

IAF EARTH OBSERVATION SYMPOSIUM (B1)  
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DEVELOPING CLOUD-CLEARED BACKGROUNDS TO ASSIST IN GOES-R SERIES ADVANCED  
BASELINE IMAGER MULTI-SPECTRAL IMAGERY APPLICATIONS**Abstract**

Value-added imagery products from GOES-16 and GOES-17 ABI multi-spectral data are used to quickly identify features of interest for operational forecasters, including: blowing dust, smoke, volcanic ash, cloud cover, atmospheric moisture, biomass fires and snow cover. These features each have a specific spectral signal that algorithms are designed to detect, but those signals are not always unique to just a single feature. Sometimes, the surface can mimic the spectral signal associated with an atmospheric feature of interest, creating a “false alarm” in a value-added product. Cloud-cleared backgrounds are hypothesized to assist in clearing out these “false alarms” by creating a dataset of cloud-free surface values in order to characterize and filter out the areas that are mimicking the spectral signal of features that operational forecasters need to observe. This case study focuses on one situation where sections of bare ground in the Baja California region mimic the positive value associated with low clouds in the commonly used Brightness Temperature Difference (BTD) between the 10.35m and 3.9m channels, producing a “false alarm”. Results show that cloud-cleared backgrounds of the 10.35 m-3.9m difference have successfully identified areas of positive BTDs in the cloud-free environment. Those BTDs were then used to adjust the low-cloud detection scaling in the nighttime GeoColor product (produced by the Cooperative Institute for Research in the Atmosphere), which filtered out many of the false alarms. This case study also seeks to validate the currently accepted method of creating cloud-cleared backgrounds, which has not been well studied. Analysis points to the need for additional filtering in the cloud-clearing algorithm.