

# Evaluation of the Potential to Use Commercial High Resolution Multispectral Imagery for Monitoring Small Water Bodies in West Africa

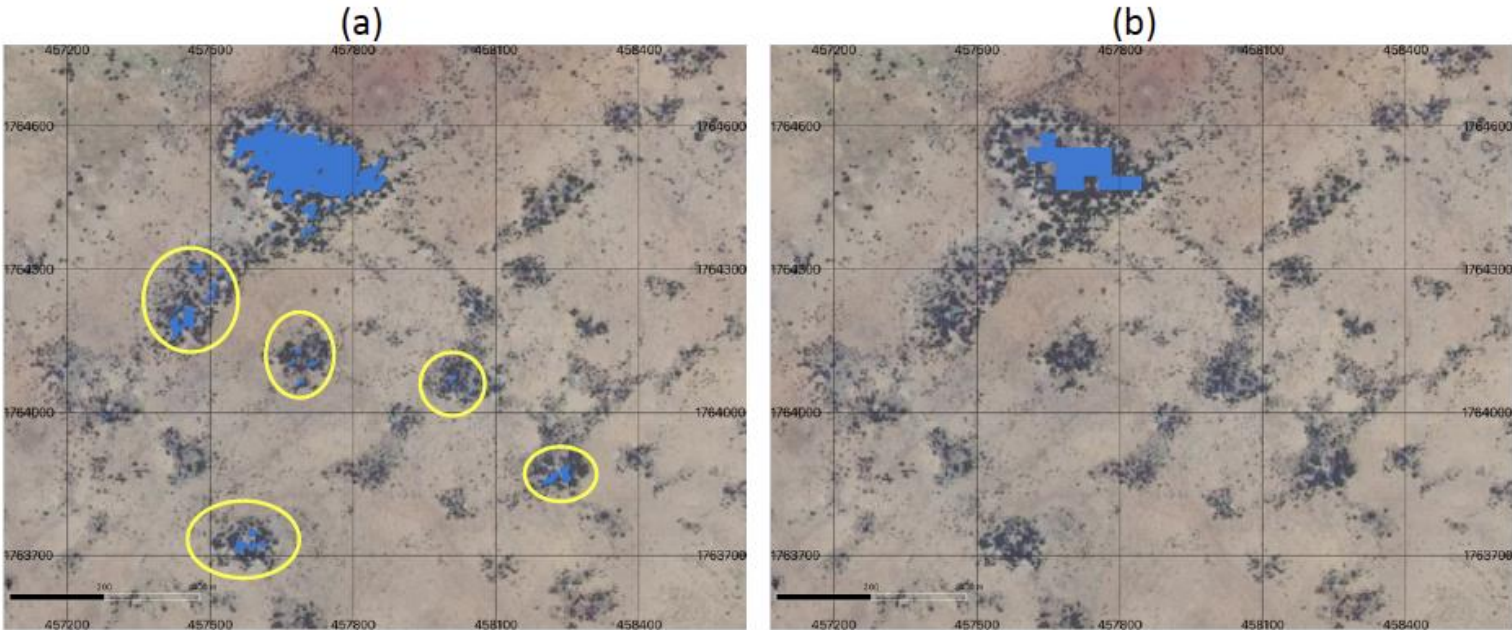
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**Purpose:** Improve NASA’s ability to detect and monitor freshwater resources in Africa and elsewhere

**Study Objective:** Identify and monitor small ephemeral water bodies in West Africa that are currently being left out due to the use of medium resolution, less frequent satellite imagery

**Imagery:** PlanetScope, Landsat-8

**Findings:** Higher spatial and temporal resolution commercial imagery allows mapping of small ephemeral water bodies. The capability will assist pastoralists in West Africa better guide their herds, increasing their resiliency to changes in climate.



Zoomed in image from study area, displaying the additional ponds (identified in yellow circles) detected by high resolution PlanetScope data (a) vs Landsat 8 Imagery (b) at threshold > 40% for year 2018.

Threshold	PlanetScope area with water (km <sup>2</sup> )			Landsat area with water (km <sup>2</sup> )		
	Annual	Summer	Rain	Annual	Summer	Wet
30	7.93	0.40	9.39	2.31	0.17	1.29
35	4.49	0.21	5.65	1.40	0.10	0.86
40	2.47	0.12	3.38	0.90	0.06	0.61
45	1.35	0.07	2.02	0.60	0.05	0.45
50	0.75	0.05	1.20	0.42	0.03	0.34

A table displaying the water availability area (in square kilometer) as detected by PlanetScope and Landsat. Large water bodies (e.g., river) are excluded from this analysis of high-resolution imagery to detect previously unknown water bodies.