Exploring Resolution(s) in Aerial Photography vs. Planet Cubesat Data

Nicolas Vuille-dit-Bille

22.06.2020

Reference:

http://mil.library.ucsb.edu/ap_indexes/FrameFinder/
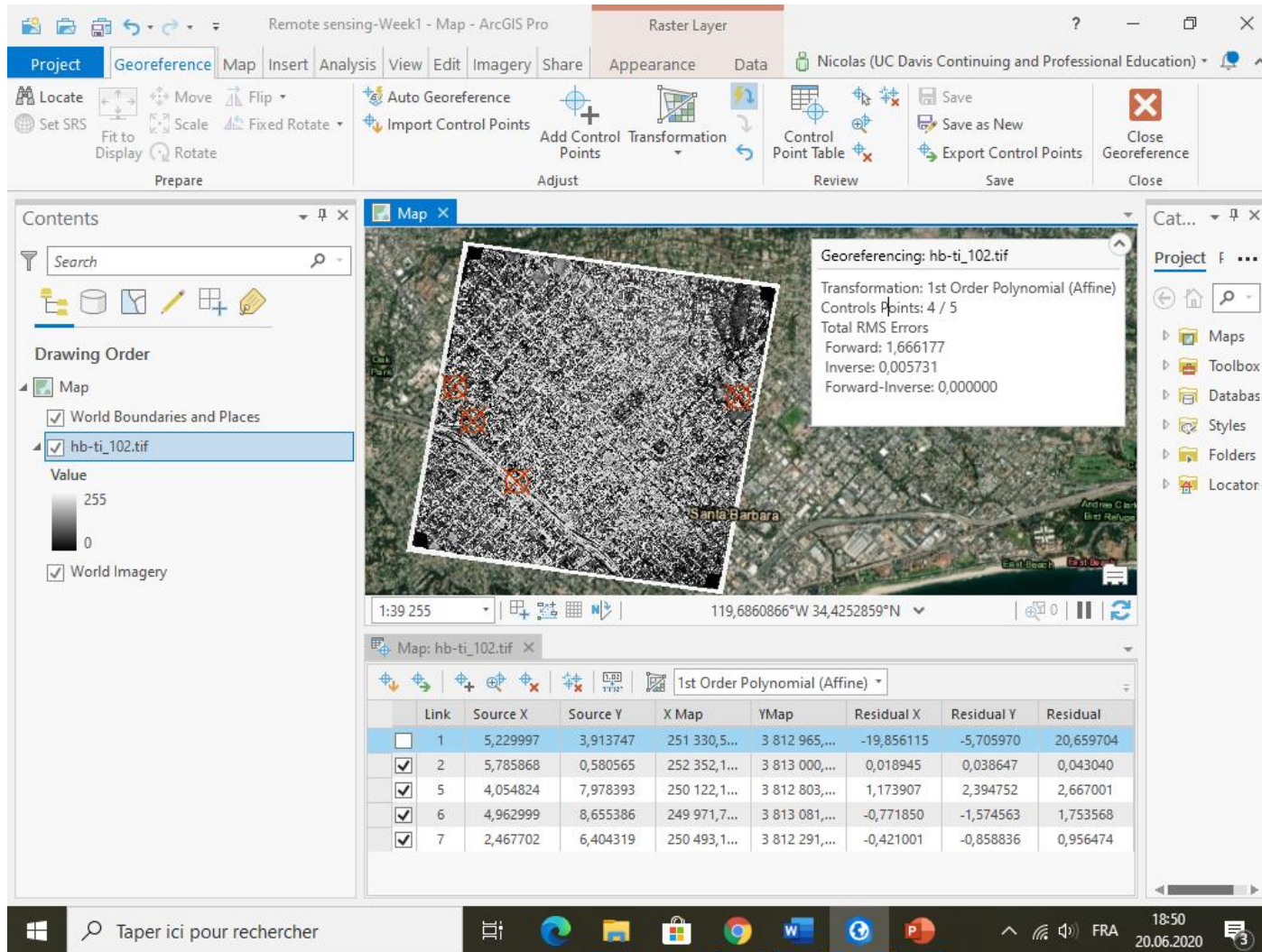
https://earthexplorer.usgs.gov/

https://www.planet.com/

Outilining process

1) Acquiring and georeferencing historic aerial photography

2) Creating mosaic dataset from cubesat data

# 1) Acquiring and georeferencing historic aerial photography

Coordinate system of the project:
WGS 1984 UTM Zone 11N

Photography information
- Scale: 1:12 000
- Date: 05.03.1972
- Location: Santa Barbara
- Data type: scan (gray scale, visible range)
- Cell size X : 0,567580020828276
- Cell size Y : 0,536554341119776
- Pixel depth : 8 Bit
- Reference: http://mil.library.ucsb.edu/ap_images/hb-ti/hb-ti_102.tif

2) Creating mosaic dataset from cubesat data
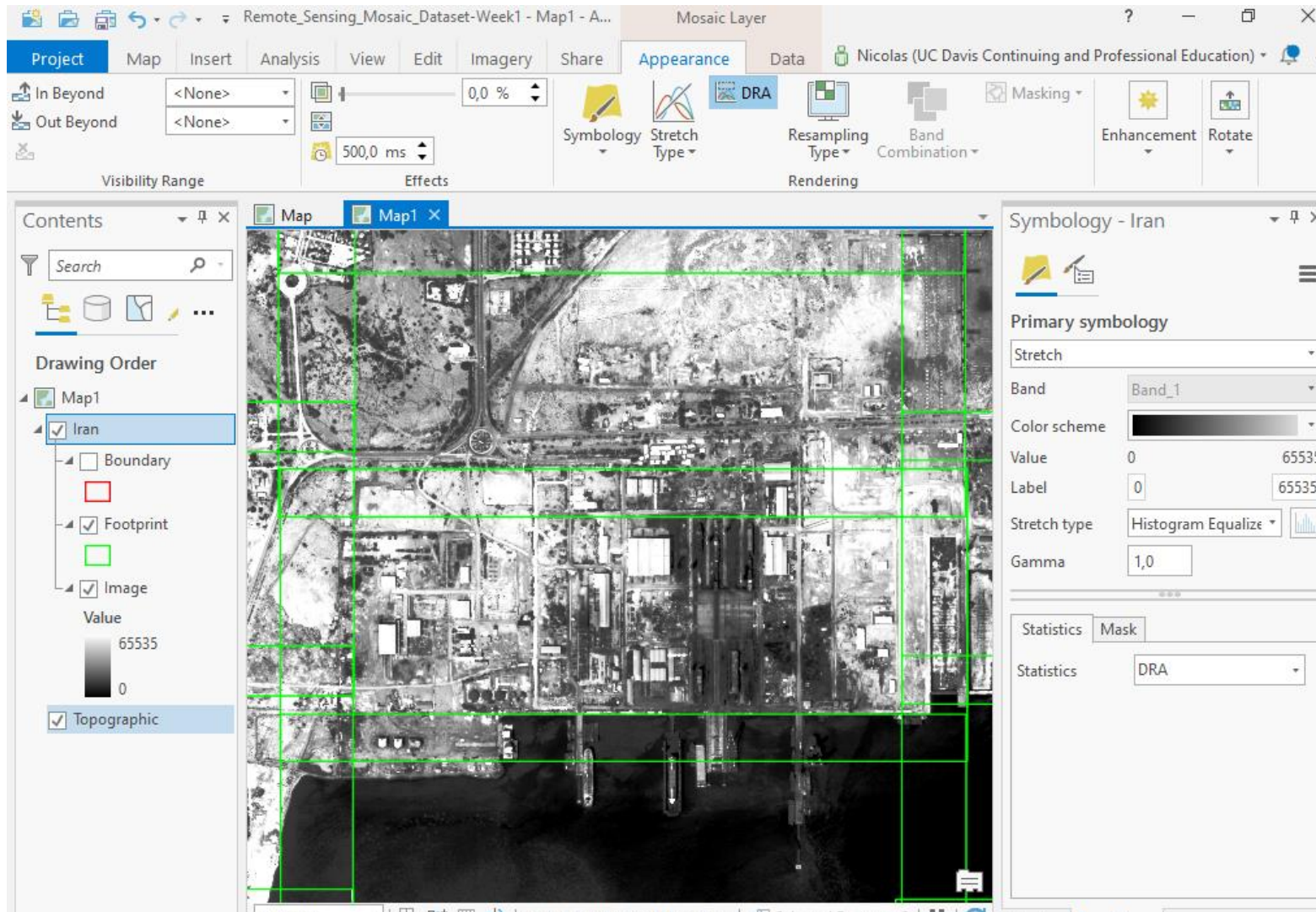
Coordinate system of the project:
WGS 1984 Web Mercator (auxiliary sphere)

Photography information
- Date: 12.04.2020
- Location: Hormoz, Iran
- Data type: gray-scale panchromatic image (satellite image): Red, Green, Blue and Near-infared red bands
- Cell size X : 0,659563199808266
- Cell size Y : 0,659563199808249
- Pixel depth : 16 Bit
- Reference: https://www.planet.com/

Summary

- Aerial photography showed in this case higher spatial resolution but the spectral resolution is higher in satellite data (higher spectral range including near-infared red spectrum)

- Radiomectric calibration is therefore higher in satellite data (16 bit compared to 8 bit in aerial photography)

Data sources

- http://mil.library.ucsb.edu/ap_indexes/FrameFinder/
- https://earthexplorer.usgs.gov/
- https://www.planet.com/