Comparison of Normalized Difference Vegetation Index (NDVI) derived from MODIS and PlanetScope

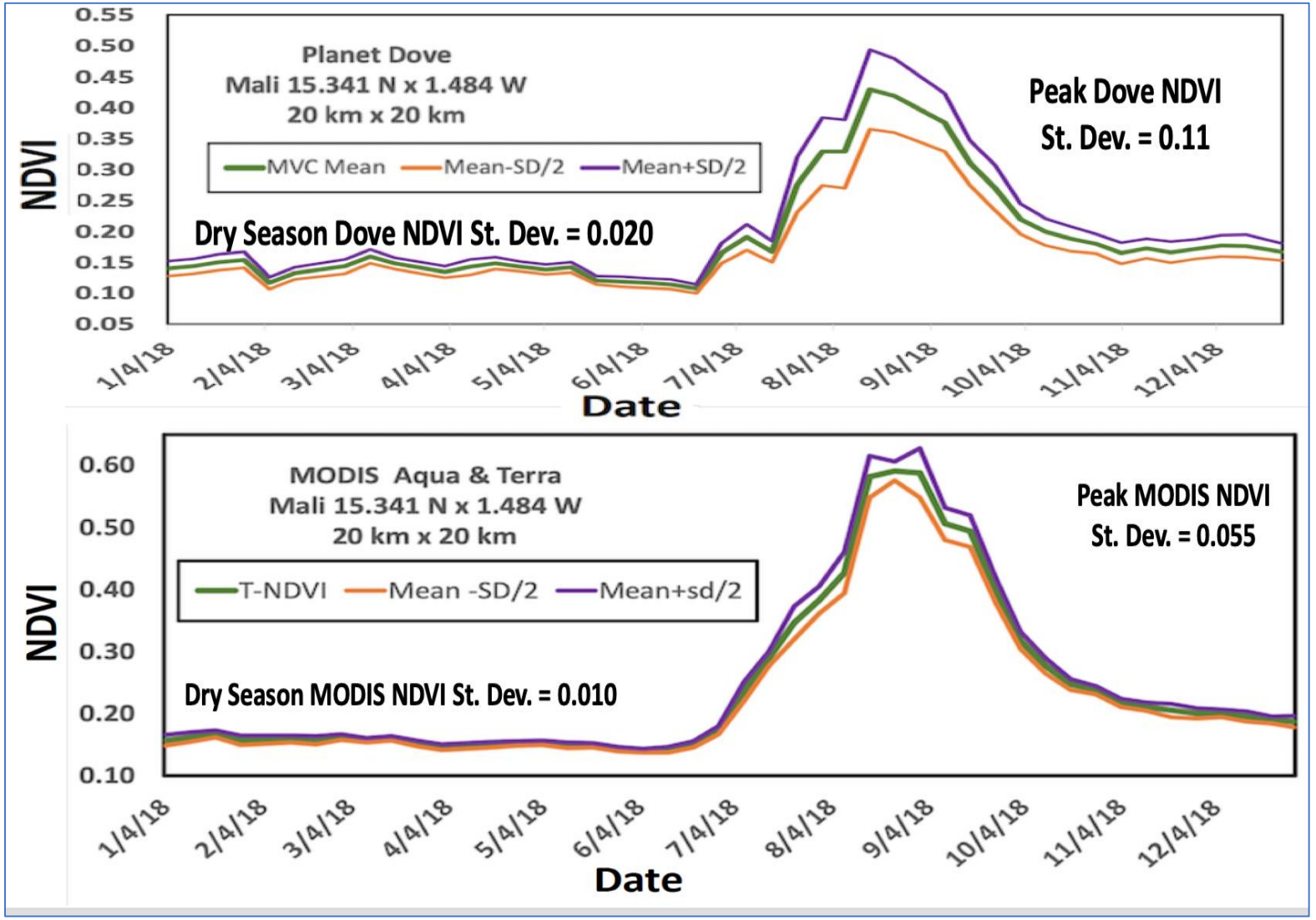
Compton Tucker, Goddard Space Flight Center

Purpose: Global monitoring of vegetation

Study Objective: Compare NDVI retrieved over West Africa using PlanetScope and MODIS imagery, and assess its radiometric calibration and geolocation accuracy

Imagery: PlanetScope, MODIS onboard over Terra and Aqua

Findings: The NDVI derived from PlanetScope imagery has a variance that is twice as large as the variance in NDVI derived from MODIS. Rigorous intercalibration among PlanetScope constellation will allow derivation of global NDVI product at 4-5 m horizontal resolution, and that such capability will have substantial benefits for NASA's food security and carbon cycle research.



Normalized Difference Vegetation Index (NDVI) 8-day time series developed using PlanetScope (top) and MODIS (bottom) using maximum value compositing for a 20 x 20 km area in Mail, West Africa. Despite the fact that unlike MODIS, PlanetScope imagery does not require a BRDF correction, NDVI derived from PlanetScope imagery has a variance that is twice the variance of NDVI derived from MODIS.