AQ Summary & Plan of Action for Next Few Days for Onshore Team

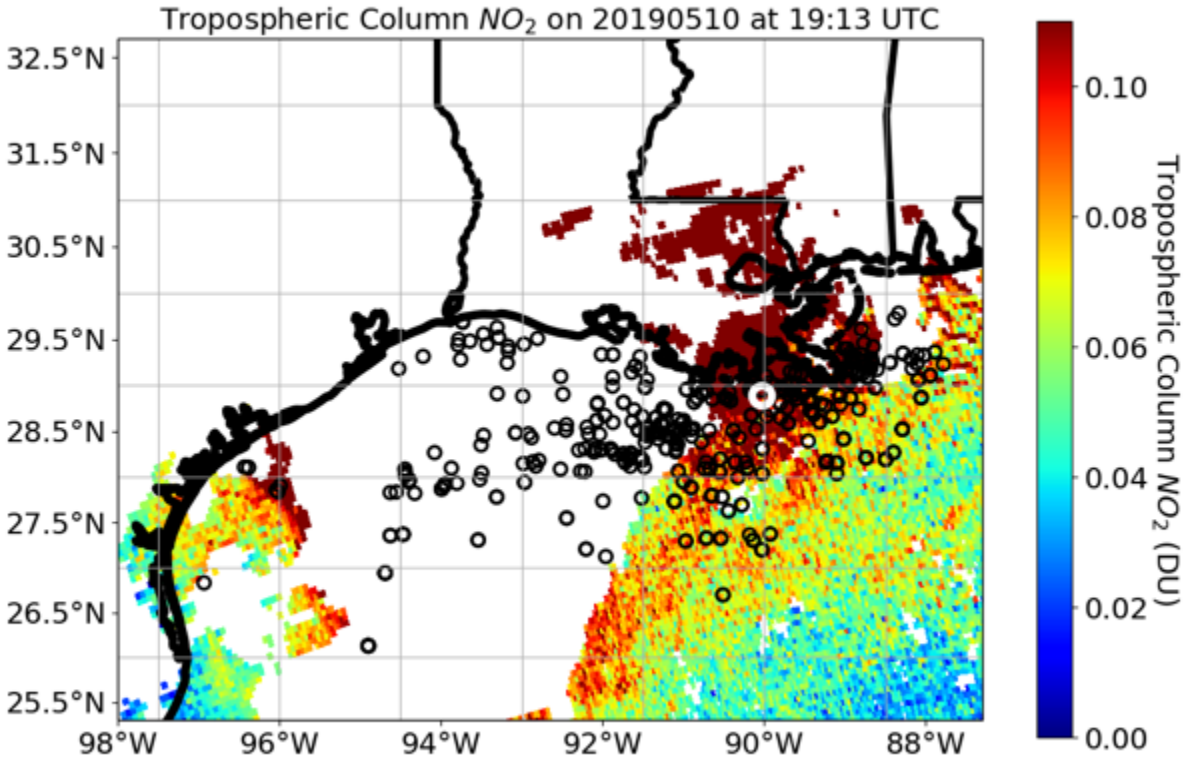
Sunday, May 12, 2019

LUMCON, Cocodrie, LA

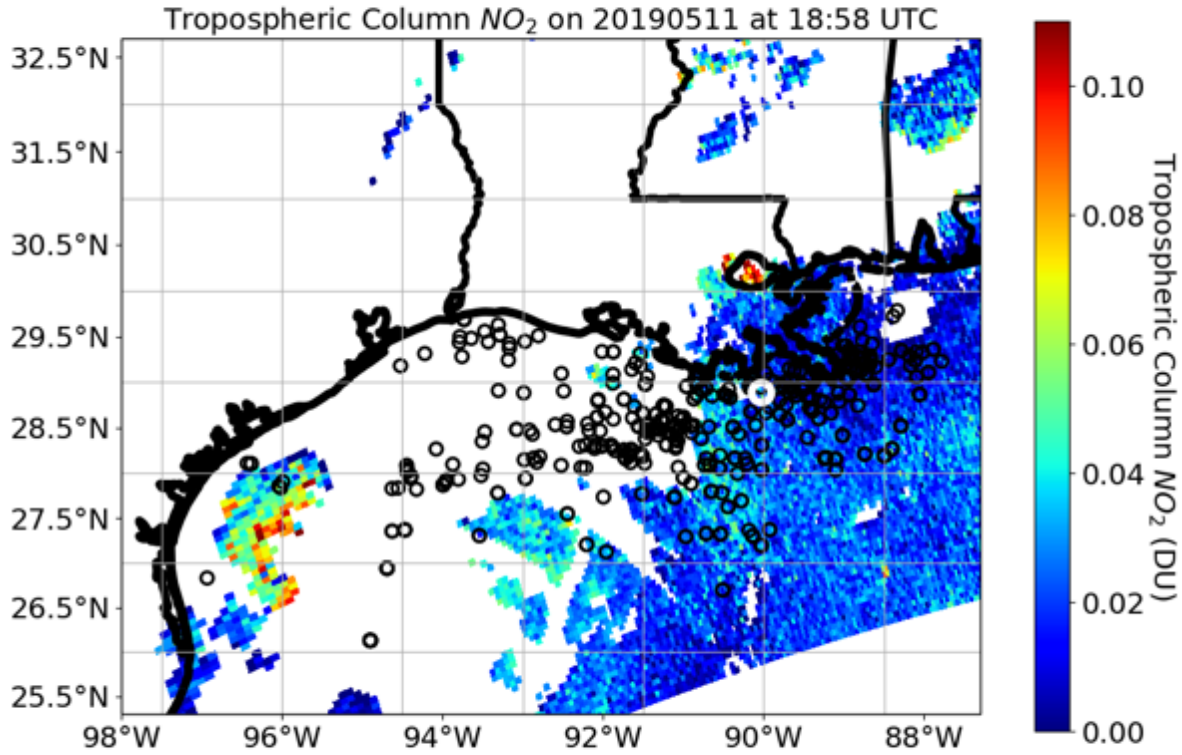
Onshore Team: Bryan Duncan (NASA), Mirjam den Hoed (KNMI)

Satellite Data

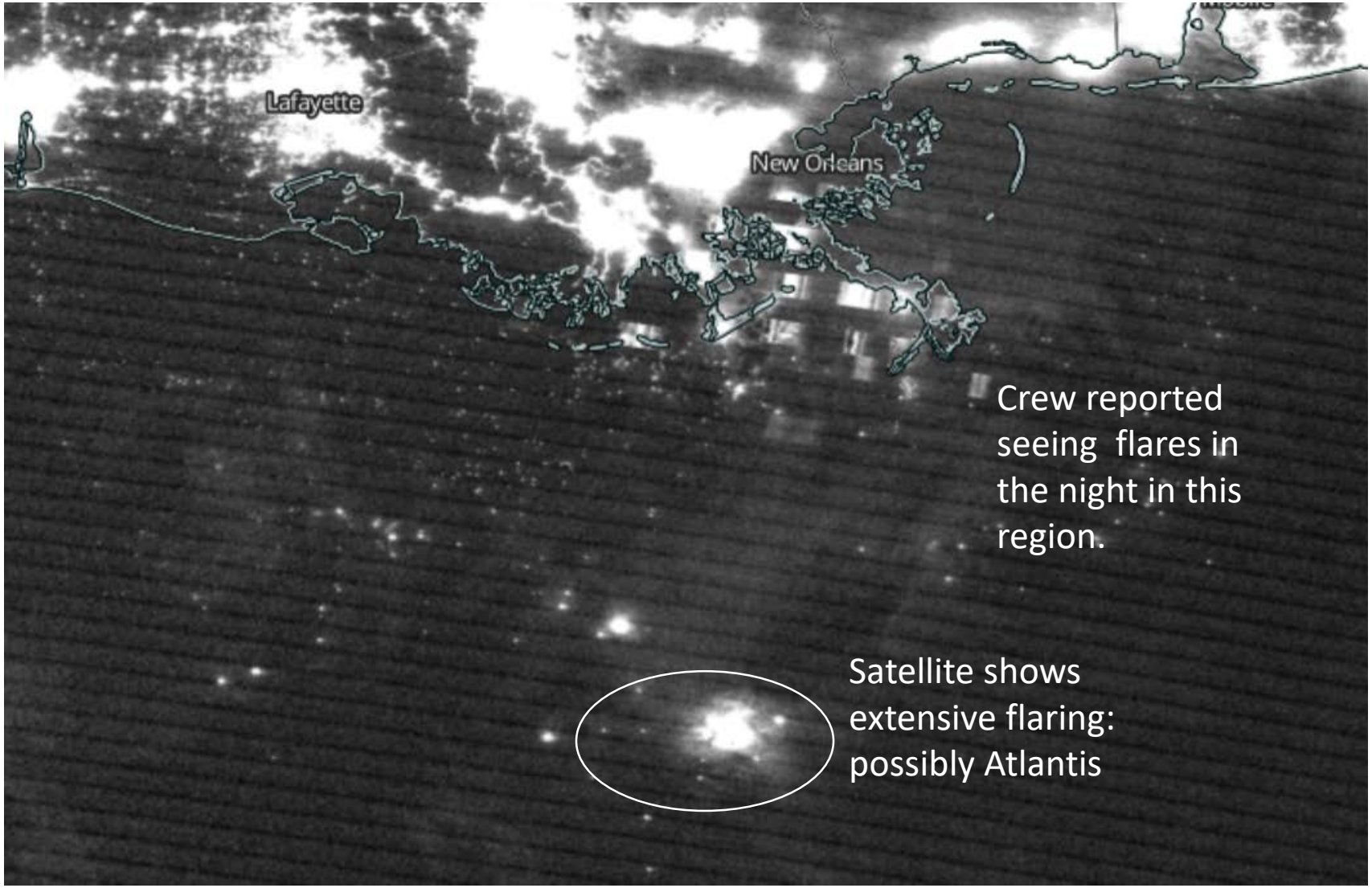
TROPOMI 5/10: very polluted ahead of storms



TROPOMI 5/11: storms ventilated surface pollution, leaving clean conditions



Several Flares Detected Overnight



Overpass Times

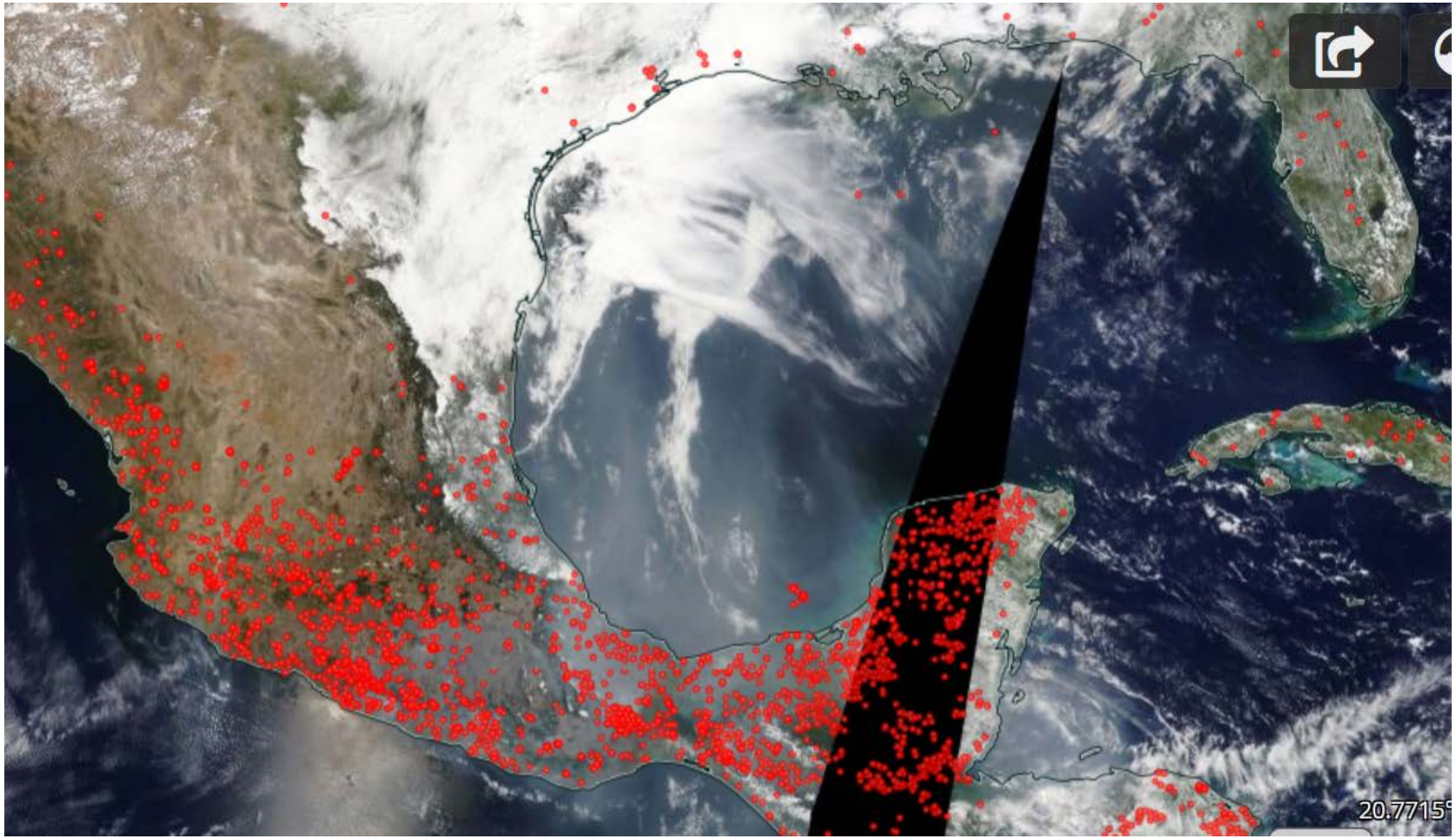
VENICE

- May 11
  - TROPOMI: 13:53:41 (LT)
  - OMI: 14:04:16 (LT)
- May 12:
  - TROPOMI: 13:35:11 (LT)
  - OMI: 14:47 (LT)

PORT FOURCHON

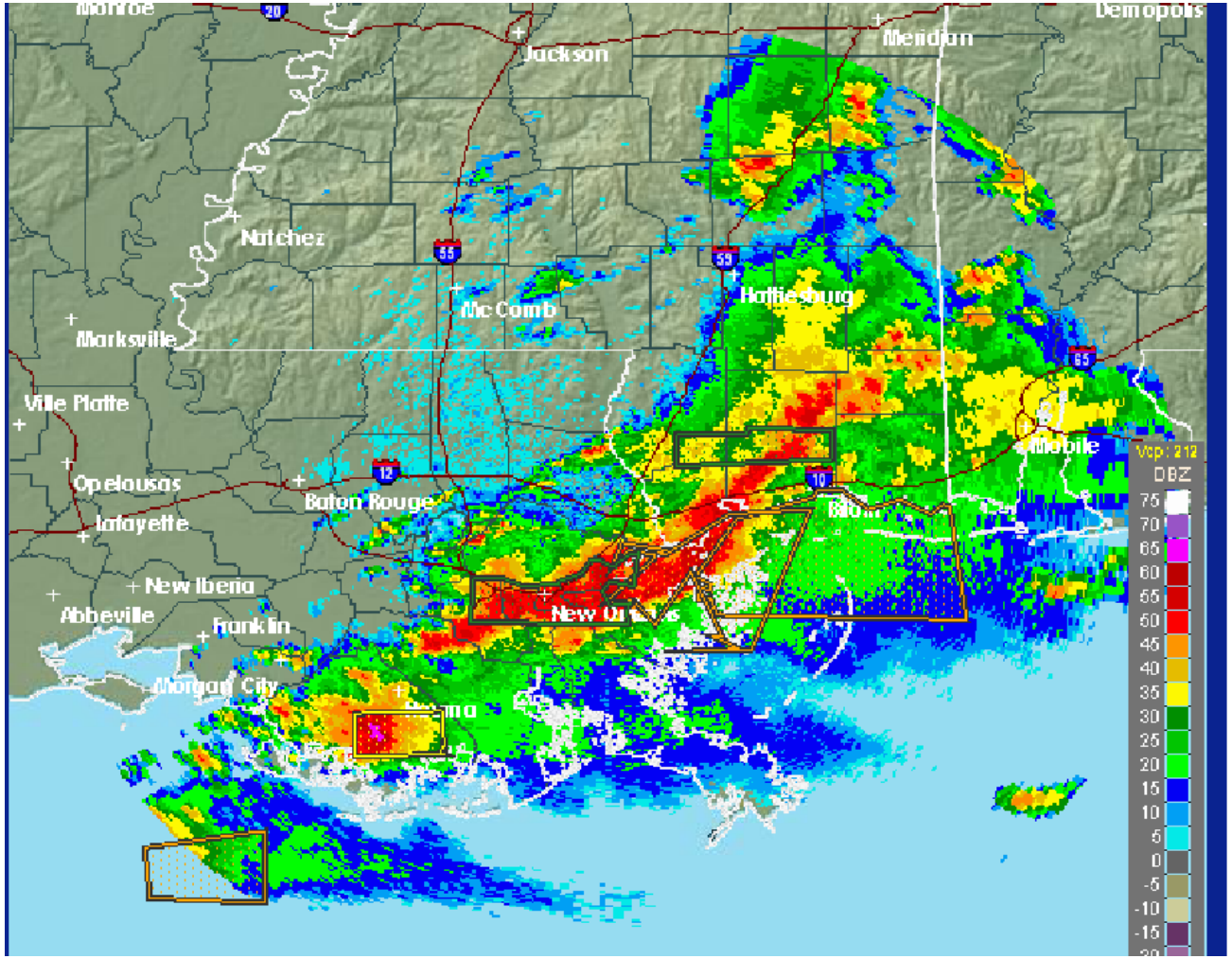
- May 11
  - TROPMI: 13:53:44 (LT)
  - OMI: 14:04:19 (LT)
- May 12
  - TROPOMI: 13:35:17 (LT)
  - OMI: 14:47:06 (LT)

Keeping an Eye on Pollution from Agricultural Fires in Mexico: Smoke in the GoM



More Air Pollution-Killing T'storms

- Line moving west to east. Radar image from 6 am, Sunday, May 12, 2019.

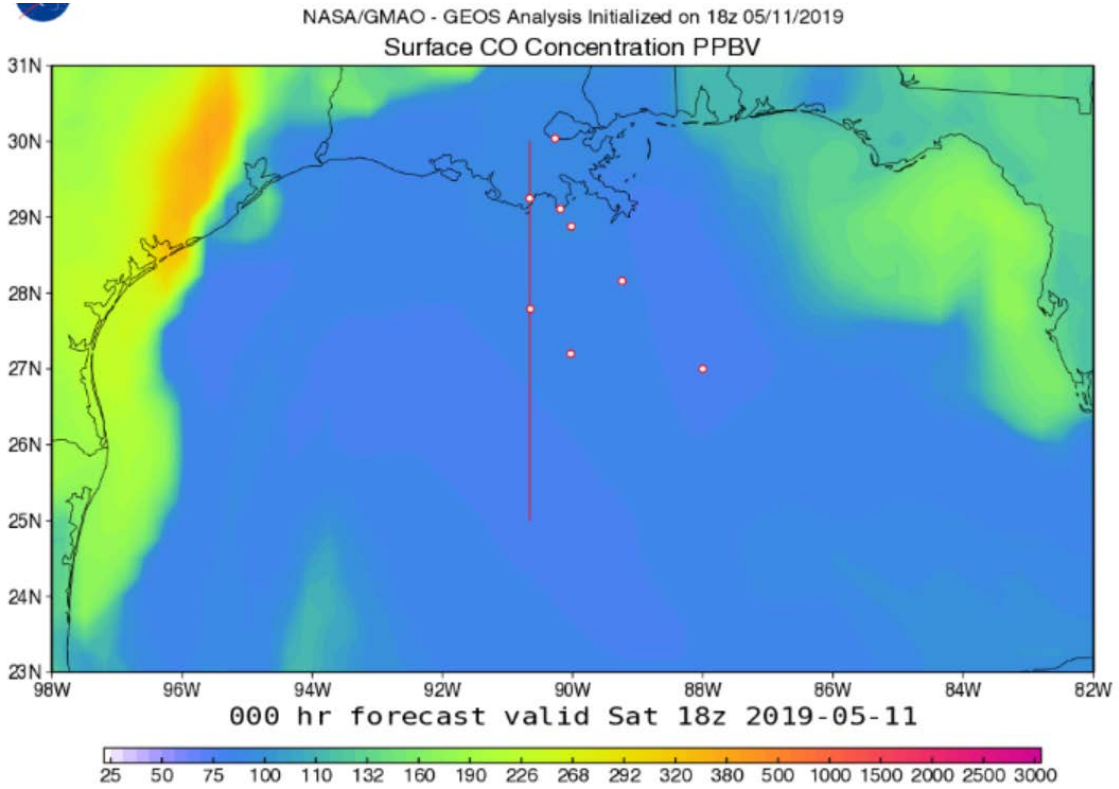


GEOS Chemical Forecasts (CF: not updated since Friday; FP: updated)

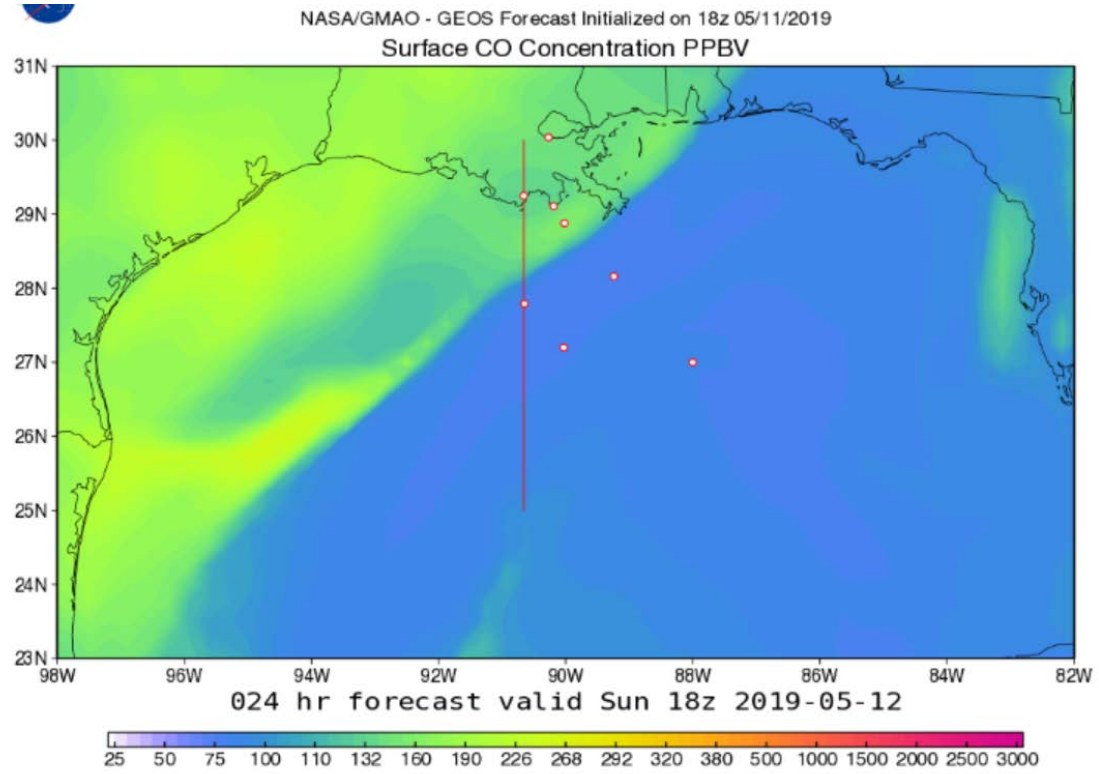
- Slow moving and meandering cold front leaves N & W GoM in polluted continental air and S & E GoM in clean marine air Saturday-Monday according to Sunday's FP.
- Transition between two air masses, as clearly seen in [CO], wobbles about GoM through Wednesday according to Friday's CF.
- Marine air typically dominates in southern extent and continental in northern extent.
- NOTE: GEOS forecasts DO NOT simulate GoM ONG source emissions, therefore the simulated transition between air masses may not be quite as distinct as observed.
- NOTE: As with any forecast, there is uncertainty in exactly where the transition will be at any given time.

Surface level CO (FP – latest forecast)

Saturday 1 PM: Southerly winds bring clean marine air deep into Louisiana

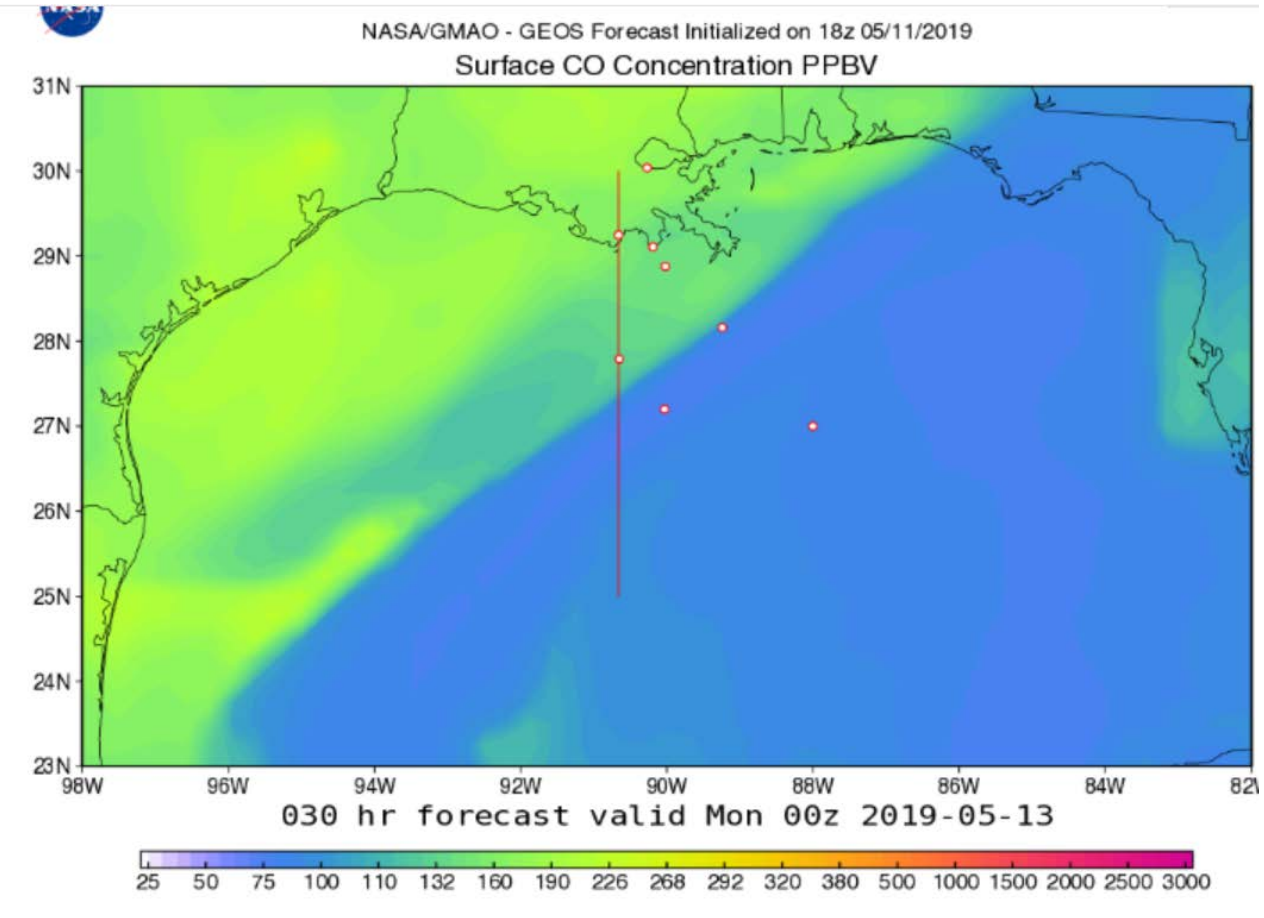


Sunday 1 PM: Cold front in GoM. Continental air N & W and marine air S & E

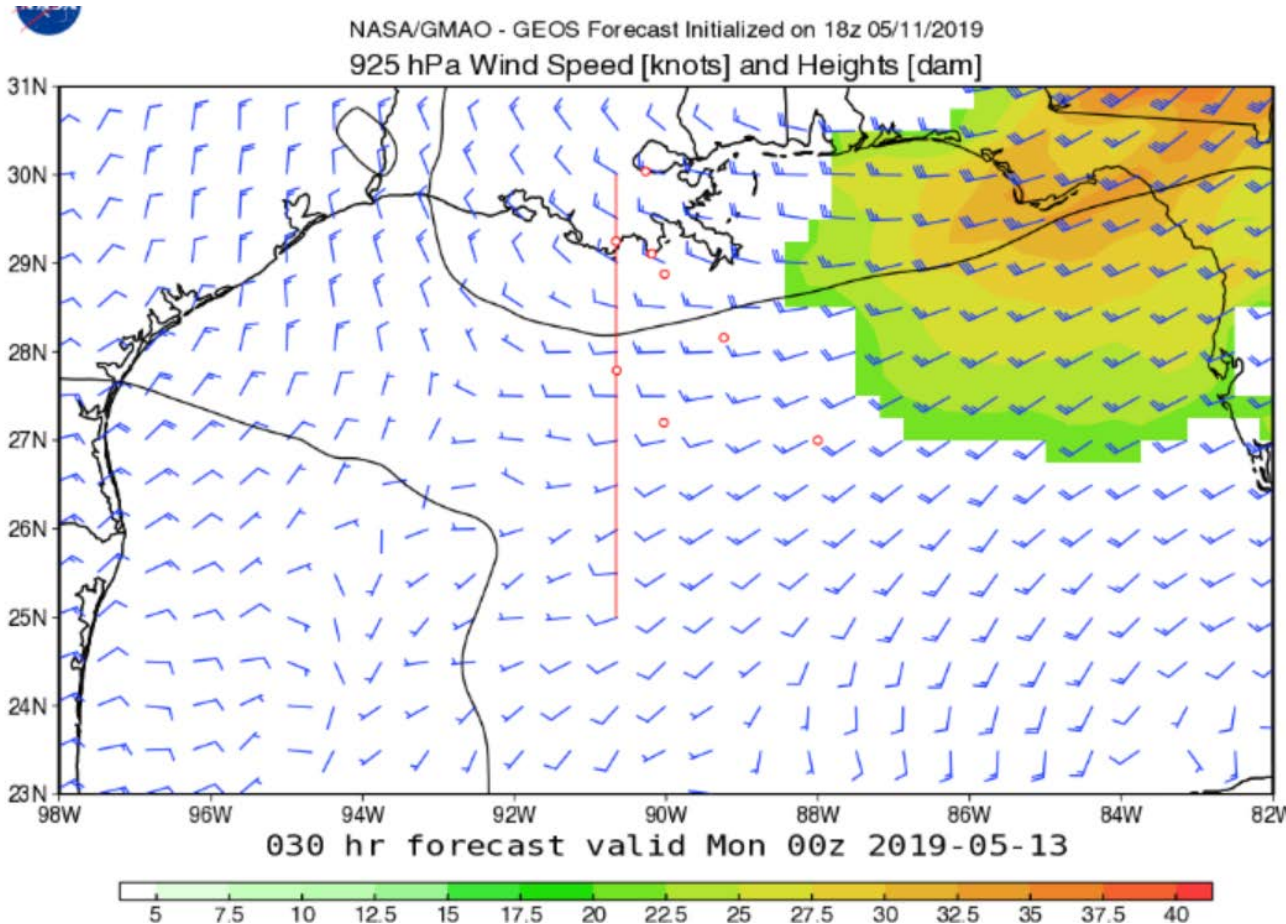


Surface level CO & Wind Direction/Speed (FP – latest forecast)

Sunday 7 PM:

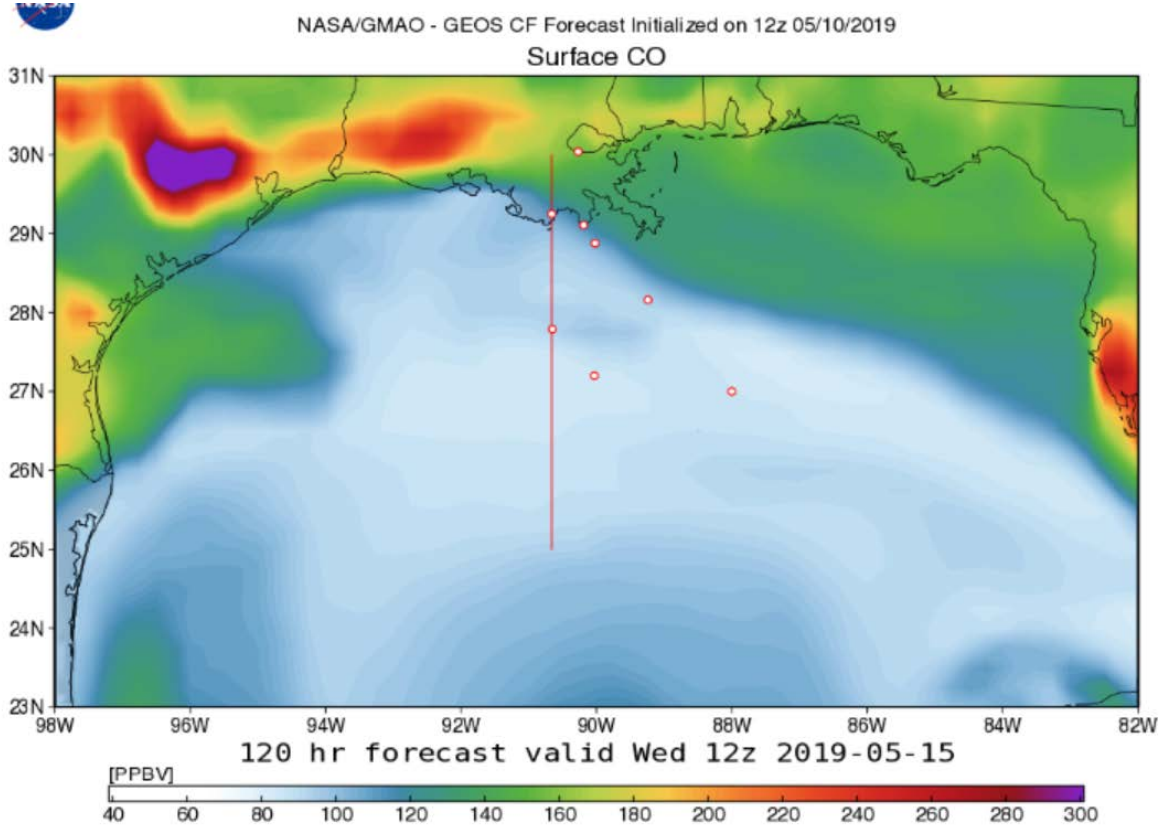


Sunday 7 PM:



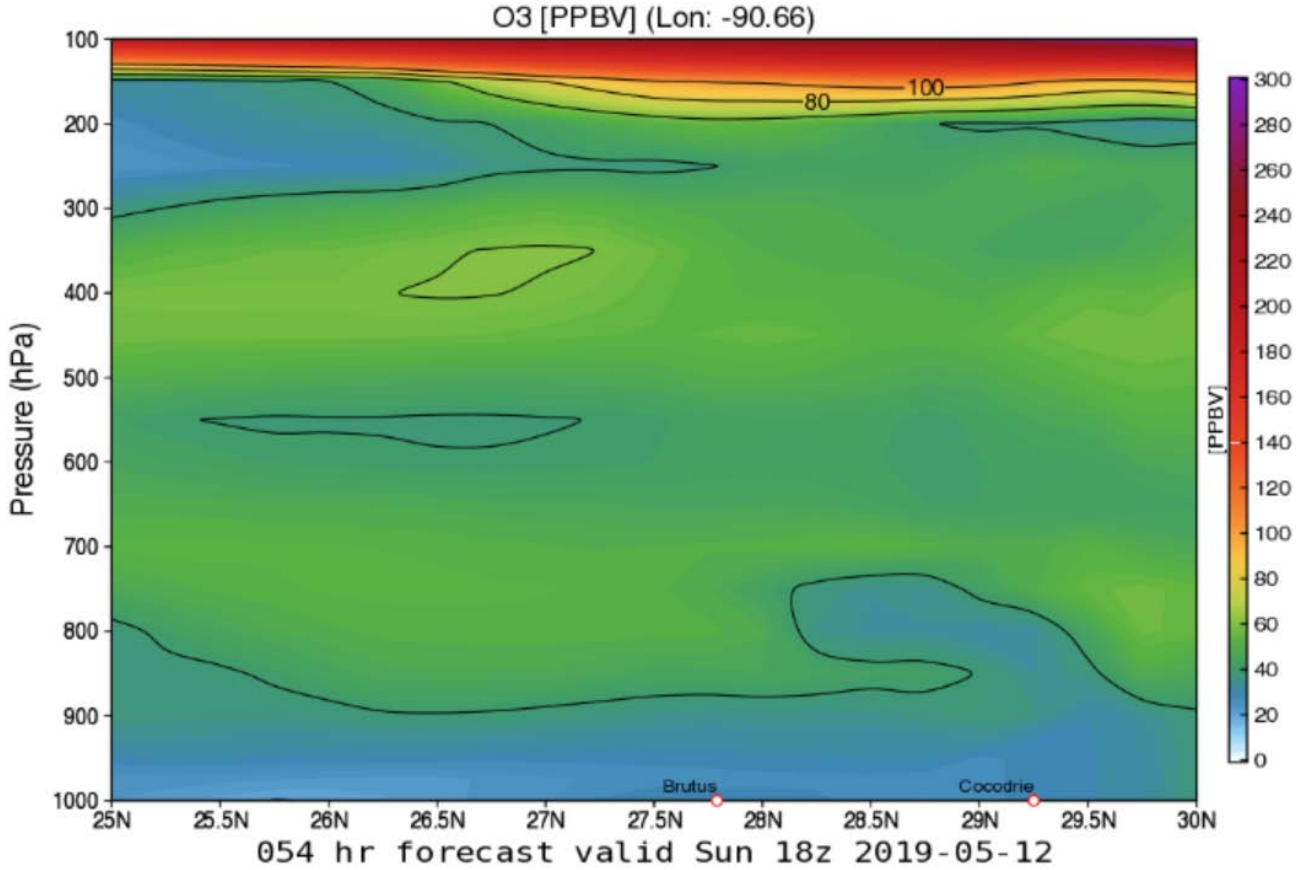
Surface level CO (CF – not recent forecast)

Wednesday 7 am: Marine air & polluted air continue to battle it out over GoM



Surface level Ozone (CF – Friday forecast)

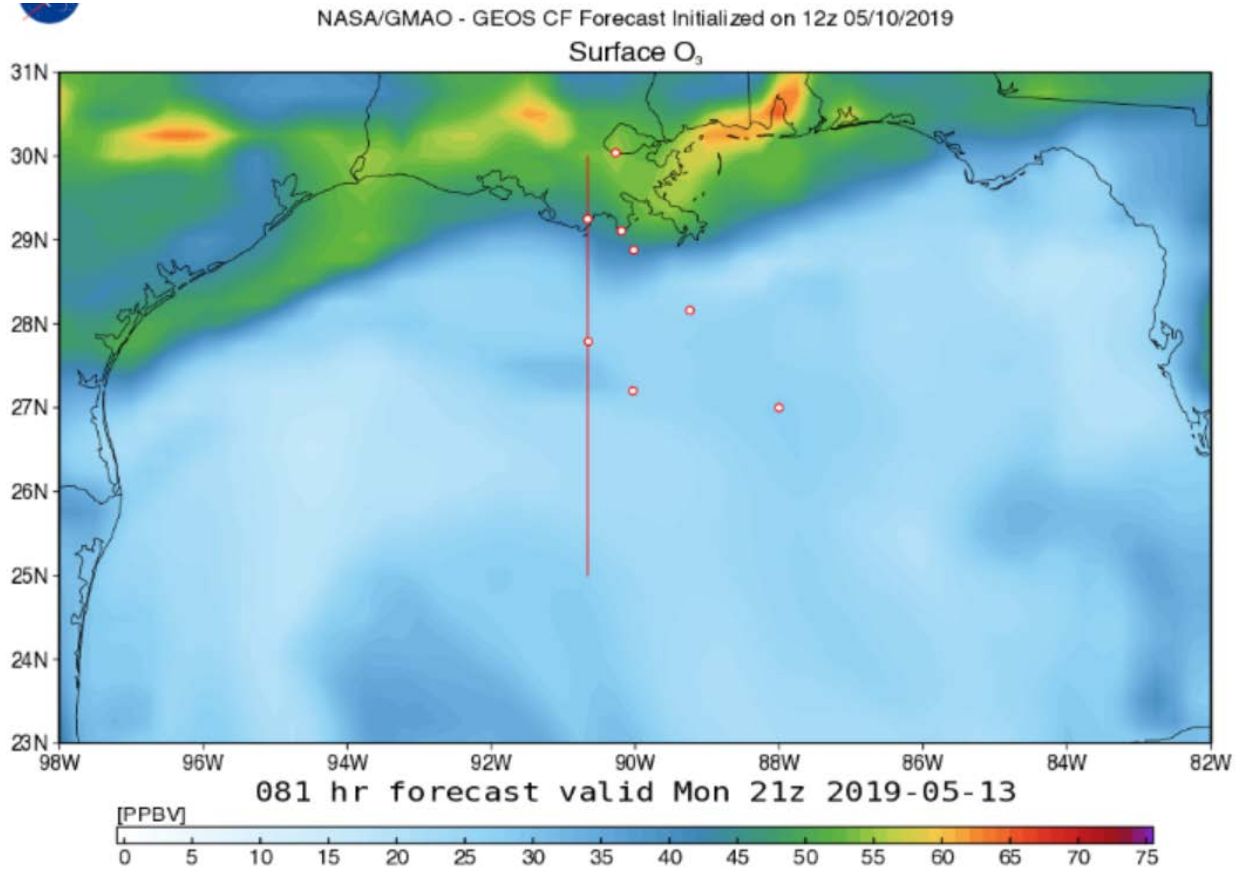
Sunday 1 PM:



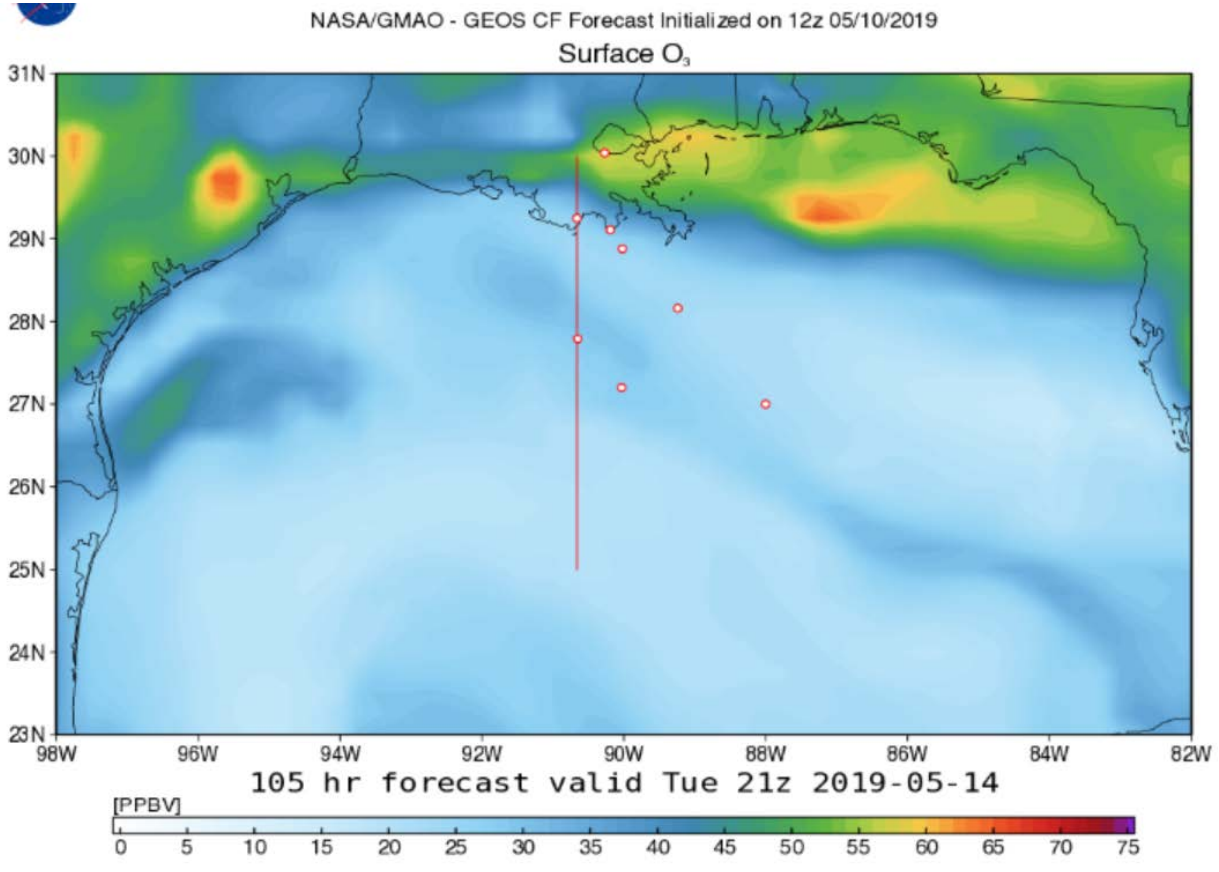
Similar story for Monday and Tuesday

Surface level Ozone (CF – Friday forecast)

Monday 4 PM: Relatively sharp transition between air masses (45-55 ppbv polluted vs 20-40 ppbv marine)

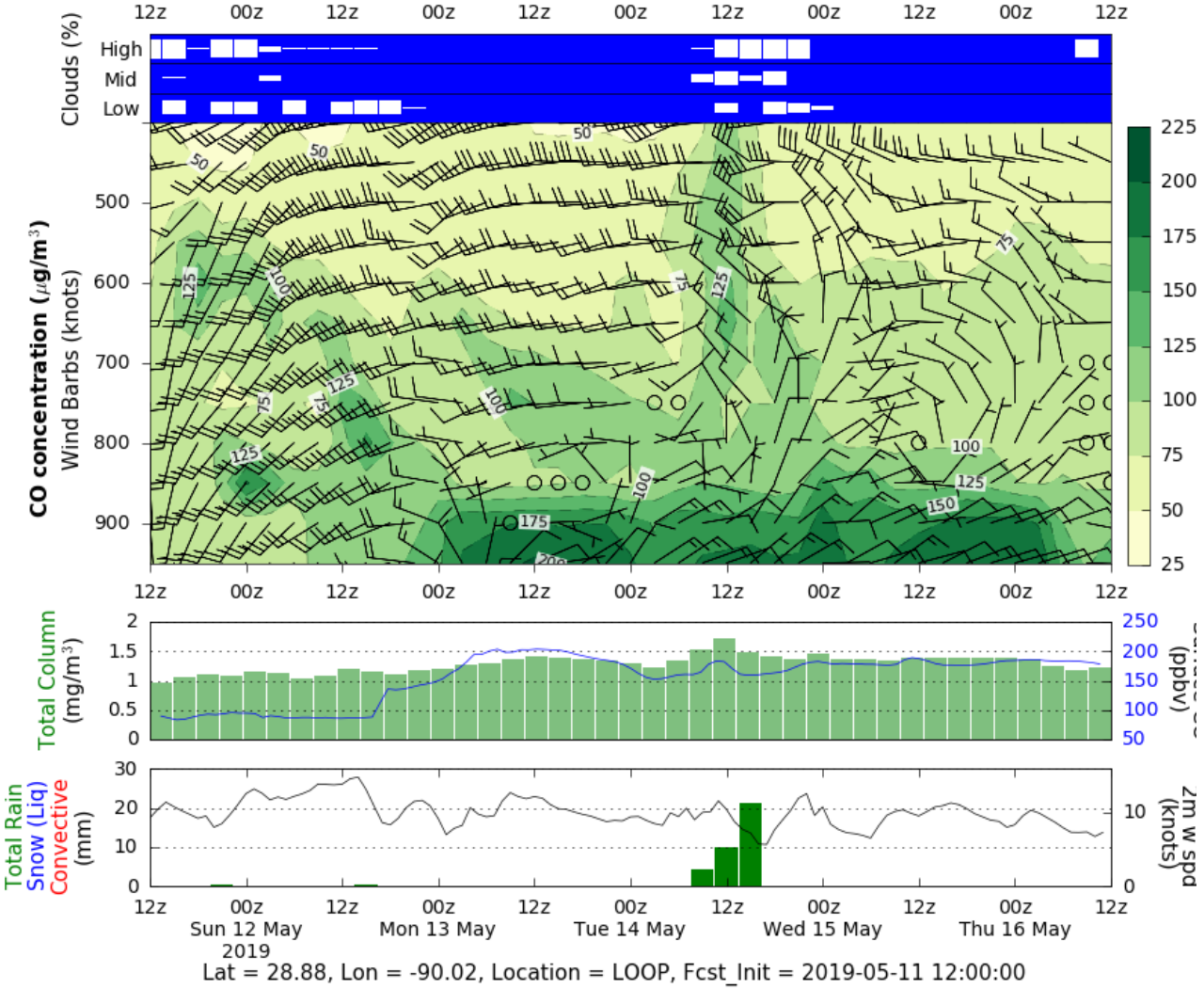


Tuesday 4 PM

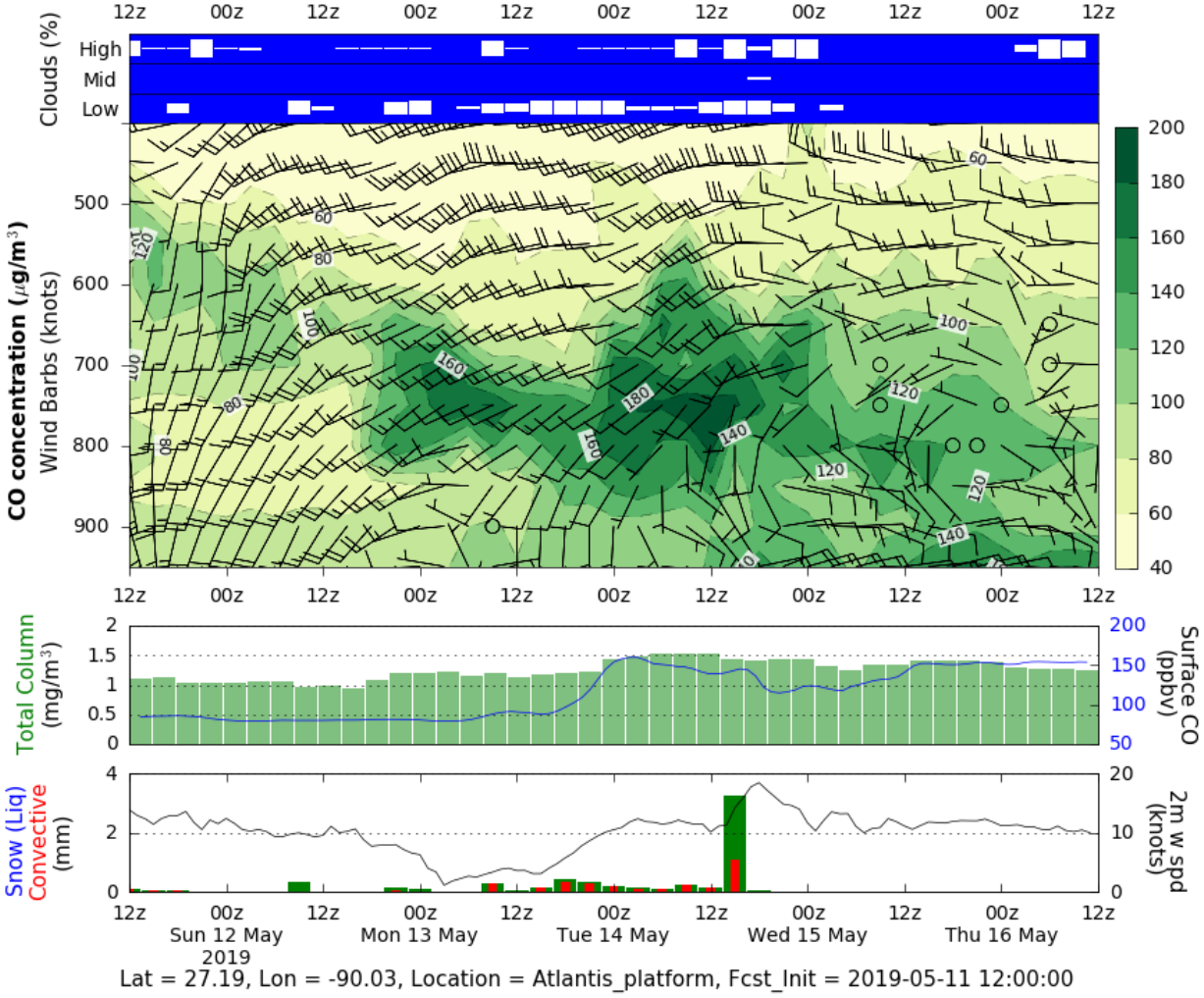


CO (FP – Latest forecast)

LOOP (near coast)



Atlantis (furthest south)



Onshore Team

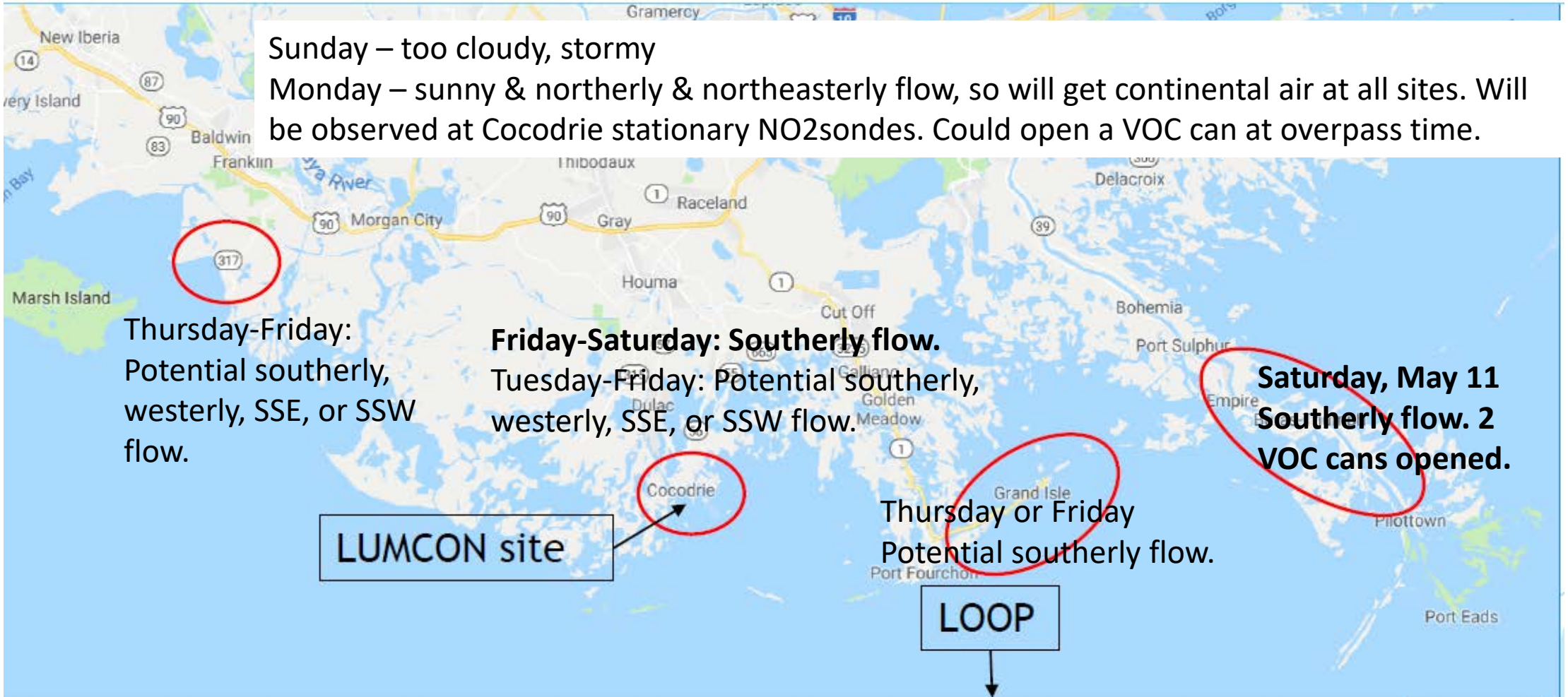
KNMI NO_2-sonde operation during SCOAPE

4 KNMI NO_2-sondes available

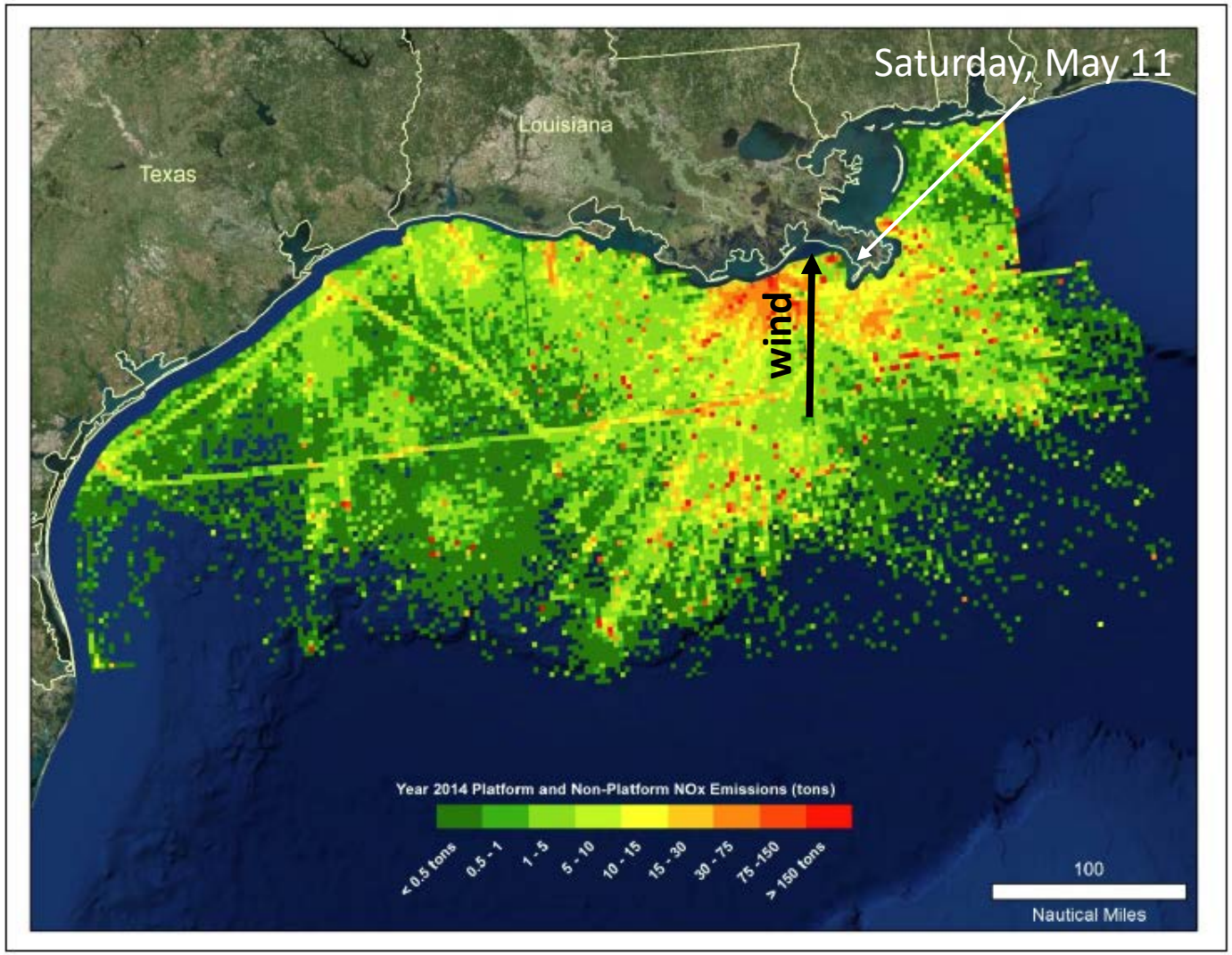
- 2 sondes run continuously at LUMCON
  - Aim: Capture as much off-shore NO_2 as possible.
- 1 sonde is deployed mobily from a car
  - Aims: i) support off-shore measurements with surface NO_2 measurements at different points of interest; ii) identify places of interest for monitoring during 2020 NASA/BOEM campaign; iii) preparation of NO_2 vertical column measurements from a drone during 2020 campaign

Onshore Team Plan of Action: Targets

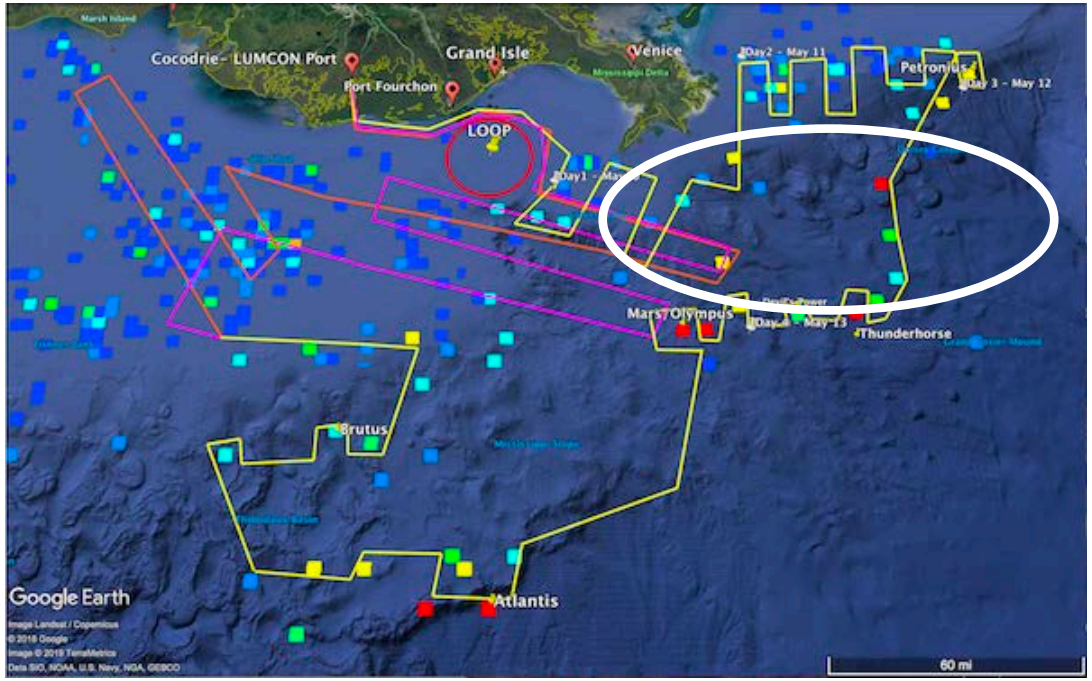
Targets picked for dates based on weather conditions (e.g., forecasted wind direction), location of ship, and proximity to offshore sources.



Onshore Team Plan of Action: Boat Positions and Emission Sources relative to Targets

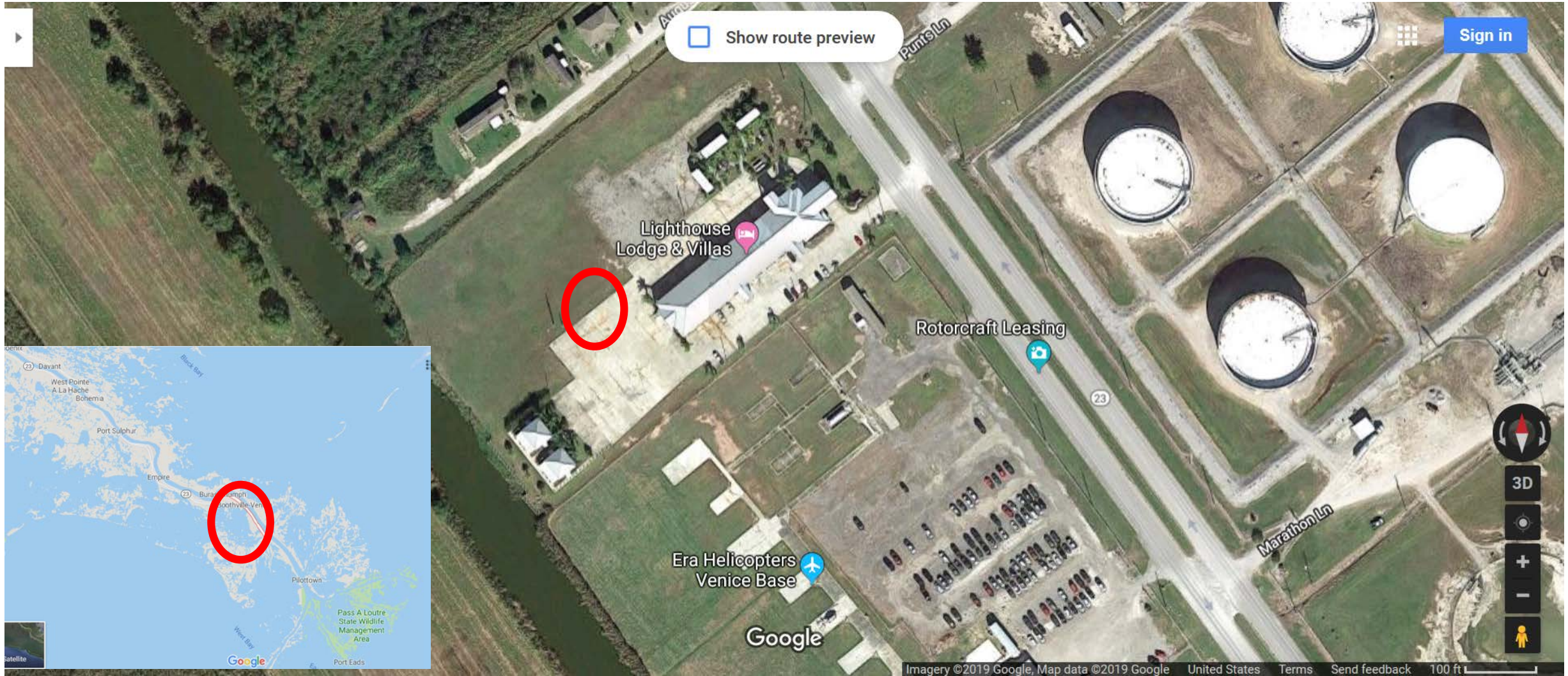


Because of bad weather farther west, ship following yellow route over weekend.



Onshore Team Previous Day (May 11th, 2019)

Boothville-Venice observation site

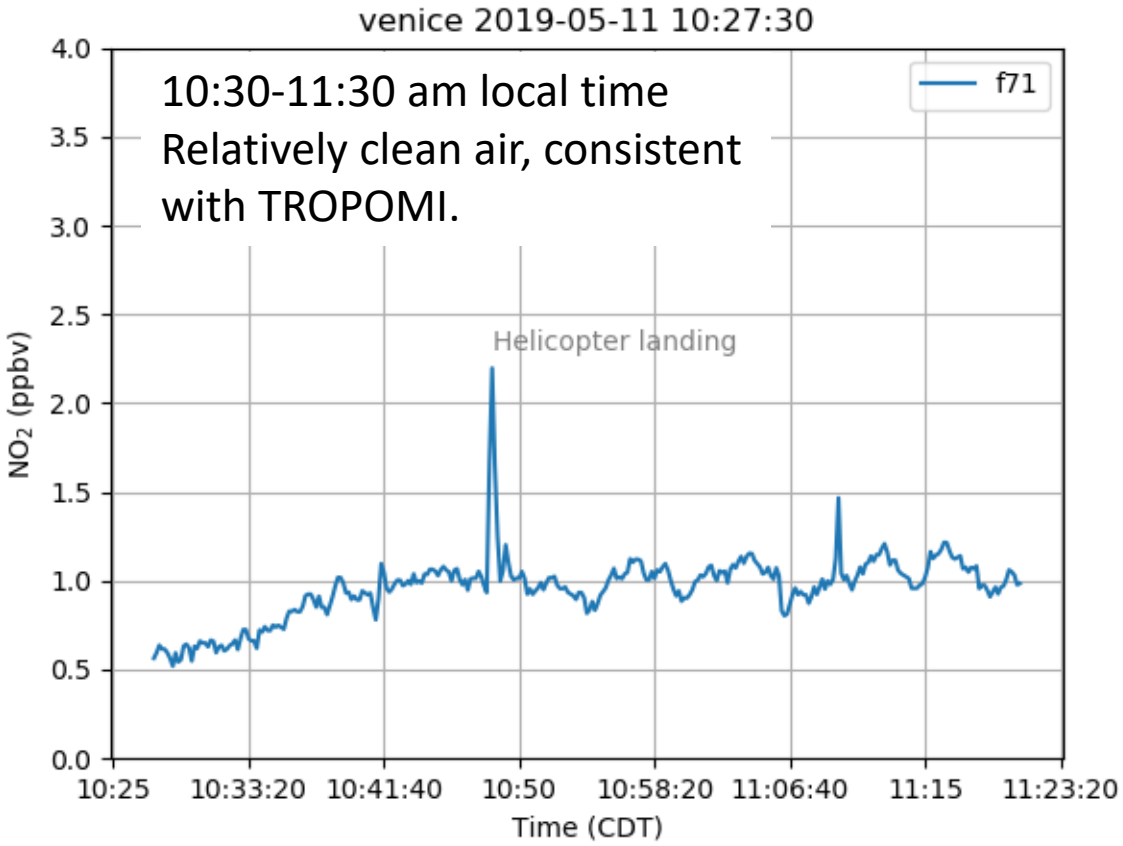


Onshore Team Previous Day

Picking a site was not easy because of private property, industry everywhere, flooded roads and field of view obscured by trees and flood walls. We only found out about the industry at the Marina being upwind after morning sampling.

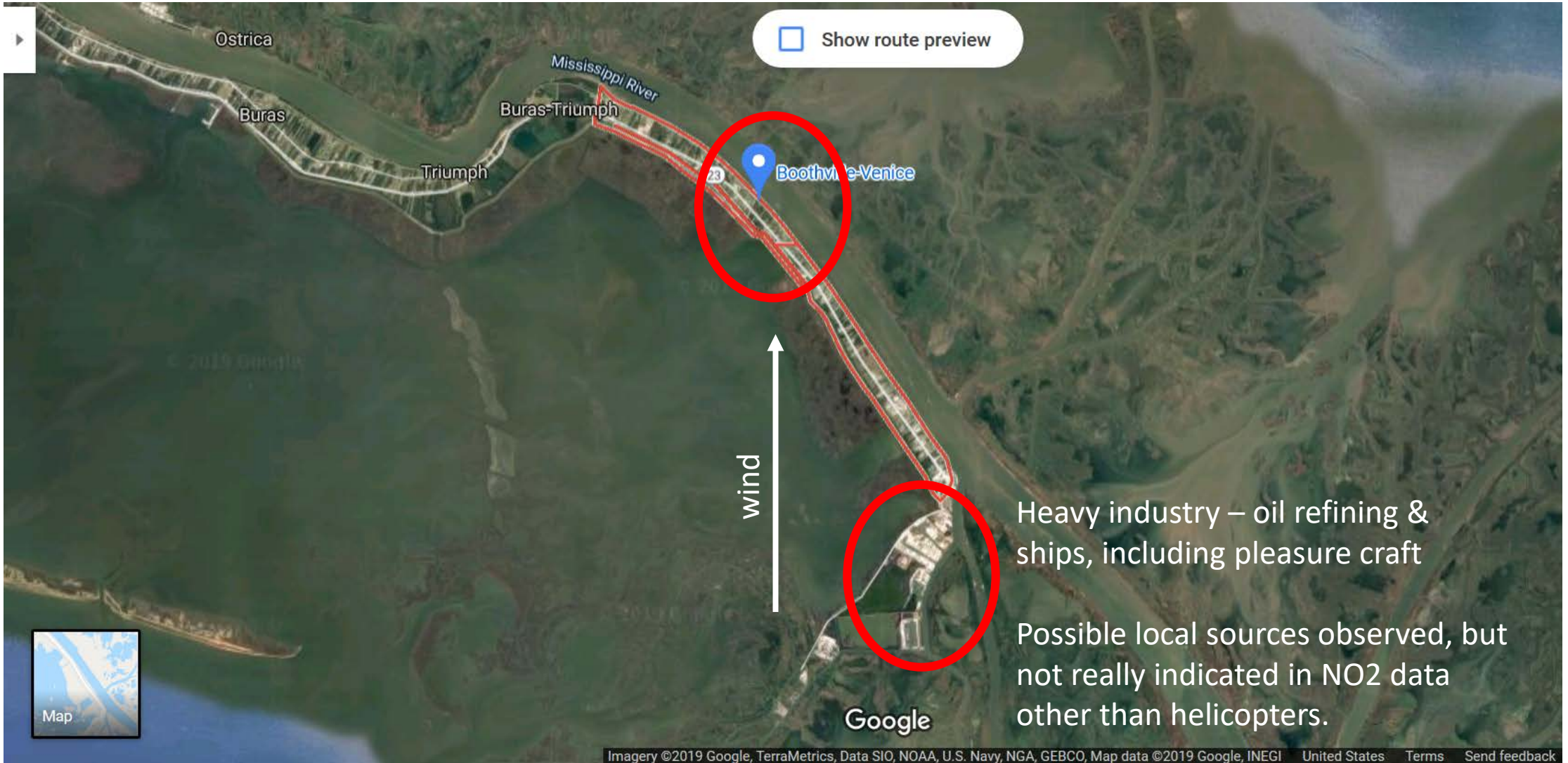
2 VOC cans (pumped) taken, one in morning and one in afternoon, both coincident with ship sampling.

Someone called cops on us, but they didn't cause us any trouble.



Boothville-Venice observation site

Onshore Team Previous Day



Onshore Team Previous Day