IN42A-08

FloodPlanet: High-Resolution Commercial Imagery for Training and Validation of Deep Learning-Based Models of Inundation Extent

Alexander Melancon[1], Jonathan Giezendanner [2], Zhijie Zhang [2], Rohit Mukherjee [2], Iksha Gurung[1], Beth Tellman [2], Andrew Molthan[3]

1: University of Alabama in Huntsville

2: University of Arizona

3: NASA Marshall Space Flight Center

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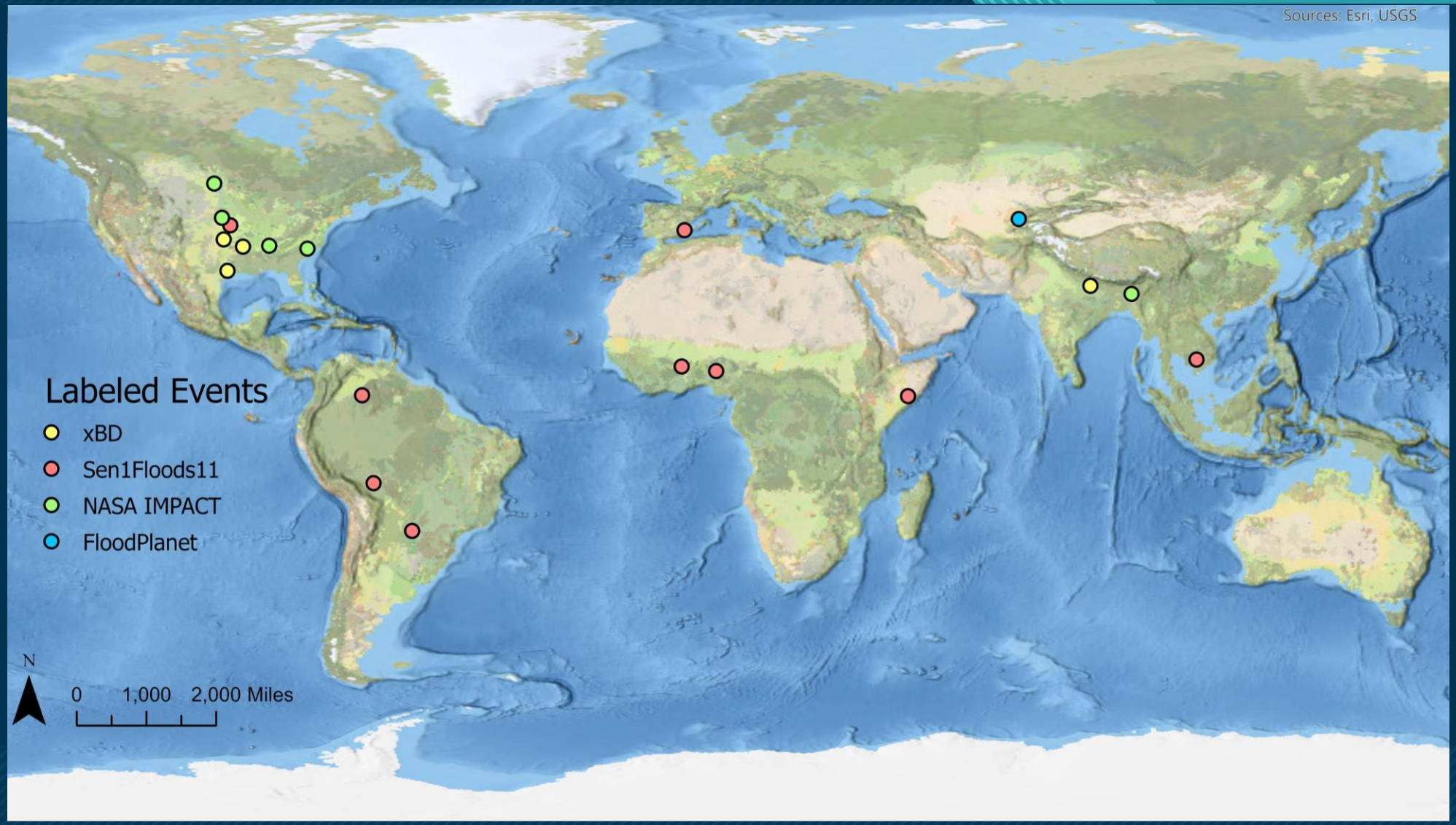
AGU Fall 2022

Overview

- Flood Events Sampled
- Imagery Used
- Label Generation
- Dataset Information

Flood Events Sampled



Imagery Used

- PlanetScope imagery was acquired through the NASA Commercial SmallSat Data Analysis Program (CSDAP)
  - 3m resolution captures urban flooding with more clarity than coarser publicly available imagery
  - Coincident PlanetScope data collected over areas previously labeled to facilitate comparison between commercial and public imagery

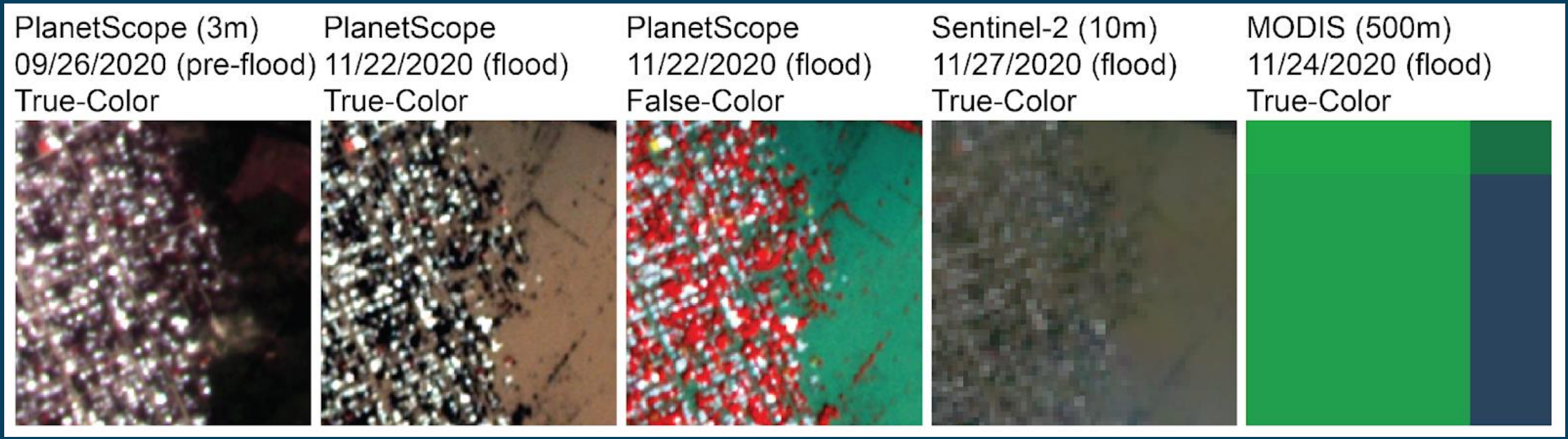
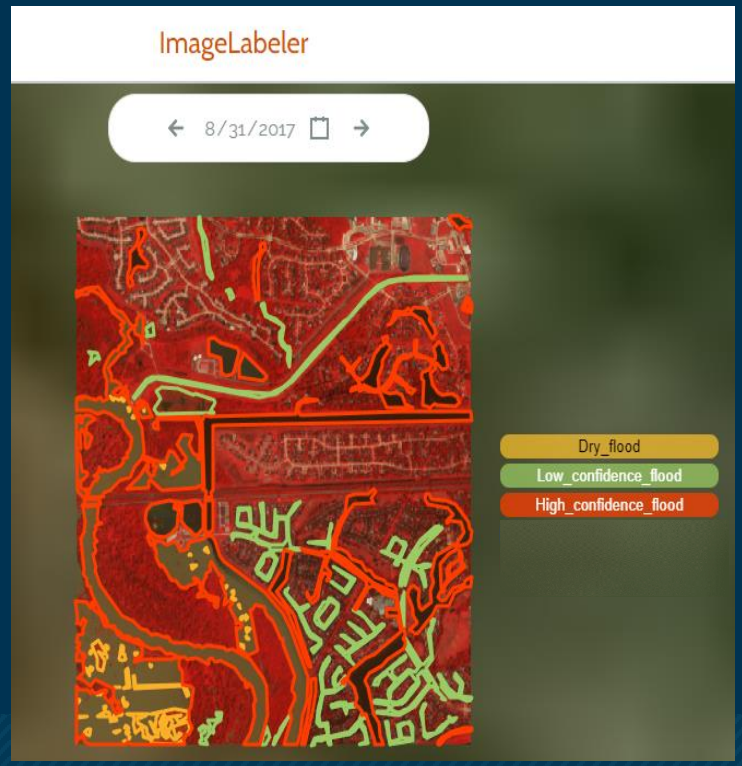


Figure: H. Friedrich

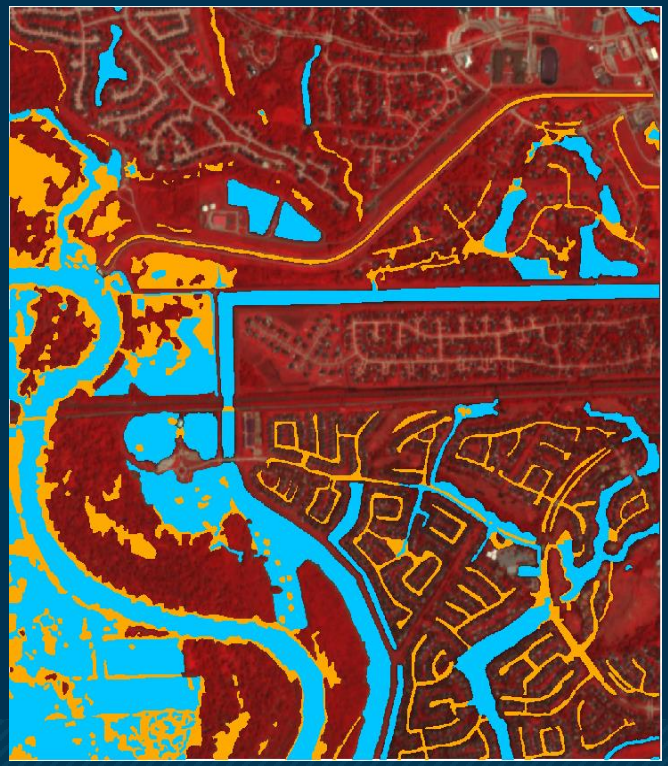
Label Generation

- 373 total tiles labeled
  - 1024x1024 pixels at 3m resolution ≈ 9.4 km² per tile
    - Total labeled area: 3,520 km²

Planet False-Color RGB



View in ImageLabeler



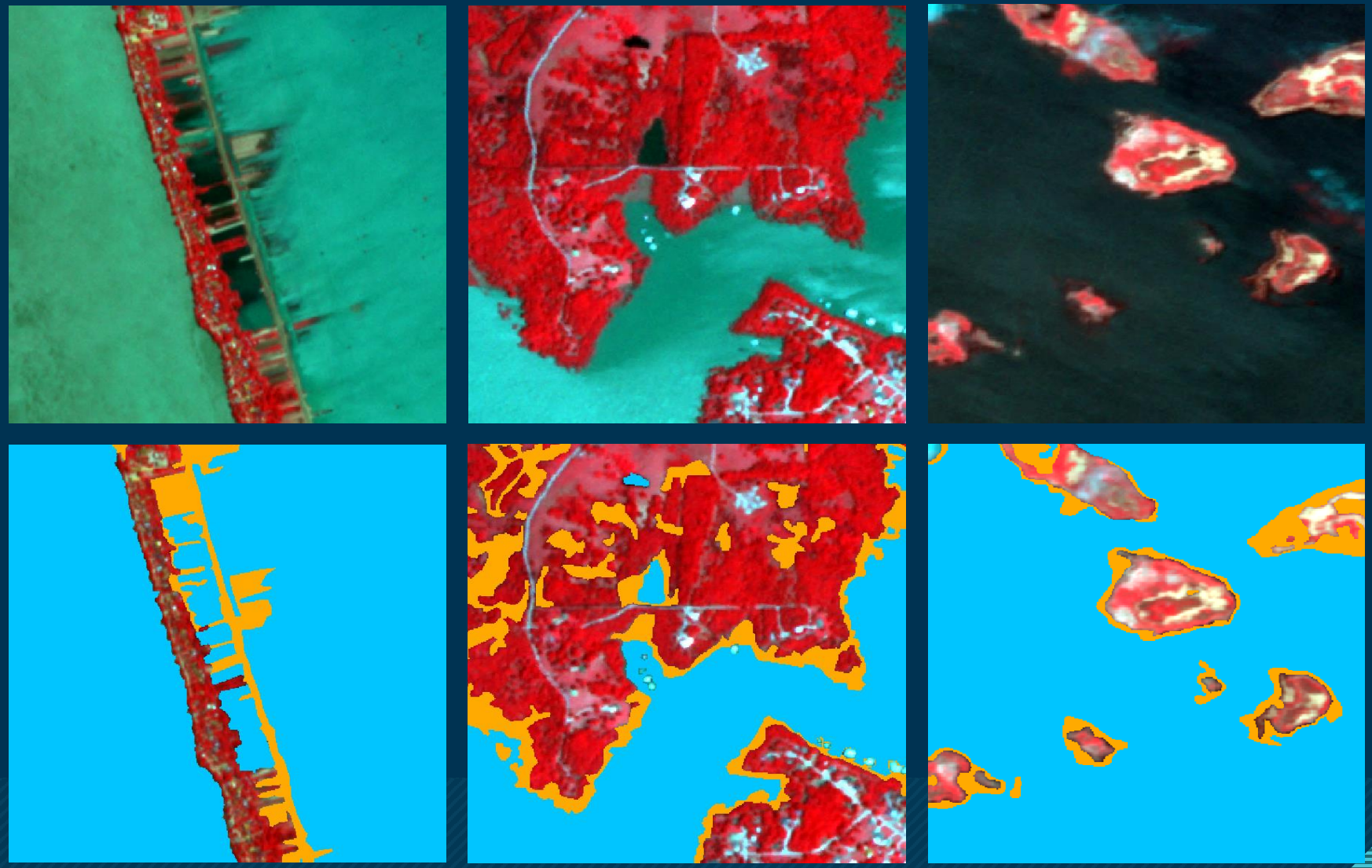
Final Label

High Confidence

Low Confidence

High Confidence Labels

Planet False-Color RGB

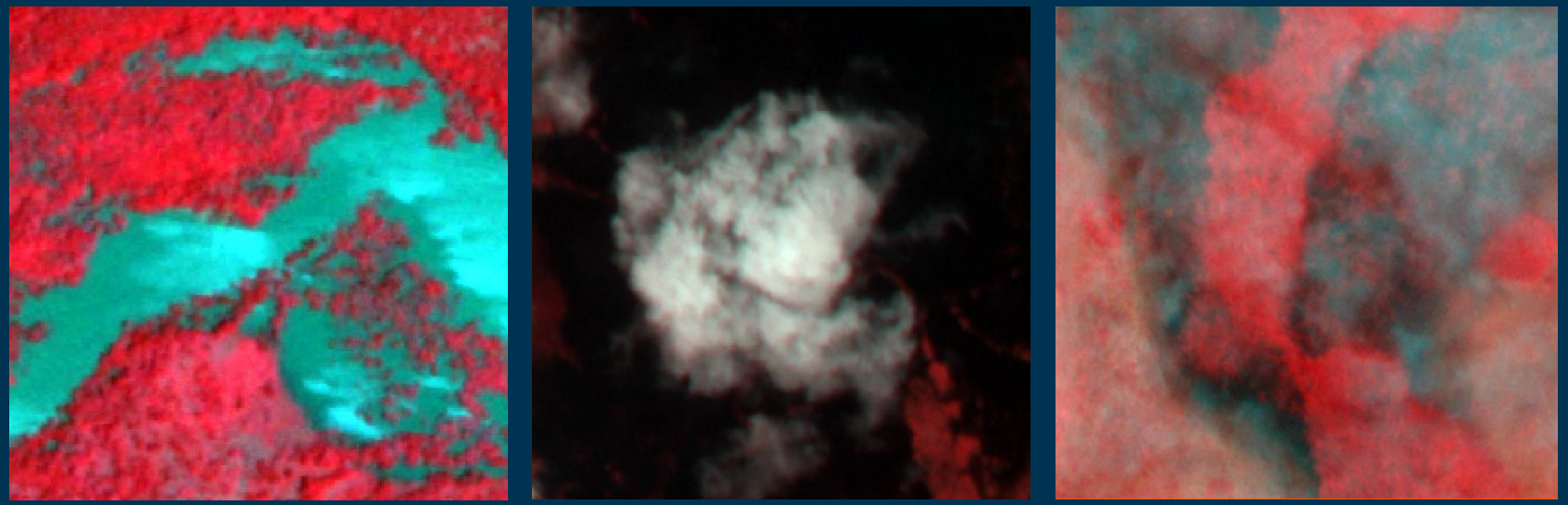


High Confidence

Low Confidence

Low Confidence Labels

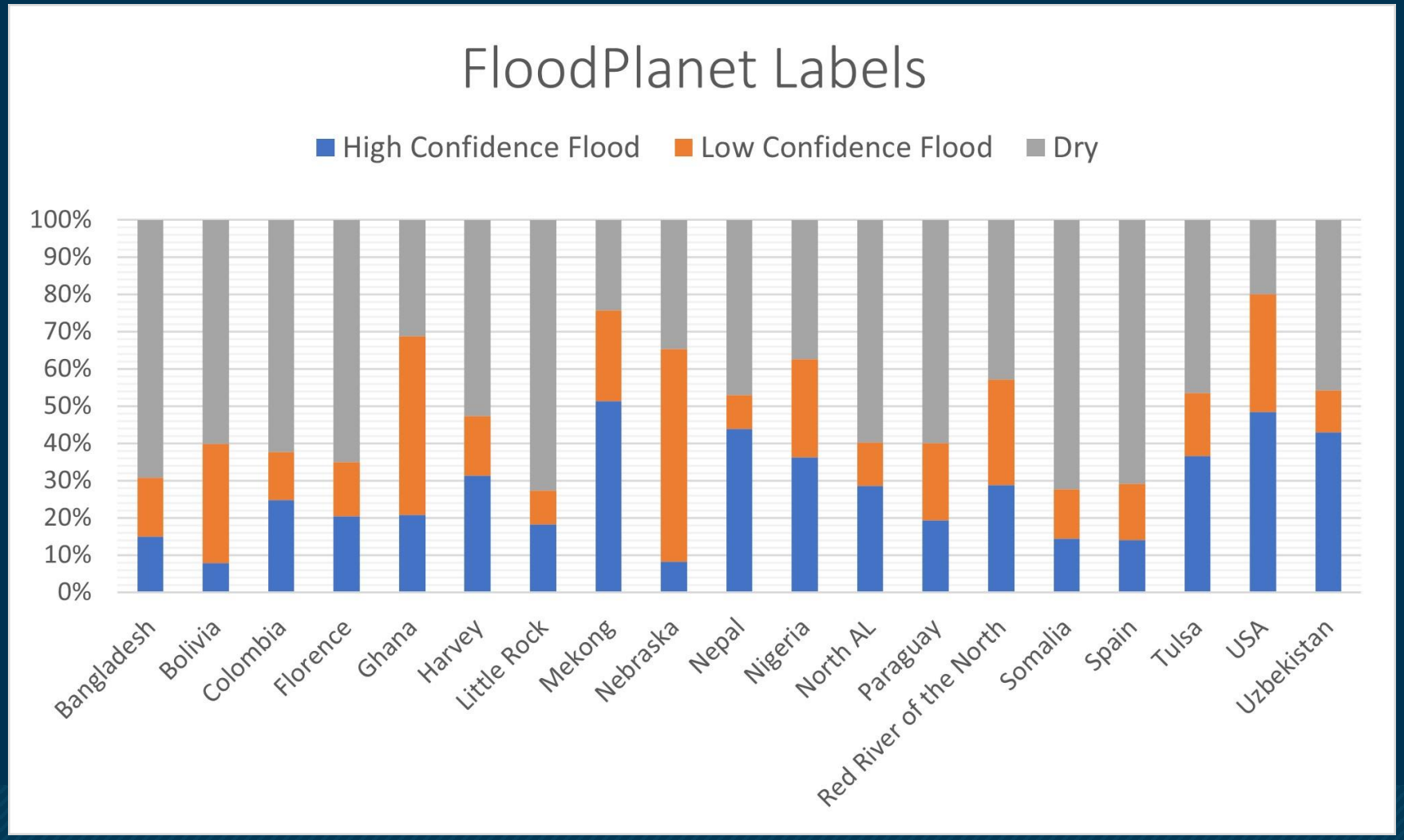
Planet False-Color RGB



High Confidence

Low Confidence

Dataset Statistics



Publication Information

- Expected release: Spring 2023
- FloodPlanet dataset will be hosted on the Radiant Earth ML Hub
  - Follows SpatioTemporal Asset Catalog (STAC) specifications, a standardized way to expose collections of geospatial data
- Dataset includes:
  - 19 events with unique ID for each tile
  - Rasterized labels
  - Corresponding Sentinel-1, Sentinel-2, and Landsat 8 imagery for each tile

For more information, contact:

Alexander Melancon
alexander.melancon@uah.edu

Zhijie Zhang
zhijiezhang@arizona.edu

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