

## **ROFFER'S OCEAN FISHING FORECASTING SERVICE, INC.**

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### **ROFFS™ OCEANOGRAPHIC ANALYSIS FOR THE DEEPWATER HORIZON OIL SPILL AREA UPDATED MONDAY 26 JULY 2010 (17:00 HRS) PUBLIC ANALYSIS**

Fortunately, we were able to see the majority of the ocean conditions in the eastern Gulf of Mexico relatively clearly using a combination of high resolution infrared sst° imagery from yesterday and today. We did not receive any useful ocean color (RGB/sun glint or chlorophyll) imagery due to cloud cover this afternoon. We have chosen to show the surface oil in opaque olive green today, which was derived from a combination of SAR imagery from the past 48 hours (July 25-26, 2010). We continue to follow the position of the surface oil and PWOM using a combination of infrared and visible satellite imagery, SAR, and sequential image analysis.

Overall, we continue to observe the circulation of the anti-cyclonic eddy Franklin which appears to be centered near 87°30'W & 25°40-45'N today. This feature continues to be affected by both the cyclonic eddy centered to its east/northeast (centered near 85°45'W & 26°00'N) and the cyclonic eddy to its south/southeast (centered near 86°35'W & 24°15'N). Due to the position of the surface oil and the PWOM and its apparent path towards and around eddy Franklin, we would expect the majority of the PWOM to remain within the circulation system of eddy Franklin with a minimal amount being pulled northeastward towards the cyclonic eddy east/northeast of eddy Franklin. While it does appear as if a small portion of the water associated with eddy Franklin is being pulled slightly southward (along 88°00'W) and towards the cyclonic eddy south/southeastward, we would expect very little (if any) of the PWOM associated with it to be pulled in this direction.

Northward, towards the Deepwater Horizon spill site, it appears as if the majority of the surface oil, including the surface oil that was present north of the spill site and towards the Mississippi and Alabama coastlines, to now be moving west/southwestward due to a combination of surface currents observed today and strong winds with an eastward component due to the passing tropical system this past weekend. While the winds are now light in this area (less than 10 knots), we do continue to see surface currents moving out of the northeast and towards the southwest particularly north and west of the spill site suggesting that this trend will likely continue. South of the spill site, we continue to see the majority of the PWOM moving in a general southward direction between 88°-89°30'W and towards 27°-28°00'N suggesting that the majority of this water and the oil associated with it continues to be pulled towards the northeastern side of eddy Franklin, around eddy Franklin and towards the cyclonic eddy located east/northeast of eddy Franklin.

#### **EDITORS NOTE:**

If you plan to use these reports including the graphics you must give ROFFS™ full credit for this work. ROFFS™ would be appreciative if you would copy this analysis to others who may be interested in our efforts. At ROFFS™ we have been mapping the distribution and movements of the oil from the Deepwater Horizon spill from satellites since the explosion. Basically we are using a host of U.S. (NOAA and NASA) and European (ESA) satellites with a variety of spectral (infrared, near infra-red, visible, RGB and synthetic aperture radar) and spatial resolutions (300 meter to 1 KM) to see the oil. The MODIS satellite data are being received from the University of South Florida IMaRS and the synthetic radar (SAR) imagery is being received from the CSTARS at the University of Miami and also from ESA. We manipulate and integrate these data at ROFFS™ and the analyses are ROFFS™ expert interpretations of the satellite imagery along with other data such as winds, sea surface temperature, currents, and in-situ reports. We routinely discuss our results with several academic and non-academic oceanographers. In order to show oil in addition to the SAR surface oil we have used a combination of "WOM" (Water/Oil Mixture) in the areas near the Deepwater Horizon oil spill and "PWOM" (Possible Water/Oil Mixture) in the areas farther away from the spill and in areas of higher uncertainty.

We use a plethora of techniques to remove or reduce the effect of clouds and satellite angle, as well as, to manipulate the satellite data to understand the ocean circulation patterns associated with the oil's motion. We focus our efforts on the offshore segment of the oil. Sequential image analysis allows us to visualize the motion. The red "X" indicates the site of the Deepwater Horizon spill area.

We have been deriving these analyses on a daily basis and posting them to our website (<http://www.roffs.com/>). We have many years of experience conducting similar analyses. For example we mapped the plume coming from the New Orleans area after Hurricanes Katrina and Rita (<http://www.roffs.com/katrina.htm>).

Figure 1.



