



Aerial Viewing of an Oil spill

Once oil is spilled, it begins to spread under the influence of winds and currents. Aerial observations (aircraft overflights) and remote sensing (satellites) help to locate the oil and assess the character and extent of oil spilled on the water. This information is used by the Incident Command to prioritize response actions such as booming and skimming, and by NOAA oceanographers to help model and forecast the spill.

Satellites and aircraft are both important tools and are generally used in combination, but they both have limitations.

- Satellite observations give a wide view of the spill and use a variety of sensors that can detect oil.
- Synthetic Aperture Radar (SAR) used in the NOAA NESDIS pollution reports detects differences in surface water roughness, as oil dampens waves and creates a smooth area or “slick”.
- Dark areas in SAR images indicate smooth water, and “false positives” can be caused by light winds, wind shadows (such as behind a point of land), and biogenic materials like kelp beds.
- Satellite images are limited in frequency as the Earth rotates.
- Trained aerial observers use helicopters, planes, and unmanned aircraft systems (UAS/drones) to determine an oil slick's exact location, shape, size, color, and orientation.
- These observers help estimate the location and thickness of the oil for directing skimming vessels.
- Weather conditions, sun angle, wind, and waves can complicate observations.
- It is not unusual for an observer to report significantly less oil due to overwashing of the oil by waves even though the amount of floating oil probably has not changed.
- As the oil weathers, oil patches break apart that are difficult to observe from the air (manned aircraft or satellite).