HYSPLIT-based forecast product for the Grand Bay Intensive

Based on the t00z NAM-12km forecast generated by the National Weather Service

This forecast starts at UTC 00 for the given date, which is 7 PM the night before in Grand Bay time (GBT). The hours displayed in this product – 9 AM to 8 PM GBT – thus represent hours 14-25 in the 48 hr t00z forecast. The file becomes available to NOAA ARL at ~3:00 AM GBT, and the processing of the data to make this product is generally done by 7:00 GBT.

Meteorological Data Contours

- ❑ Two different contours on each hour's page
- ❑ Image in upper left corner is the Planetary Boundary Layer Height (PBLH) (meters)
- ❑ The map below PBLH in the middle left of the page is forecast precipitation, shown as a 3-hr accumulation, ending at that hour; that is the amounts shown are the total forecast precipitation over the previous 3 hrs.

Back Trajectories

- ❑ Three trajectories on each hour's page
- ❑ Each trajectory map shows trajectories starting at a different elevation (meters) above mean-sea-level (250, 3500, 6500)
- ❑ There are four trajectories shown on each map: one starting at each corner of a square centered at the Grand Bay NERR, with each vertex of the square 1 deg lat/long away from the Grand Bay NERR
- ❑ The trajectories each go back 96 hours; but the trajectories may not stay on the map for all 96 hours.
- ❑ On each trajectory there is a little dot showing the location at six-hour intervals; and a larger symbol at 00 UTC each day.
- ❑ In the panel below the trajectories, the height above the surface is shown for each trajectory as it goes back in time

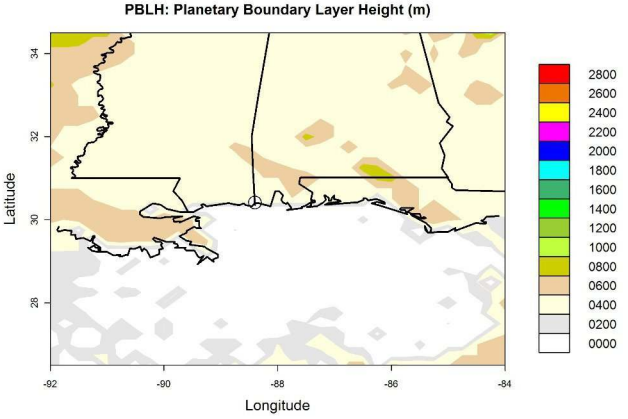
RGM Plumes from Large Regional Sources

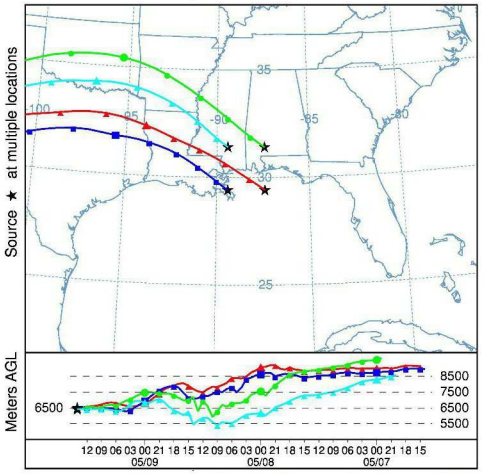
- ❑ One map on each of the hourly pages.
- ❑ The map shows the model-predicted RGM concentration at an elevation of 250 meters, arising from large anthropogenic sources in the region.
- ❑ These maps do not represent the total RGM in the atmosphere, but only the fraction contributed by large regional sources.
- ❑ The maps show average concentrations for the hour leading up to the stated hour, e.g., the map for UTC 14 represents average concentrations between UTC 13 and 14 (8 – 9 AM Grand Bay)

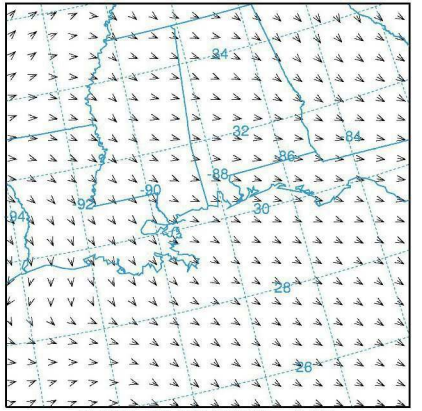
Wind Direction at Different Elevations

- ❑ Three maps on each hour's page, corresponding approximately to the elevations 250 meters, 3500 meters, and 6500 meters.
- ❑ Each image shows a map of wind direction, at each grid point in the NAMSF 12-km forecast at a particular vertical level in the met data set
- ❑ The met data is on "terrain following sigma levels"; so, the heights above the ground at any given location are influenced by the terrain height.

Central Daylight Time 0900

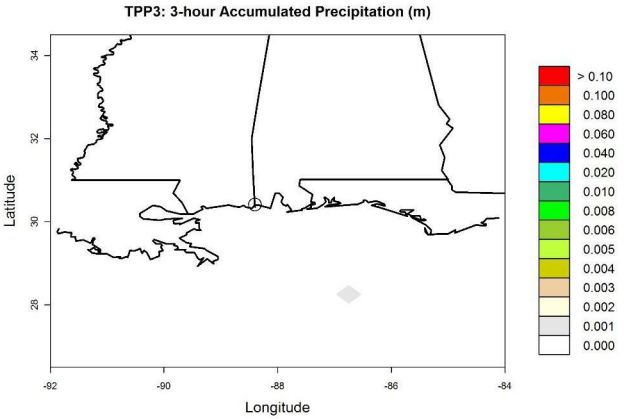


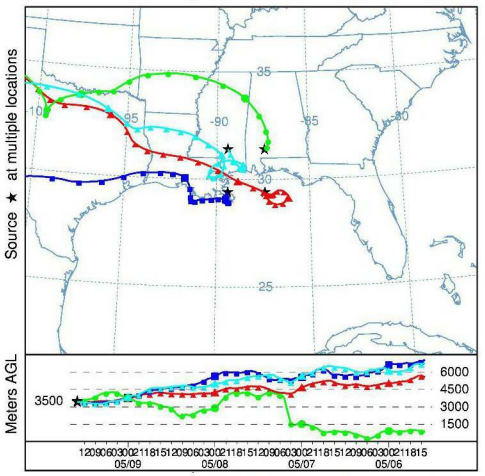


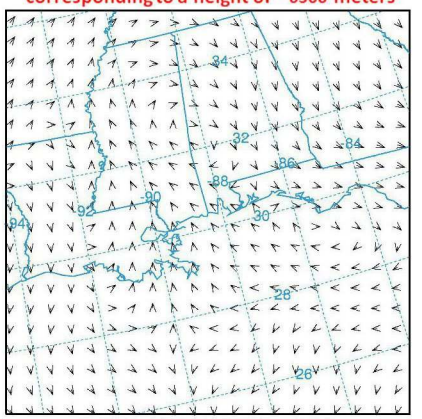


Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL

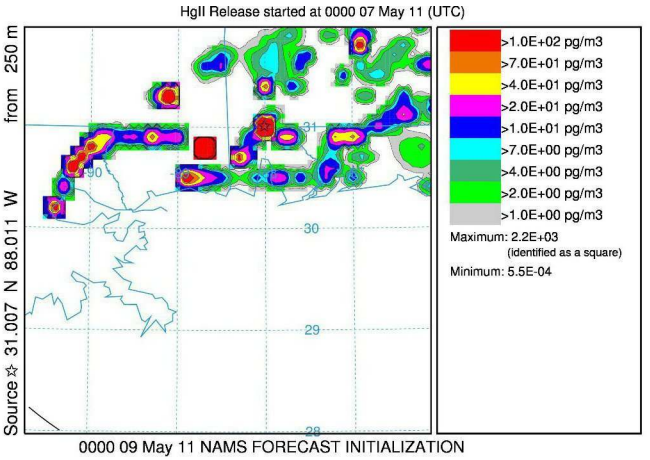


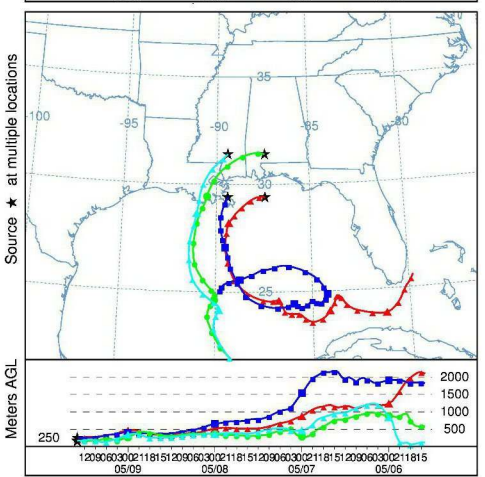


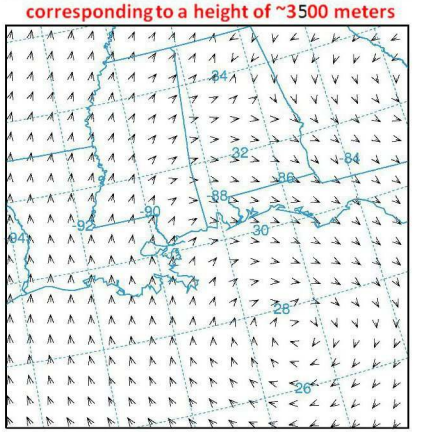


Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev

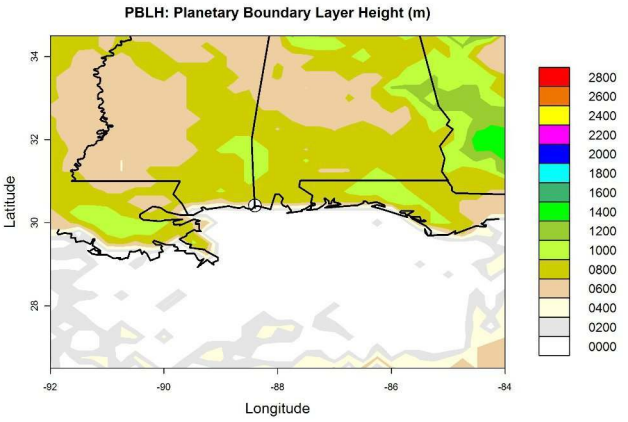


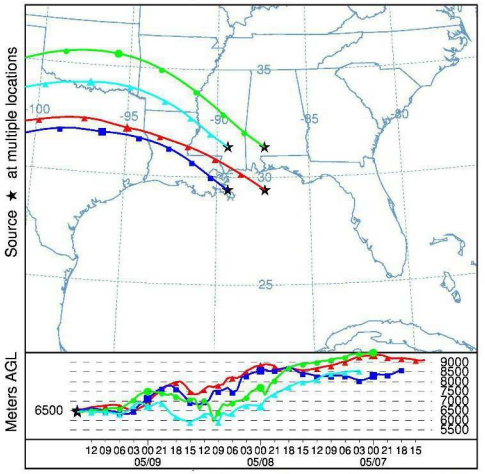


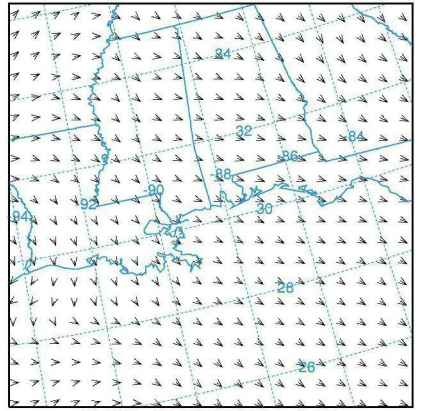


Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

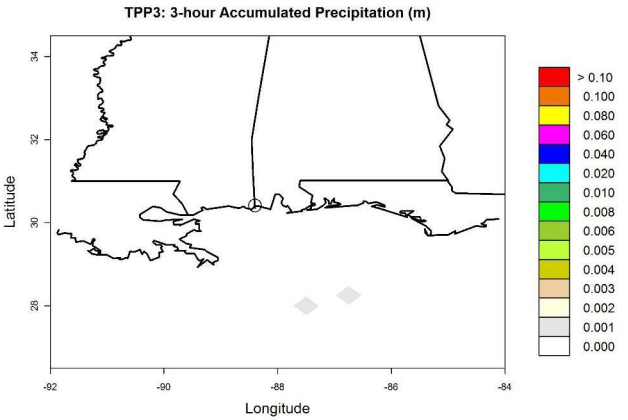
Central Daylight Time 1000

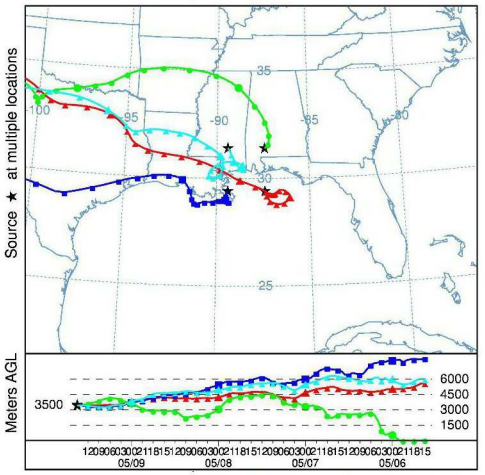


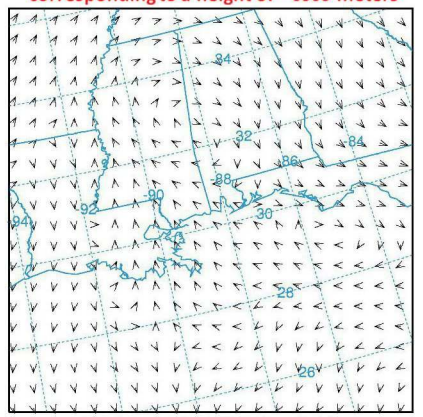




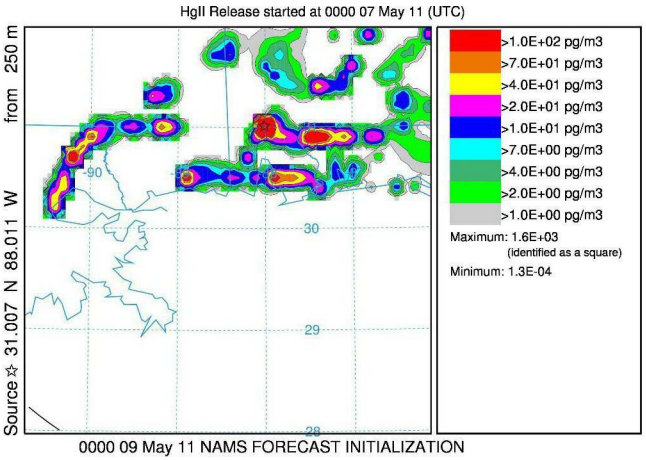
Forecast from NOAA ARL

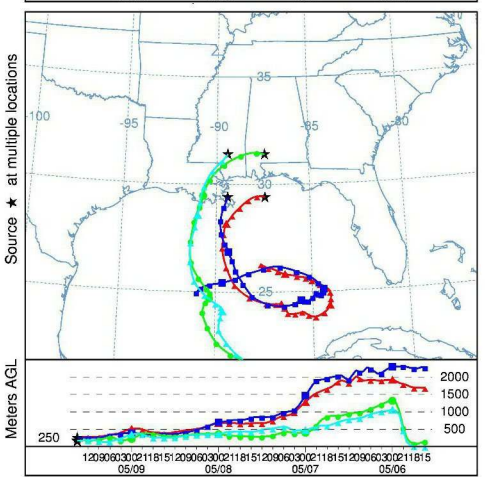


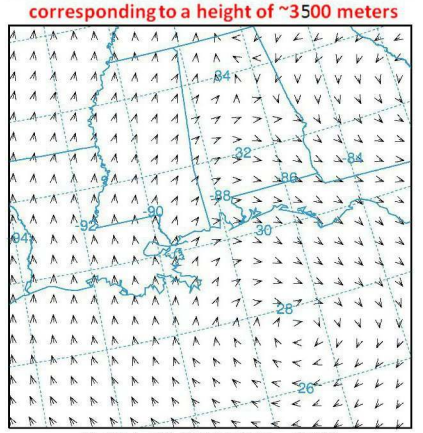




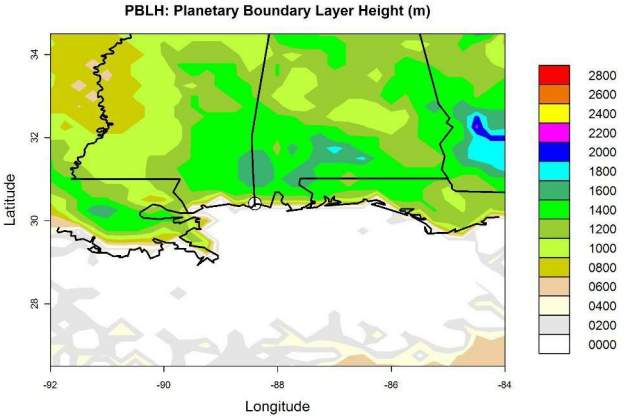
Plumes RGM pg_m3 250m_elev

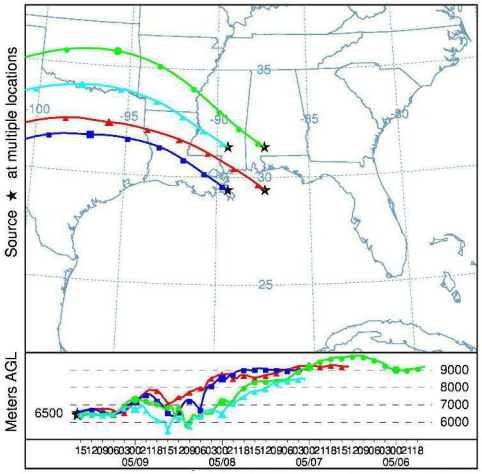


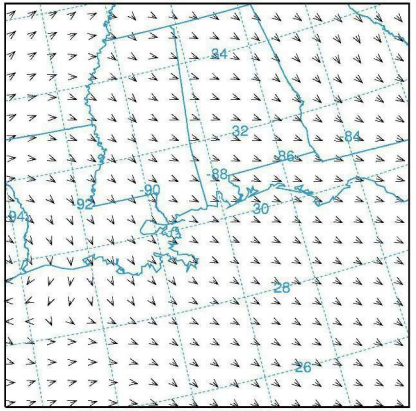




Central Daylight Time 1100

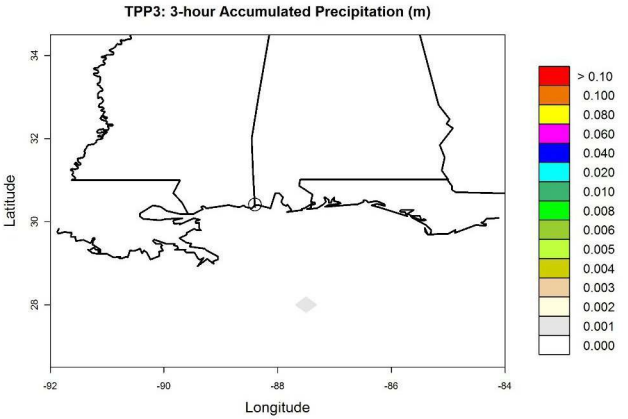


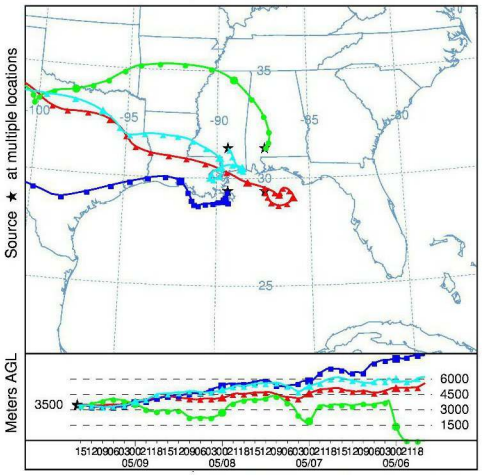


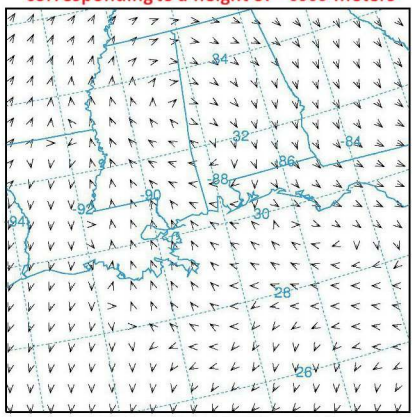


Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL

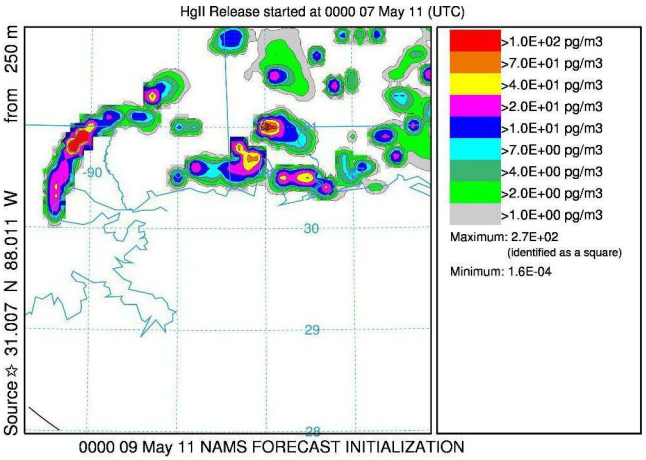


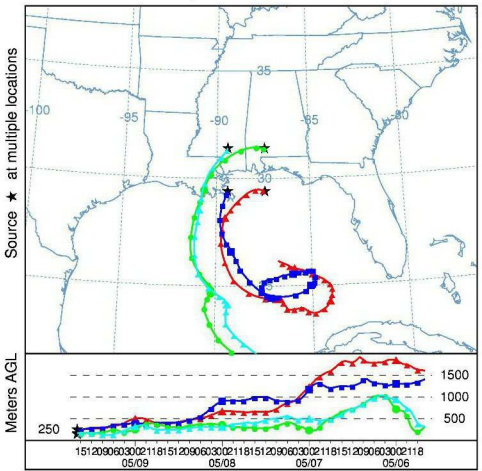


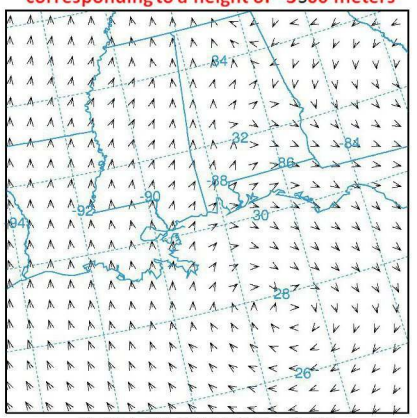


Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev

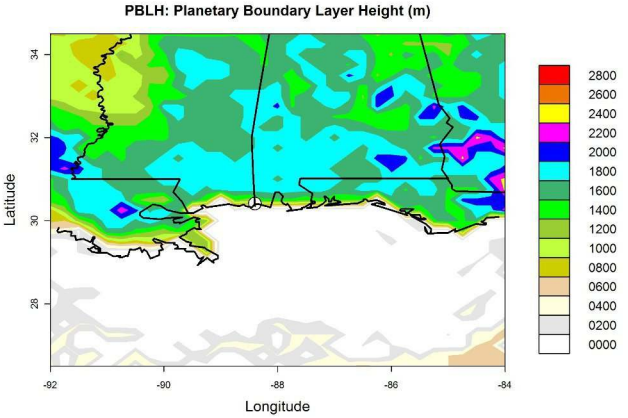


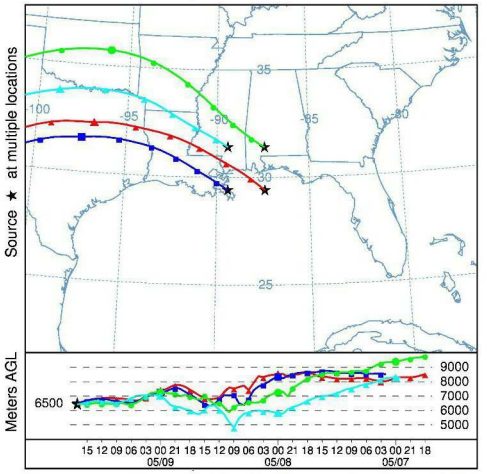


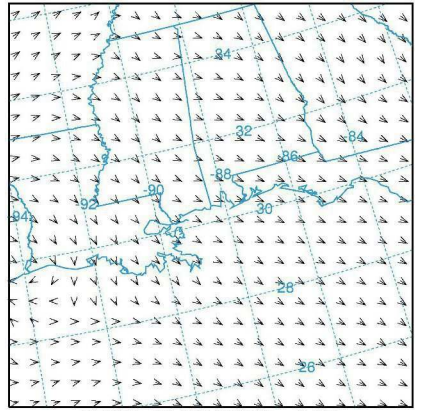


Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

Central Daylight Time 1200

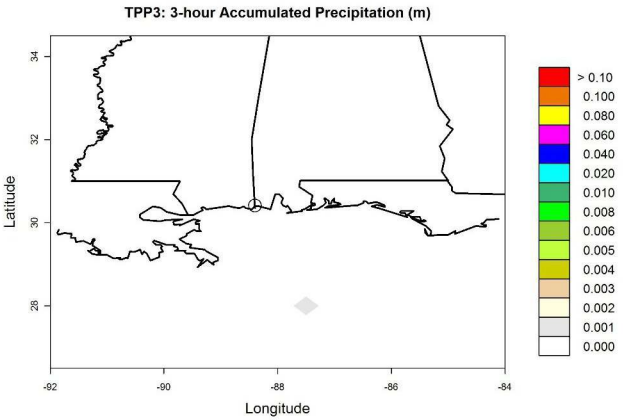


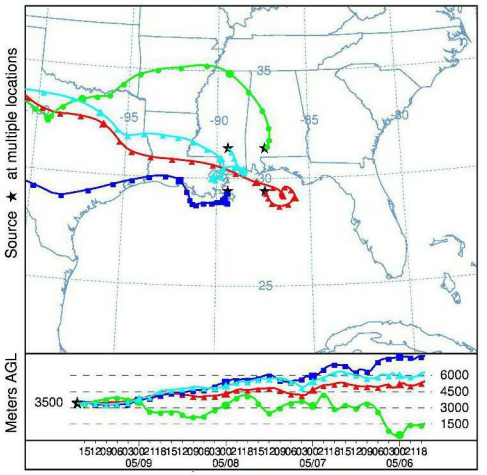


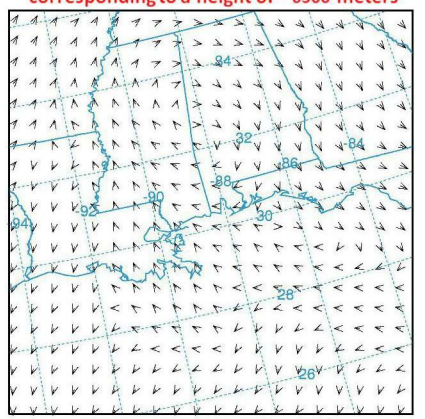


Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL

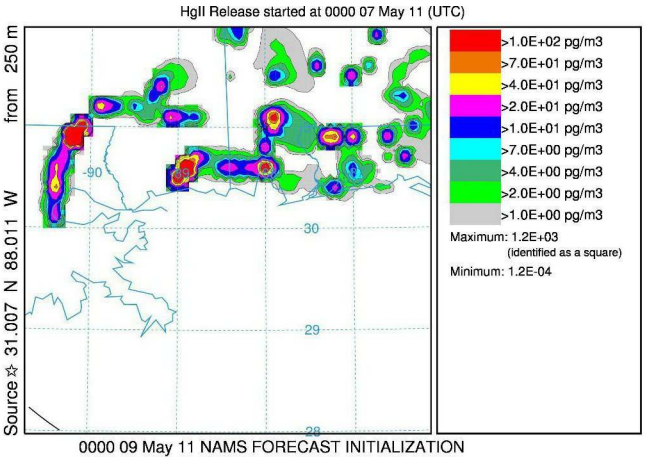


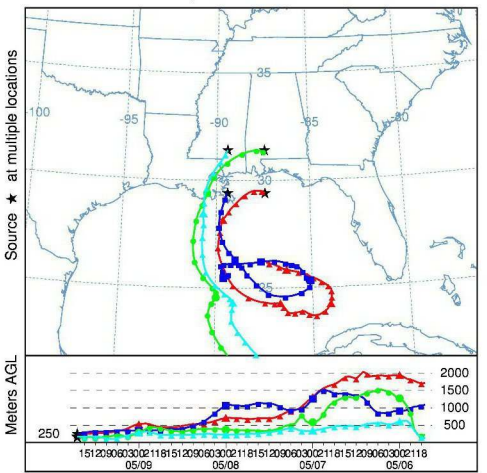


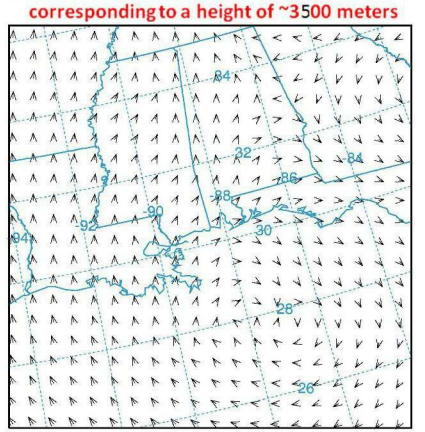


Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev

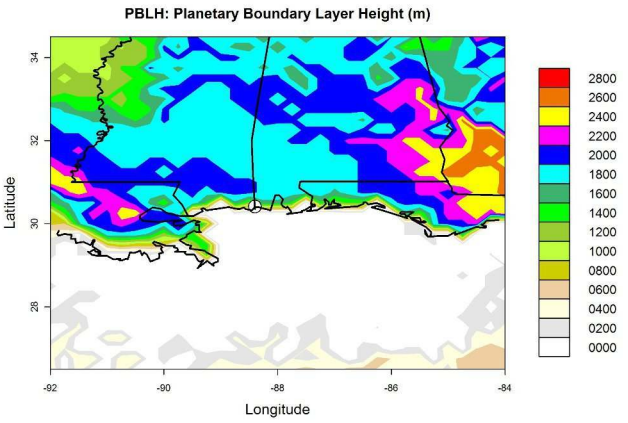


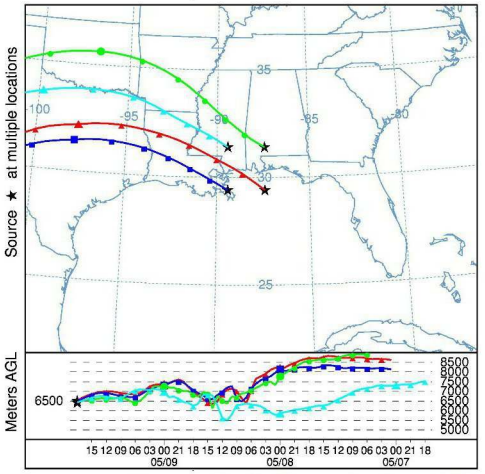


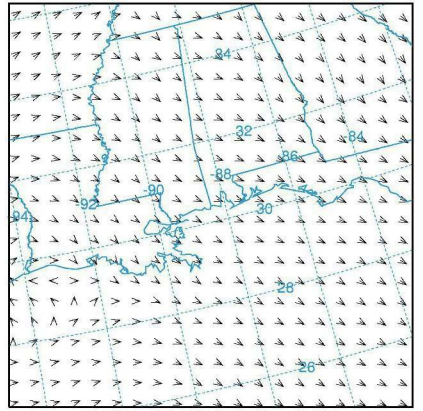


Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

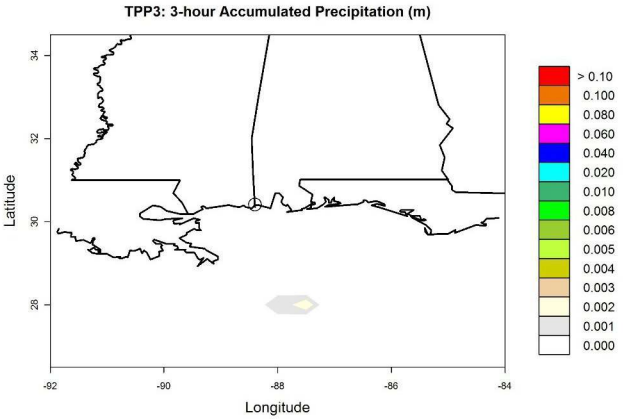
Central Daylight Time 1300

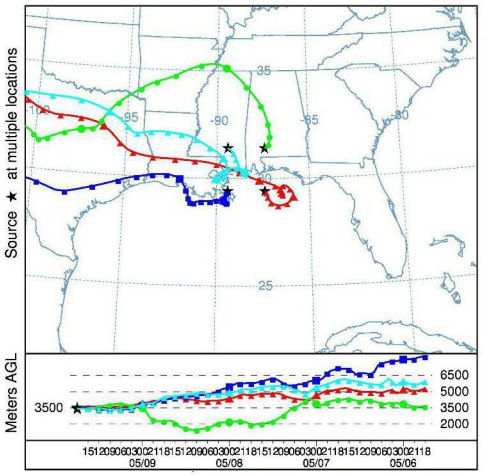


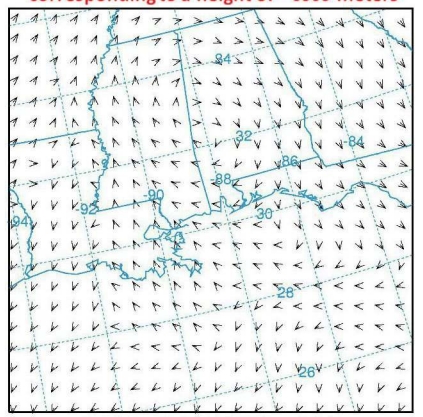




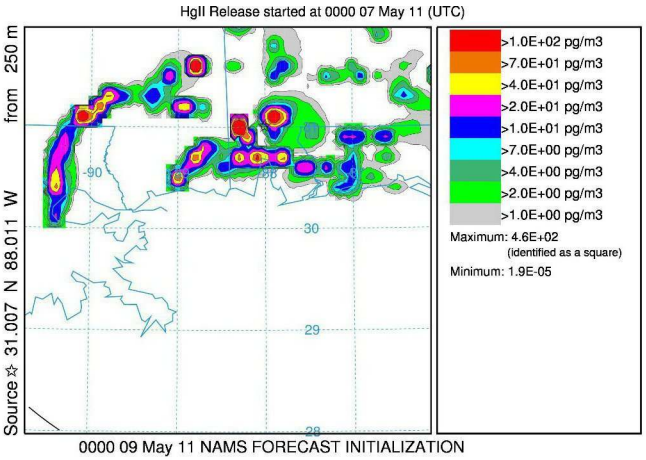
Forecast from NOAA ARL

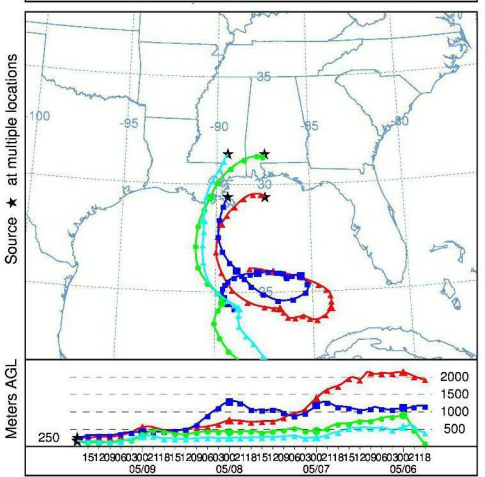


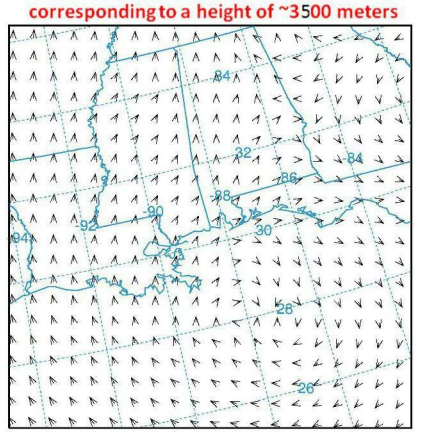




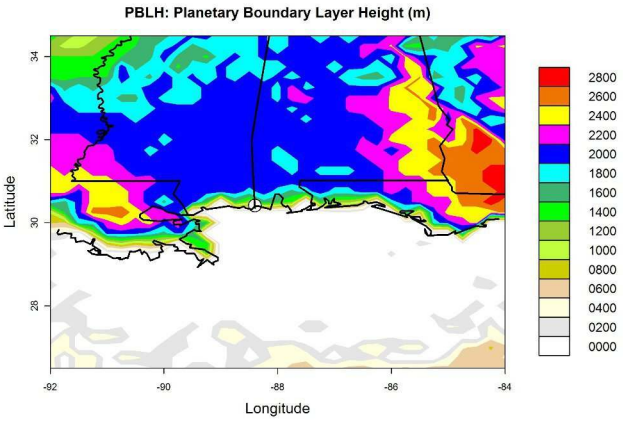
Plumes RGM pg_m3 250m_elev

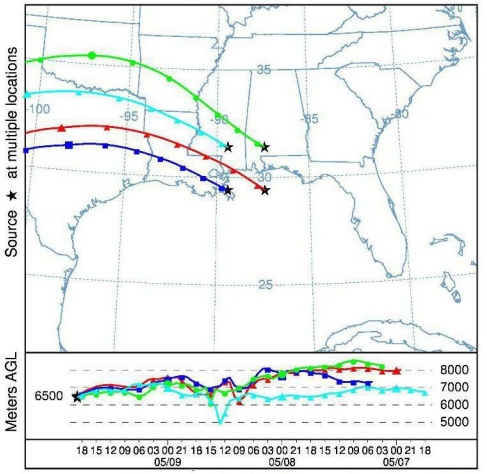


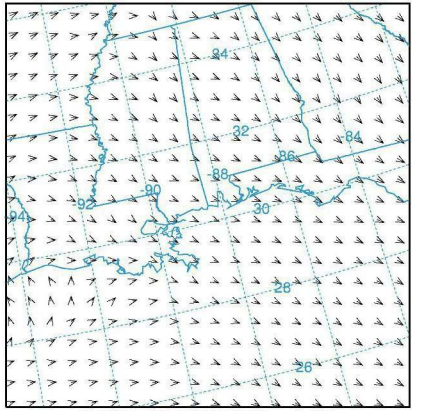




Central Daylight Time 1400



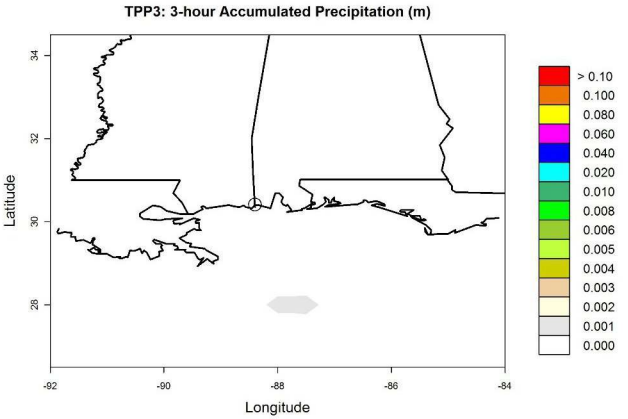


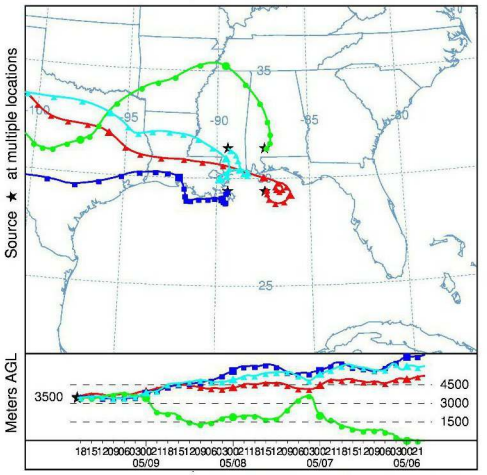


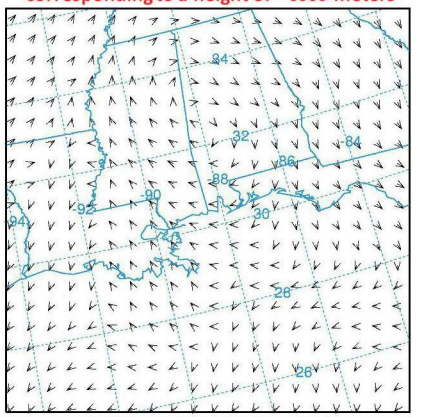
VECT (18) AT HEIGHT: 0.494

Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL



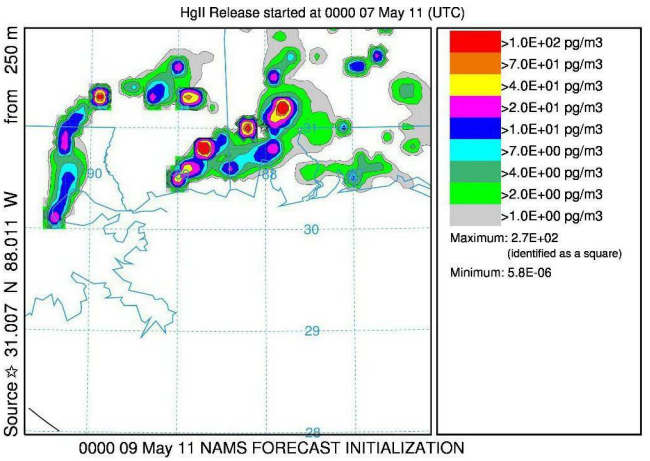


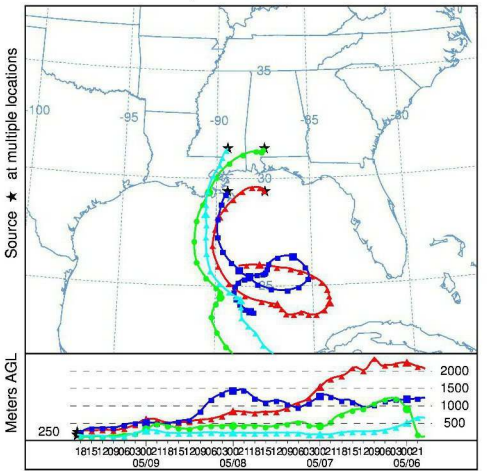


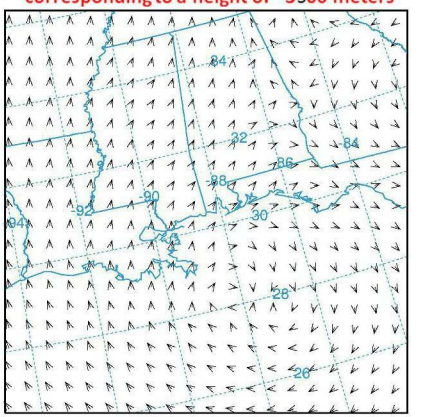
VECT (16) AT HEIGHT: 0.678

Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev



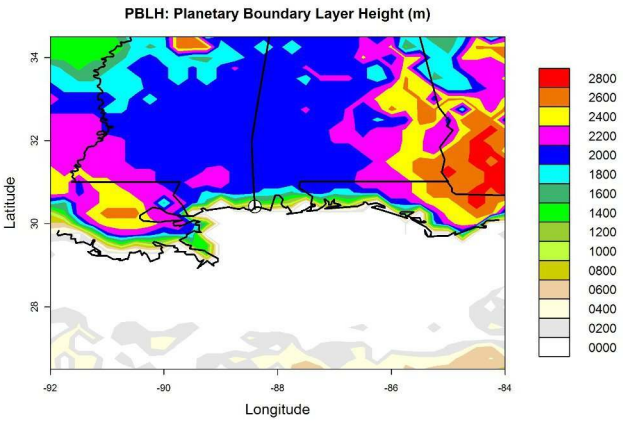


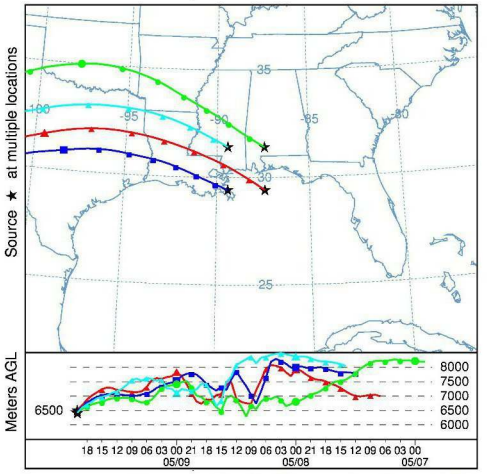


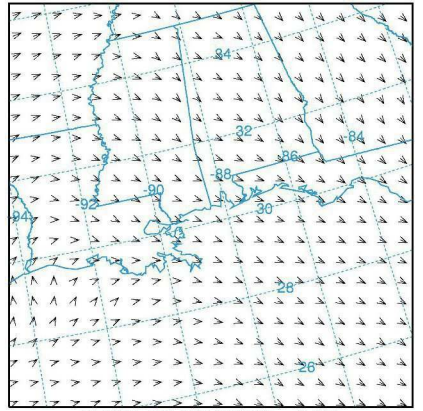
VECT (15) AT HEIGHT: 0.963

Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

Central Daylight Time 1500

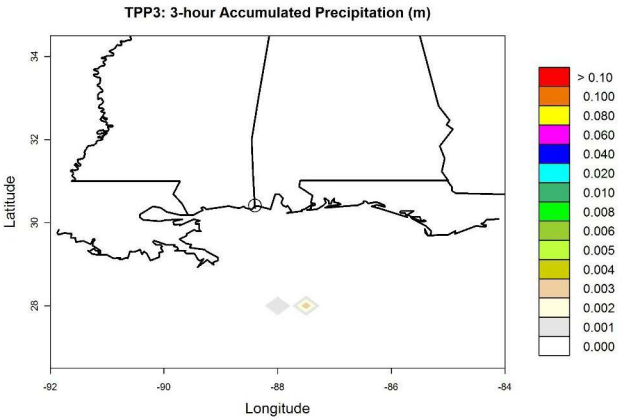


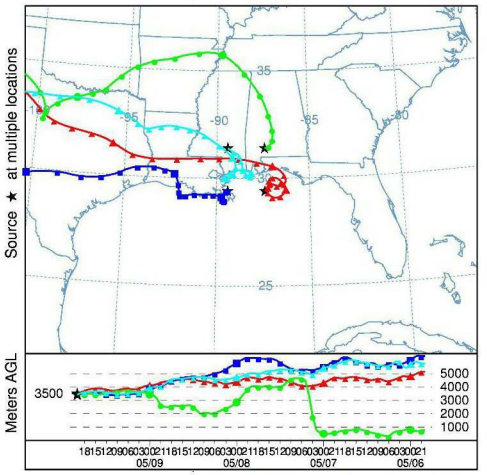


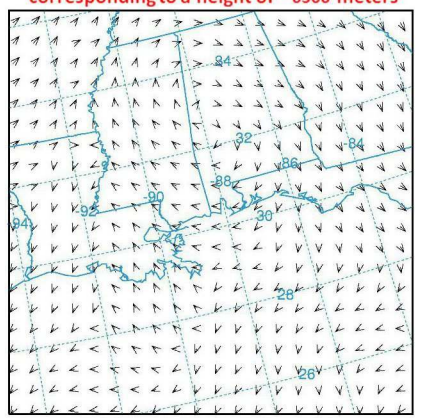


Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL

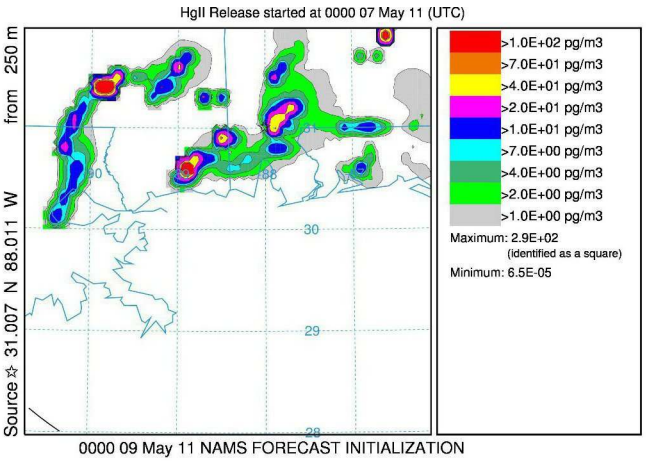


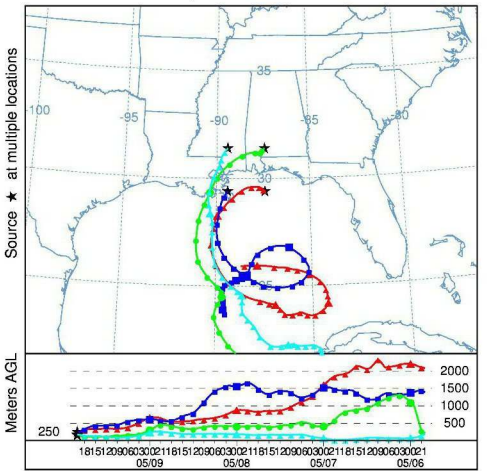


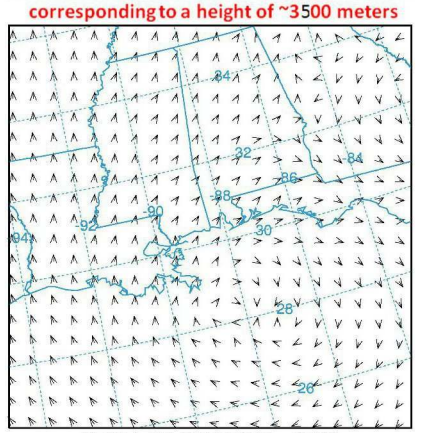


Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev

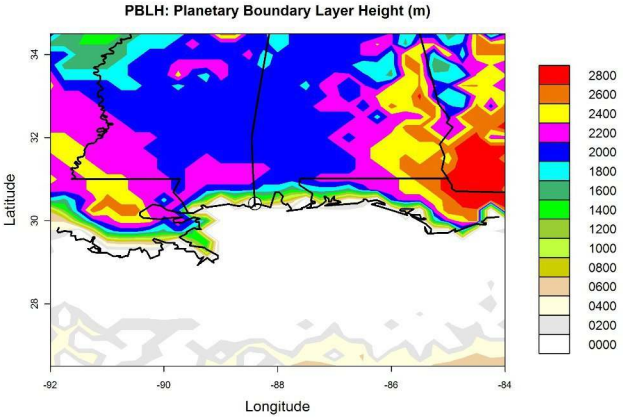


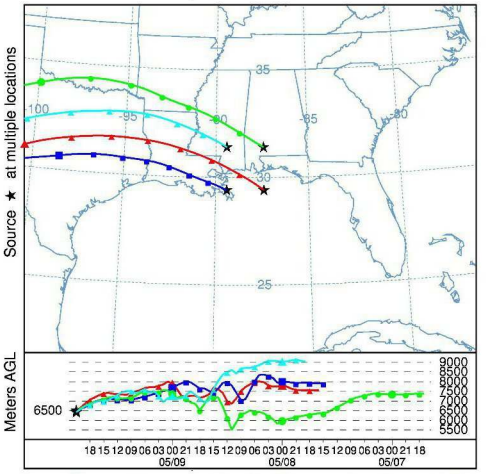


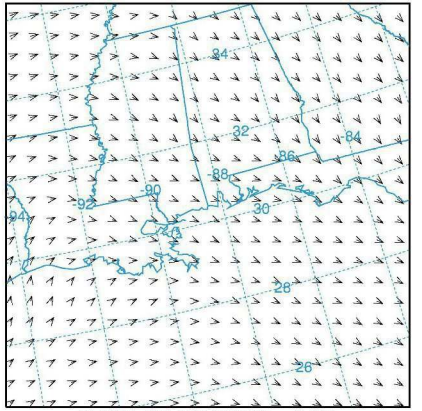


Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

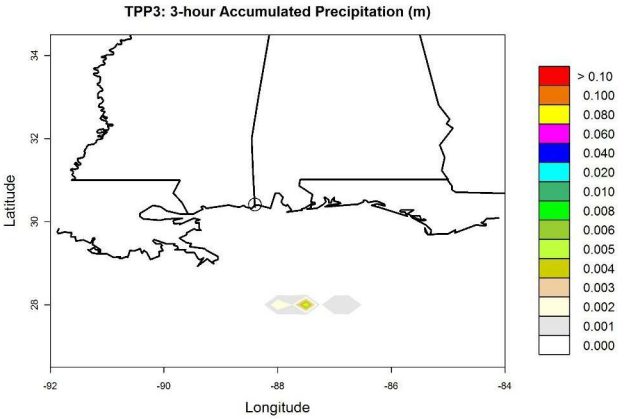
Central Daylight Time 1600

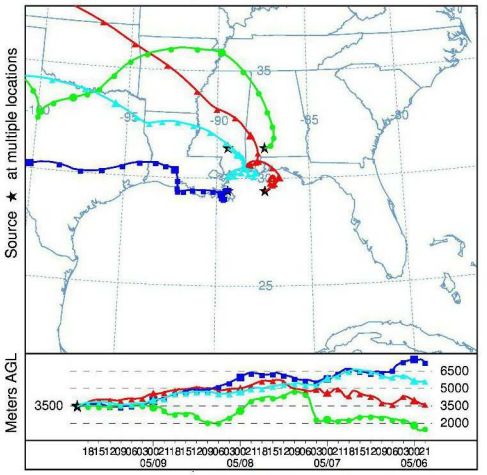


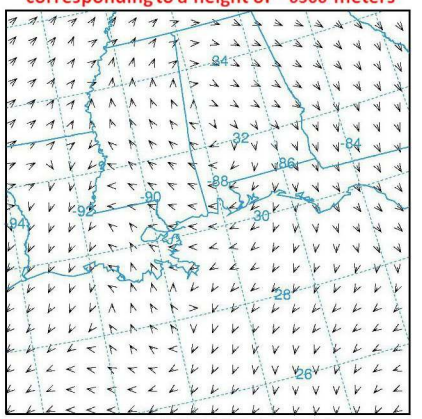




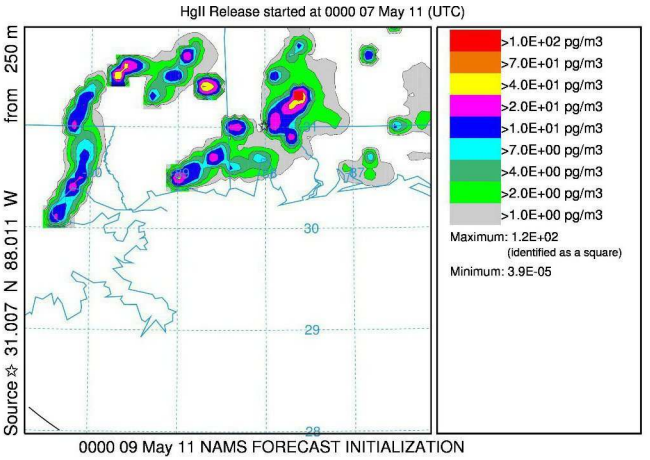
Forecast from NOAA ARL

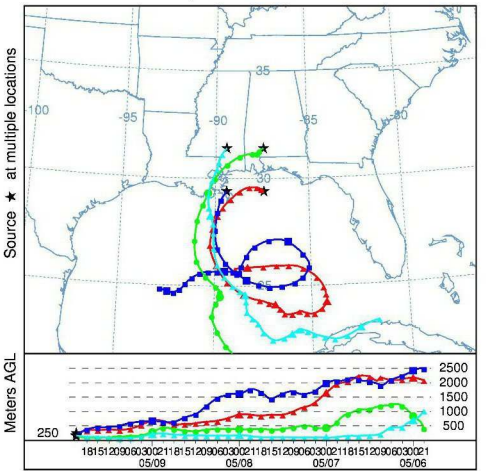


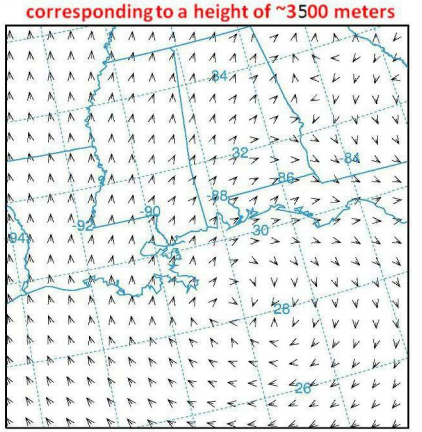




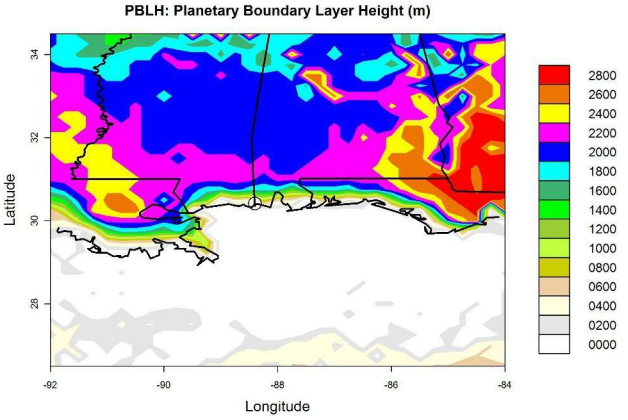
Plumes RGM pg_m3 250m_elev

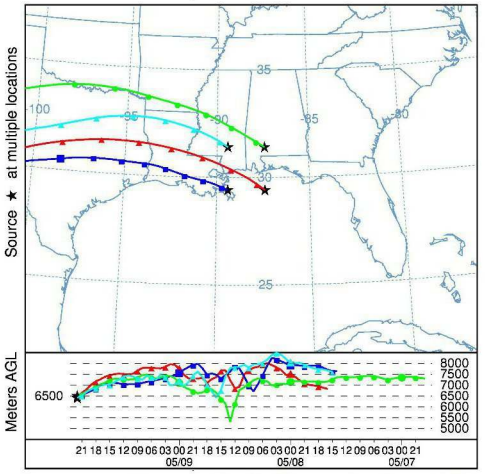


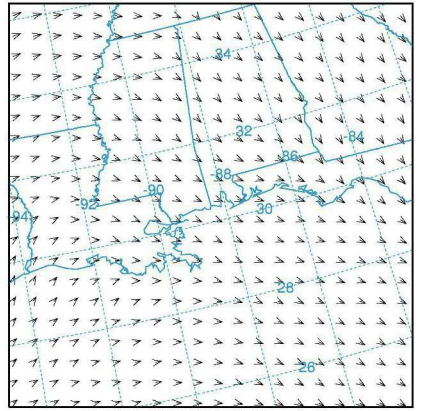




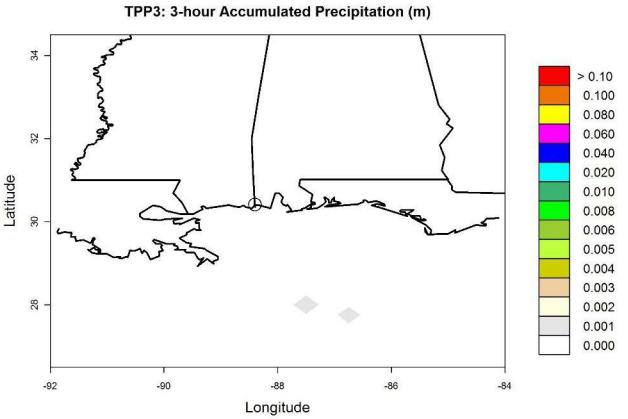
Central Daylight Time 1700

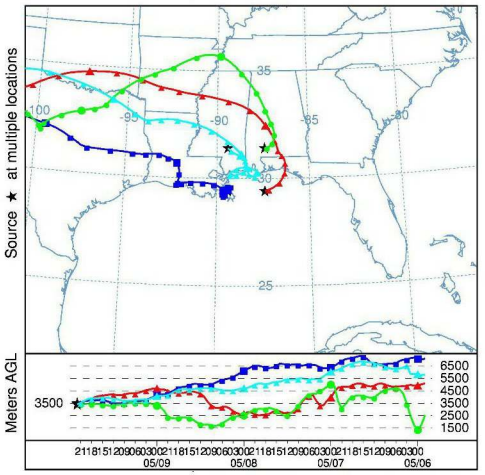


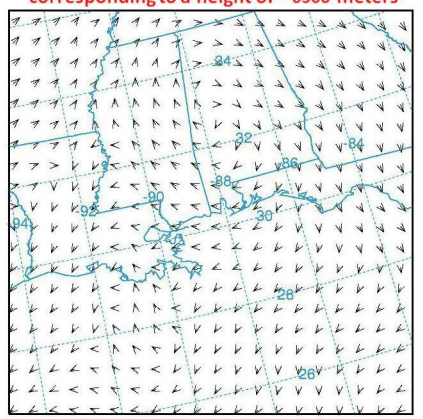




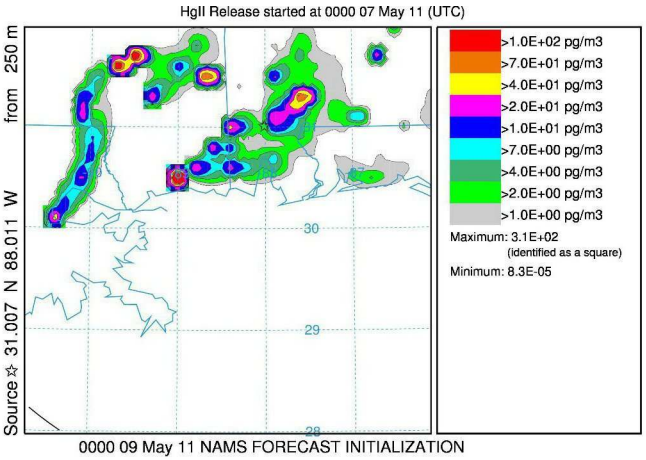
Forecast from NOAA ARL

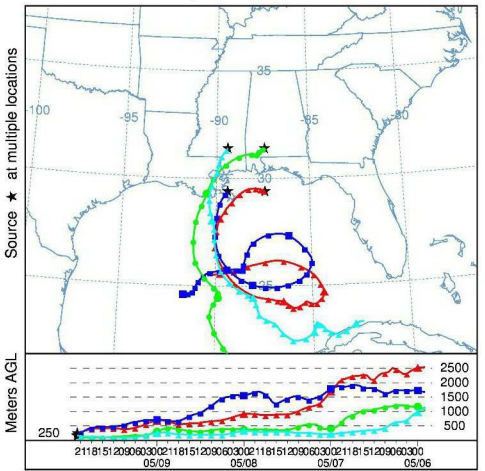


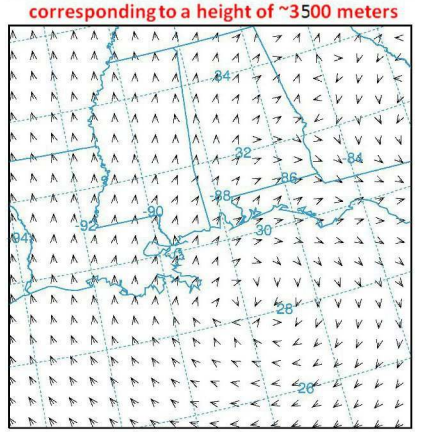




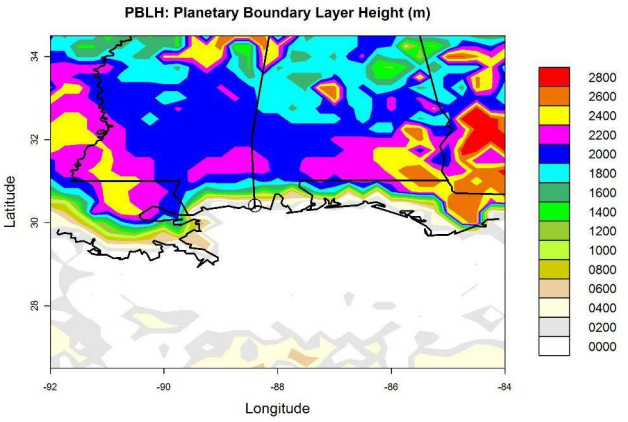
Plumes RGM pg_m3 250m_elev

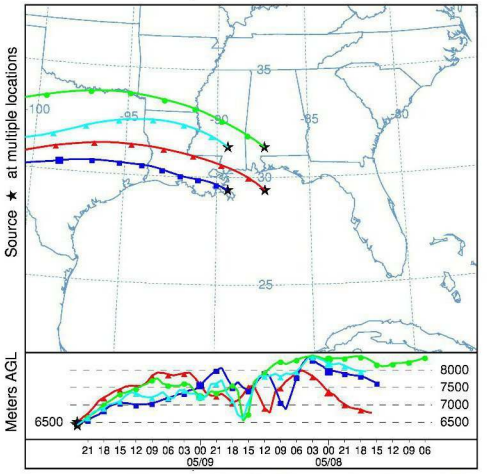


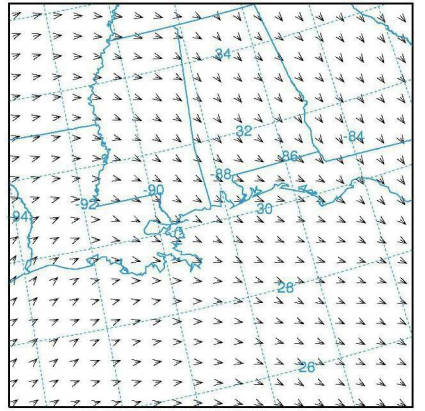




Central Daylight Time 1800



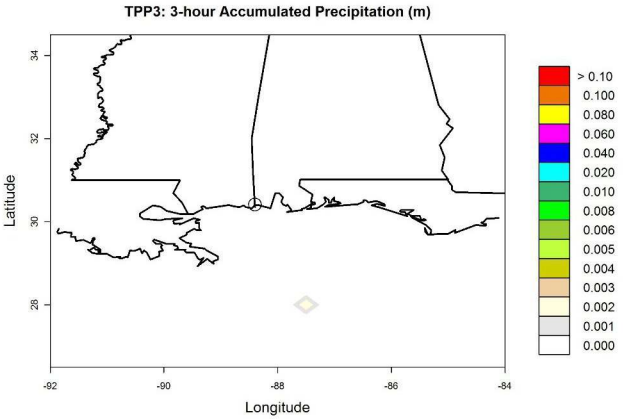


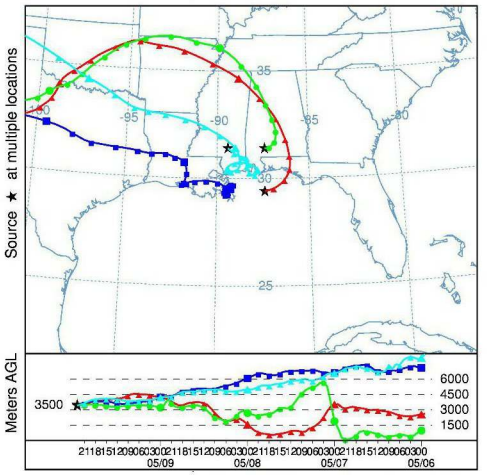


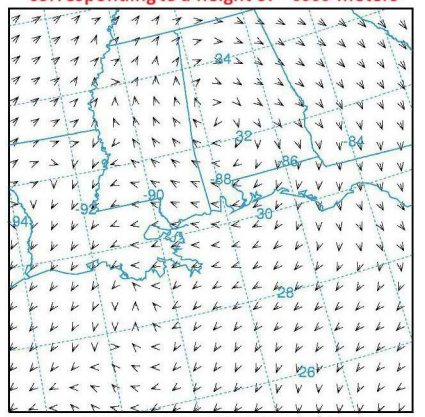
VECT (21) AT HEIGHT: 0.494

Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL



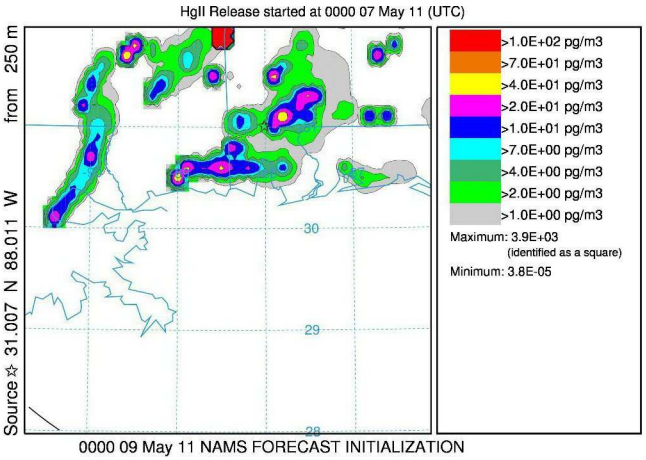


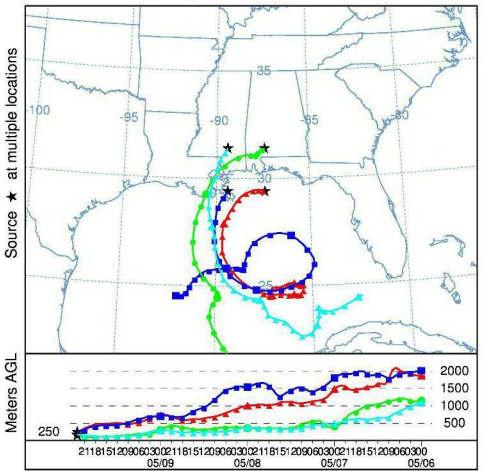


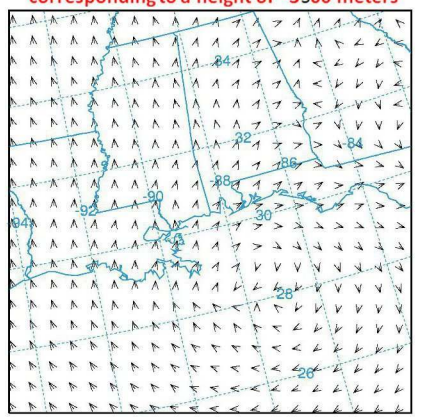
VECT (14) AT HEIGHT: 0.678

Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev



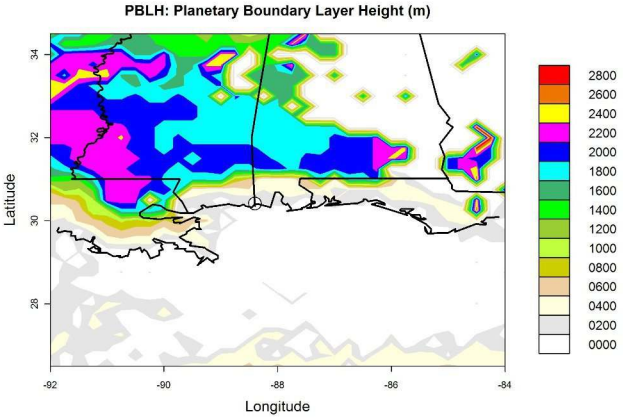


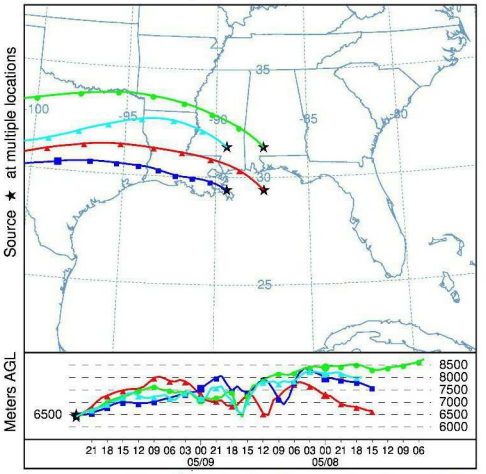


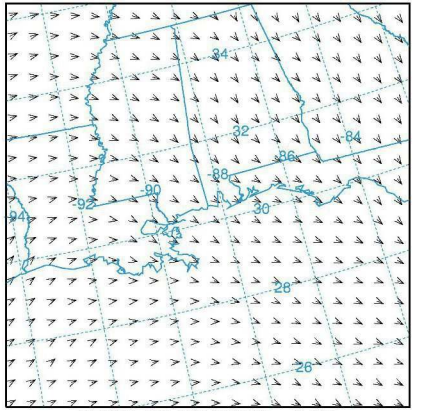
VECT (15) AT HEIGHT: 0.963

Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

Central Daylight Time 1900



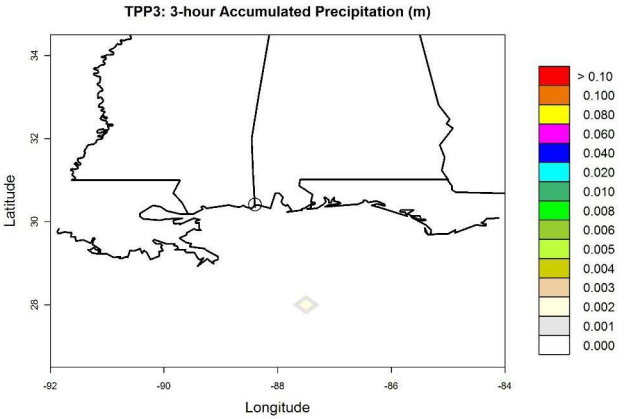


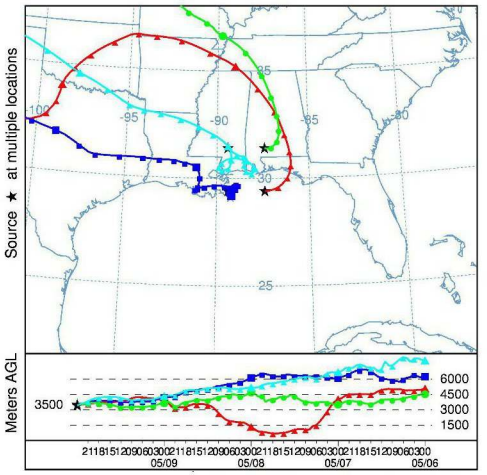


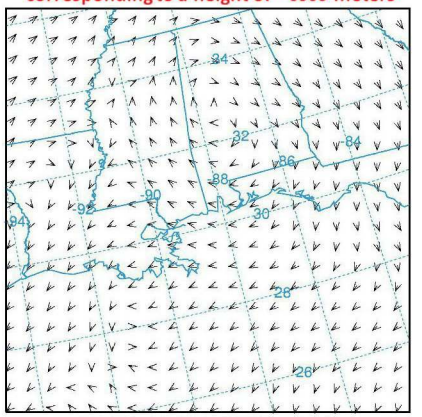
VECT (20) AT HEIGHT: 0.494

Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL



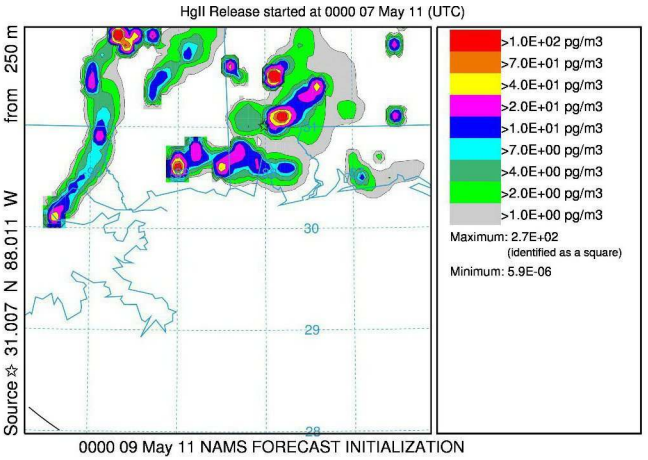


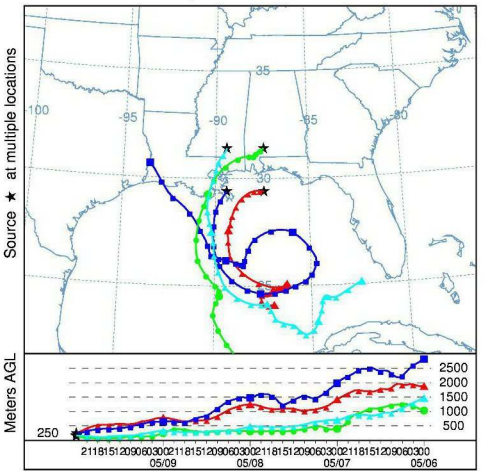


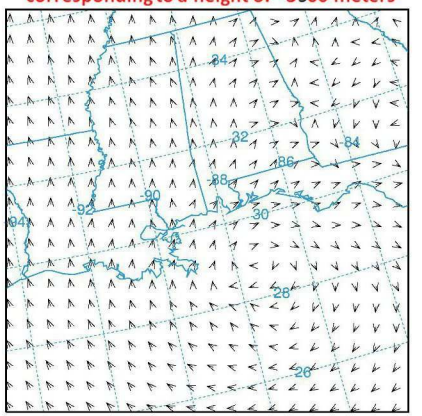
VECT (14) AT HEIGHT: 0.678

Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev



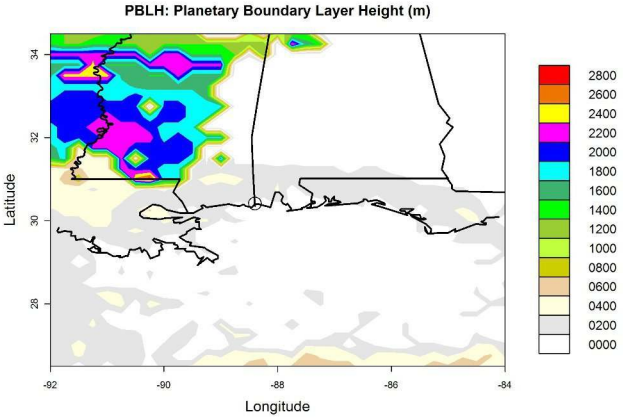


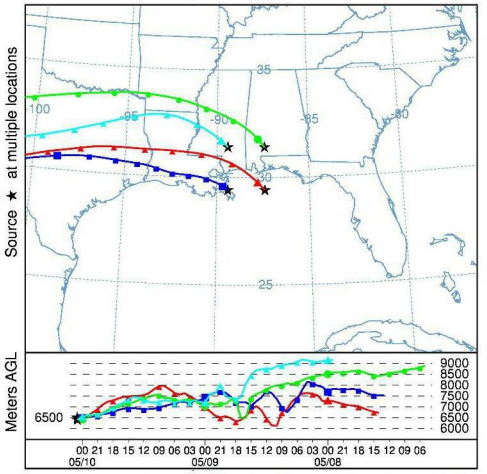


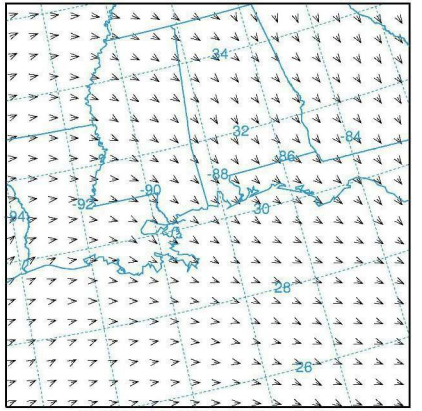
VECT (16) AT HEIGHT: 0.963

Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters

Central Daylight Time 2000

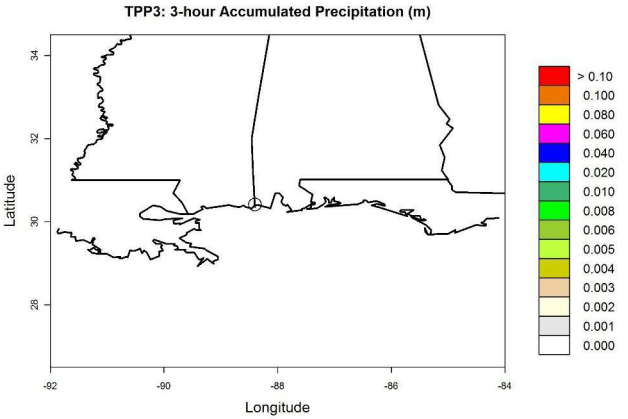


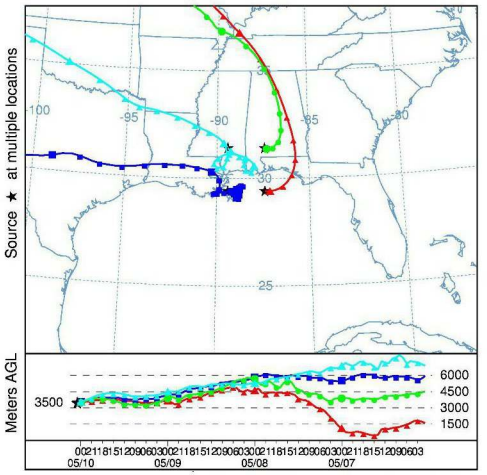


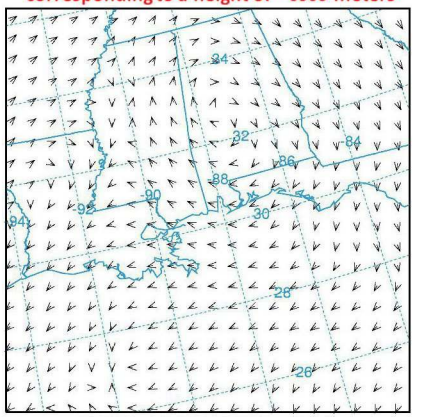


Wind direction data for NAMS vertical level 29 corresponding to a height of ~6500 meters

Forecast from NOAA ARL

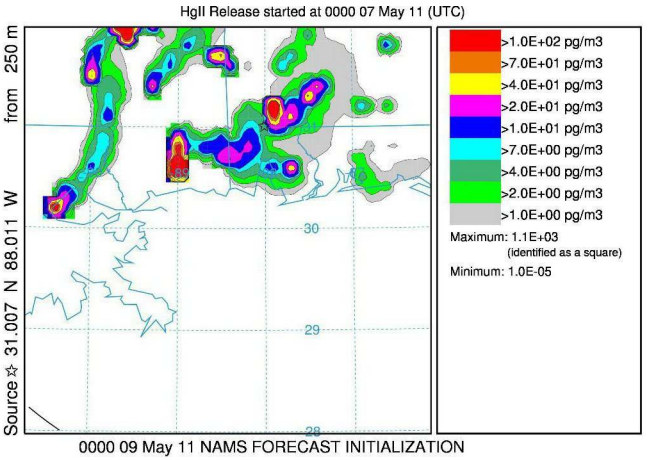


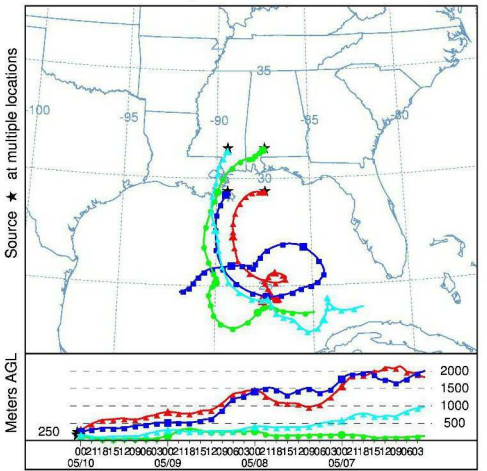


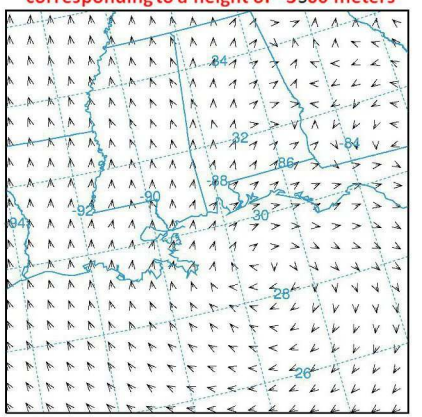


Wind direction data for NAMS vertical level 25, corresponding to a height of ~3500 meters

Plumes RGM pg_m3 250m_elev







Wind direction data for NAMS vertical level 9, corresponding to a height of ~250 meters