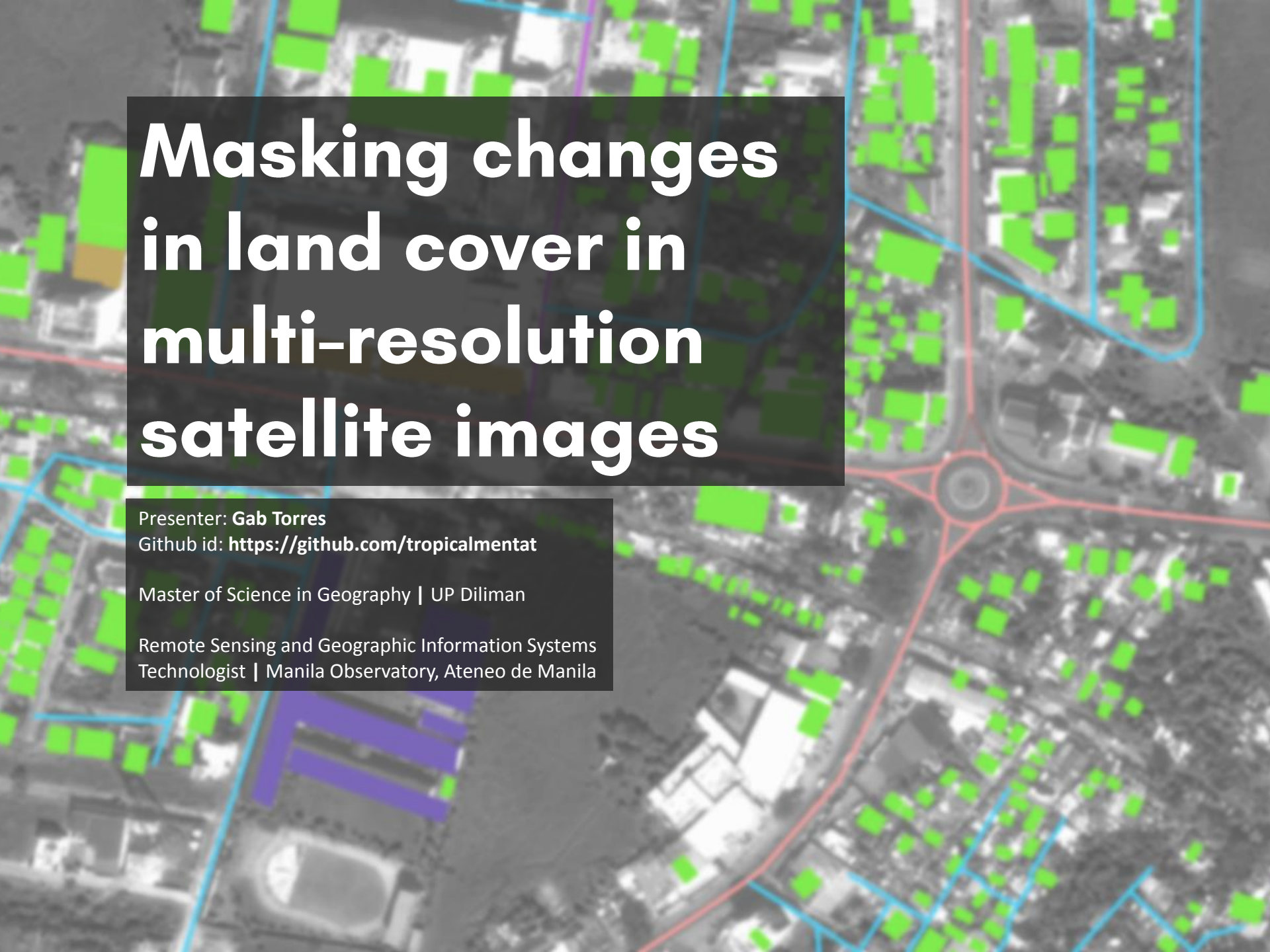


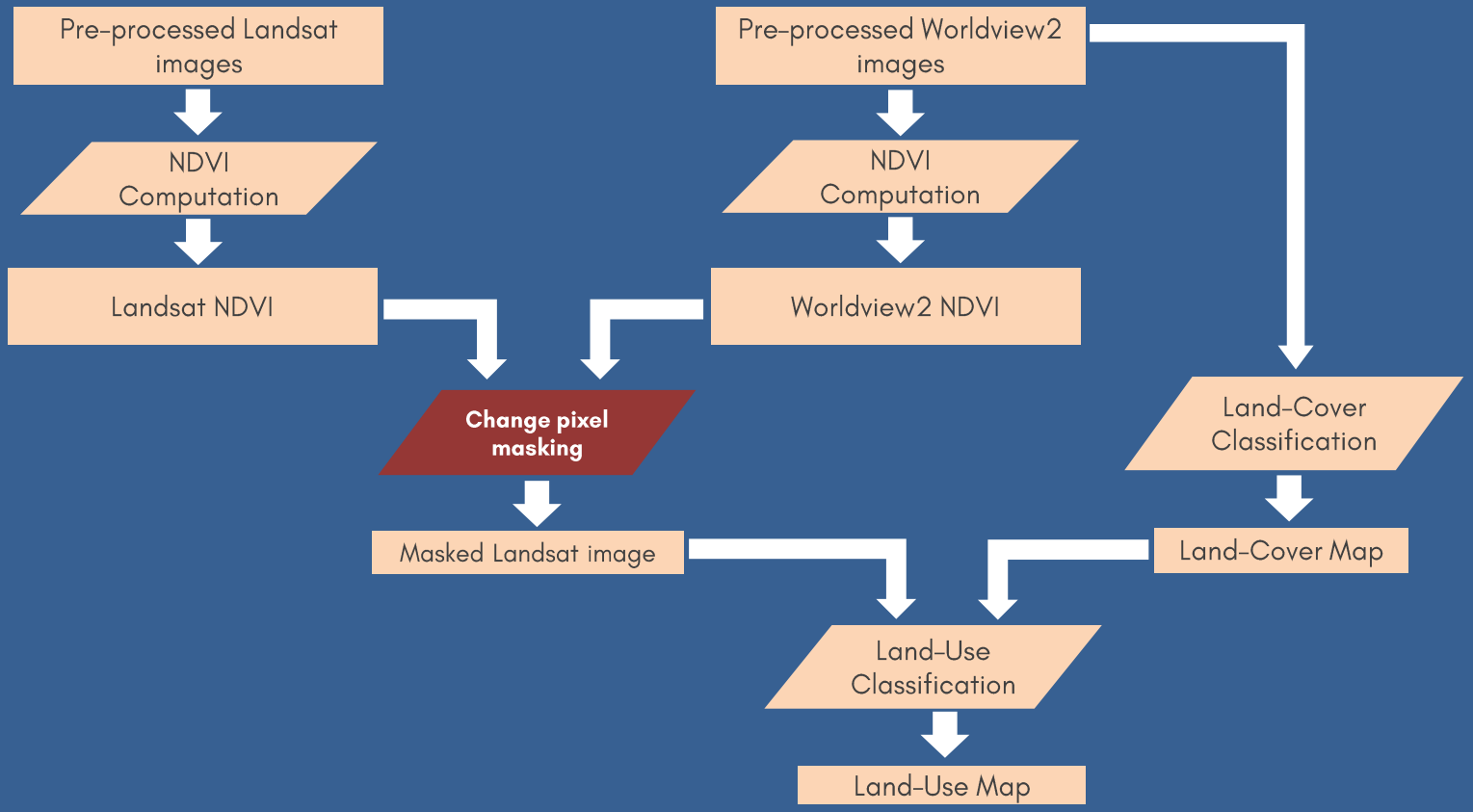
Masking changes in land cover in multi-resolution satellite images

Presenter: **Gab Torres**
Github id: **https://github.com/tropicalmentat**

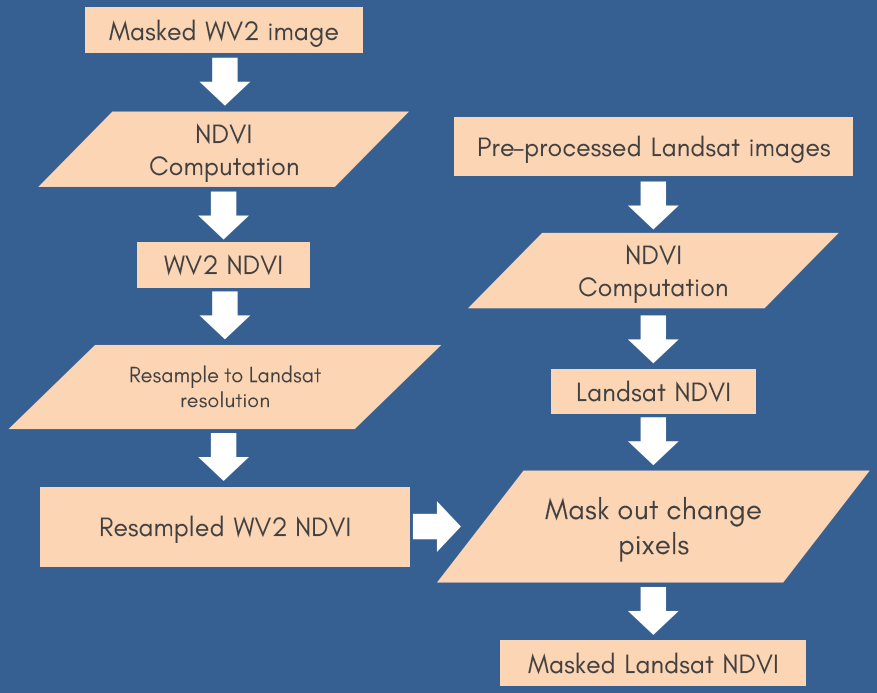
Master of Science in Geography | UP Diliman

Remote Sensing and Geographic Information Systems Technologist | Manila Observatory, Ateneo de Manila

General Work-Flow



NDVI Computation and Change Pixel Masking



NDVI:
Normalized
Difference
Vegetation
Index

Inputs

Worldview2

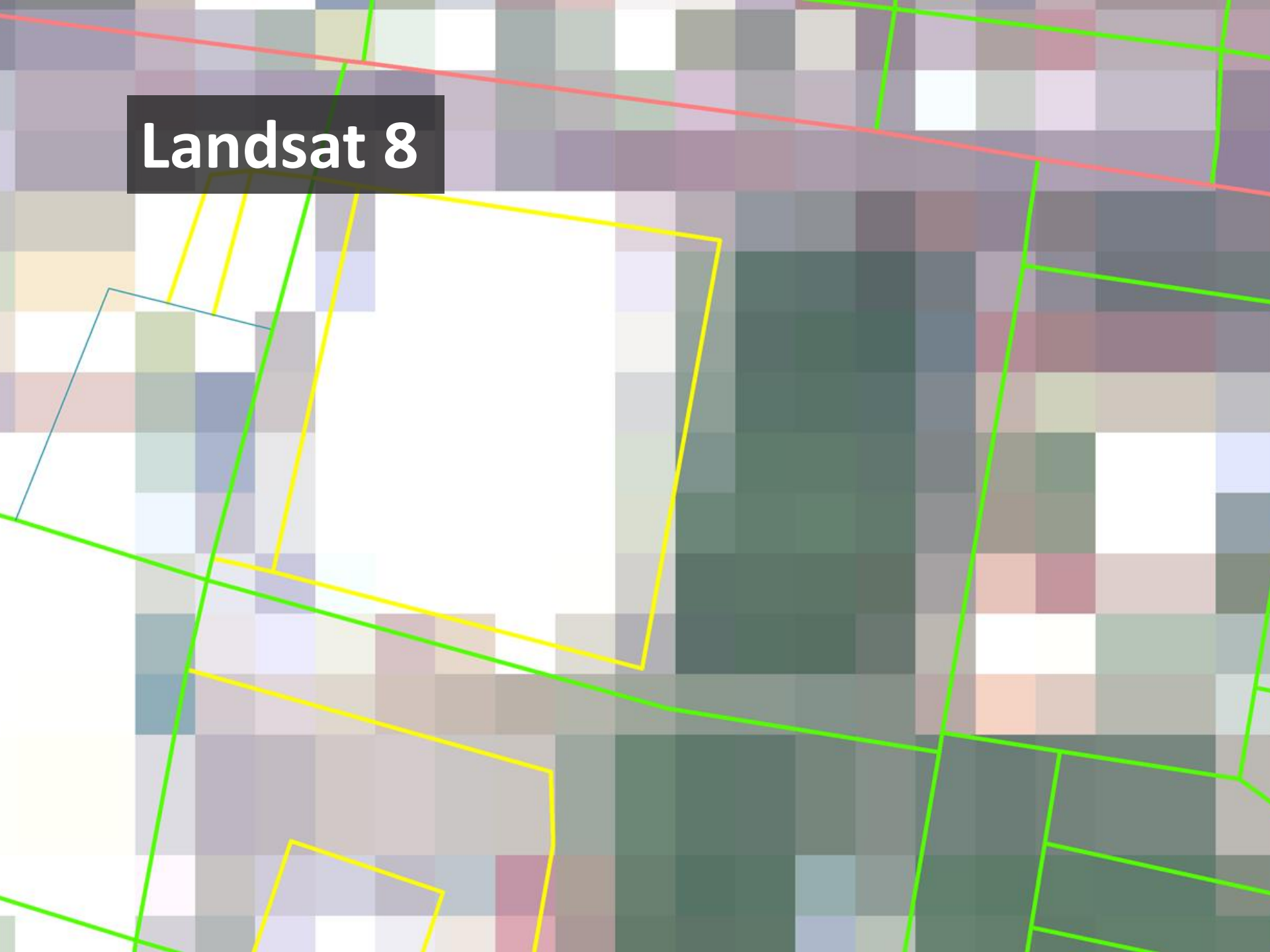
Panchromatic resolution: 0.46m
4 standard multispectral bands (red, green, blue, near infrared)

Landsat 8

Multispectral resolution: 30m
8 multispectral bands

For NDVI computation, I am only interested in bands 3 and 4 of both sensors!

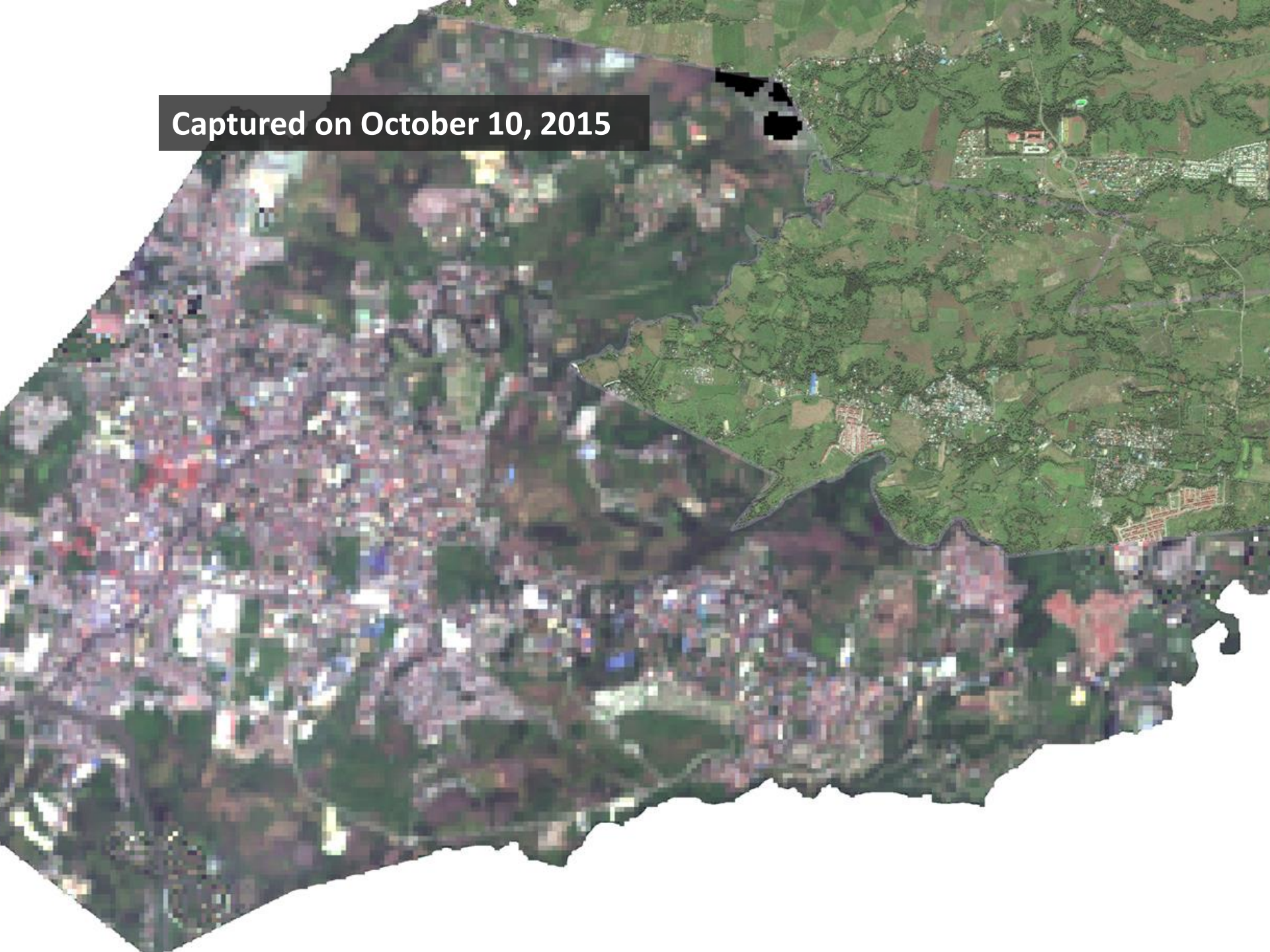

Worldview2


Landsat 8

Where are the changes in land cover between these two images?

Modules used:

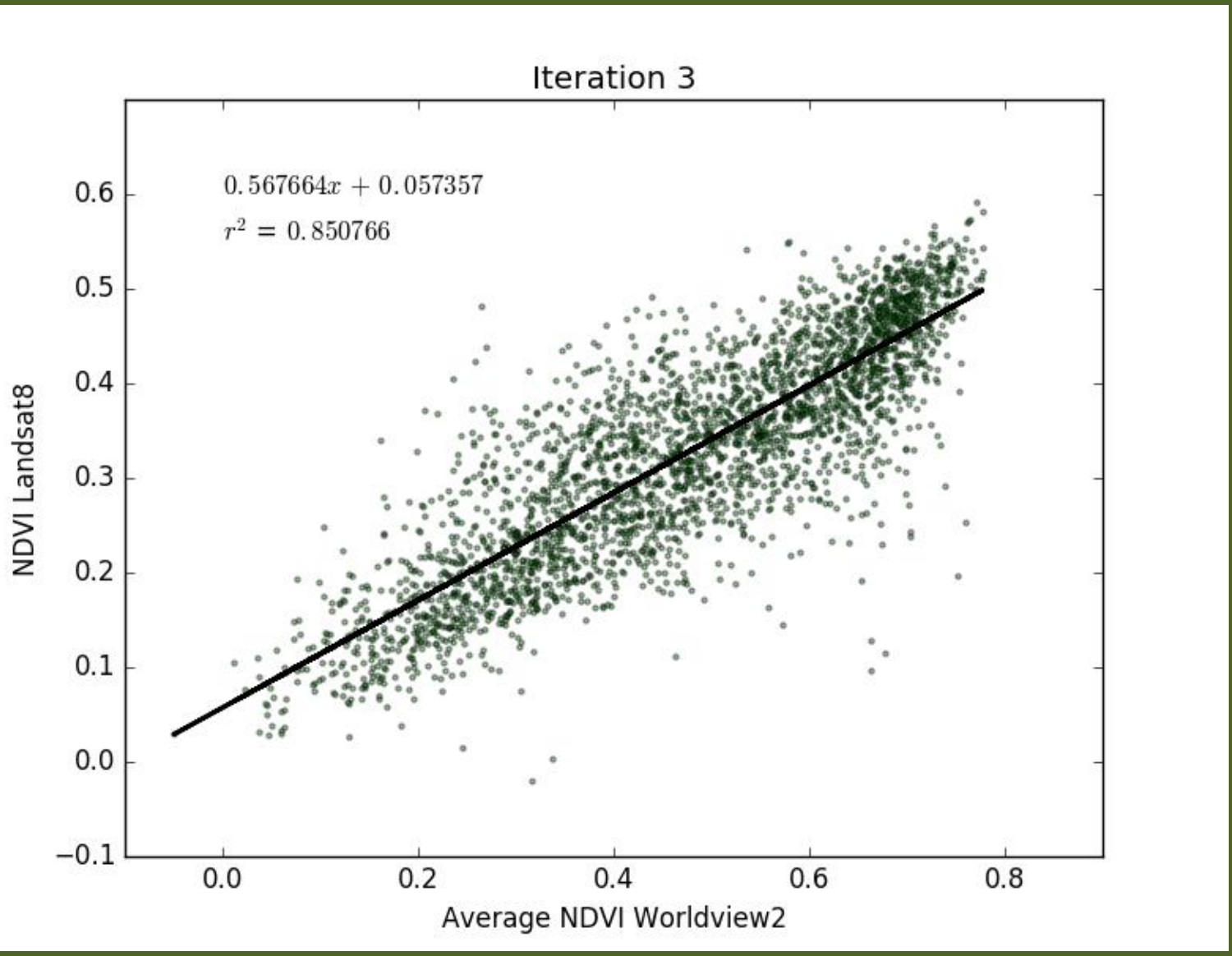
GDAL – **G**eospatial **D**ata **A**bstraction **L**ibrary
Sci-kit image – For image processing
Scipy – For linear regression
Numpy – For handling image-arrays
Random – For random sampling of pixels


Captured on October 10, 2015


Captured on December 24, 2015

Pixels in multi-resolution images are correlated.

Can be modelled using linear regression.


Iteration 3
$0.567664x + 0.057357$
$r^2 = 0.850766$
NDVI Landsat8
Average NDVI Worldview2
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−0.1
0.0
0.2
0.4
0.6
0.8

Repository link:
https://github.com/tropicalmentat/thesis-project-scripts/blob/master/mask-change-pixels/temporal_filter.py


THANK YOU! ☺