

# Feasibility of Planet data for Rapid Disaster Response

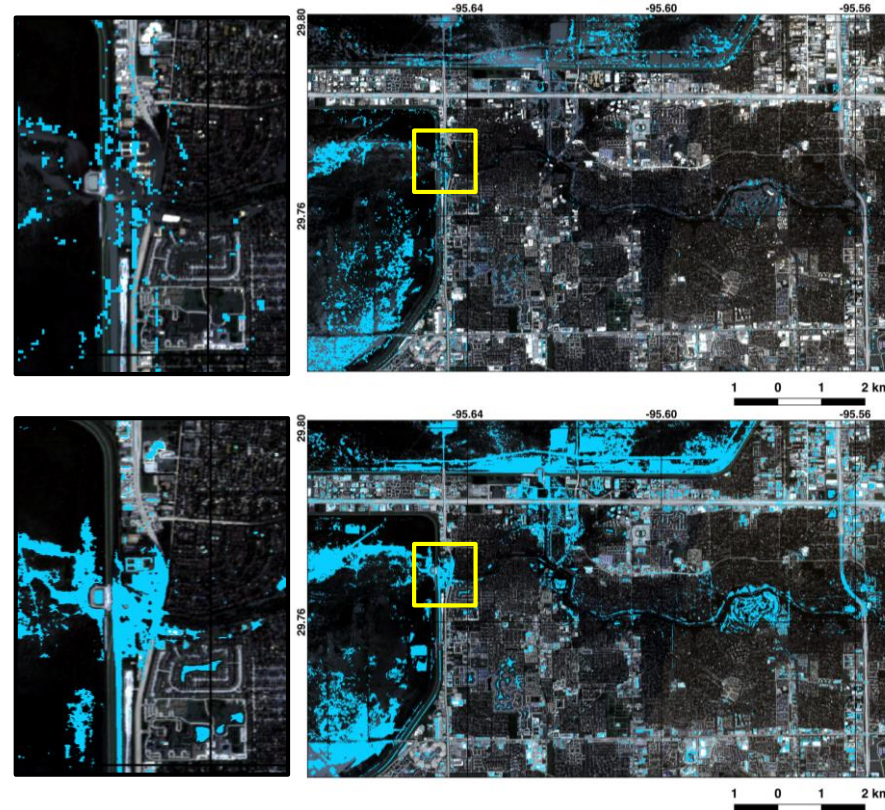
Batuhan Osmanoglu, Goddard Space Flight Center

**Purpose:** Improve NASA's ability to accurately detect and estimate the extent of flooding within urban areas

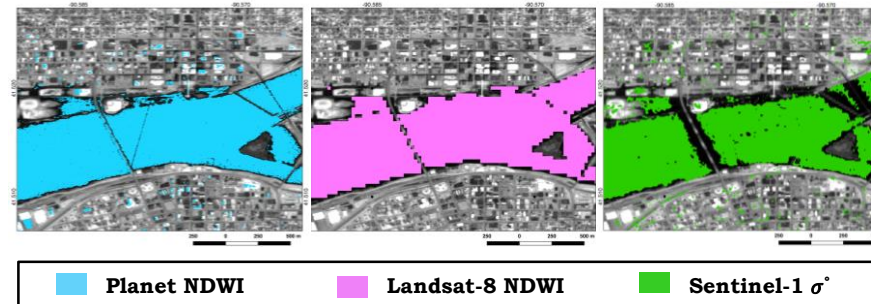
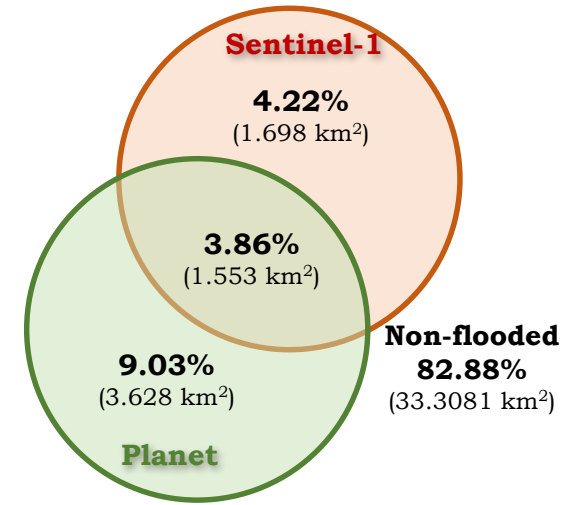
**Study Objective:** Produce and evaluate flood extent product using commercial imagery and compare against products derived from medium resolution optical and radar imagery. Three cases: Houston, August 2017; Guerneville, February 2019; Davenport, May 2019)

**Imagery:** PlanetScope, Sentinel-1, Landsat-8

**Findings:** Flood extent products were produced successfully using commercial imagery. Omission errors in the Synthetic Aperture Radar (SAR) derived product are noticeable when compared with imagery from PlanetScope. Compared to Landsat-8, PlanetScope imagery provided more precise delineation due to higher spatial and temporal resolution.



Comparison of flood extent derived from Sentinel-1 (top) and PlanetScope (bottom) over Houston, TX post *Hurricane Harvey*



Flooded area detection based on the amplitude change of NDWI map of PlanetScope imagery (left), NDWI map from Landsat-8 (middle), and Sentinel-1 SAR imagery (right). Case study over Davenport, IA.

