

CE-712: Digital Image Processing of Remotely Sensed Data

Laboratory Exercise

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Department	Civil Engineering	Program:-	B.Tech

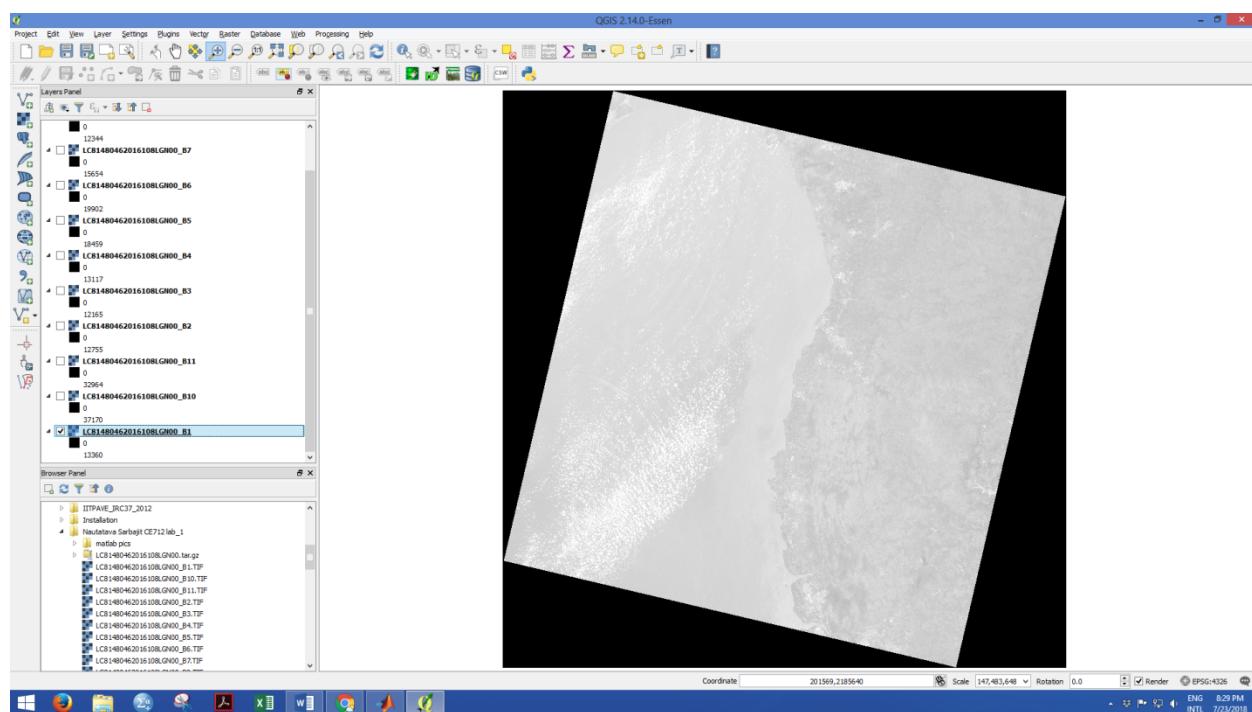
Data Source:-	https://landsat.usgs.gov/landsat-8-mission	Date of Acquisition:-	23 July 2018
Spatial Resolution:-	15m for Band 8 30m for the rest	Radiometric Resolution:-	12 bits

The spatial and frequencies of bands available in LANDSAT 8 in tabular form

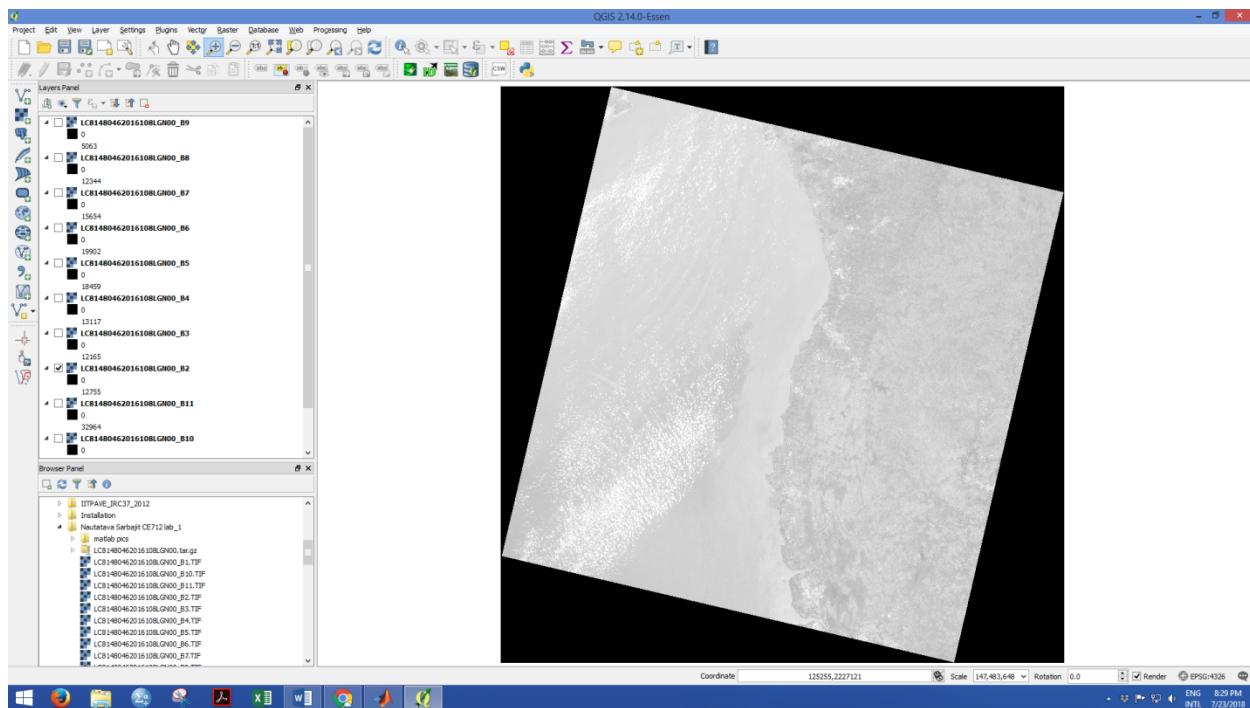
Band No.	Band Number	Spatial Resolution (in metres)	Frequency	
			Minimum (in μm)	Maximum (in μm)
1	Coastal / Aerosol	30	0.435	0.451
2	Blue	30	0.452	0.512
3	Green	30	0.533	0.59
4	Red	30	0.636	0.673
5	Near Infrared	30	0.851	0.879
6	Short Wavelength Infrared	30	1.566	1.651
7	Short Wavelength Infrared	30	2.107	2.294
8	Panchromatic	15	0.503	0.676
9	Cirrus	30	1.363	1.384
10	Long Wavelength Infrared	100	10.6	11.19

11	Long Wavelength Infrared	100	11.5	12.51
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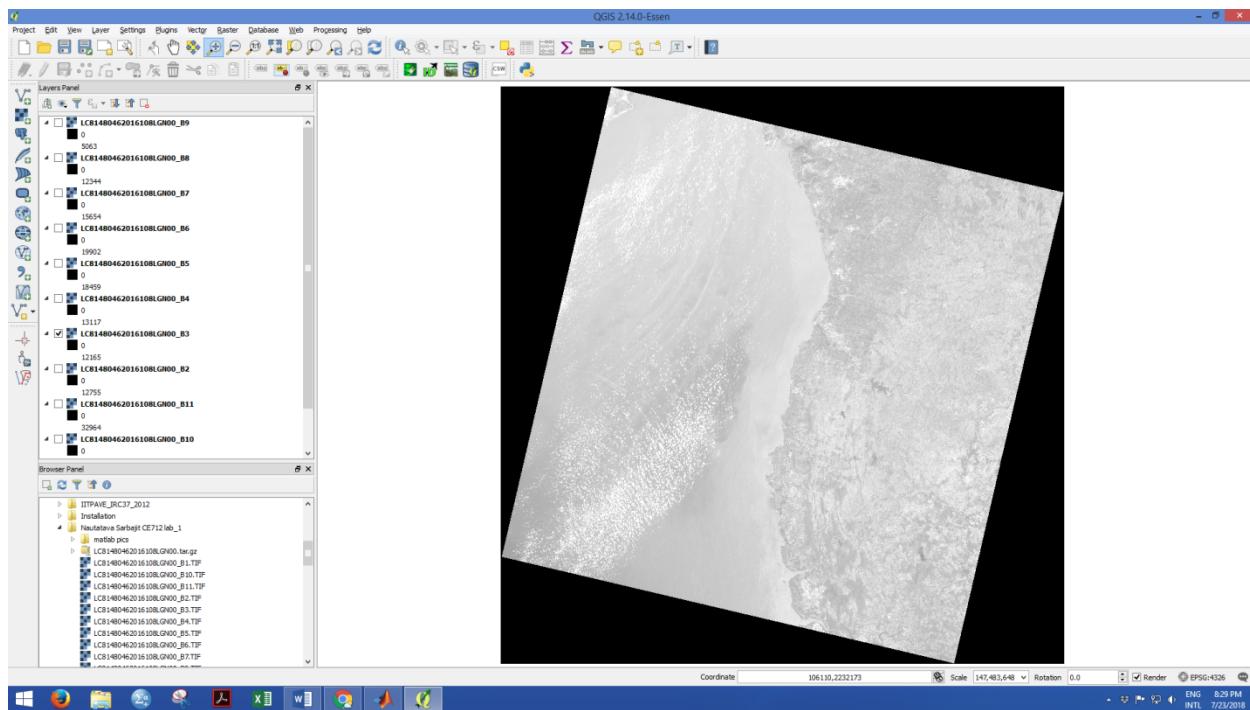
QGIS Screenshots of the 11 Bands



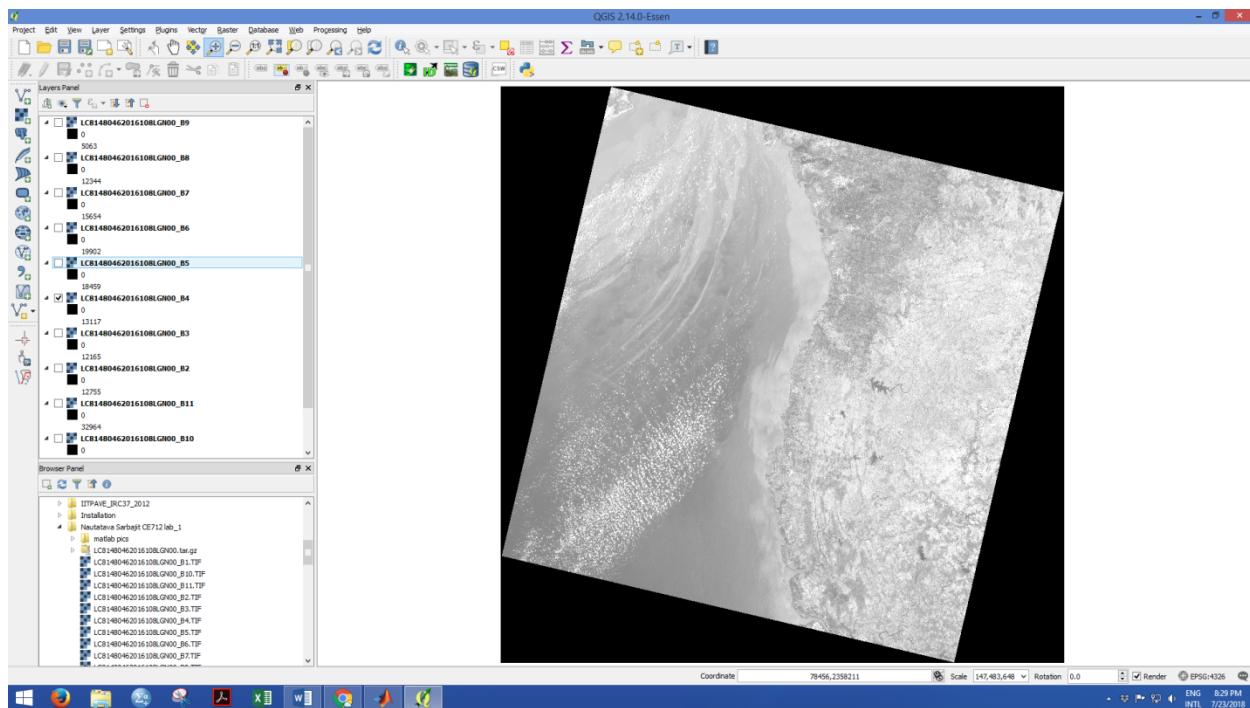
Band 1



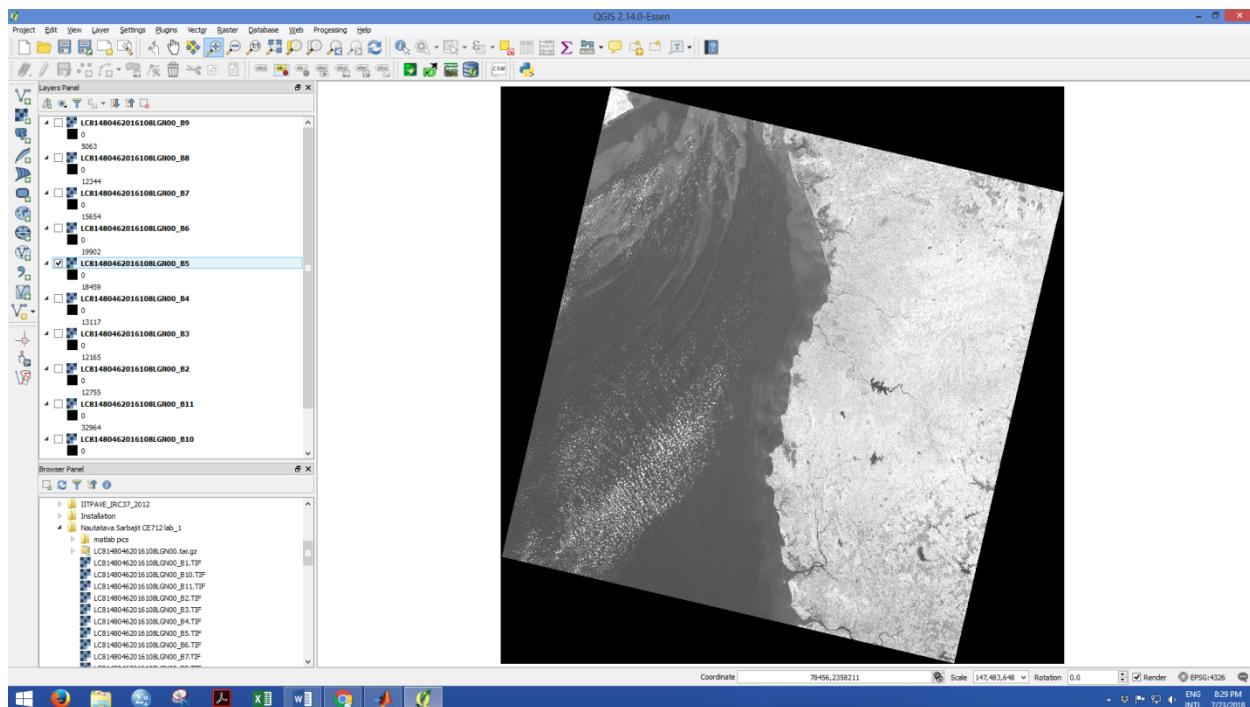
Band 2



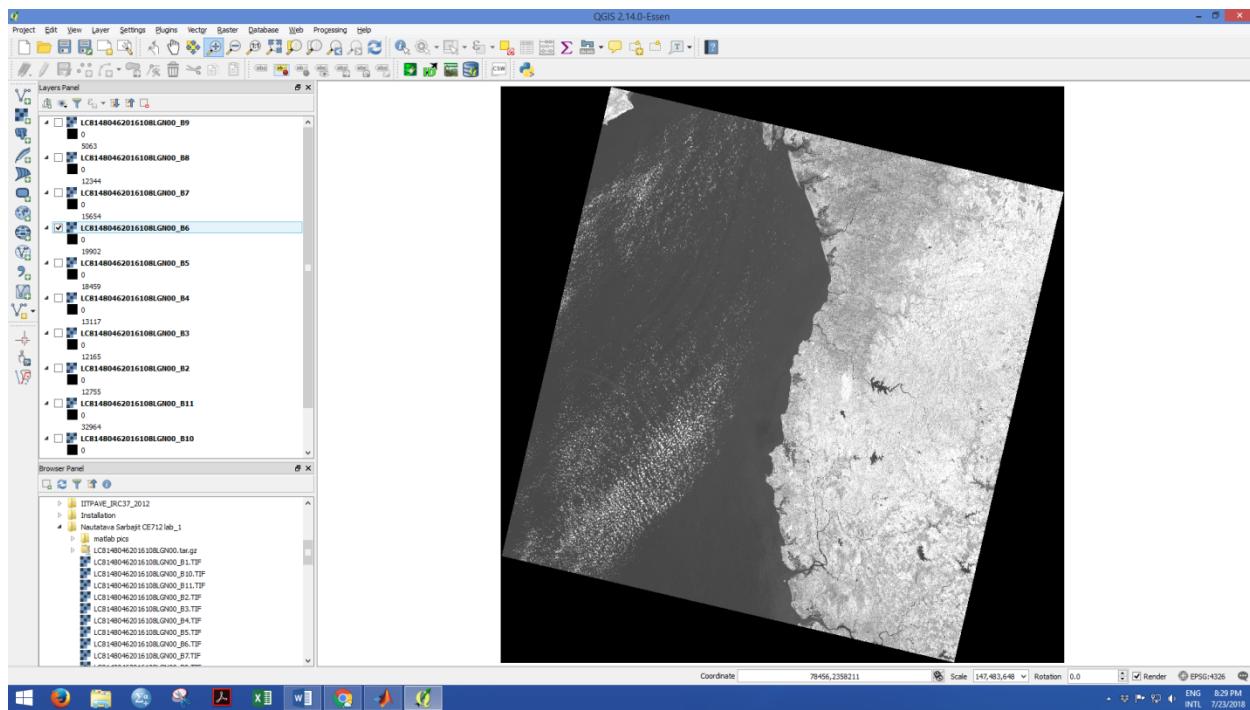
Band 3



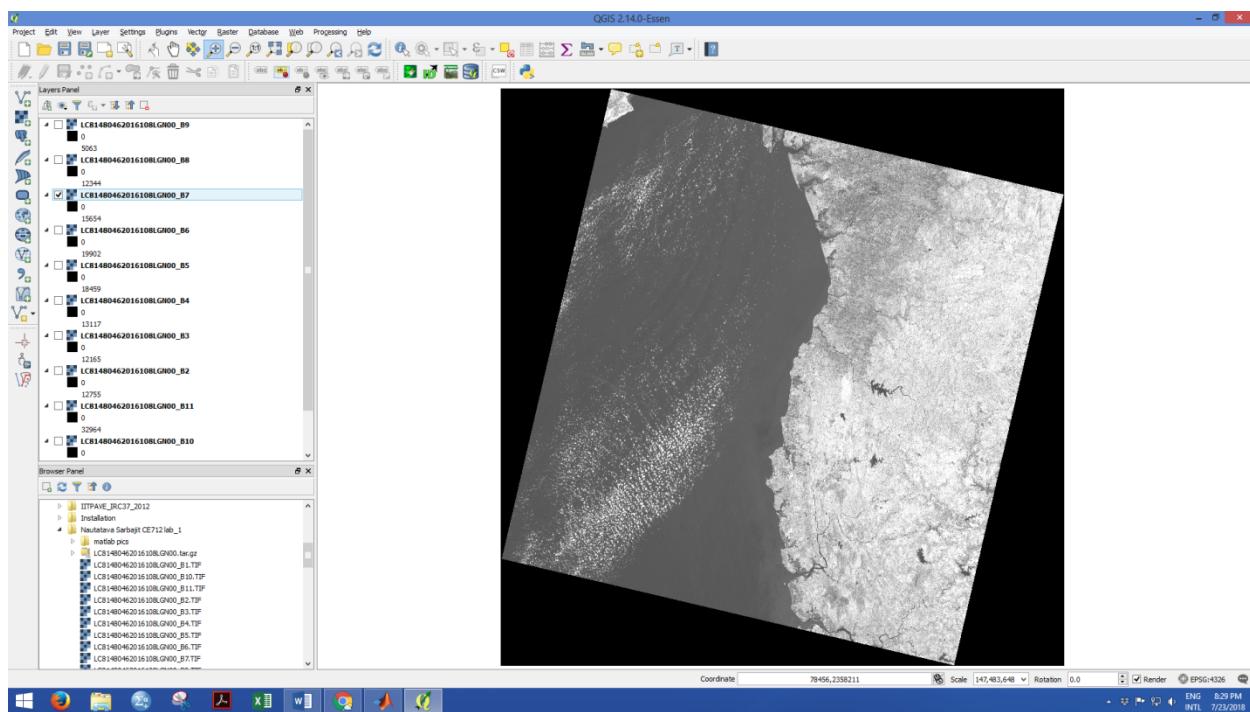
Band 4



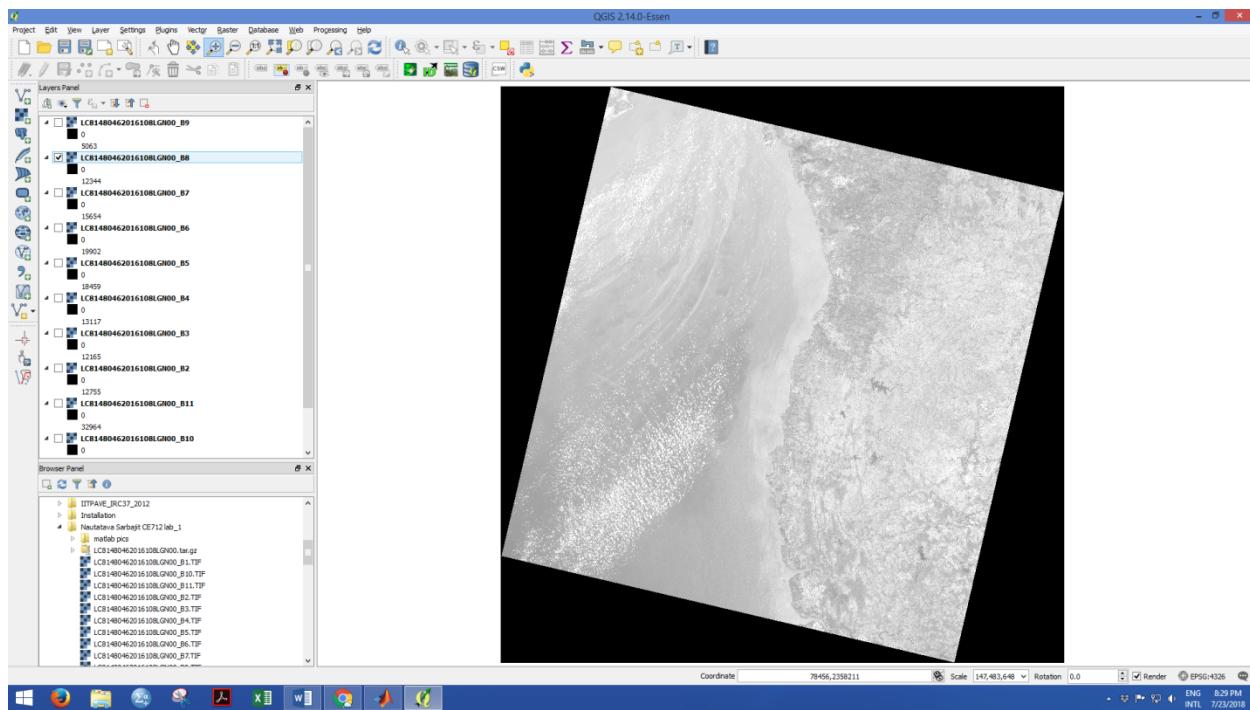
Band 5



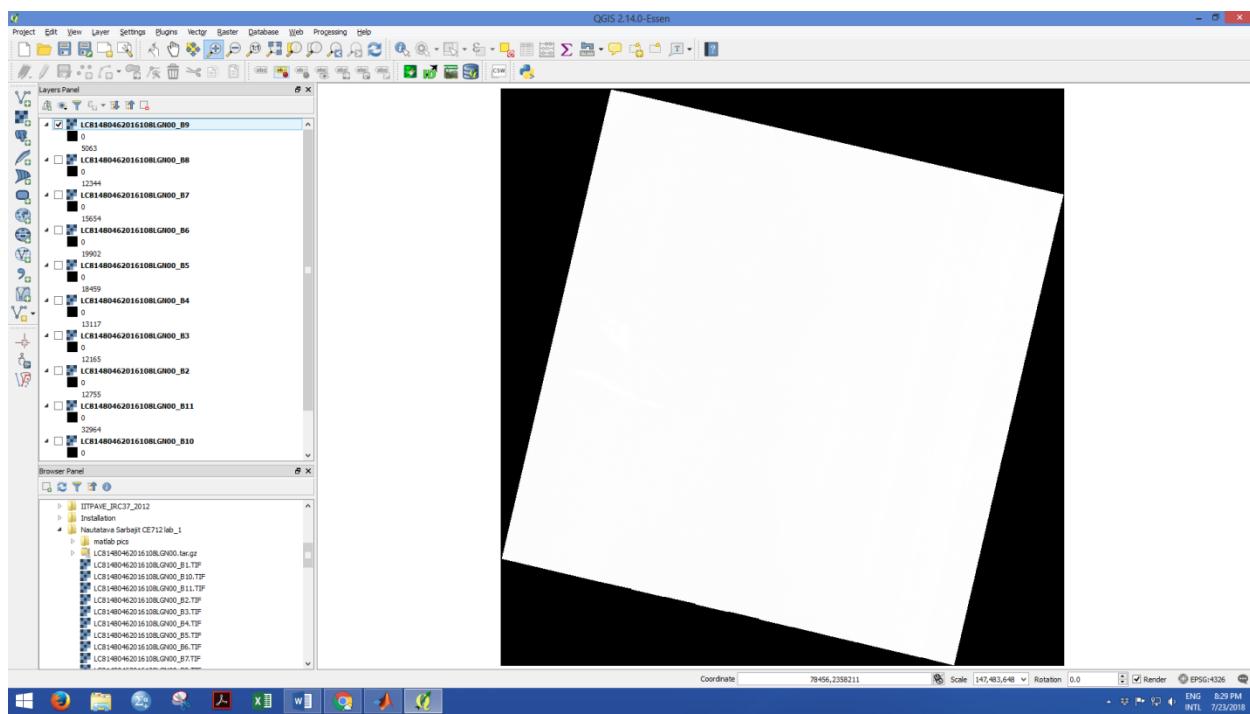
Band 6



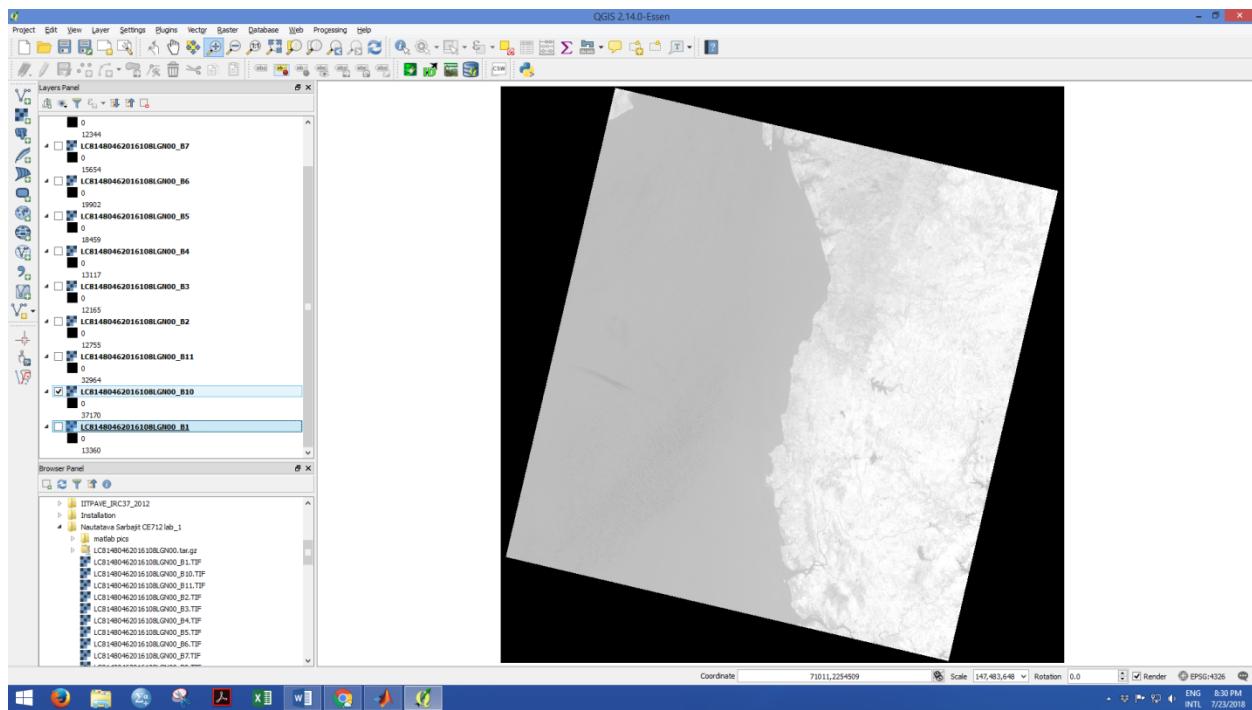
Band 7



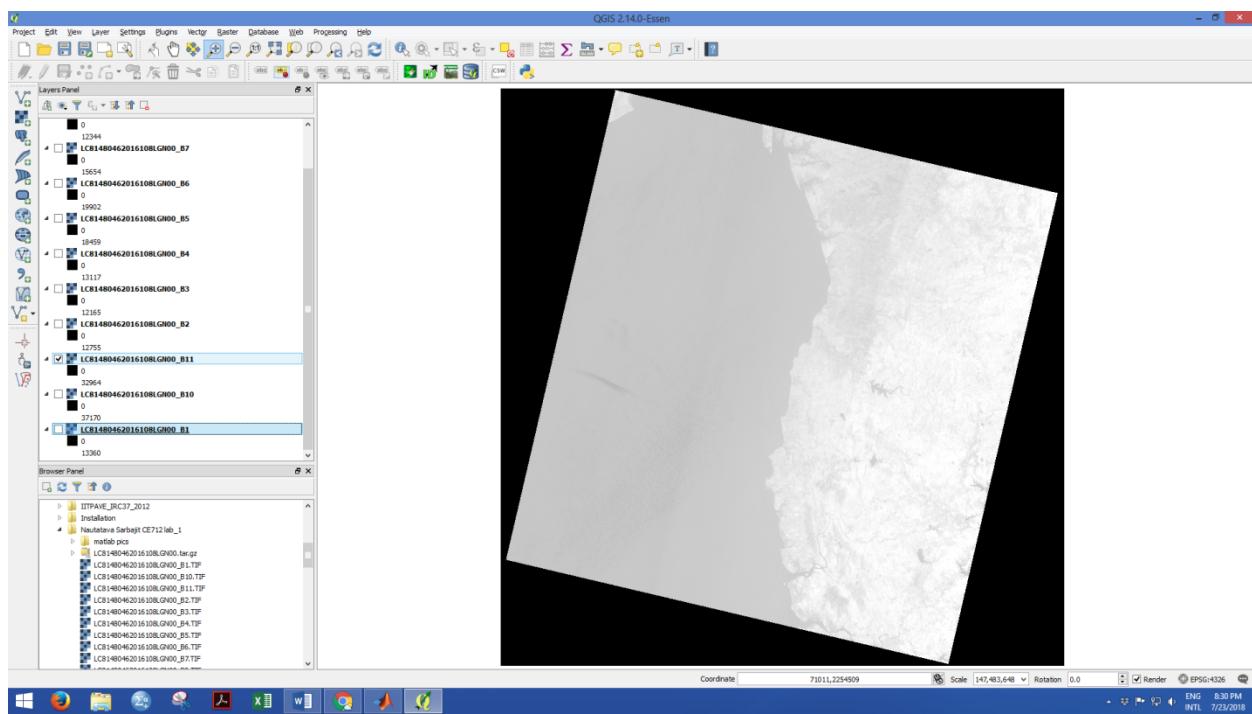
Band 8



Band 9

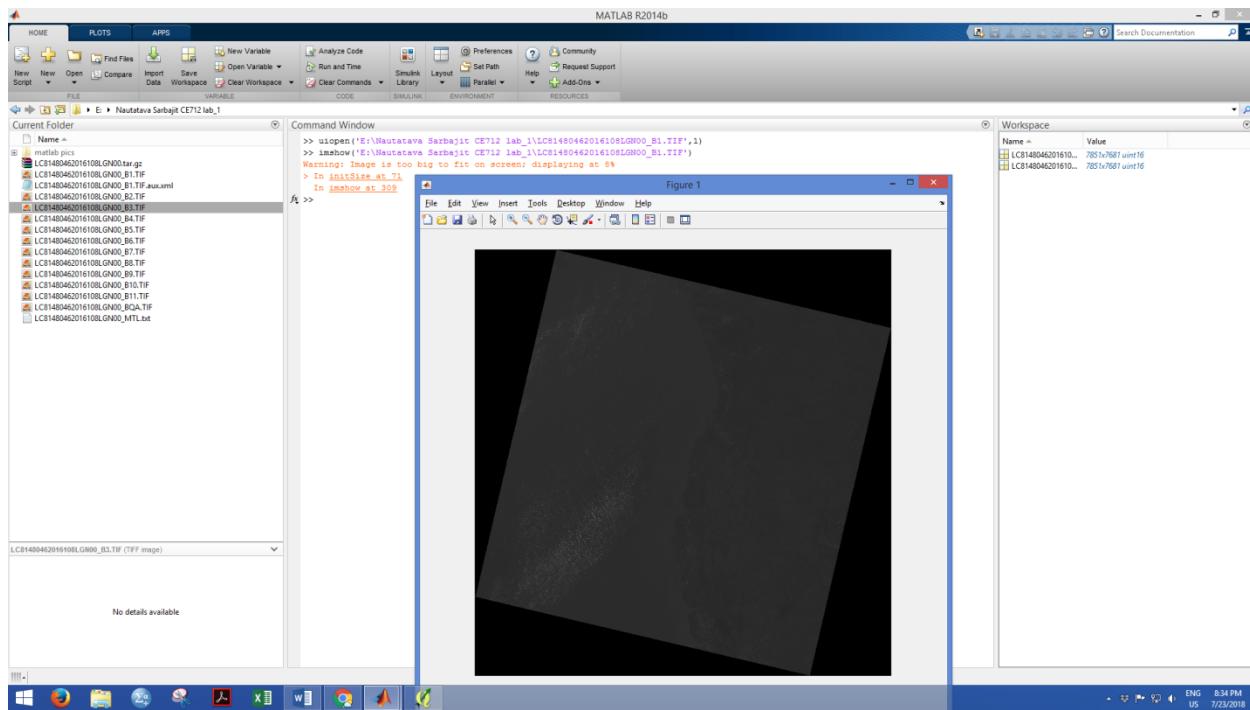


Band 10

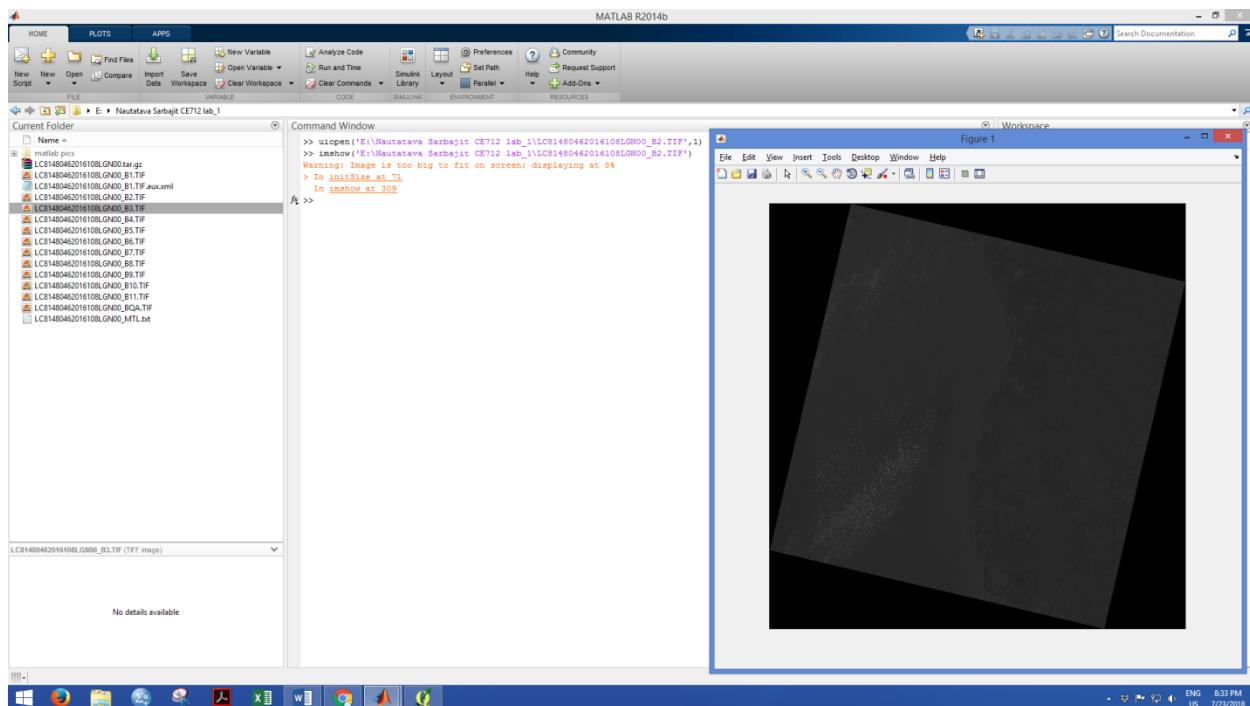


Band 11

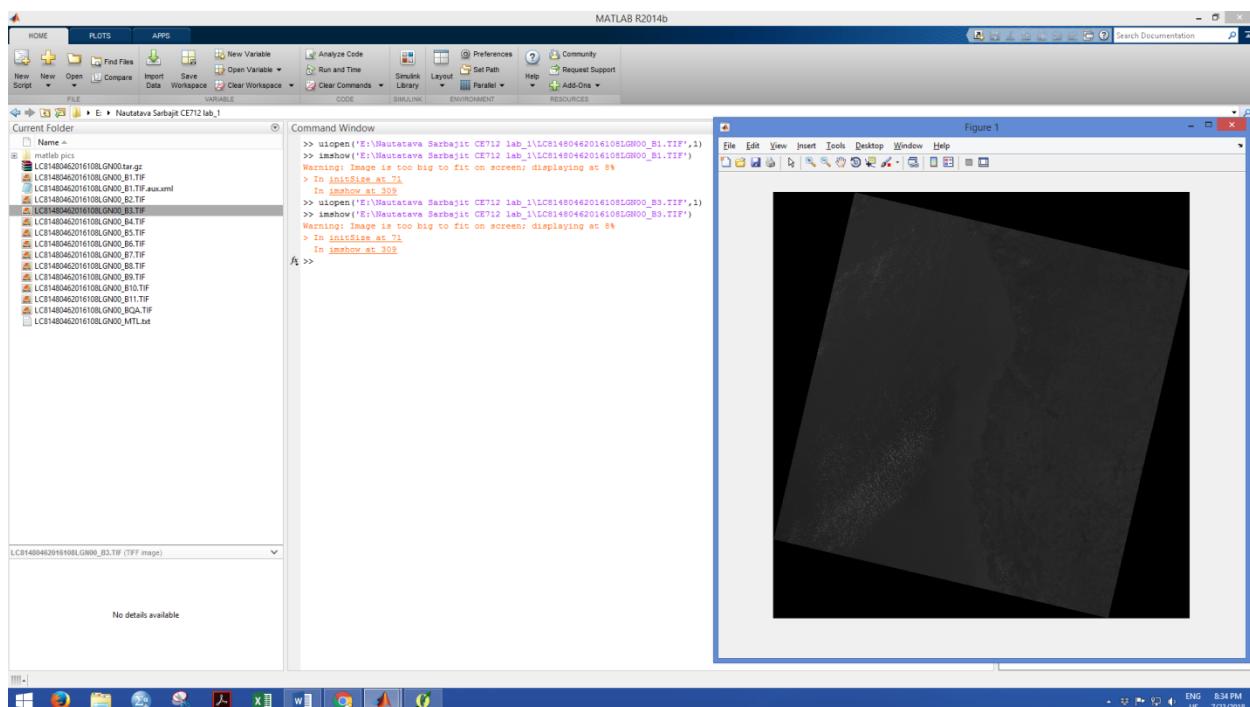
MATLAB Screenshots of the 11 Bands



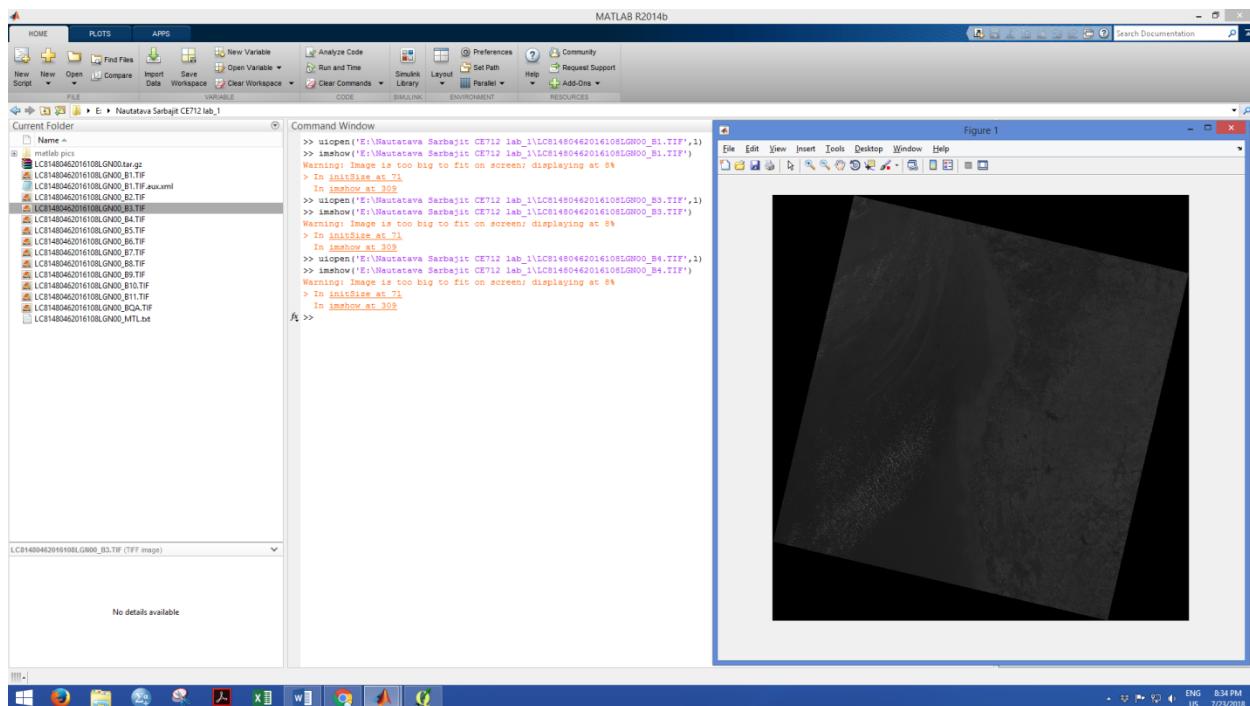
Band 1



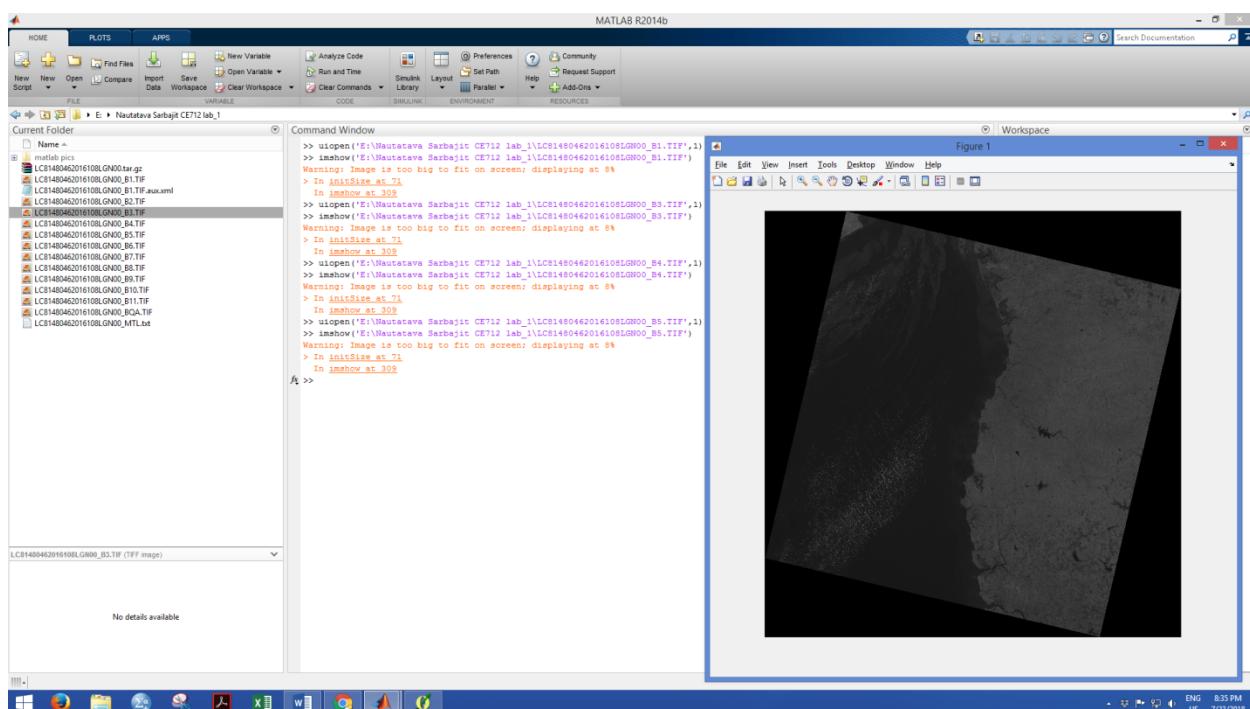
Band 2



Band 3

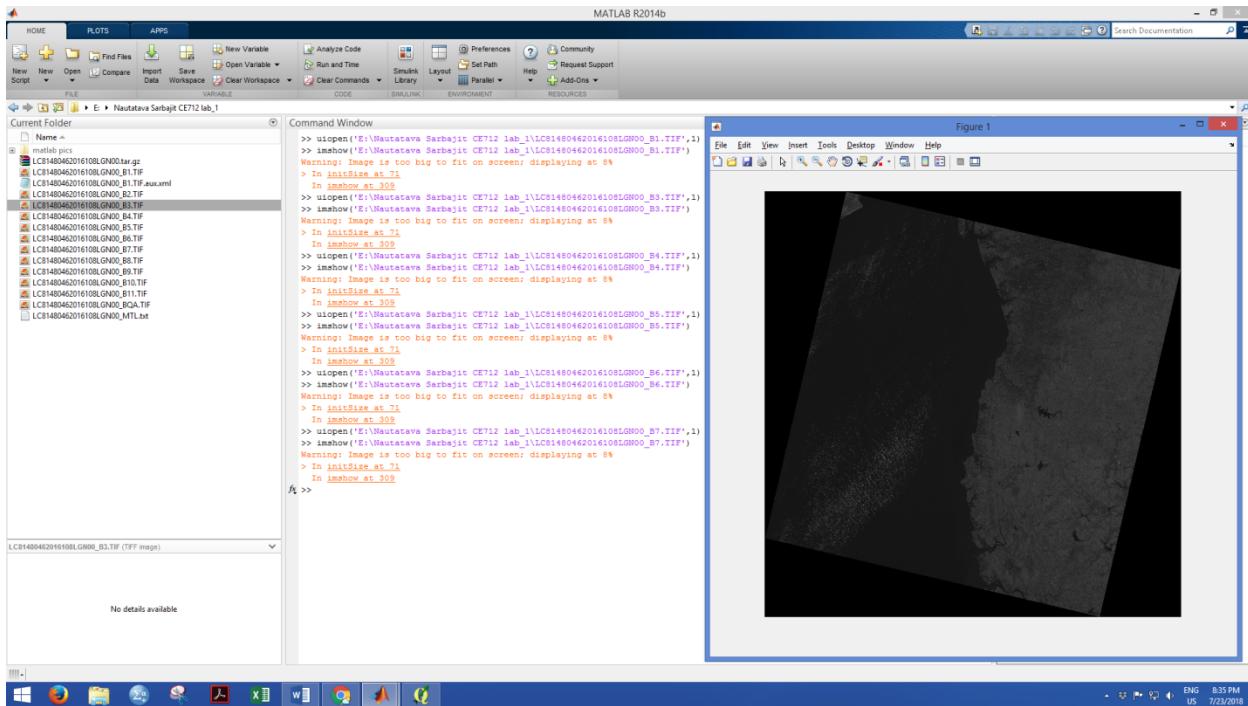
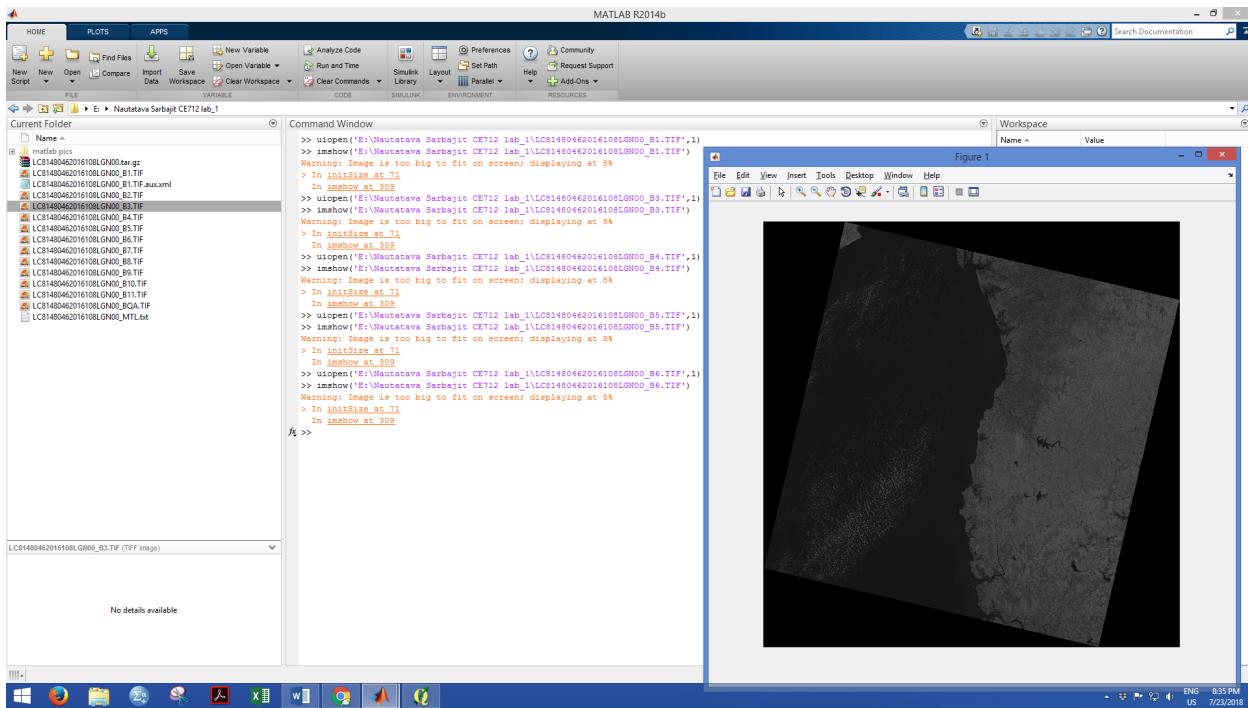


Band 4

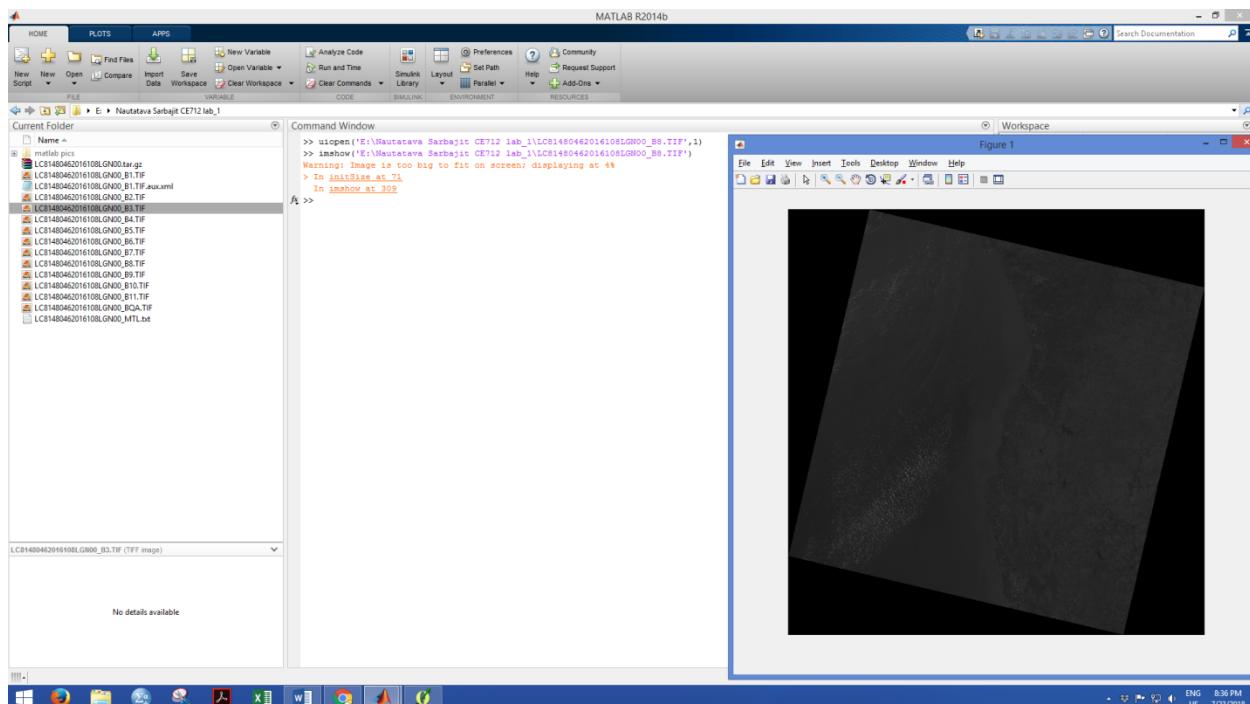


Band 5

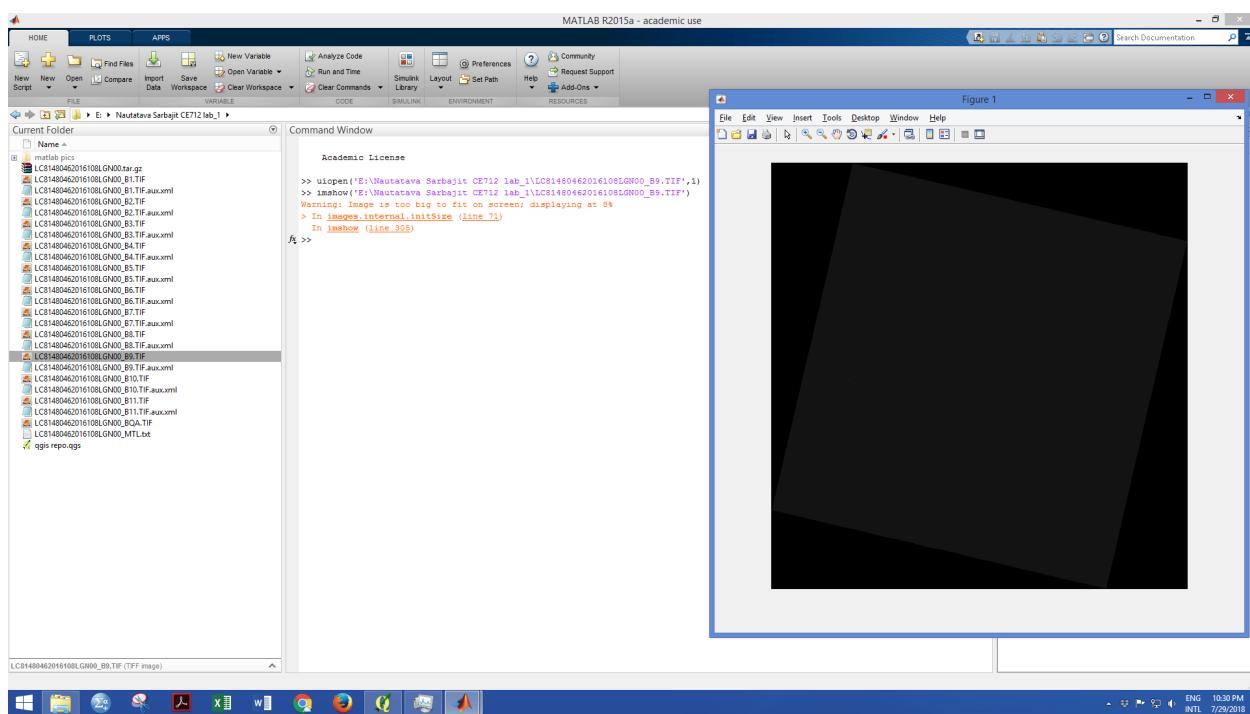
Band 6



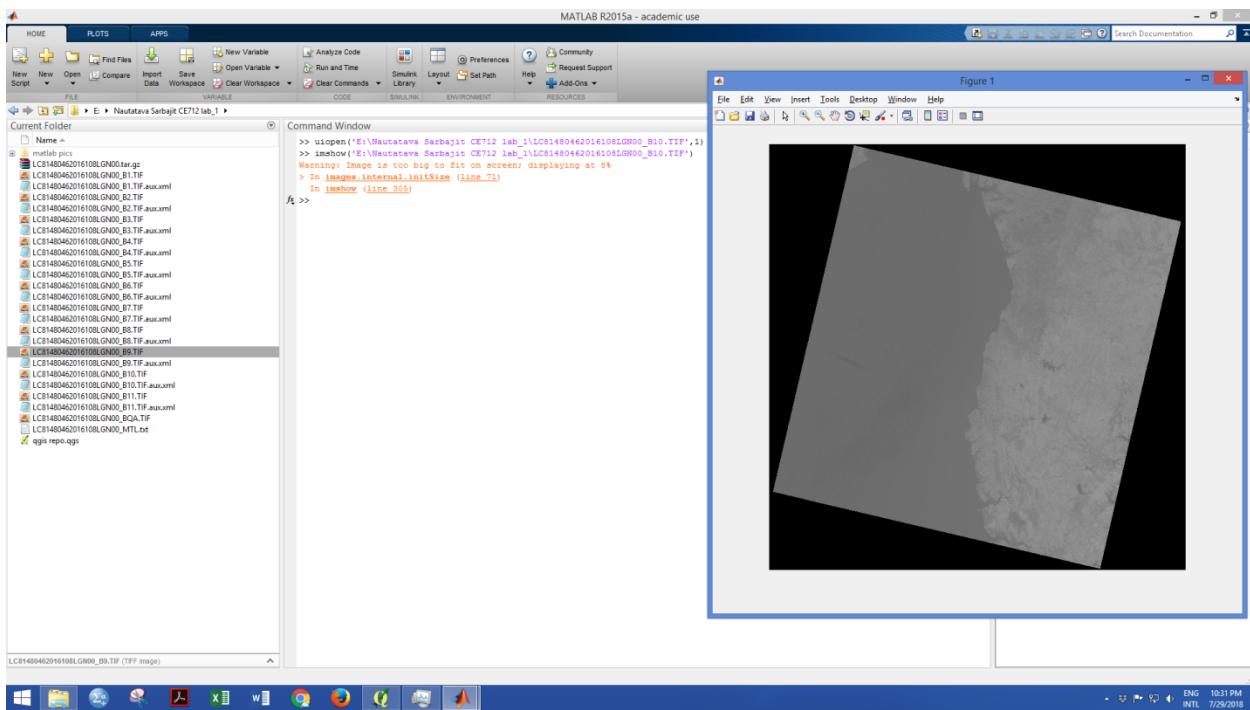
Band 7



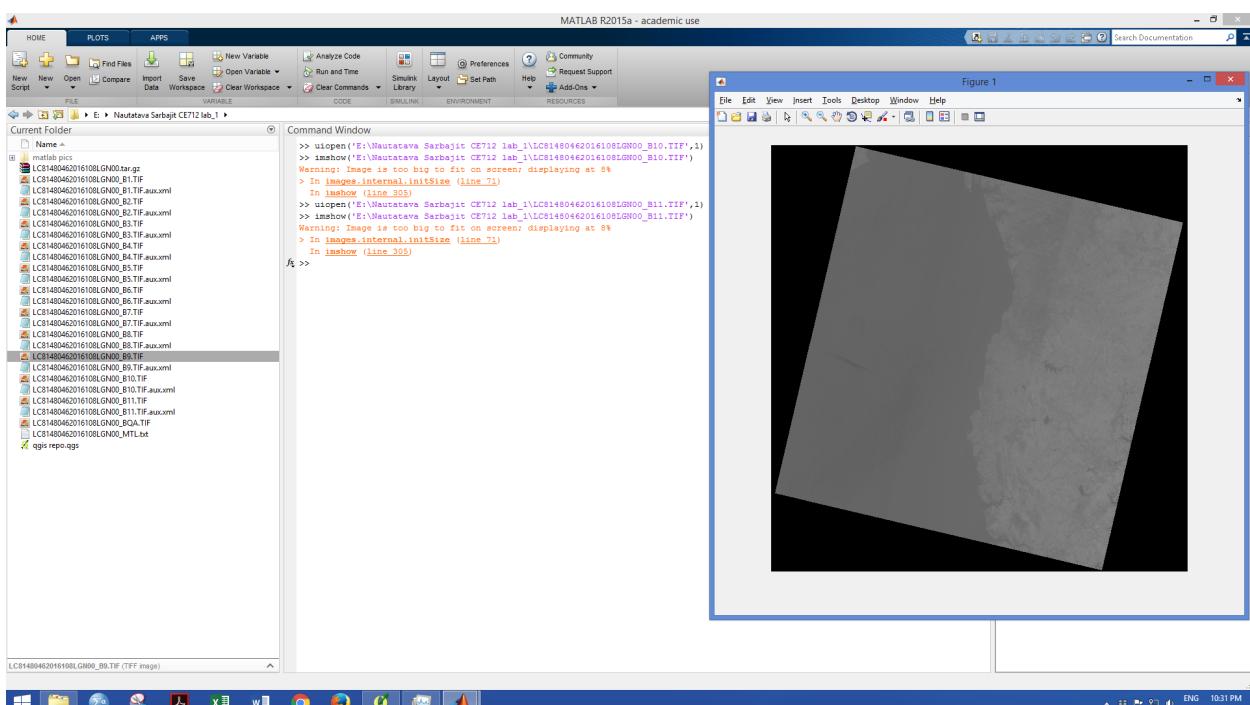
Band 8



Band 9



Band 10



Band 11

CONCLUSION

We also learn there are different spatial resolution for different bands of LANDSAT 8 quantitatively **15 meters** (panchromatic), **30 meters** (visible, NIR, SWIR) and **100 meters** (thermal). There are in total **11** bands. These have radiometric resolution of 12 bits.

We also got to learn about the properties of LANDSAT images and how to download it from from United States Geological Survey (USGS).