

Proprietary

Baron Hurricane Index Atlantic Case Studies

NOAA SBIR Phase II



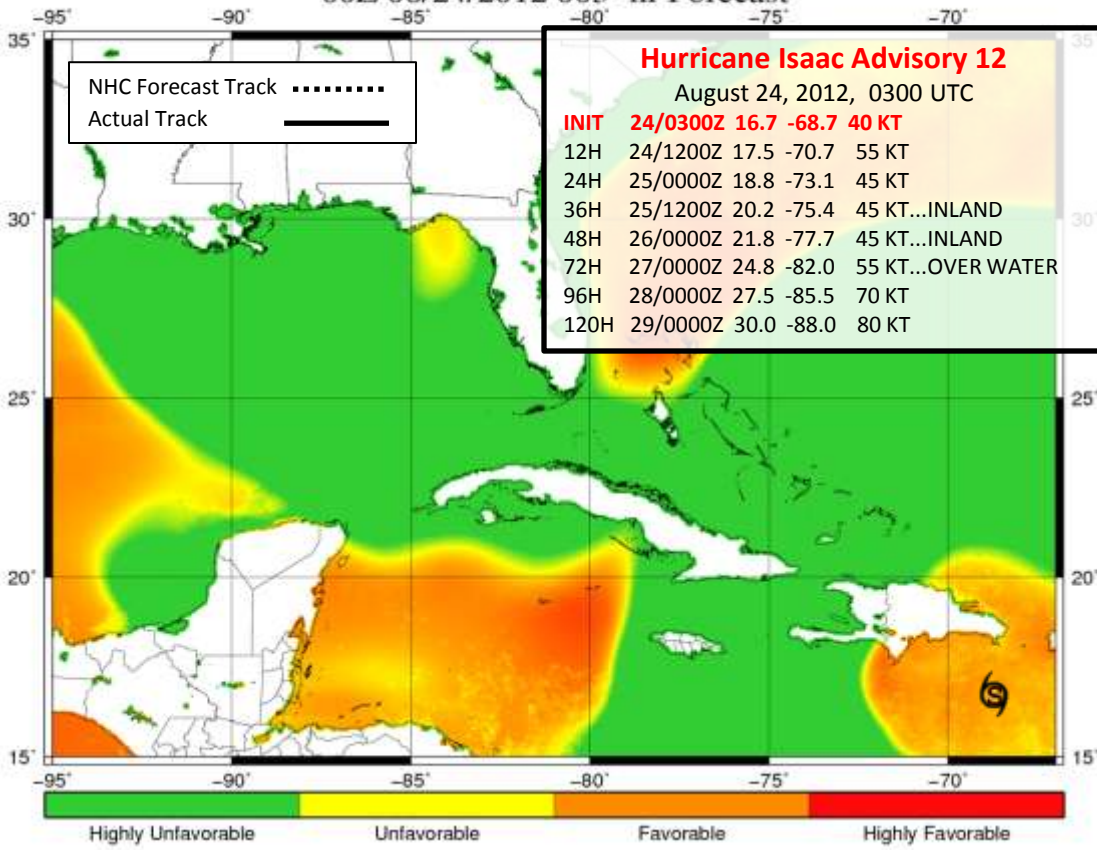
Hurricane Isaac August 24, 2012 Advisory 13

Isaac at the time of Advisory 13 was a struggling tropical storm with 45 knot winds. The forecast track predicted Isaac to spend more time over Cuba than it actually did. Isaac crossed the southwest tip of Cuba, and then stayed north of Cuba and entered the Gulf of Mexico between Cuba and Florida. Isaac slowly and gradually reached hurricane strength over 4 days after this advisory was issued. It remained a weak and broad slow moving hurricane as it made landfall in southeast Louisiana. BHI throughout Isaac's lifetime indicated it was in "Favorable" conditions for strengthening.



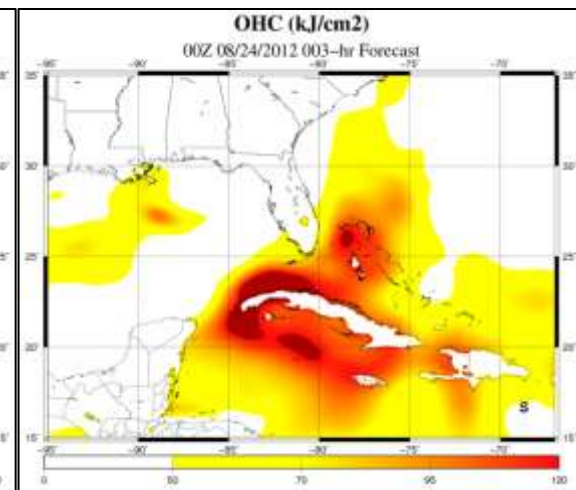
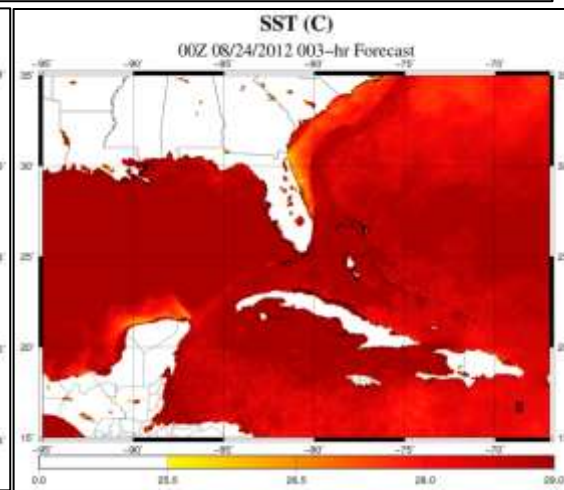
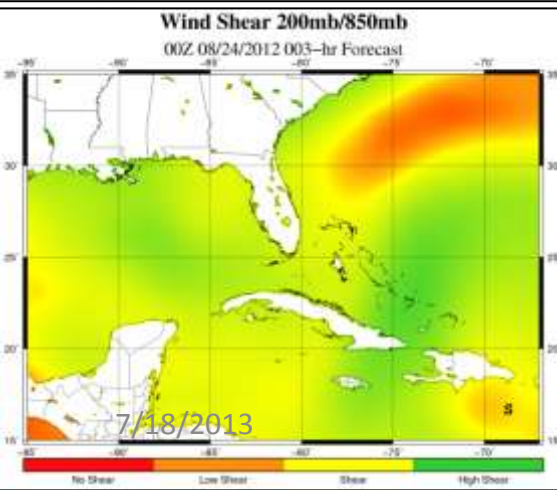
Baron Hurricane Index

00Z 08/24/2012 003-hr Forecast



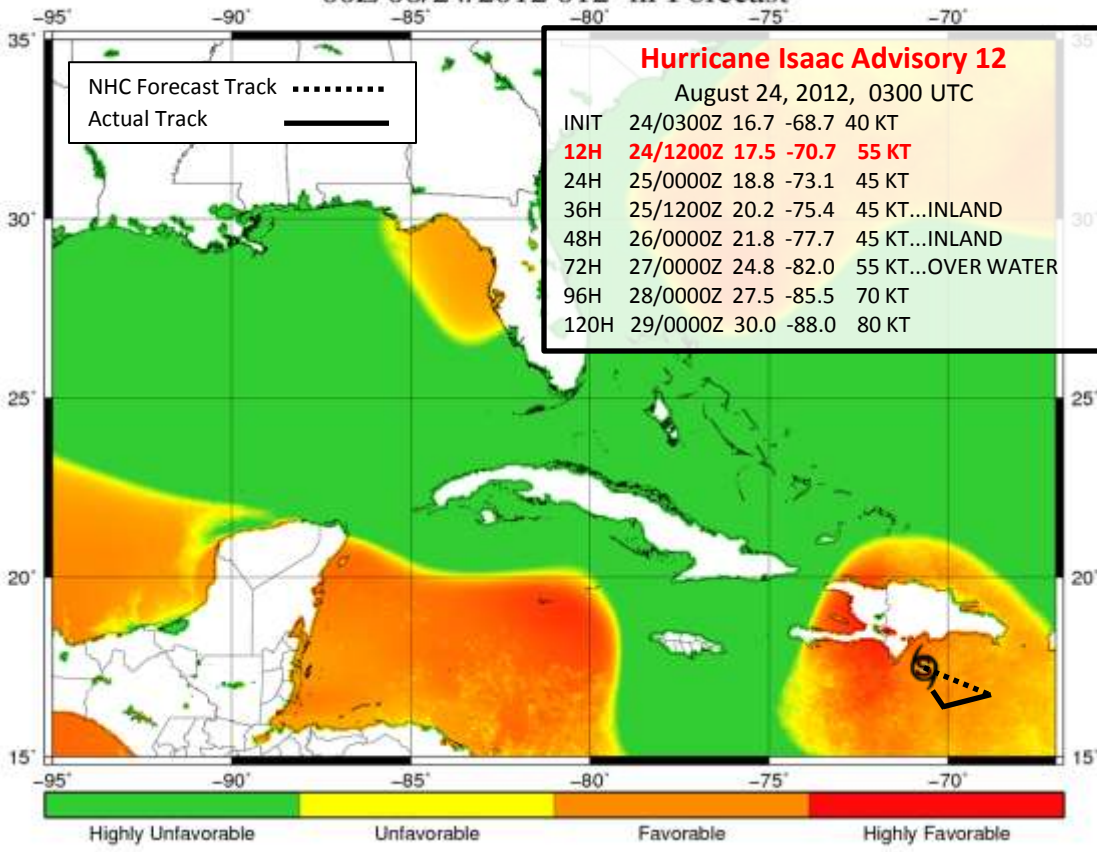
Advisory 12 INITIAL was issued as Isaac's position was south of Dominican Republic at 00Z on 8/24/12. At Isaac's current position, Wind Shear is low, Sea Surface Temps are hot, and Ocean Heat Content is moderately low. Therefore, the BHI algorithm indicates that Isaac is in an environment that is "Favorable" for strengthening.
(NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac was currently 40-45 knot tropical storm.



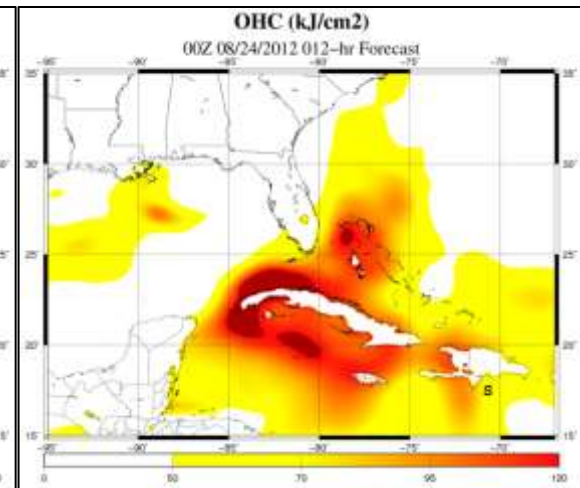
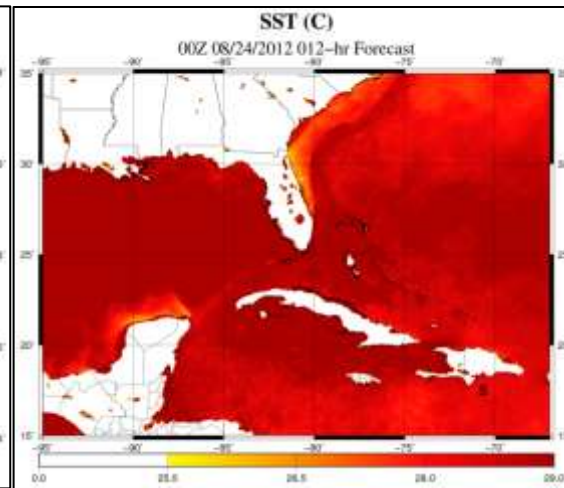
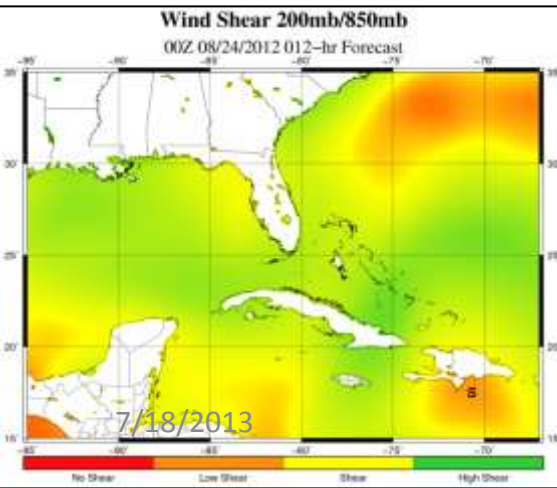
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00Z 08/24/2012 012-hr Forecast



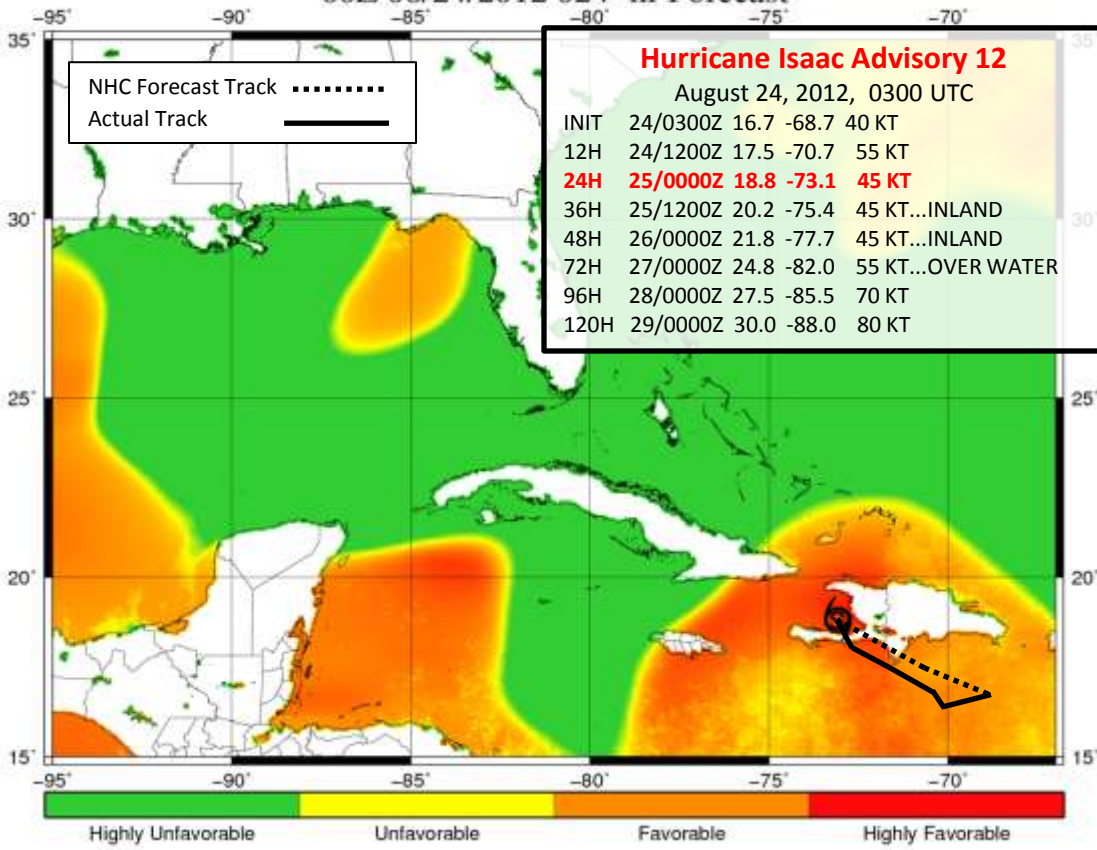
FORECAST: Advisory 12 12HR is a FORECAST for Isaac's position and strength at 12z on 8/24/12. Isaac is moving towards land, but is in an environment of Low Shear, Warm SST, and moderate Ocean Heat Content putting Isaac in "Favorable" conditions for intensification as long as it stays over water. South of Haiti there is high OHC creating a region of "Highly Favorable" conditions.
(NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac intensified from a 40 knot storm to a 50 knot storm.



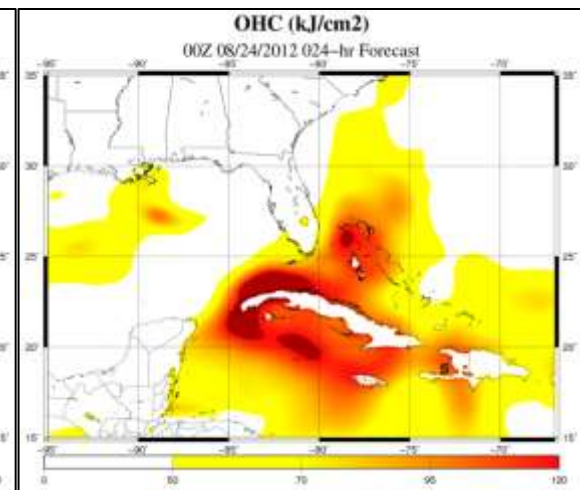
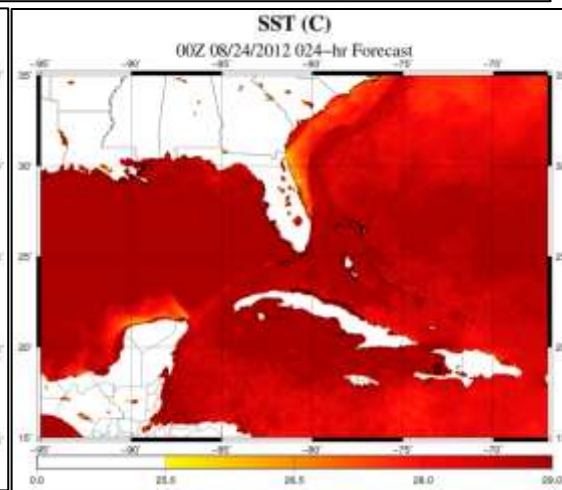
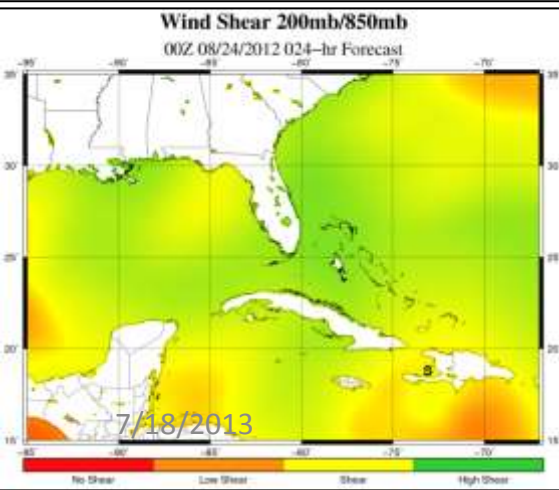
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00Z 08/24/2012 024-hr Forecast



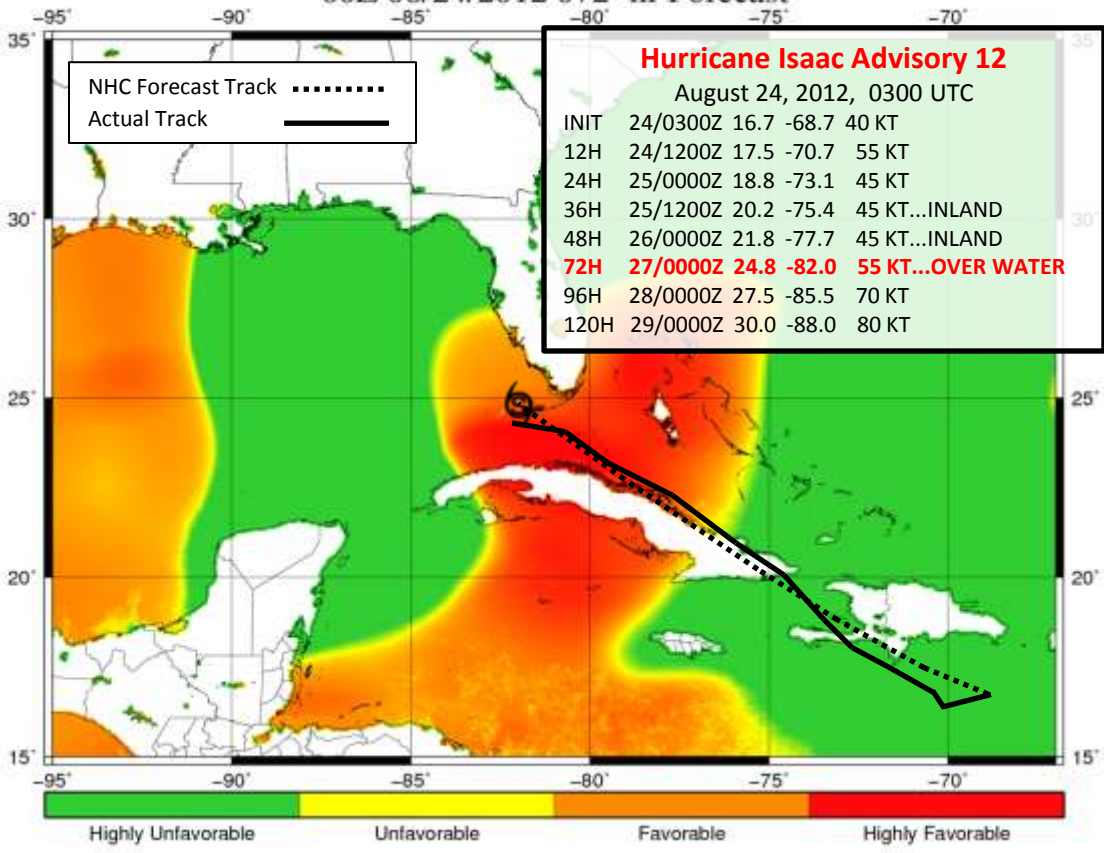
FORECAST: Advisory 12 24HR is a FORECAST for Isaac's position and strength at 00z on 8/25/12. Isaac is forecast to cross south over Haiti, and is in an environment of Low Shear, hot SST, and moderate Ocean Heat Content putting Isaac in "Highly Favorable" to "Favorable" conditions for intensification between Haiti and Cuba. (NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac increased wind speed by 5 knots in the past 12 hours to 55 knots.



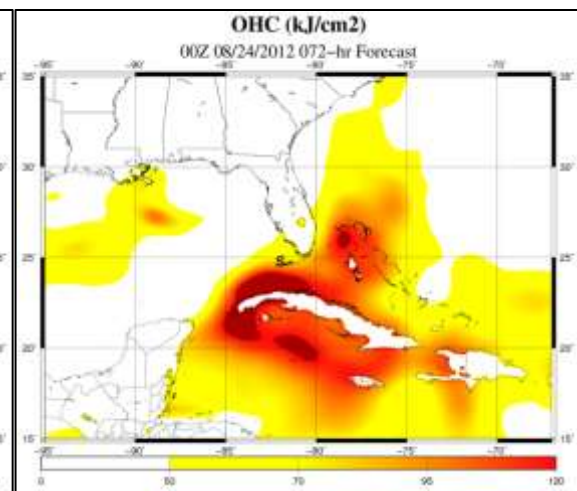
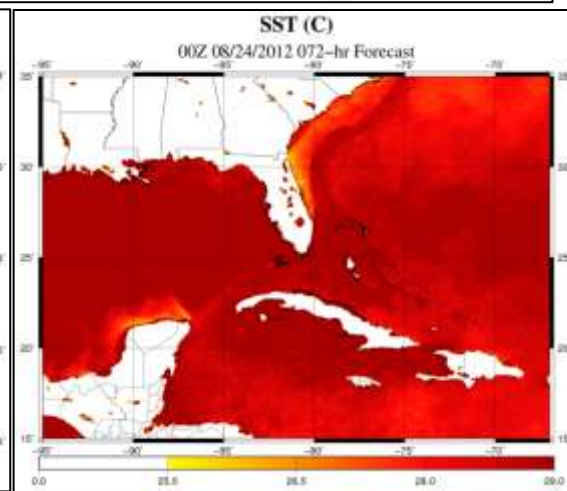
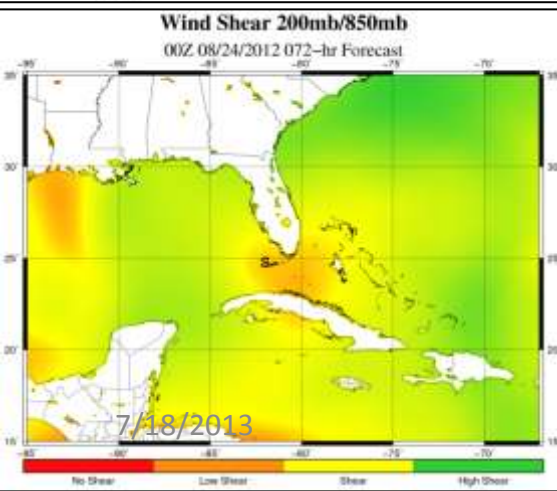
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00Z 08/24/2012 072-hr Forecast



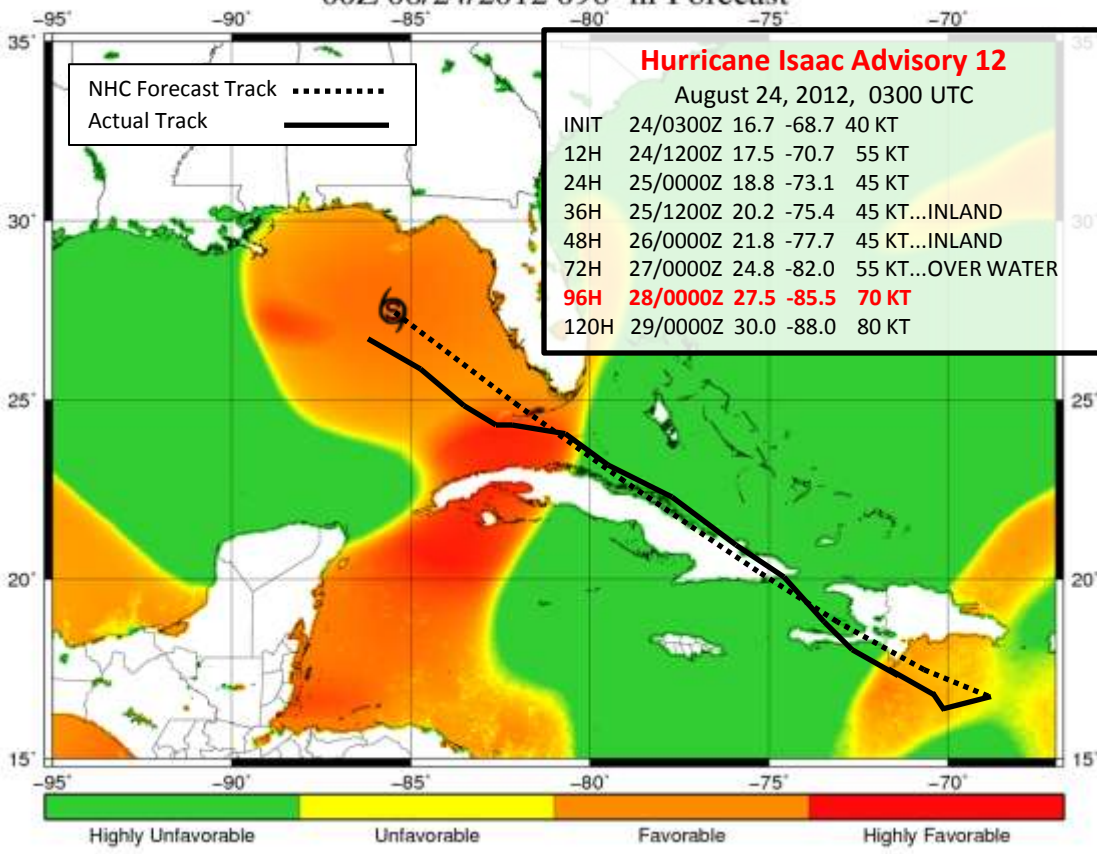
FORECAST: Advisory 12 72HR is a FORECAST for Isaac's position and strength at 00z on 8/27/12. Isaac was forecast to cross over Cuba, and at this point be back over water in an environment of Low Shear with increasing shear ahead of it, hot SST, and high Ocean Heat Content putting Isaac in "Highly Favorable" to "Favorable" conditions for intensification after crossing Cuba. (NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac at this point was still a 50 knot Tropical Storm, but had just spent time over land.



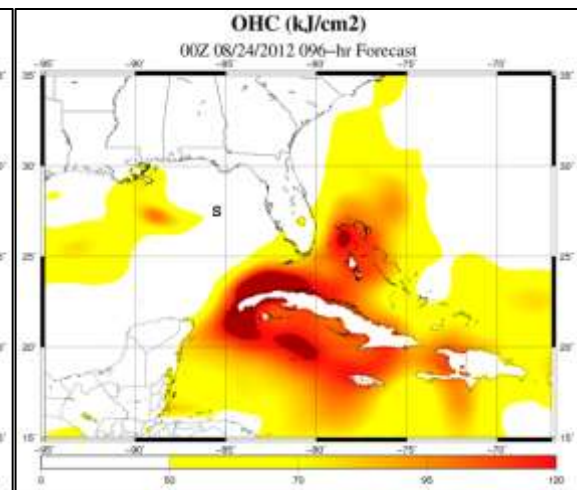
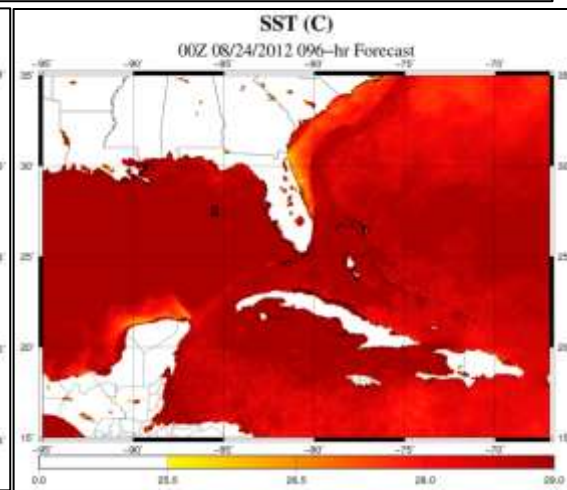
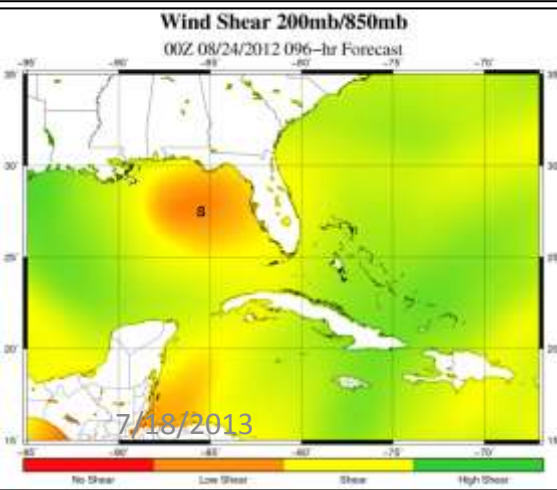
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00Z 08/24/2012 096-hr Forecast



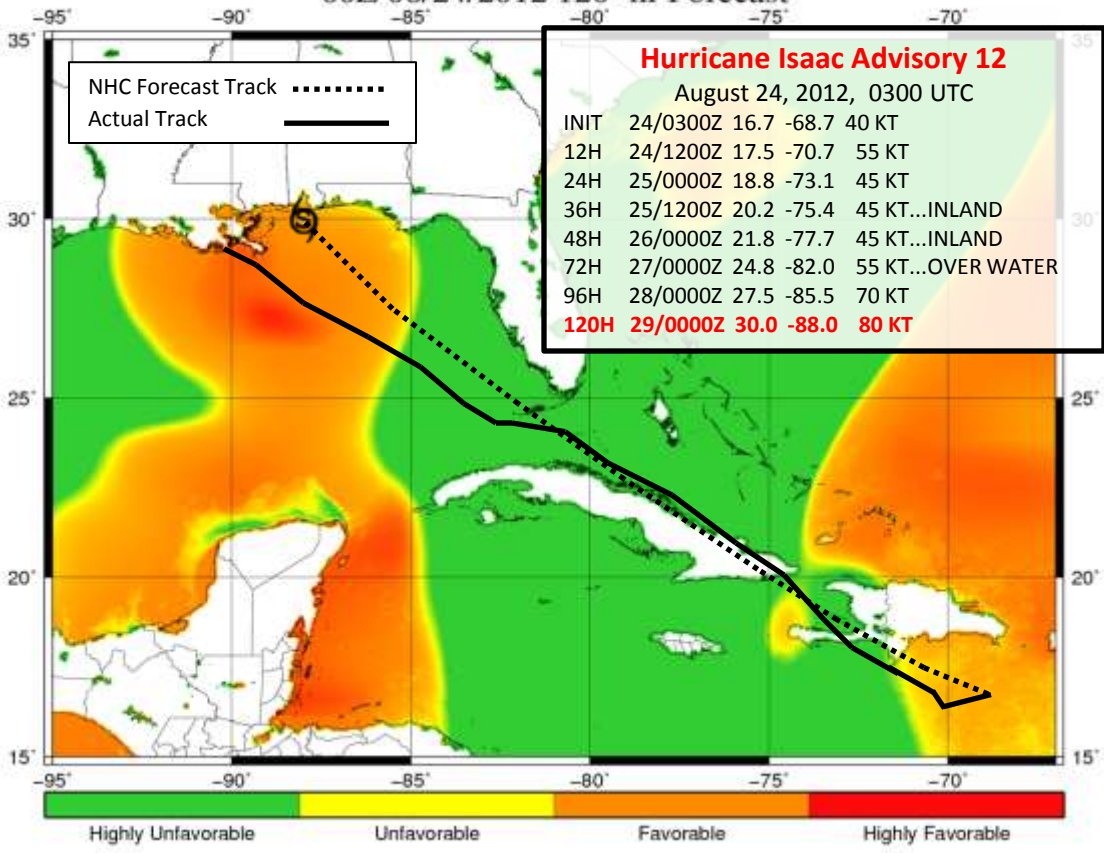
FORECAST: Advisory 12 96HR is a FORECAST for Isaac's position and strength at 00z on 8/28/12. Low Shear is accompanying Isaac with hot SST, and low Ocean Heat Content. Isaac is in "Favorable" conditions for intensification. A region west of the forecast position contains "Highly Favorable" conditions due to an area of high OHC.
(NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac strengthened to a 60 knot Tropical Storm.



Baron Hurricane Index

00Z 08/24/2012 120-hr Forecast



FORECAST: Advisory 12 120HR is a FORECAST for Isaac's position and strength at 00z on 8/29/12. Low Shear is forecast to Isaac's SW and Moderate Shear around its center. There are hot Sea Surface Temps, and low Ocean Heat Content, with an OHC spike in the region of Low Shear. Isaac is in "Favorable" conditions for intensification. A region southwest of the forecast position contains "Highly Favorable" conditions due to high point of OHC and Low Shear.

(NOTE: BHI data is only valid for this single point in time.)

ACTUAL: Isaac strengthened to a 70 knot Hurricane.

