



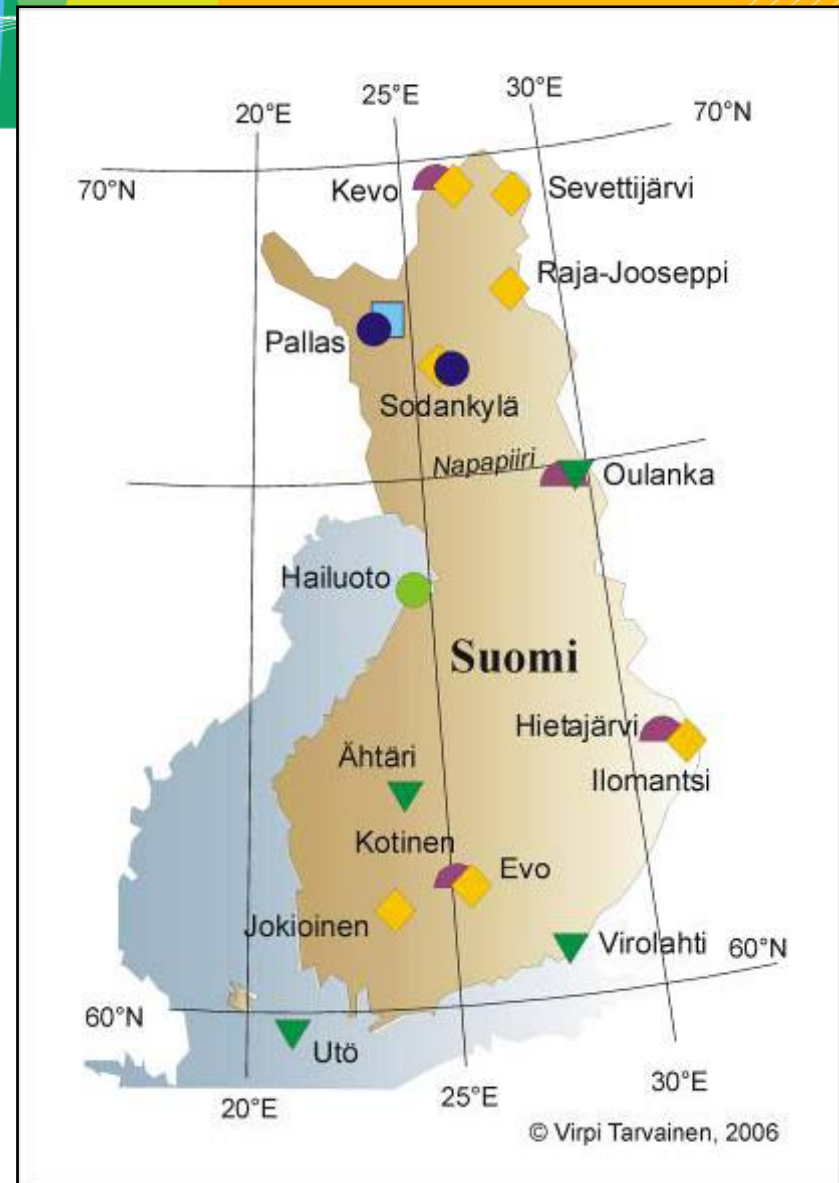
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## Air chemistry laboratory

- ✓ National and international air quality monitoring programmes
- ✓ Research on air chemistry
- ✓ Utilisation of the results of monitoring programmes in research
- ✓ Dissemination of results to authorities and scientific community

### Measurement networks

- ▼ EMEP
- GAW (WMO)
- ◐ National
- HELCOM
- ◻ AMAP
- ◆ Other stations



**Background air quality  
monitoring network**

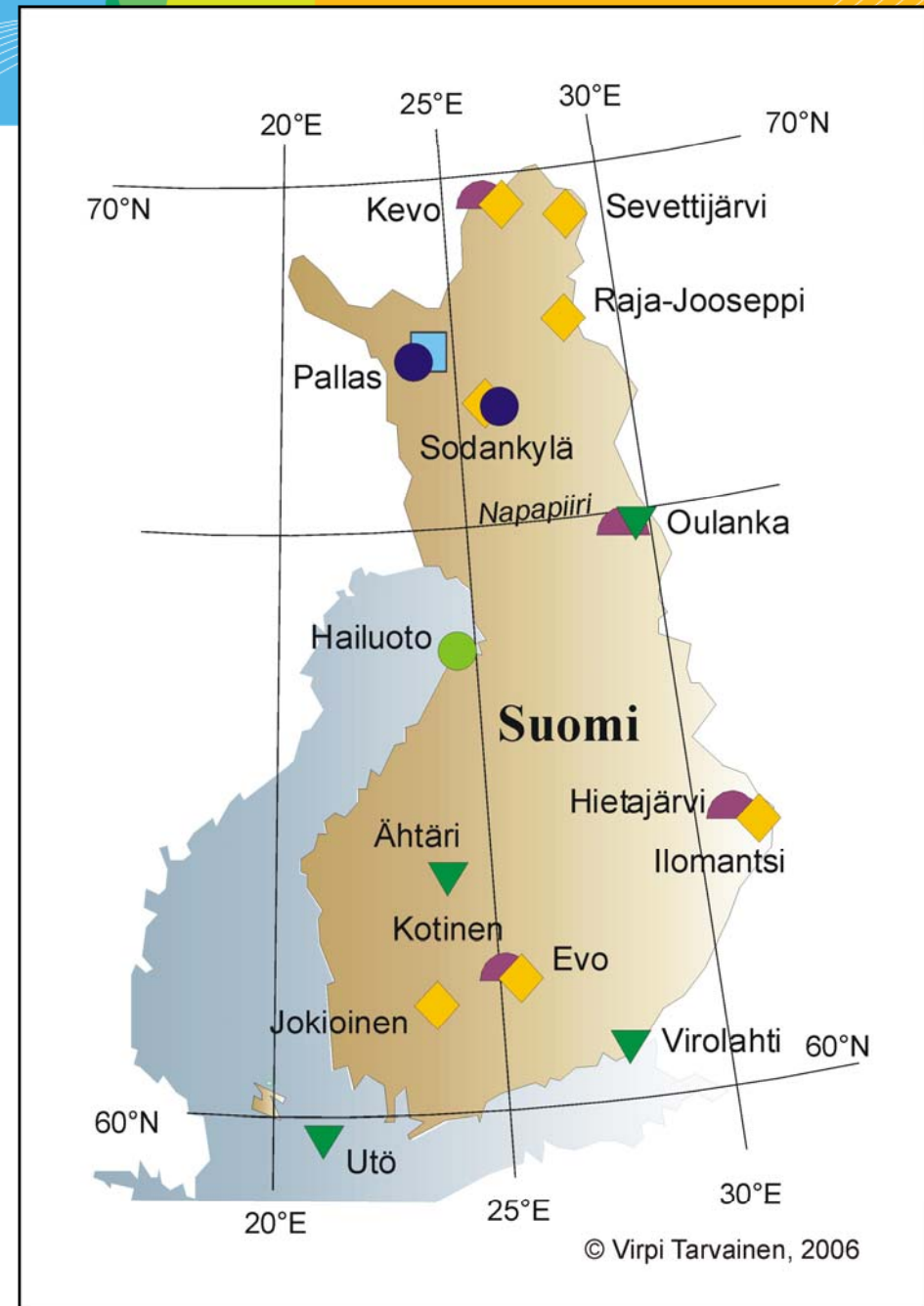


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# Background air quality monitoring network

## Measurement networks

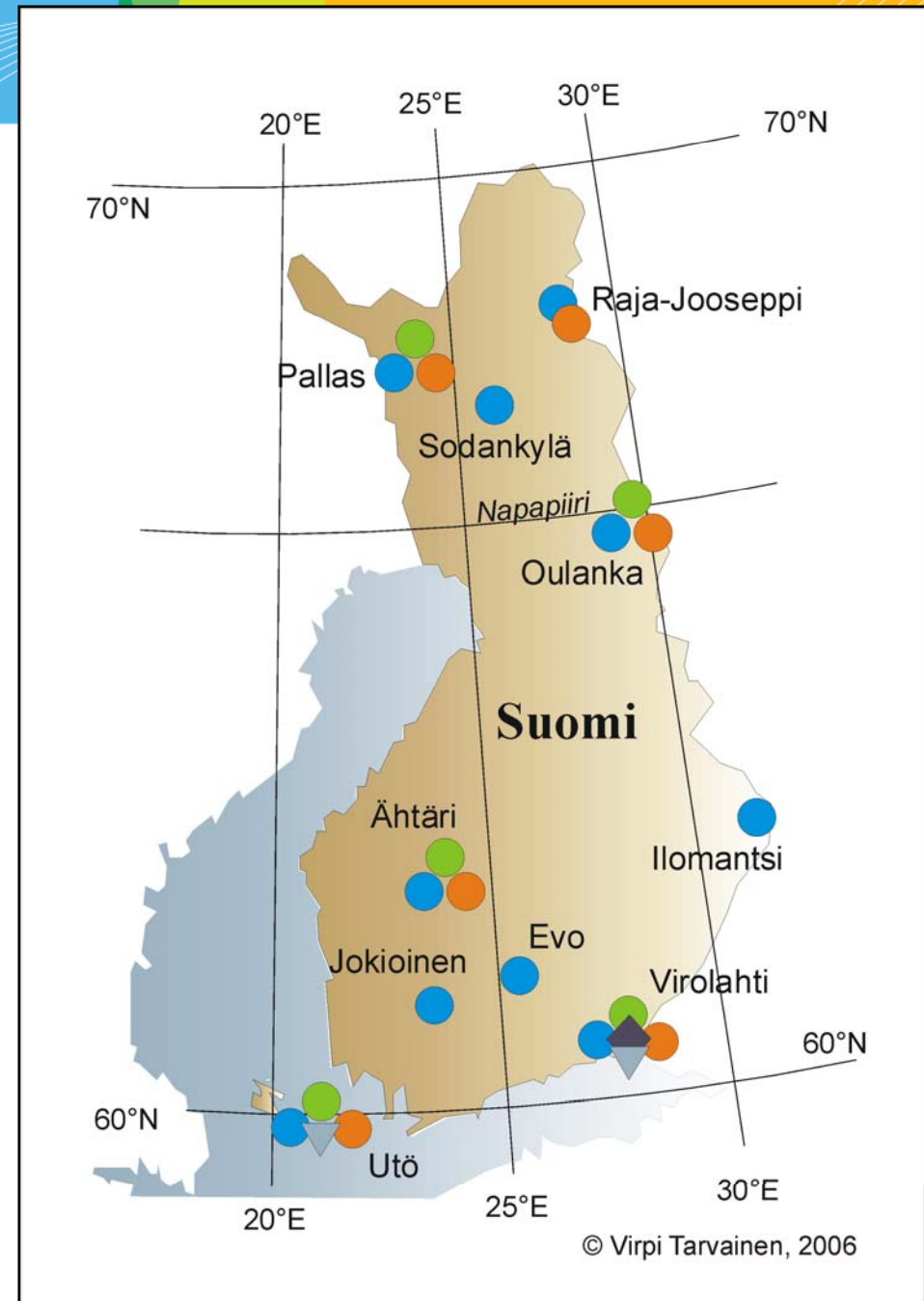
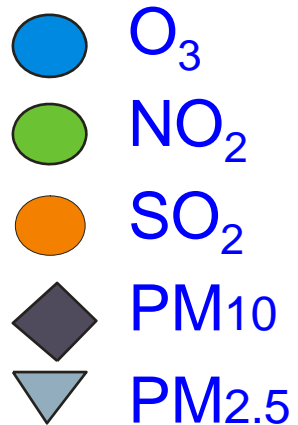
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## Background air quality monitoring network





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The laboratory of organic chemistry is part of a Center of Excellence of the Academy of Finland, and a Nordic Center of excellence (coord. Univ. of Helsinki).

The research addresses **the formation of new particles in the atmosphere.** **Natural hydrocarbons** have an important role for the formation and growth of particles.



Measurements of natural hydrocarbons from a swamp and a pine.



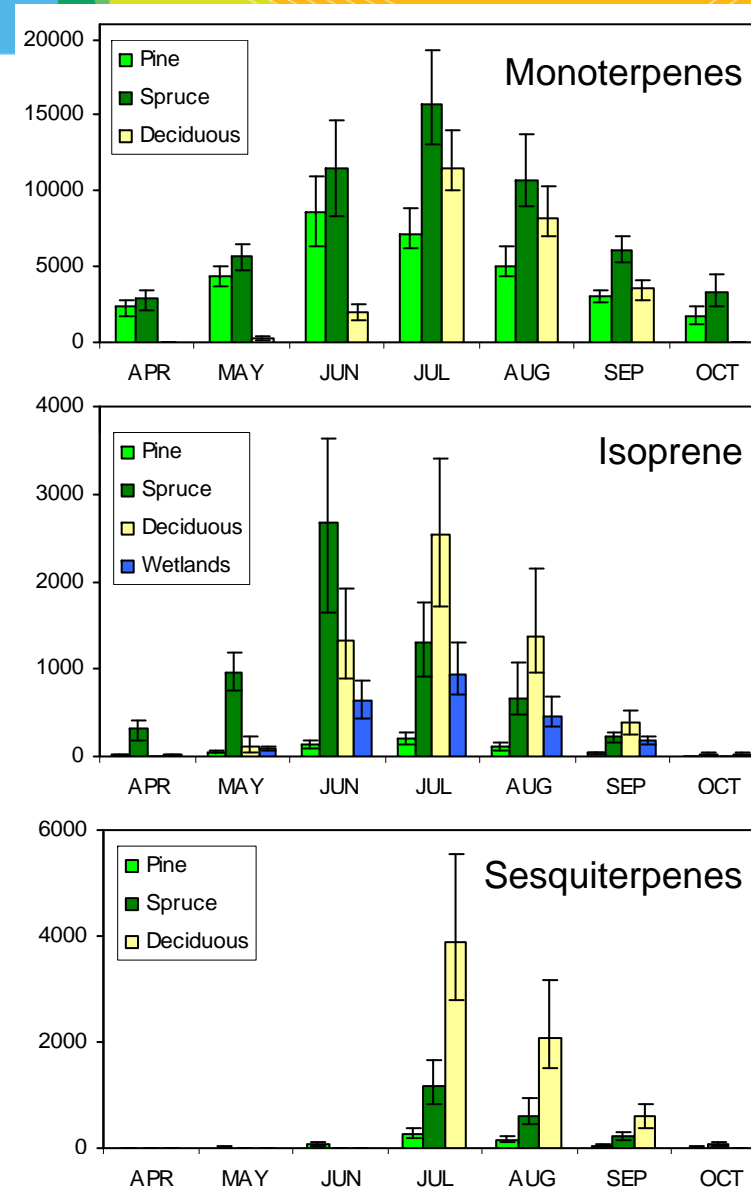
UNIVERSITY OF HELSINKI



## Seasonal variation of terpenoid emissions in the boreal zone

The variation of the total monoterpene, isoprene and sesquiterpene emissions (in tonnes per month) during the growing season in Finland. The columns are the averages of the four meteorological years 1997, 1999, 2000 and 2003, and the error bars show the range of the calculated emissions in individual years.

Tarvainen et al., 2007. Towards a comprehensive emission inventory of terpenoids from boreal ecosystems, *Tellus B* (in press) DOI: 10.1111/j.1600-0889.2007.00263.x .





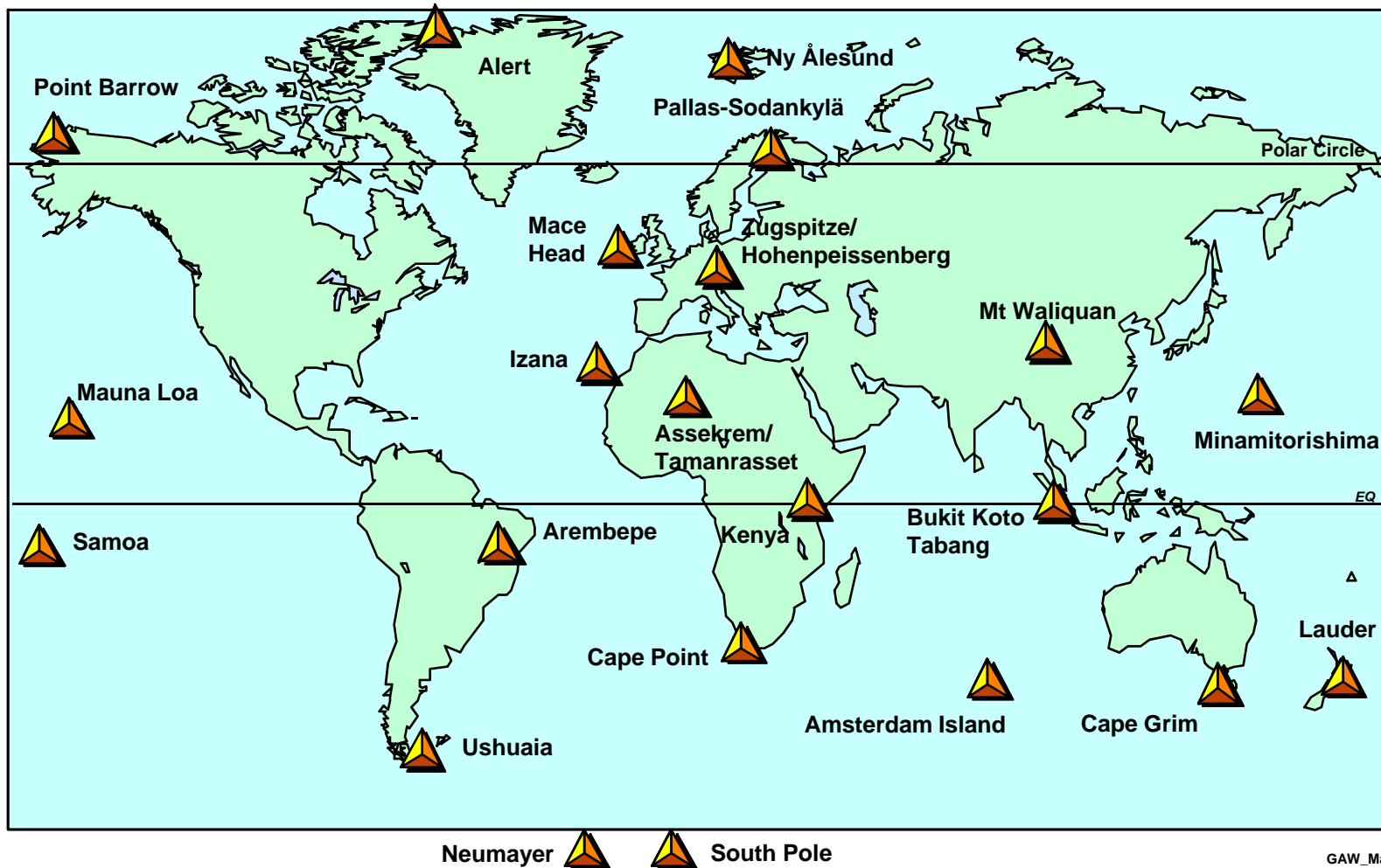


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# WORLD METEOROLOGICAL ORGANIZATION

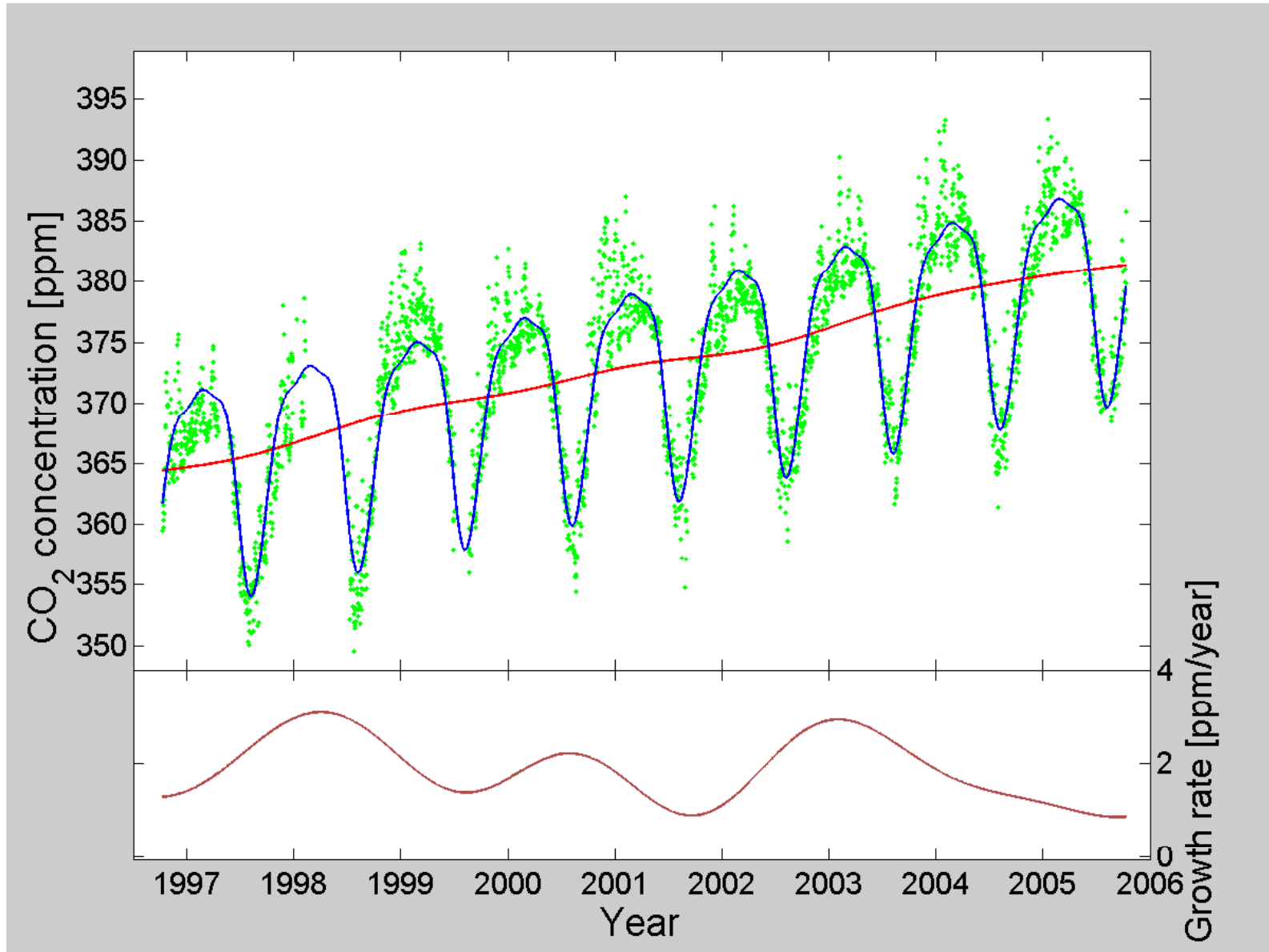
## GLOBAL ATMOSPHERE WATCH





# Pallas-Sodankylä GAW-station









## Utilisation of the results in research

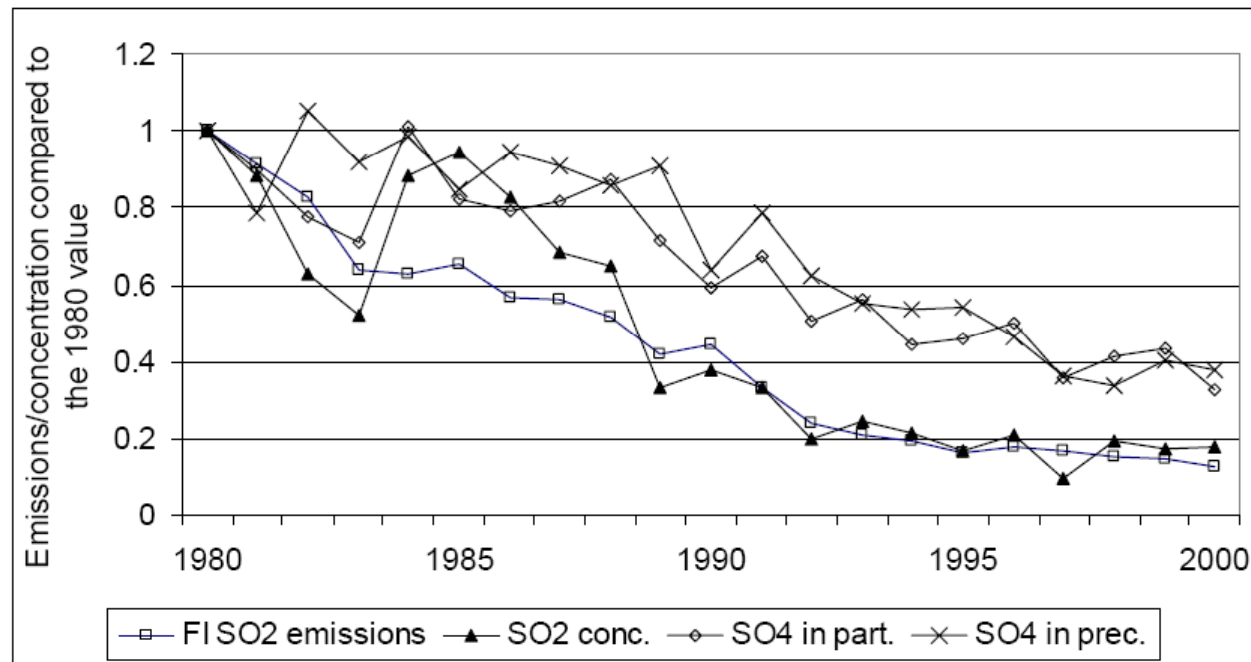


Figure 7. Decline of the Finnish SO<sub>2</sub> emissions, the SO<sub>2</sub> concentration in air and the SO<sub>4</sub><sup>2-</sup> concentration in particles and precipitation in Ähtäri. The annual values are compared to the 1980 value.

**Ruoho-Airola, T., 2004. Dissertation.**

**Finnish Meteorological Institute Contributions No. 44**



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## Inorganic analyses of gases, particles and precipitation, e.g., sulphate, nitrate and heavy metals



Packaging of filters in the laboratory



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## Utilisation of natural radionuclides as tracers in air quality and climate research



### Example:

## Lead-210 as tracer of continental air masses in Svalbard

Lead-210 in the air, Mt. Zeppelin, Ny-Ålesund, Svalbard 2001; Sodankylä and Nurmijärvi, monthly mean values 1991-2000

