

## Lab 1 Introduction to Image Enhancement

Name: Katie Chute

Instructor: Jim Norton

Course: Introduction to Digital Image Processing

### Overview of project & goals

For this lab we created an enhanced Landsat composite by using a program called Erdas Imagine, which is used to improve the overall visual interpretability of the image that we downloaded. The overview of this project is to get use to using image enhancing software and all of the tools that go along with that software.

The main goal of doing this lab is to get used to using image enhancing software. Also getting used to the tools and where they are on the particular software that you are using at that time, whether it be PCI or Erdas Imagine.

### Data source & meta-data

The source of the data is from the Earth Explorer USGS website, (<http://earthexplorer.usgs.gov/> ), the link in brackets is to the website.

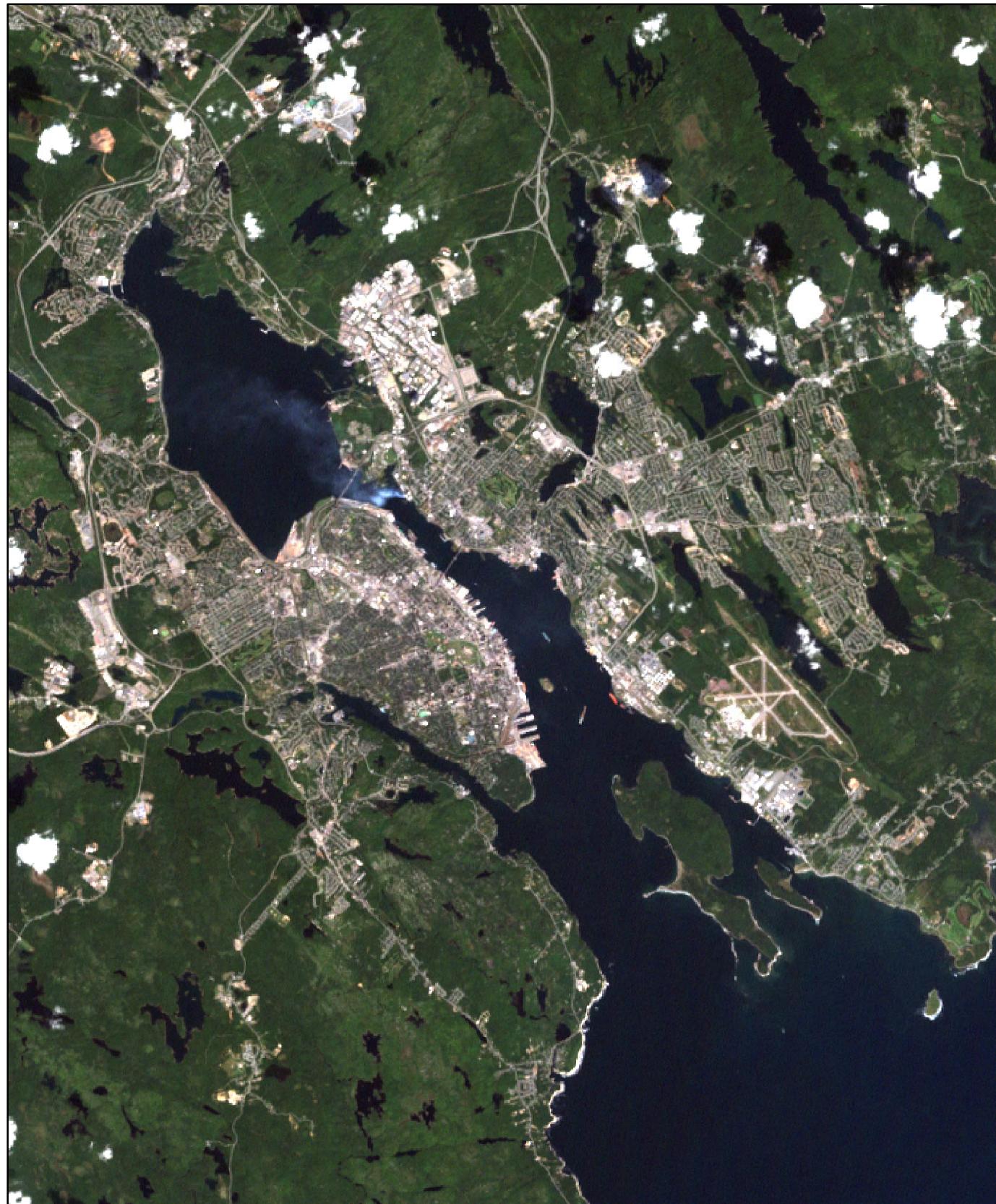
The projection of all the imagery is WGS\_1984\_UTM\_Zone\_20N and the datum in the same as the projection.

I was unable to find the platform, scene path/row for the images in this poster. The acquisition date of these photographs is January 10, 2014(that is the date that we downloaded it from the Earth Explorer USGS website). This is the unfortunate part of learning new software you can't find things as quickly compared to software that you have been using for months on end.

### Discussion of enhanced imagery

The "colours" that various features appear in the enhancement, are dark green, which is due to the coniferous trees which don't lose their leaves during the winter months, whereas the lighter green areas are that of deciduous trees which do loose their leaves during the winter months, thus meaning that the reason that they are the lighter green colour is due to that they're leaves are just coming out. The darker gray areas are that of urban areas outside of the city. Then the lighter gray colour is the more populated areas like down town Halifax or down town Dartmouth. The white spots that you see on the left hand side of the main map and in the top right hand part of the picture are clouds. The reasons that are showing in the colours that they are due to the bands that I choose to show the image in.

My enhancement improves the interpretability of the image in the way that the image is pretty close to the colours of what is the true colour of real life. The closer the colour is to the real world the better for interpretation.



### Discussion of processing performed

We had to make an account with the Earth Explorer USGS website before we could do anything. After that had been done we could choose anywhere in the world. Once we found a location we then checked the thumbnail to make sure that there was not a whole lot of cloud cover, otherwise the photo would not work for this lab. When we downloaded the data from the Earth Explorer USGS website we made sure that it was a Landsat 8 image and also those we were downloading a Level 1 GeoTIFF Data Product (892.6 MB). We then took the image into Erdas Imagine and did some manipulation to make it compatible with ArcMap. We did some clipping around the area that we are looking at. That is what we did in preparation for this lab.

The reason that I choose these three spectral bands is due to that you can see the sediment in the water pretty clearly and also you can make out the urban areas and also the highly populated areas of the city. Those are the main reasons why I choose the true spectral band.

I choose the standard and also a little bit of custom enhancement to show the city and also the urban areas that surround the city on both sides of the basin. The particular function and the range of DN values is just to in hence the sediment in the water and well as the urban areas.