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Significance of the oceans as a source of iodine and selenium in soils

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Iodine and selenium have two things in common: they are essential elements for humans and domestic animals, and they are both emitted as volatile organic compounds from the ocean due to biological processes in the seawater. This has led to enrichment of both elements in surface soils in coastal areas. In Norway the atmospheric deposition of iodine and the resulting concentration in natural surface soils is highest along the coastline and decrease regularly inland, to a distance of about 200 km. A similar trend is evident for selenium, where the concentration decreases from around 1mg/kg near the coast to 0.2 mg/kg in areas inland shielded from oceanic influence by mountain ranges. Examples will be shown from studies carried out over the last 35 years in Norway, clearly demonstrating the importance of marine supply of iodine and selenium to soils formed from rocks very low in these elements. The geo-medical significance of the marine-derived supply of iodine and selenium may be greater on a worldwide basis than so far anticipated.