

## Deposition of BP oil spill on Alabama and Northern Florida beaches: At the surface and beneath

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Since late May 2010, crude oil from the British Petroleum (BP) Deepwater Horizon well has been depositing on over 300 km of sandy barrier island beaches along the northeast Gulf of Mexico coast. The environmental and economic impacts of this unprecedented oil spill are still unfolding. This study examines the longshore and cross-shore oil-contamination distribution, both at the surface and beneath, along the Alabama and northern Florida beaches. Various forms of oil contamination were identified along the sub-aerial beaches, including 1) *tar balls*: discrete accumulations of oil <10 cm in diameter; 2) *tar patties*: discrete accumulations of oil >10 cm; 3) *tar cakes*: tar patties exceeding 3 cm in thickness; 4) *oil sheets*: discrete, but spatially continuous accumulation of oil >5 m in length or width; and 5) *oil stains*: a visible thin veneer of oil coating sediment grains. Most of the surface oil contamination distribute from the active berm crest to the maximum limit of wave runup where a concentrated zone of oil deposits is often found. The cross-shore extent of this dynamic zone of oil-contamination deposition is controlled by wave and tide conditions. During storm conditions, the zone of oil contamination is much wider than during calm conditions. All forms of oil contamination were found buried up to 60 cm below the beach surface, occurring within several tidal cycles. The greatest burial depth was found at or slight landward of the berm crest, with a decreasing trend landward. The concentrated oil deposition at the maximum wave runup is mostly surficial. On-going beach cleanup focuses on surface oil contamination removing primarily tar balls and tar patties; but ineffective for oil stains, oil sheets, and all forms of the buried oil.

## Biography of the Presenter

Ping Wang is the director of the Coastal Research Laboratory and an Associate Professor at the Department of Geology at the University of South Florida. Wang obtained his Ph.D. in Coastal Geology from the University of South Florida in 1995. Wang's research interest includes: coastal sedimentary processes, nearshore sediment transport, nearshore wave and current dynamics, coastal morphodynamics, coastal engineering and management, numerical modeling of coastal environments. Impact of the BP oil spill to beach environments is the new "research adventure" by Wang and his research team. Wang and Dr. Nicole Elko co-led the field trip for the 2009 ASBPA national conference.