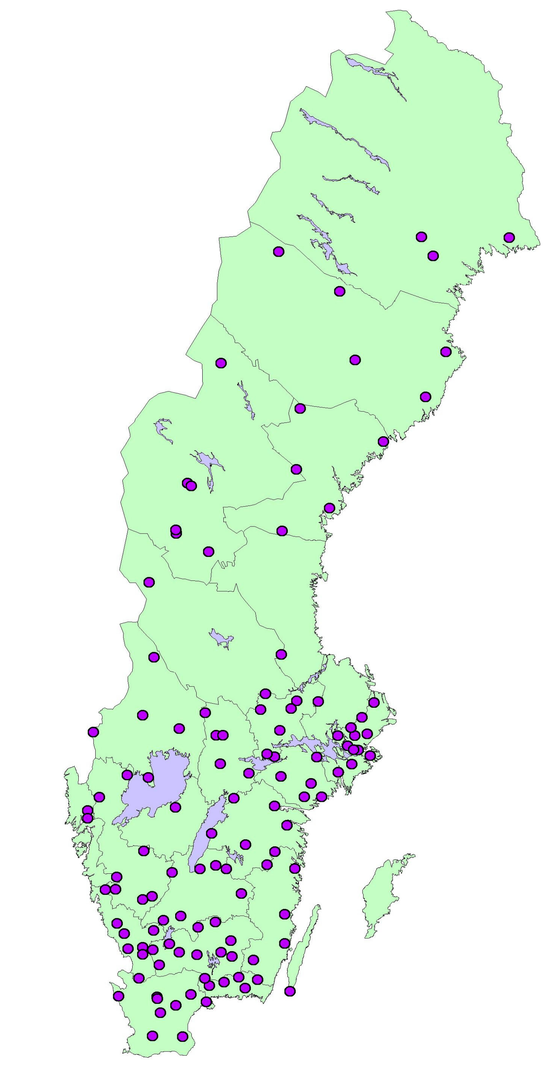
Swedish Environmental Research Institute

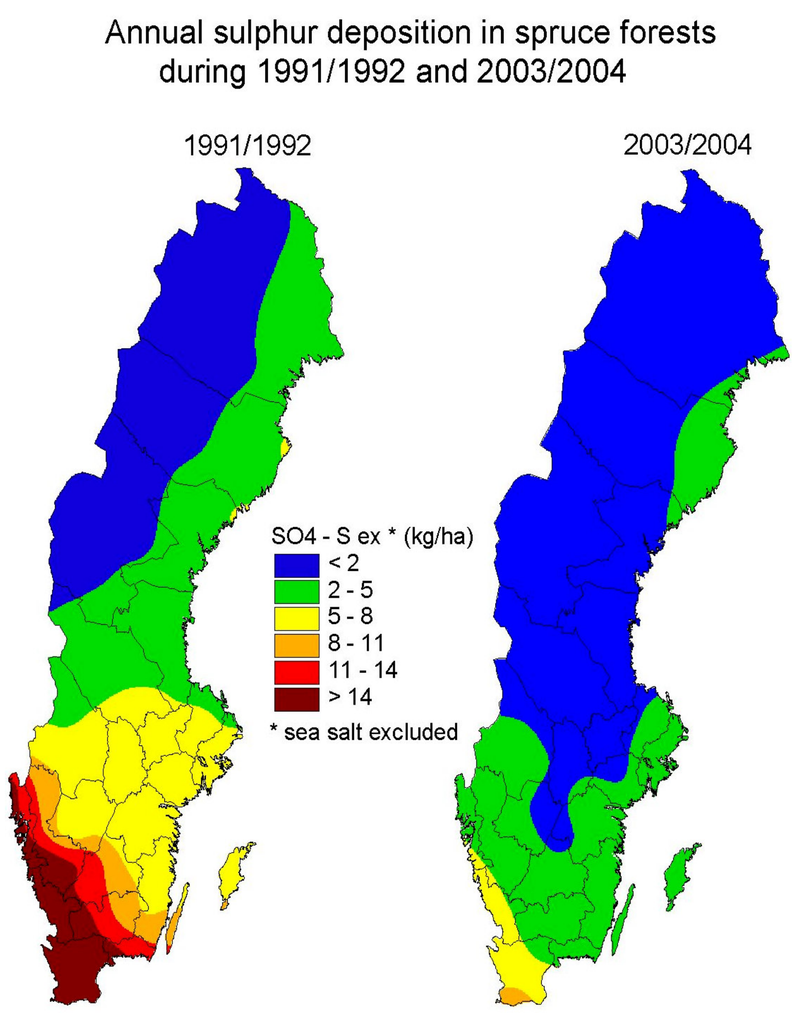
Decreasing deposition of acids, but slow recovery in soil and soil water

The Throughfall monitoring network in Sweden

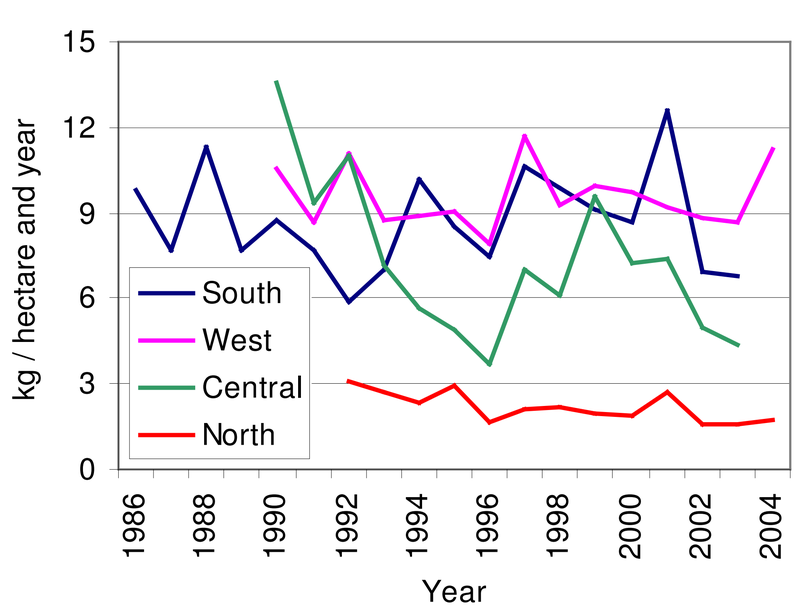
The Swedish Environmental Research Institute (IVL) has since the mid 80's been monitoring deposition of acidifying compounds in Sweden, within the Throughfall Monitoring Network. This monitoring program was initiated by various air quality protection associations and regional forest and environmental authorities and is coordinated with other European countries. The results are of importance for the follow-up of national environmental goals and when planning strategies.



Examined forest plots

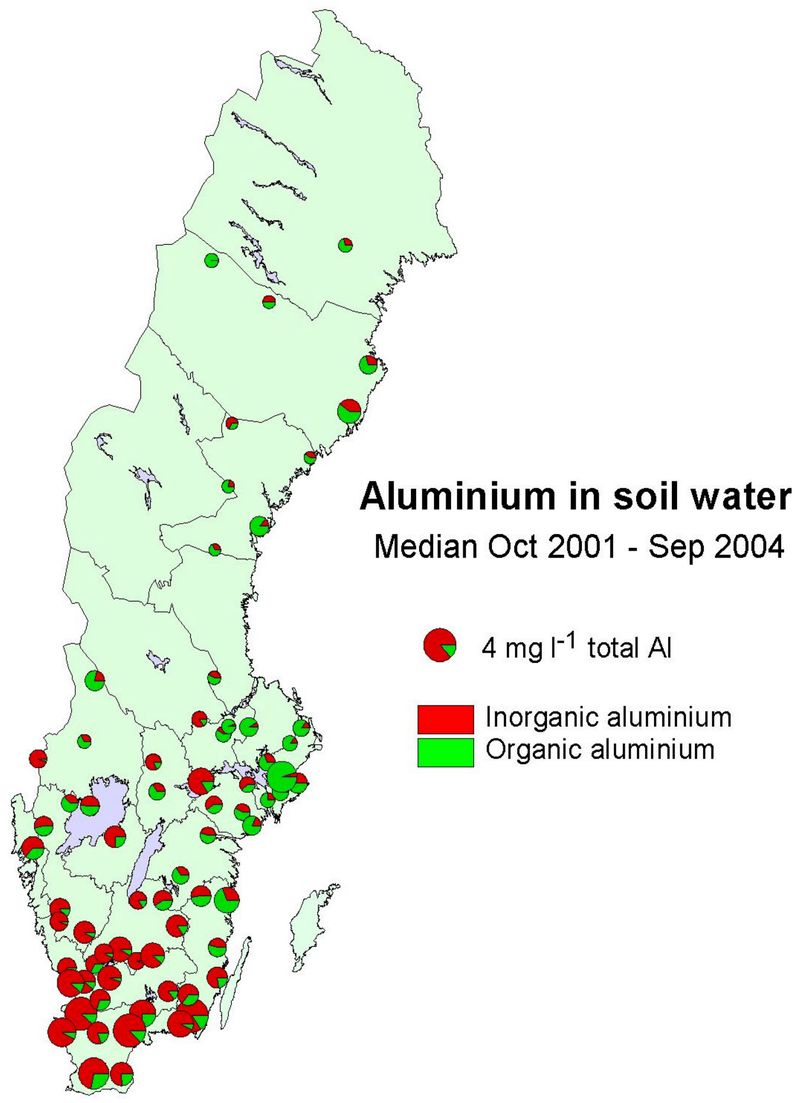


Change in acidifying sulphur deposition in spruce forests over 13 years.



The nitrogen deposition has not decreased in different parts of Sweden, among other things depending on increased precipitation. The figure shows the total deposition of nitrate- and ammonium N in bulk precipitation on open field.

The monitoring program comprise investigations in forest and measurements of deposition, air pollutants, soil chemistry and soil water within more than hundred forest plots in Sweden. The methods have been the consistent during the whole monitoring period, which enables adequate comparison of data. The results show that even though the acidifying sulfur deposition has decreased significantly, the recovery in soil water is slow. The nitrogen deposition is still high, at least in southern Sweden, and its effects on forests is expected to increase in the future. Accumulation of nitrogen in soil induces risk for acidification and nitrate leaching.



High concentrations of inorganic Al indicates heavy soil acidification, caused by air pollutants.

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