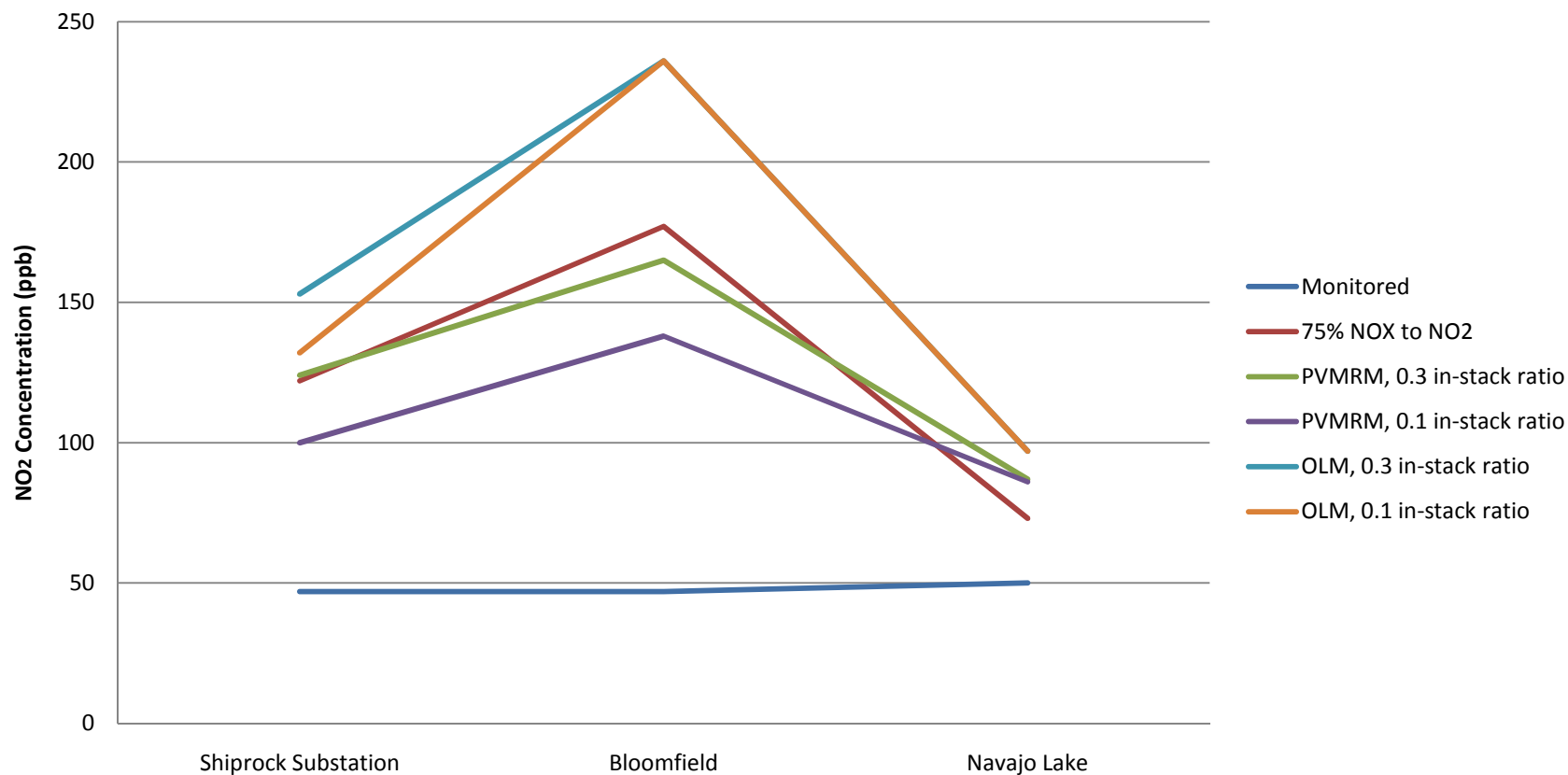# Monitored Ratio Method (MRM): Location-specific NO_2/NO_X ratios based on NO_X concentration.

Written by Eric Peters
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1301 Siler Road, Building B
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505-476-4327
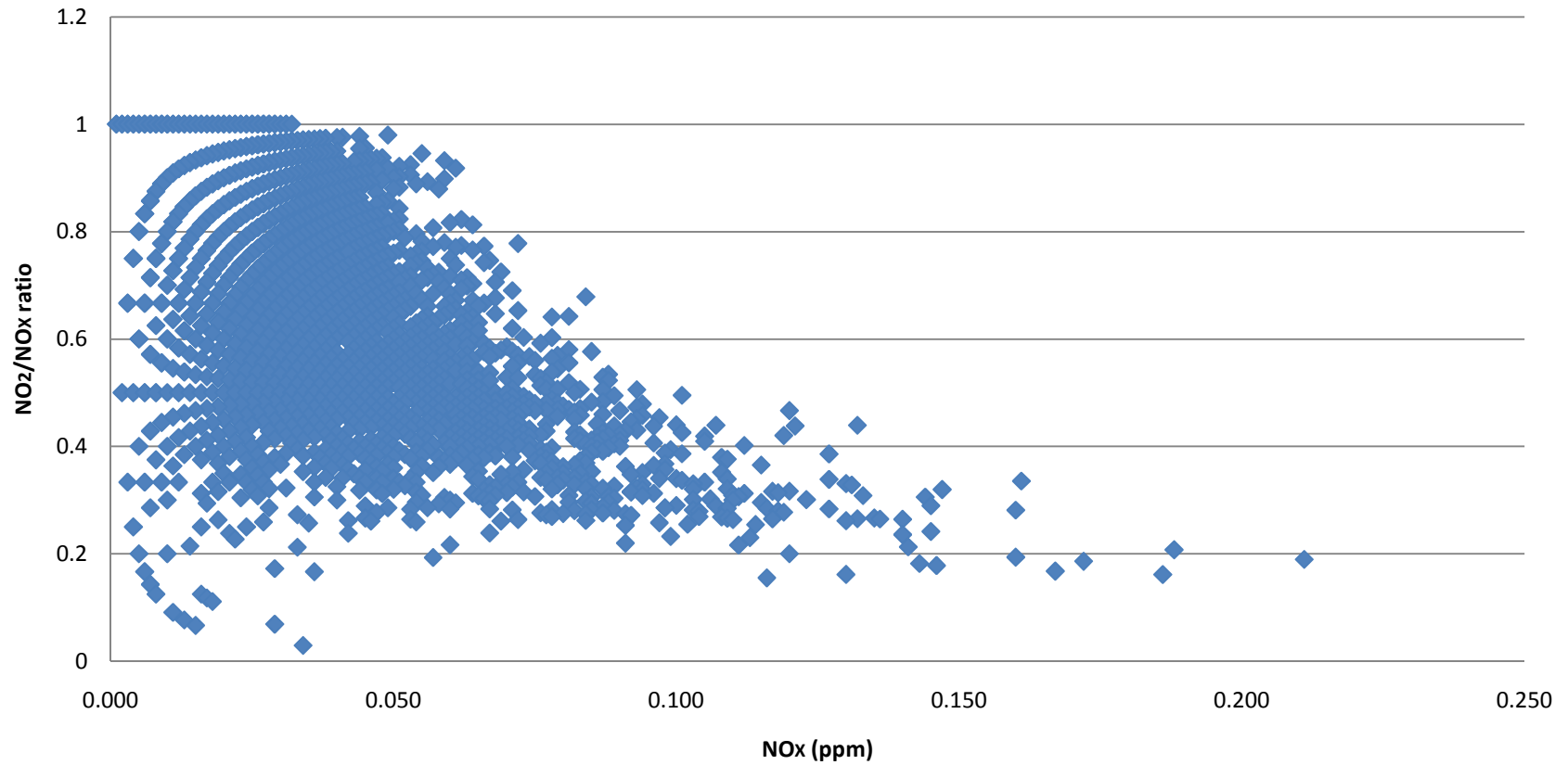Eric.Peters@state.nm.us

May 25, 2011

AERMOD predicts much higher NO₂ concentrations than monitors
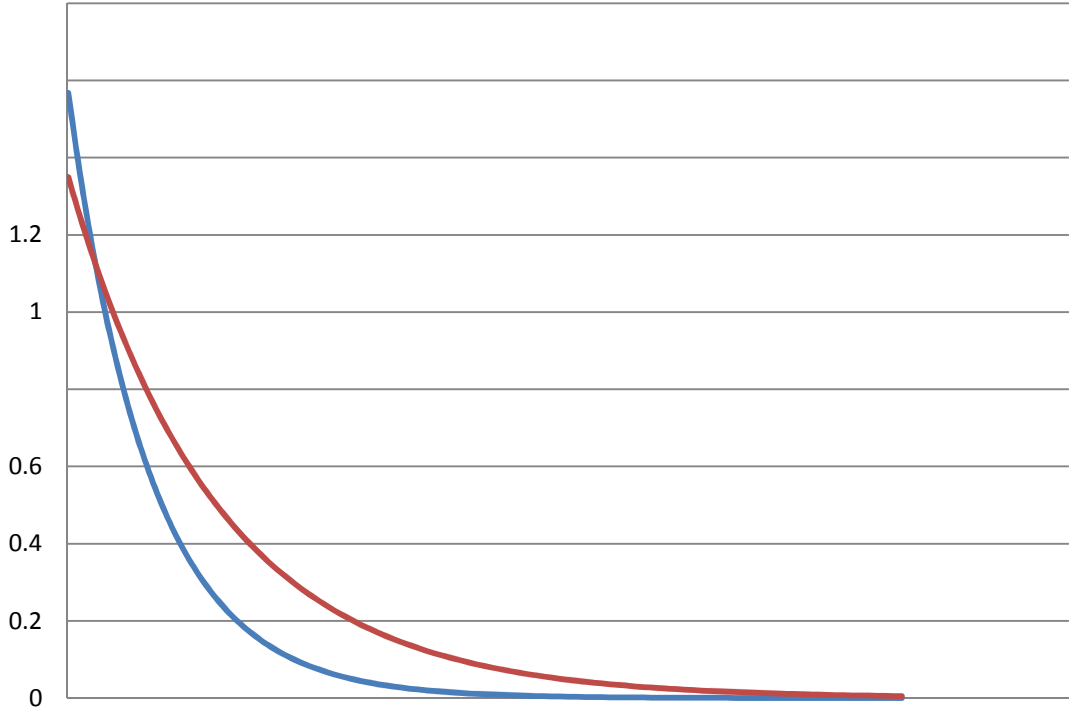

4-Corners Modeling and Modeling

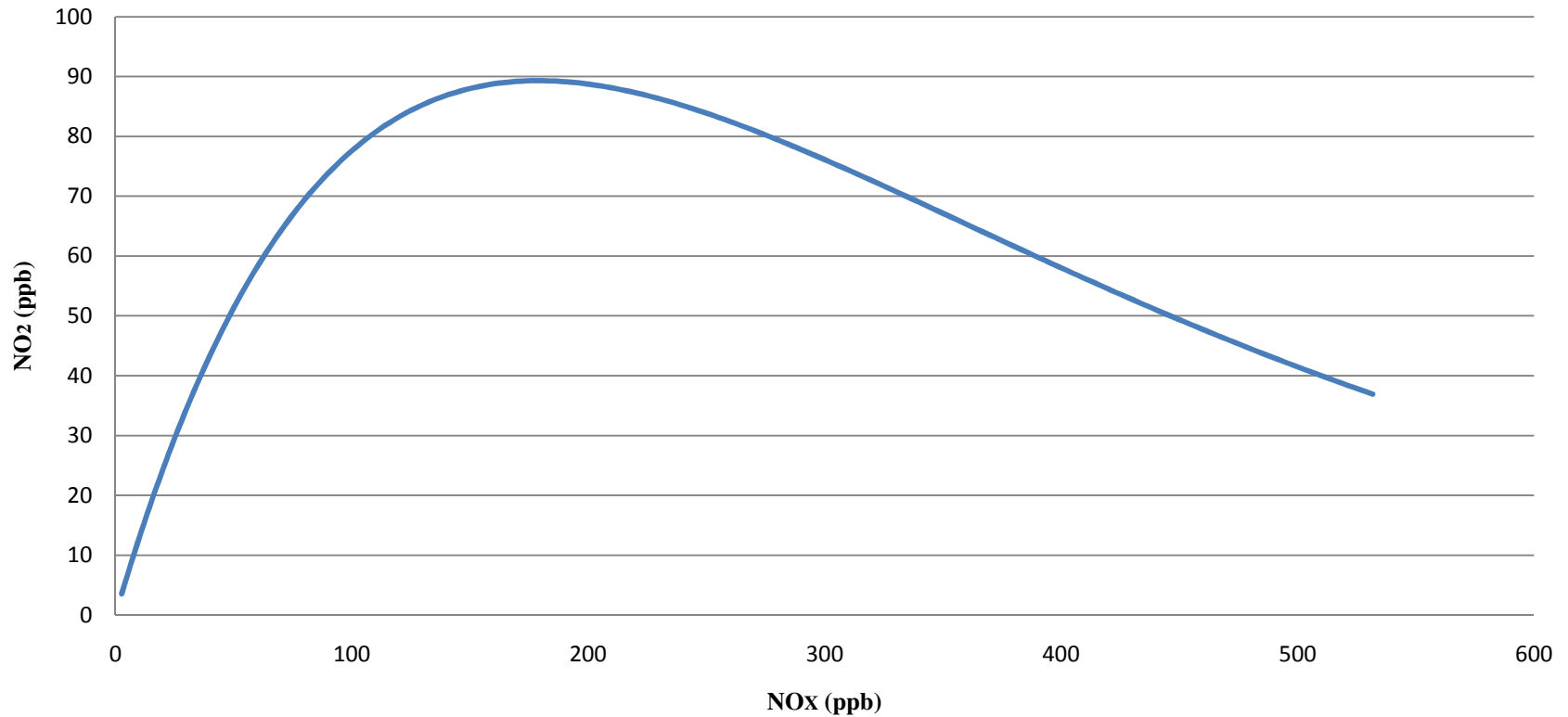# Data from all New Mexico NOx monitors

NM monitored NO2/NOx ratio vs NOx

Maximum NO₂/NOₓ ratios from NM monitors and Blewitt study

NO₂ concentration predicted by NOₓ concentration

Graph of NO$_2$ concentration vs. NO$_X$ concentration (based on $[NO_2]/[NO_X] = 1.3571\ e^{(-5.5897*[NOX])}$)
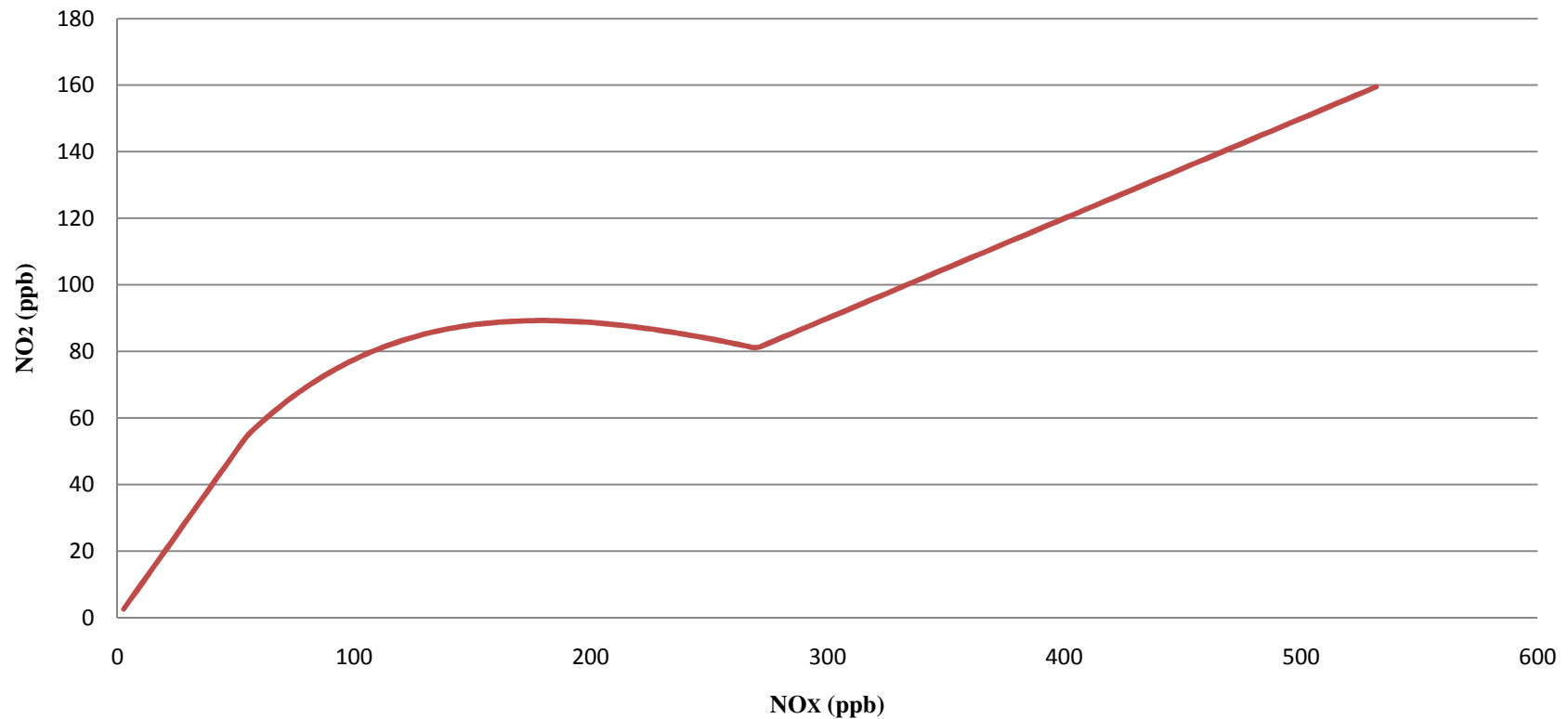
Ozone

- Higher ozone concentrations will produce higher NO_2/NO_X ratios.

- Areas with higher ozone concentrations may have different curve.

Maximum and minimum NO_2/NO_X ratios

- The highest possible NO_2/NO_X ratio is 1.0
- Minimum NO_2/NO_X ratio is in-stack NO_2/NO_X ratio

Example concentration plot based on minimum NO₂/NOₓ ratio of 0.3

Graph of NO₂ concentration vs. NOₓ concentration (limited by 0.3 in-stack NO₂/NOₓ ratio)

Implementation work

- Look at NO_2/NO_x vs NO_x concentration data in your area

- Are NO_2/NO_x ratios higher?

- Is ozone higher?

- Feel free to send me your data.

Comments?

- Are there reasons this technique would not work?