

NOAA Activities Interagency Meeting Gulf Oil Spill Workers' Study

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NOAA Deepwater Horizon Response

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Immediate Science Actions

- Scientific support to the IC through the USCG Field On-Scene Commander (FOOSC)
- Collection of a broad suite of samples to assess baseline environmental conditions
- Assess the safety of seafood and inform appropriate closures of federal waters
- Evaluate dispersant and oil related to seafood safety – conduct baseline contaminant studies
- Assist to calculate oil flow from the DWH site to estimate total release of oil (Flow Rate Technical Group)
- Track surface oil and dispersant fate and transport
- Initial studies on effects of dispersants on marine organisms seafood uptake
- Initiate and participate in interagency Joint Analysis Group (JAG) for sub-surface oil
- Complement existing air quality efforts through aircraft (P-3) and vessel deployments
- Measure distribution and magnitude of subsurface dispersed oil and dispersant
- Conduct aerial surveys of protected species distribution and abundance
- Update increased sensitivity of the Loop Current hydrodynamics – P-3s dropping AXBTs, sponsoring oceanographic cruises
- Conduct baseline studies of natural resources (water, sediment, biota, human use)
- Develop/Conduct studies to measure injuries of trust resources (water, sediment, biota, human use) by oil and or response actions
- Daily-weekly weather forecasts critical for field operations
- Daily hurricane updates critical for field operations

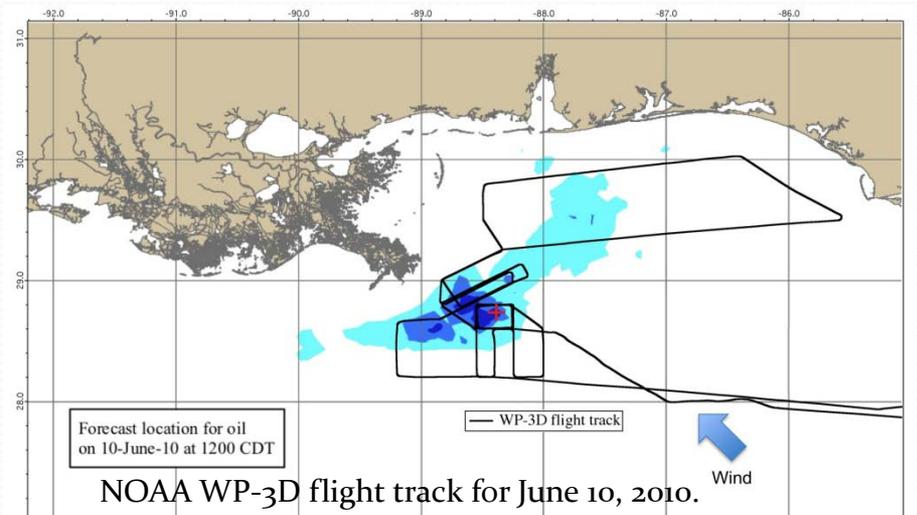
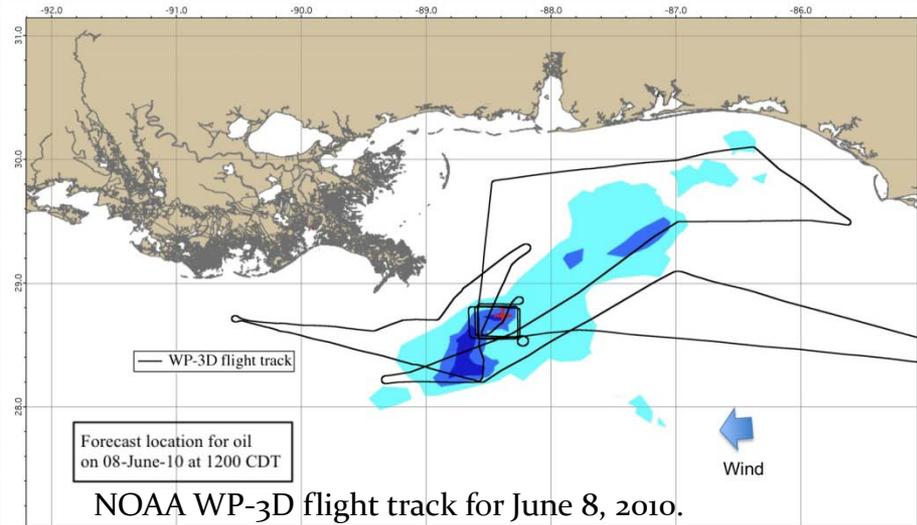


Air Quality

- Oil release and associated mitigation/remediation efforts (e.g., burning, skimming) can present potential exposures
- EPA-conducting shore-based air sampling and ASPECT flights throughout the spill and associated mitigation efforts
- OSHA-conducting worker exposure measurements for operations associated with oil spill cleanup activities
- NOAA coordinated with EPA and OSHA to conduct air chemistry sampling to complement existing efforts.
 - “Hurricane hunter” P-3 aircraft (EPA and OSHA)
 - Air canister deployment on NOAA vessels (OSHA)

P-3 Aircraft Missions

- Deployed to the Gulf from California to conduct two flights on June 8 and June 10
- Flight area
- NOAA WP-3D aircraft, equipped with an extensive suite of in-situ chemical sensors
- Measurements included:
 - Hydrocarbons and other organic species (e.g., VOCs)
 - Particulate matter
 - Ozone, carbon monoxide, nitrogen dioxide, peroxyacetyl nitrate (PAN)

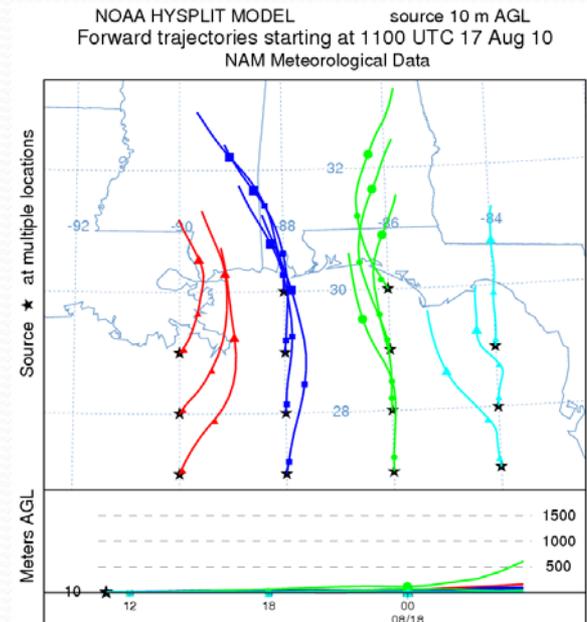


P-3 Results

- Near the DWH site, the marine boundary layer (MBL) was polluted with organics from the spill and products.
 - Aromatics (benzene, toluene and C8-C11 aromatics) was below 20 ppbv but well above maximum concentrations measured over the Los Angeles urban area (recent P-3 flight).
 - Highest particulate matter (PM) concentrations were $\sim 25 \mu\text{g m}^{-3}$. The PM was composed primarily ($\sim 80\%$) of organics.
 - Highest ozone concentrations were 70-80 ppbv, comparable to average maximum concentrations observed in U.S. urban areas.
 - MBL was fairly well mixed vertically and, except for smoke plumes, the air above the MBL was clean and unaffected by emissions.
- Greatest concentration of gaseous hydrocarbons (alkanes and aromatics) observed in a relatively narrow plume ($< 20 \text{ km}$ wide) that emanated from a relatively small area around the DWH site.
- Measurements in coastal areas not directly downwind from the DWH site were relatively unaffected by the pollution seen closer to the site.
 - However, on 10 June, the largest PM and oxygenated volatile organic carbon (VOC) products were observed close to the southern tip of Louisiana, which was directly downwind of the DWH site.
 - On 8 June the pollution plume was transported toward the central Gulf.

Additional Air Sampling and Modeling

- Air canister deployment on NOAA vessels
 - Research-grade air canisters deployed on the NOAA R/V Thomas Jefferson
 - Air sample collection in vicinity of well-head and during transit on 11-day cruise at the end of June
 - Canisters currently being analyzed for a broad suite of compounds, including:
 - polycyclic aromatic hydrocarbons
 - volatile organic compounds
 - carbon monoxide, and carbon dioxide.
- Daily atmospheric trajectory maps
 - hypothetical atmospheric releases of material are predicted to be transported





Reports and data available at
<http://www.noaa.gov/sciencemissions/bpoilspill.html>