Time series study on air pollution and mortality in Delhi

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Background

- Air quality issues are of major concern for many cities in Asia and other developing countries
- Increasing attention from policy makers, legal body, NGOs, research, academic institutions and funding agencies
- Many initiatives, but gaps in research still exist

Aim and Objectives of the study

- Aim: To generate site specific database on effect of air pollution on mortality for the city of Delhi, India
- Specific objectives:
  - To develop exposure series for air quality parameters
  - To assess the time series data on air quality parameters and mortality to study the relationship between air pollution and mortality in Delhi
  - To assess the daily change in mortality in relation with change in air quality after controlling for the exogenous parameters

Salient features of the study

- Multidisciplinary team
- Meeting ICMR guidelines on ethical aspects
- Review and guidance from ISOC
- QA/QC audit
- Capacity building
  - Training on developing exposure series
  - R Package
  - Core model for time series analysis

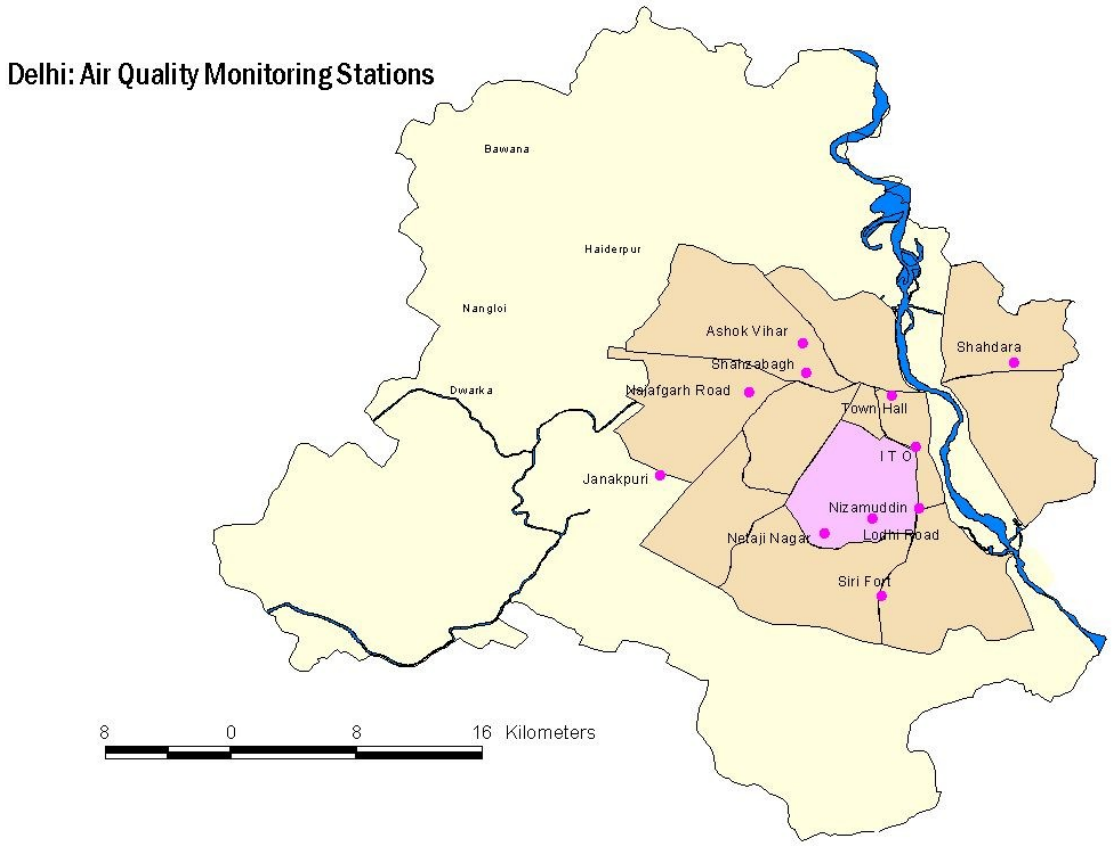
Multi disciplinary Team

- R Uma, TERI – Air quality and Exposure Assessment
- K S Nairy & Meena Seghal, TERI – Bio Statistician
- Dr Deoraj Caussy, WHO SEARO – Epidemiologist
- Dr S K Chhabra, V P Chest Institute - Clinical
- Dr G C Kilnani – Clinical
- NDMC, MCD & CPCB

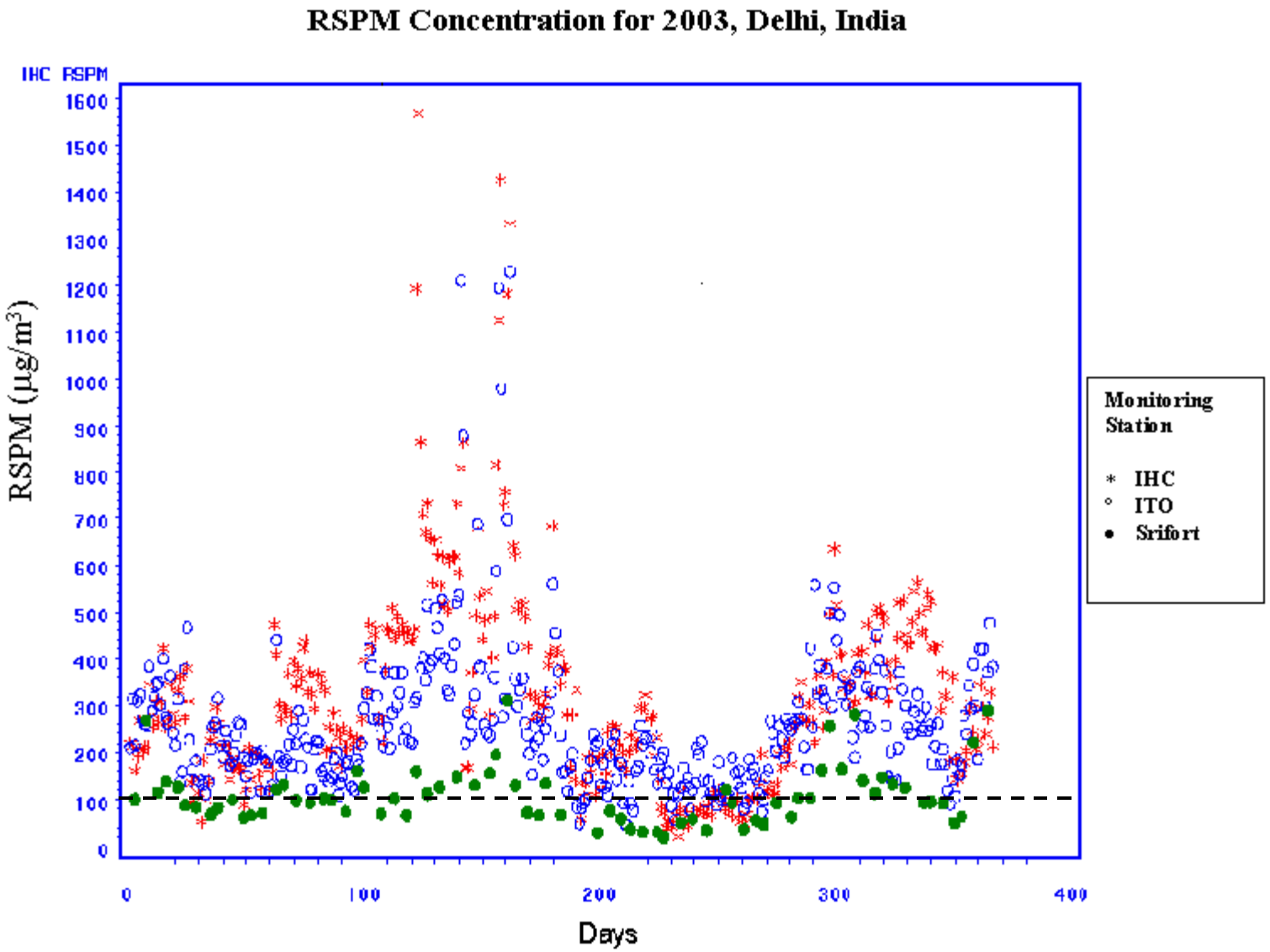
Methodology

- Collection of retrospective time series data (2002, 2003 & 2004) on
  - Ambient air quality
  - Mortality data
  - Meteorological data (Temperature, humidity, visiblity)
- Statistical analysis of data to study the association of age specific death (all cause mortality) with exposure to air pollution

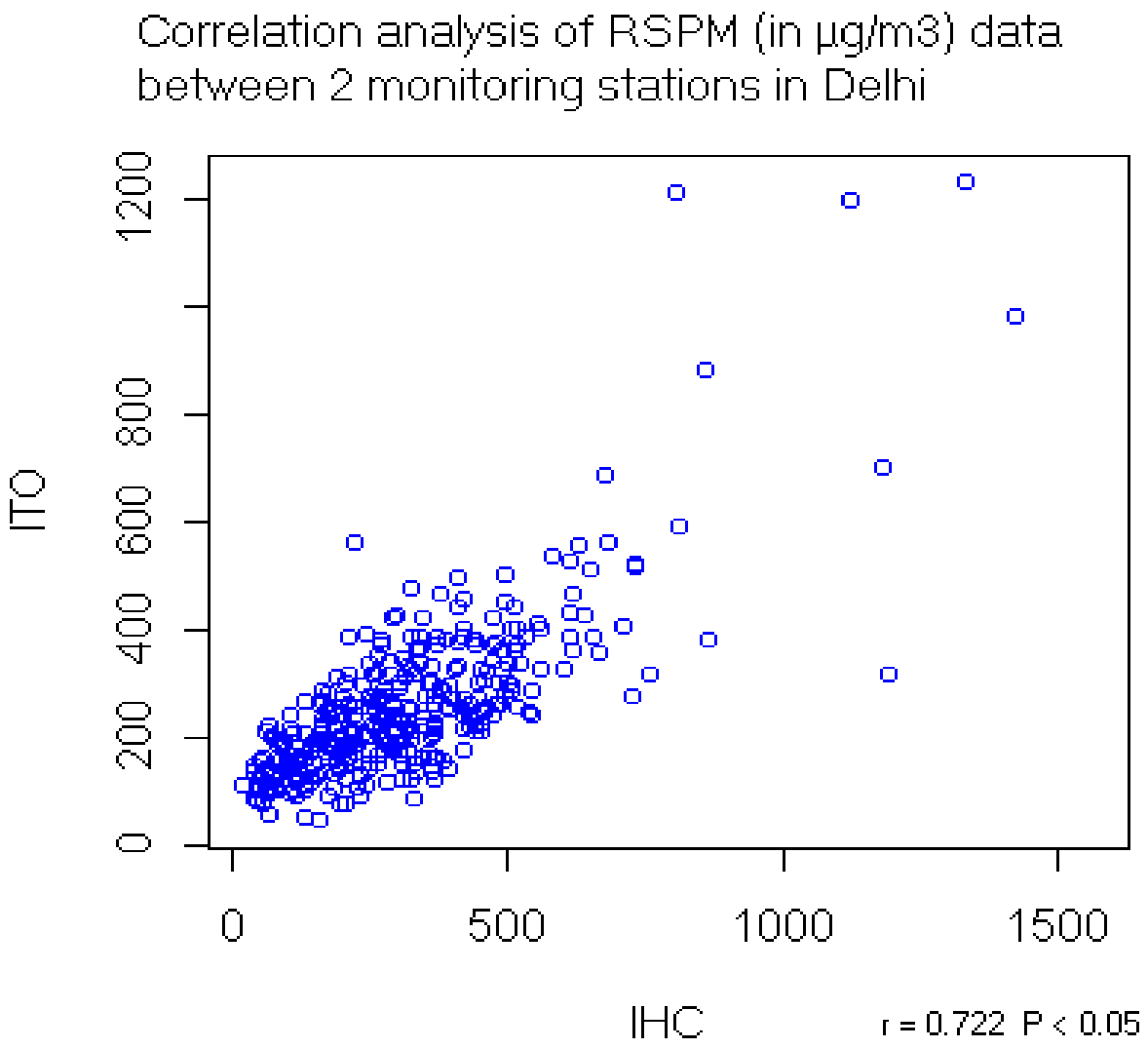
Location of the study



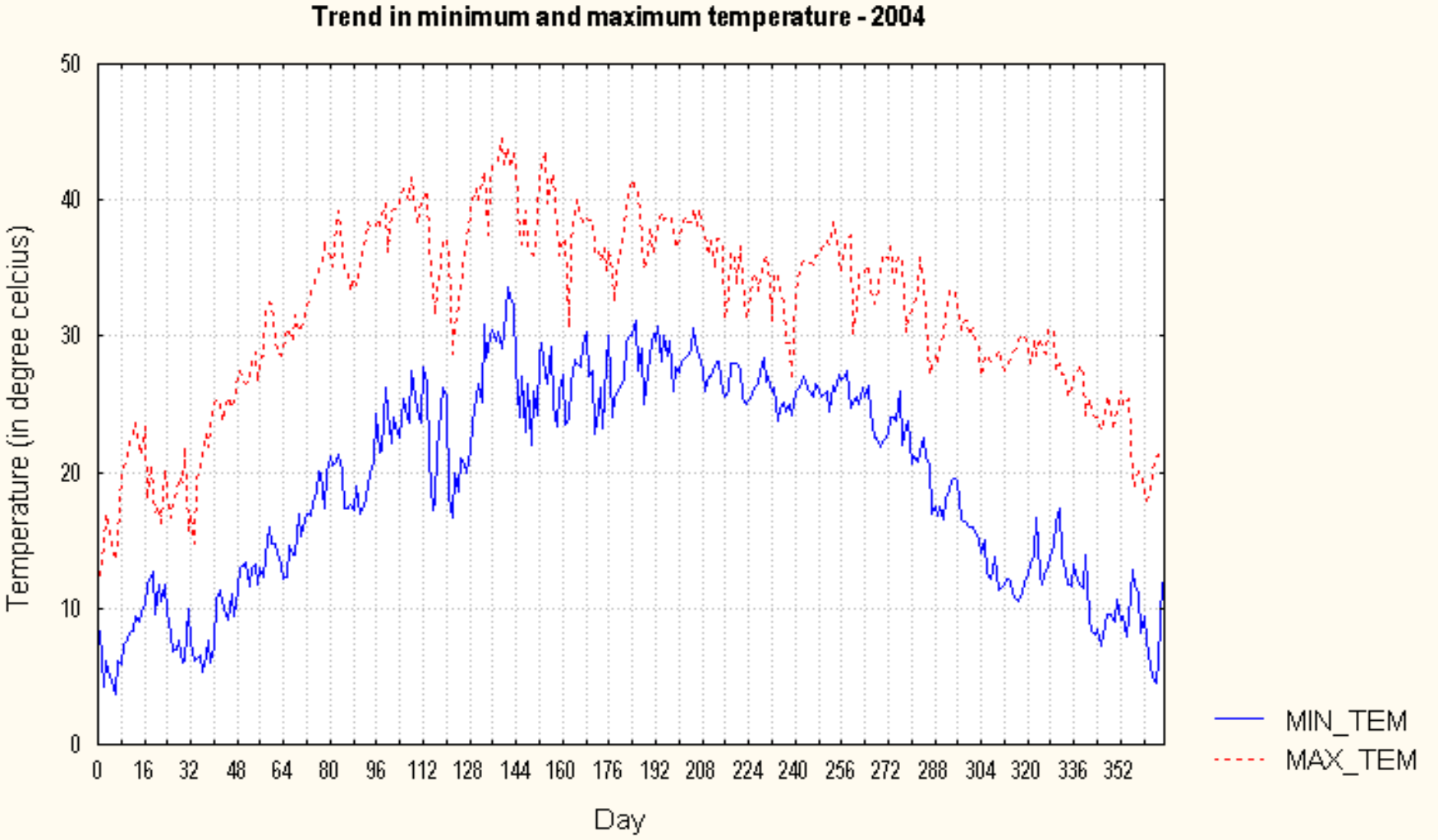
RSPM Concentration



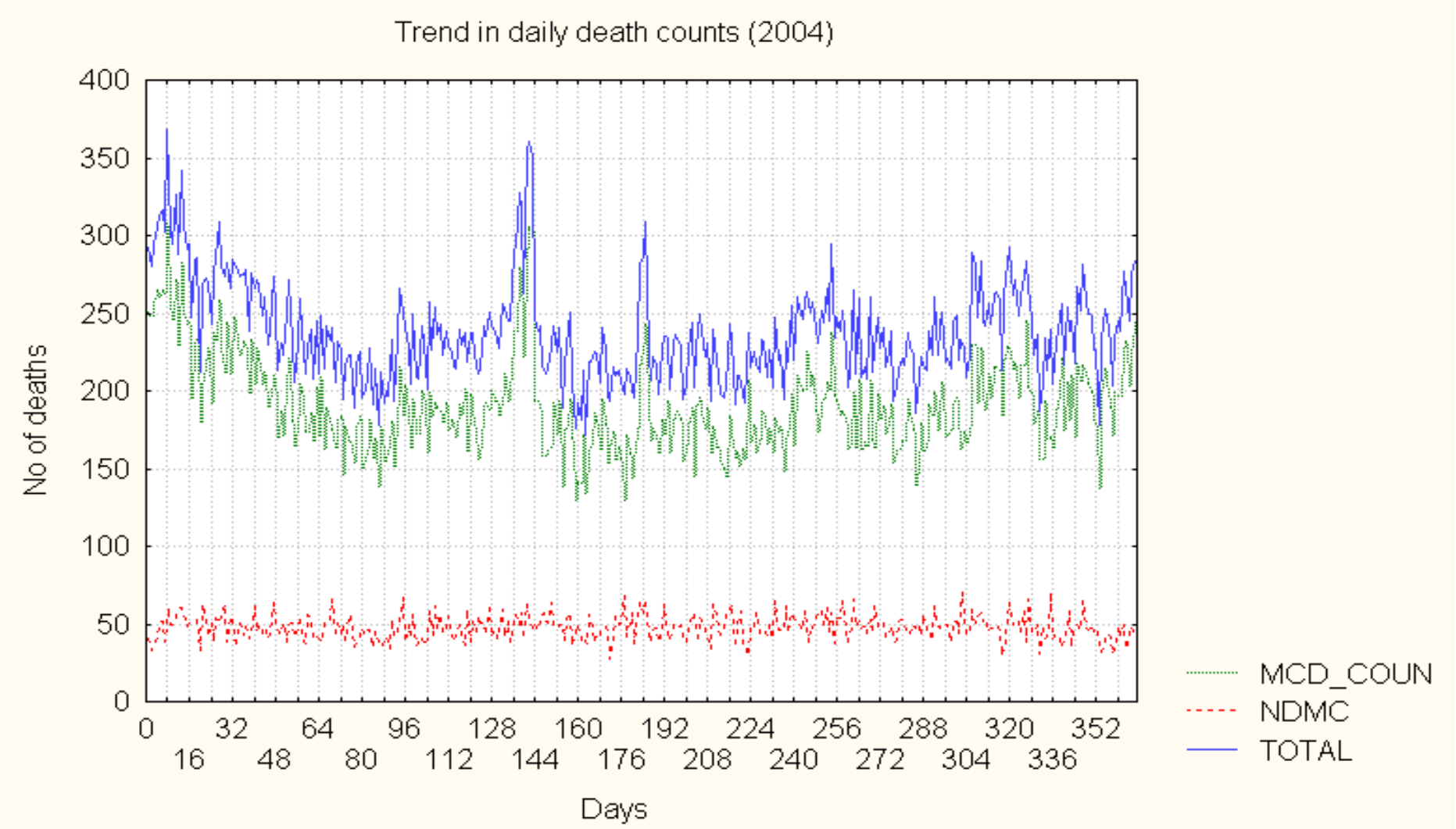
Correlation Analysis



Trend in Temperature



Trend in Death Counts



Work in progress

- Mortality data collection and cleaning (for the year 2003)
- Core model development and application

Thank You