

# Augmentation to Disaster Response and Coordination Activities at Marshall Space Flight Center to Support NASA Commercial Data Buy Pilot

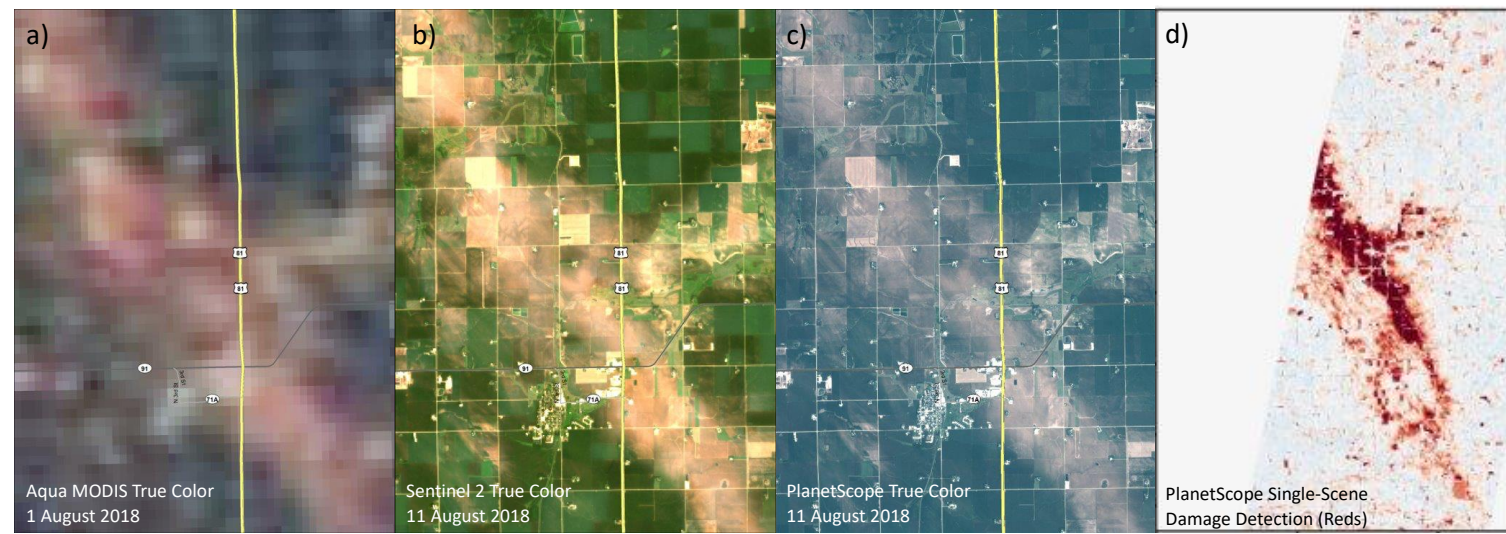
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**Purpose:** Improve NASA's ability to support disaster response

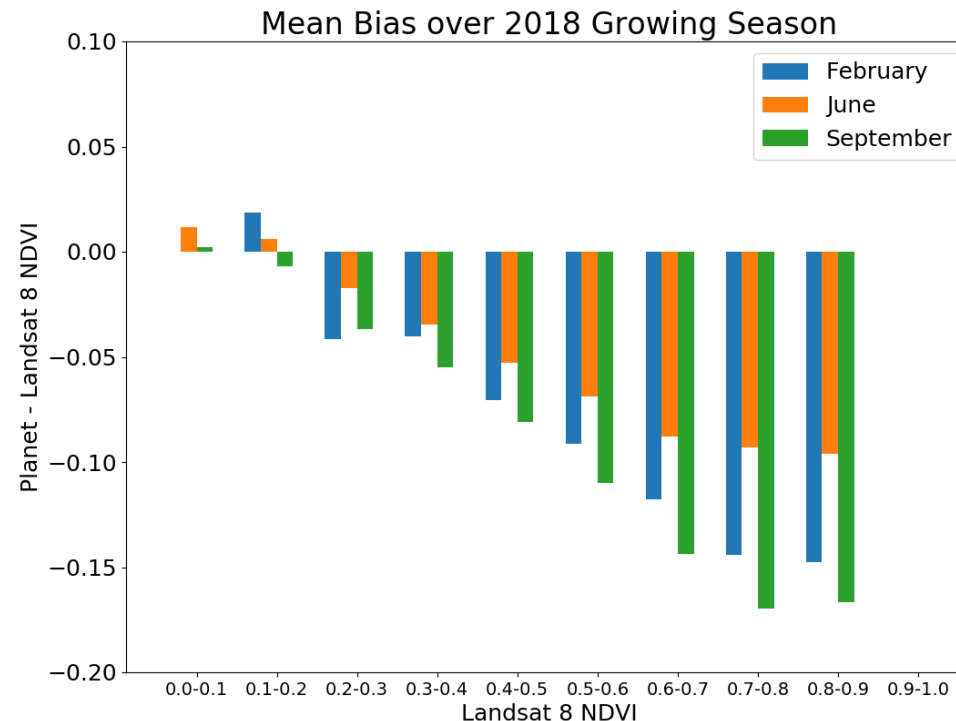
**Study Objective:** Mapping of damage from severe wind and flood over agriculture and forested areas

**Imagery:** PlanetScope surface reflectance product, Sentinel-2, Landsat-8

**Findings:** We found significant differences in surface reflectance and NDVI derived from PlanetScope, Landsat, and Sentinel-2 imagery over agriculture and open (flood) water. For NDVI, the bias between PlanetScope and Landsat seem to vary by overall green vegetation density and time of year. While Planet data provided better temporal sampling, it exhibited a significant amount of among-satellite calibration uncertainty which limited its usability at the advertised repeat frequency.



Hail damage from a July 2018 severe weather event is shown in true color from a) MODIS, b) Sentinel-2, and c) PlanetScope imagery along with d) preliminary extraction of damage region in shades of red through statistical analysis of a post-event Planet scene.



Mean bias as the difference between NDVI derived from PlanetScope and Landsat-8 imagery, binned by Landsat-8 derived NDVI value.