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 (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

J01 & NPP VIIRS
Observed hot flares from here.
From Lok: OMI NO₂

May 11, 2019
Consistent with flaring in area as observed by satellites.

May 12, 2019

Could be cloud contamination.
From Deb Stein: TROPOMI: May 13

Aerosol Index

Tropospheric column NO2

Data Quality

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.
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.
**Thursday 1 PM:** Sharp transition between continental and marine air starts to break down.

**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.
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 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’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
9 am

Jean Lafitte Park to Cocodrie
2 pm

Likely car in parking lot

On road sources

In parking lot

2:30 pm

4:30 pm

NO₂ (ppbv)

Time (CDT)

9 am

2 pm

2:30 pm

4:30 pm