TROPICAL CYCLONE APPLICATIONS OF GOES-R+

Mark DeMaria and Raymond D. Zehr

NOAA/NESDIS Office of Research and Applications
Fort Collins, Colorado 80523

John A. Knaff

Cooperative Institute for Research in the Atmosphere
Fort Collins, Colorado 80523

ABSTRACT

The current series of GOES satellites are essential tools for operational tropical cyclone analysis and forecasting. Applications include position estimation, diagnostic intensity estimation through the Dvorak technique, satellite rainfall estimation, analysis of storm structure and its environment, tropical cloud cluster and formation analysis, and track and intensity forecasting. The next generation of GOES satellites will provide new opportunities to improve and extend tropical cyclone analysis and forecasting techniques. Current applications and potential improvements using the proposed GOES R imager and sounder will be described. Possibilities include improved diagnostic techniques such as the Dvorak method and rainfall estimation that make use of the higher spatial and spectral resolution, eye soundings from the Hyperspectral Environmental Sounder (HES), applications of high vertical resolution GOES feature tracked winds, tropical cyclone formation, intensity and track forecasting, and the potential for assimilation into the next-generation numerical hurricane models. The contributions of GOES R to multi-platform tropical cyclone analysis will also be described.