

# Nya rön om hälsoeffekter av luftföroreningar

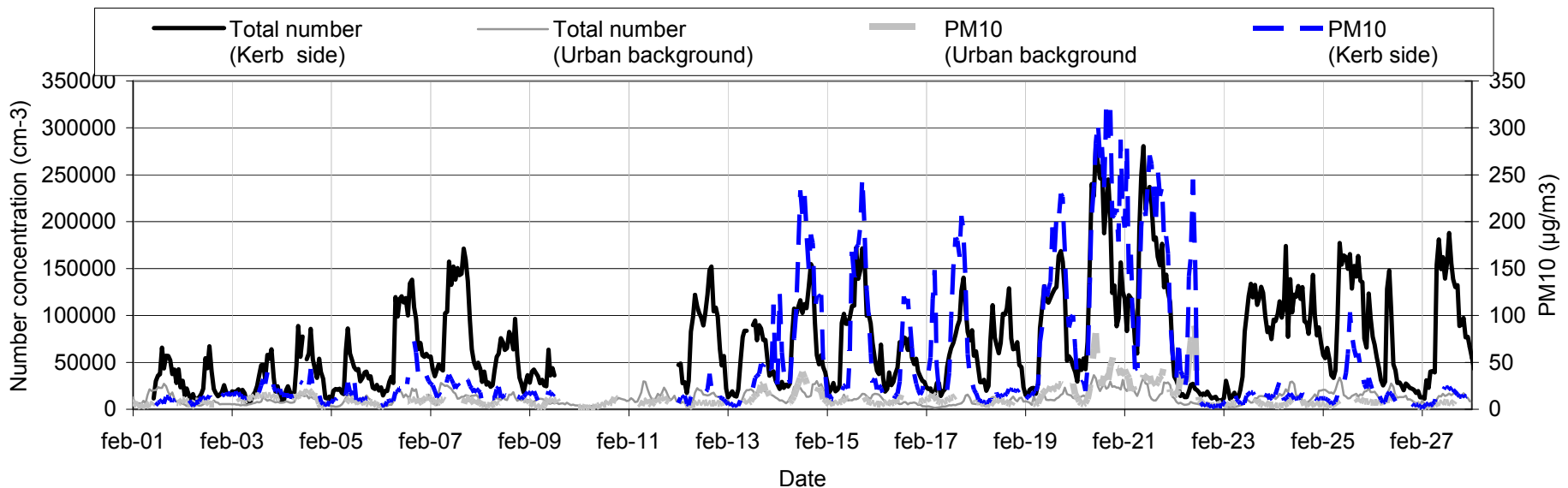
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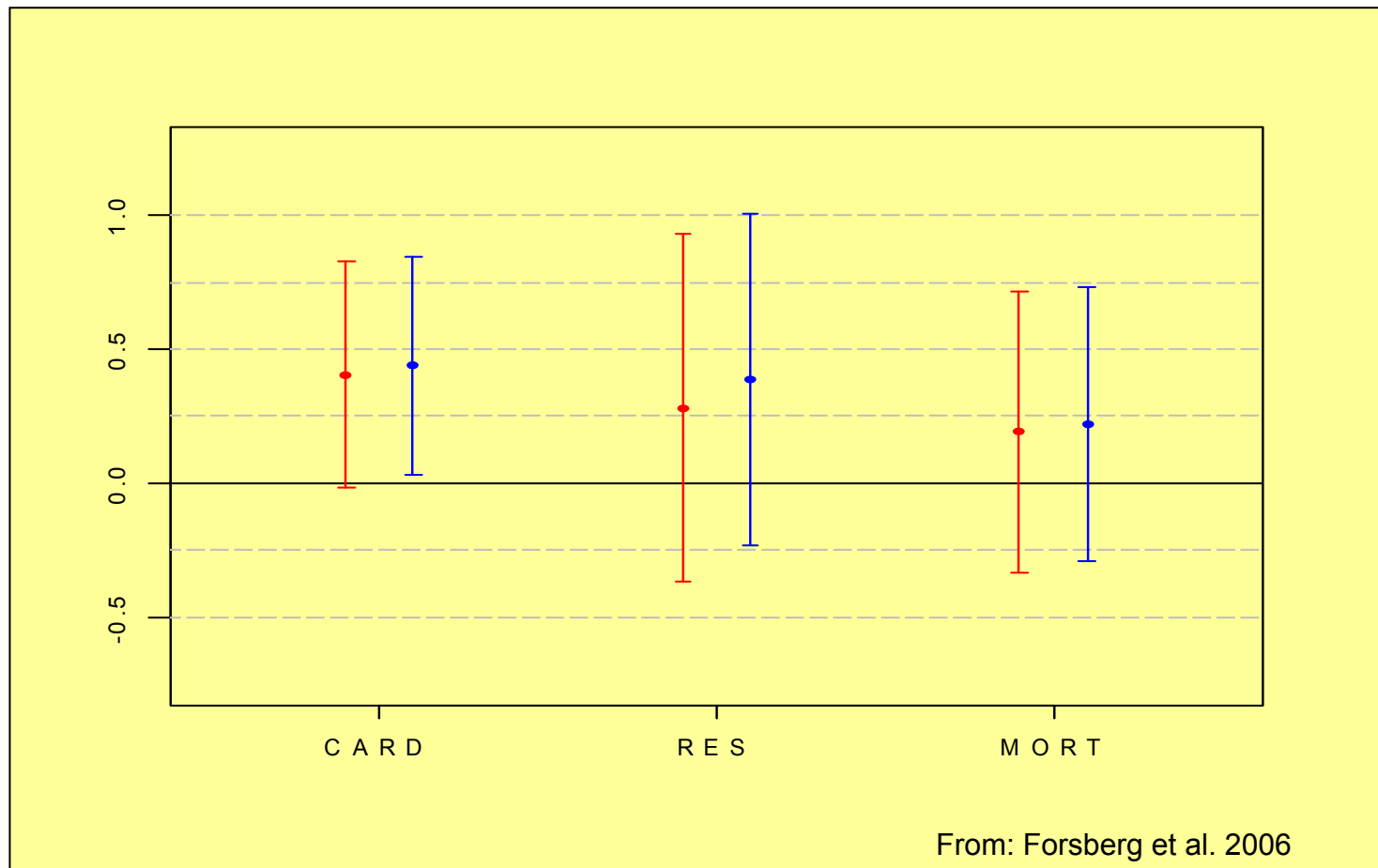
# Hälsoeffekter av luftföroreningar

- Korttids-/Långtidsexponering
- Avgaser/Vägdamm
- Lokala/Systemiska effekter

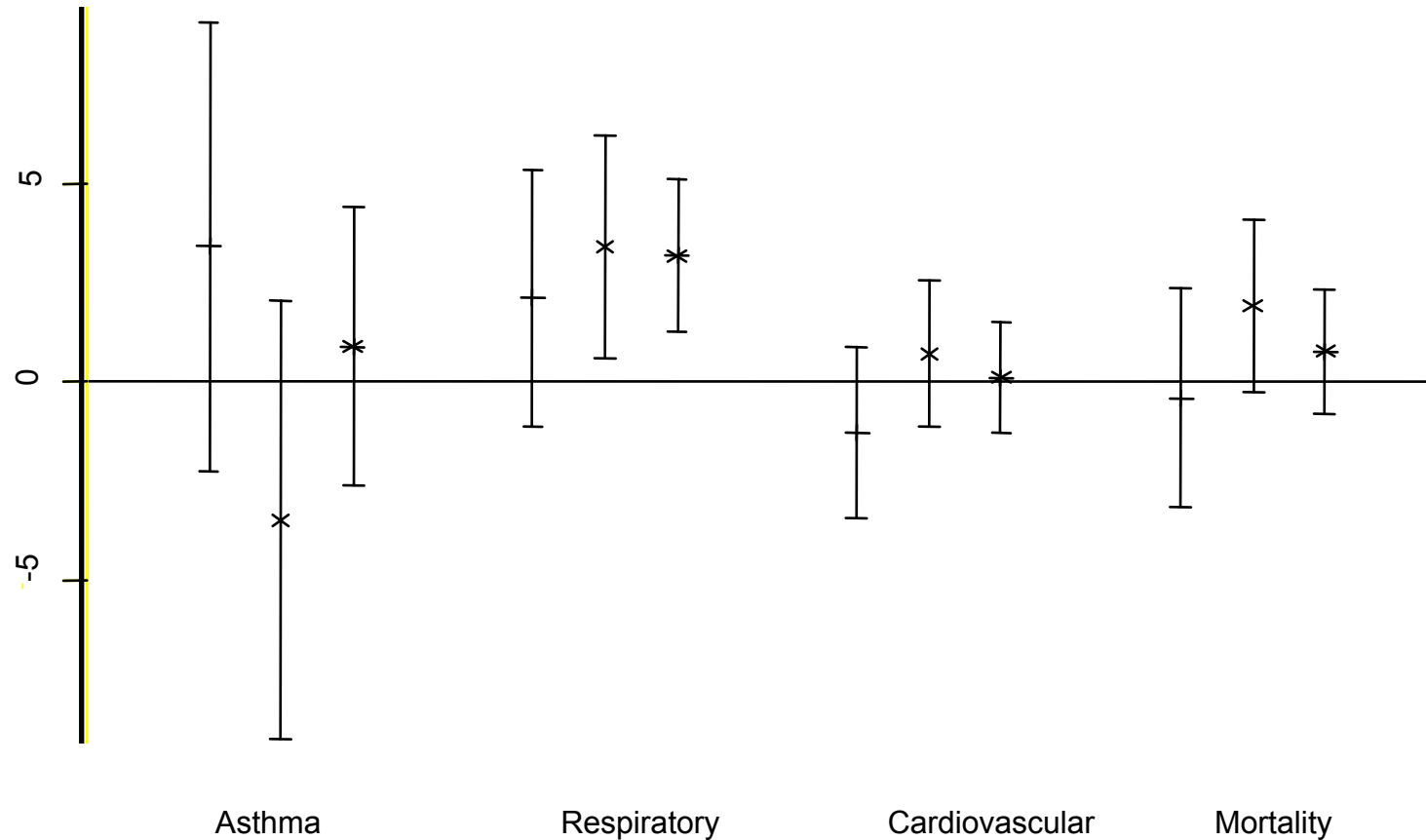
# Temporal variation of PNC and PM10



RR (%) for hospital admissions and mortality  
per 1000 p/cm<sup>3</sup> increase in measured PNC lag01  
(red with PM10 in model)



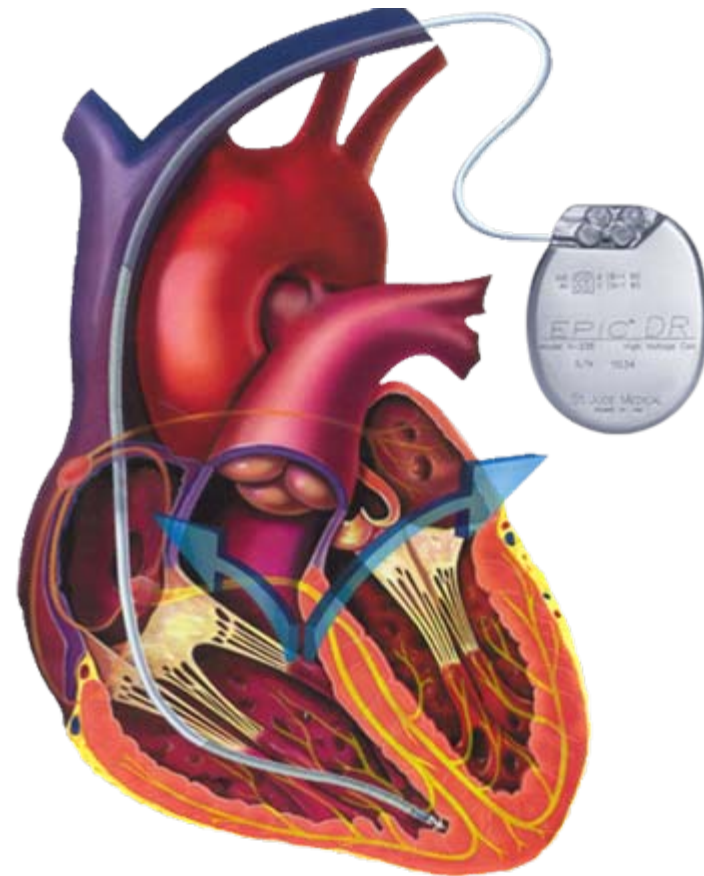
## RR (%) for hospital admissions and mortality per 10 $\mu\text{g}/\text{m}^3$ increase of PM<sub>10</sub> in lag 01 (from left: for dust days, other days, all year)



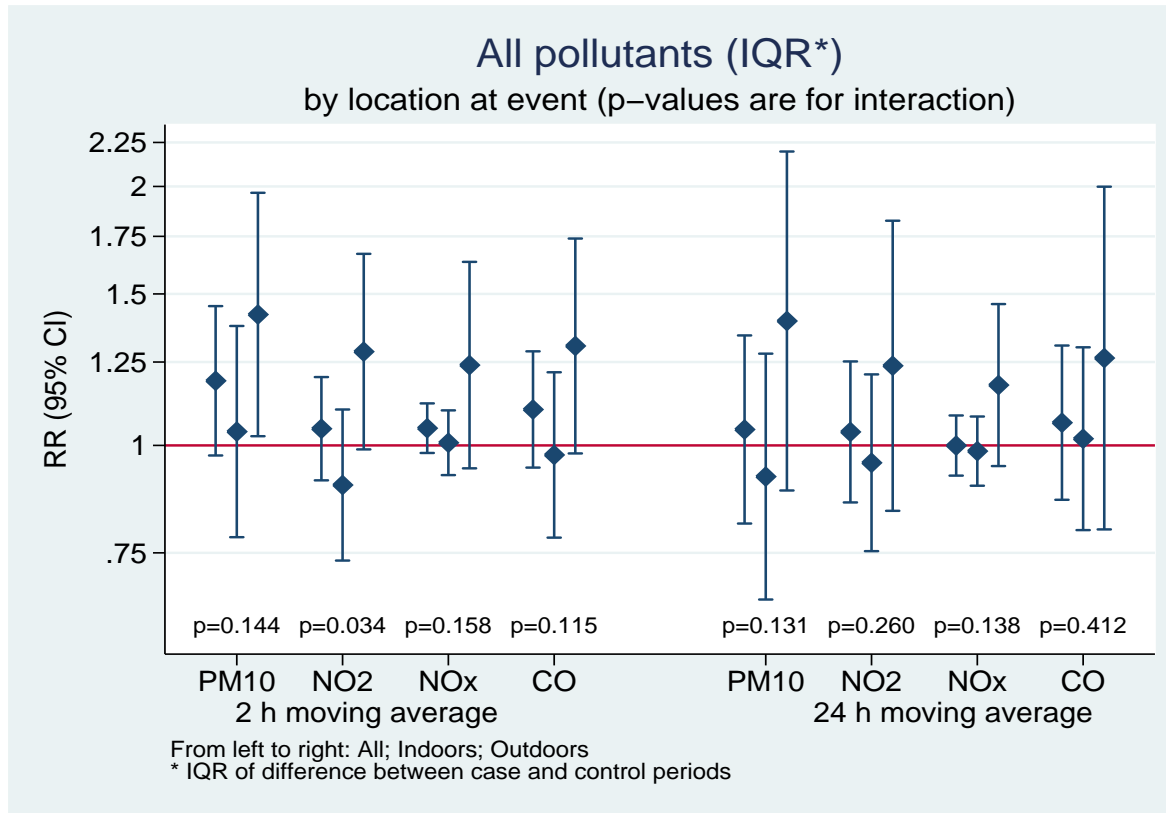
From: Forsberg et al. 2006

# Air pollution and Life-threatening Ventricular Arrhythmias

- 209 ICD patients, Gothenburg and Stockholm
- 134 Ventricular arrhythmias in 82 patients
- PM10 levels
  - 18  $\mu\text{g}/\text{m}^3$  Mean hourly levels Stockholm
  - 21  $\mu\text{g}/\text{m}^3$  Mean hourly levels Gothenburg
- Case-crossover design



# Risk of ventricular arrhythmia in relation to air pollution levels and place of events



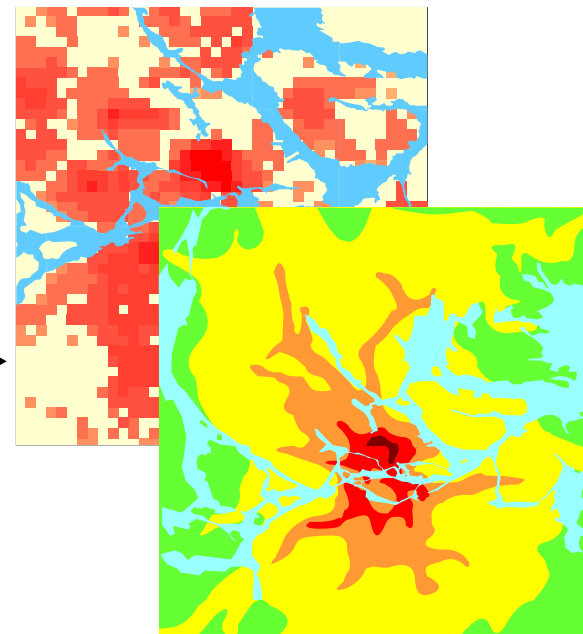
From: Ljungman et al. 2007

# Long-term exposure to air pollution

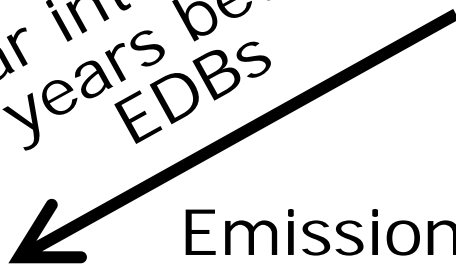
Residential history for study subjects



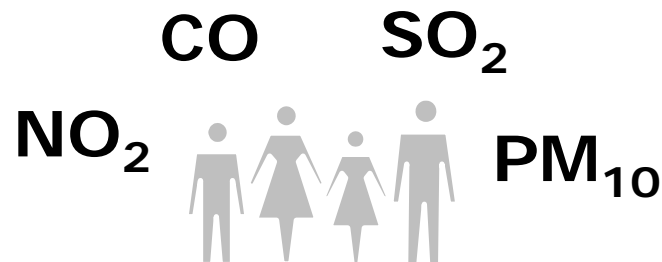
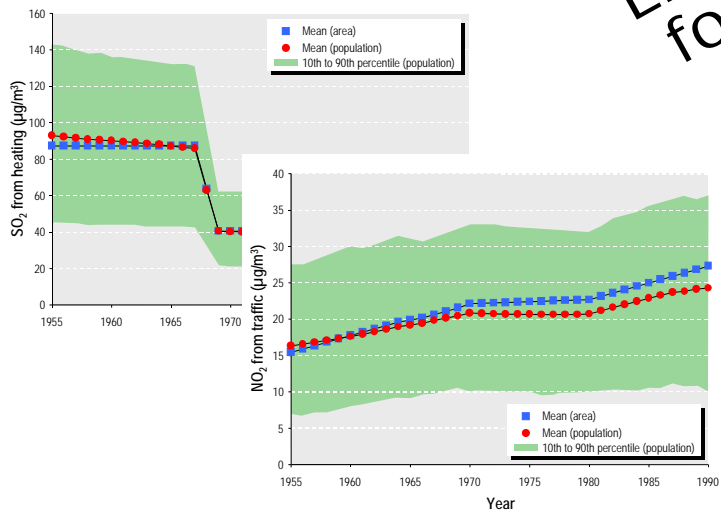
Geocoding and linking coordinates to dispersion models

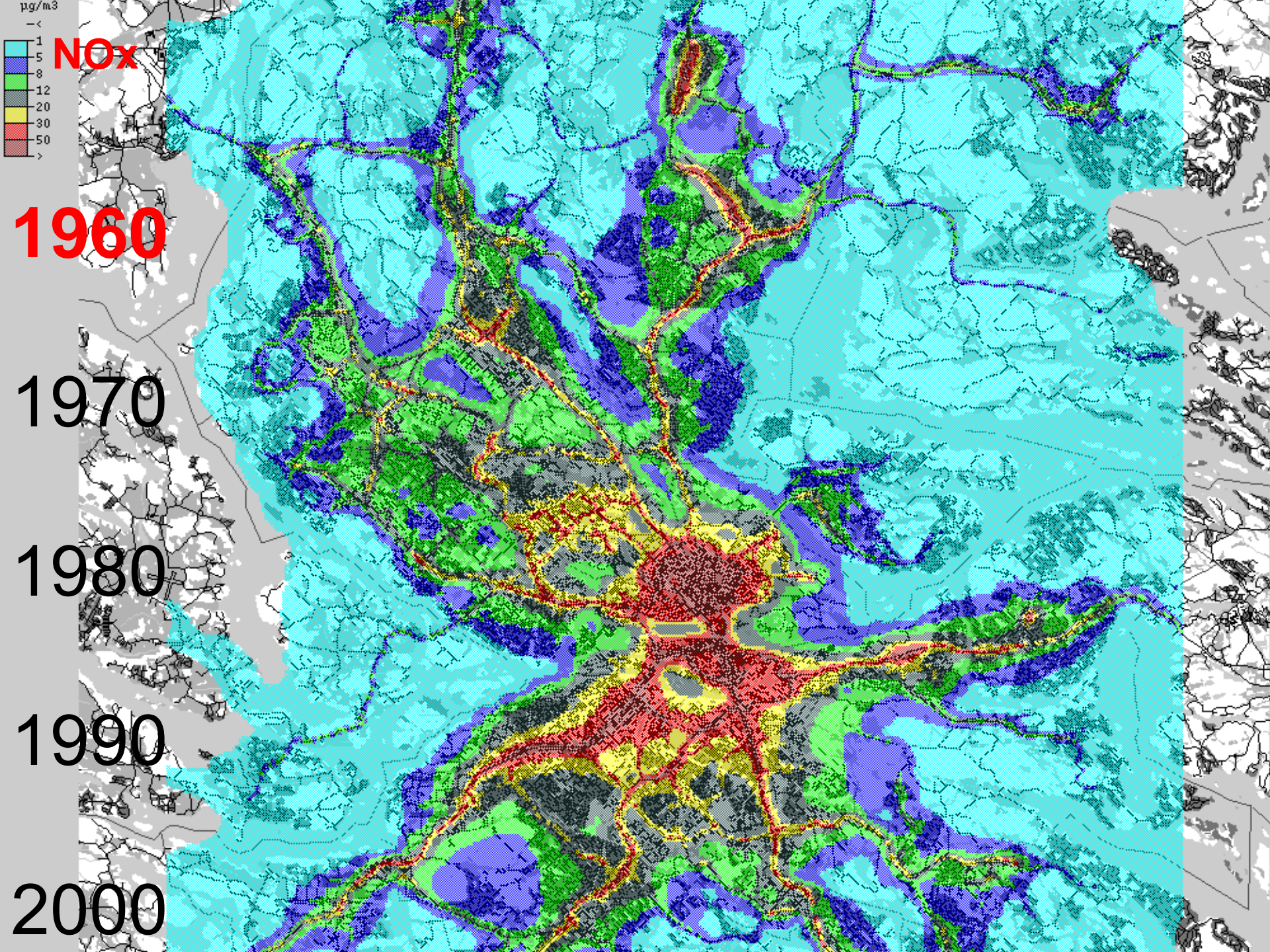


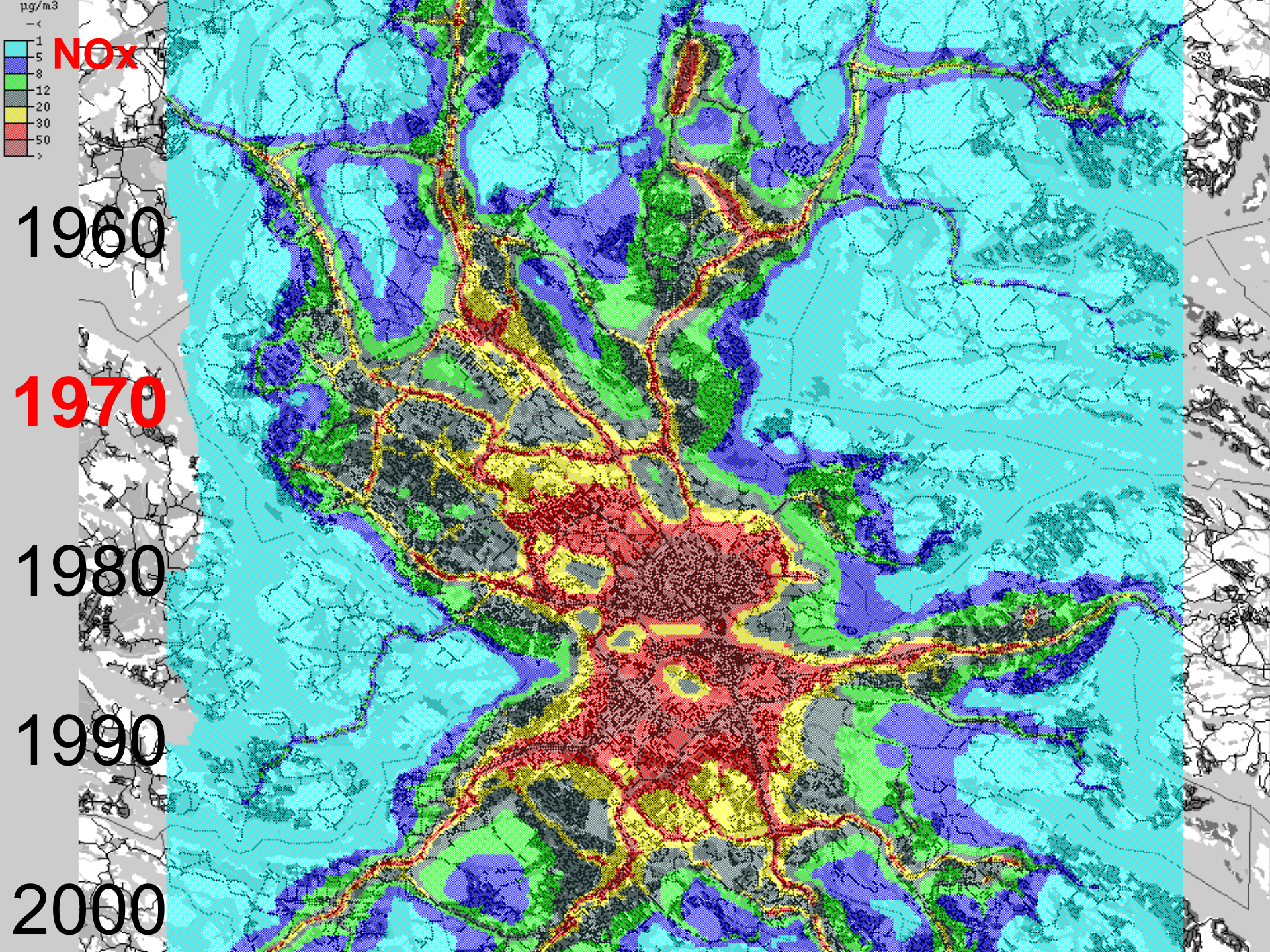
Linear interpolation for years between EDBs

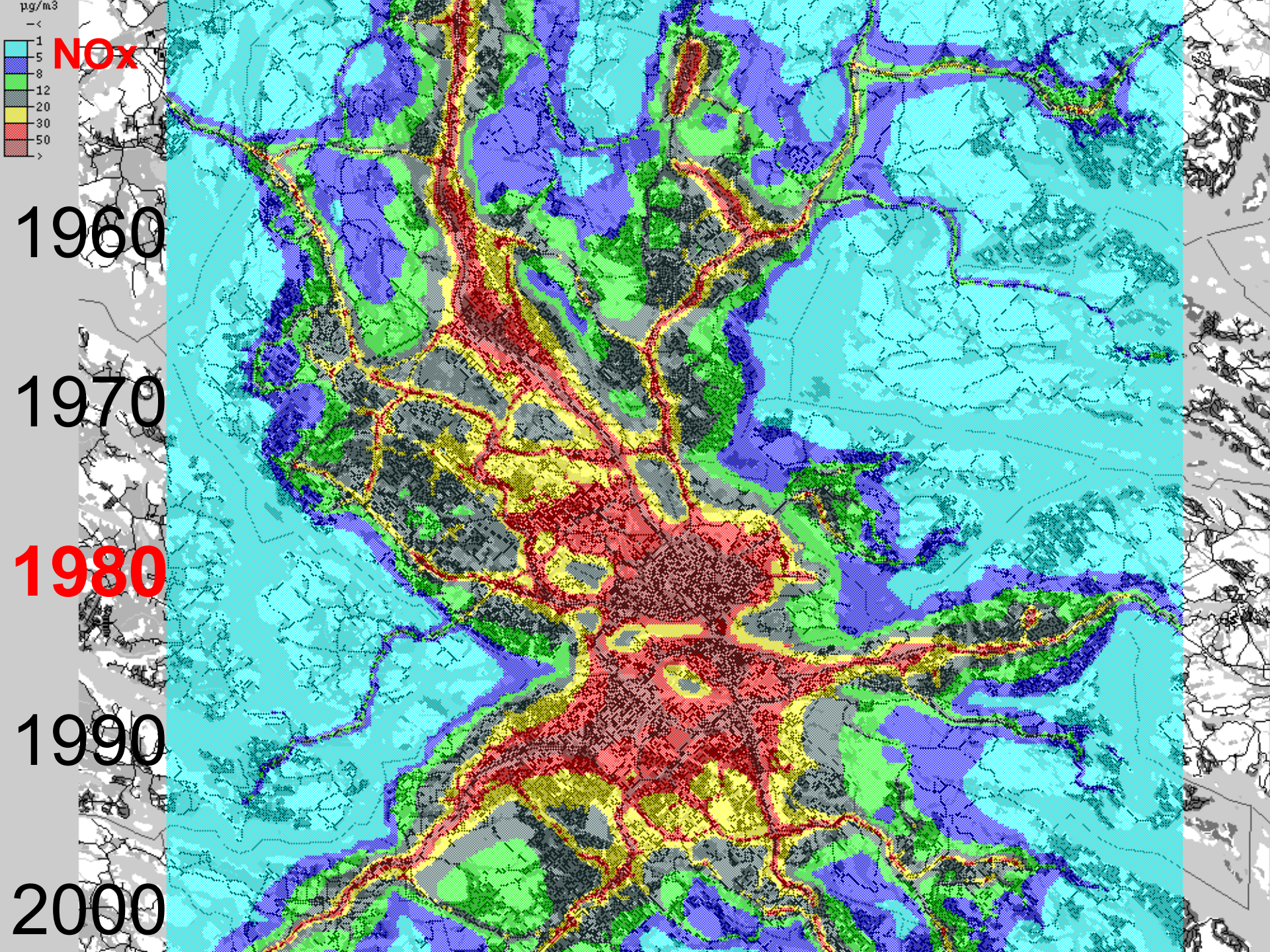


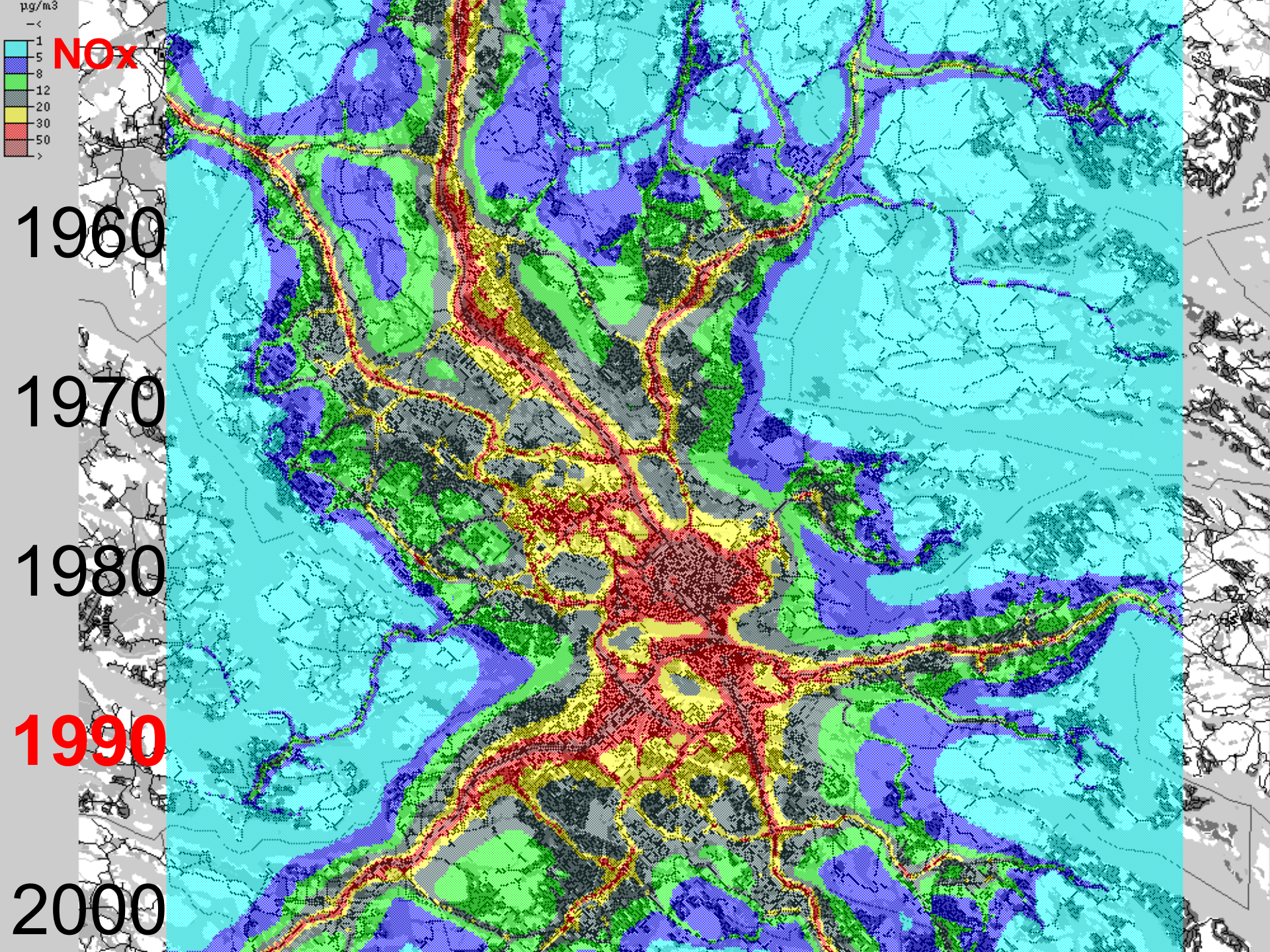
Emission databases (EDB)  
1960, 1970, 1980, 1990, 2000

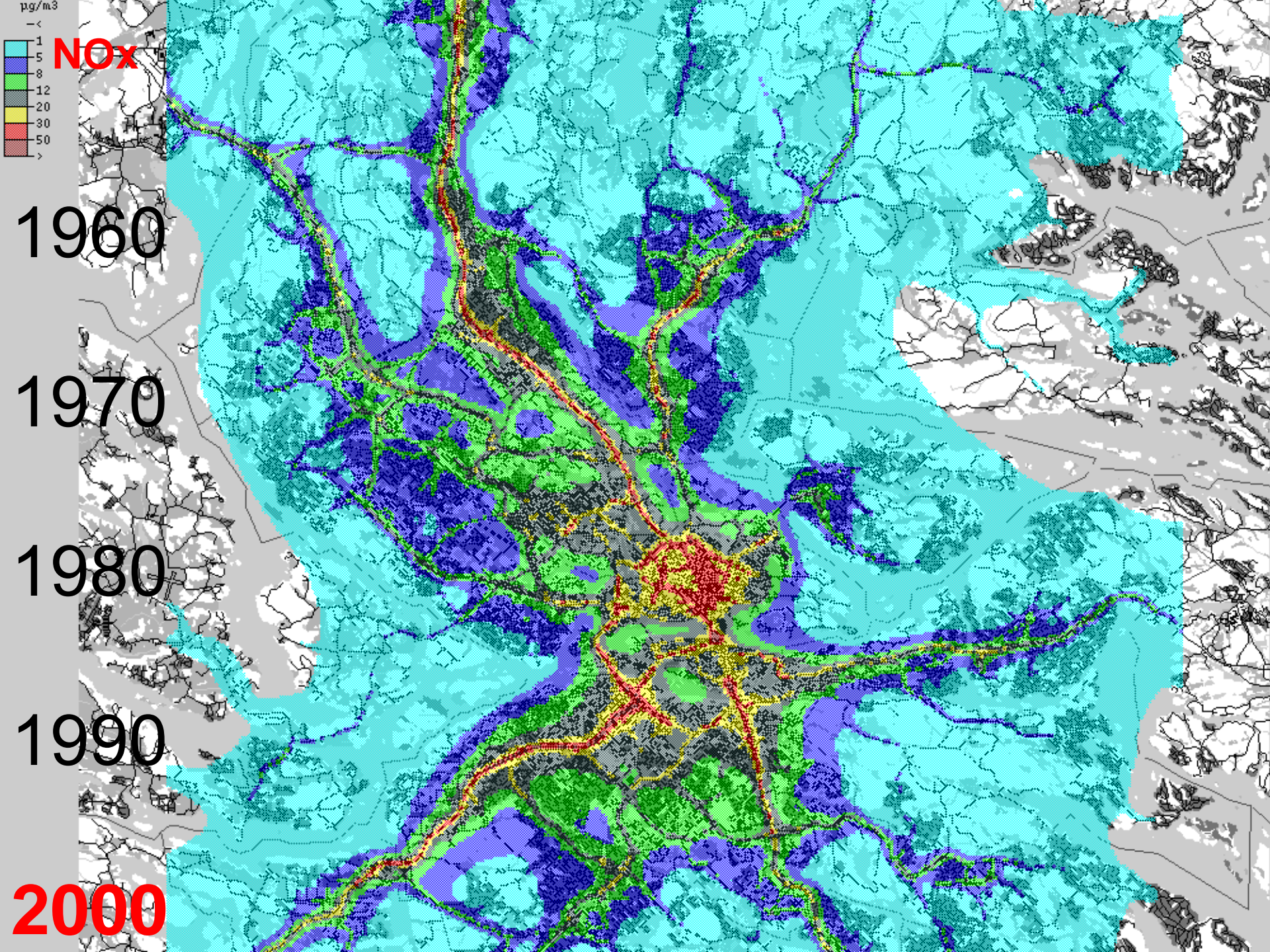










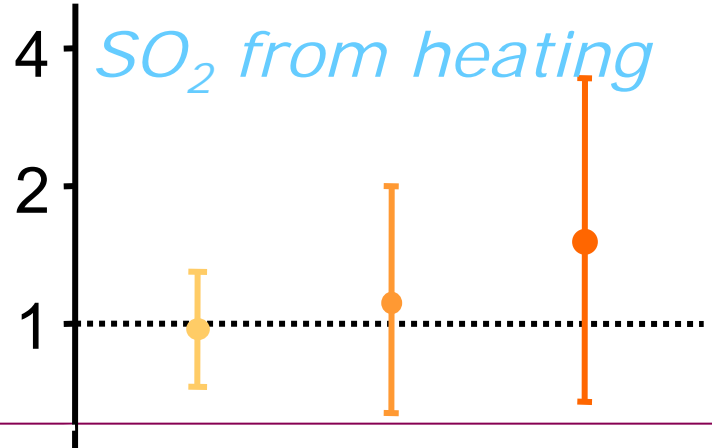
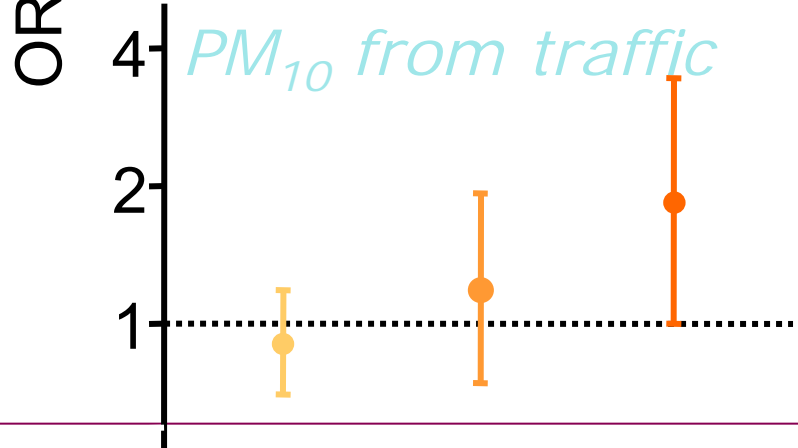
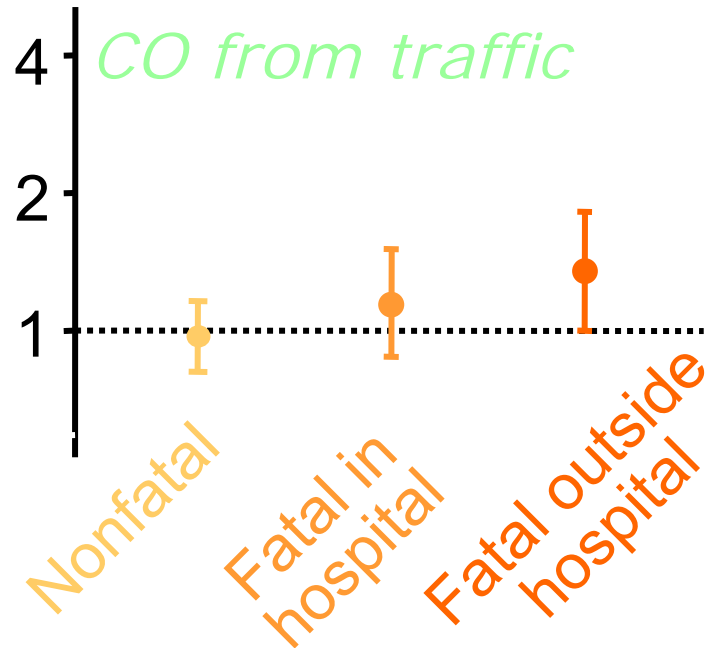
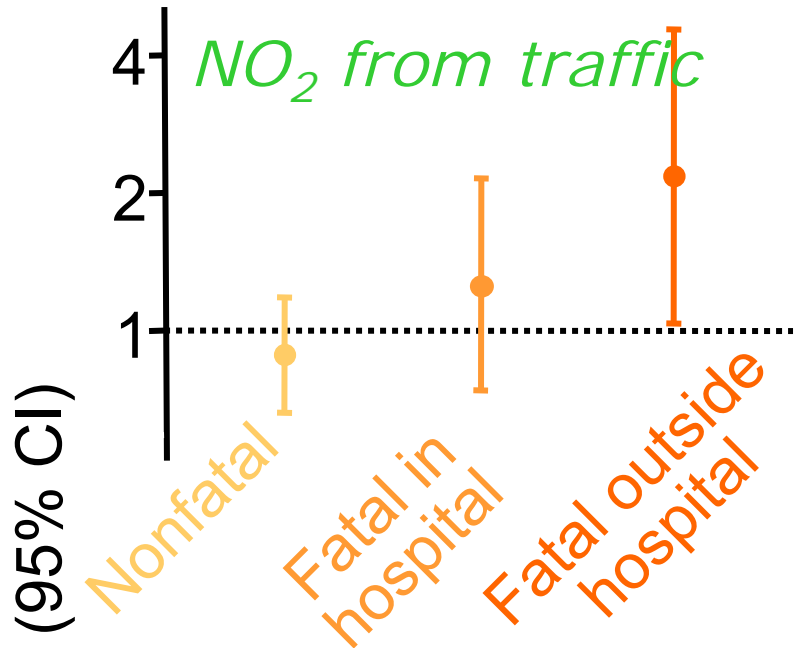


## Relative risk for lung cancer among men in Stockholm associated with exposure to ambient air pollution (20 year lag)

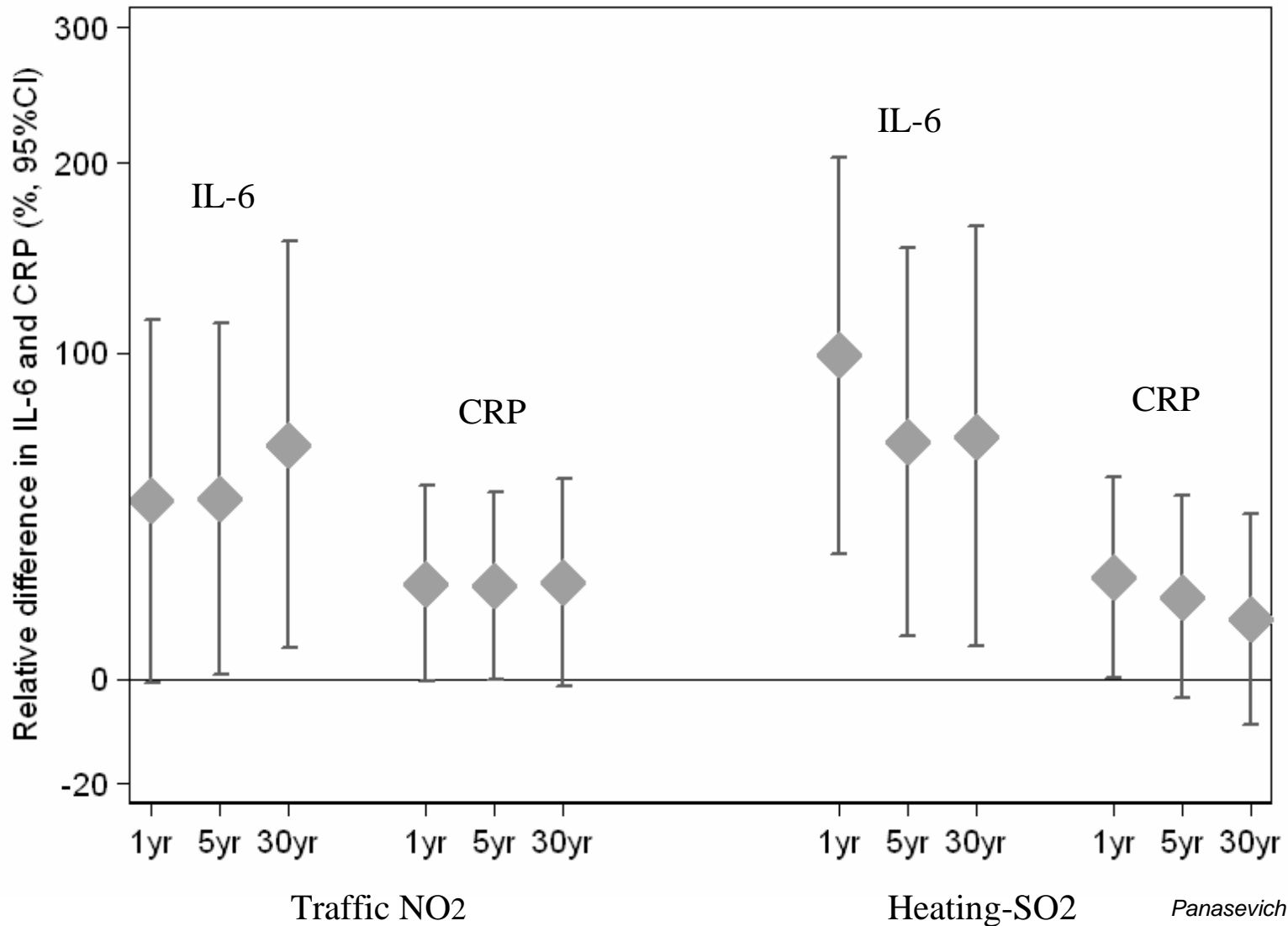
■ NO <sub>2</sub> from traffic (per 10 ug/m <sup>3</sup> )	1.15 (0.97-1.35)
(> 29 ug/m <sup>3</sup> )	1.60 (1.07-2.39)
■ SO <sub>2</sub> from heating (per 10 ug/m <sup>3</sup> )	0.99 (0.95-1.02)
(> 129 ug/m <sup>3</sup> )	0.95 (0.64-1.39)

From Nyberg et al. Epidemiology 2000

# Risk of non-fatal MI, fatal MI in or outside hospital in relation to air pollution exposure



# Effects of long-term exposure to traffic-NO<sub>2</sub> and heating-SO<sub>2</sub> on IL-6 and CRP levels



Panasevich et al in press

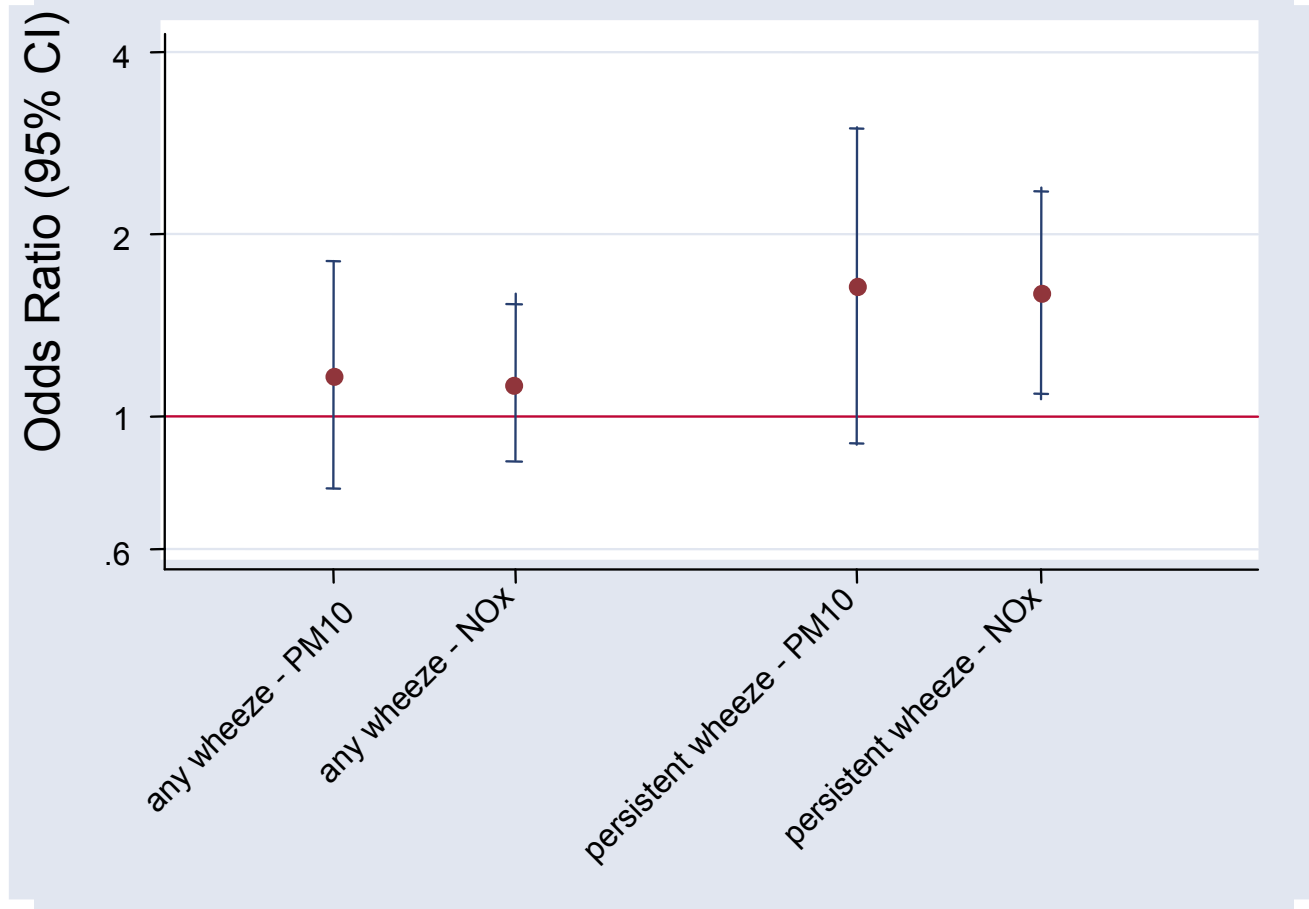
# Wheeze in relation to air pollution exposure among children in Stockholm



Exposure 1:st year of life.

Outcome up to 4 yrs of age

ORs calculated for a change in pollution level from the 5<sup>th</sup> to the 95<sup>th</sup> percentile



From: Nordling et al. 2007

# Peak Expiratory Flow in relation to air pollution exposure among children in Stockholm



Mean PEF: 169 l/min, SD 29 l/min

<b>Effect on PEF (l/m)</b>	<b>Traffic-PM<sub>10</sub></b>	<b>Traffic-NO<sub>x</sub></b>
Point estimate* (95%CI)	-5.36 (-10.67, -0.05)	-3.08 (-6.84, 0.68)

\* Calculated for a change in pollution level from the 5th-95th percentile

From: Nordling et al. 2007

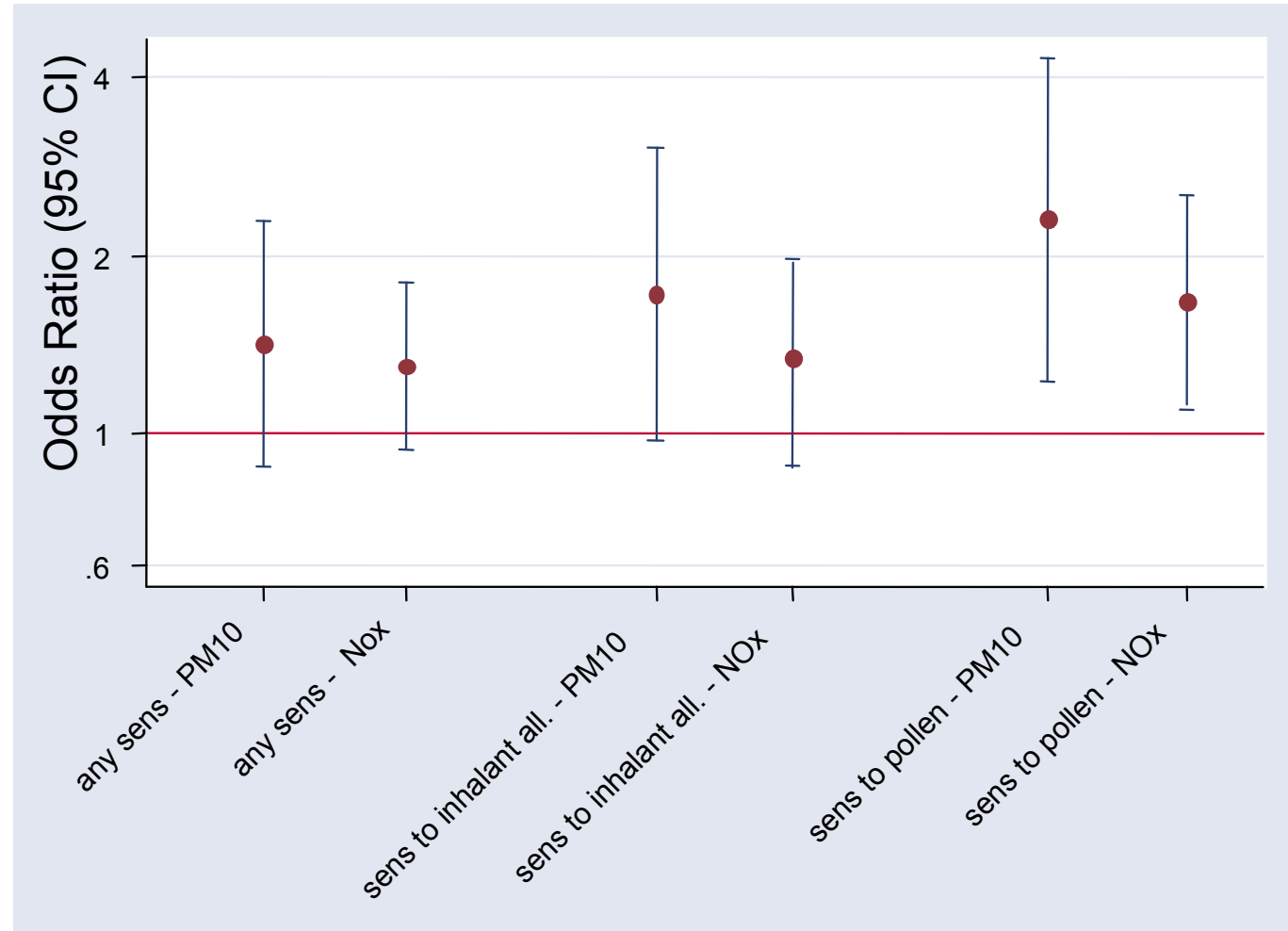
# Sensitization in relation to air pollution exposure among children in Stockholm



Exposure 1:st year of life.

Outcome up to 4 yrs of age

ORs calculated for a change in pollution level from the 5<sup>th</sup> to the 95<sup>th</sup> percentile



From: Nordling et al. 2007

# Hälsoeffekter av luftföroreningar

- Ett stort antal studier visar samband mellan korttidsvariationer i luftföroreningsnivåer och akut sjuklighet/mortalitet
- Flera studier tyder på att luftföroreningar kan öka risken för astma och allergi hos barn
- Långtidsexponering för luftföroreningar förefaller öka risken för luftvägs- och hjärtkärlsjukdomar
- Mekanistiskt inriktade studier talar för att luftföroreningar bl a kan ge upphov till systemisk inflammation