

Analysis of Community-owned FTIR measurements

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Reported Measurements

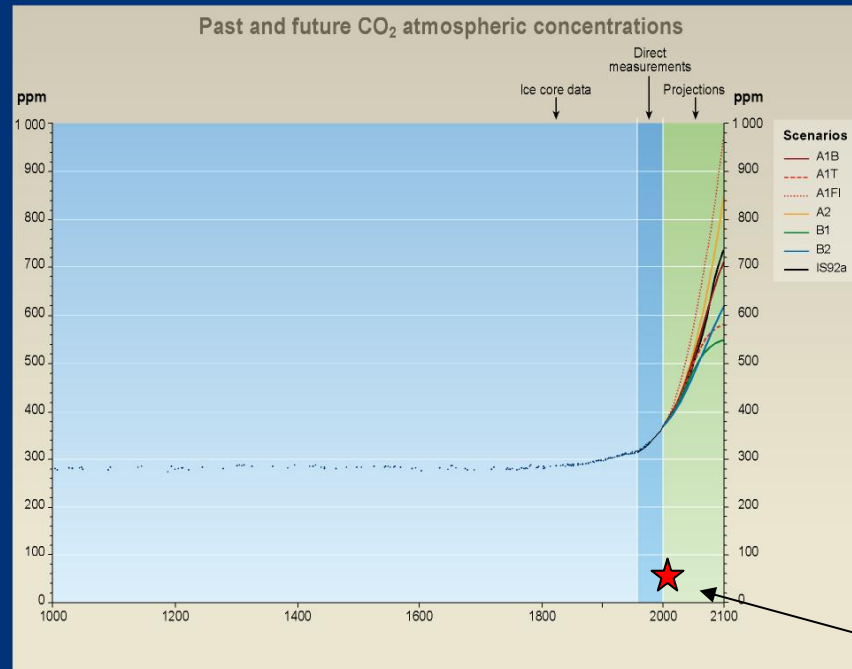
1/12/2004 presentation to Task Force

- CO₂ peak of 78,000 ppb – avg of 55,000; 55 to 78 parts per million
- Methane peak of 617 ppb – avg of 295 ppb; 0.295 to 0.617 parts per million
- CO₂ & Methane, along with water vapor are the most important greenhouse gases in the atmosphere
- Greenhouse gases are gases which absorb infrared radiation

CO2 Background

- Very long-lived in the atmosphere
- Automobiles & other combustion sources enhance concentrations in urban areas
- High background concentrations which are rising; background refers to measurements made in remote areas such as Greenland, Antarctica, or the top of volcanoes in Hawaii

Historical CO₂ Concentrations

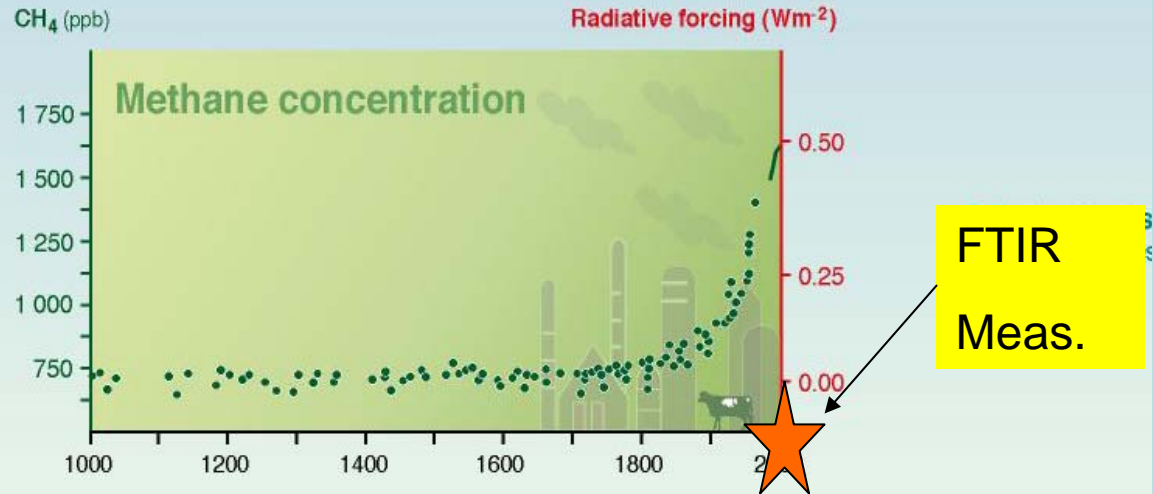


FTIR
Measurement

Methane in the atmosphere

- Relatively long-lived; can be reduced by high levels of oxidants
- Sources are oil & gas operations, cattle operations, landfills, swamps and decaying vegetation

Atmospheric Concentrations of Methane



IPCC

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

CONCLUSIONS

- CO₂ & Methane measurements are much lower than background levels
- Local sources and sinks would lead to higher levels than background
- The FTIR measurements are in serious error for two of the most abundant and important IR absorbing gases
- No confidence can be placed in the FTIR measurements reported to the task force

Foundations for Analysis

- Reported FTIR Measurements
- Reported CO₂ & CH₄ World-wide Background measurements
- Irrelevant local factors include: (1) Intel's reported or actual emissions, (2) local terrain and winds, (3) air permit requirements, (4) status of operating equipment, (5) emission spikes, or (6) Intel's monitoring or lack thereof

Analysis gives no information on:

- Presence or nature of health effects
- Odors
- Possible causes of any air pollution effects

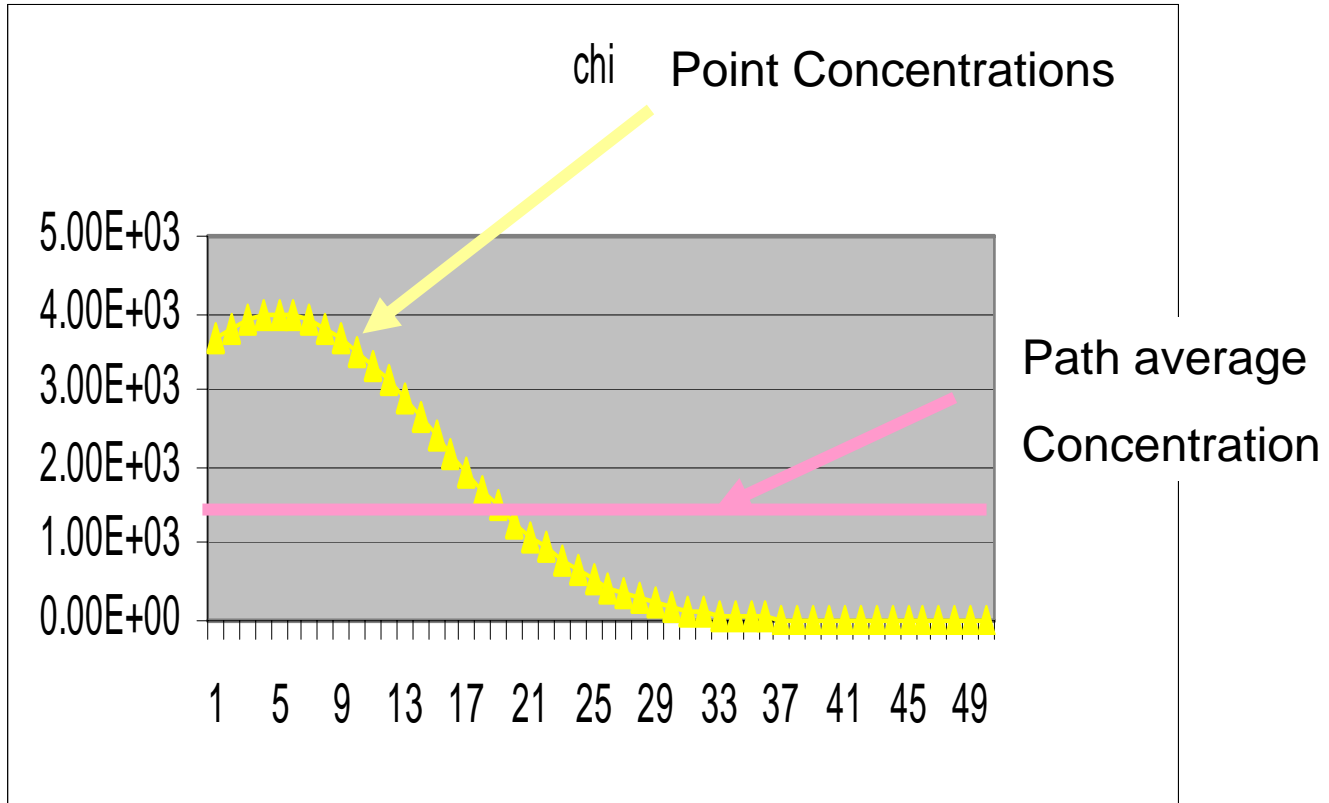
FTIR Data Represent a Lost Opportunity

- Good FTIR data might form the basis for conclusions about the nature of community exposures
- With good knowledge on exposures; we might be able to identify key contaminants and link them to specific effects and start the process to identify cause & effect

Difficulties in Identification of Cause & Effect with FTIR

- Doesn't identify aerosols & the growth of aerosols with rapid economic growth will probably produce some effects even without Intel emissions
- FTIR gives only path average concentrations not what people actually breathe; however you are more likely to measure part of the plume
- Strong statistical inference requires many affected people

Path Average vs Point Concentrations



Possible Way Forward

- Find a mutually acceptable, independent party to repair (if needed) the FTIR
- Find a mutually acceptable, independent party to analyze output of the FTIR with no knowledge of where or how the measurements were made – e.g. Citizen Protocol
- Measurements should include known compositions as well as ambient measurements