

# Estimating Oil Spill Impact

**Deepwater Horizon Oil Spill, April 20, 2010**

*“Smoke billows from a controlled burn of spilled oil off the Louisiana coast in the Gulf of Mexico coast line on June 13, 2010. Millions of gallons of oil poured into the Gulf following the April 20, 2010 explosion on an offshore rig.”* Image courtesy of Sean GARDNER/REUTERS Source: [Newsweek](#)



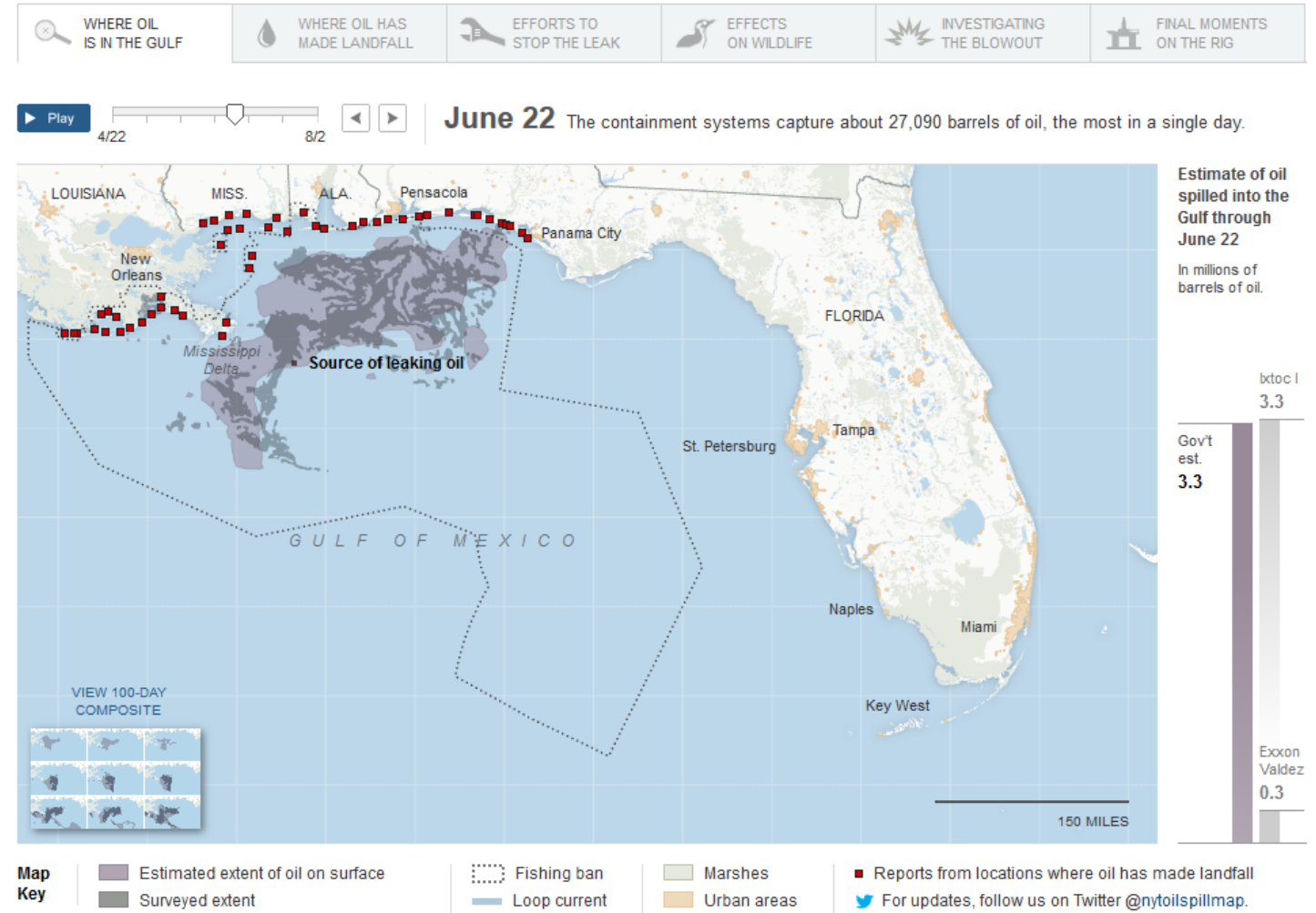
# Tracking the Spill

This image, courtesy of the [New York Times](#), shows the extent of the spill on June 22, 2010. In the follow slides you will see satellite images of the same region before and after the spill.

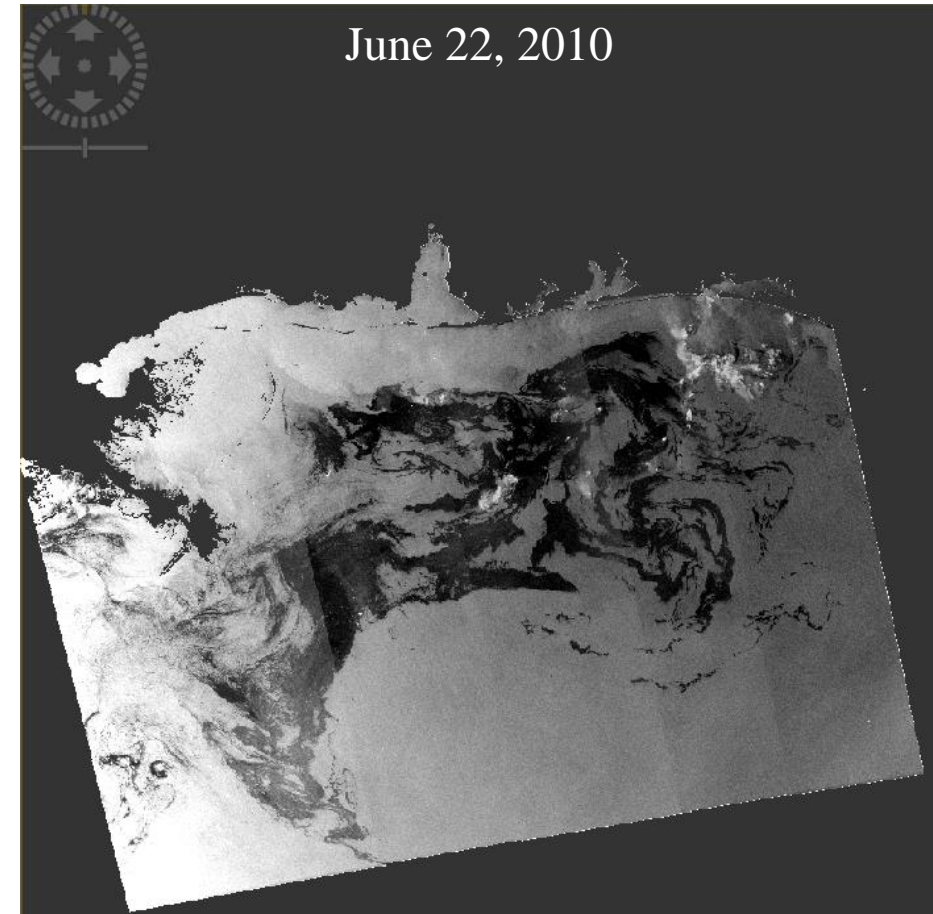
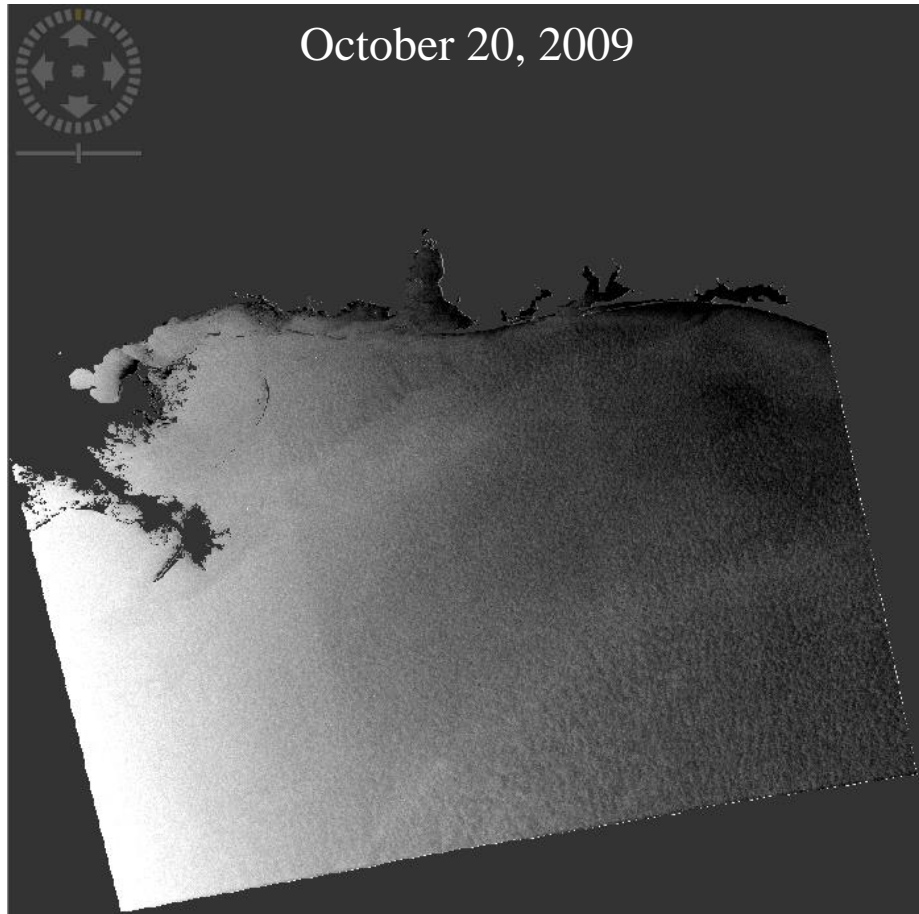
Using satellite imagery, scientists may quickly estimate and map the extent of a spill.

Satellites orbiting the Earth provide near-real time imagery for tracking emergencies and events such as oil spills and leaks from oil tankers.

## Tracking the Oil Spill in the Gulf



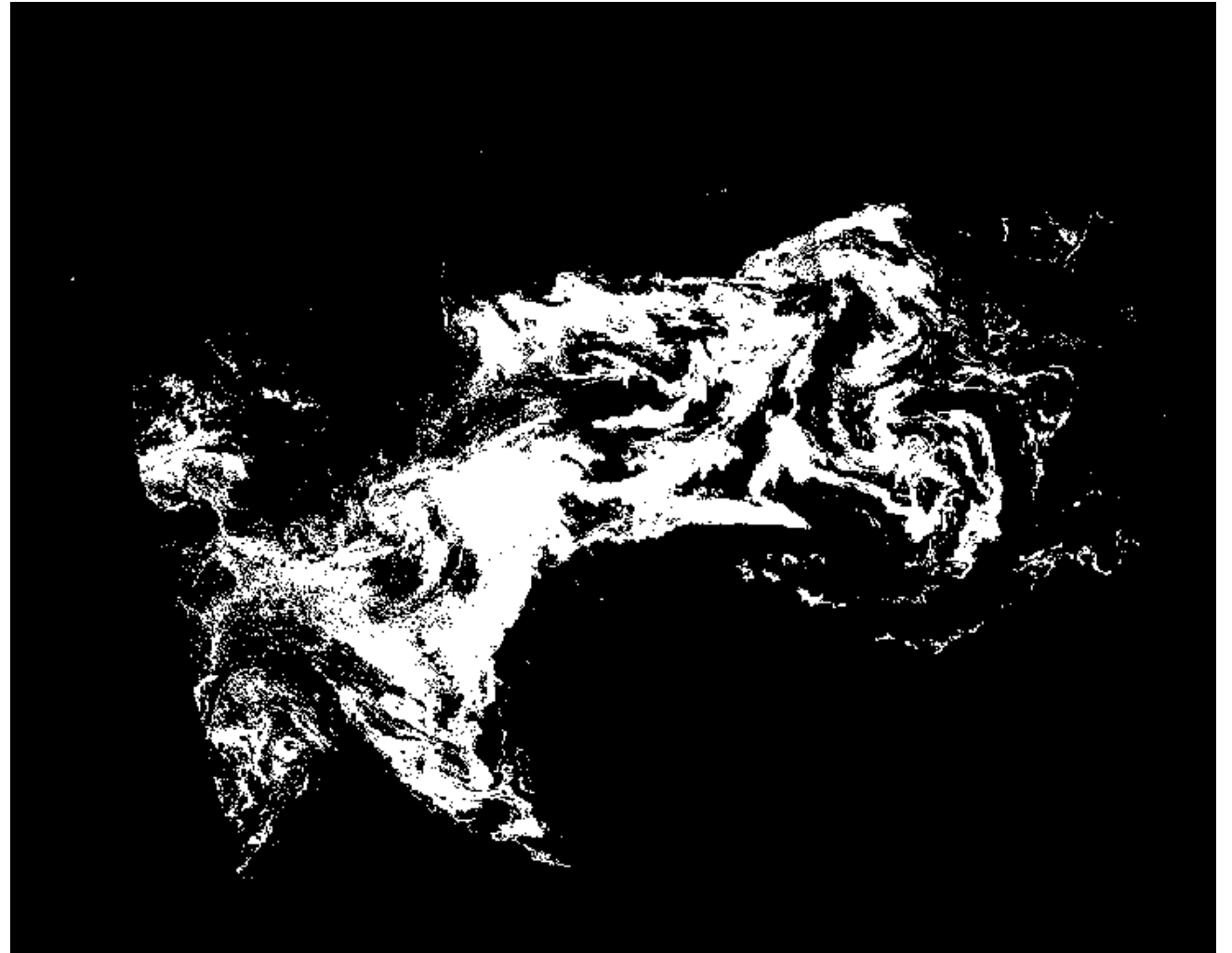
# Gulf of Mexico Before & After Oil Spill



These images show the Gulf of Mexico before and after the Deepwater Horizon oil spill. The Envisat satellite which took these images, orbited Earth every 100 minutes with a repeat cycle of 35 days. This rate of orbit allowed scientists to use imagery to estimate oil spill extent. Images courtesy of Earth Online, European Space Agency. Mission: Envisat; Instrument: ASAR

# Mask of Oil Spill

The image at right is a mask of the oil spill extent on June 22, 2010. A mask separates oil from water by assigning water a value of 0 and oil a value of 1. This creates a black and white image of the spill and allows evaluation of the number of pixels assigned to water and oil. In this case, see next slide, the total number of pixels representing oil equals approximately 1,358,710 or about 30,000 km<sup>2</sup> of ocean surface.



# Estimating Total Surface Area of Spill

Surface Area of Spill = 30,571 km<sup>2</sup>

- Image at right shows a histogram of all pixels assigned as oil.
- Statistical analysis shows that the total number of pixels representing oil equals 1,358,710.
- Each pixel represents an area of 150 x 150 meters.
- The area of the oil spill equals 150m x 150m x 1,358,710 pixels

