

Updating a Fuel-based Inventory of Vehicle Emissions for Chemical Transport Modeling during LISTOS 2018

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Affiliations:

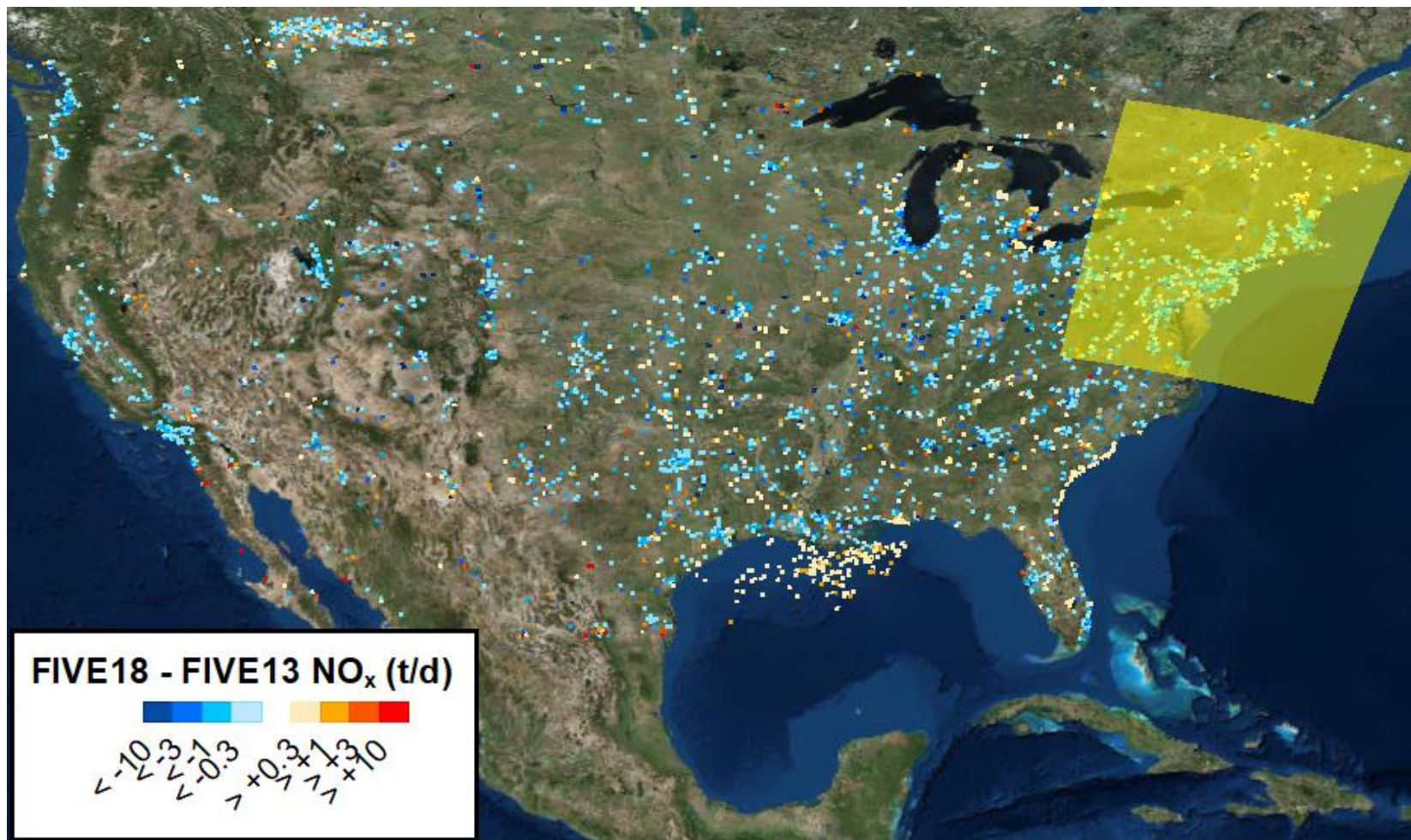
1. NOAA ESRL, Boulder, CO, USA
2. CIRES, University of Colorado, Boulder, CO, USA



Acknowledgments: Luke Valin (EPA)

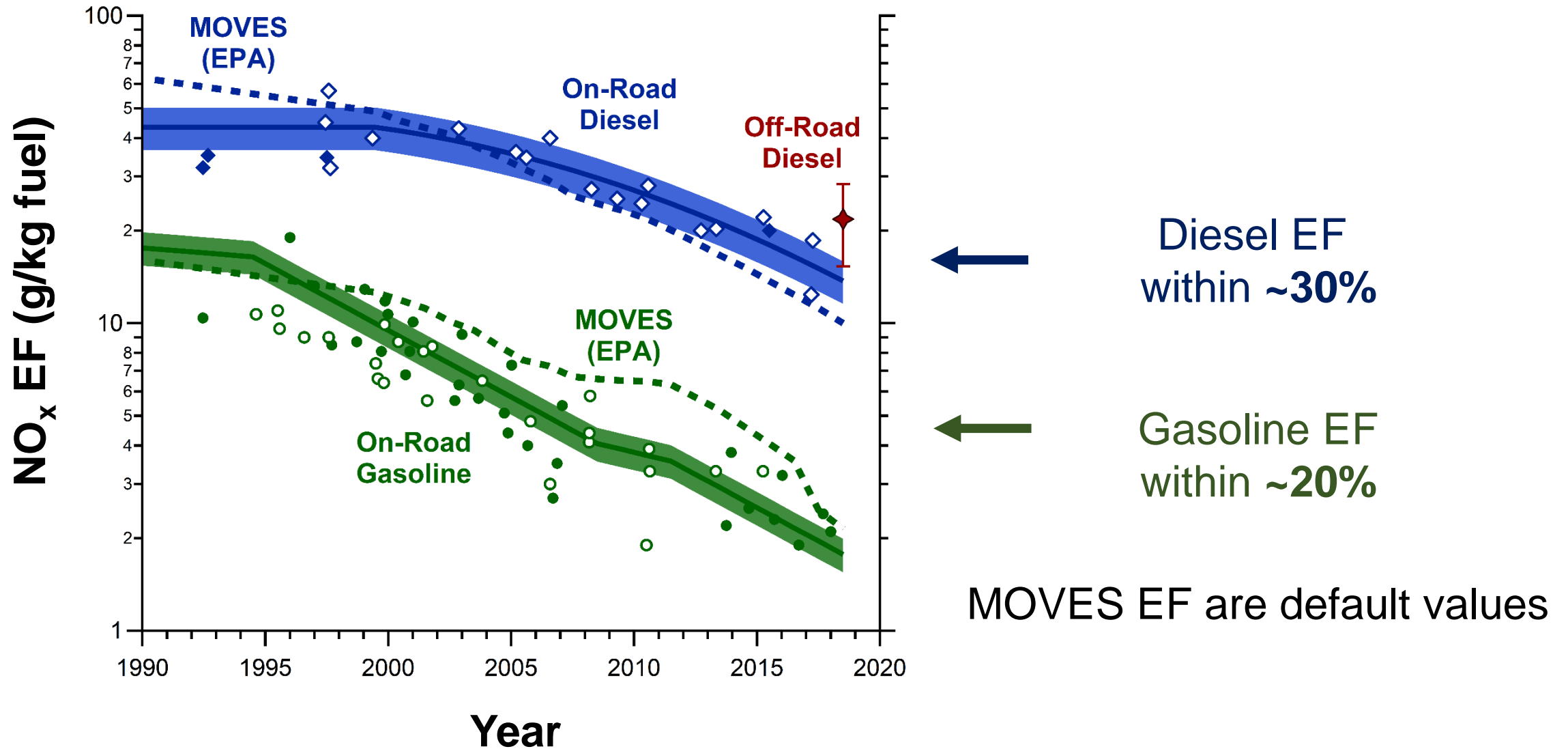
Updated Mobile Source and Power Plant NO_x from 2013 to 2018

Total U.S. NO_x emissions decreases by ~15%
(similar decreases over Eastern US)

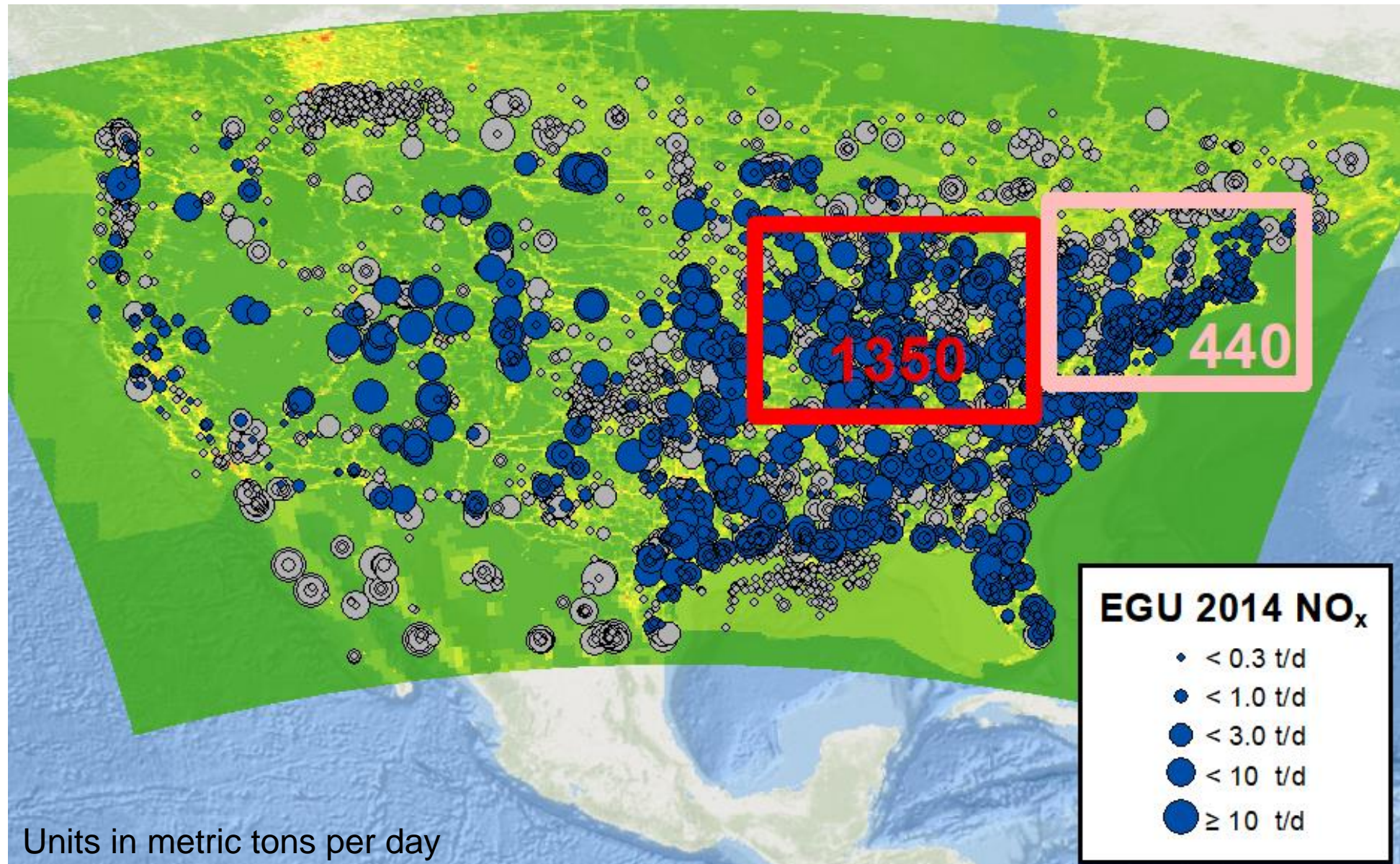


- (1) Updated mobile sources with FIVE
- (2) Updated power plants with CEMS
- (3) Updated other point sources to NEI14

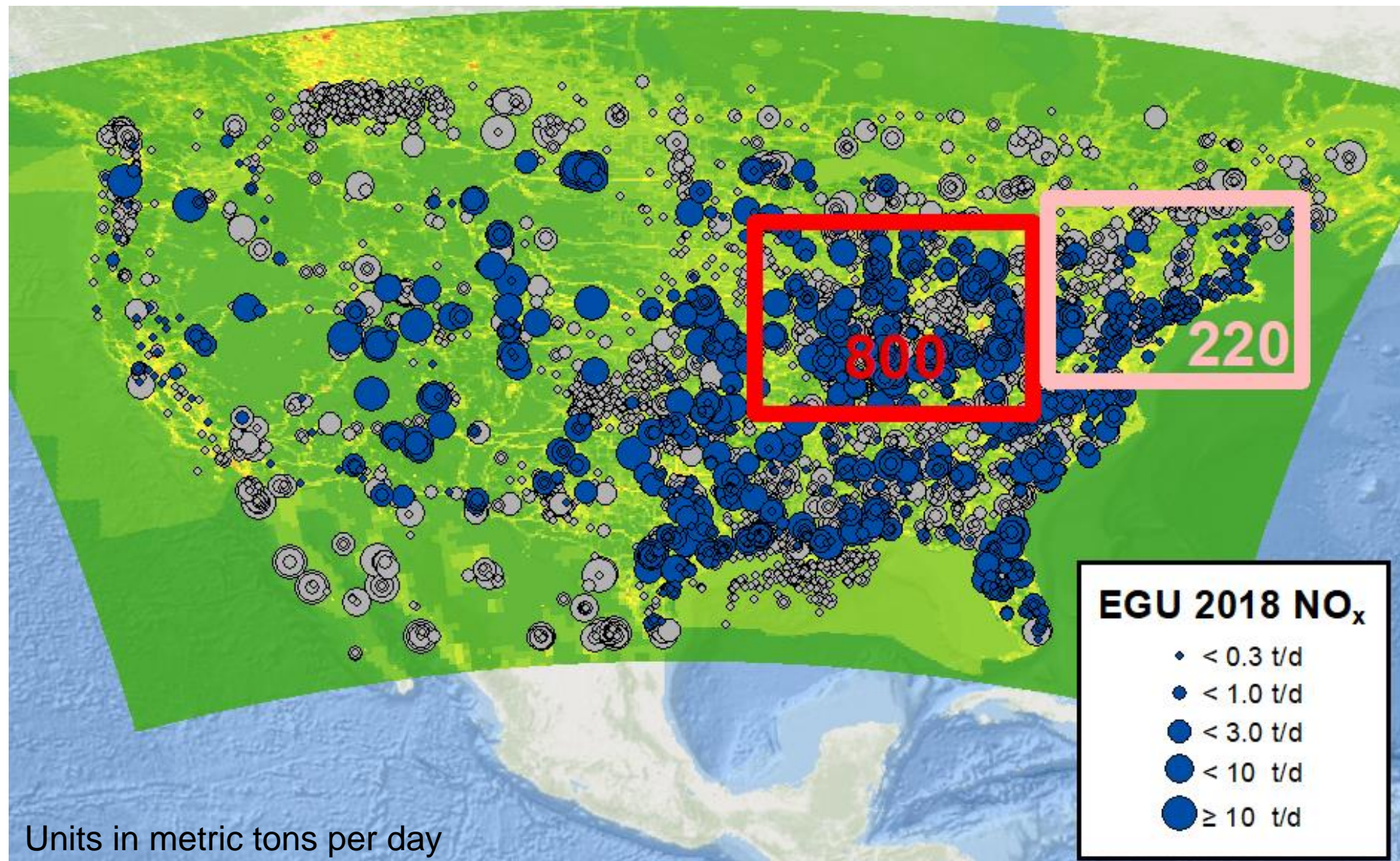
Updating FIVE NO_x Emission Factors to 2018 LISTOS



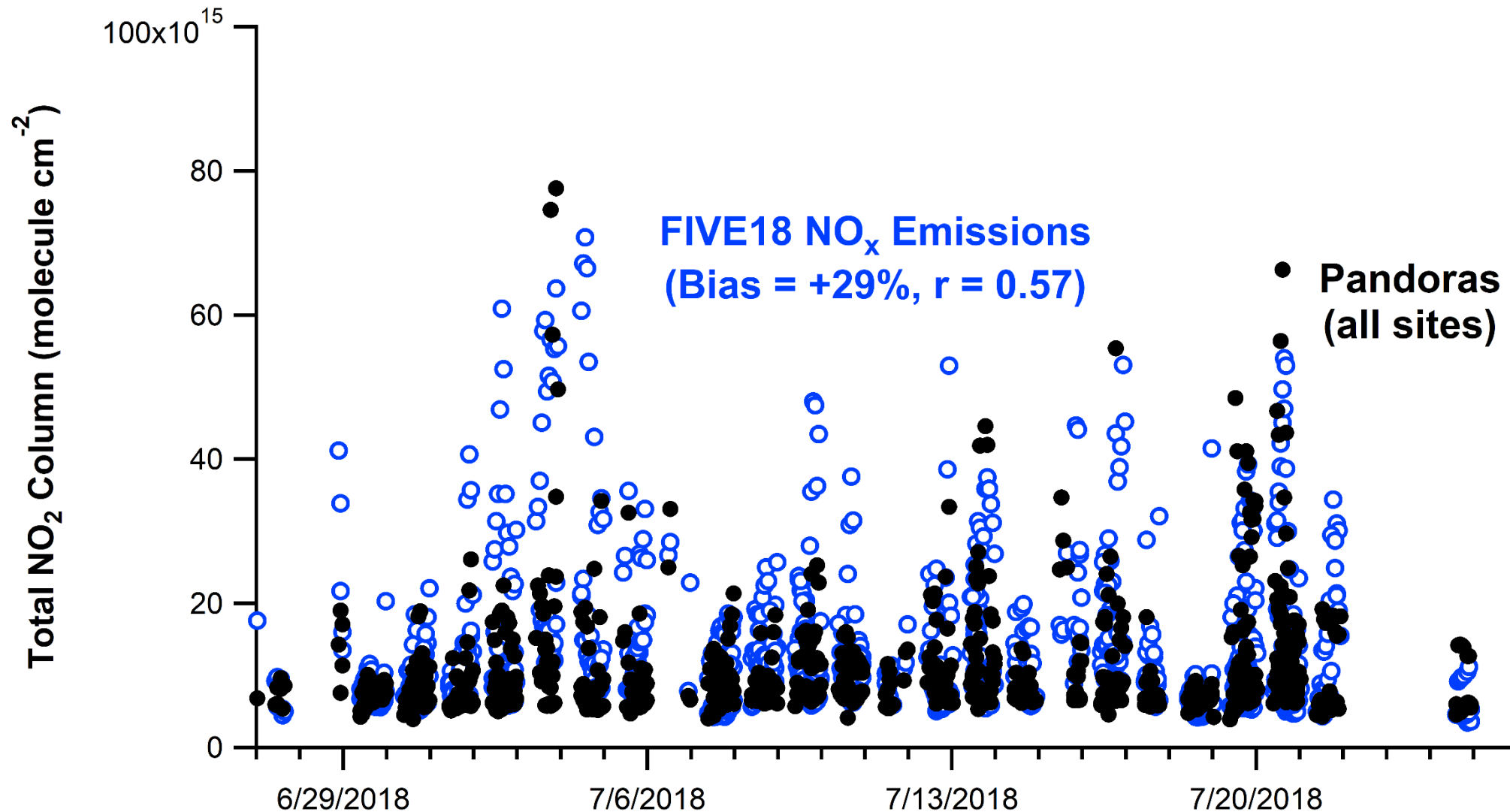
Factor of ~2 Decreases in Power Plant NO_x from 2014 to 2018



Factor of ~2 Decreases in Power Plant NO_x from 2014 to 2018



WRF Model Evaluation of NO₂ with Pandora Data in NYC Region



Acknowledgments: Luke Valin and Jim Szykman (EPA), Bob Swap, Nader Abuhassan, Alexander Cede (NASA)

Preliminary Findings

- (1) Differences in 2018 mobile source NO_x emission inventories (EPA MOVES vs. FIVE) relatively small compared to previous years
 - No longer factor of ~2 difference in on-road gasoline emission factor
- (2) Magnitude of updated 2018 NO_x emissions in New York City region generally consistent with observed NO₂ levels by Pandora spectrometers

Next Steps: Further model-observation evaluation of NO_x emissions including magnitude and sectoral attribution.