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Assessment of urban expansion: A case study of Columbus, Ohio

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Assessment of urban expansion: A case study of Columbus, Ohio

Eric Davis Jr

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Abstract

Researching urban growth can show historical patterns and trends in regards to urban expansion, rates of in-filling, and economic development. This work seeks to quantify the growth of the Columbus Metropolitan Area over a multi-decadal period by using geospatial and demographic data to evaluate differences in urban growth patterns.

Introduction

Urbanization and urban growth has been considered as one of the essential indicators of economic growth and development of a country. Along with the increase of population, cities are growing rapidly in physical in the past few decade.

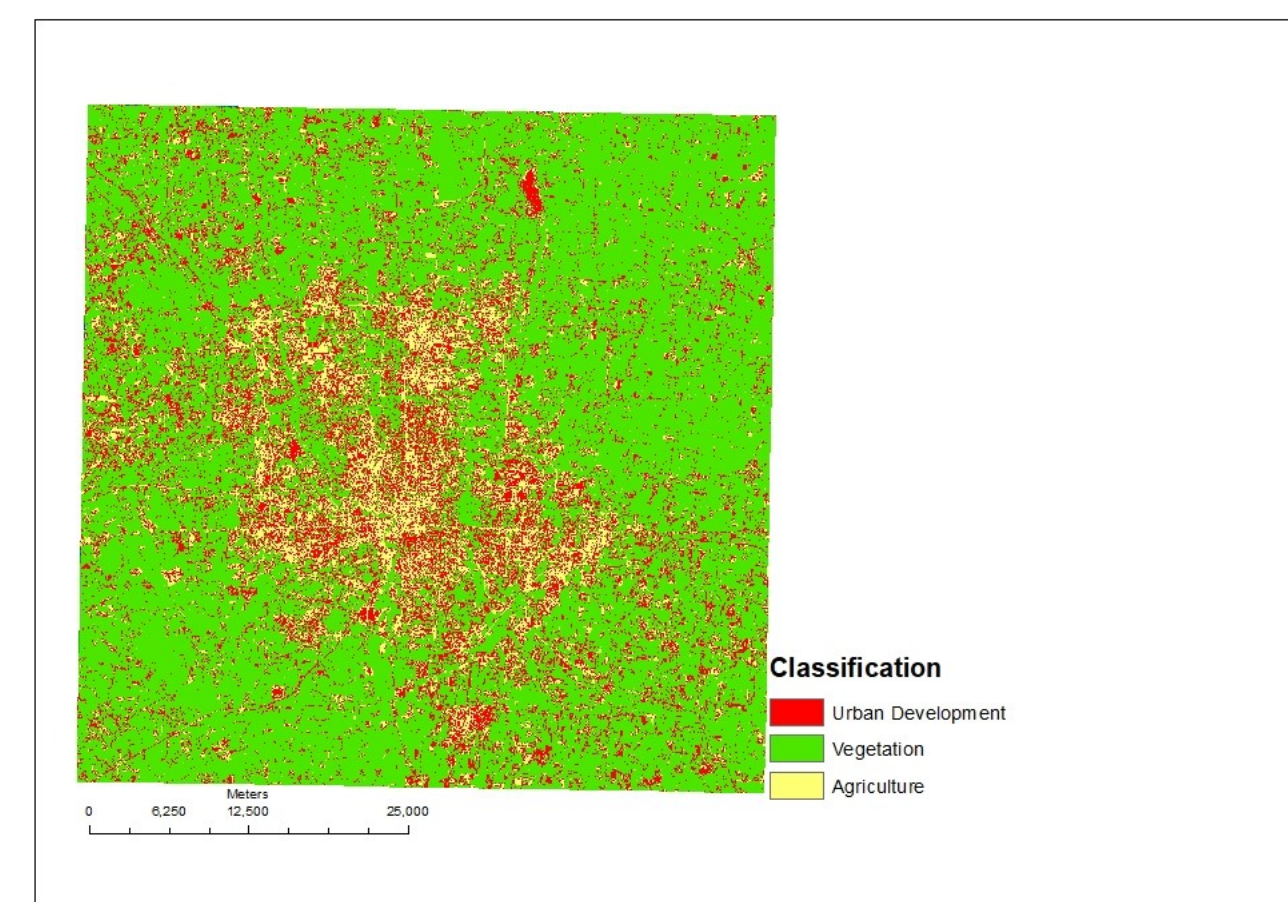
Methodology

- Acquired Landsat imagery from earthexplorer.usgs.gov
- Generated TrueColor imagery of all image dates: 1985 - 2015
- Ran a 25-class Unsupervised Classification
- Reclassified images into five categories
- Calculated the percent of total area for each informational class

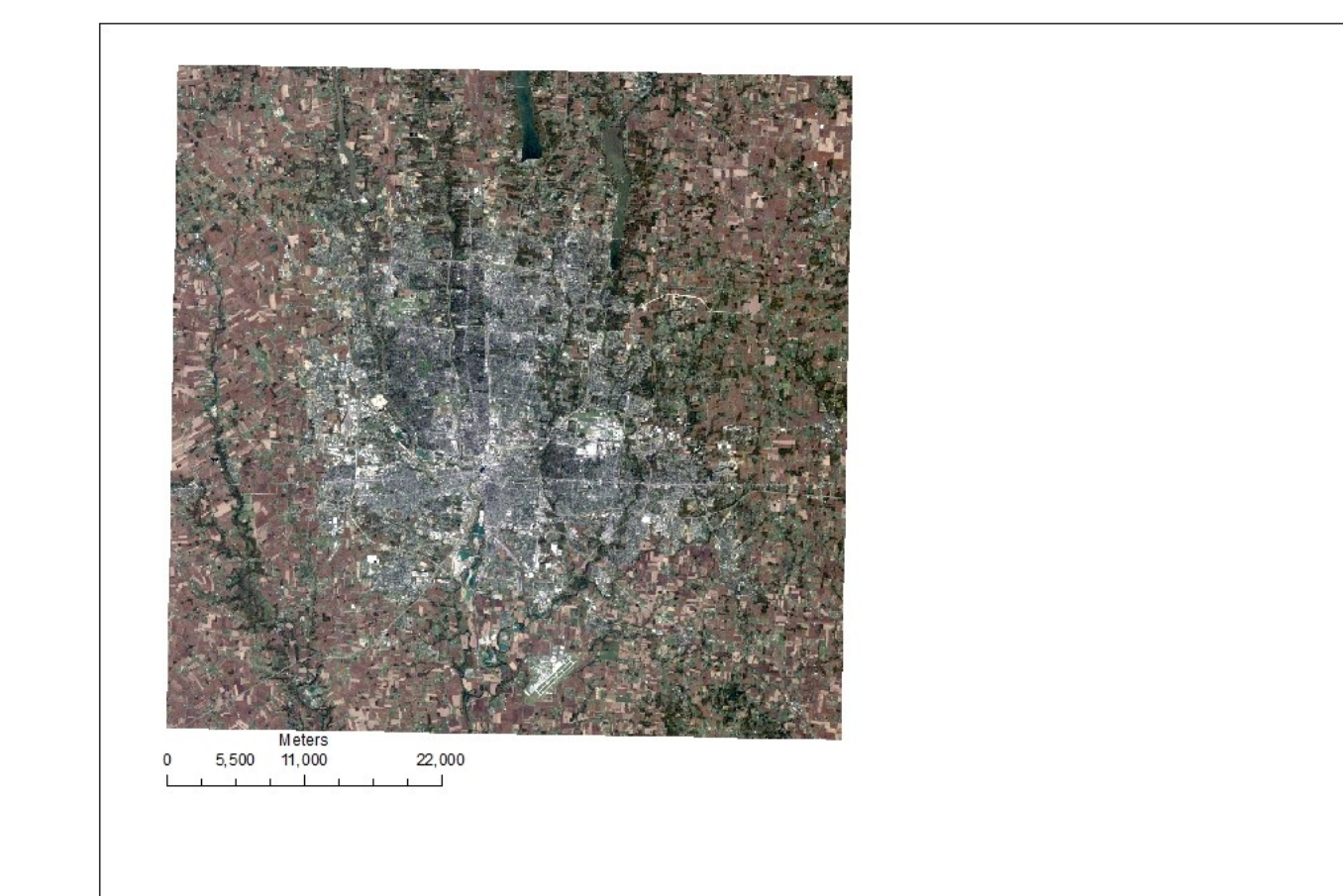
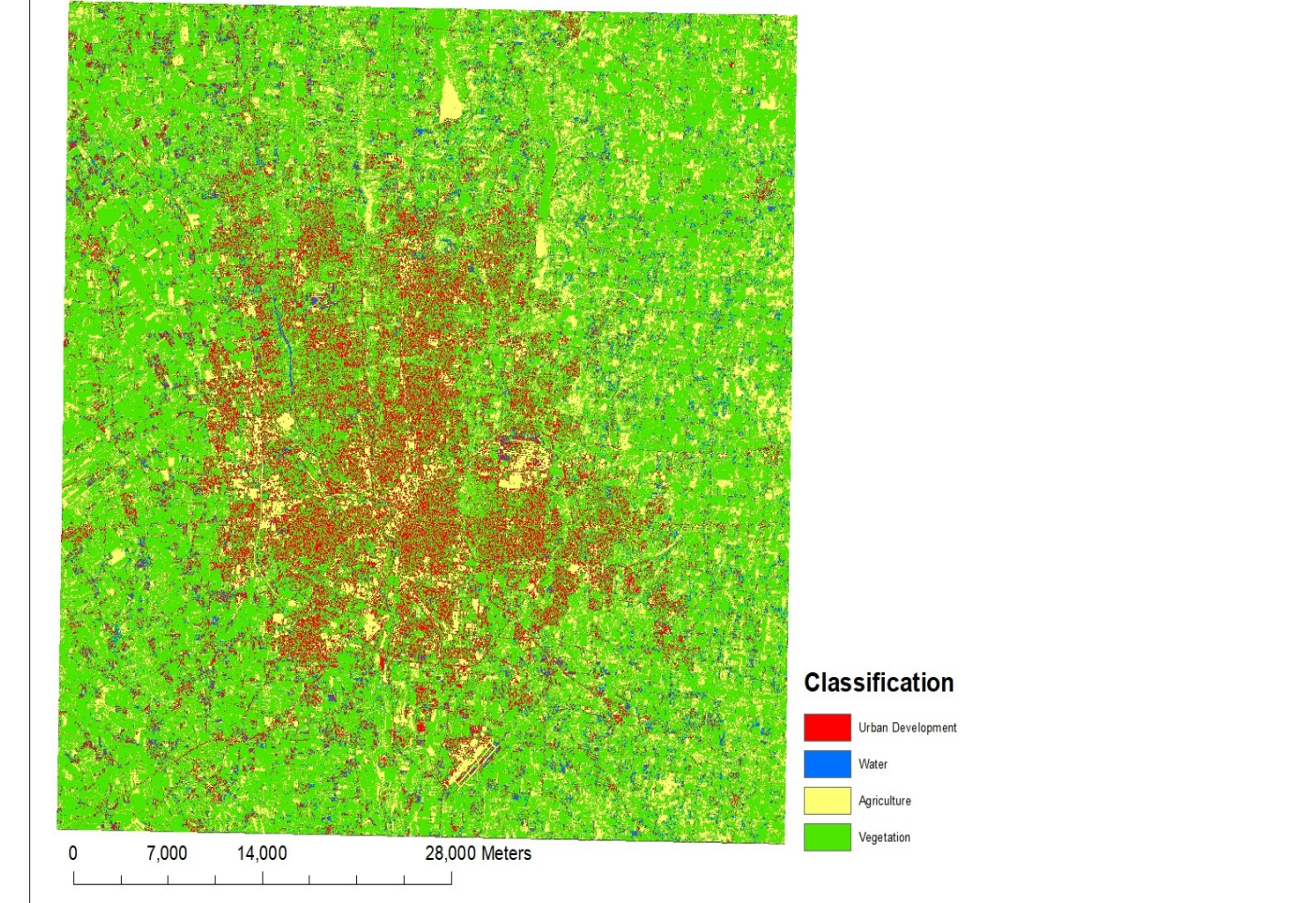
Learning Outcomes

Overall this research has help me sharpen my Arc skills. From extracting files so that I may upload the images onto Arc, all the way to doing a true composite color. Also learning how the Columbus Metro area has rapidly expanded in the last 30 years and is continuing to grow.

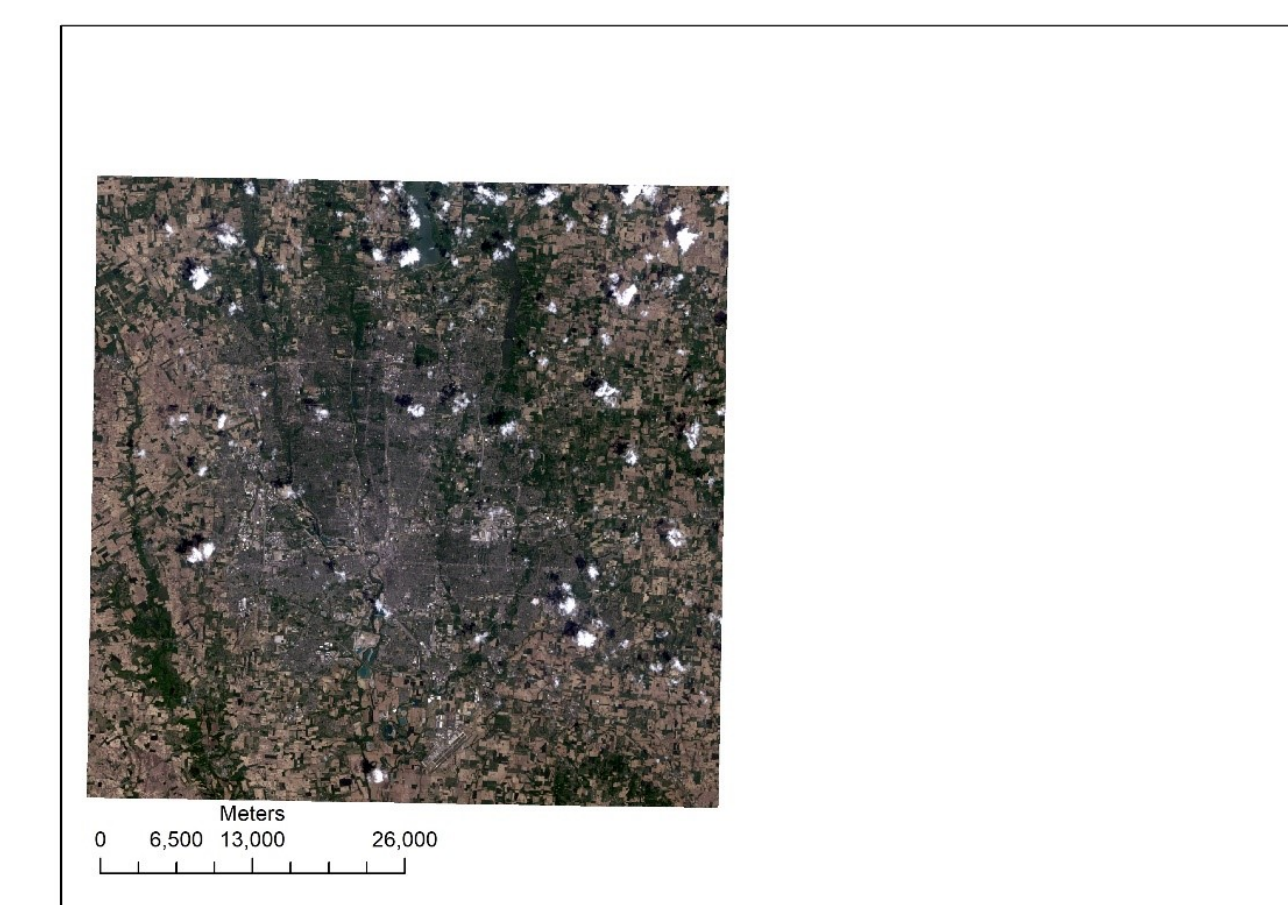
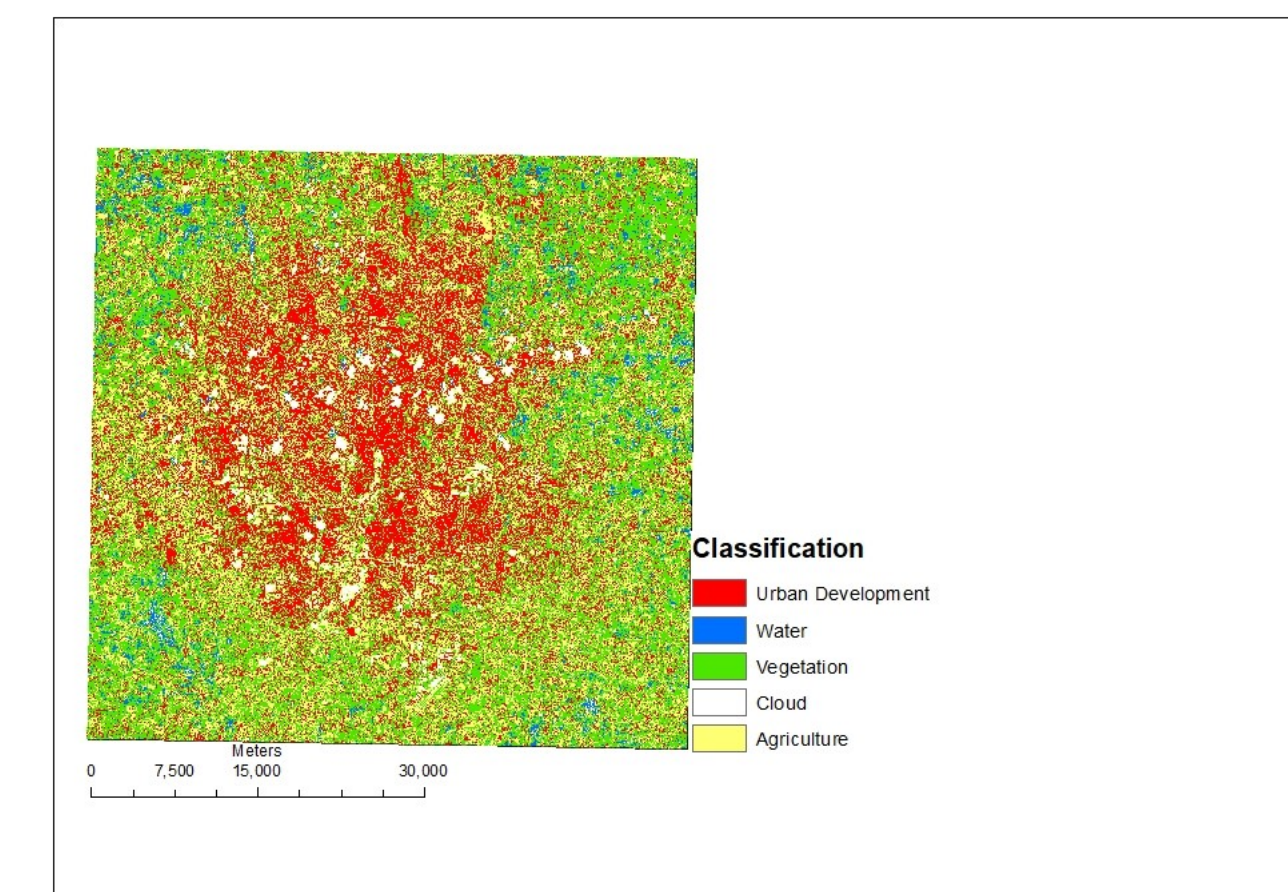
1985 True Color
Landsat-4



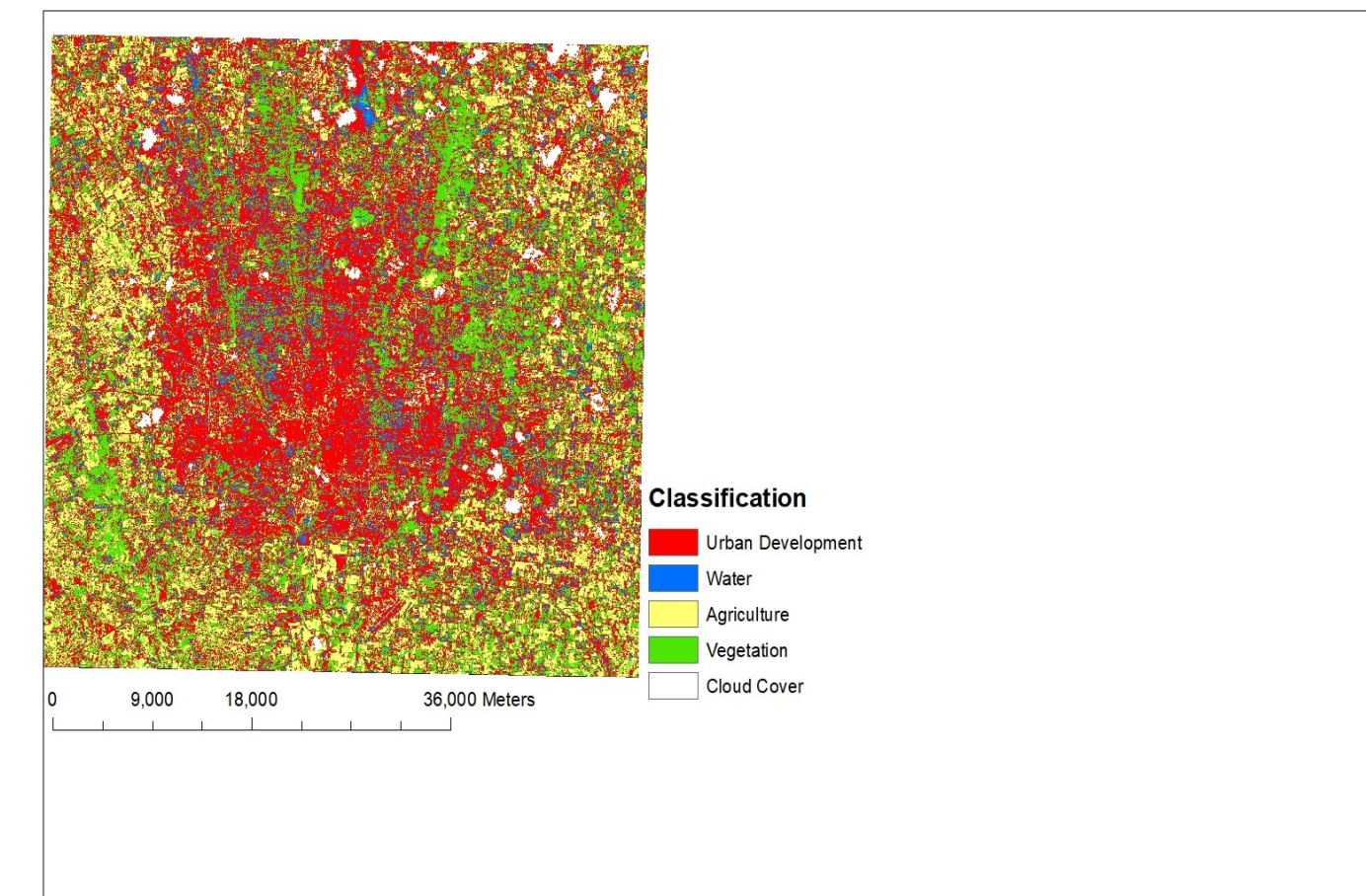
1995 True Color
Landsat-5



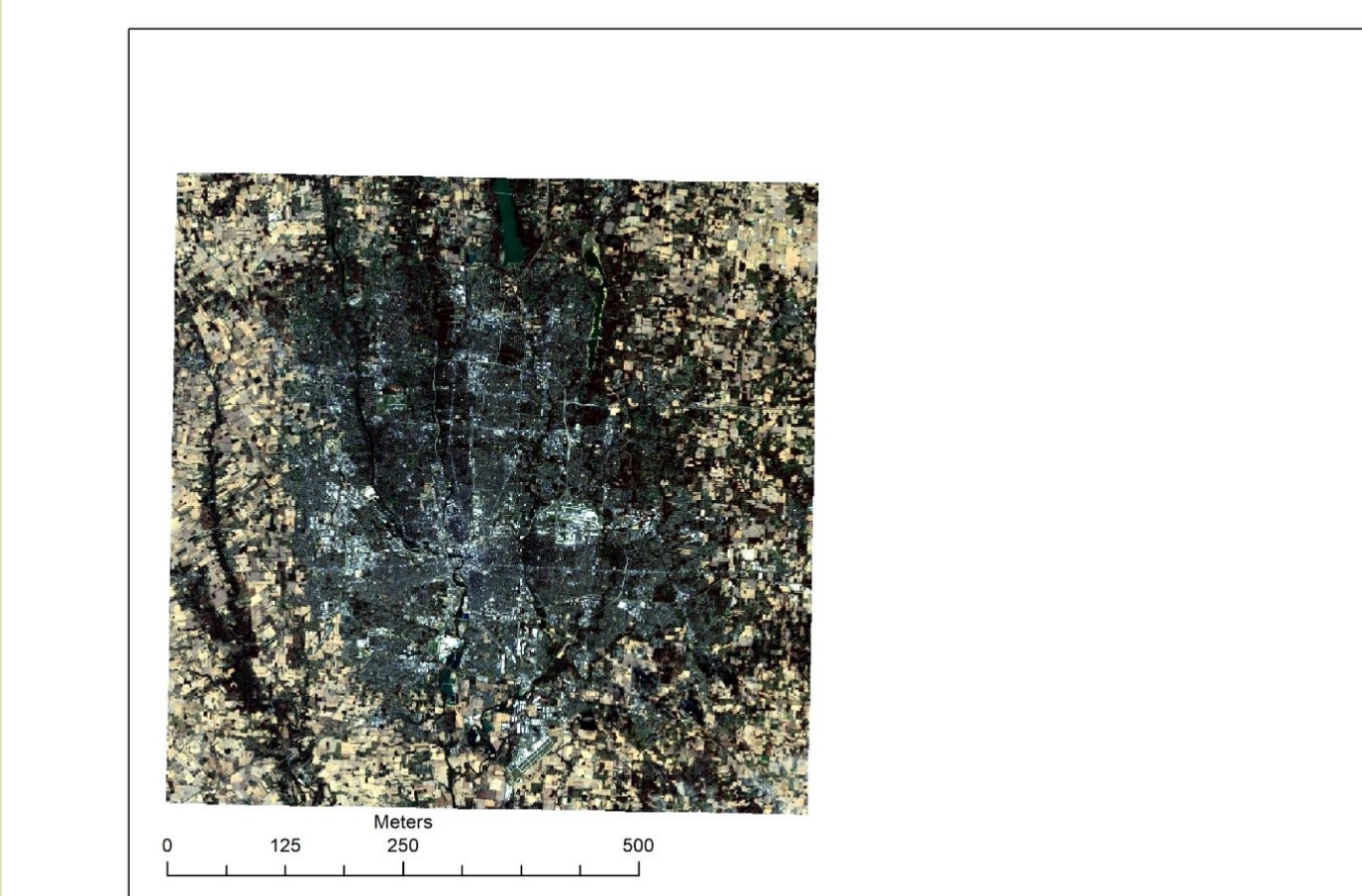
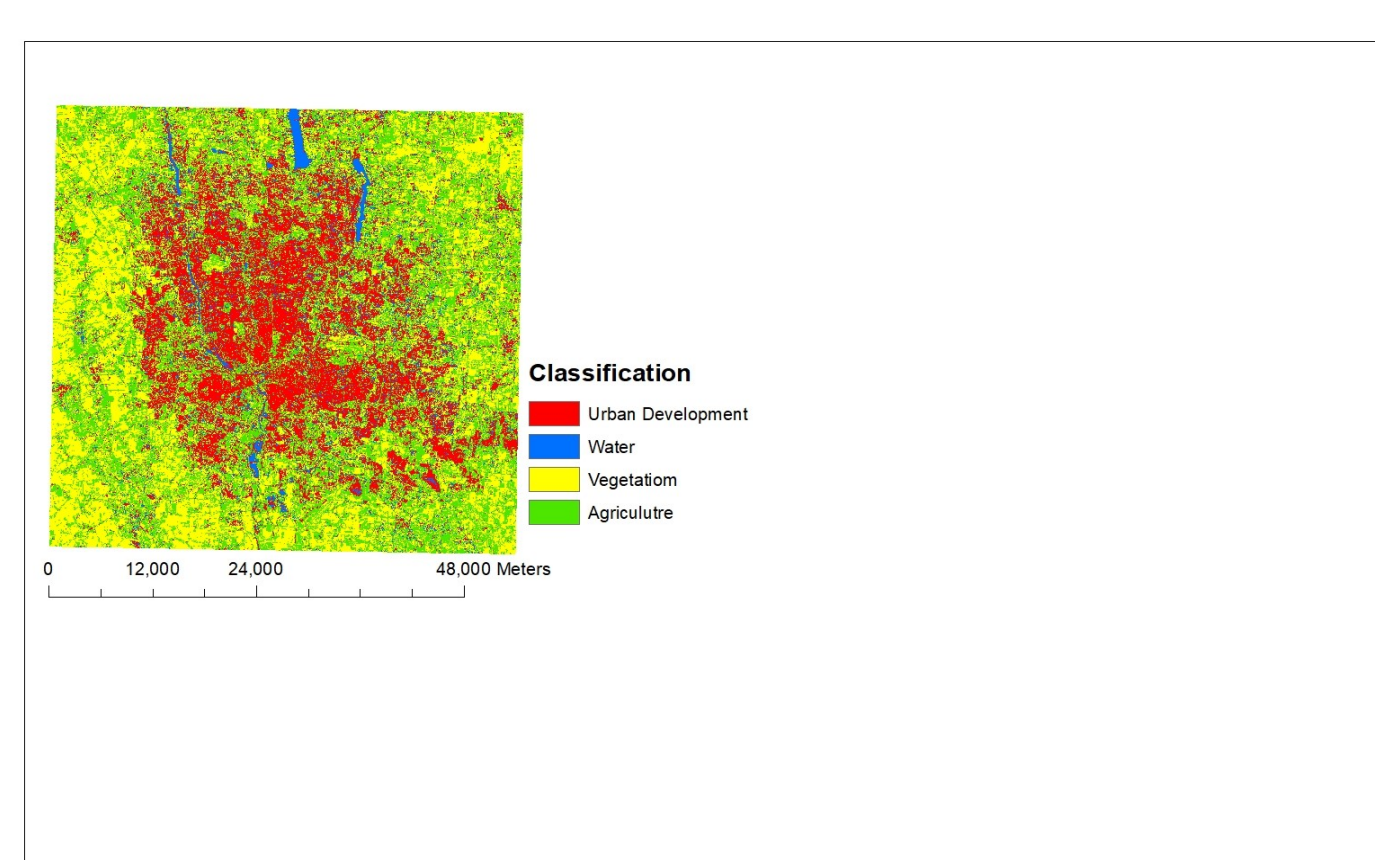
2000 True Color
13% Cloud Cover
Landsat - 7



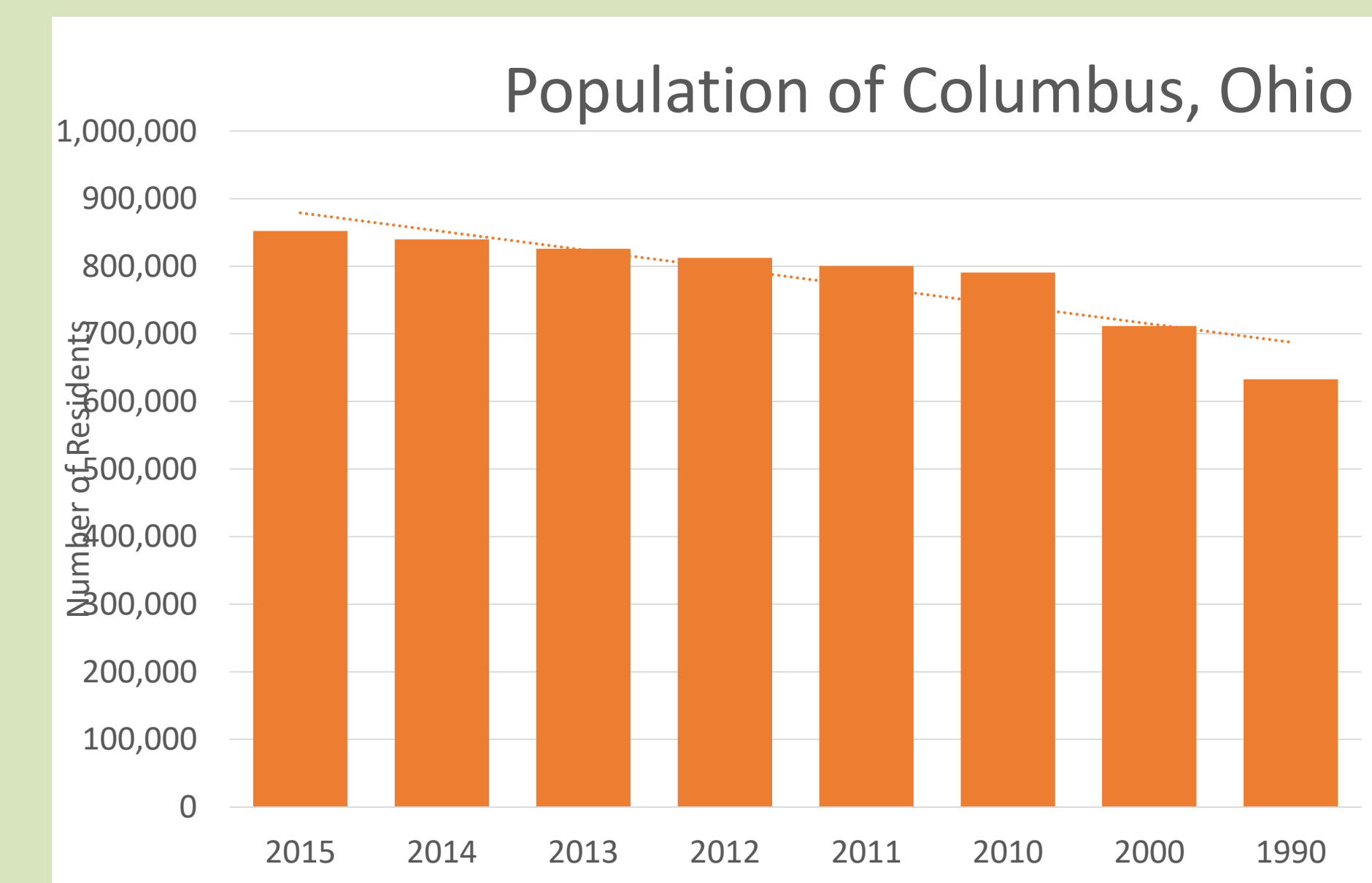
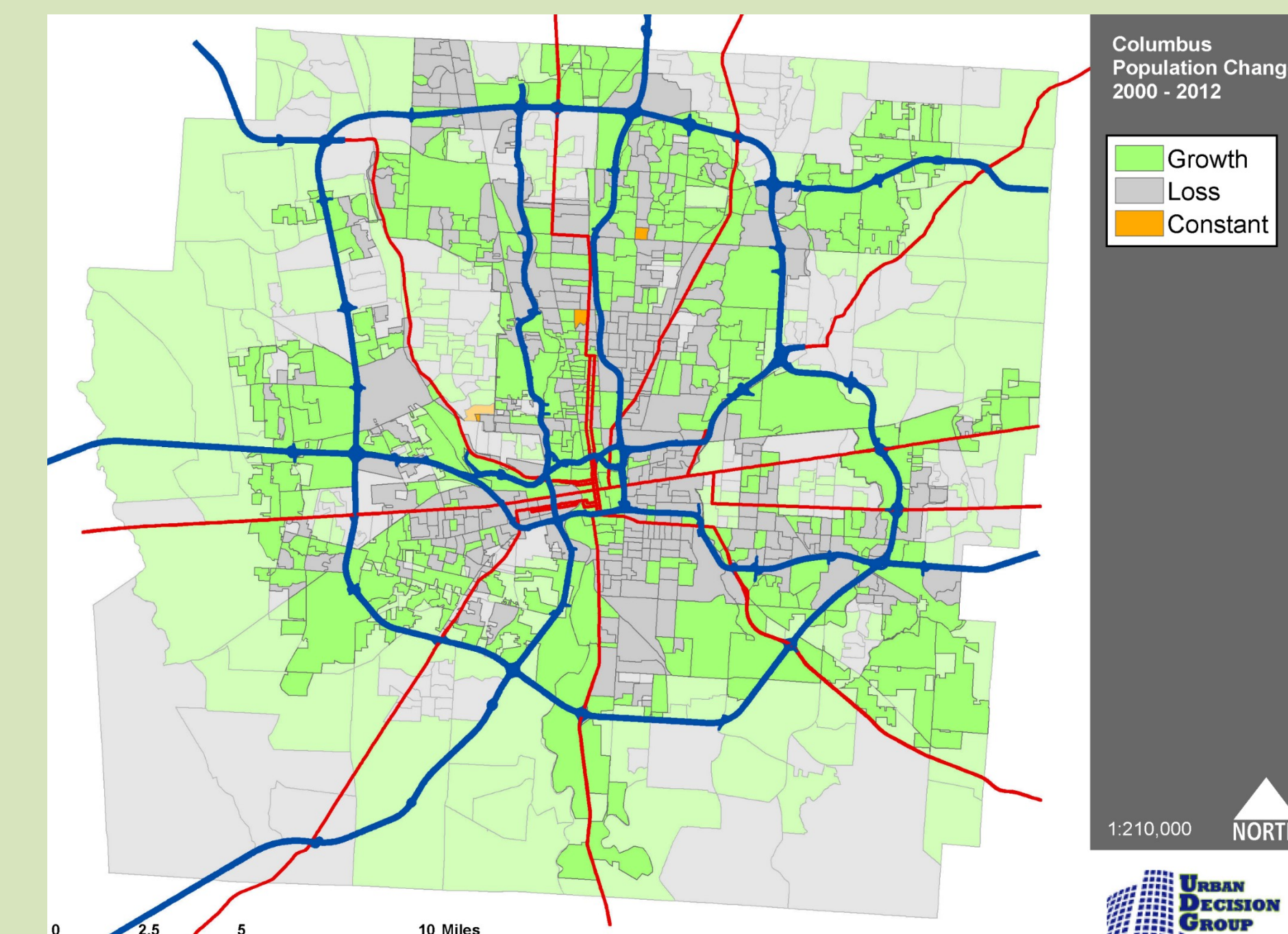
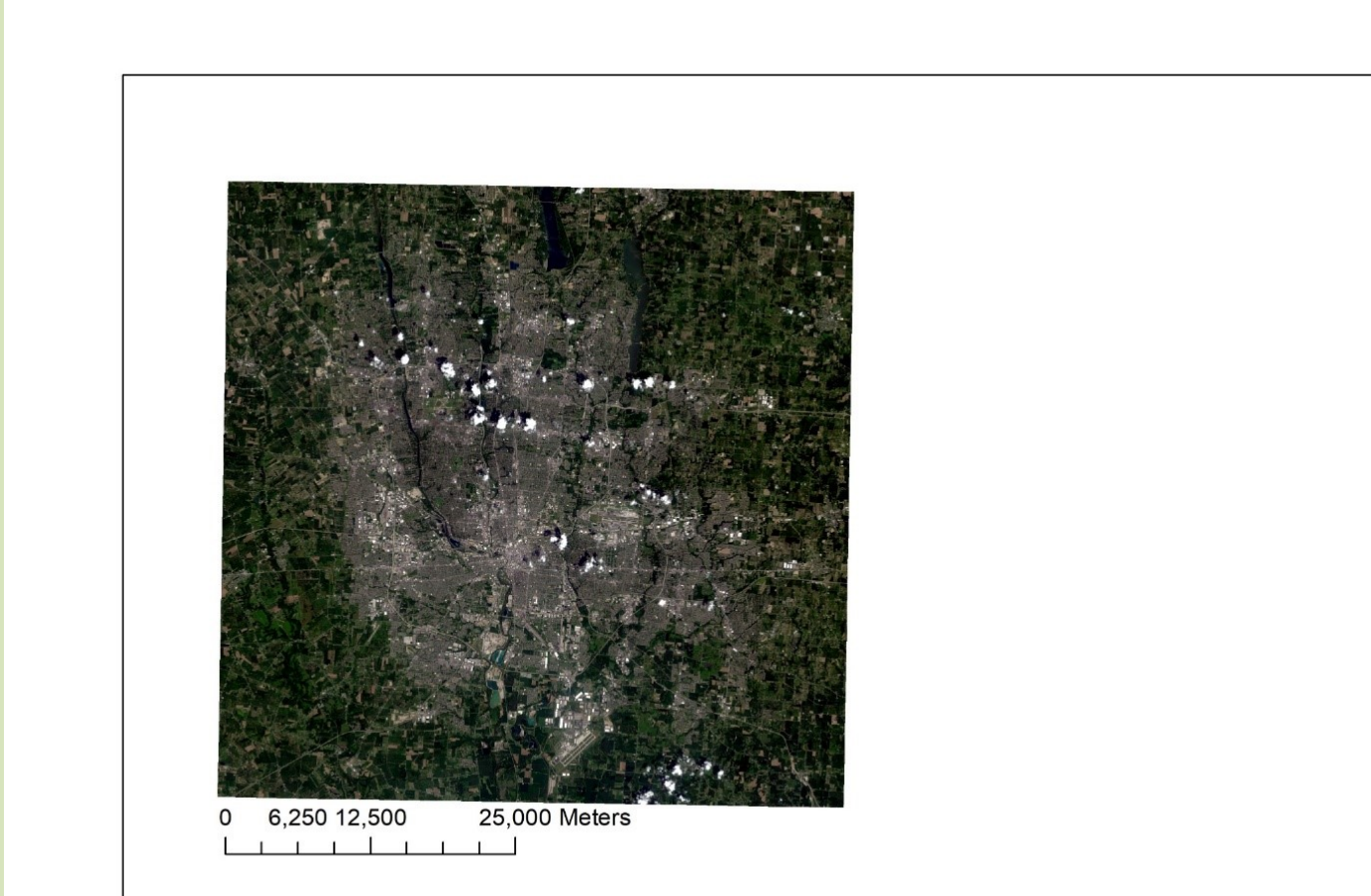
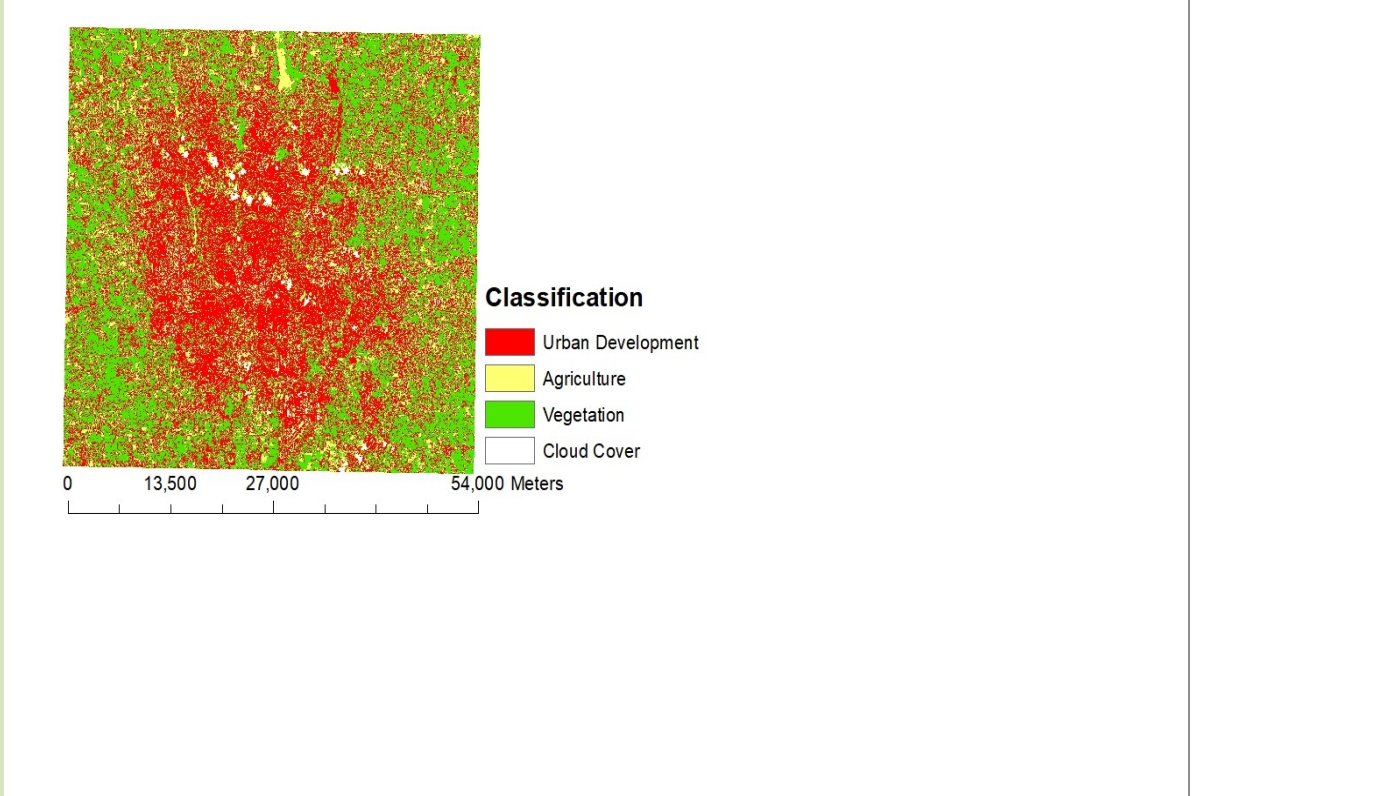
2005 True Color
11% Cloud Cover
Landsat - 7



2010 True Color
Landsat - 7



2015 True Color
10% Cloud Cover
Landsat- 8



Further Work

I anticipate building off this work by looking into, urban development in specific neighborhoods and better understanding how spatial trends correlate with gentrification, rates of in-filling, and over-policing.

Acknowledgements

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