S02-4

Multispectral Application Development for Himawari-8 AHI

Steve Miller, Curtis Seaman, Dan Lindsey, Tim Schmit, Matt Gunshor,
Don Hillger, and Yasuhiko Sumida

Colorado State University; Cooperative Institute for Research in the Atmosphere

The Advanced Himawari Imager (AHI) on Japan's Himawari-8 represents the first of the next-generation of advanced geostationary imaging sensors. With its 16 spectral bands, 10-minute full disk imagery, and spatial resolution on par with many low-earth orbiting observing systems, AHI shifts the paradigm of weather observation and represents a boon to both the research and forecasting communities alike. This talk will focus on advanced imagery applications made possible for the first time on the geostationary platform—leveraging algorithms established for MODIS (on the NASA Terra and Aqua satellites) and VIIRS (on the NOAA/NASA Suomi NPP and forthcoming JPSS series). We will present various examples highlighting the benefits of AHI's spatial/spectral/temporal attributes as they apply to various meteorological phenomena. In particular, we demonstrate the first geostationary-based true color imaging capability since ATS-3, using atmospheric corrections and a hybrid green band. AHI provides important ancillary information for NOAA's GOES-R Advanced Baseline Imager (ABI), which lacks a native green band and will instead rely on a synthetic green. In addition, we will present progress on multi-spectral dust storm detection based on a Dynamic Enhancement Background Reduction Algorithm (DEBRA) developed initially for Meteosat Second Generation (MSG). Additional visible bands available to AHI, and in particular the 0.47 micron blue band, provides opportunities to improve the detection of lofted. The information is useful either as value-added imagery or as a confidence factor mask parameter. These examples represent the "tip of the iceberg" in terms of value-added applications available to AHI, as we transition algorithms that were traditionally relegated to the polar-orbiting satellites.