Africa burned area product generation, quality assessment and validation - demonstrating a Multi-Source Land Imaging (MuSLI) Landsat-8 Sentinel-2 capability.

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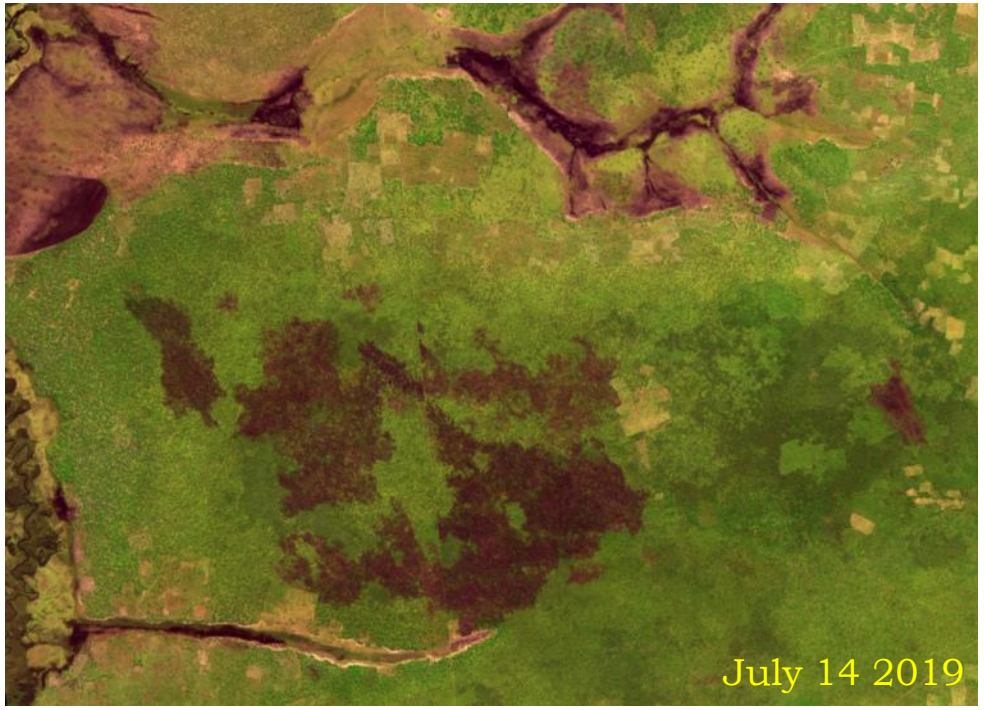
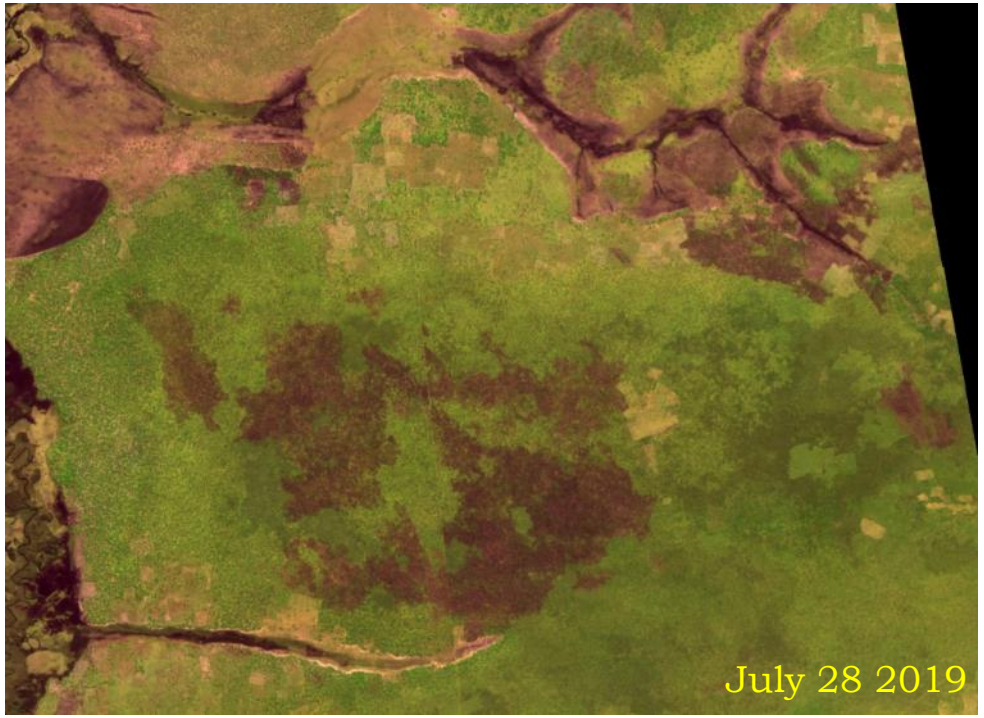
Purpose: Improved estimates of burnt area and emissions from biomass burning

Study Objective: Compare pre- and post burn imagery from Landsat-8, Sentinel-2, and PlanetScope Dove to assess the reliability of burnt area and trace gas emission estimates

Imagery: PlanetScope Dove-Classic, PlanetScope Dove-R, Landsat-8, Sentinel-2

Findings: The higher spatial and temporal resolution commercial imagery enables improved (compared to Landsat-8 and Sentinel-2) mapping of small, spatially fragmented, low combustion, and ephemeral burns. The use of imagery substantially improves the quantification of global pyrogenic emissions. While PlanetScope Dove-Classic imagery were found to be useful for visual interpretation, the Dove-R imagery provided improved burned non-burned discrimination due to its non-overlapping spectral band response functions. A SWIR band would further enhance burned area mapping capability.





PlanetScope Dove-R false-color reflectance imagery

9.4 km × 7.0 km

western Zambia

The high spatial resolution enables an unprecedented capability to map small and spatially fragmented burned areas.

The high temporal resolution facilitates differentiation between changes due to burning and other surface changes, and allows improved mapping of ephemeral burned areas.