

# Satellite Change Detection Report

## Analysis Summary

Report Generated	2025-07-09 02:20:22
Analysis ID	b7fdba3c-280c-483f-9d77-f7990db9741e
Location (Lat, Lon)	19.033000, 72.857000
Before Date	2020-06-01
After Date	2023-06-01
Model Used	Lightweight Siamese U-Net
Change Threshold	0.3
Change Percentage	68.4%
Changed Area	17.932 km <sup>2</sup>
Total Area Analyzed	26.214 km <sup>2</sup>
Number of Change Regions	1591

## Change Detection Results

BEFORE



AFTER (Changes in Red)



Change: 68.41% | Threshold: 0.3

Figure 1: Before/After comparison with change detection overlay

## Change Probability Heatmap

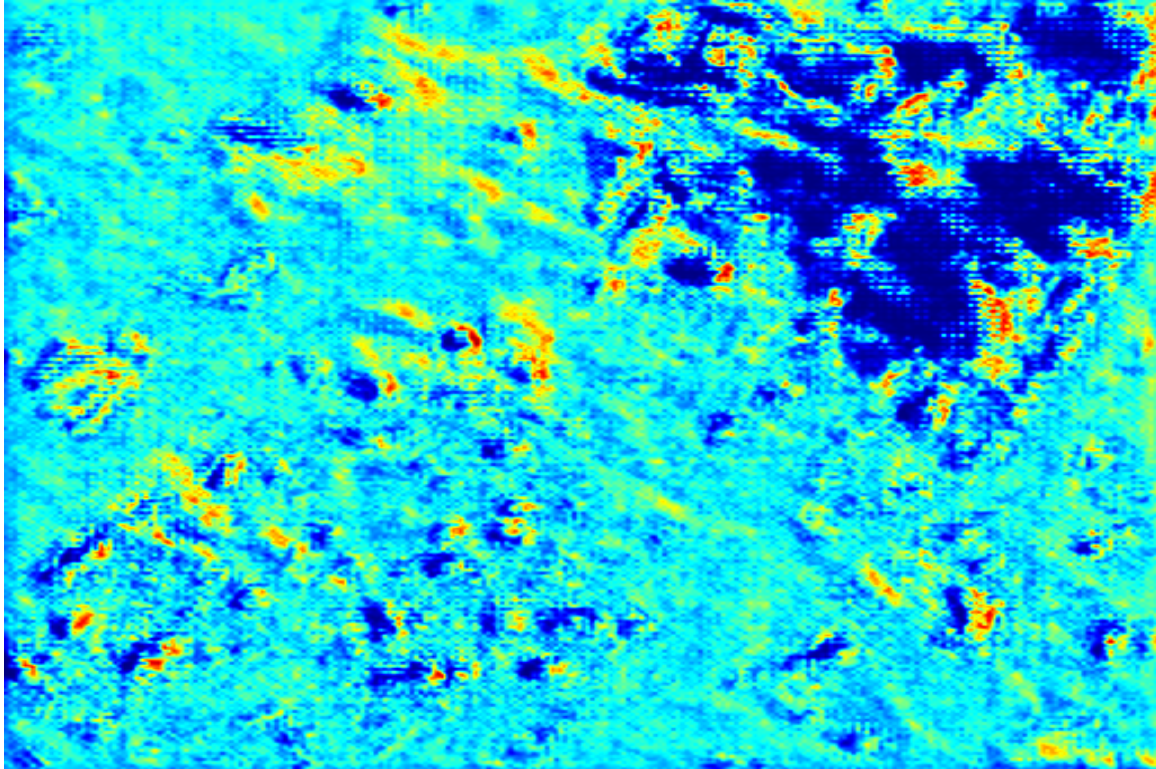


Figure 2: Change probability heatmap showing likelihood of change in each area

## Technical Details

This analysis was performed using a Lightweight Siamese U-Net neural network model specifically designed for satellite change detection. The model analyzes differences between two time periods using Sentinel-2 satellite imagery at 10-meter resolution. **Analysis Parameters:**

- Satellite Data: Sentinel-2 Surface Reflectance (10m bands)
- Processing: Raw satellite data with minimal atmospheric correction
- Change Threshold: 0.3 (0.0 = no change, 1.0 = maximum change)
- Area of Interest: 1km × 1km centered on the specified coordinates

### Results Interpretation:

- Areas highlighted in red show detected changes between the two dates
- Change percentage indicates the proportion of the analyzed area that changed
- The heatmap shows probability of change, with warmer colors indicating higher confidence

**Disclaimer:** This analysis is based on satellite imagery and automated detection algorithms. Results should be verified with ground truth data for critical applications. The analysis covers environmental and land use changes visible at 10-meter resolution. Generated by Satellite Change Detection Platform | Report ID: b7fdb3c-280c-483f-9d77-f7990db9741e