

“Improved Satellite Techniques for Monitoring and Forecasting the Transition of Hurricanes to Extratropical Storms”

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The Geostationary Operational Environmental Satellites R-Series (GOES-R) and Joint Polar Satellite System (JPSS) Satellite Proving Grounds have introduced multiple proxy and operational products into operations over the last few years. Some of these products have proven to be useful in current operations at various National Weather Service (NWS) offices and national centers as a first look at future satellite capabilities. Forecasters at the National Hurricane Center (NHC), Ocean Prediction Center (OPC), NESDIS Satellite Analysis Branch (SAB) and the NASA Hurricane and Severe Storms Sentinel (HS3) field campaign have had access to a few of these products to assist in monitoring extratropical transitions of hurricanes. The red, green, blue (RGB) Air Mass product provides forecasters with an enhanced view of various air masses in one complete image to help differentiate between possible stratospheric/tropospheric interactions, moist tropical air masses, and cool, continental/maritime air masses. As a compliment to this product, a new Atmospheric Infrared Sounder (AIRS) and Cross-track Infrared Sounder (CrIS) Ozone product was introduced in the past year to assist in diagnosing the dry air intrusions seen in the RGB Air Mass product. Finally, a lightning density product was introduced to forecasters as a precursor to the new Geostationary Lightning Mapper (GLM) that will be housed on GOES-R, to monitor the most active regions of convection, which might indicate a disruption in the tropical environment and even signal the onset of extratropical transition. This presentation will focus on a few case studies that exhibit extratropical transition and point out the usefulness of these new satellite techniques in aiding forecasters forecast these challenging events.