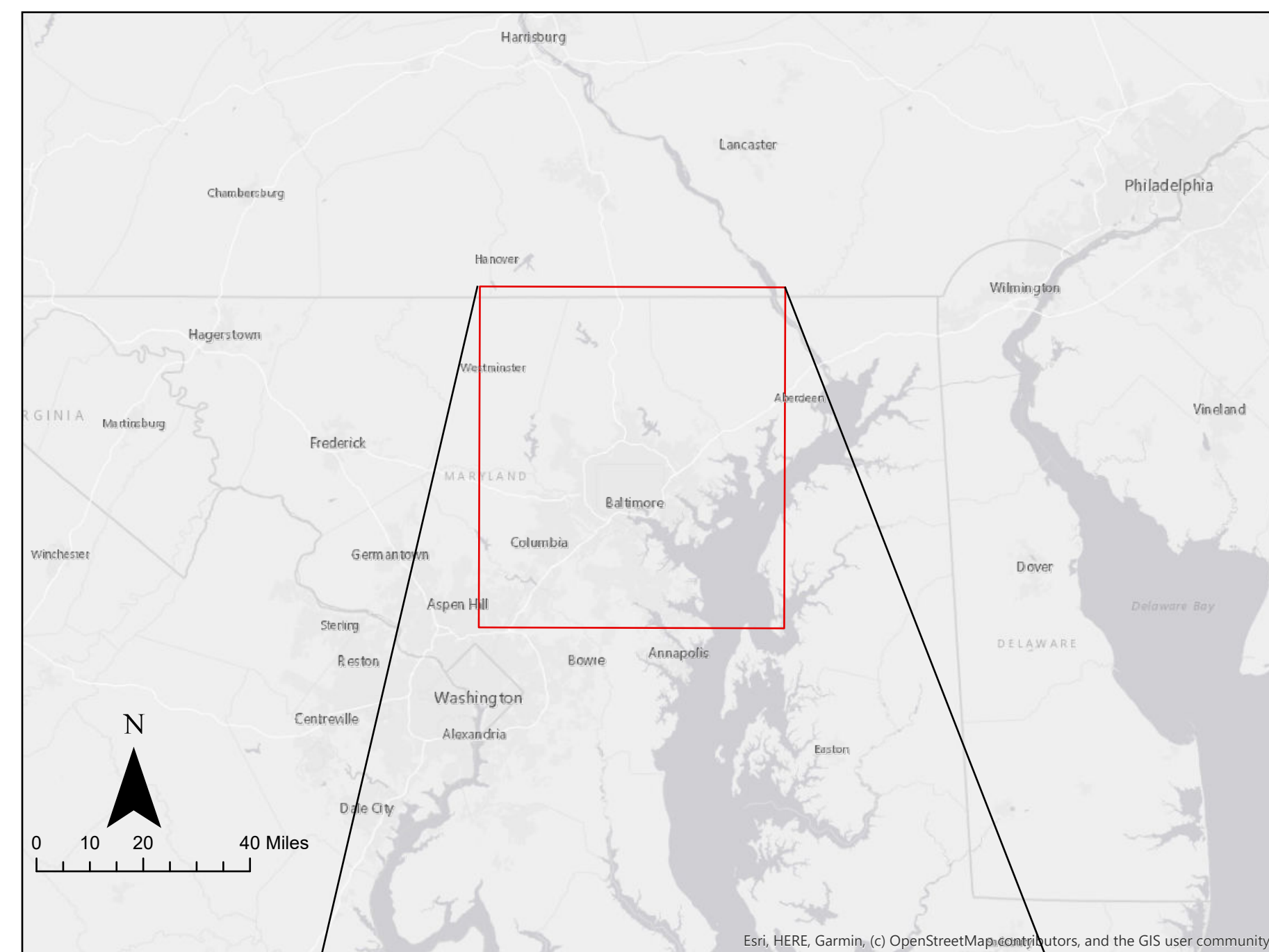


LandSat7 Band Composite Interpretation of Baltimore

In order to analyze and compare aspects of satellite imagery, different ranges of emitted frequencies are composited to make otherwise unidentifiable features more prominent. Each band is a range of frequencies; not necessarily visible, that is recorded by the sensor and stored as a panchromatic image. Bands then undergo enhancement and mosaicing in different groupings so that they expose important features.

Using images of Baltimore from LandSat7's Enhanced Thematic Mapper, different combinations of bands can be used to "bring out" different aspects of the Baltimore City and county landscape. These composites are categorized by 3 types: True, Natural and False color. While True color is what is seen by the sensor while Natural color is what we would expect to see. False color is a composite that does not look natural to the human eye, but more easily "brings out" a specific feature or features.

Here we have 9 composited mosaics displaying very different characteristics of the same landscape. Although all are potentially useful, known combinations and signatures are used by varying industries for very distinct applications. Each grouping has its own advantages and caveats though. For example the NDVI composite of bands 3, 2, 1 and 4 results in a False color image that makes it easier to identify impervious surfaces and urban areas such as roads and runways.



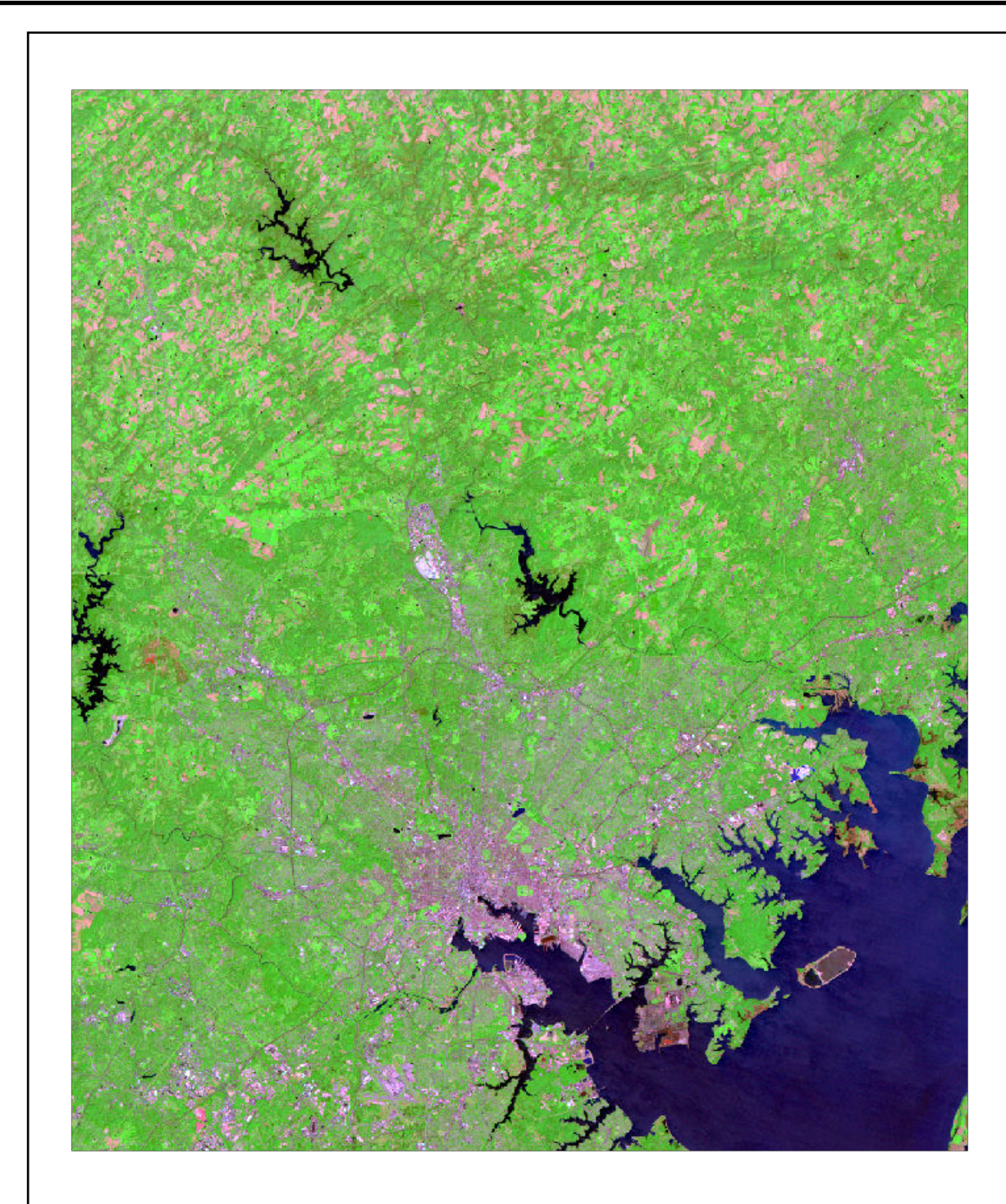
Bands: 3, 2, 1
Image Type: Natural Color
Prominent Features: hydrologic studies except for shallow water, urban areas



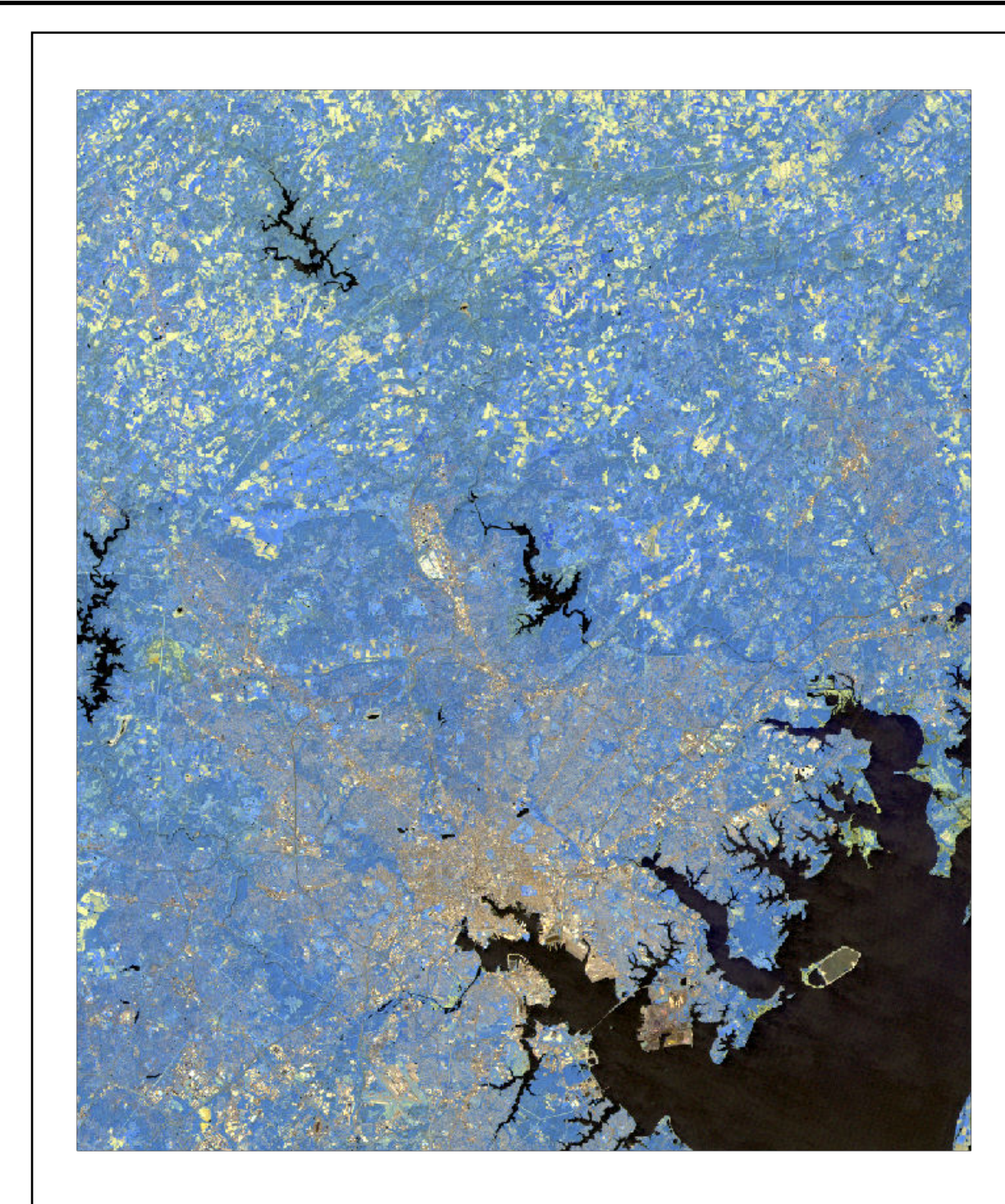
Bands: 7, 5, 3
Image Type: Natural Color
Prominent Features: water and vegetation



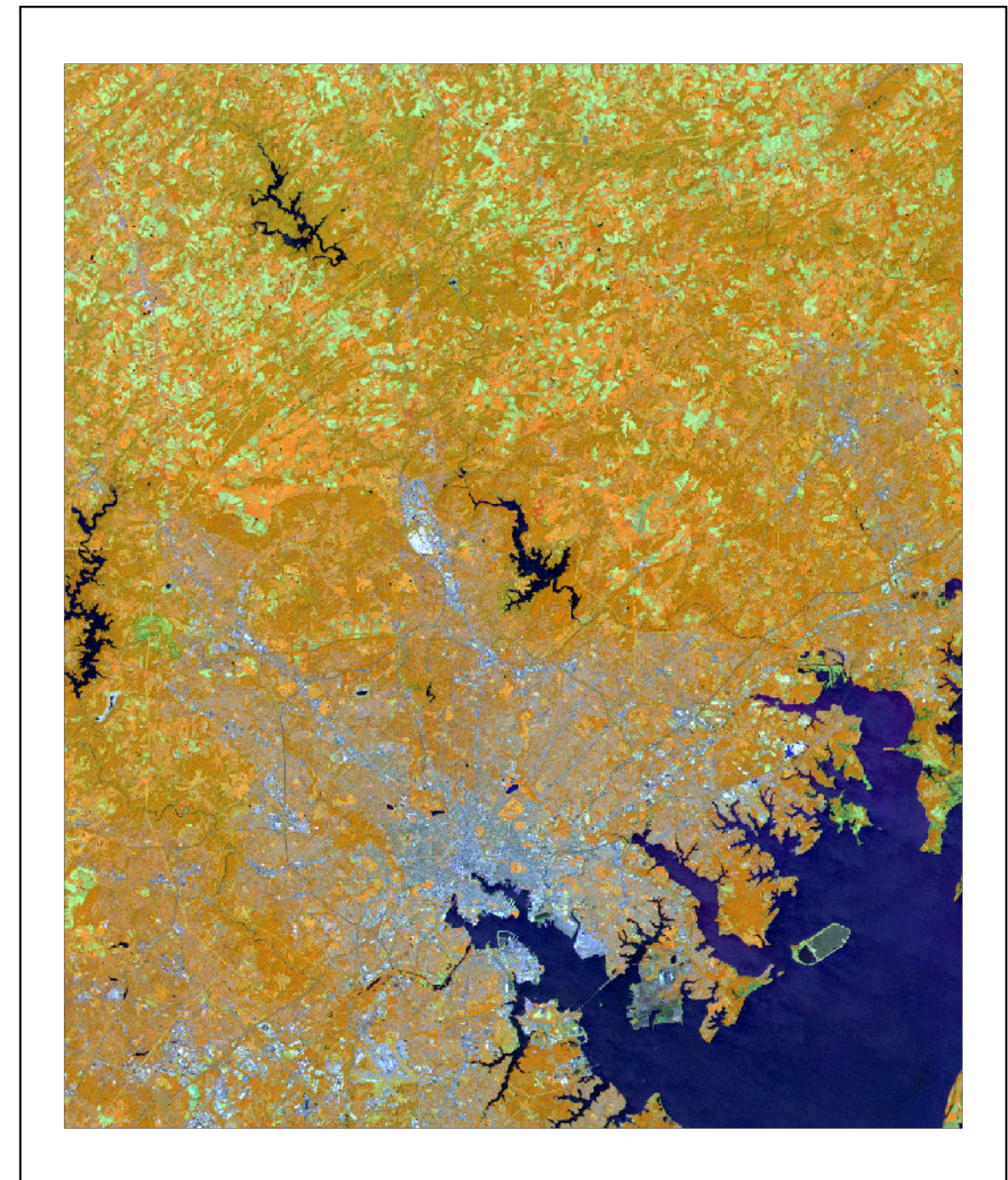
Bands: 5, 4, 3
Image Type: Natural Color
Prominent Features: agriculture (eg. timber management, pest infestation)



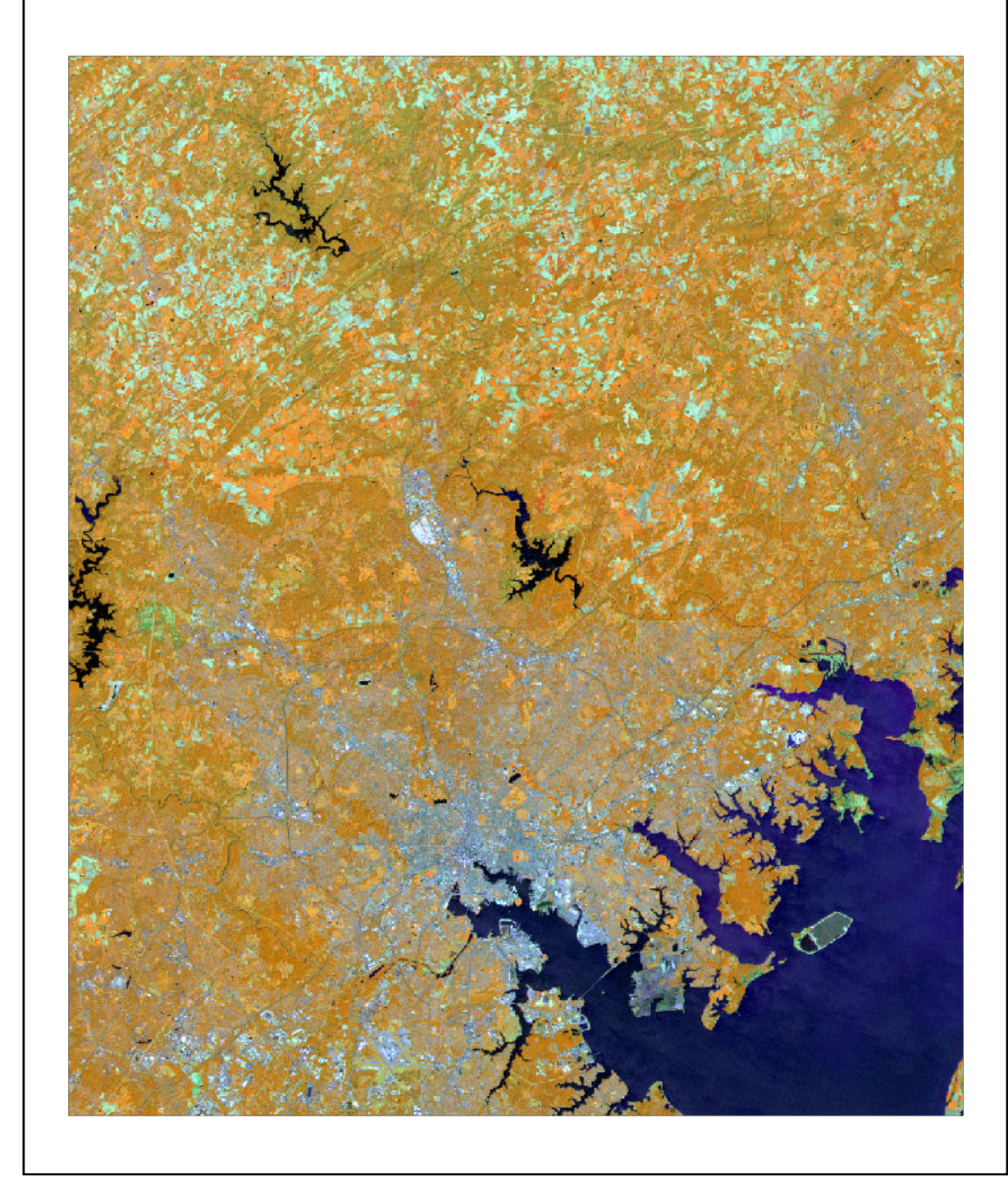
Bands: 7, 4, 2
Image Type: Natural Color
Prominent Features: geological, agricultural and wetland studies



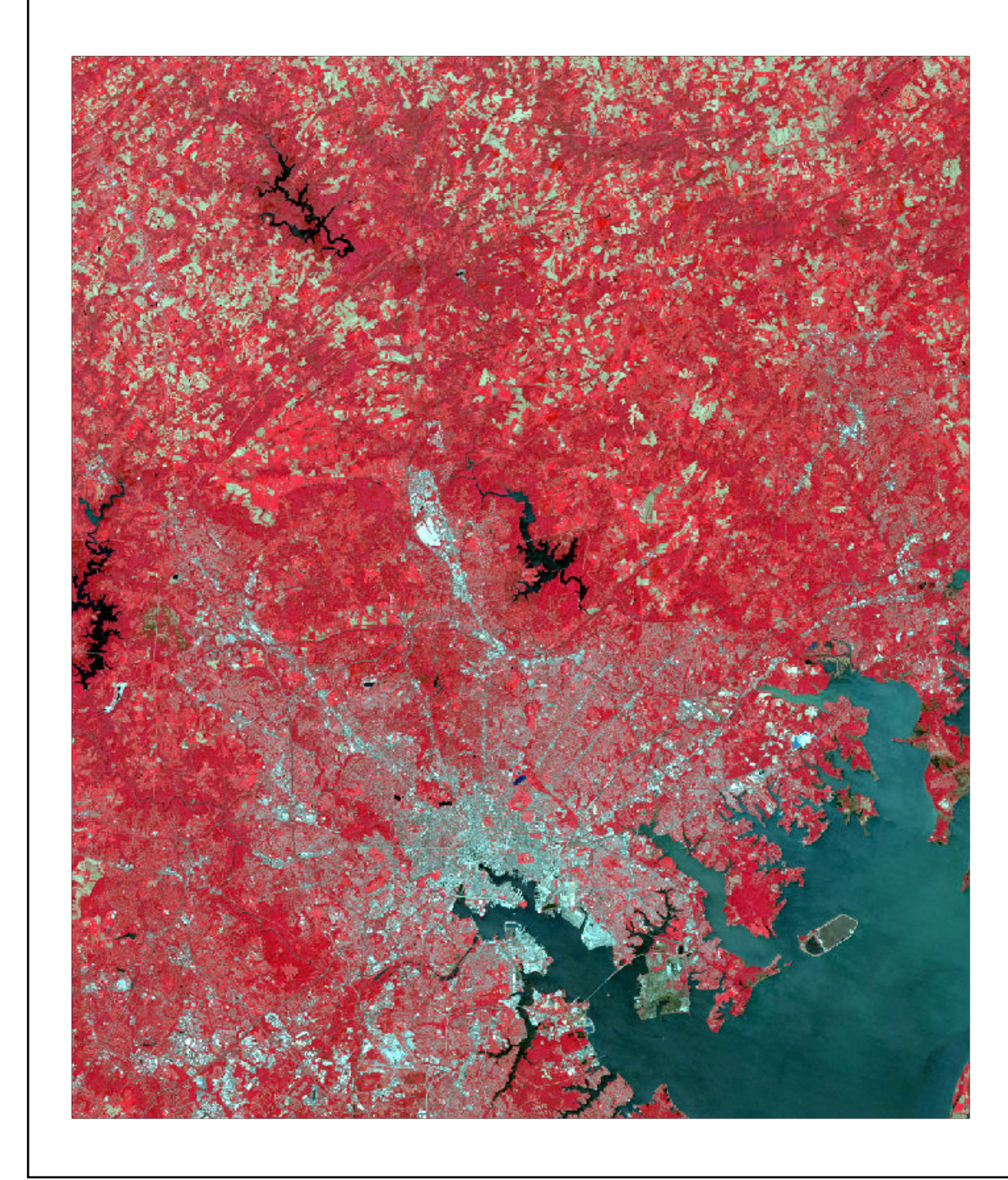
Bands: 7, 5, 4
Image Type: False Color
Prominent Features: Coastlines and water bodies



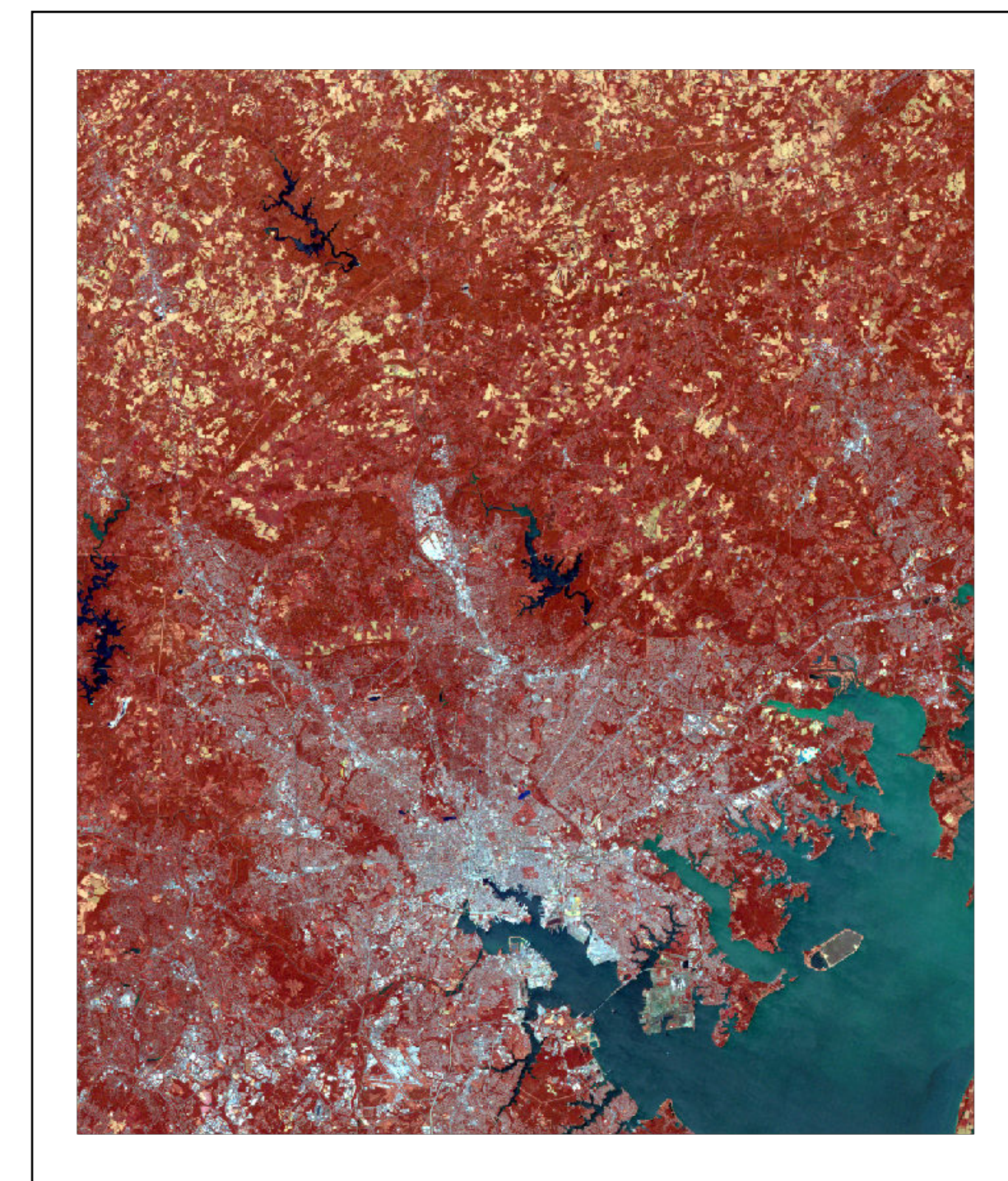
Bands: 4, 5, 1
Image Type: False Color
Prominent Features: biomass and moisture content, shorelines, soil



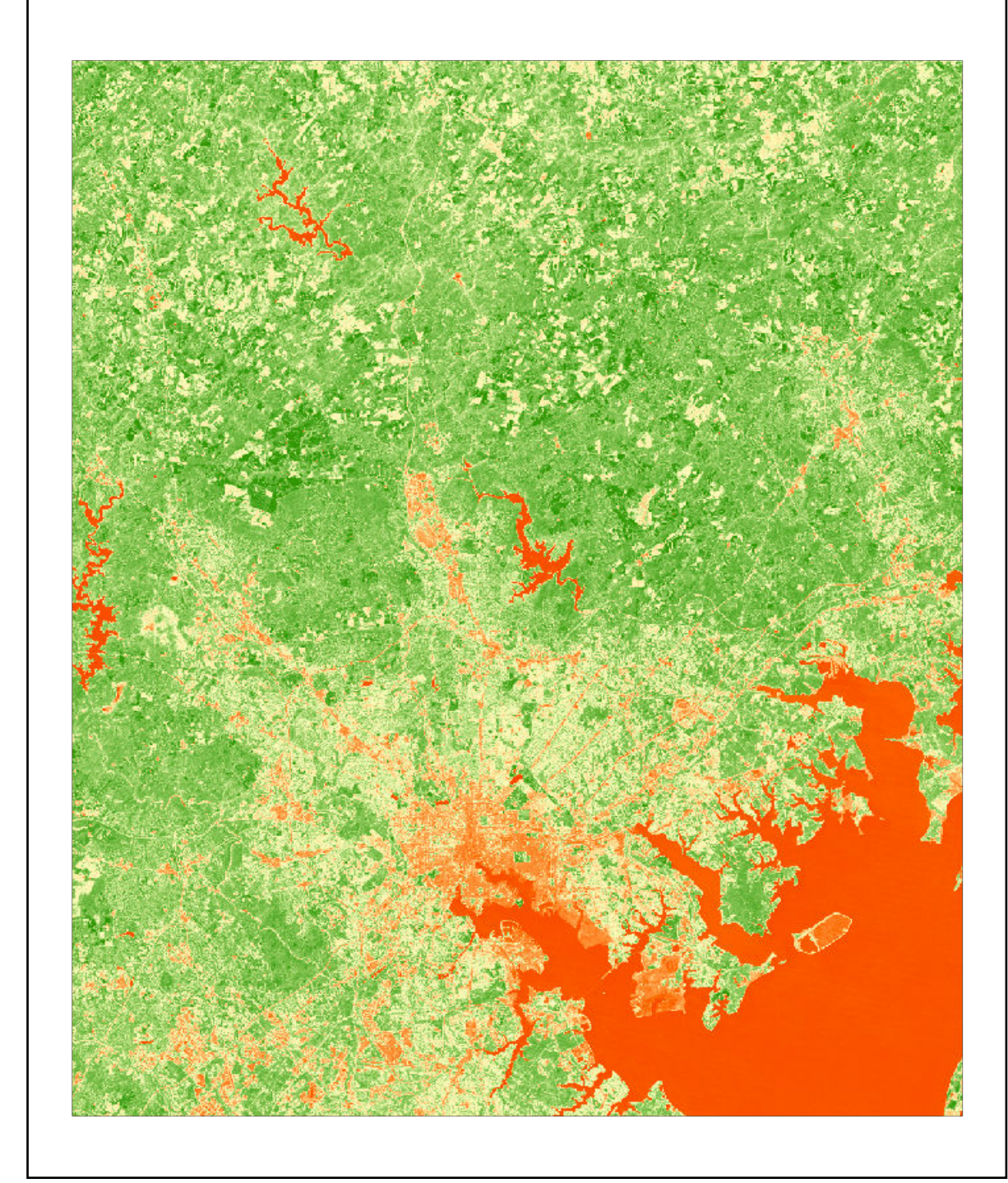
Bands: 4, 5, 3
Image Type: Natural Color
Prominent Features: agriculture



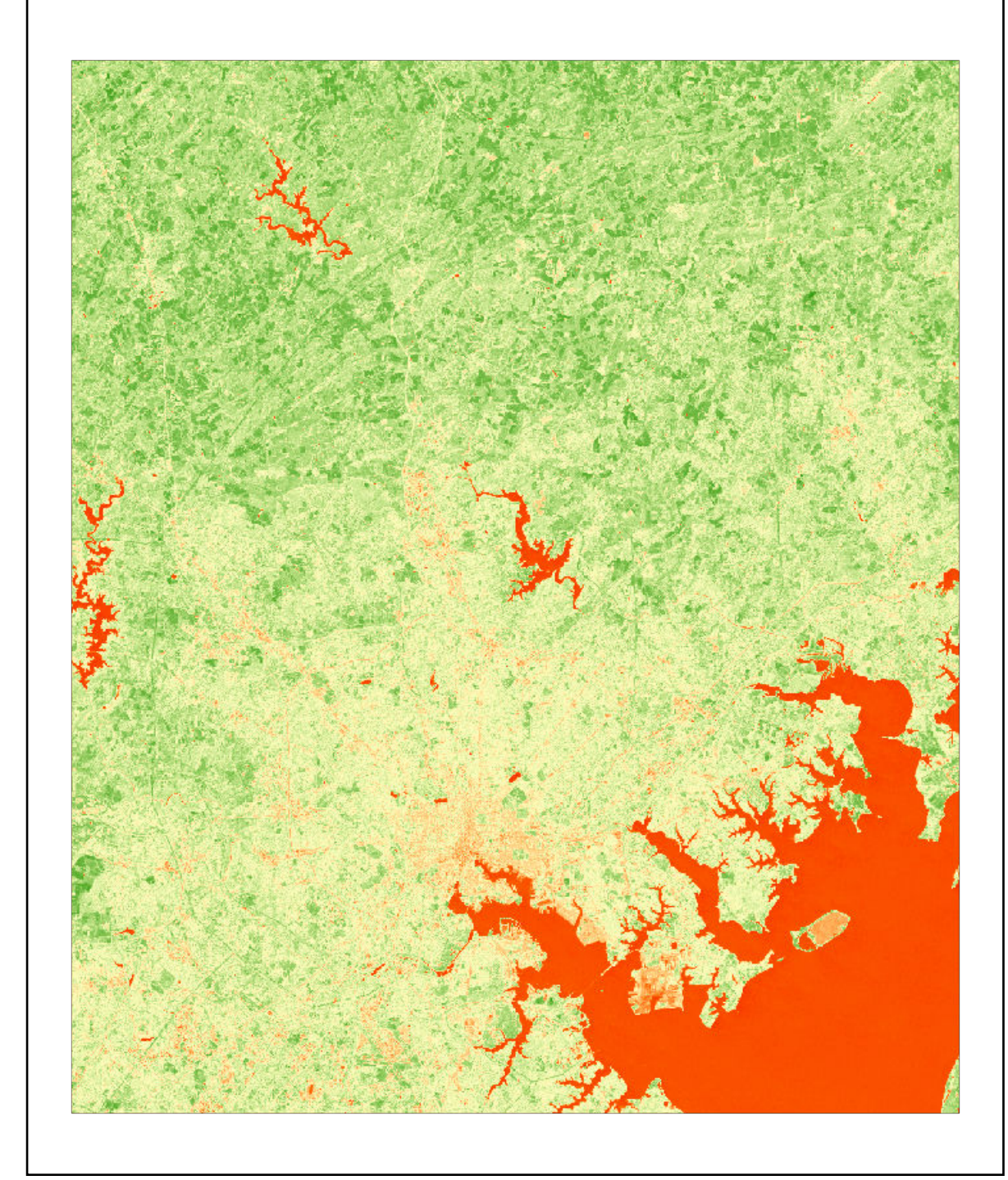
Bands: 4, 3, 2
Image Type: False Color
Prominent Features: vegetation health and urban areas



Bands: 5, 3, 1
Image Type: False Color
Prominent Features: topographic textures



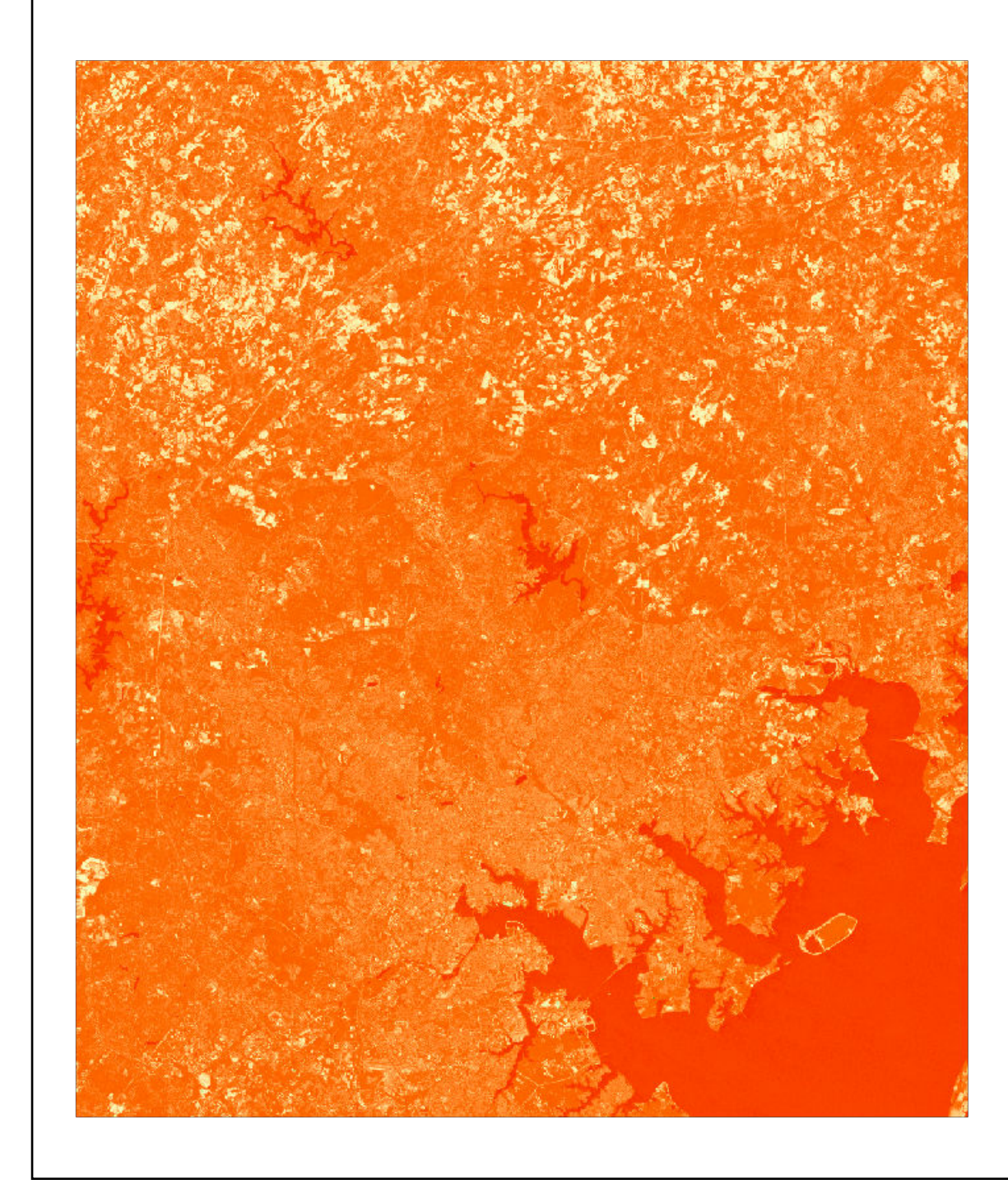
Bands: 3, 2, 1, 4
Image Type: False Color, NDVI
Prominent Features: water bodies, urban areas and impervious surfaces



Bands: 3, 2, 1, 5
Image Type: False Color, NDVI
Prominent Features: bodies of water and their shoreline



Bands: 3, 2, 1, 6
Image Type: False Color, NDVI
Prominent Features: mineral deposits / mining



Bands: 3, 2, 1, 7
Image Type: False Color, NDVI
Prominent Features: agriculture, crop fields

