



Long Island Sound Tropospheric Ozone Study: LISTOS Lessons

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Northeast States for Coordinated Air Use Management (NESCAUM)

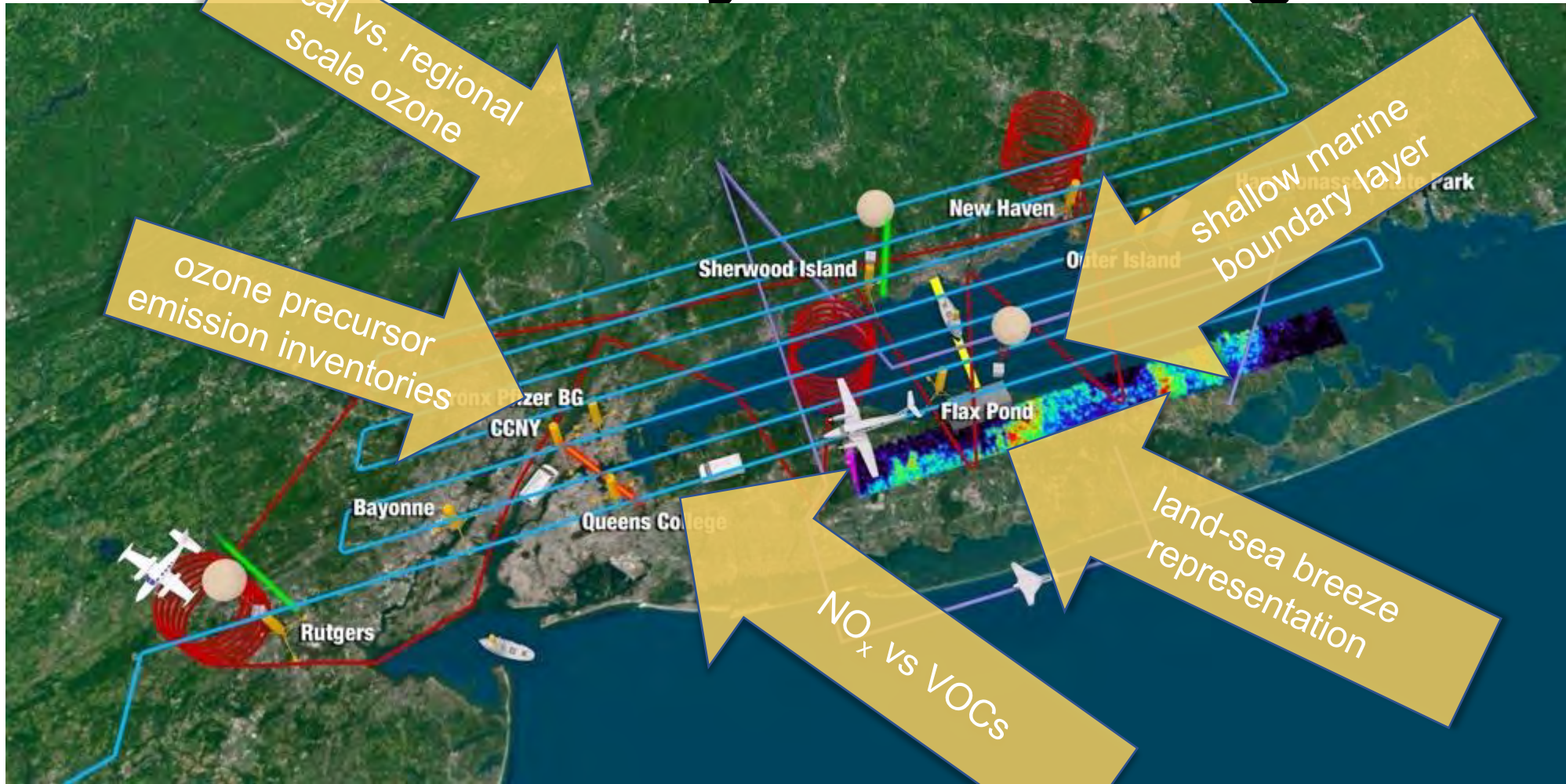
- NESCAUM is the regional nonprofit association of state air quality agencies in the Northeast.
- Established in 1967 by state governors.
- We provide technical and policy support to our state members for their clean air and climate programs.



LISTOS: Toward a Better Understanding of New York City's Ozone Pollution Problem

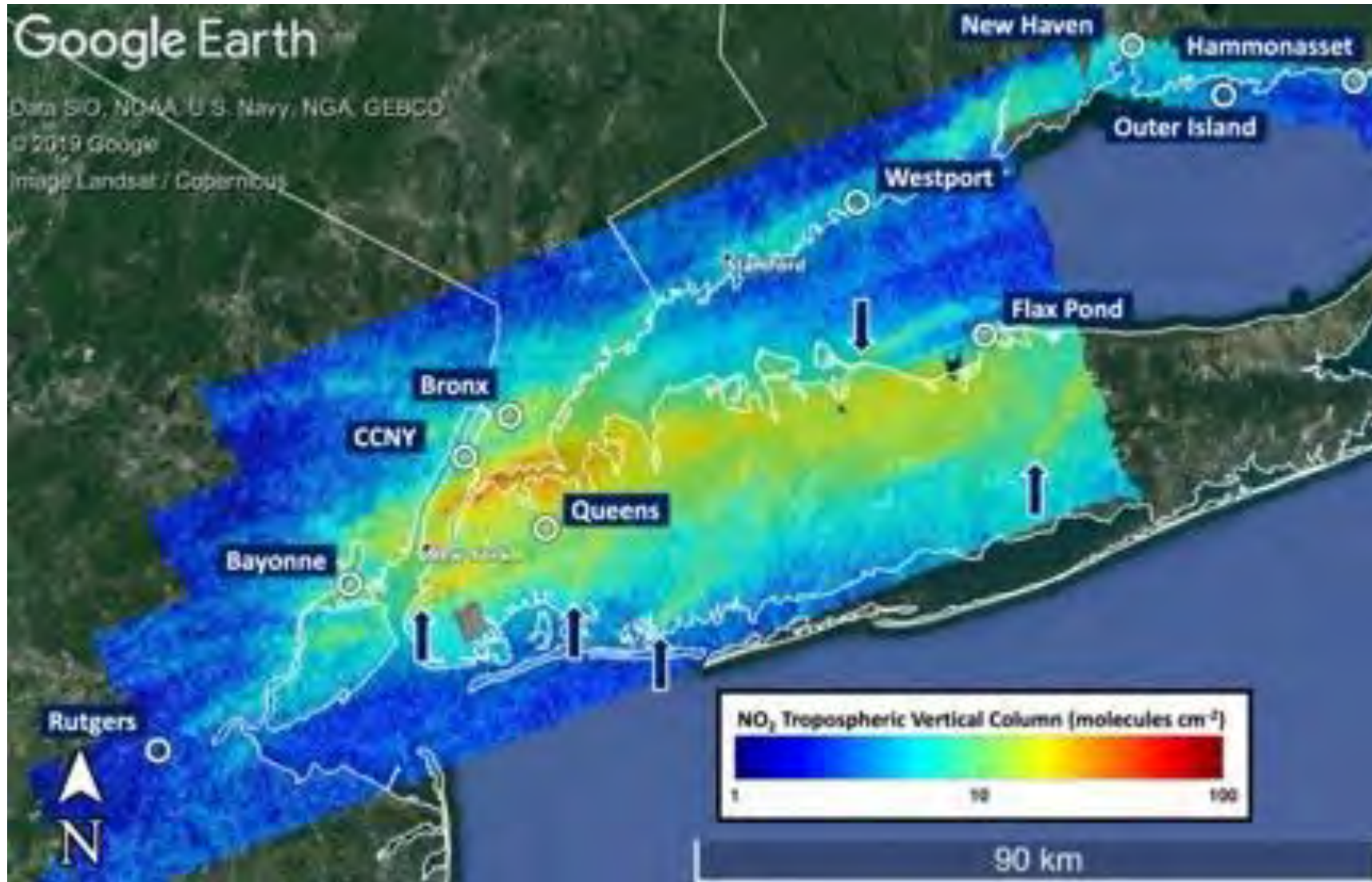


LISTOS Analysis Challenges

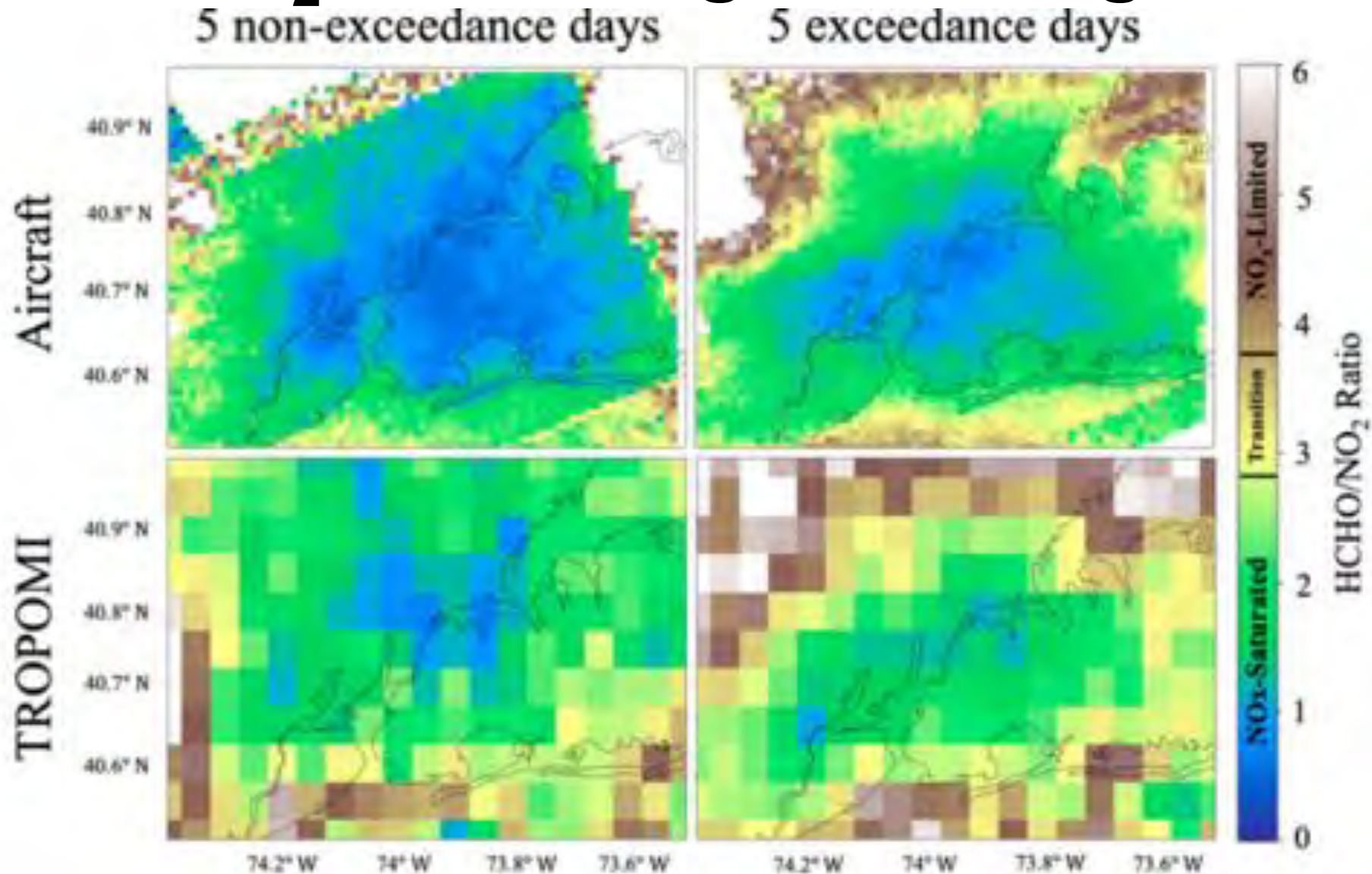


* Not an all-encompassing list of challenges

High NO_x in NYC Urban Area



HCHO/NO₂ Ratios Higher on High O₃ Days

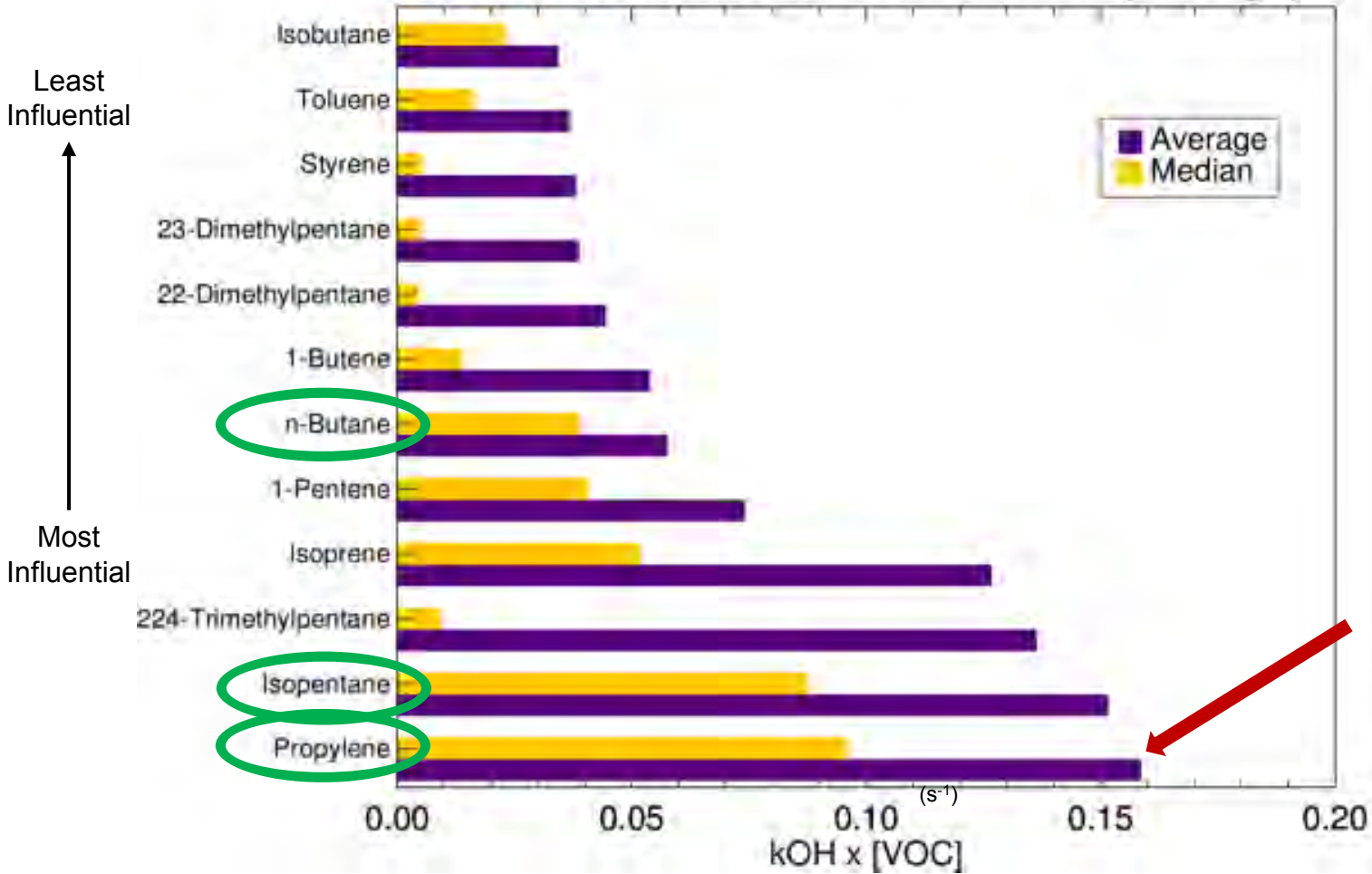


If controlling VOCs in NYC urban core, are there the “right VOCs” to target?

- By mass?
- Feasibility/costs of controls?
- Ability to implement and enforce?
- By ozone production efficiency?

VOCs Measured May 17 and 18, 2017

Most Influential VOCs over All Hours (Average)



- Ranked by Reactivity with OH (UMD Flight Canister Data), *Average* of All VOC Canister Data (Purple)
- Information important to addressing ozone precursors in region
- Where is propylene coming from?

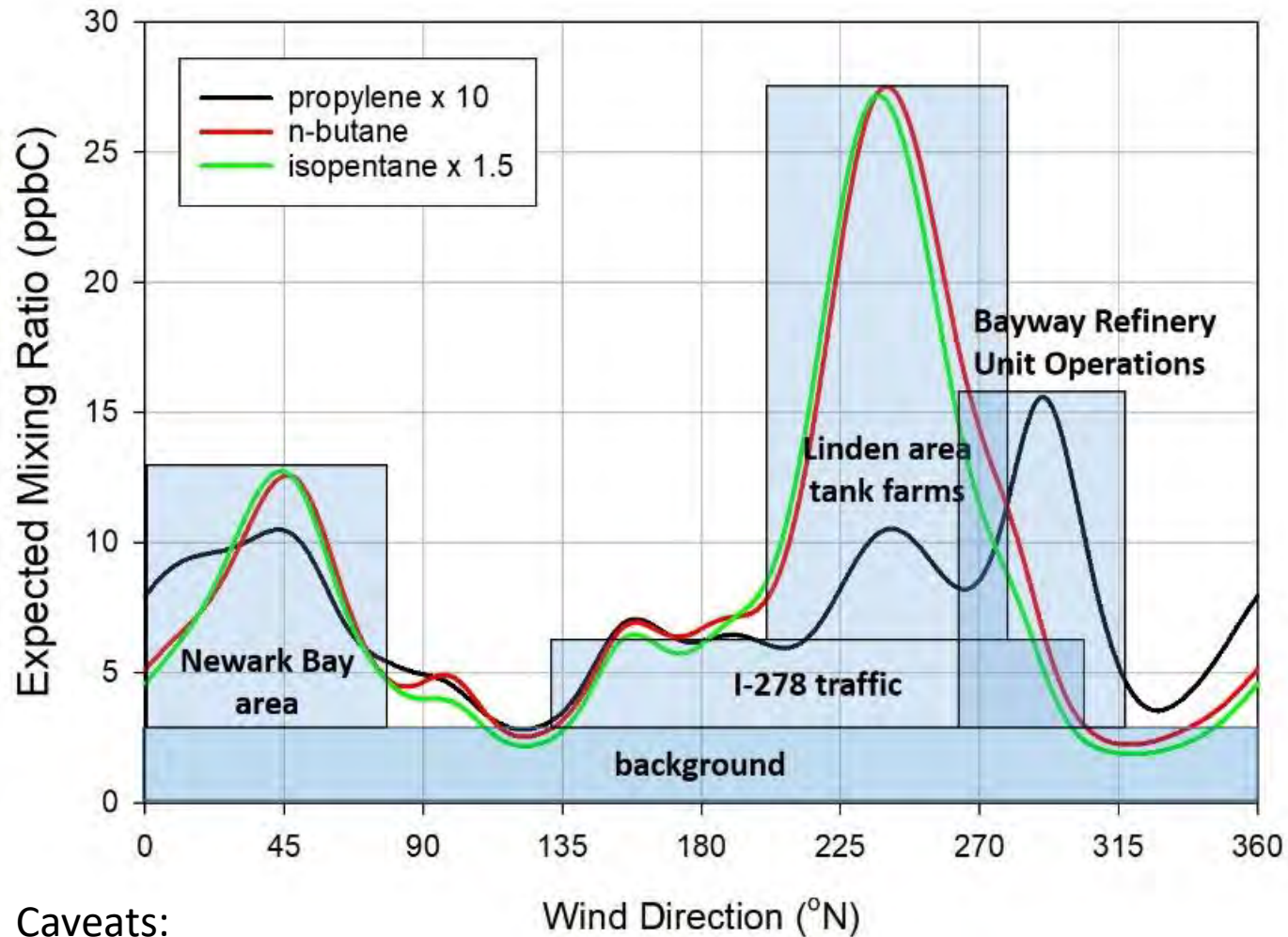
Based on the 50 VOCs measured
Does not include oxygenates, consumer products

Goethals Field, Staten Island Special Monitoring Site



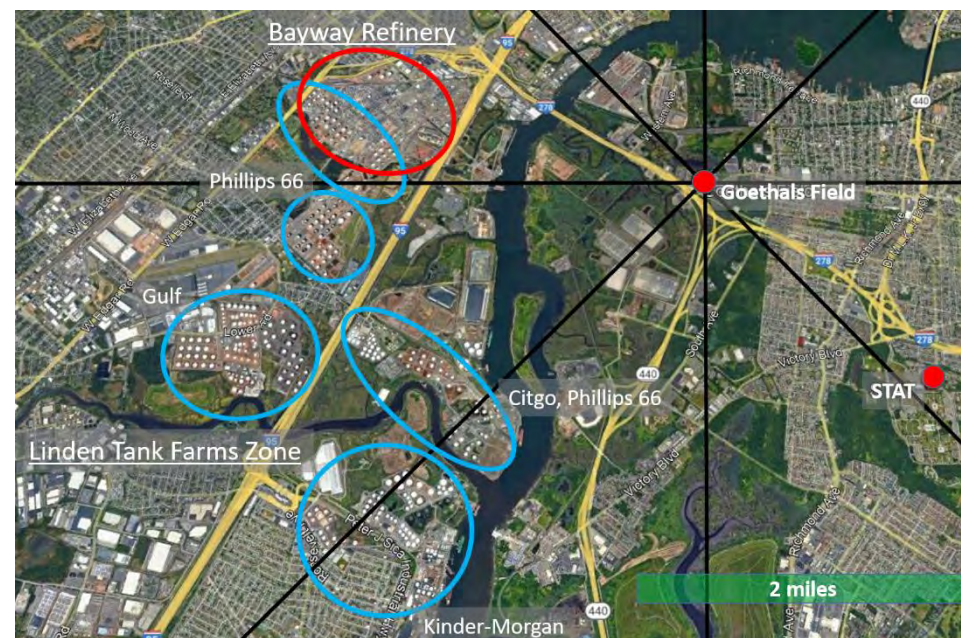
- Located at Goethals Field on Staten Island, NY
- NYS DEC running 12/2021, 2022, ozone season 2023
- Inventory support by NJ DEP
- Investigate VOC sources in northern NJ and NJ/NY port areas
 - Port & ships
 - Refinery
 - Tank farms
 - Highways
- VOC source apportionment analysis by Jay Turner, Wash. Univ. St. Louis (Nonparametric wind regression)

Preliminary Look at VOCs



Caveats:

- VOC data from 12/2021 to 4/2022
- Less frequent winds from Newark Bay direction
- No summer data yet



More to come...

- More Staten Island VOC data for Jay's analysis
- Some other on-going LISTOS activities
 - South shore Long Island special monitoring site – Prof. James Schwab, University at Albany
 - Mobile ozone LIDAR – Prof. Fred Moshary, CUNY
 - High res 1.3km CMAQ modeling – Dr. Alex Karambelas, NESCAUM
- Looking forward to the 2023 field campaign activities in NYC/Northeast regions

Acknowledgements



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- NYS MesoNet (Jerry Brotzge)

More about LISTOS: <https://www.nescaum.org/documents/listos>

Data: <https://www-air.larc.nasa.gov/missions/listos/index.html>

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