

Exploring the use of Planet Data for Monitoring High Resolution Forest Disturbance

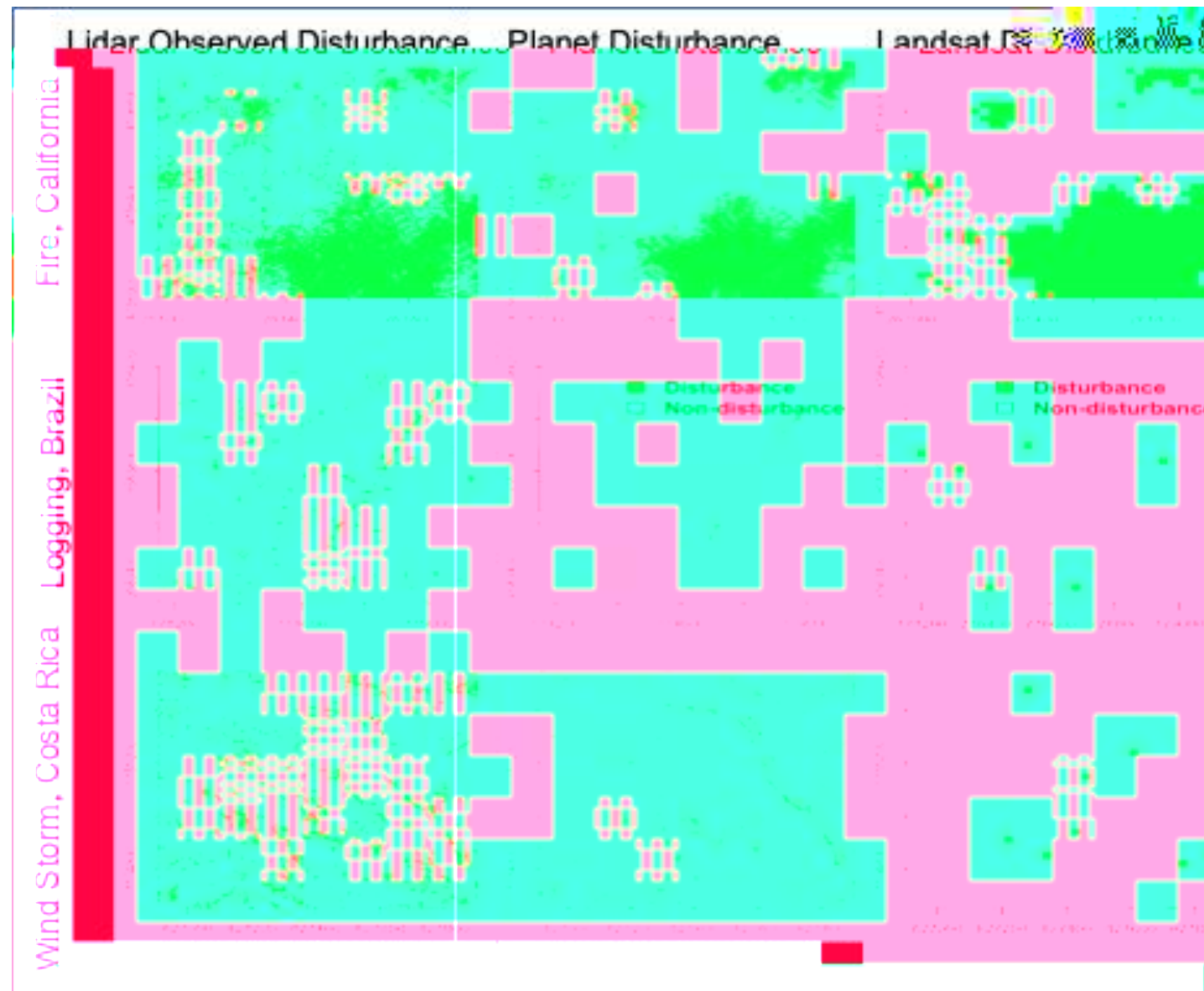
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Purpose: Global forest monitoring

Study Objective: Assess the utility of PlanetScope imagery for forest disturbance identification and monitoring, with specific focus on small-scale disturbances, and compare against disturbances identified using Landsat-8 data. Sites with known disturbances that have been documented by post-disturbance airborne lidar imagery were used as reference.

Imagery: PlanetScope

Findings: While Landsat has higher per-pixel accuracy for detecting forest disturbance, it was unable to detect sub- 30 m forest disturbances due to its coarser resolution. PlanetScope imagery was successfully used to detect disturbances from selective logging and blowdowns where Landsat could not. Fire disturbances that impacted larger areas were detectable by both PlanetScope and Landsat. Imagery from Planet is highly advantageous for monitoring small scale changes in forest structure.



Pre- and Post- Disturbance Airborne Lidar over three sites (California, Brazil and Costa Rica) served as reference data for Planet and Landsat Disturbance Detection, with disturbance classified here as a %canopy cover loss of more than 10%. Site-specific and generalized models were fit to classify disturbance. Planet accuracy (% of disturbed pixels correctly classified) depended on algorithm selection and disturbance threshold (10%, 30% or 50% cover loss), and ranged from 50-69% in California, 4- 32% in the Brazilian Amazon site, 6-35% in Costa Rica and 50-78% for the generalized model.