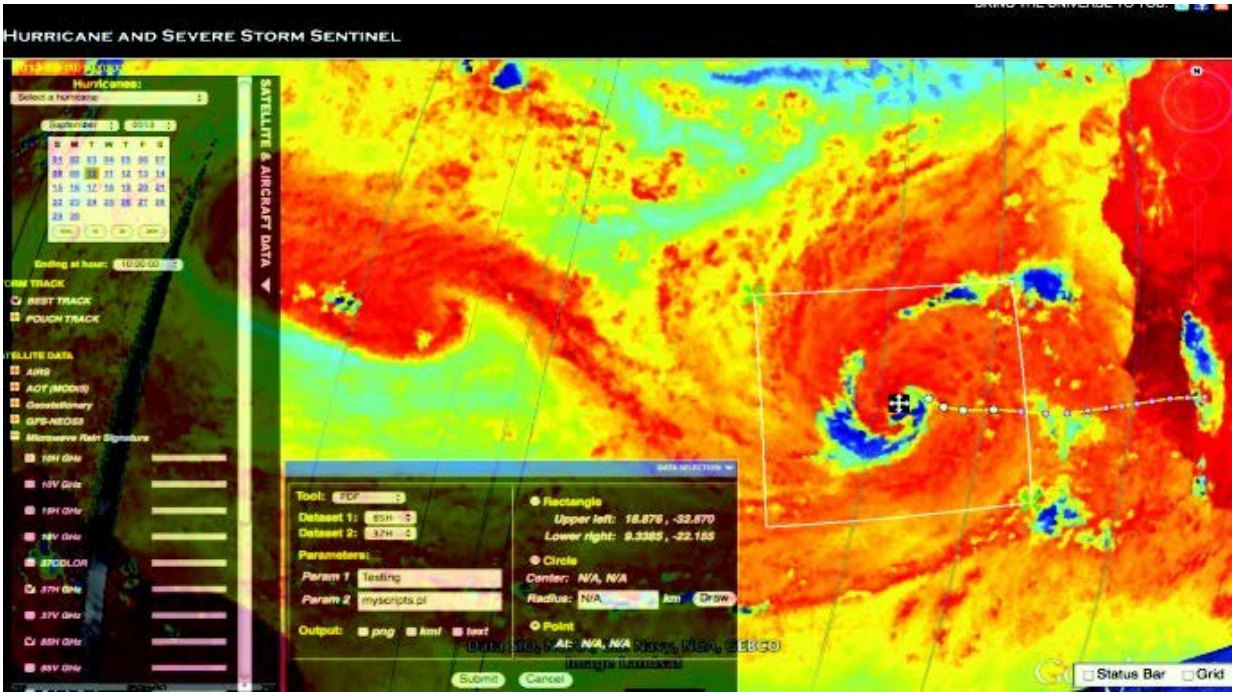
# Tropical Cyclone Information System updated to include new satellite data sets

November 22 2017




This screen capture from the TCIS tool shows some of the enhancements to interactive region selection, model and data acquisition, statistical comparison, and visualization. Credit: Jet Propulsion Laboratory

The Tropical Cyclone Information System (TCIS) is a tool that fuses hurricane models and observations within a web-based system to improve forecasting capabilities. TCIS provides scientists with the capability to overlay user-selected observational data on top of a variety

of user-selected model predictions, and to perform online analysis of models and observations. TCIS required development of processing techniques to enable multi-source data fusion across hurricane forecast models, satellite data, and in situ sensors. The TCIS team also developed tools to manage the validation and assessment of model comparisons to more easily evaluate the performance of different numerical models. These online, interactive visualization techniques are ideal for analyzing highly complex systems like hurricanes.

By bringing together near real-time data and a 12-year global data archive within a visualization portal, TCIS is enabling research about hurricane processes, helping to validate and improve models, and assisting in algorithm and data assimilation techniques.

In 2016, the TCIS team unveiled an updated portal that presents ocean vector winds from two scatterometer missions: NASA's Rapid Scatterometer on the International Space Station (ISSRapidScat) and the European Advanced SCATterometer (ASCAT). The updated system has been adopted by the RapidScat project for their analysis work. The TCIS team is also using the system to review wind and precipitation fields to investigate whether the rapid intensification seen during 2016's Hurricane Matthew was predictable, based on satellite observations alone. In a previous study conducted in late 2015, products from TCIS were presented to personnel at the National Oceanic and Atmospheric Administration (NOAA) National Hurricane Center and the Hurricane Research Division (HRD) for use in analyzing Hurricane Joaquin. The output from a TCIS online analysis tool, developed in collaboration with HRD, suggested the potential for rapid intensification several hours before it happened.

Provided by Jet Propulsion Laboratory

Citation: Tropical Cyclone Information System updated to include new satellite data sets (2017, November 22) retrieved 2 May 2024 from https://phys.org/news/2017-11-tropical-cyclone-satellite.html

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