IMPROVING PM10 MONITORING

The Role of Monitoring in Management

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HEALTH SIGNIFICANCE OF PARTICLES IN CHRISTCHURCH

- **Premature deaths due to PM10 – 116**
- **Annual cost - $136 m per annum**
- **Based on air pollution epidemiological studies:**

  - require temporal distribution of deaths and air pollution

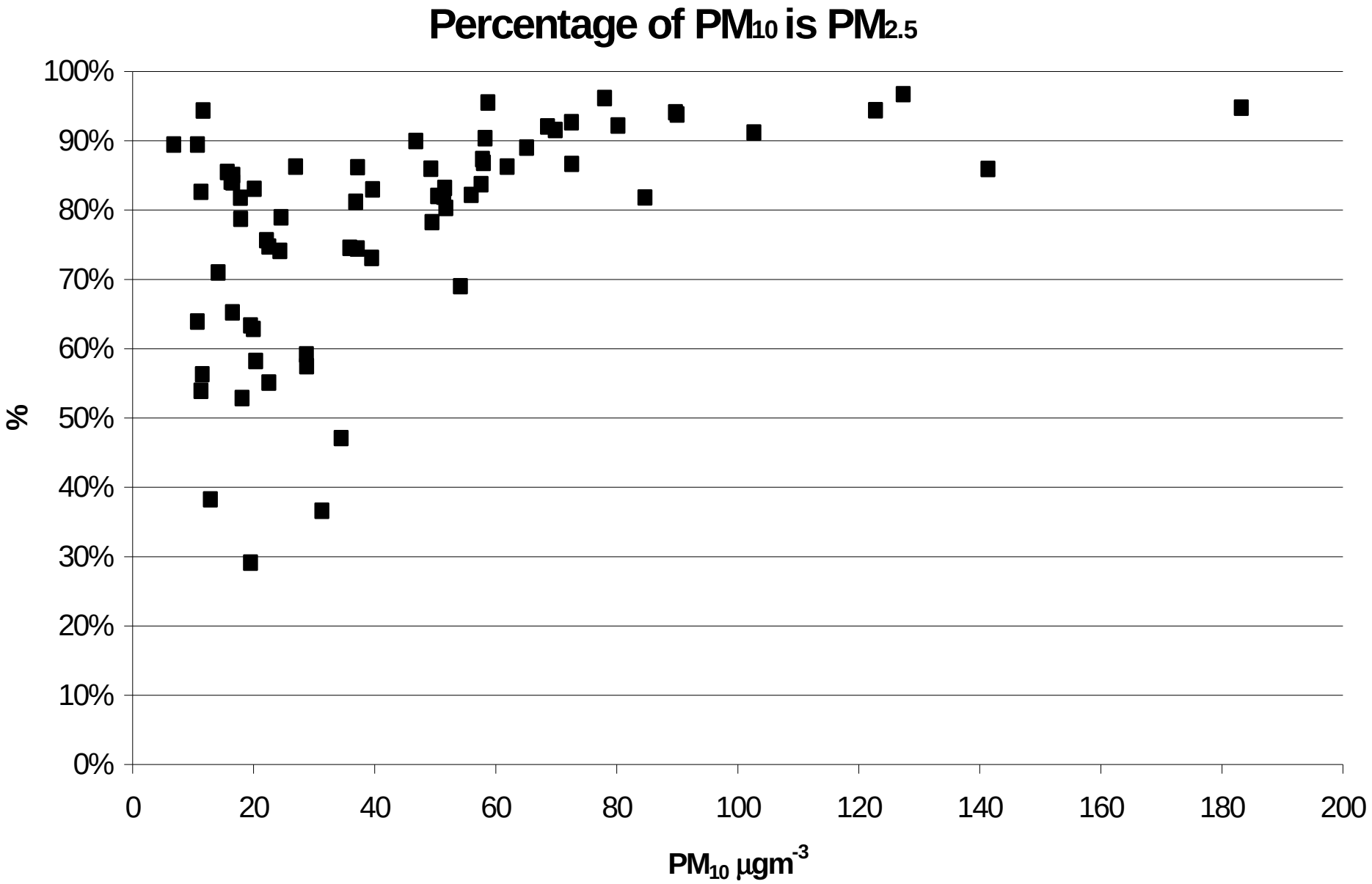
  - needs long term monitoring data

ANALYSIS OF HEALTH EFFECTS

- **Debate over particle size causing health effects:**

  - PM10 or PM2.5 or PM1
- **Debate over particle numbers**

  - many fine particles or few larger particles
- **Need for monitoring data to resolve causation and for standard setting**


Percentage of PM10 is PM2.5
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
%
0
20
40
60
80
100
120
140
160
180
200
PM10 µgm-3

MANAGEMENT OF EFFECTS REQUIRES MANAGEMENT OF SOURCE

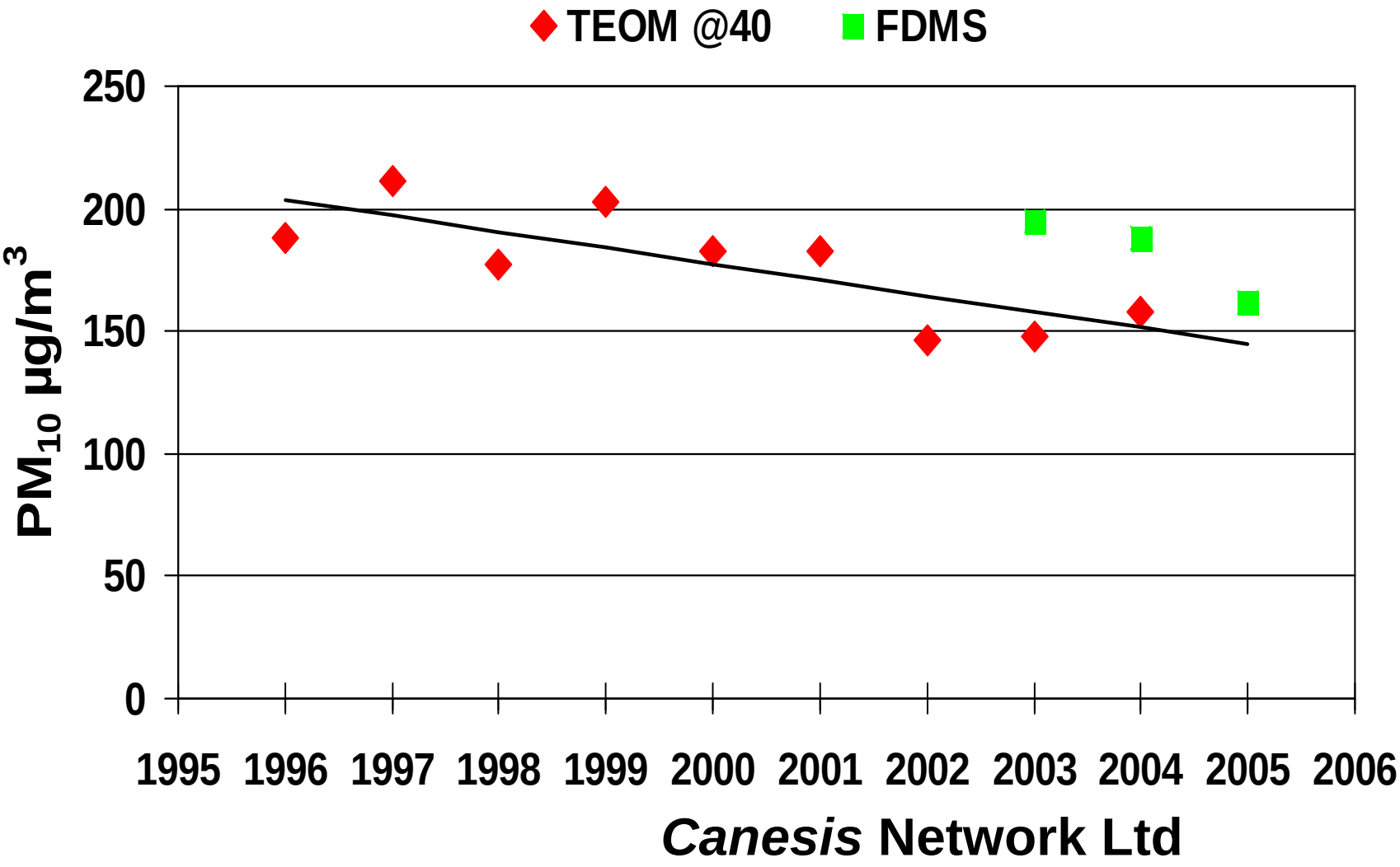
- **Effective action needs knowledge of source**
- **Monitoring for source apportionment is a key component**
- **Not just planners and regulators need to know; also those required to take action**
- **Christchurch: 80% woodheaters; 10% motor vehicles; 10% industry**
- **Community survey: 46% consider motor vehicles the main source**


80%
10%
10%
Where there's fire, there's smoke
Clean heat
cleanheat.org.nz
Environment Canterbury

EFFECTIVENESS OF ACTION

- **Monitoring required for:**
  - **Compliance with standards**
  - **Plan implementation achieving results**
- **Critical issues**
  - **Measurement protocols**
  - **Quality assurance**
  - **Trend analysis**

Average of PM_{10} concentrations on still, cold evenings



SIGNIFICANCE OF MONITORING

- **Long term data sets for causation analysis and standard setting**
- **Source apportionment monitoring to plan pollutant reduction strategies**
- **Compliance monitoring to test whether standard has been met**
- **Trend analysis to assess effectiveness of actions**
- ***If you can't measure it you can't manage it***