

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

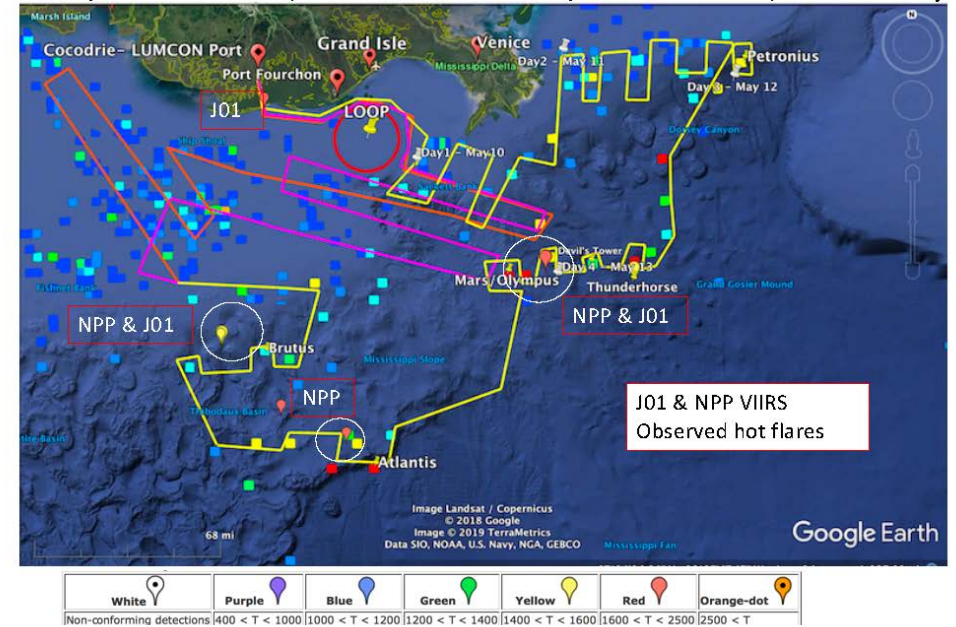
Sunday, May 14, 2019

LUMCON, Cocodrie, LA

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

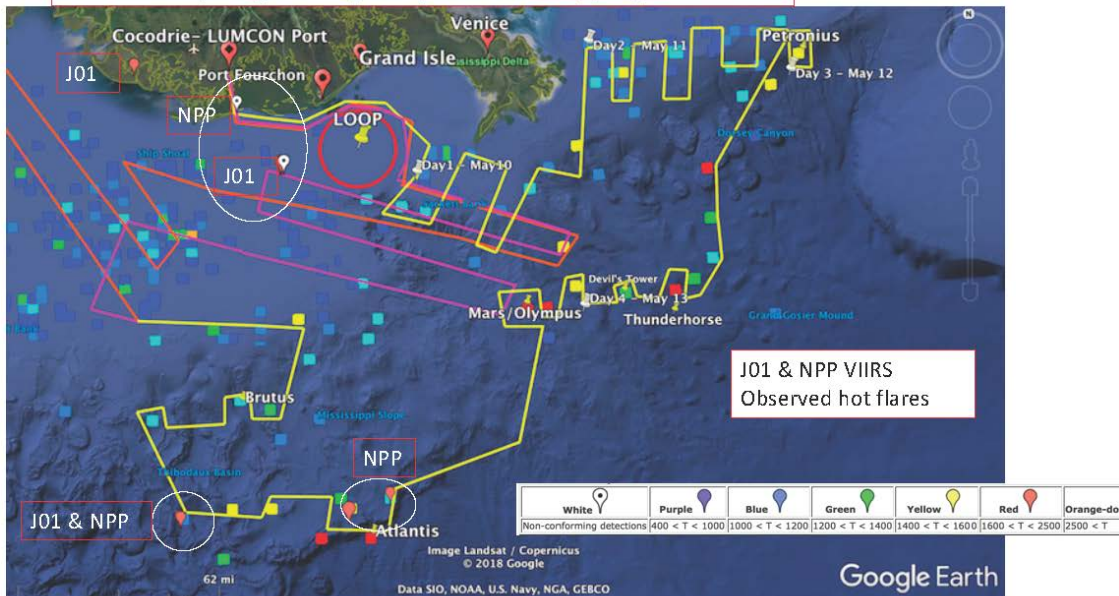
From Debra: Flares

NPP VIIRS (0719UTC) & J01 VIIRS (0809UTC) on May 12

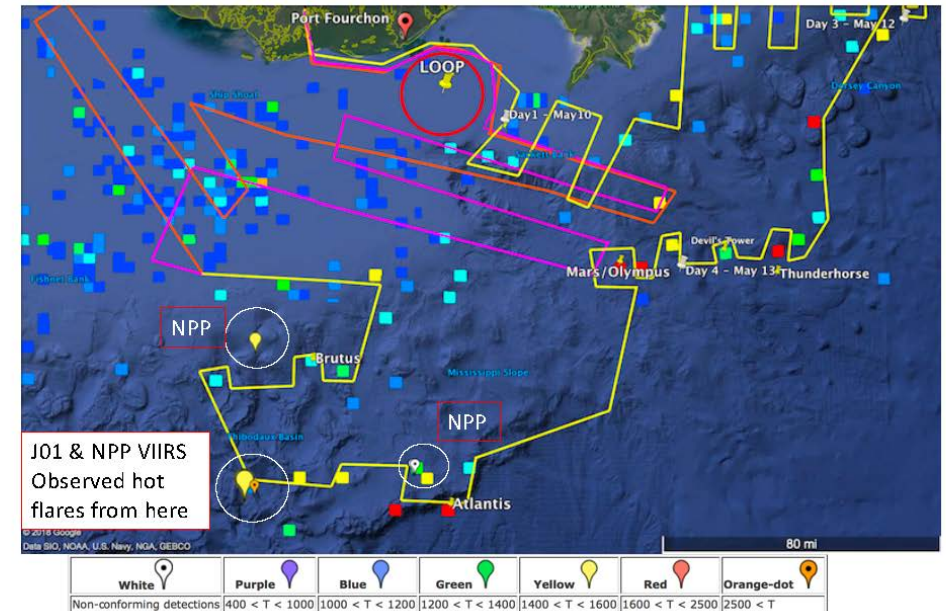


NPP VIIRS (0738UTC) & J01 VIIRS (0830UTC) on May 11

Data from: https://ngdc.noaa.gov/eog/viirs/download_viirs_fire.html



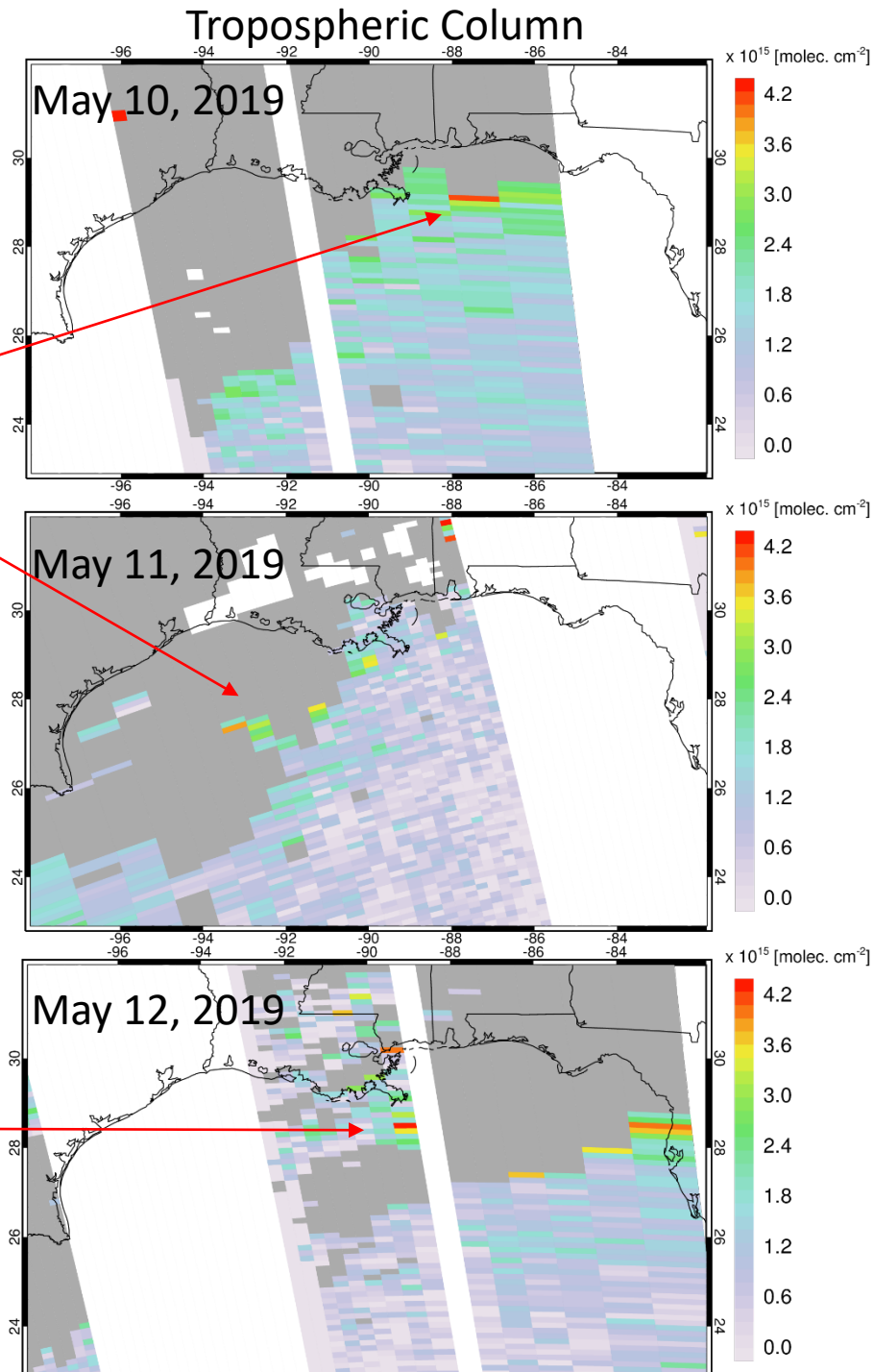
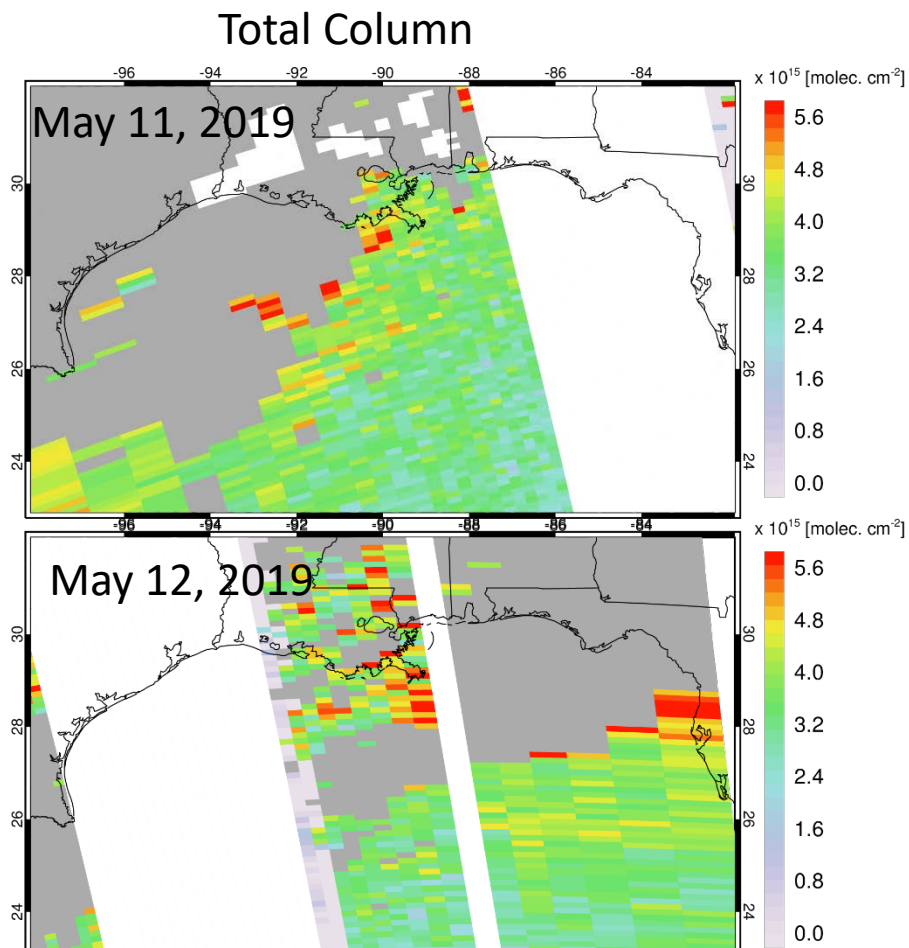
NPP VIIRS (0845UTC) & J01 VIIRS (0752UTC) on May 13



From Lok: OMI NO₂

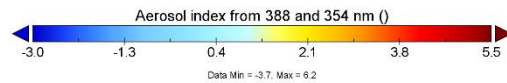
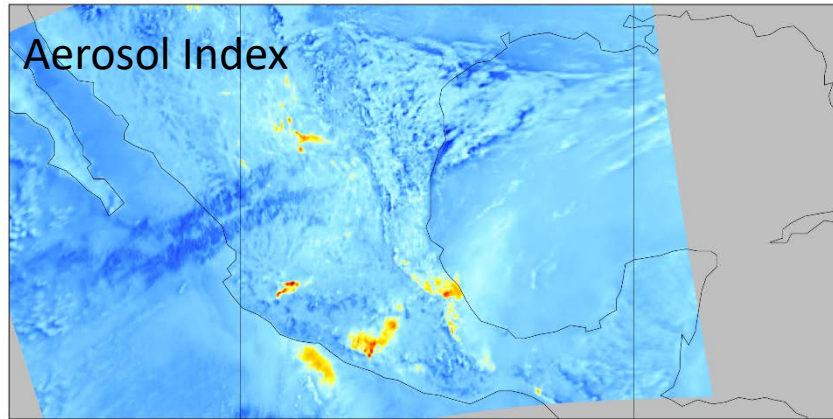
Could be cloud contamination.

Consistent with flaring in area as observed by satellites.

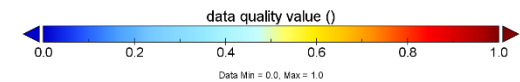
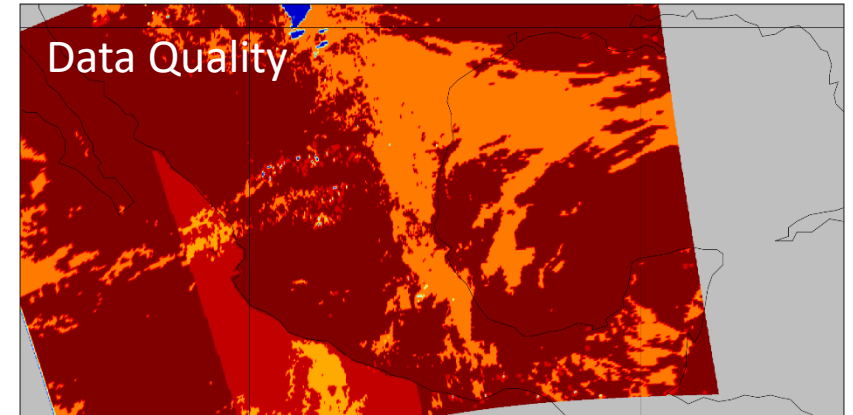


From Deb Stein: TROPOMI : May 13

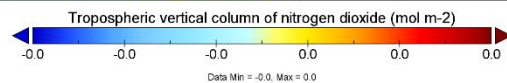
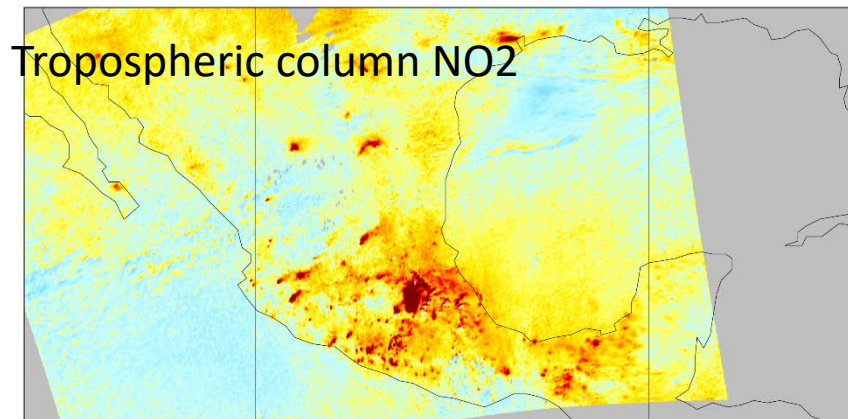
Aerosol index from 388 and 354 nm



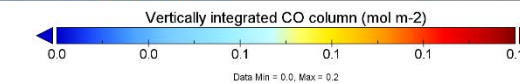
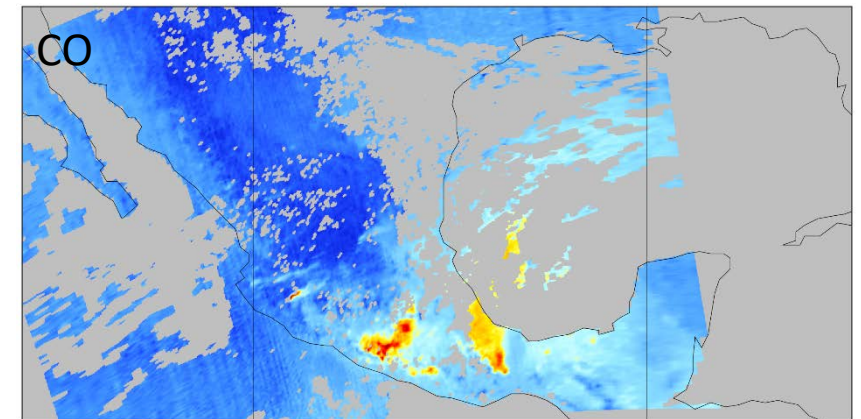
data quality value



Tropospheric vertical column of nitrogen dioxide



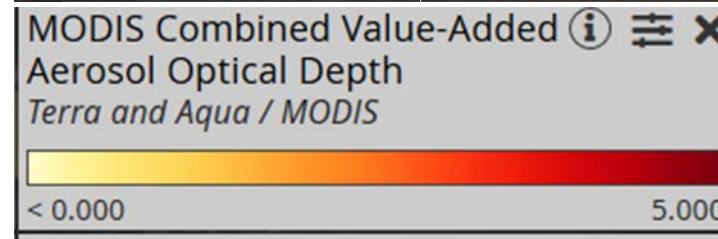
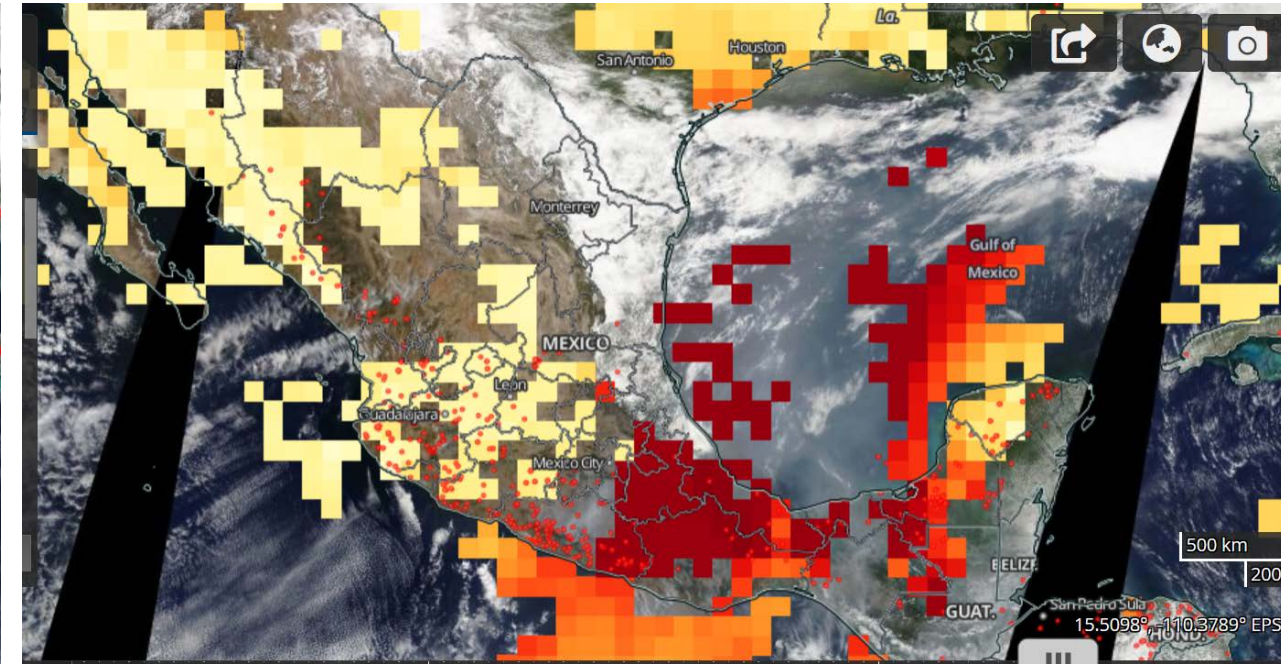
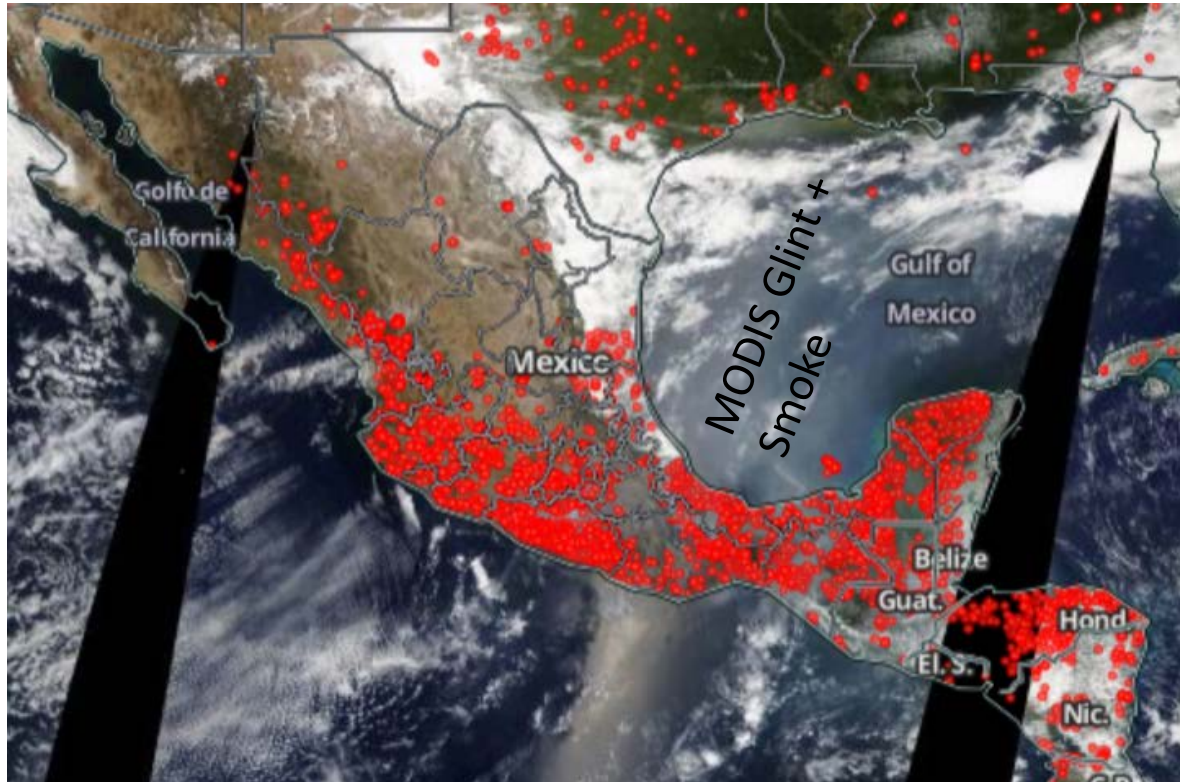
Vertically integrated CO column



May 13, 2019: Watching Agricultural Fires in Mexico and Central America: Polluting GoM

VIIRS Firecounts & MODIS True Color Image

MODIS AOD

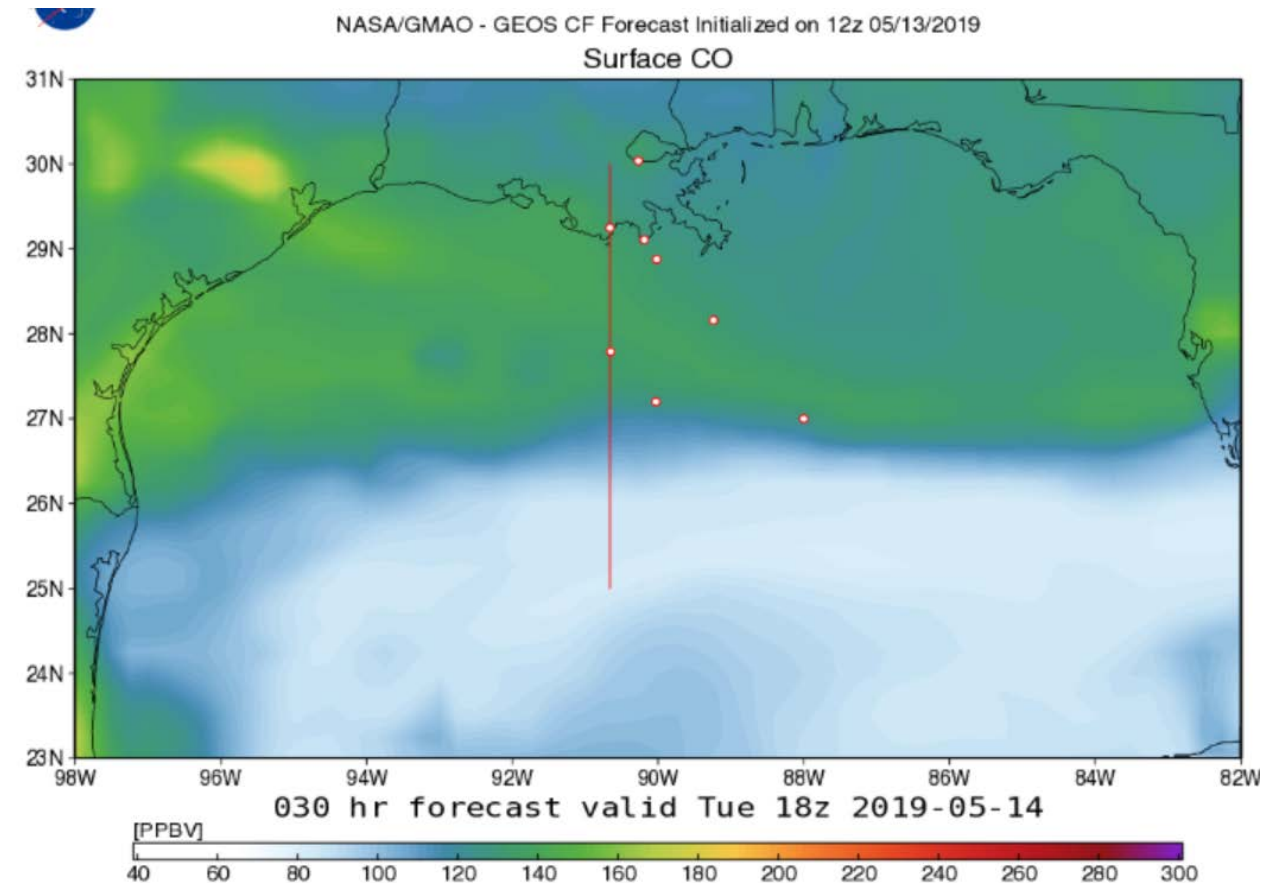


GEOS Chemical Forecasts (CF: not updated since Friday; FP: updated)

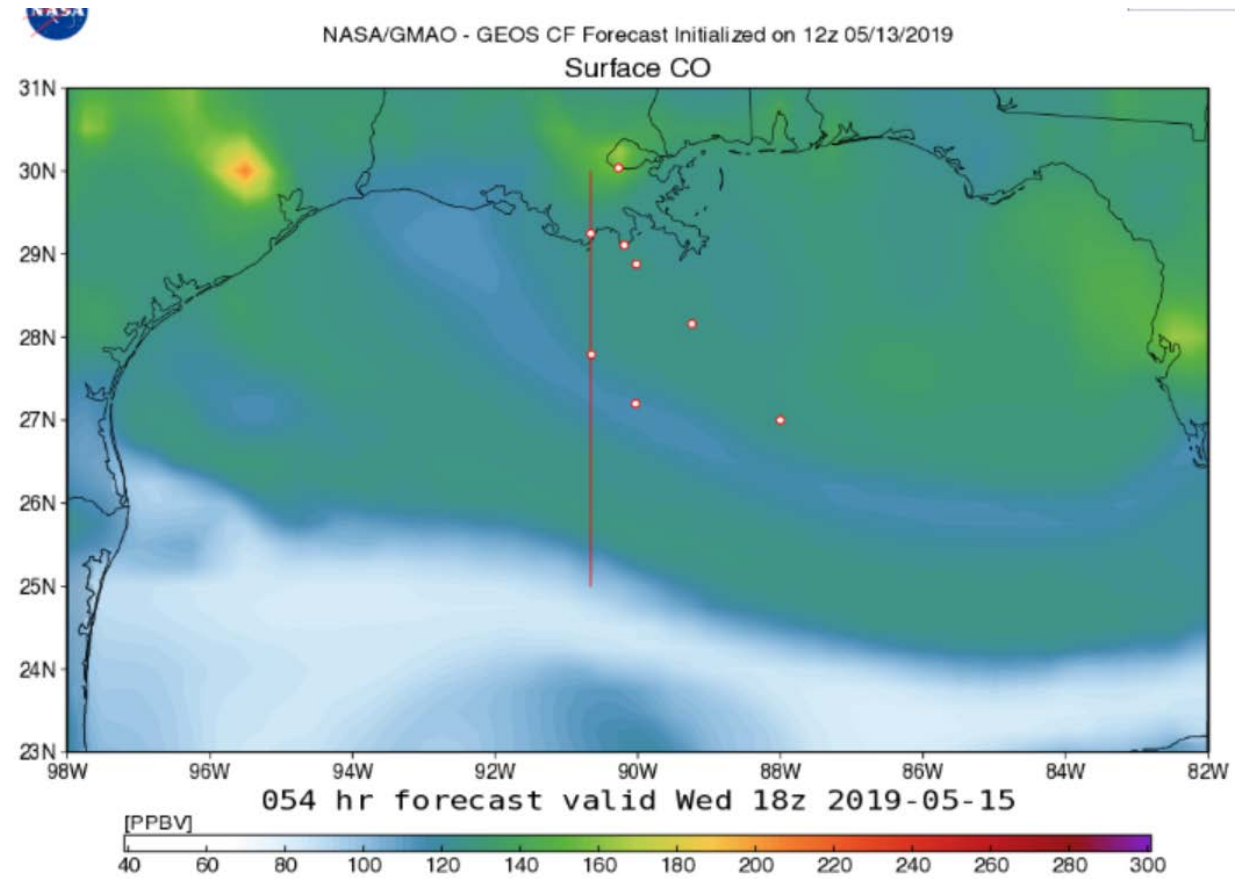
- Offshore winds continue to keep continental air in study area on Tuesday, but the boat may encounter some pollution from Mexican agricultural fires in the southernmost portion of the study region. The fires' influence wanes on Wednesday.
- **NOTE:** GEOS forecasts DO NOT simulate GoM ONG source emissions, therefore the simulated transition between air masses may not be quite as distinct as observed.
- **NOTE:** Sometimes the fire smoke is over or under done. The forecast assumes persistence (intensity too) throughout, which may or may not be true.
- **NOTE:** As with any forecast, there is uncertainty in exactly where the transition will be at any given time.

Surface level CO (FP)

Tuesday 1 PM: Sharp transition between continental and marine air at southern edge of study region.



Wednesday 1 PM: Onshore sources continue to affect offshore.

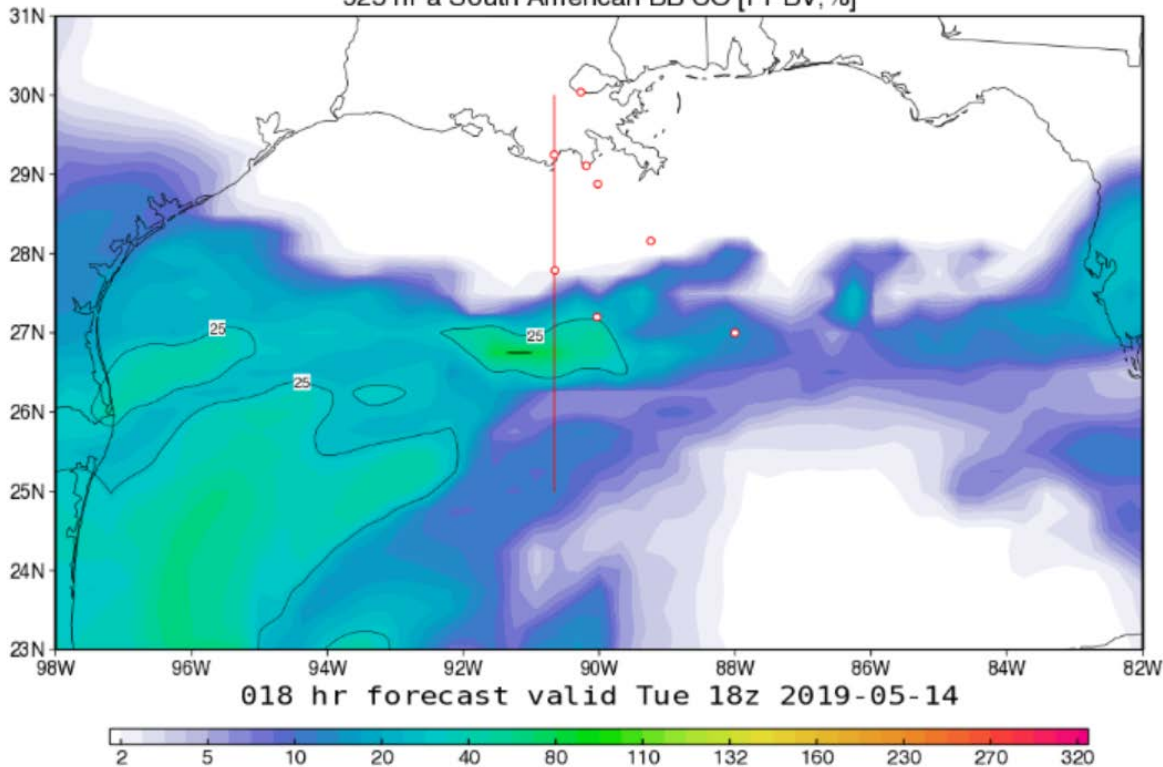


Surface level CO Tracers (FP) : Tuesday 1 pm

Mixture of some agricultural fire pollution (levels relatively low) and continental pollution in southern portion of study area. Northern area dominated by continental pollution.

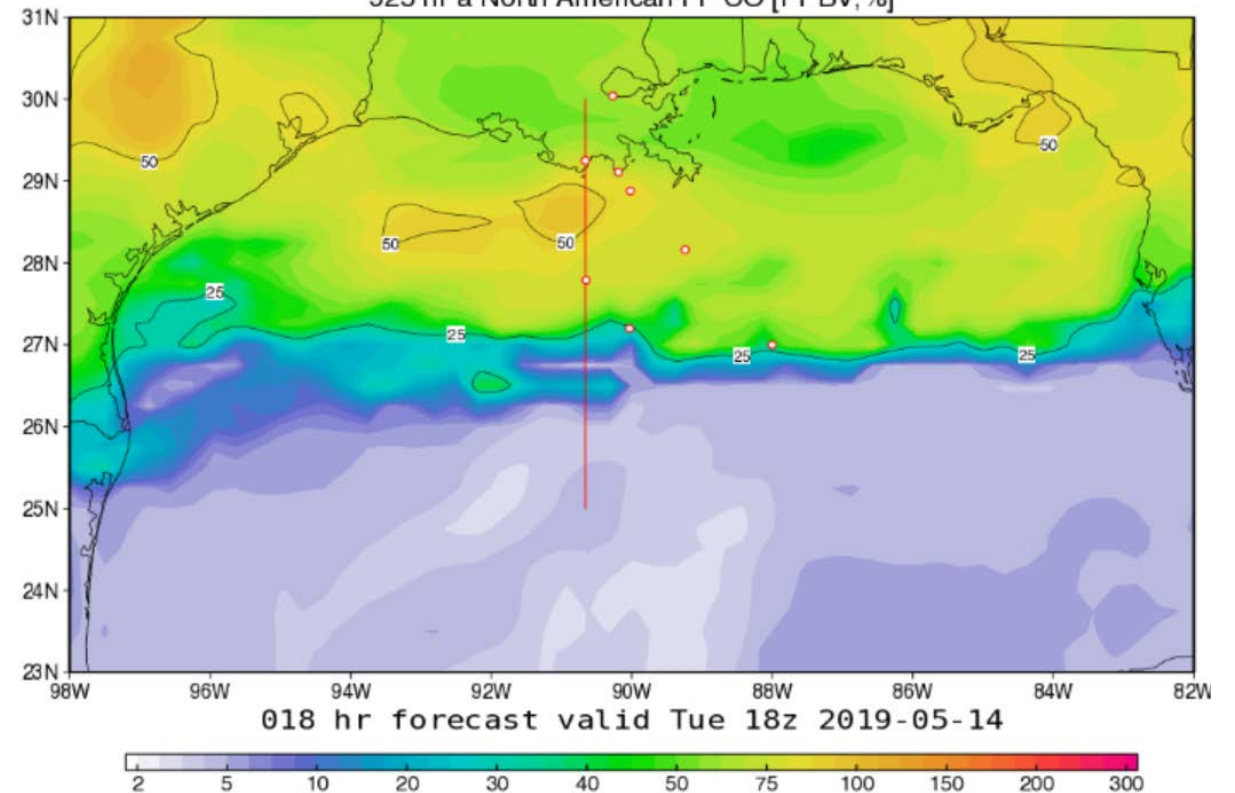
Agricultural Fires

NASA/GMAO - GEOS Forecast Initialized on 00z 05/14/2019
925 hPa South American BB CO [PPBV, %]



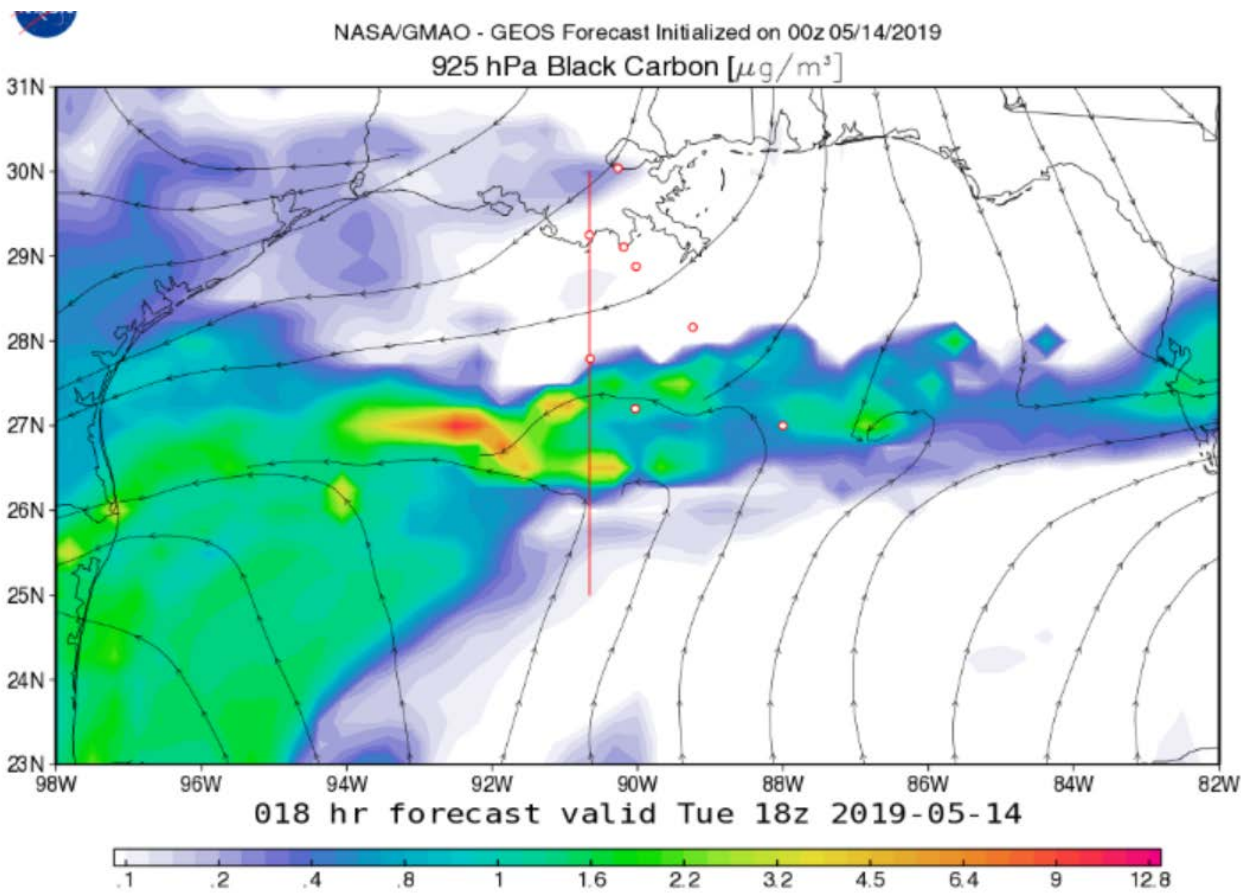
N. American Fossil Fuel

NASA/GMAO - GEOS Forecast Initialized on 00z 05/14/2019
925 hPa North American FF CO [PPBV, %]

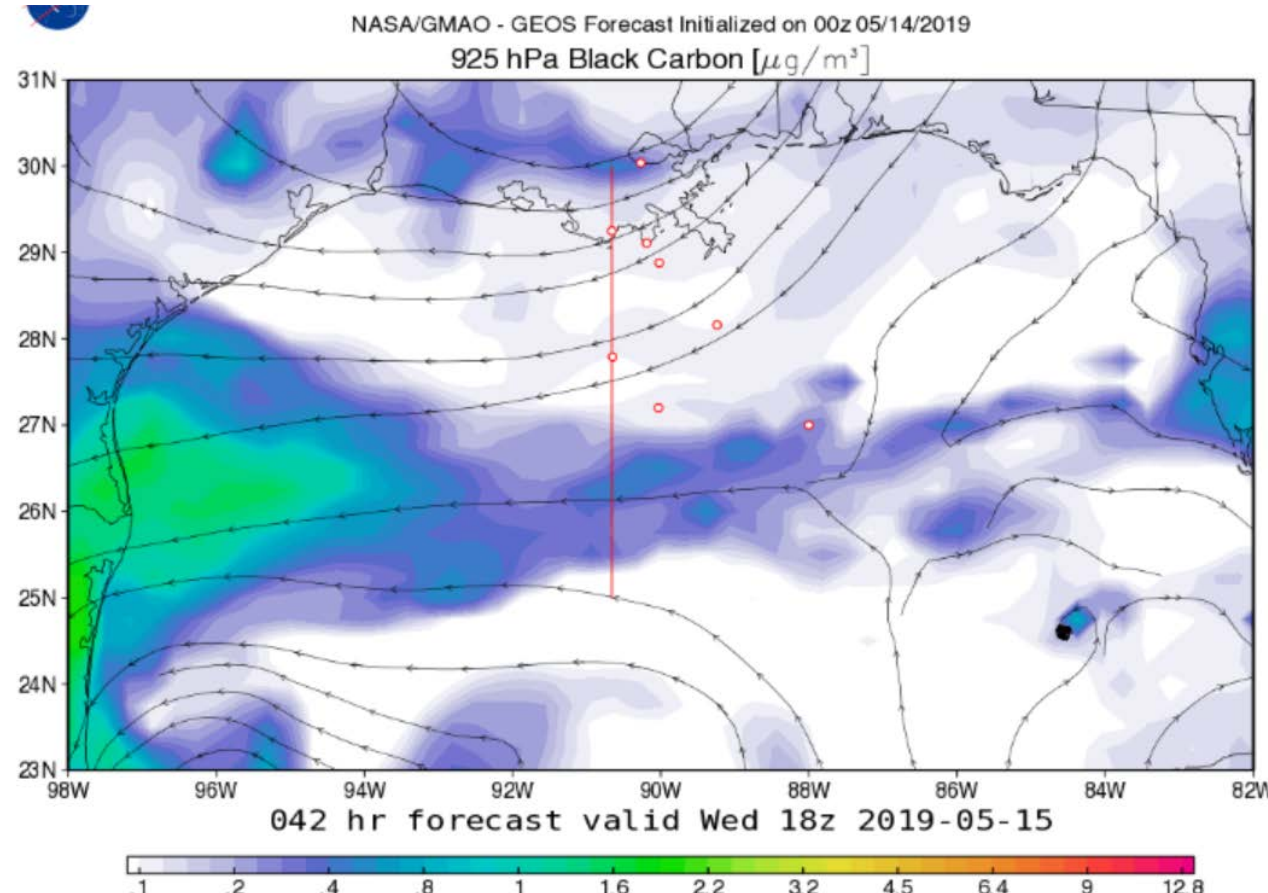


Surface level AOT (FP)

Tuesday 1 PM: Sharp transition in AOT from agricultural fires, but levels low.

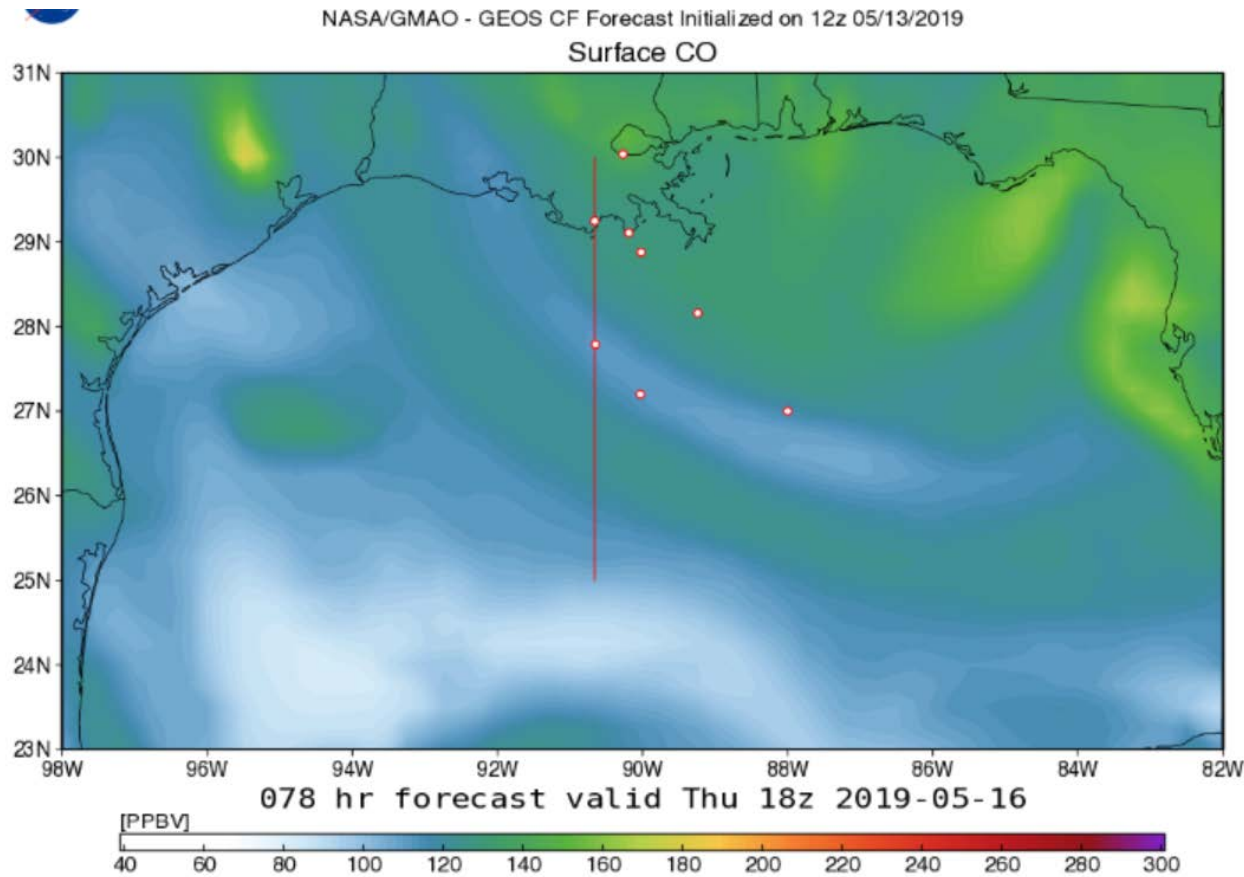


Wednesday 1 PM: Wildfire influence wanes at surface.

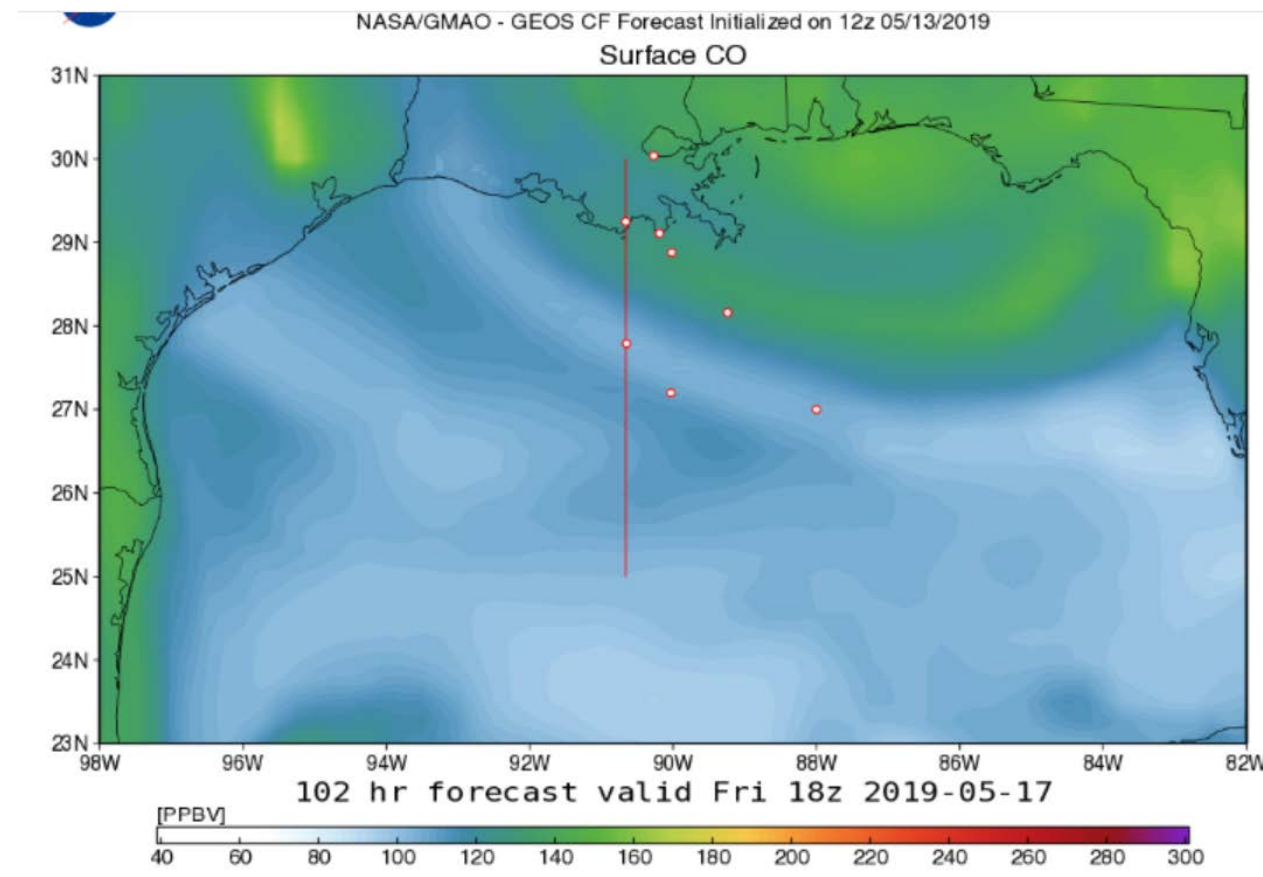


Surface level CO (FP)

Thursday 1 PM: Sharp transition between continental and marine air starts to breakdown.



Friday 1 PM: Breakdown continues with return to onshore flow on Saturday.

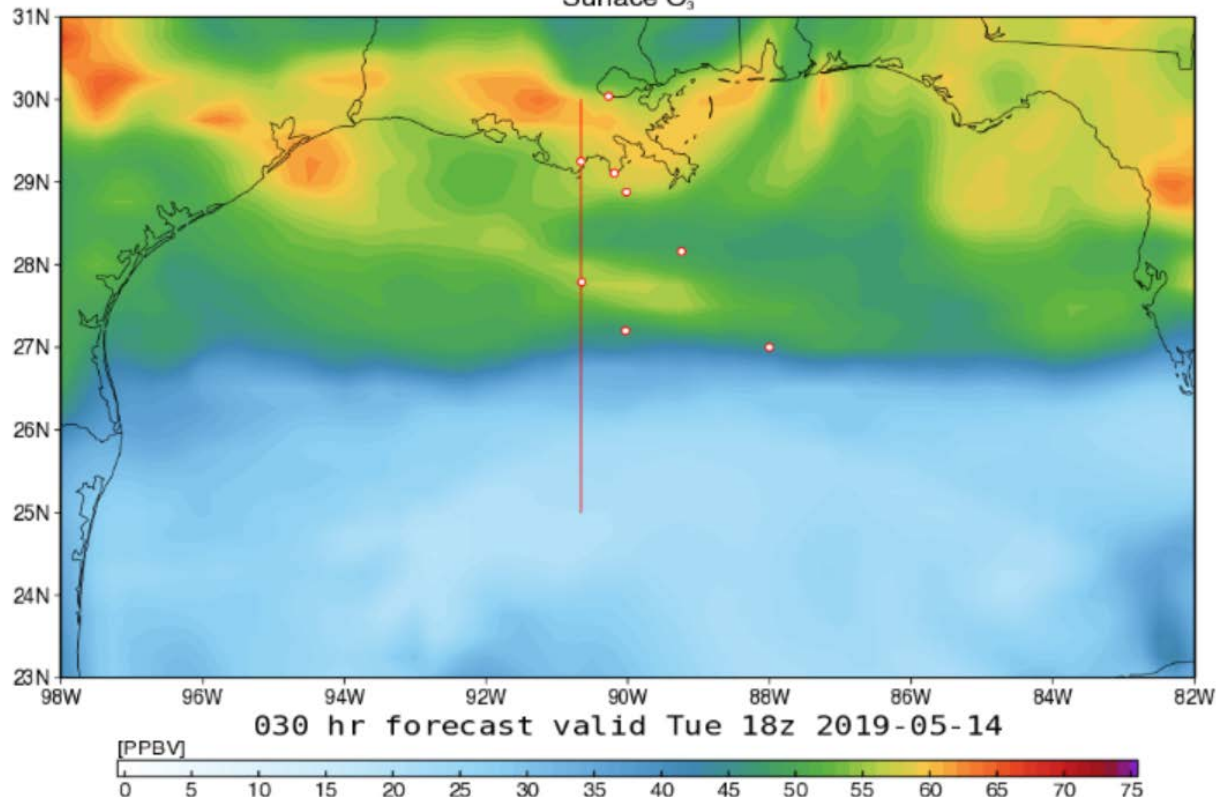


Surface level Ozone (FP)

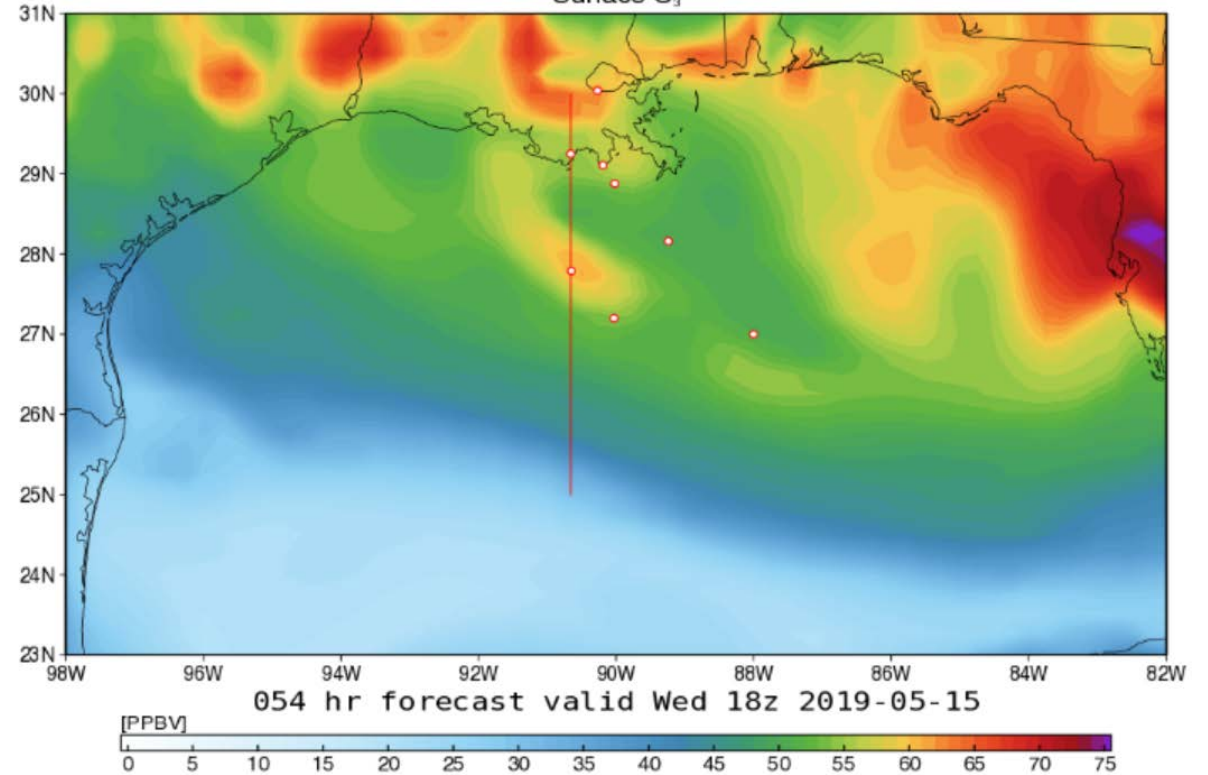
Tuesday 1 PM: Sharp transition between continental and marine air at southern edge of study region.

Wednesday 1 PM: Onshore sources continue to affect offshore.

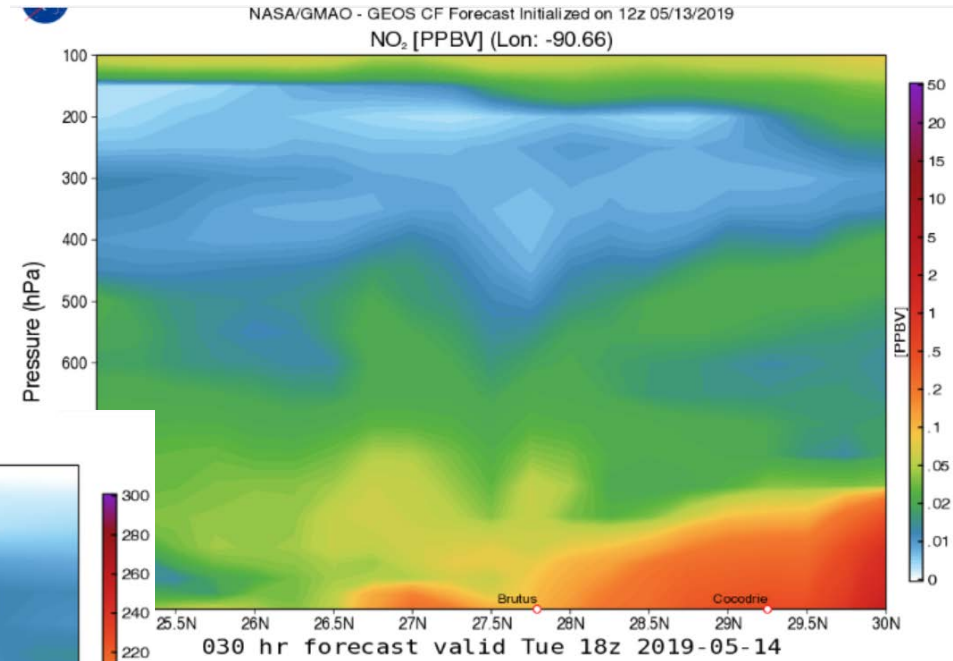
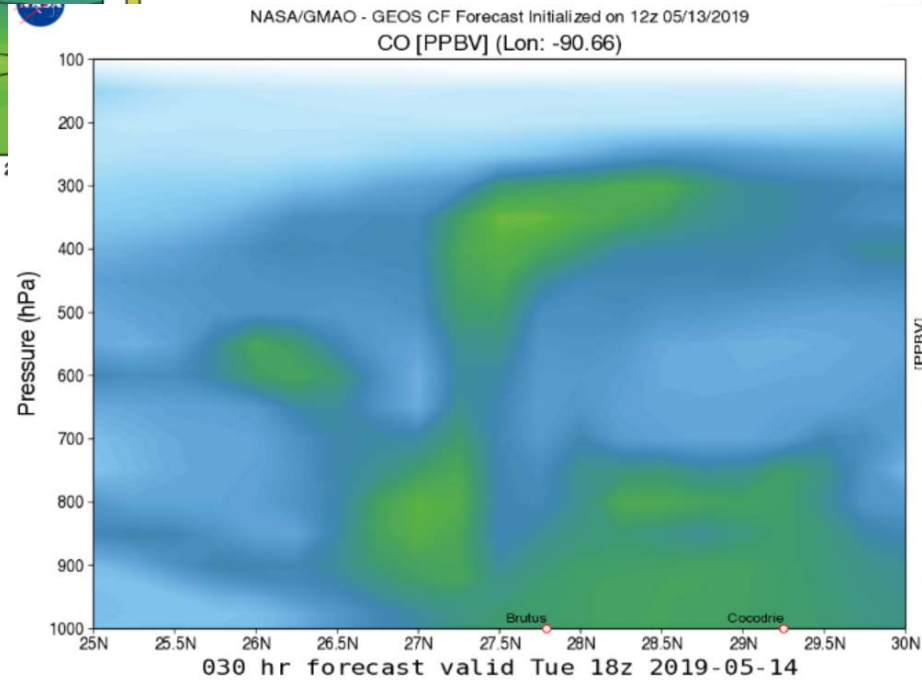
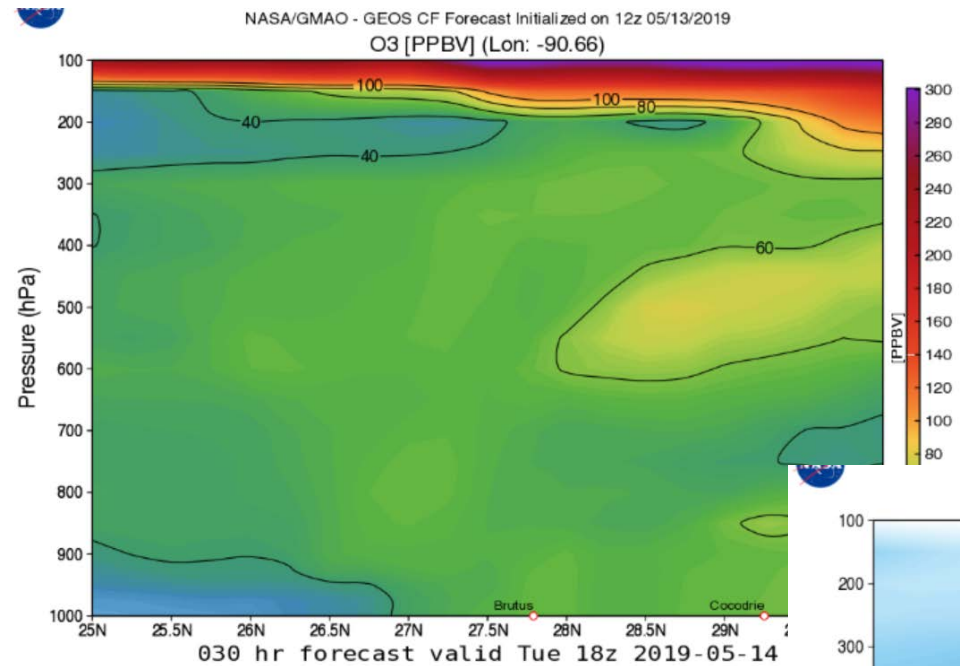
NASA/GMAO - GEOS CF Forecast Initialized on 12z 05/13/2019
Surface O₃



NASA/GMAO - GEOS CF Forecast Initialized on 12z 05/13/2019
Surface O₃

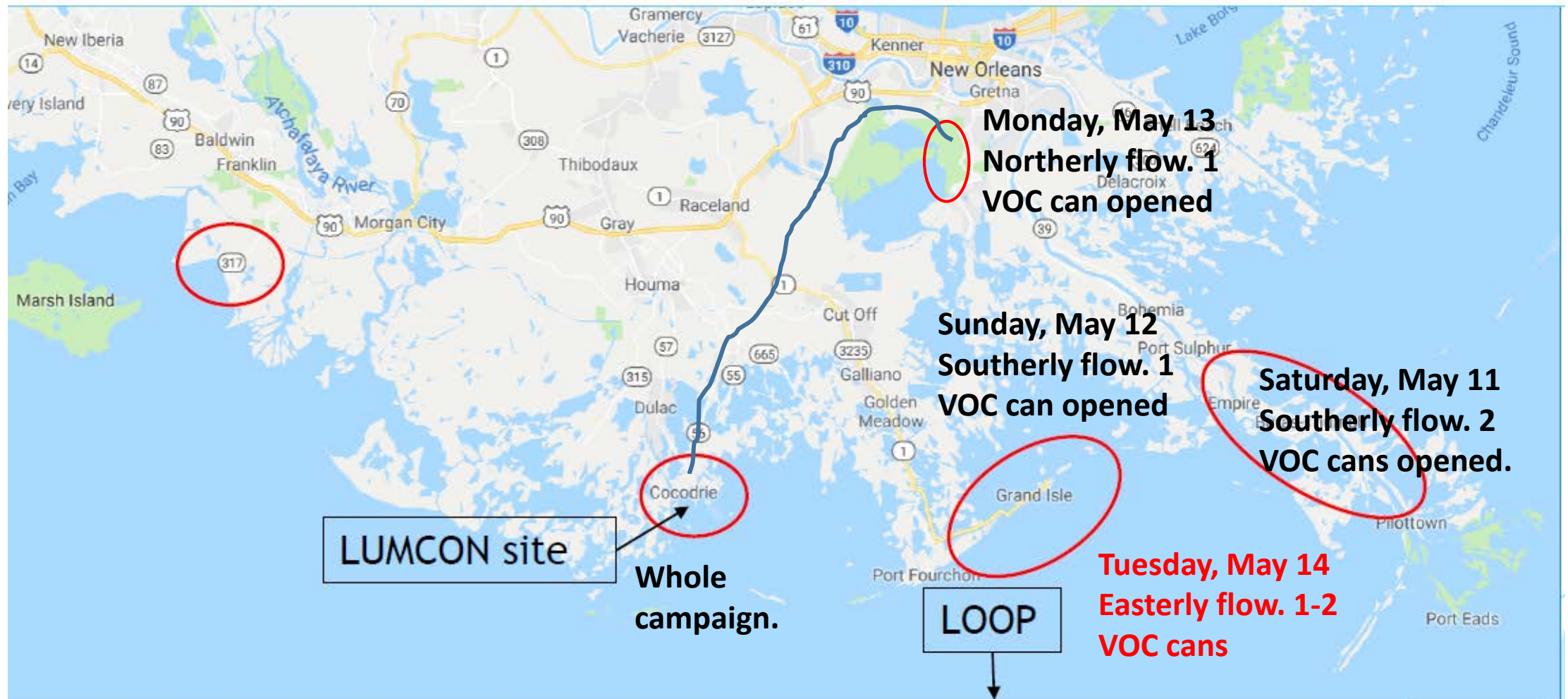


Cross Sections (FP) : Tuesday 1 pm



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.



KNMI NO₂-sonde operation during SCOAPE



4 KNMI NO₂-sondes available

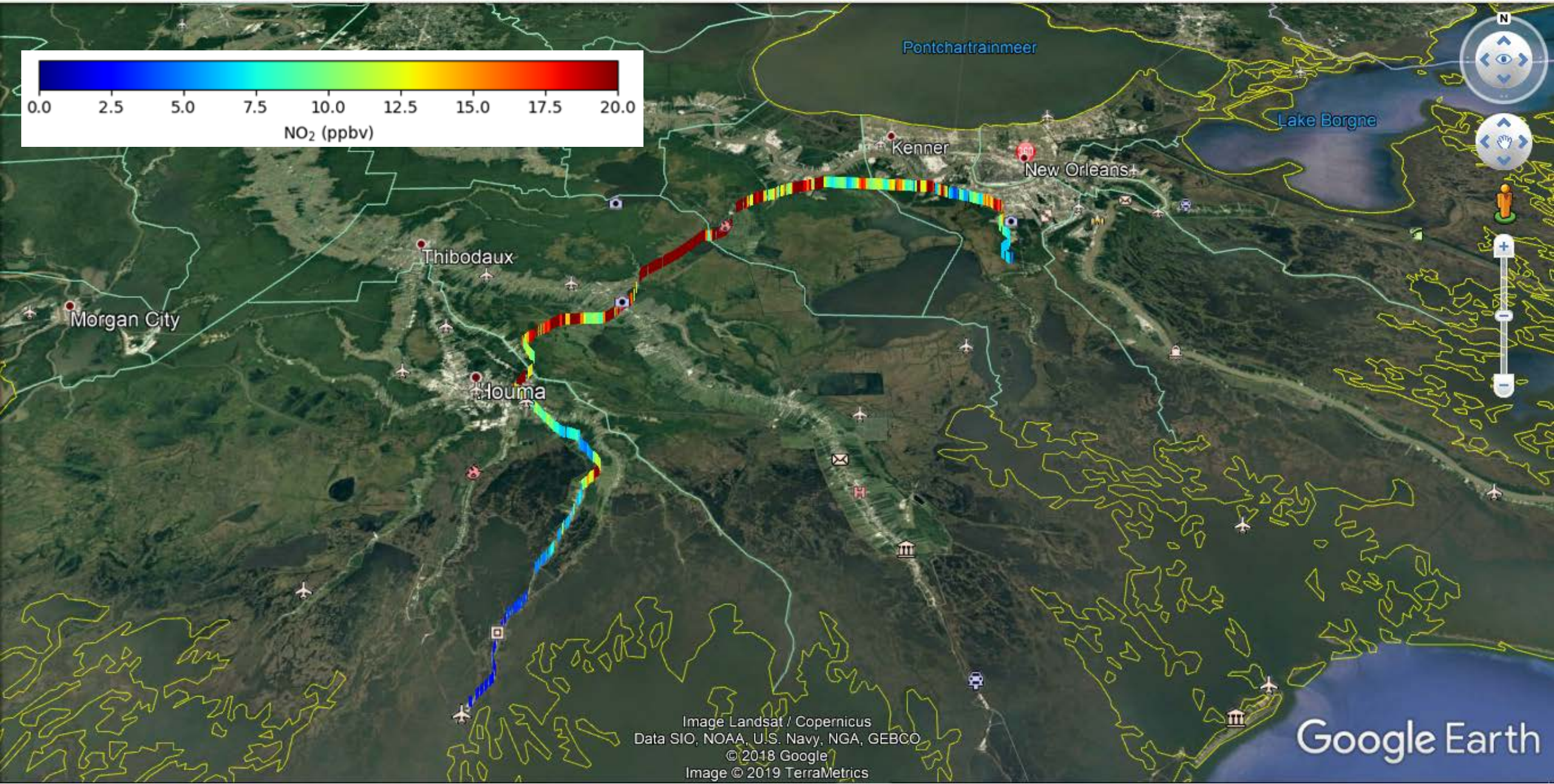
- 2 sondes run continuously at LUMCON
 - Aim: Capture as much off-shore NO₂ as possible.
- 1 sonde is deployed mobily from a car
 - Aims: i) support off-shore measurements with surface NO₂ measurements at different points of interest; ii) identify places of interest for monitoring during 2020 NASA/BOEM campaign; iii) preparation of NO₂ vertical column measurements from a drone during 2020 campaign

Onshore Team's Activities: Previous Day (Monday)

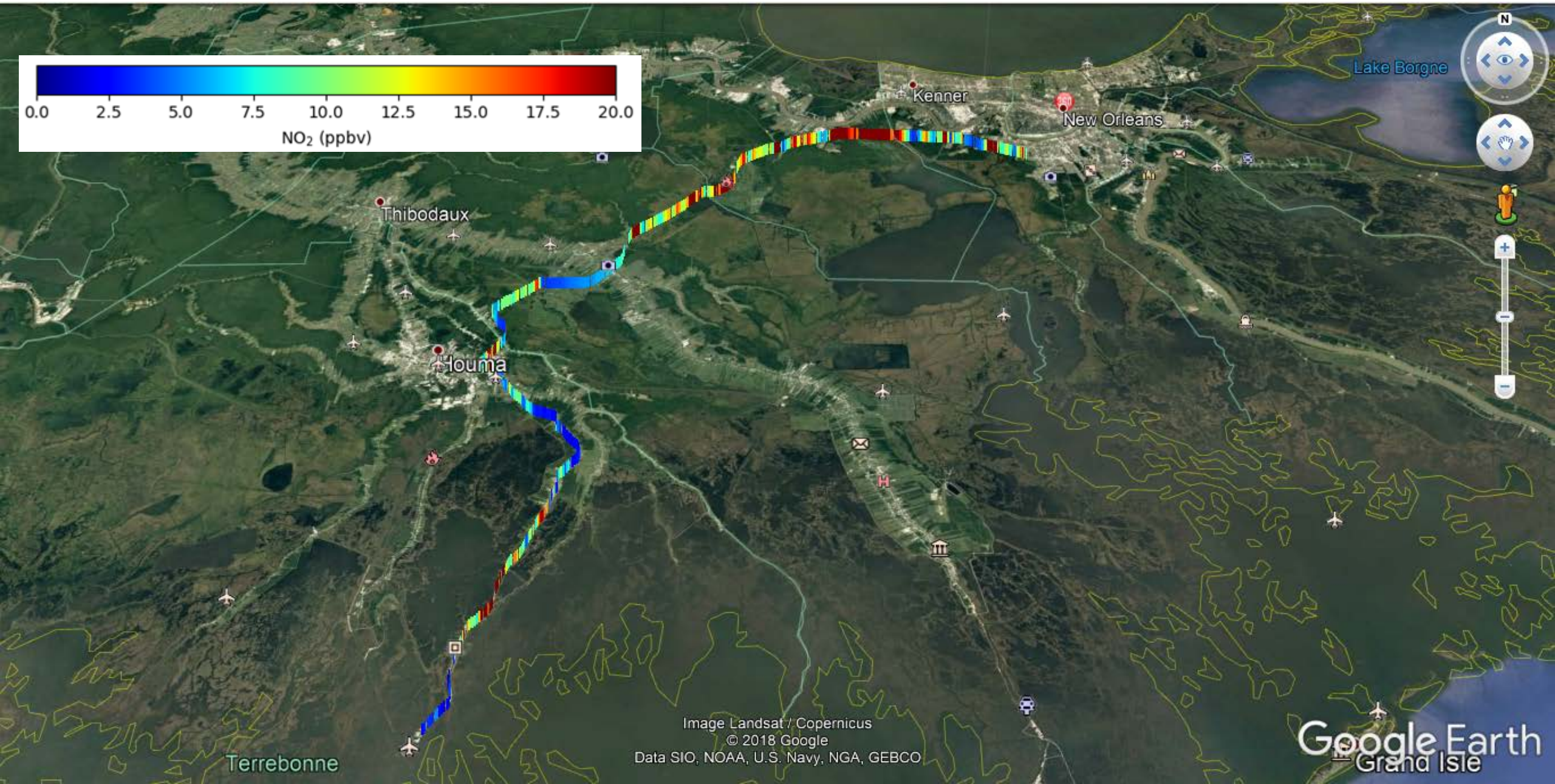
Cocodrie to NOLA & Back

- Offshore flow (northerly) led us to sample NOLA air and the gradients from NOLA to Cocodrie, roughly north-south.

Morning Drive: Cocodrie to Jean Lafitte Park



Afternoon Drive: Jean Lafitte Park to Cocodrie



NO₂-sonde measurements from Cocodrie to NOLA (with layover in park) and back

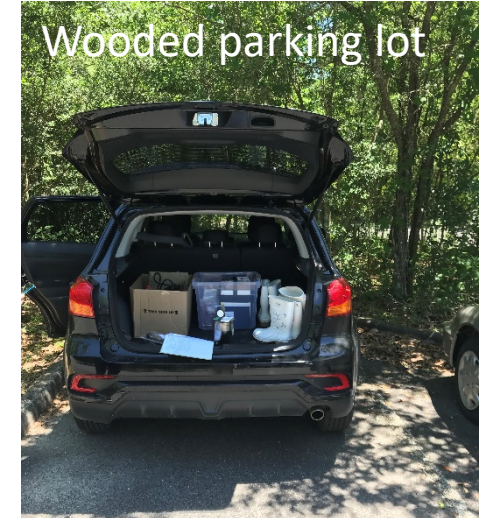
Jean Lafitte Park & Preserve: Barataria

~10 miles south of NOLA

Northerly light breeze, 70's – low 80's
Clear skies

Great sampling site.

One VOC can was collected at TROPOMI overpass
(no pump)

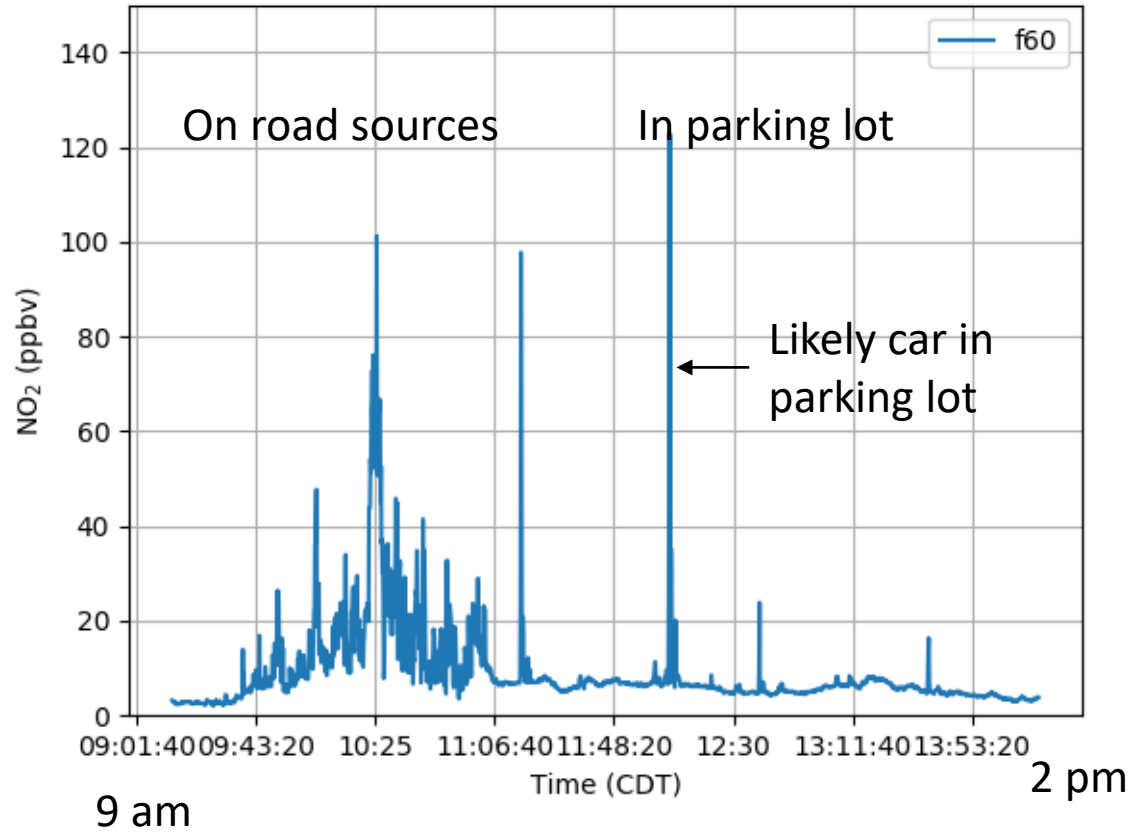


Onshore Team's Activities: Previous Day

Cocodrie to NOLA & Back

Cocodrie to Jean Lafitte Park

car 2019-05-13 09:14:20



Jean Lafitte Park to Cocodrie

car 2019-05-13 14:31:30

