

Cantarell oil seep characterization using a satellite monitoring program in the South Gulf of Mexico

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Natural oil seeps are greatly correlated to the oil activity in the Campeche Sound. To date, activity of the most significant seep in the Southern Gulf of Mexico corresponds with the operational areas of greater production in the Cantarell field from PEMEX Exploration and Production (PEP).

With the objective to ascertain the origin and degree of the hydrocarbon contributions of the natural seeps in this area, the Northeast Marine Region (RMNE) of PEP, developed in 2000-2001 a progressive application of RADARSAT-1 satellite for monitoring oil seep behavior utilizing an advanced application to assess oil seep potential in detection and measurement.

Employed in a continuous manner since 2002, satellite interpretation identified that the major hydrocarbon contribution, in area as well as occurrence, predominantly originates from the Cantarell natural oil seep. Its behavior there was systematic characterized using a weekly acquisition and shows a pulses pattern to the West according to dominant winds. Oil slicks area related to this seep have variations between 0.04 km² to more than 200 km².

Oil volume indirect estimations showed an important environmental impact in relation to oil spills international criteria, but its effects must have a local balance as a natural source since thousands of years ago.

Results of this program enhanced PEP capabilities to use satellite resources for geological applications, as well as an environmental tool to have a better response to community in case of oil spill events.
