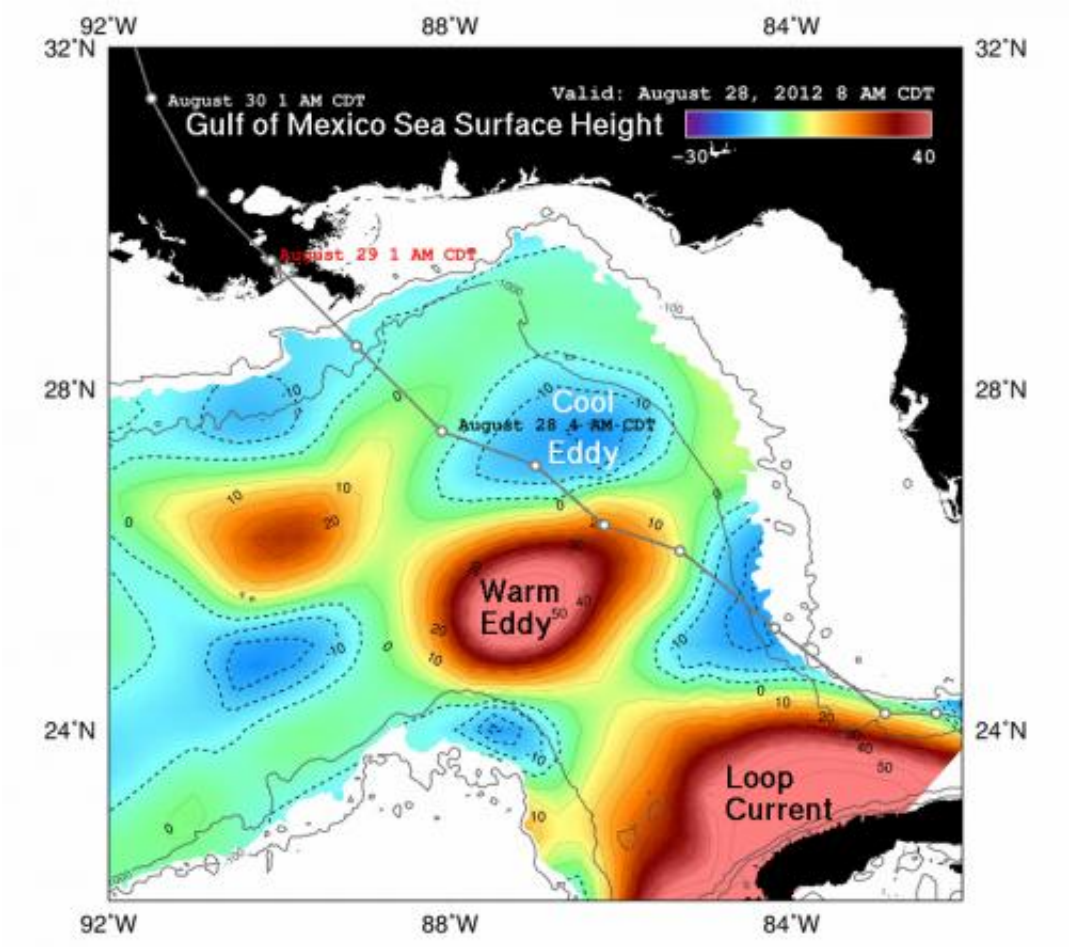
Cooler waters help diminish Isaac's punch

August 29 2012, by Alan Buis



Color-enhanced image of sea surface heights in the Gulf of Mexico, showing Hurricane Isaac's path through the Gulf and around its warmest waters. Image credit: LSU Earth Scan Laboratory/U. of Colorado CCAR/NASA-JPL/Caltech

(Phys.org)—Seven years after the powerful Category 3 Hurricane Katrina caused widespread devastation along the Gulf Coast, a Category

1 Hurricane Isaac, with maximum sustained winds of 80 miles per hour (70 knots), is making landfall today in southeast Louisiana. And one of the reasons why Isaac is not Katrina is the path it took across the Gulf of Mexico and the temperature of the ocean below, which helps to fuel hurricanes.

In 2005, Hurricane Katrina's maximum wind speeds increased dramatically as the storm passed over a warm ocean circulation feature called the Loop Current that is part of the Gulf Stream. The storm evolved quickly from a Category 3 to a Category 5 event on the Saffir-Simpson Hurricane Wind Scale in a matter of nine hours as it drew heat from the Loop Current. It subsequently dropped in intensity to a Category 3 storm at landfall.

Because the Loop Current and its eddies are warmer, and thus higher in surface elevation, than the surrounding waters, they are easily spotted by satellite altimeter instruments, such as those aboard the NASA/French Space Agency Jason 1 and Ocean Surface Topography Mission/Jason 2 satellites. Scientists use the latest satellite measurements of sea-surface height from these and other satellite altimeters to create maps showing the location, direction and speed of currents in the Gulf of Mexico.

This color-enhanced image of sea surface heights in the northeastern Gulf, produced using data from available satellite altimeters, including NASA's Jason-1 and Jason-2 satellites, shows Isaac's path through the Gulf. The storm skirted around the Loop Current, then caught the outer edge of a warm eddy before passing directly over a cold eddy. The storm's track away from the Gulf's warmest waters has helped to keep Isaac from intensifying rapidly, as Hurricanes Katrina and Rita did in 2005.

Warm eddies have high heat content and great potential to intensify hurricanes, whereas cold eddies have low heat content and may even

cause hurricanes to weaken, as was the case with Hurricane Ivan in 2004.

Provided by NASA