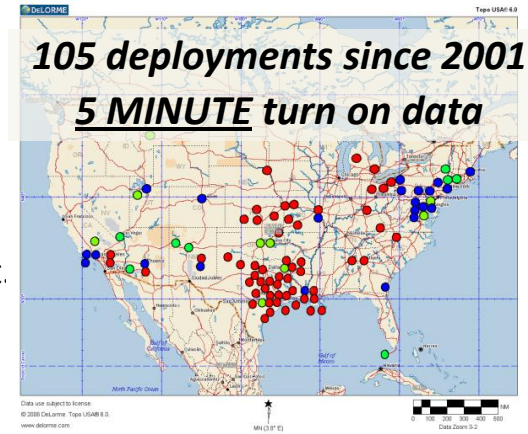
ASPECT Aircraft

Airborne Spectral Photometric Environmental Collection Technology consists of suite of sensors to detect chemicals, radiation, and collect photographs/videos mounted in an AeroCommander 680 twin-engine aircraft.

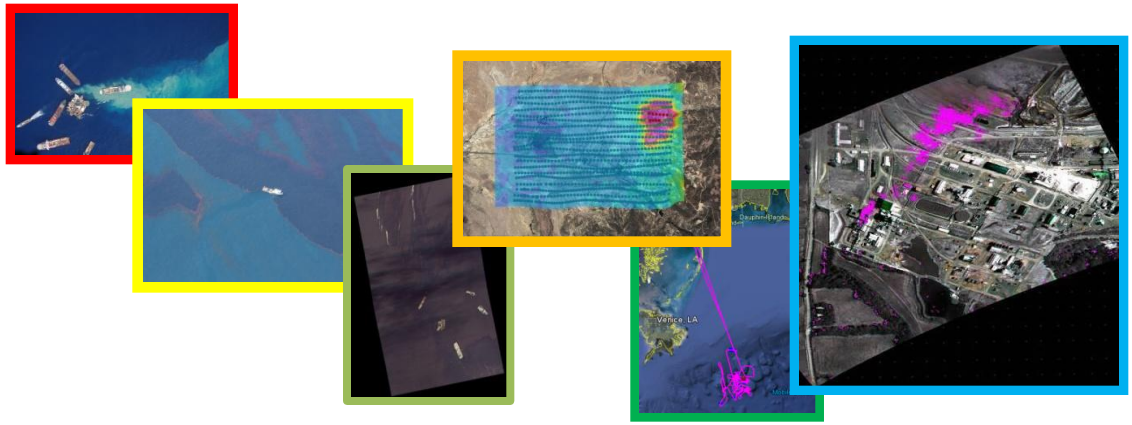


Multi-role Capabilities

1. *Emergency Response*
2. *Homeland Security*
3. *Environmental Characterization*
4. *Climate Monitoring*

Equipment aboard the ASPECT

- **An Infrared Line Scanner to image a chemical plume**
- **A High Speed Infrared Spectrometer to identify and quantify the composition of the plume in the ppb to ppm range.**
- **Two Gamma-Ray Spectrometer Packs for Radiological Detection**
- **High Resolution Digital Aerial Cameras**
- **A High Throughput Satellite Data System (SatCom)**



ASPECT Supports the agency priorities

ASPECT Support to BP Oil Spill response

Taking action on climate change
ASPECT can develop carbon dioxide (CO_2) detection algorithms to map industrial releases.

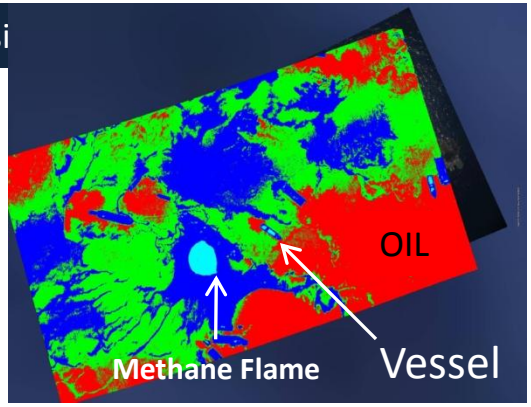
Improving air quality
ASPECT routinely conducts chemical surveys for NSSE, SEAR, and other special events. Ozone and "smog" are common chemicals measured and quantified by this technology.

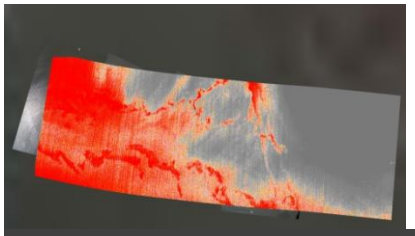
Assuring the safety of chemicals
ASPECT can detect more than 500 chemicals to quickly characterize wide-areas and ensure chemicals are not being dispersed into the environment. This assures their safe use and storage.

Cleaning up our communities
ASPECT radiological detection capability is used to support clean-up activities at EPA Superfund sites.

Open Water Detection and classi

RED (surface oil)
GREEN (mixed oil/water)
BLUE/ CYAN (water/other)





RED (surface oil)
Gray (clean water or land)

Shallow water Oil on Water Detection using the ASPECT Infrared Line Scanner in Barataria Bay

Protecting America's waters
ASPECT has a unique oil detection algorithm currently being used in the BP Response to:
(1) identify oil on surface waters and beaches and
(2) facilitate the cleanup response.

Expanding the conversation on environmentalism and working for environmental justice
ASPECT chemical, radiological, and imagery capabilities provide a unique resource for environmental justice purposes by providing high-resolution imagery combined with chemical or radiological contamination on the Google Earth application. Google Earth's time-stamped aerial images combined with the ASPECT high-resolution geo-rectified photos permit a wide-area assessment for adverse environmental impacts due to natural or man-made disasters.

Building strong state and tribal partnerships
ASPECT Program works closely with the Regions to build strong state and tribal partnerships. For example, the program is entering into a Memorandum of Understanding with the State of New Mexico. The program provides direct support to the regions on a uranium surveys within New Mexico including the Laguna tribal region.