Speciated PM2.5 for AIRPACT-4

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Overview

Goal:
- Develop automated speciated PM2.5 AIRPACT-4 comparisons at IMPROVE and CSN sites for the web

Methods:
- Use Ranil's R script to download obs data
- Use CMAQ "combine" and "compare sites" scripts provided by Serena
- Use Ranil's R script to create performance graphics
- Generate statistics reports
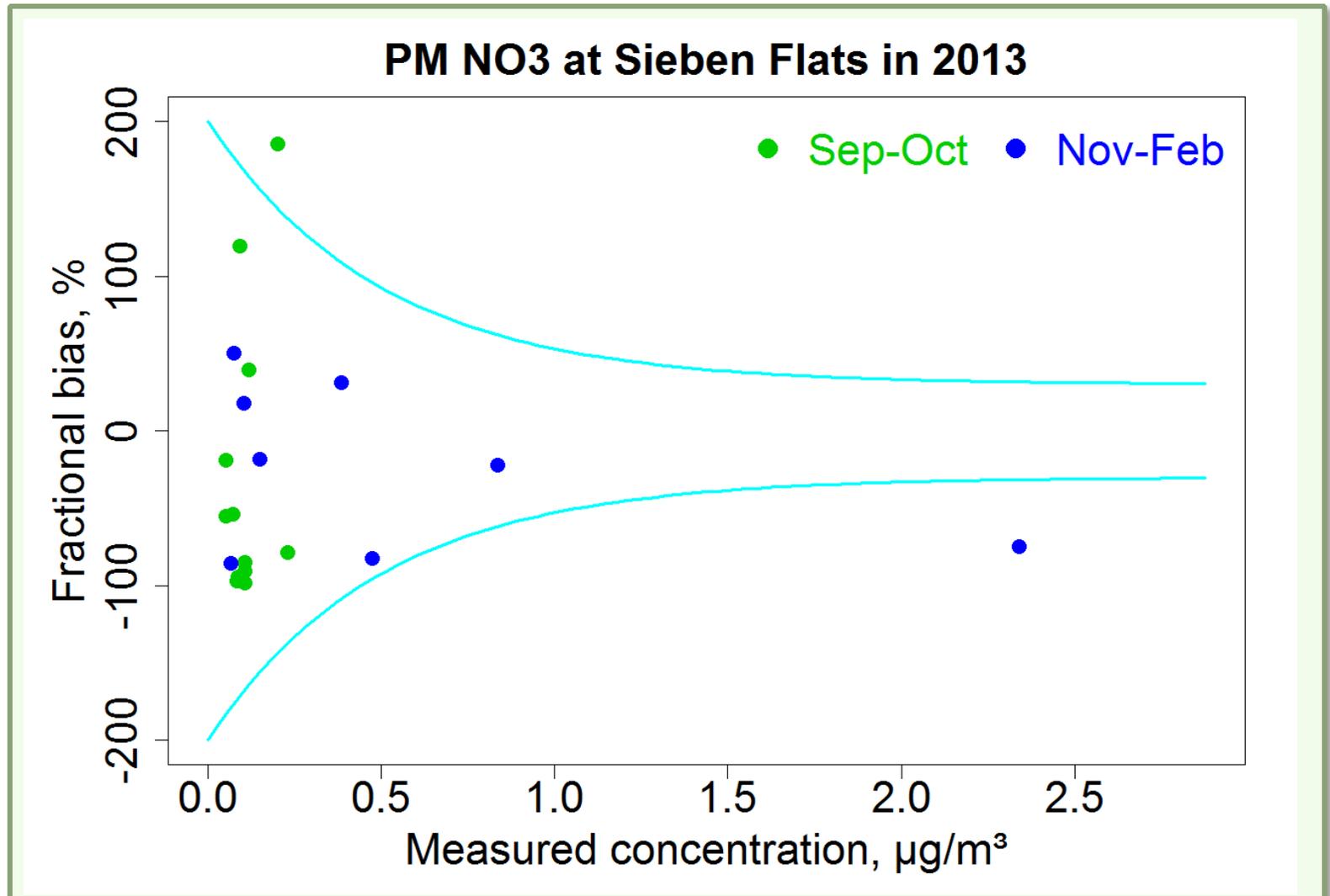- Post results to the web

Current Status

Completed:
- coding has been completed to generate comparison tables and graphics for: SO_4, NH_4, NO_3, EC, OC, and total PM2.5
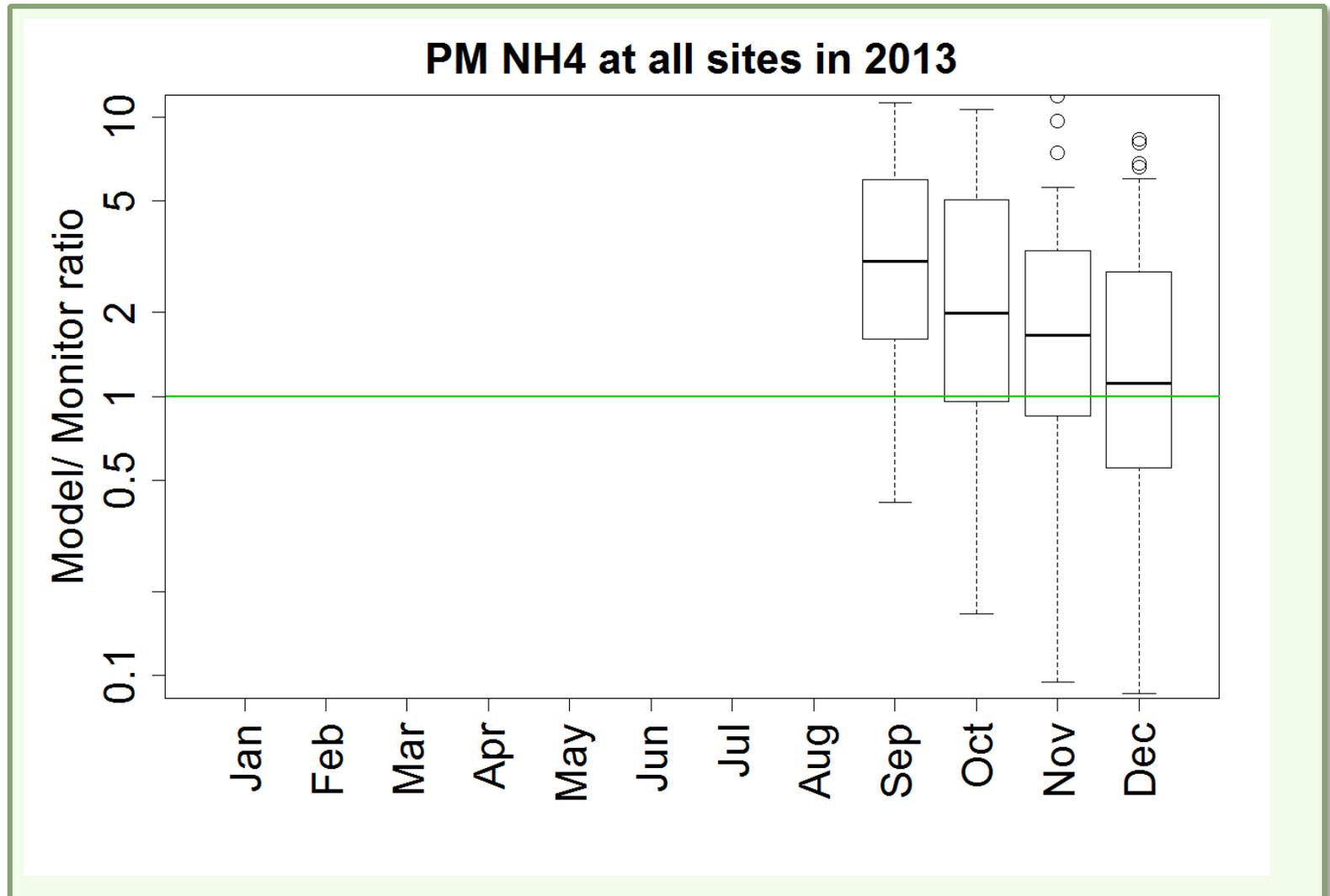
Uncompleted:
- Decision on final graphics/stats format
  - bugle, scatter, timeline, box-and-whisker plots?
  - monthly/seasonal/annual aggregates?
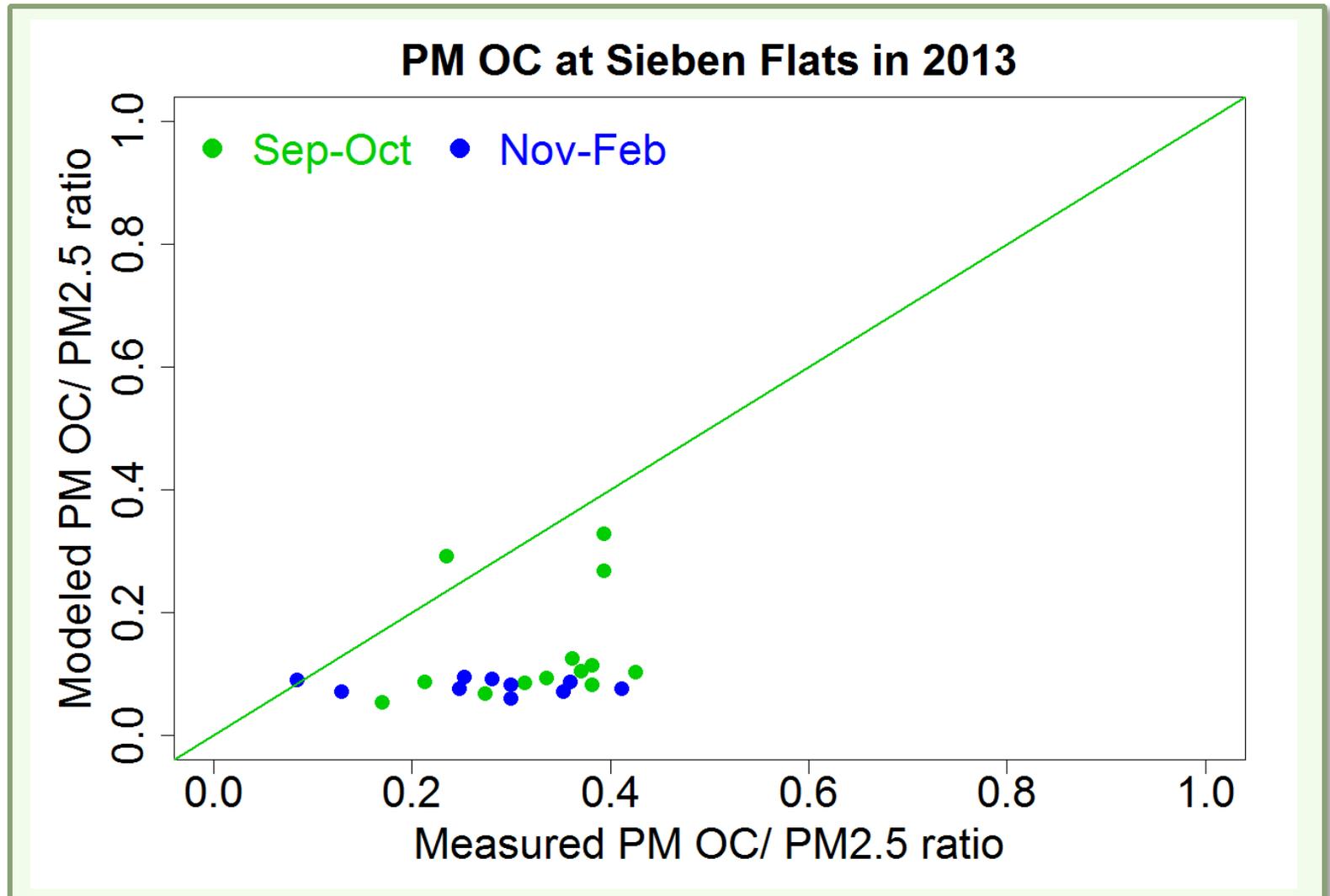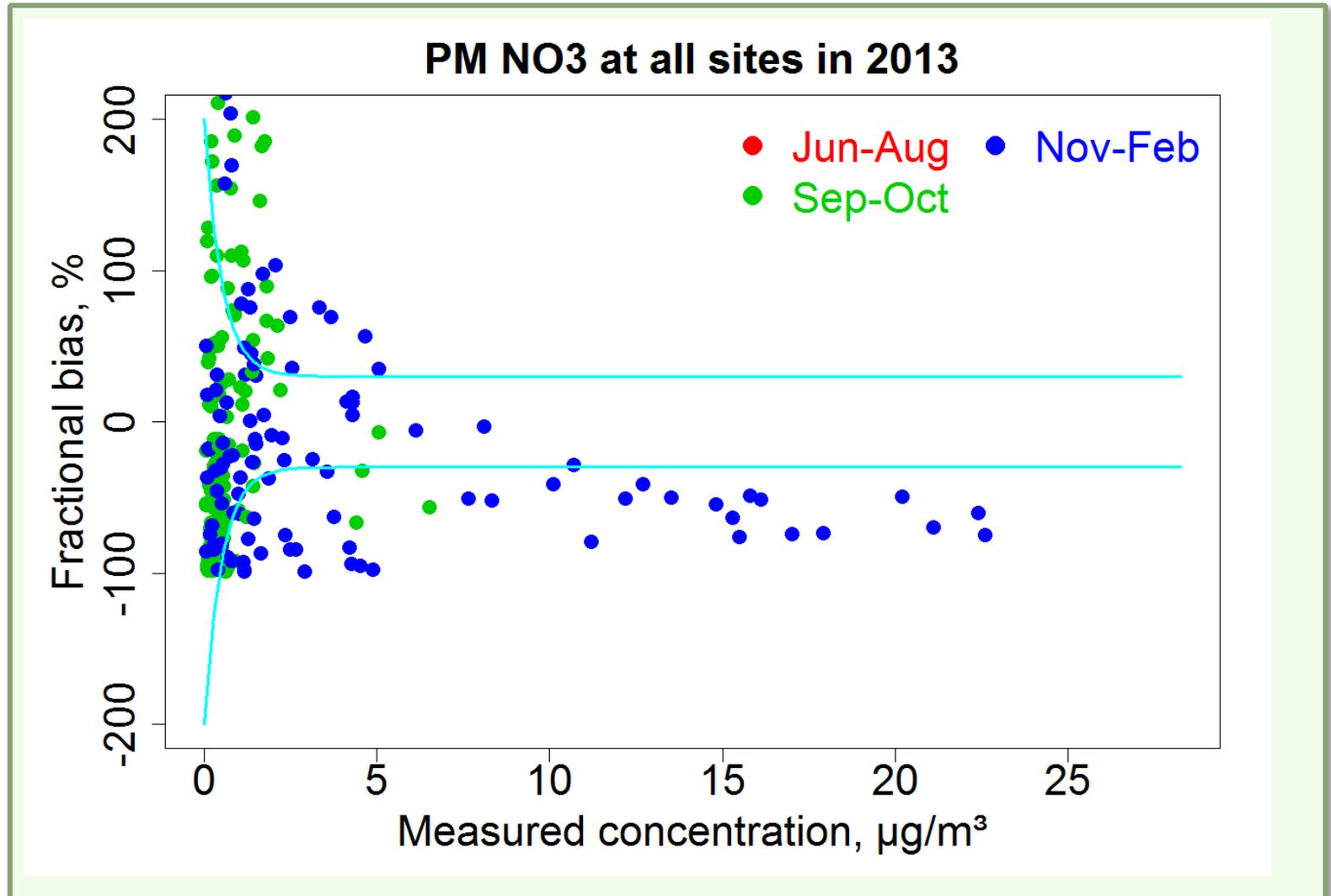- Decision on statistics reporting

Sample Results

PM NO3 at Sieben Flats in 2013
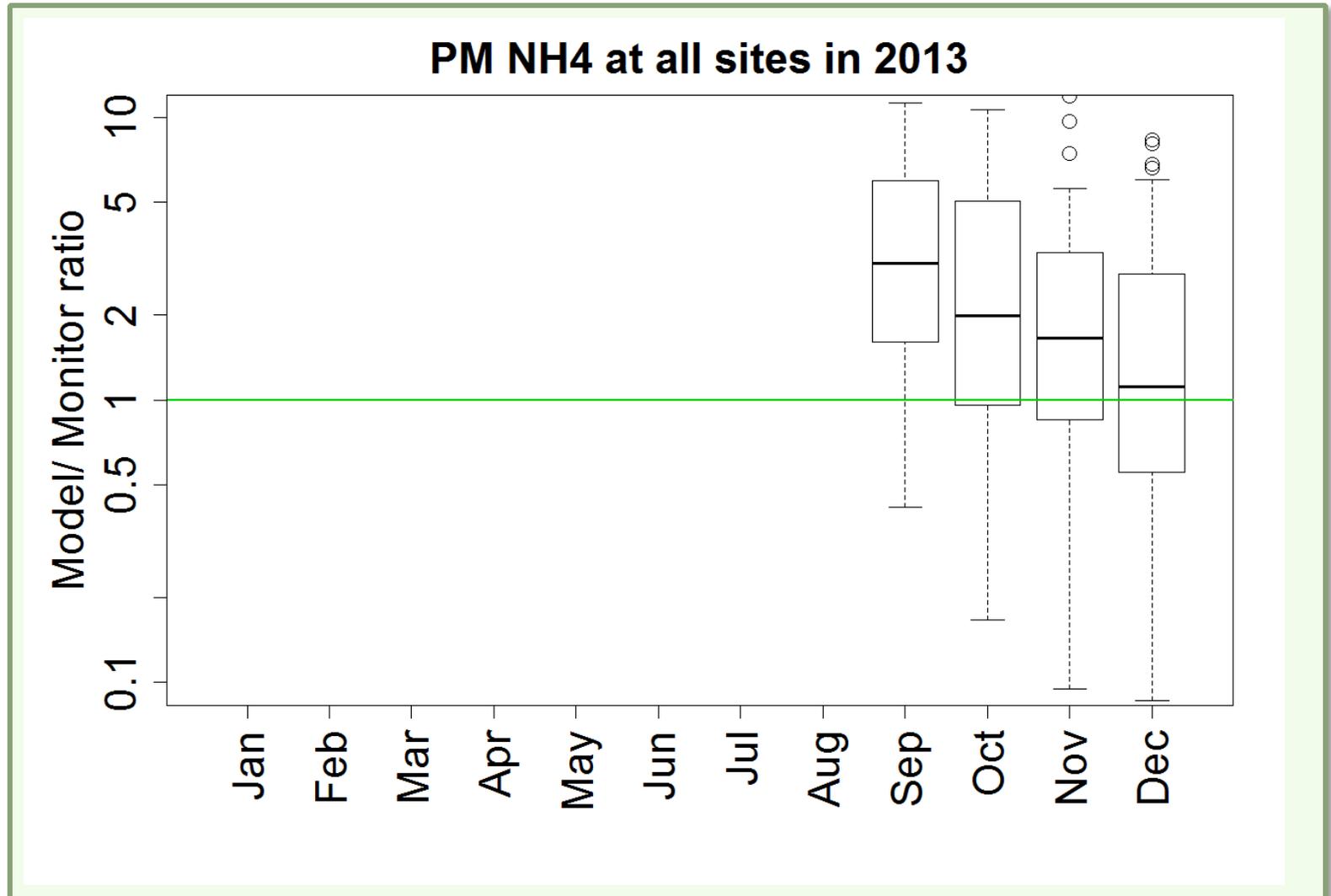
Sample Results

PM NH4 at all sites in 2013

Sample Results

PM SO4 at Sieben Flats in 2013

Sample Results

PM OC at Sieben Flats in 2013

Sep-Oct   Nov-Feb

Measured PM OC/ PM2.5 ratio

Modeled PM OC/ PM2.5 ratio

Sample Results

Sample Results

PM NH4 at all sites in 2013
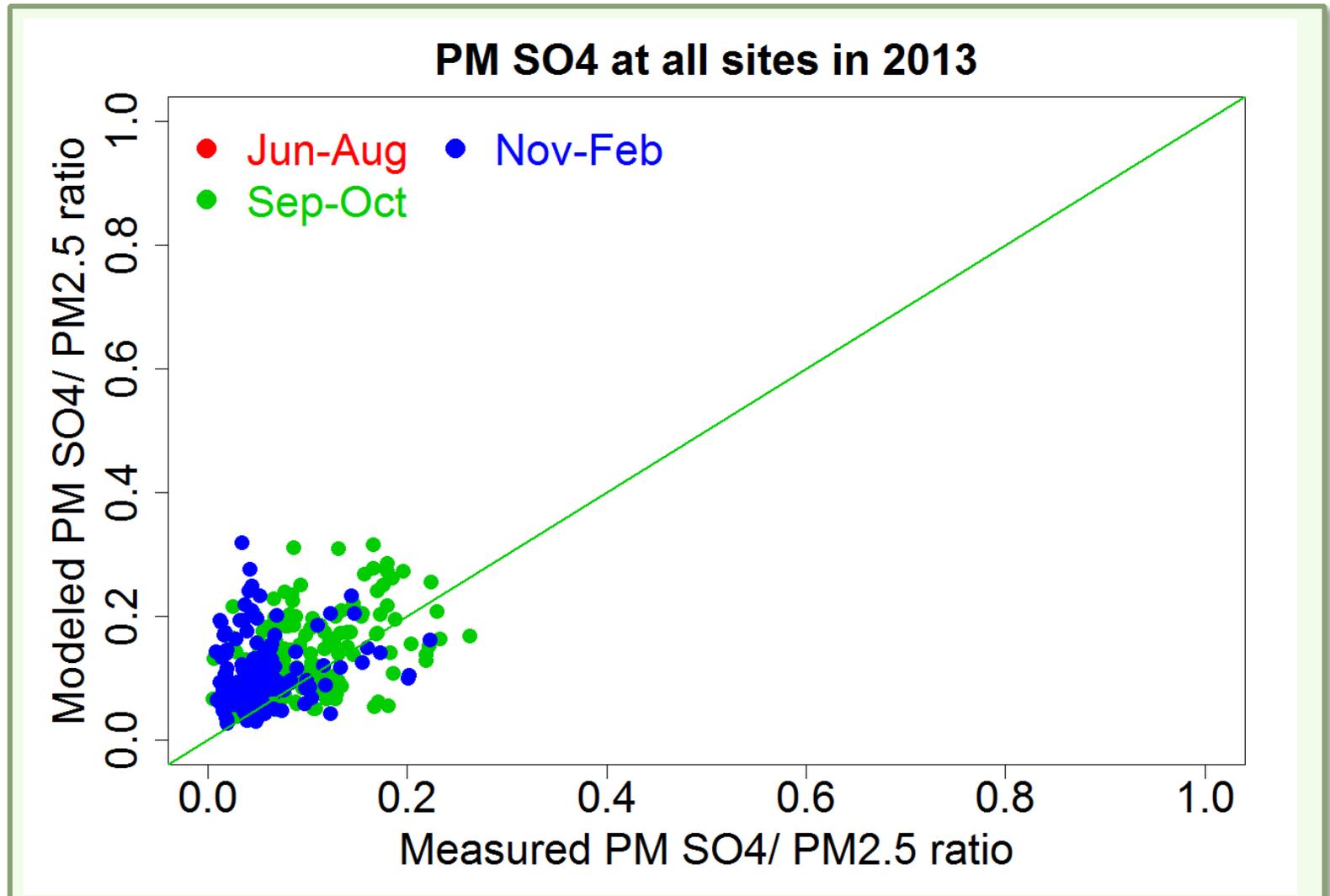
Sample Results

Problems

Timing Processes:
- Many sites can take a year for data to be available
  - On June 4, all available data was downloaded:
    - 39 sites had all May 2013 data
    - 15 of those had all Dec. 2013 data
    - 8 of those had mid-Feb. 2014 data

Seasonal Graphics
- Currently the home heating season is from the same year (different winter)

Possible Solutions

Timing Processes:
- Currently we are setup to analyze all data that is 3+ months old in current year, and all of the previous year

Date Aggregates for Data Plots
- Currently we are setup to show all data from one year on a plot (colored by season)

Future Work

Graphics Products:
- Finalize graphics production
- Create statistics processes
  - seasonal? monthly?
  - ME, MB, FB, FE (more?)
- Create independent website for results

Produce New Website before 2015