

Development of GOES-R ABI Hail Validation and Assessment Products

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Abstract:

Each year hail swaths from severe storms are associated with damage to property and agricultural crops that has resulted in significant monetary losses throughout the United States. Additionally, the damaged or destroyed vegetation that can result from hail events has been linked to changes in local temperatures within and near the damaged areas. Several recent studies have found that satellite-derived vegetation index data appeared to be a useful product for cross validation of surface-based reports and radar-derived products associated with severe hail damage events. The GOES-R Advanced Baseline Imager (ABI) will include a new near-IR channel that will allow computation of vegetation indices that can be used to monitor pre- and post-hail event vegetation. Thus, the data provided by the ABI will potentially be useful in validation of current and proposed severe storm/hail products and assessment of landscape modification associated with the storm events. This project will expand on previous studies to use a combination of satellite, radar, and in situ data to: 1) validate radar products that estimate hail signatures as well as hail size and spatial extent of hail swaths, 2) compare the GOES-R ABI products to the field surveys, Landsat, MODIS, and S-NPP VIIRS data to evaluate the GOES-R ABI data for assessment of the areal extent and severity of hail damage, and 3) to develop GOES-R ABI hail event validation and assessment products.