

EDF Clean Air Partnerships with Industry and Communities

NEDC 2017 Partners Meeting

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Ports - Partnerships

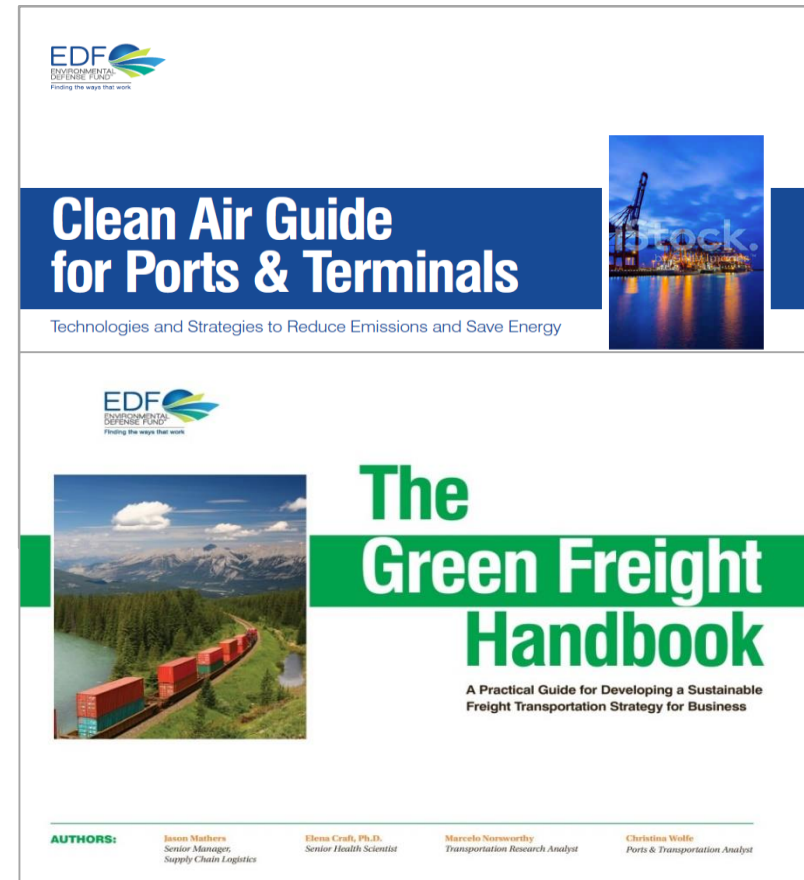
Environmental Defense Fund's mission is to preserve the natural systems on which all life depends. EDF links science, economics, law and innovative private-sector partnerships.

DERA Emission reduction efforts

- Houston: \$22 million+
- Baltimore: \$1 million+
- New Orleans: \$700k+

Technology assessment & deployment

- Zero-emission technologies
- Operational improvements
- EDF Climate Corps



Houston Area Partnerships

Air Quality Metrics for Green Marine

- Collaboration with ports, terminal operators and shipping lines
- Developed performance metrics to improve assessment of air quality impacts

Air quality mapping in Houston using Google StreetView Cars

- EDF, Rice University, Sonoma Technology Inc. (STI), Google Earth Outreach)
- Recently began conducting mobile monitoring of air pollution in Houston (building on Oakland, CA)
- 2 Google StreetView cars equipped with air quality sensors

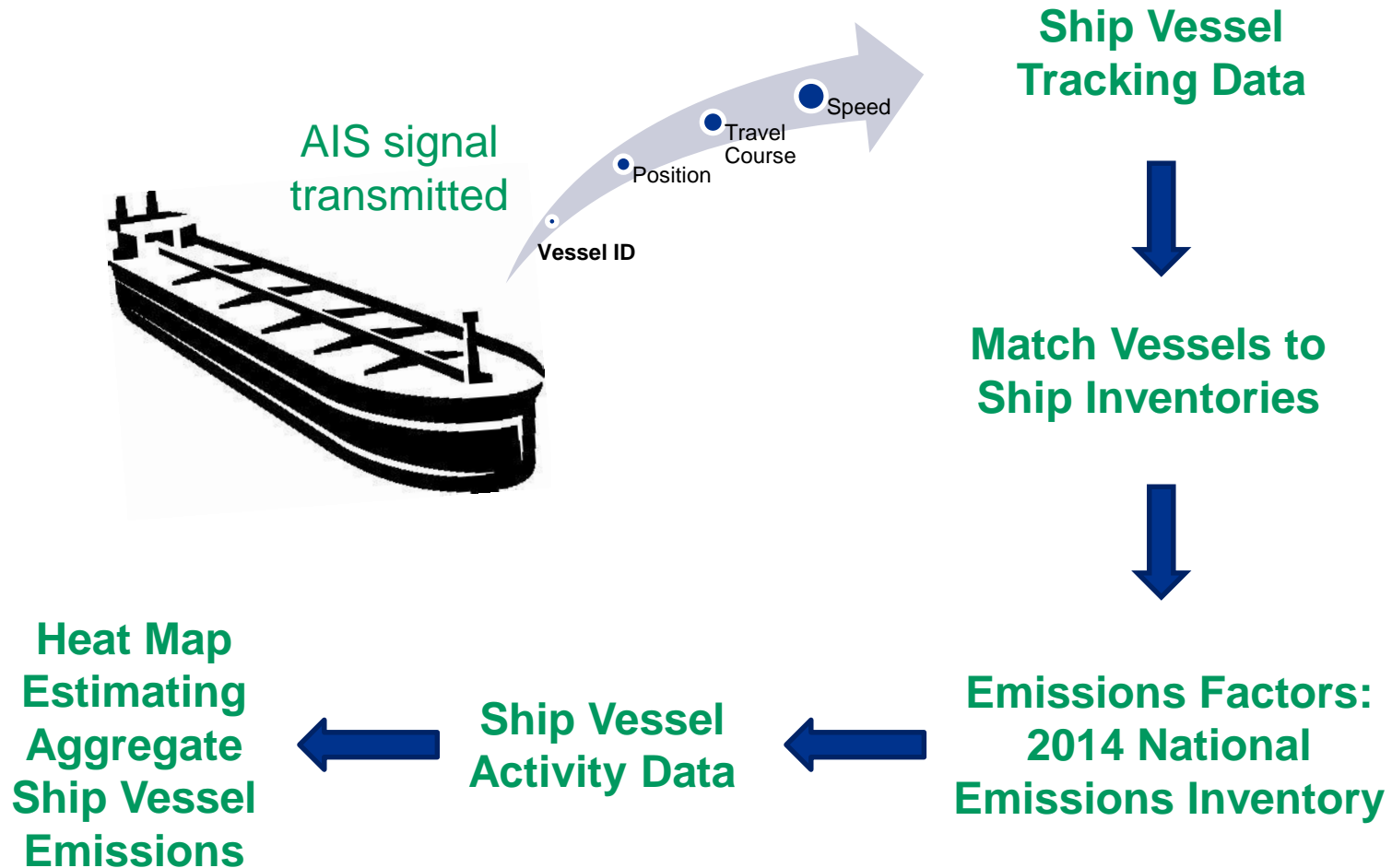
Emergency Mobile Monitoring of VOC's after Hurricane Harvey

- EDF, Entanglement Technologies, Air Alliance Houston, City of Houston
- EDF collaborated with partners to monitor VOCs released in relation to the storm.

Environmental Youth Councils in Houston

- EDF, Furr High School, Chavez High School, Houston Health Department
- Pilot program with Environmental Youth Council at 2 Houston high schools
- Goal is to engage youth as environmental ambassadors, educating them about air quality issues in Houston and encouraging them to get involved in advocating for change.

Houston Ship Channel Partnership: Ship Vessel Emissions Using AIS / GIS



Houston Ship Channel Partnership

- AIS data used to estimate NOx emissions
- TCEQ Emissions Banking and Trading Program expanding to include mobile sources
- ExxonMobile exploring bonnet technology for tankers
- Tug and switcher locomotive owners exploring new Tier 4 engines



Green Marine and EDF Air Quality Metrics Partnership



PM2.5 Hotspots	Air Quality Standards (PM and NOx)	GHG Emissions
<ul style="list-style-type: none"> Truck Registry Equipment inventory by engine Tier or Emission Standard 	<ul style="list-style-type: none"> Truck Registry Equipment inventory by engine Tier or Emission Standard 	<ul style="list-style-type: none"> Energy Audit GHG Inventory
Community Assessment	Community Assessment	
Apply for DERA, VW or other grants	Apply for DERA, VW or other grants	Join SmartWay
<ul style="list-style-type: none"> Replace all 1991 and older drayage trucks Replace/Repower unregulated/Tier 0 switchers, tugs and CHE 	<ul style="list-style-type: none"> Replace all 2004 and older drayage trucks Replace/Repower all unregulated and Tier 0 and Tier 1 switchers, tugs and CHE 	Pursue anti-idling and other fuel efficiency/logistics opportunities



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