

3.1 HELCOM measurement stations

Table 2.1. Available measurements of nitrogen, cadmium, lead, mercury and lindane from HELCOM stations for 2001. Colour indicates data for at least one component.

Station		Concentrations in air					Concentrations in precipitation				
Code	**Name**	**N**	**Pb**	**Cd**	**Hg**	**HCH**	**N**	**Pb**	**Cd**	**Hg**	**HCH**
FI53	Hailuoto										
FI9	Uto										
FI17	Virolahti										
EE09	Lahemaa										
LV16	Zoseni										
EE11	Vilsandy										
LV10	Rucava										
LT15	Preila										
PL04	Leba										
DE09	Zingst										
SE05	Bredkalen										
SE08	Hoburg										
SE02	Roervik										
SE11	Vavihill										
DK05	Keldsnor										
DK08	Anholt										
DK20	Pedersker										
SE51	Arup										
RU16	Shepeljovo										

In this section we provide a broad view of the patterns and levels evident in monitoring data from 2001. Where possible regional average values are provided for the principal regions within the Baltic Sea. For actual monthly values on a component-by-component basis, the reader is referred to Appendix A.

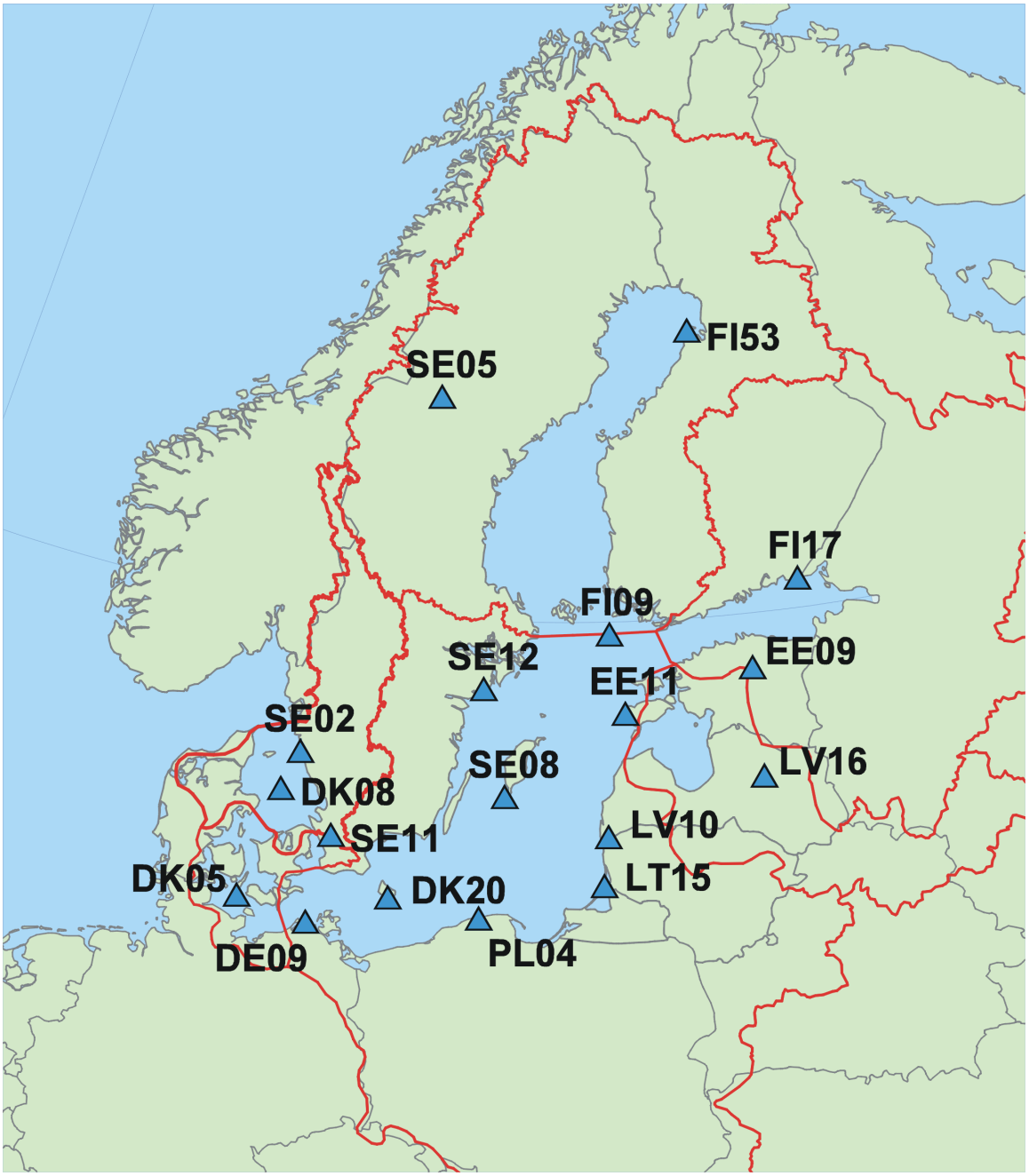

Figure 2.1. Geographical locations of the HELCOM stations with available measurements for the year 2001.

3.2 Nitrogen concentrations in air

In figure 3.2 the air concentrations of nitrogen species are shown, for nitrogen dioxide, and for total nitrate and total reduced nitrogen.

Concentrations of NO2 show not unexpected temporal and spatial patterns. Figure 3.2 represents the average of observations for stations in each if the indicated areas. There is a clear decrease in concentrations from south to north, and also a winter maxima/summer minima, both related to the burning of fossil fuels.

Observations of the total oxidized nitrogen loading are not so widespread, being focused in the south. Over such distances, differences can be expected to be limited. Yet, there is a clear decrease in concentrations moving from the Kattegat to the southern Baltic Proper. Seasonal patterns are not pronounced.

Observations of the total airborne reduced nitrogen load are similarly focused on the south. On this occasion, the decrease in concentrations away from the Kattegat region may be discernible, but is small. A seasonal pattern, however, is noticeable, the maxima occurring during summer months.

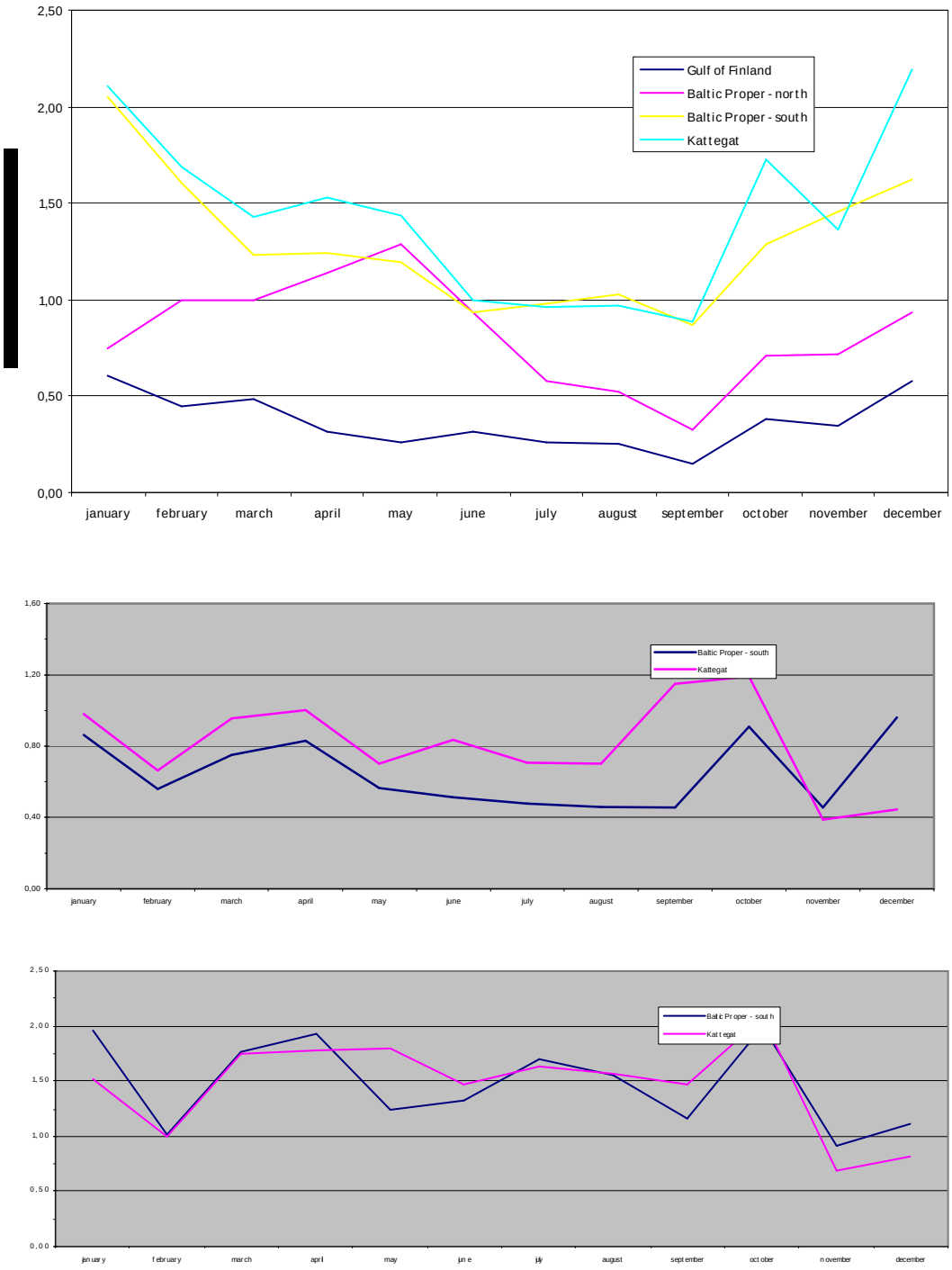

Figure 3.2. Monthly nitrogen concentrations in the air in 2001, averaged fr regions shown. **top**: NO_2 , **middle:** total nitrate (HNO_3+NO_3), **lower:** total reduced nitrogen (NH_3+NH_4)

3.3 Nitrogen in precipitation

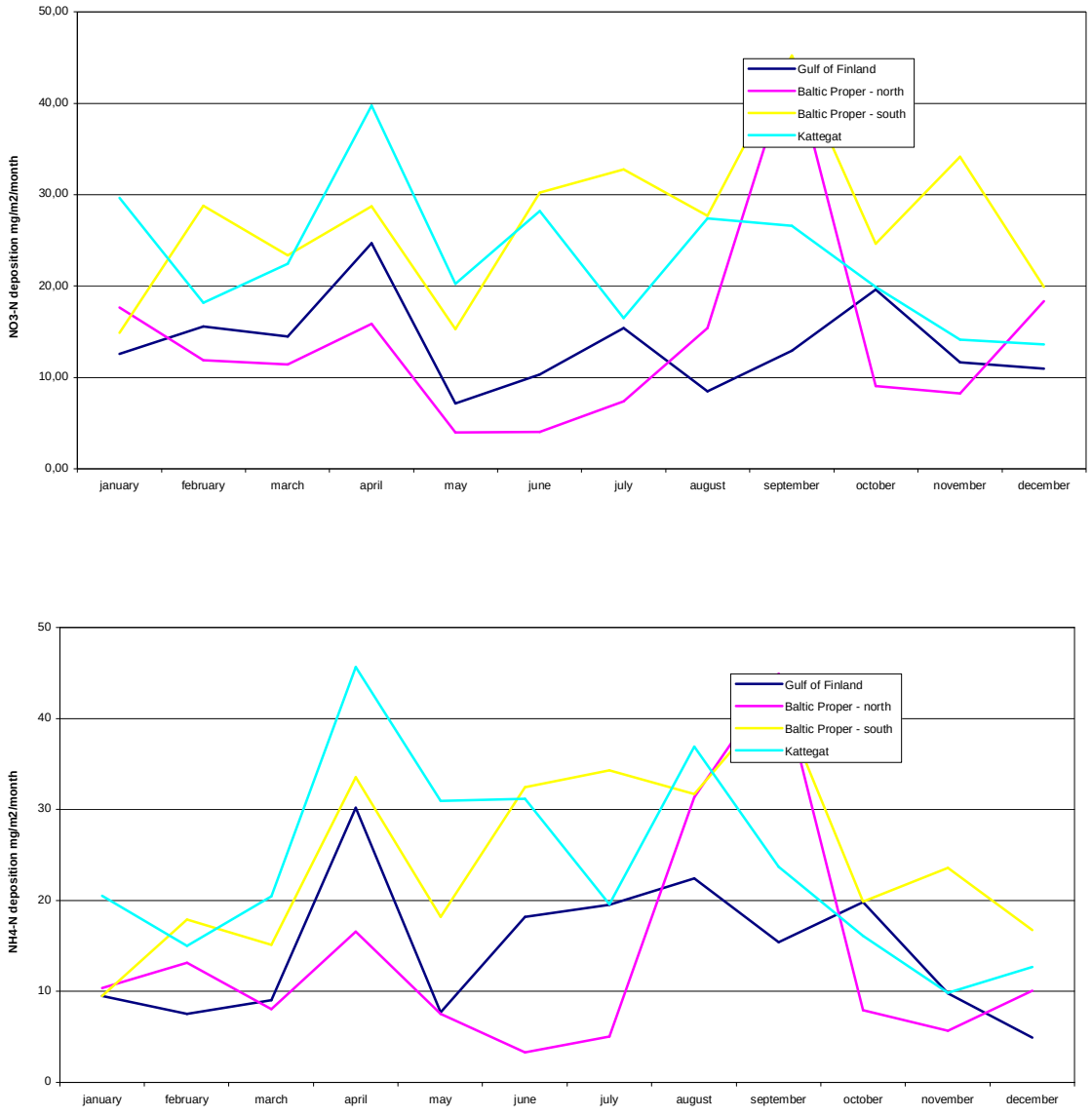

Figure 3.3 Depositions of nitrogen in precipitation, 2001

Figure 3.3 displays the station average deposition of oxidized and reduced nitrogen across the regions given. It is to be observed that seasonal patterns are not so strong as for airborne components. The spatial pattern persists, however, with clearly decreasing depositions with progression northwards. For example, the northern regions receive typically half the deposition of reduced nitrogen supplied to southern areas.

3.4 Heavy metals in the air

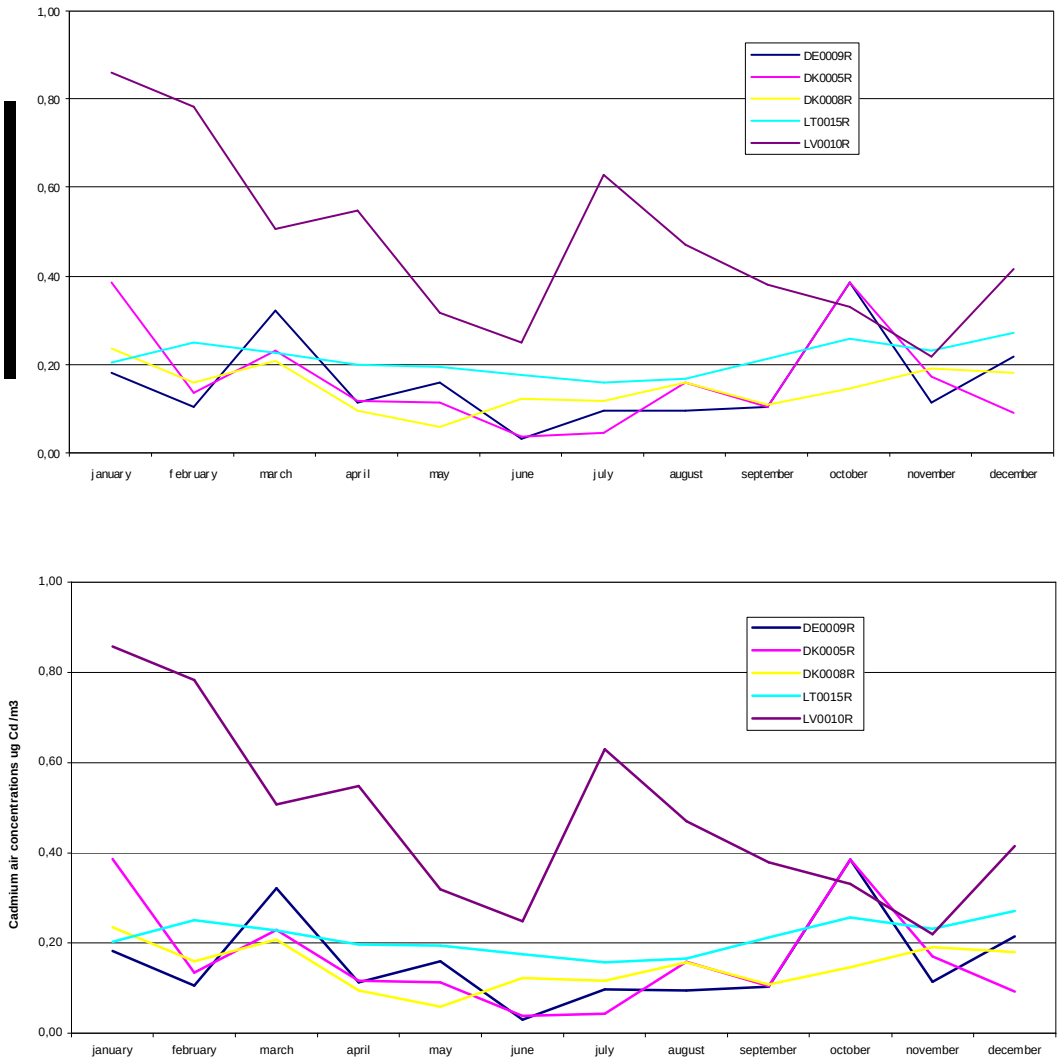

Figure 3.4 Air concentrations of heavy metals across the HELCOM region

There are insufficient stations to reasonably represent regional patterns, hence the station data itself is presented here. From this, it is to be observed that with the exception of one station the temporal patterns for cadmium and lead indicate a weak winter maximum. Concentrations are very similar across these stations. Such similarity would encourage a closer look by the country data manager at the reasons for the unusually high and declining concentrations at LV0010.

3.5 Heavy metals in precipitation

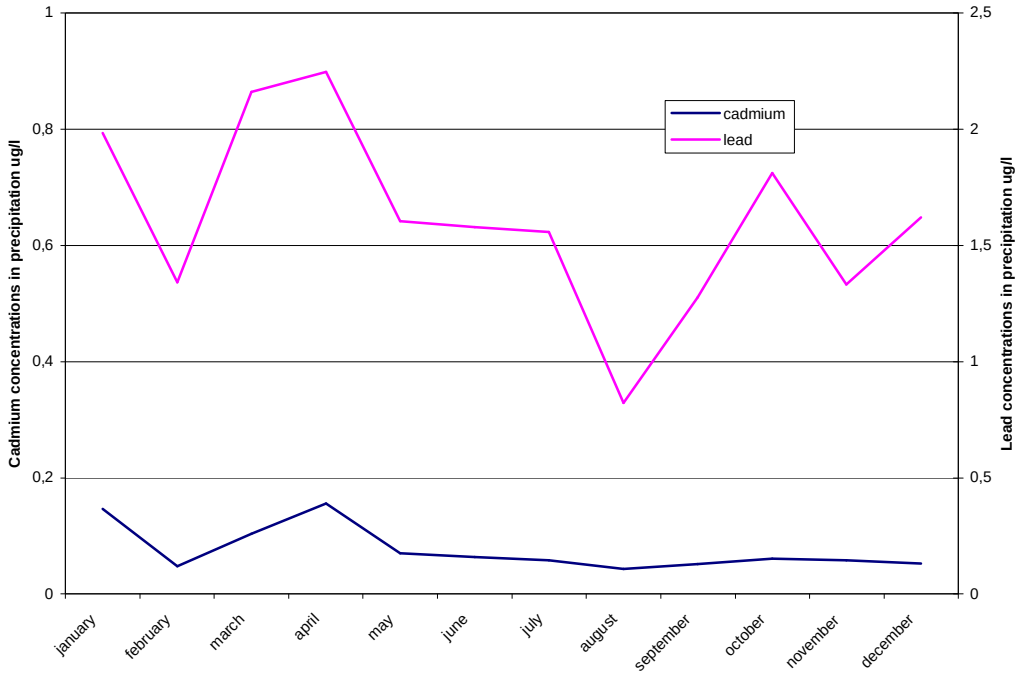

Figure 3.5 Mean concentrations of cadmium and lead (precipitation weighted) in precipitation across all HELCOM stations.

Examination of the precipitation quality with respect to cadmium and lead does not reveal clear patterns. The rather variable lead data suggests notable local meteorological effects in the absence of quality control issues.