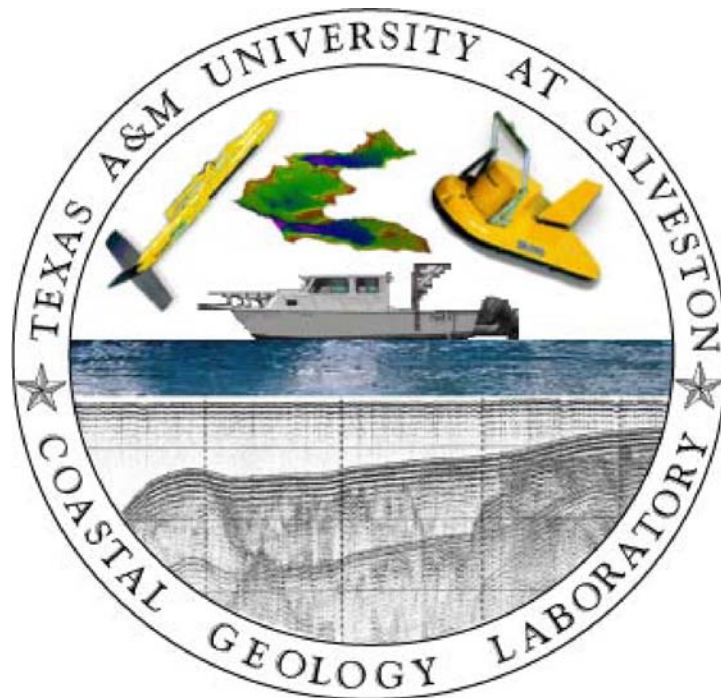


**THE INFLUENCE OF *SARGASSUM* ON WEST-END BEACH SAND
ACCRETION:
GALVESTON ISLAND, TEXAS**

**PROGRESS AND STATUS REPORT
MAY 15, 2006**

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Sargassum beach cast along Pirates Beach April 5th 2006

INTRODUCTION

The beaches of Galveston Island experience an annual beach cast of *Sargassum* (“seaweed”) during late spring/early summer – a season of significant economic input to the island and county. This accumulation inspires much debate among numerous stakeholders including property owners, business owners, recreational fishers, tourists, and local, county and state governmental entities. Several management options have been suggested, but as yet, there is no holistic management program for the island. Many locations are raked or scraped (e.g. Pirates Beach), and other locations are left in the natural condition (Galveston Island State Park).

At this time, there appears to be no scientific data regarding the impact of beach cast on the Gulf beaches of Galveston Island. There have been recent studies pertaining to these issues along the coast of Kenya Africa, Eastern Indonesia and Western Australia. The study in Kenya using surface studies found that raking of beach cast had substantial impacts on the beach stability thus increasing the possibility of beach erosion. In order to facilitate informed decision making regarding the management of the “*sargassum* issue”, the Coastal Geology Laboratory at Texas A&M University at Galveston is in the process of quantifying the influence of *sargassum* on beach morphology. This data will be of utility to the numerous stakeholders involved and the decision making and management of the island’s beaches. This study will take the above research a step further by pulling several one meter depth cores along specified sites four times per year with each core being analyzed for organic content and sand grain size. The specified sites will have the beach profile measured on a monthly basis to help locate potential accretion areas for future coring. The collection of data from February thru April is essential in developing base line data that will be used for comparison to the data collected during September and November after the conclusion of the *sargassum* season.

SPECIFIED RESEARCH SITES

Location	Analysis Designation
1. Beach Pocket Park #3	SAR 1
2. Pirates Beach	SAR 2
3. Pirates Beach West	SAR 3
4. Galveston Island State Park	SAR 4
5. Sea Isle	SAR 5



SITE	Eastings	Northings	Lat	Long
Beach Pocket Park #3	312865	3232725	29°12'34" N	94°55'30" W
Pirates Beach	312373	3232363	29°12'22" N	94°55'48" W
Pirates Beach West	310822	3231383	29°11'49.3" N	94°56'44.8" W
Galv. Island State Park	310079	3230892	29°11'33" N	94°57'12" W
Sea Isle	301722	3225352	29°08'28" N	95°02'18" W

SEDIMENT CORES

At each site, several (4) sediment cores will be collected; the cores will be collected in February, April, September, and November, 2006. These shall be taken at approximate intervals of 10 meters across-shore, starting from the toe of the dune/Geotube and finishing at the wetline of the beach; the wetline is the furthest point of wave run-up on the beach.

The cores will be subjected to bulk analysis and the following objectives shall be sought:

- Photographic record of the cores
- Description of the cores
- Organic content of the cores

This organic content analysis will thereby quantify and resolve the extent, if any, of the residence time and accretionary benefit of *sargassum* on the beach.

February Coring

February 11 and 16, 2006 the team completed the extraction of 28 one meter long cores from the above five specified locations including random coring halos at Pirates beach and Pirated Beach West. Halos are four additional cores collected at a distance of approximately 1 meter around a random coring station. This will enable testing/verification of spatial heterogeneity in the sample areas. The cores were spaced 10 meters apart starting at the toe of the dune or Geo-tube to the wet line perpendicular to the shoreline.

All cores have been cut, photographed, described, water content measured, tested for organics and archived. We are waiting for the Malvern Particle Analyzer to become operational to complete the grain size analyses. We used the ASTM standard for D2974 test method C to determine organic content. We found only small traces of organic material in the first round of cores.



Installing vibra-core head



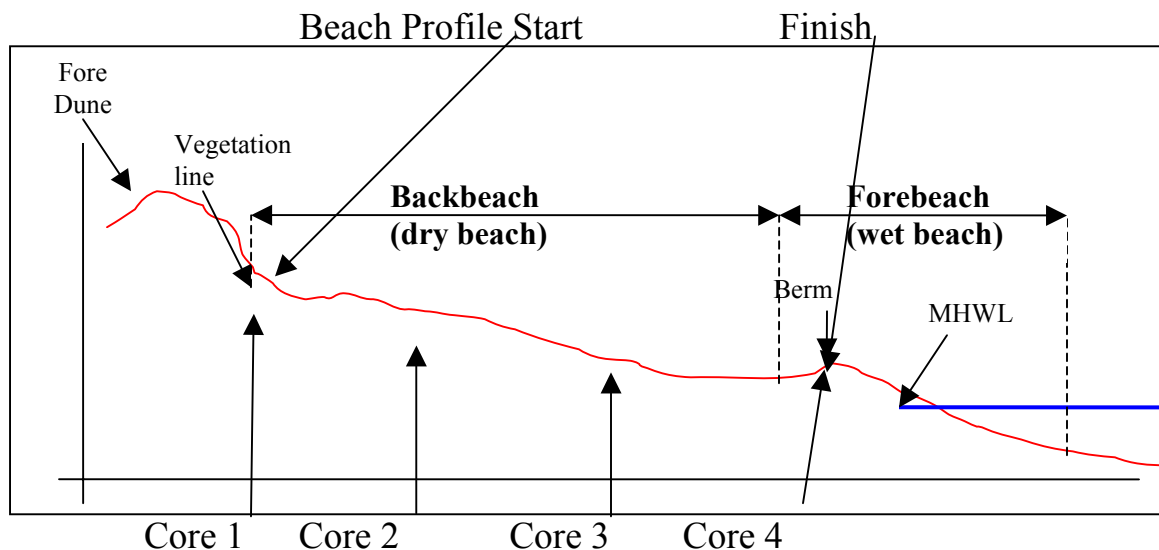
Core extraction

April Coring

On April 4th we completed the second round of coring. 24 cores were collected from the same five locations plus one additional location on East Beach. All cores have been cut, photographed, described, water content measured, tested for organics and archived.

BEACH PROFILING

Beginning February 2006 shore-perpendicular profiles were surveyed in order to observe elevation fluctuations throughout the study period. These profiles will be surveyed using a Post-Processed Stop-and-Go GPS in unison with the more traditional transit and rod method. Standard surveying techniques will be utilized and this procedure will record the elevation and contours of the beach along the same transect during each survey (± 50 cm). These monthly observations will enable a time series of both profile and volume changes, thus enabling detection of beach change. The profiles will start at the toe of the dunes or other structures and proceed to the wetline.



February Beach Profile

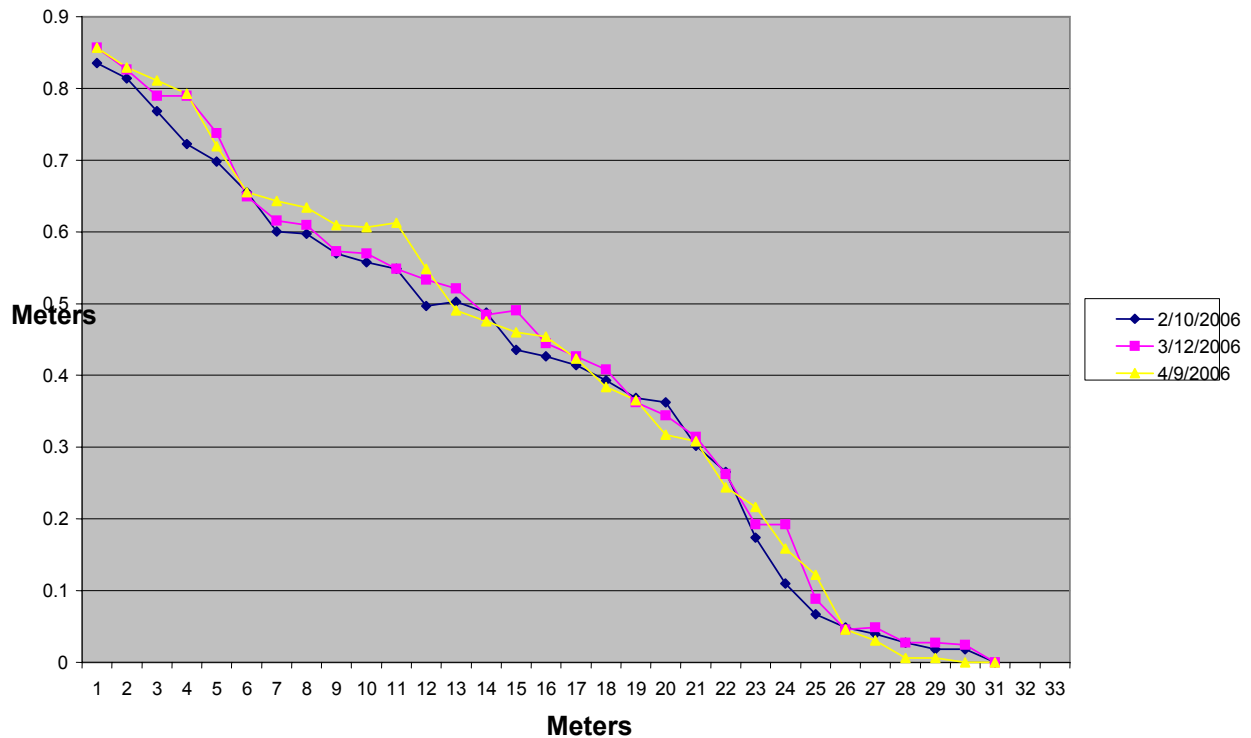
Starting February 10, 2006, monthly profiles were started using a combination post processing GPS system and a transit and rod method at the five sites along the westend of Galveston Island.

March 12th and April 9th's beach profiles are complete and have been assembled into a beach profile graph.

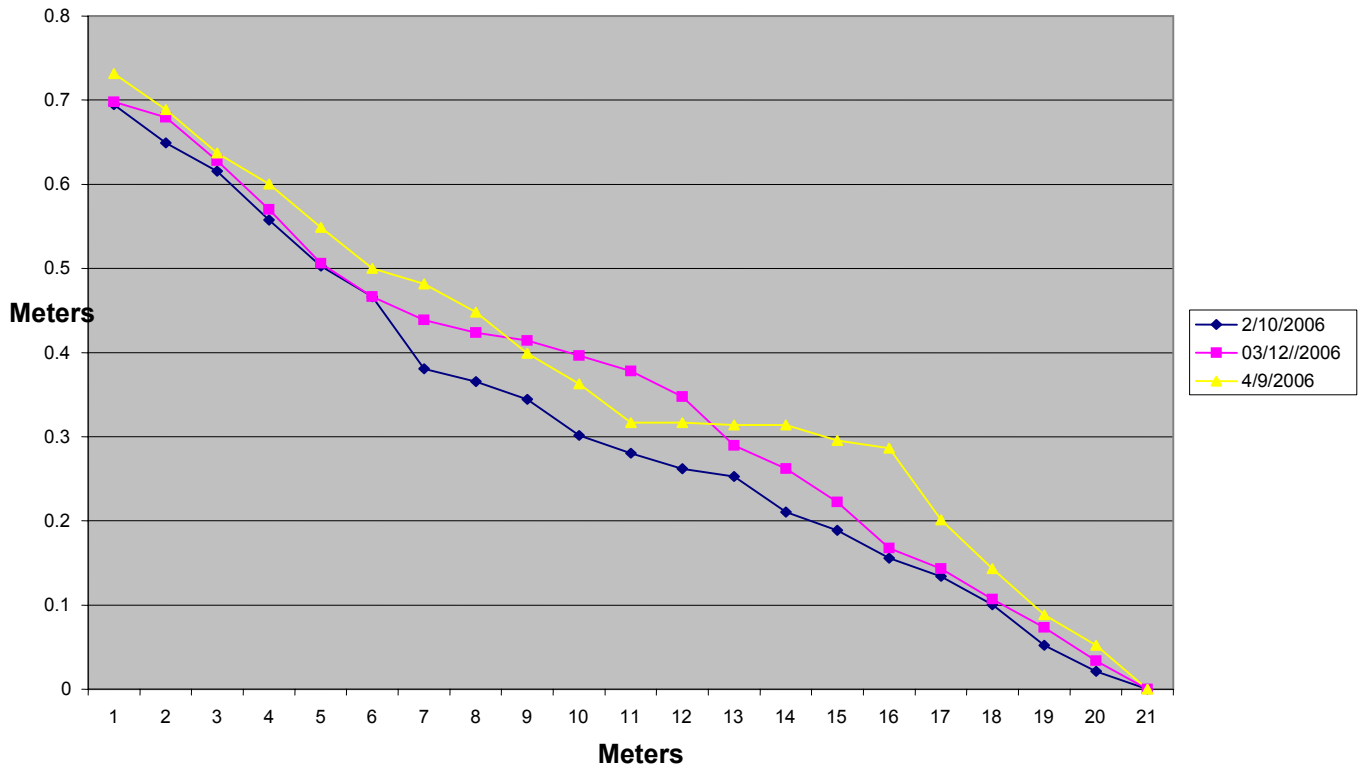
May 9th's beach profiles are complete and the data is being processed for inclusion into the following graphs.

BEACH PROFILES

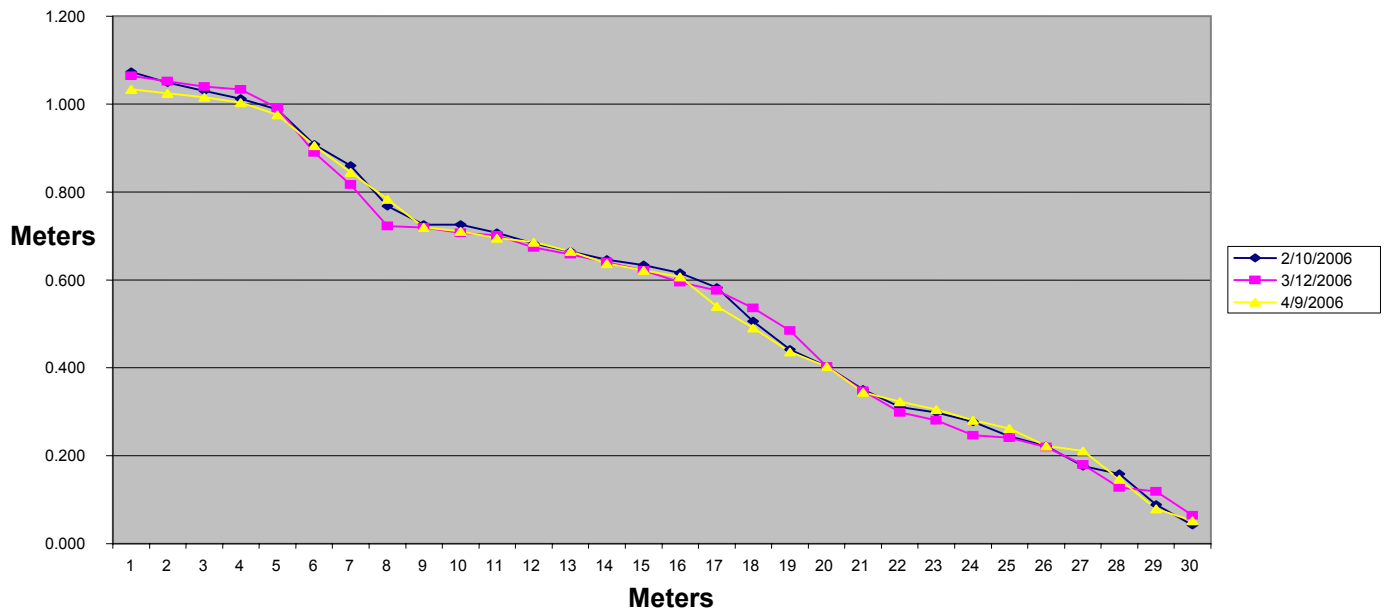
Beach Pocket Park #3 SAR1



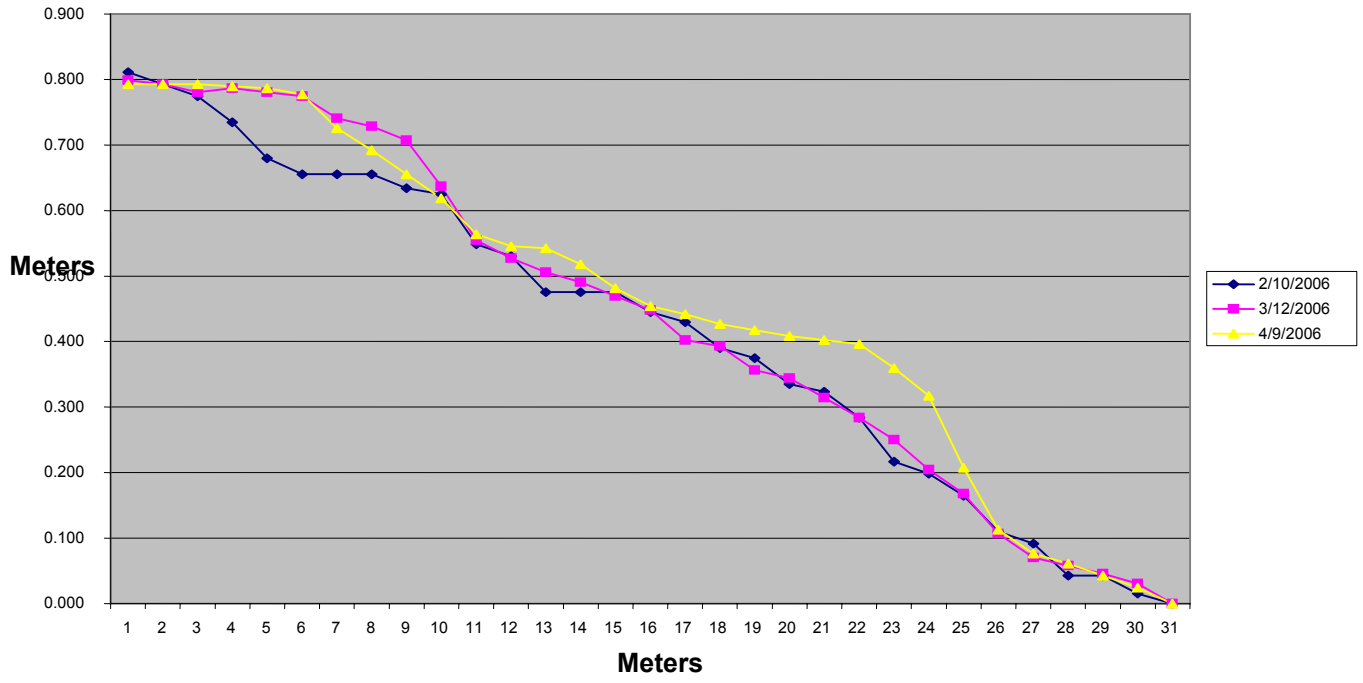
Pirates Beach SAR2



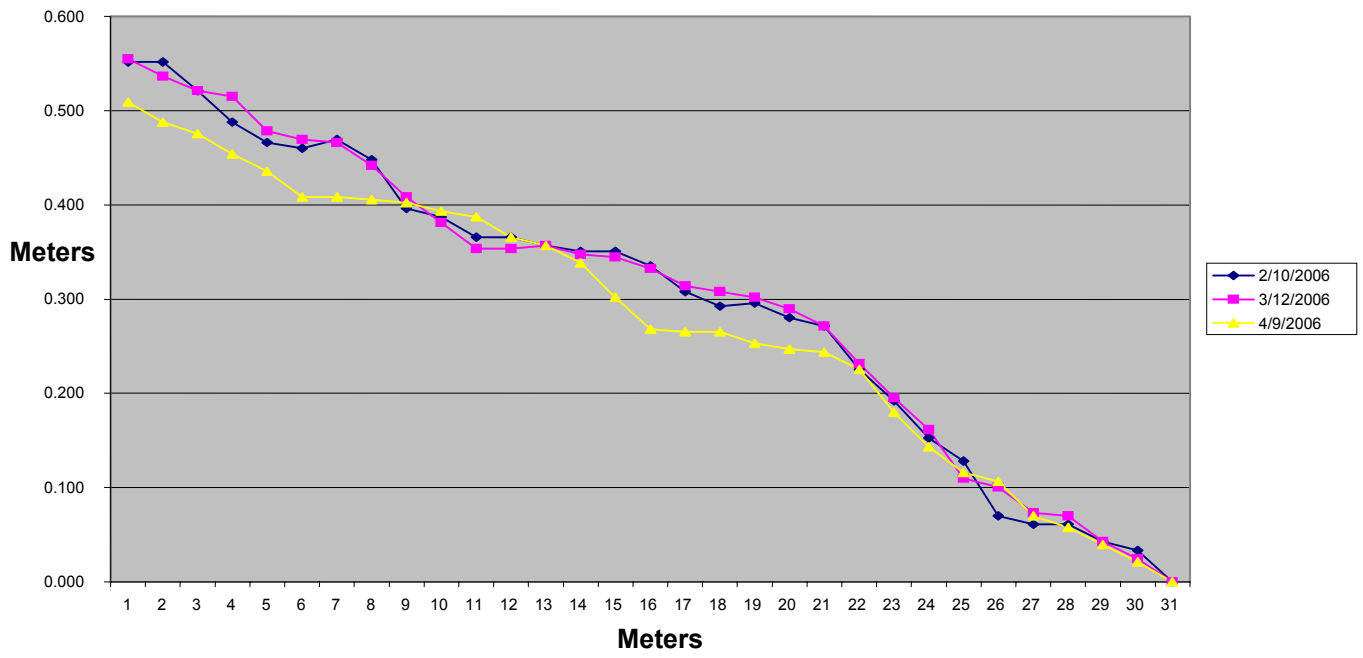
Pirates Beach West SAR3



Galveston State Park SAR4

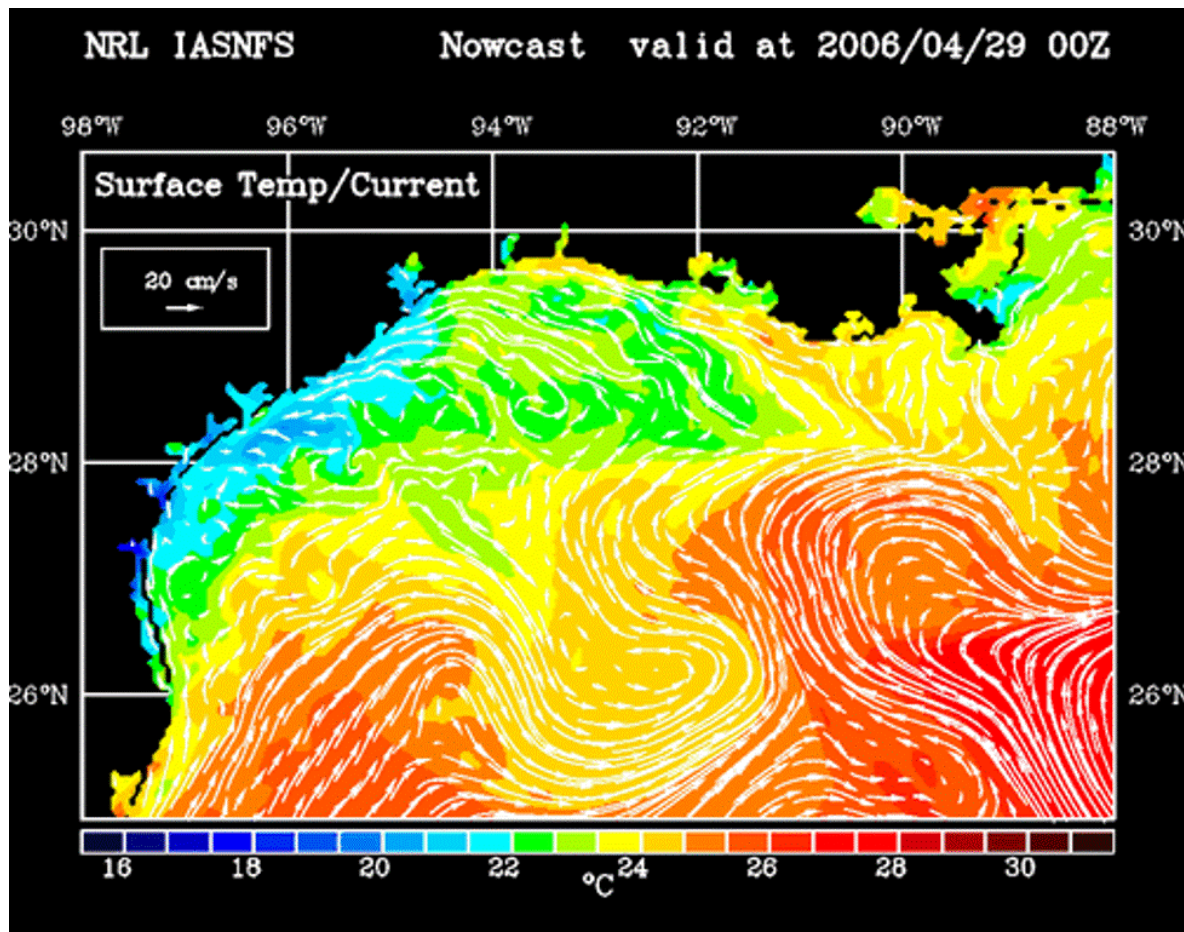


Sea Isle SAR5



Additional Research

We are working with NOAA and Texas A&M at College Station on developing a forecast system to assist with predicting large patches of *sargassum* casting onshore using surface winds and surface currents. These weather programs provide current and historical data that we can tie to past efforts used toward *sargassum* removal on Galveston Island.



Naval Research Laboratory *Experimental Real-Time
Intra-Americas Sea Ocean Nowcast/Forecast System*