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

Crew reported seeing flares in the night in this region.

Satellite shows extensive flaring: possibly Atlantis
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
  • TROPOMI: 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:

[Graphs showing surface CO concentration and 925 hPa wind speed and heights]
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)

Lat = 28.88, Lon = -90.02, Location = LOOP, Fcst_Init = 2019-05-11 12:00:00

Lat = 27.19, Lon = -90.03, Location = Atlantis_platform, Fcst_Init = 2019-05-11 12:00:00
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.

Sunday – too cloudy, stormy
Monday – sunny & northerly & northeasterly flow, so will get continental air at all sites. Will be observed at Cocodrie stationary NO2sondes. Could open a VOC can at overpass time.

Thursday-Friday:
Potential southerly, westerly, SSE, or SSW flow.

Friday-Saturday: Southerly flow.

Tuesday-Friday: Potential southerly, westerly, SSE, or SSW flow.

Saturday, May 11
Southerly flow. 2 VOC cans opened.
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

venice 2019-05-11 10:27:30

10:30-11:30 am local time
Relatively clean air, consistent with TROPOMI.

Helicopter landing

NO$_2$ (ppbv)

Time (CDT)
Onshore Team Previous Day

Heavy industry – oil refining & ships, including pleasure craft

Possible local sources observed, but not really indicated in NO2 data other than helicopters.
Onshore Team Previous Day

1-2:30 pm local time

venice 2019-05-11 13:02:20

Helicopter take-off

1-2:30 pm local time