

ÇEV 361

Coğrafi Bilgi Sistemleri ve  
Uzaktan Algılama

Uydu Görüntüleri ve Kullanım  
Alanları

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<http://www.ozgurzeydan.com/>

# Uydu Görüntüsü Türleri

- Pankromatik Görüntüler
  - Tek bant, siyah-beyaz
- Multispektral Görüntüler
  - Çok bantlı
- Yalancı Renkli Görüntüler
  - Çok bantlı
- Termal Görüntüler
  - Termal kızılötesi (7-15  $\mu\text{m}$  dalga boyu)
- RADAR Görüntüleri

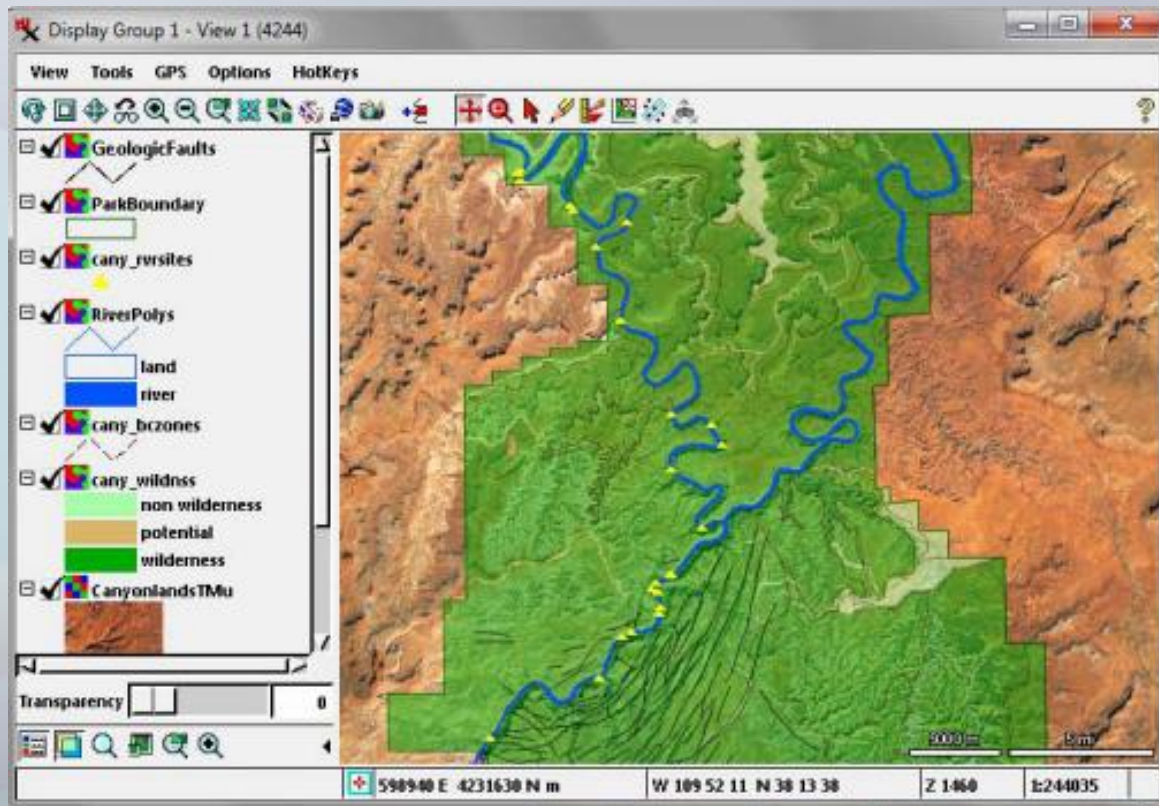
# Uzaktan Algılama için Yazılımlar

- TNTgis 2022 Free
  - <http://www.microimages.com/downloads/tntmips.htm>
- LEOWorks
  - <http://leoworks.asrc.ro/>
  - LEOWorks yazılımının çalışması için bilgisayarınızda Java Runtime Environment yüklü olmalıdır.



# TNTMips Free

- TNTmips Tutorial Booklets
  - <http://www.microimages.com/documentation/html/tutorials.htm>



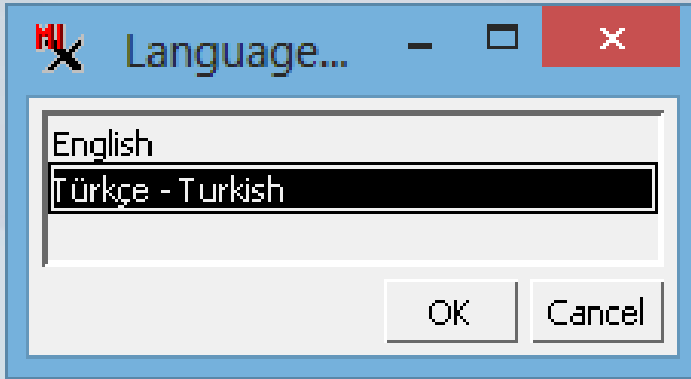
# TNTMips Free

Kurulum yapıldıktan sonra Lisans türü 'Free(no key required)' olarak seçilmelidir.

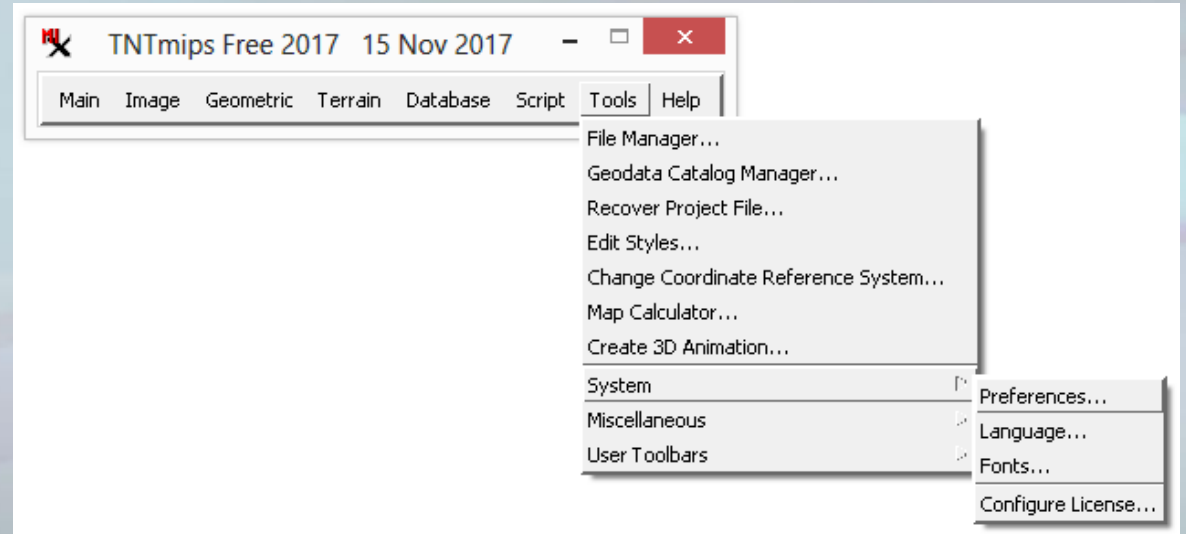


# TNTMips Türkçe Dil Seçeneği

Başlangıçta Türkçe dil seçeneği

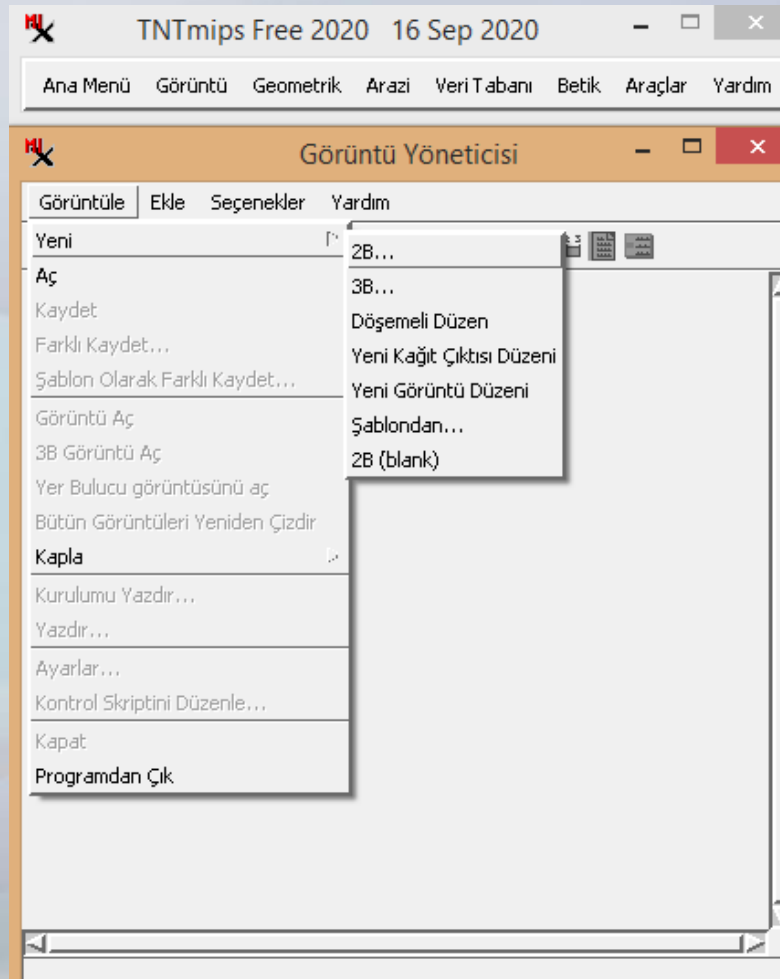


Başlangıçta İngilizce seçilirse, dili Türkçe'ye çevirmek

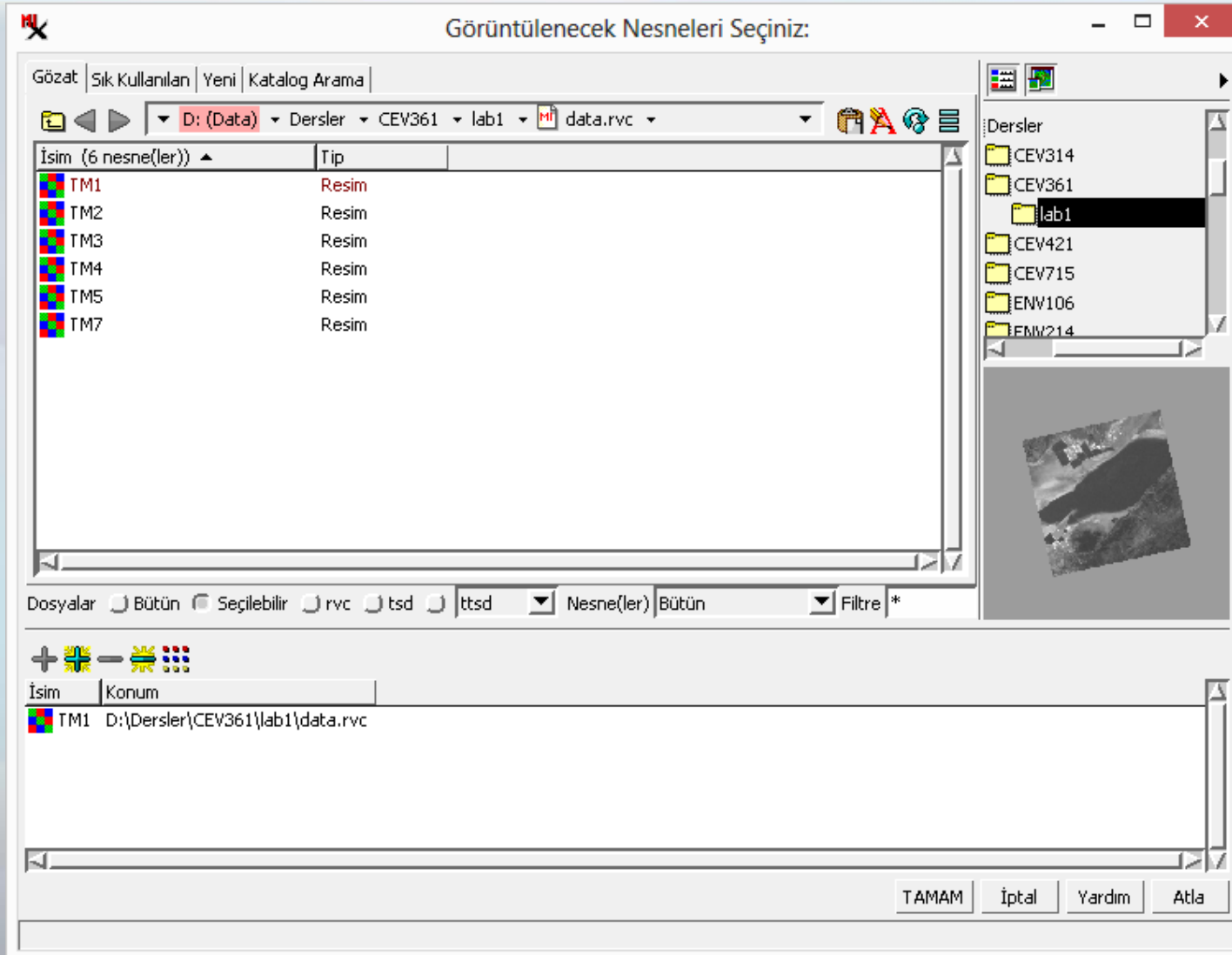


# TNTMips Görüntü Yöneticisi

- Ana Menü > Görüntüle > Yeni > 2B...

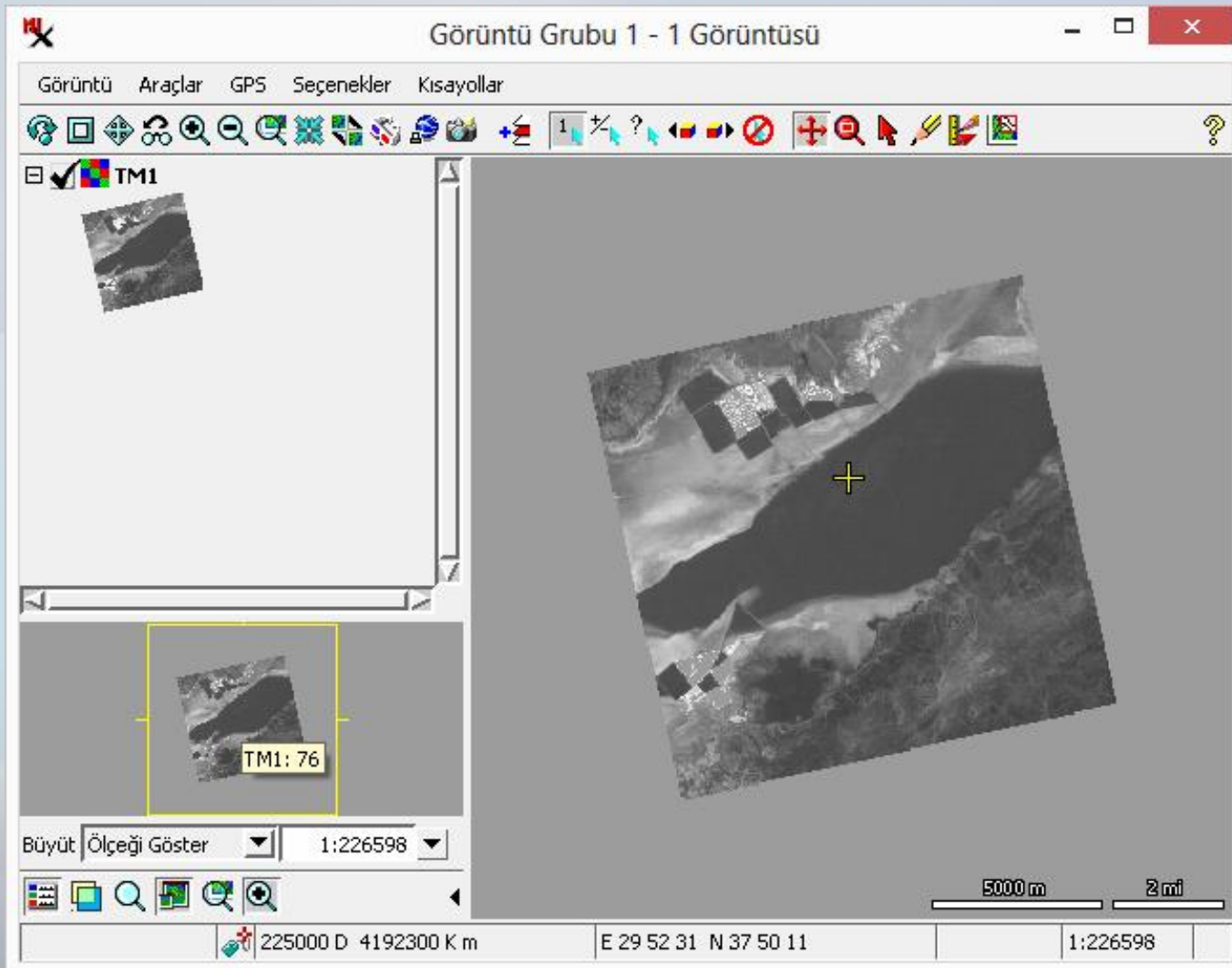


# TNTMips Görüntü Yöneticisi



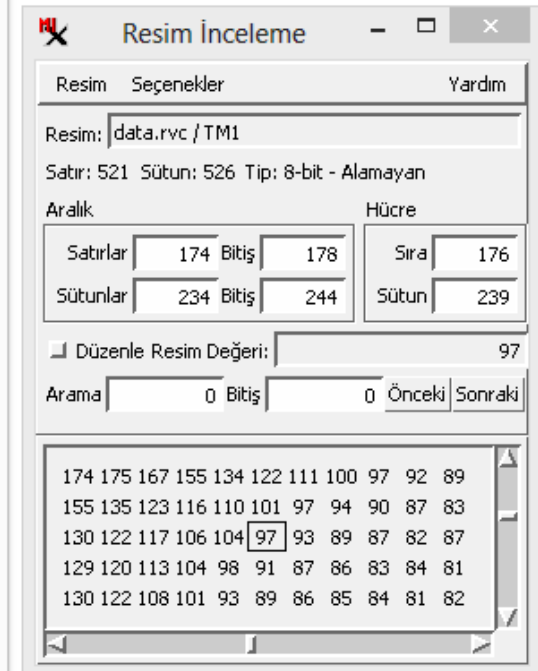
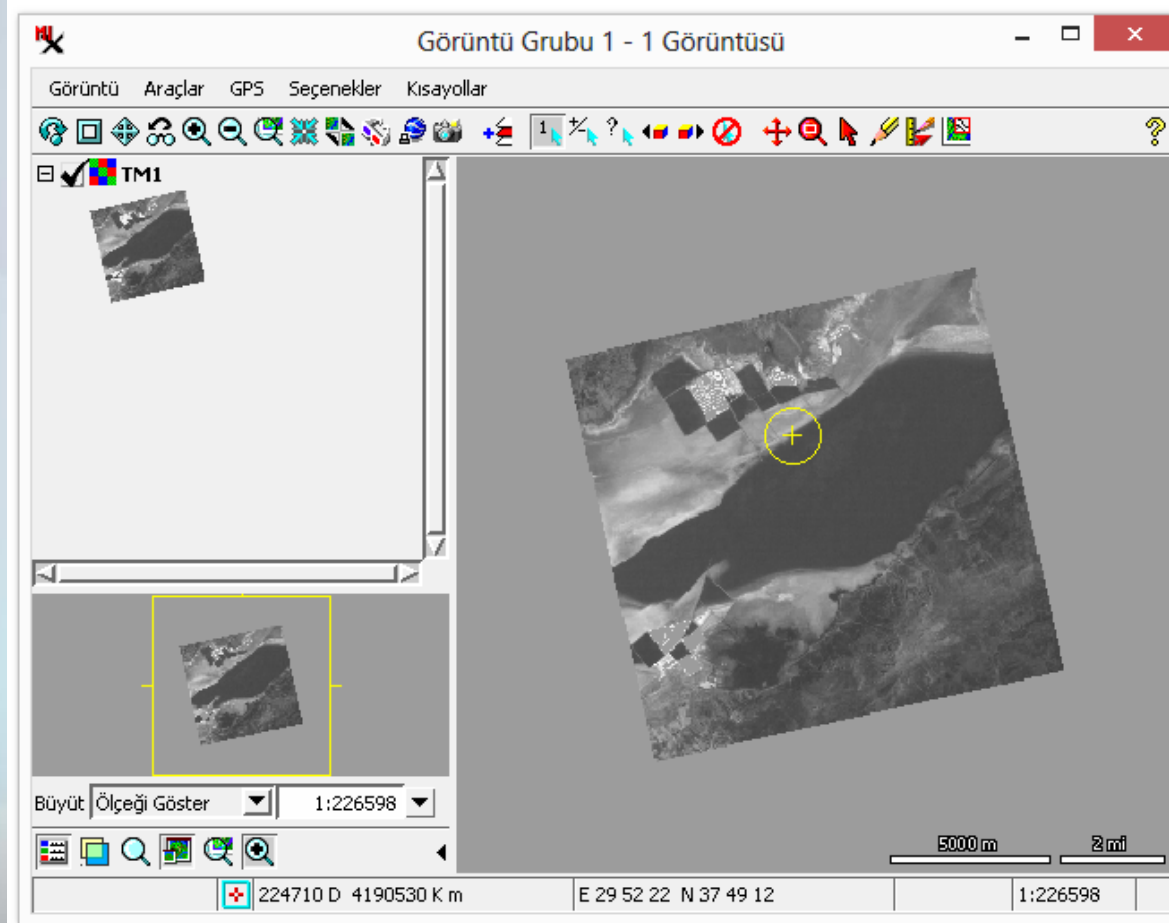


# TNTMips – Tek Bant Görüntü

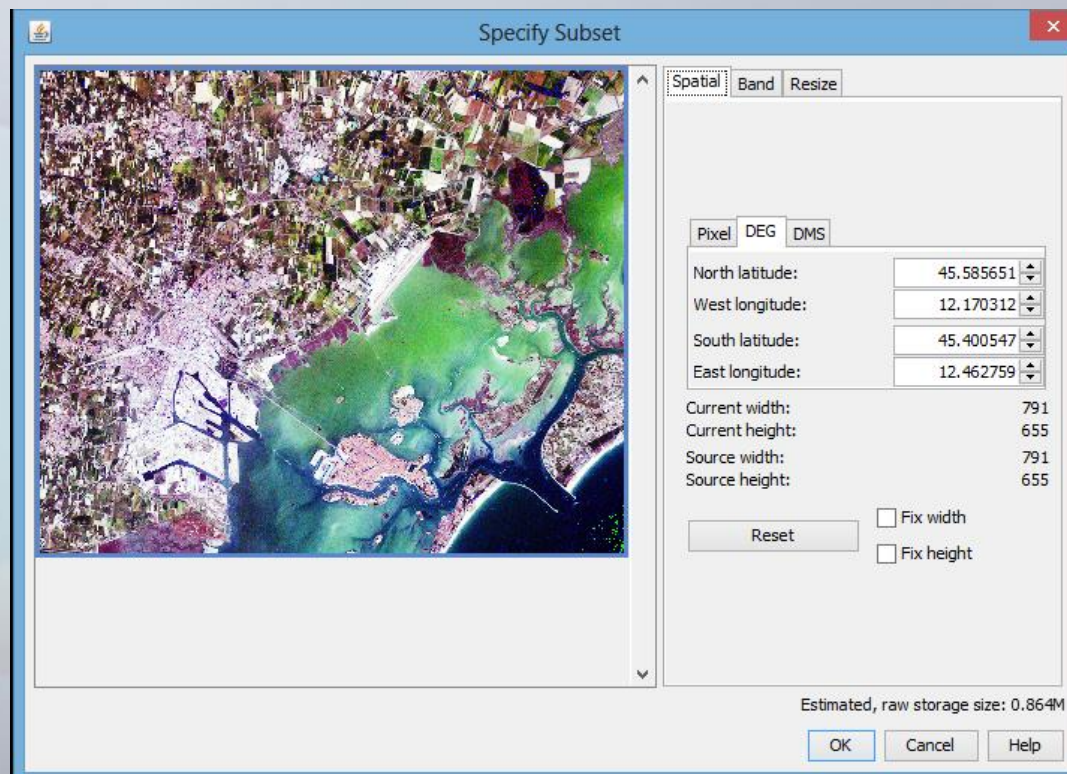
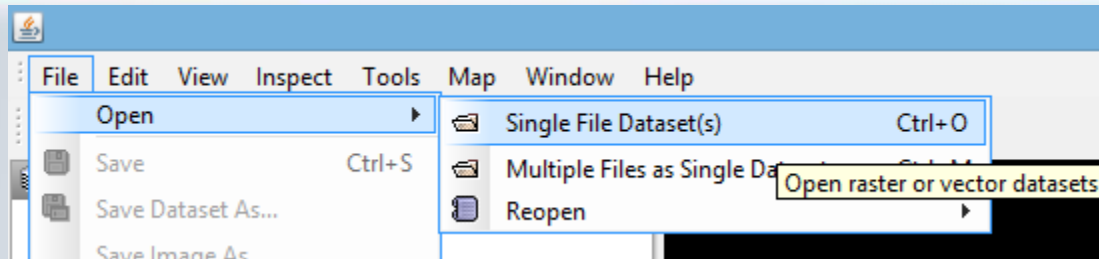


# TNTMips – Resim İncele

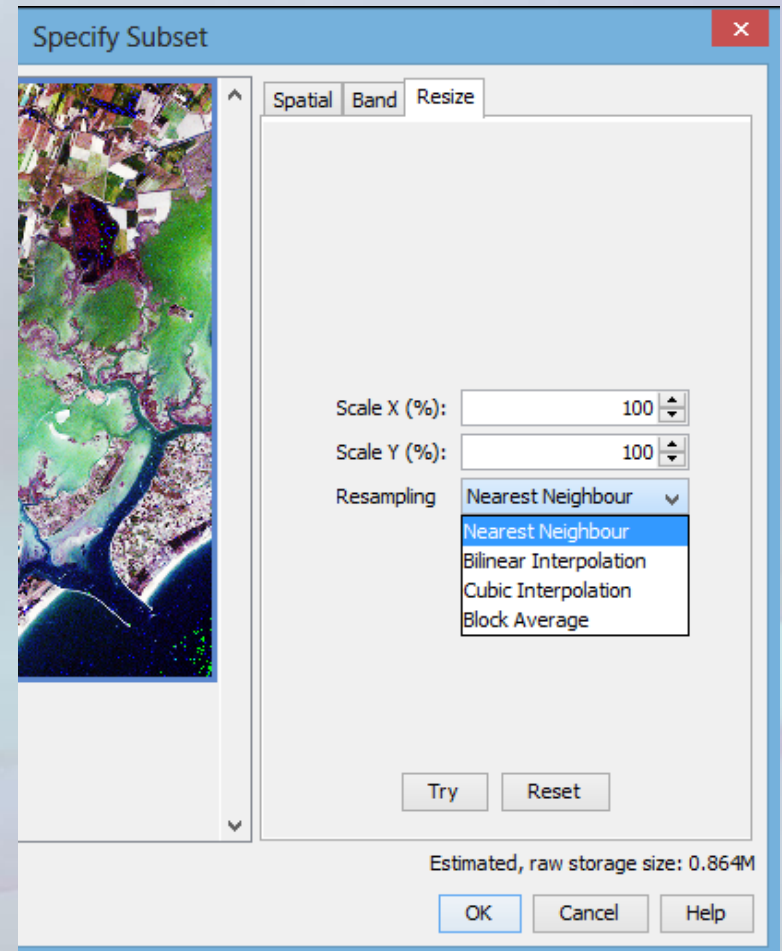
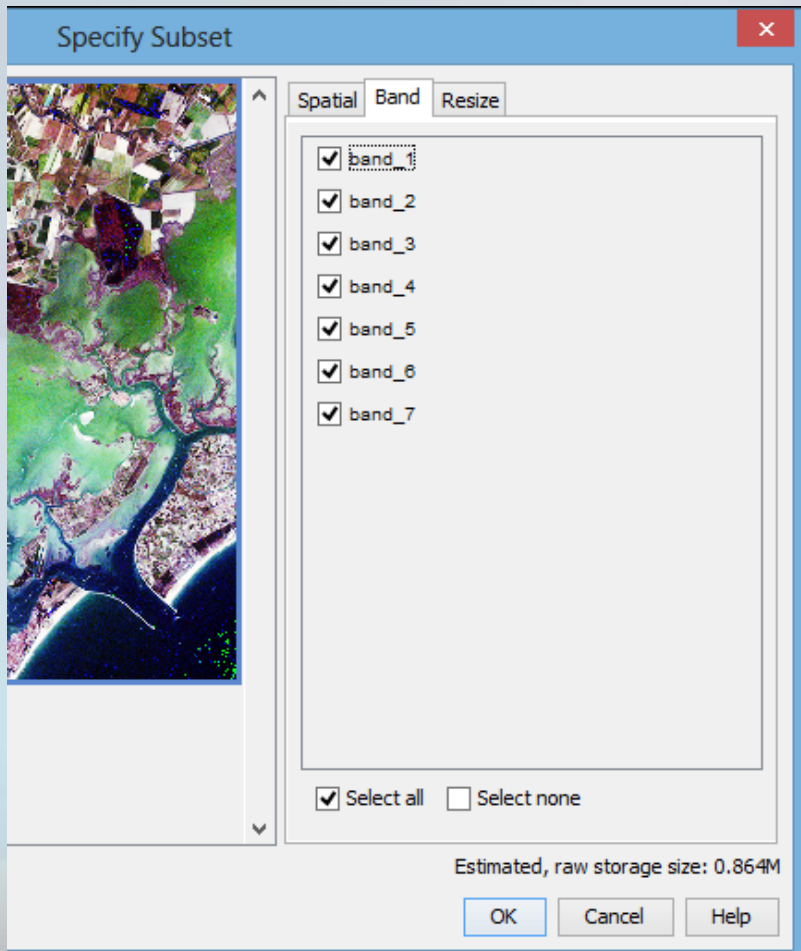
## Araçlar > Resim İncele



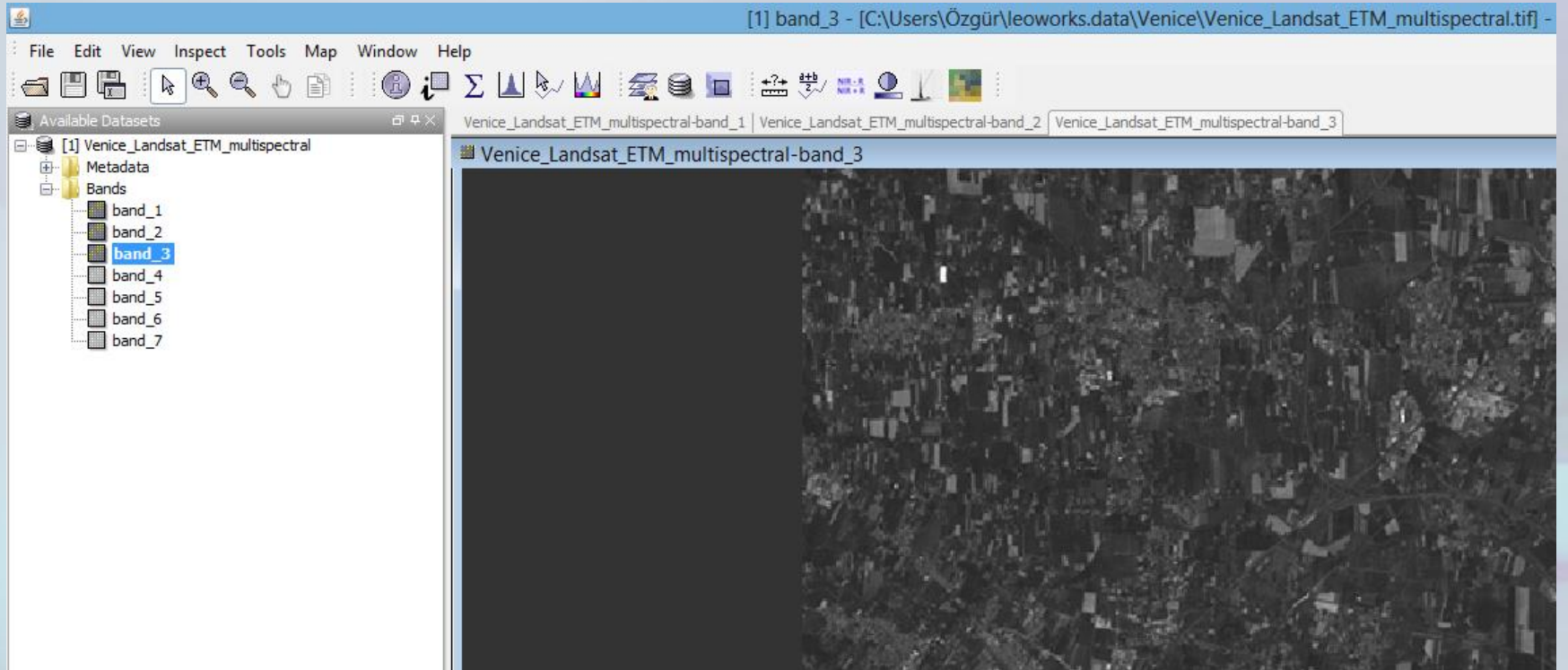
# LEOWorks



# LEOWorks

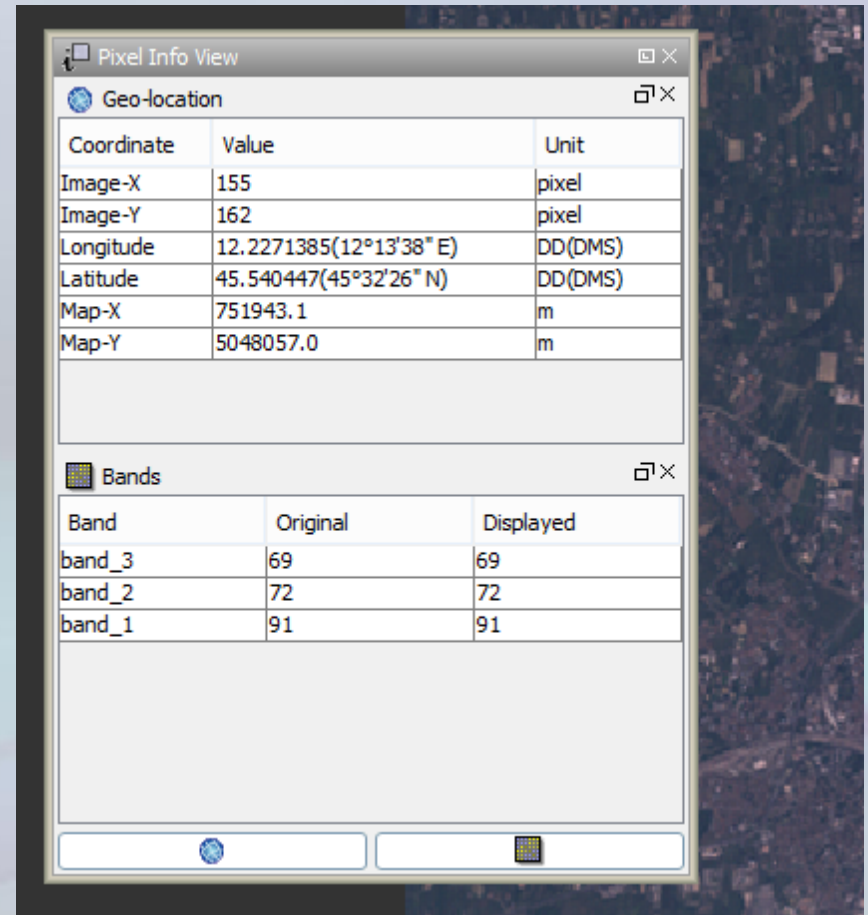


# LEOWorks – Farklı Bantlardaki Görüntüler



# LEOWorks – Piksel Bilgisi Okuma

- Inspect > Pixel Info



The screenshot shows the 'Pixel Info View' window in LEOWorks. It is divided into two main sections: 'Geo-location' and 'Bands'. The 'Geo-location' section contains a table with coordinates and units. The 'Bands' section contains a table with band names, original values, and displayed values.

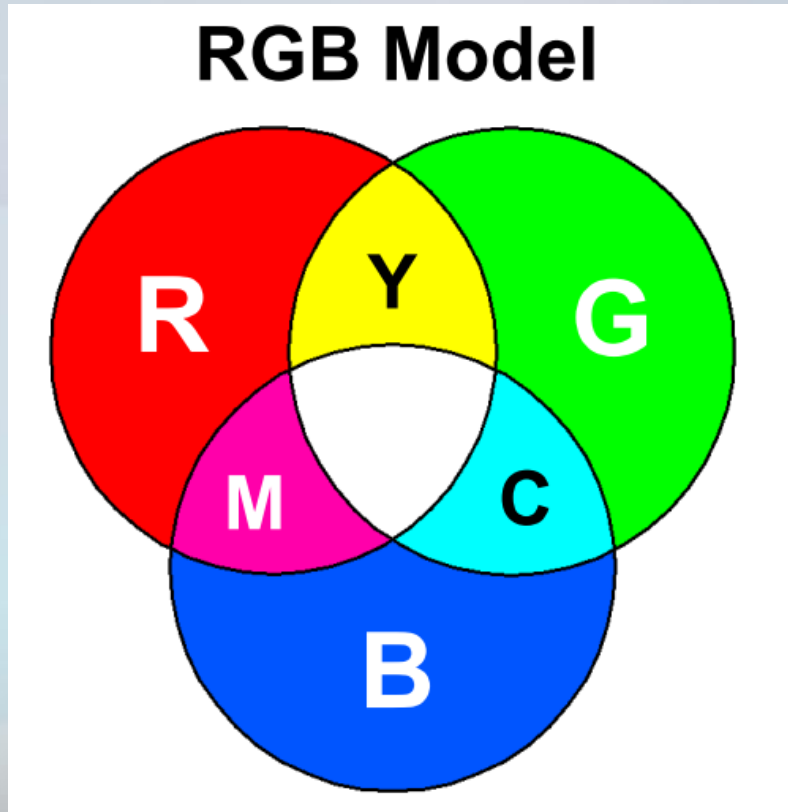
Coordinate	Value	Unit
Image-X	155	pixel
Image-Y	162	pixel
Longitude	12.2271385(12°13'38" E)	DD(DMS)
Latitude	45.540447(45°32'26" N)	DD(DMS)
Map-X	751943.1	m
Map-Y	5048057.0	m

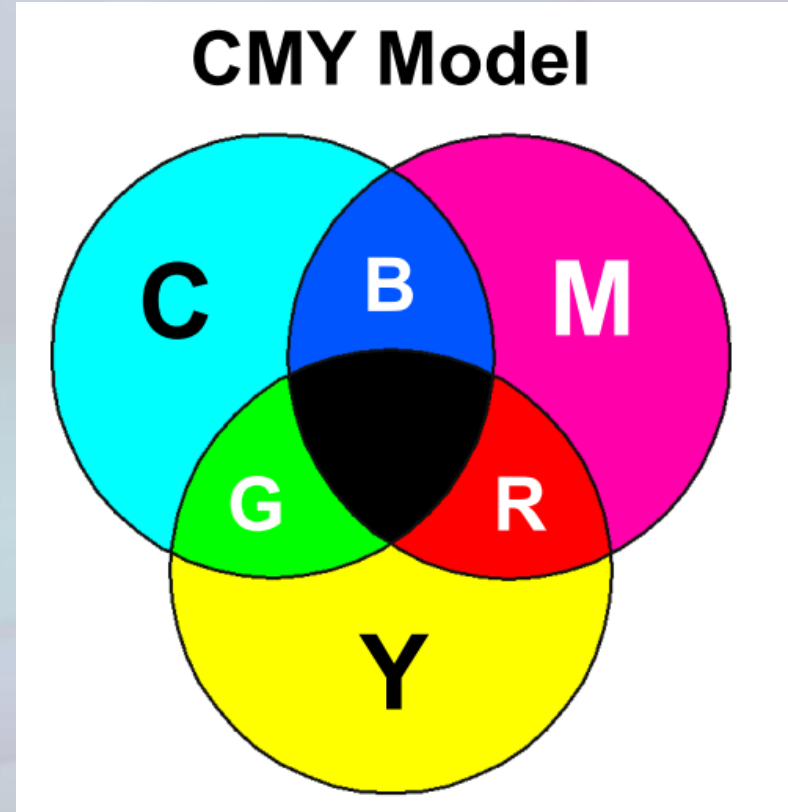
Band	Original	Displayed
band_3	69	69
band_2	72	72
band_1	91	91

# Renk Teorileri

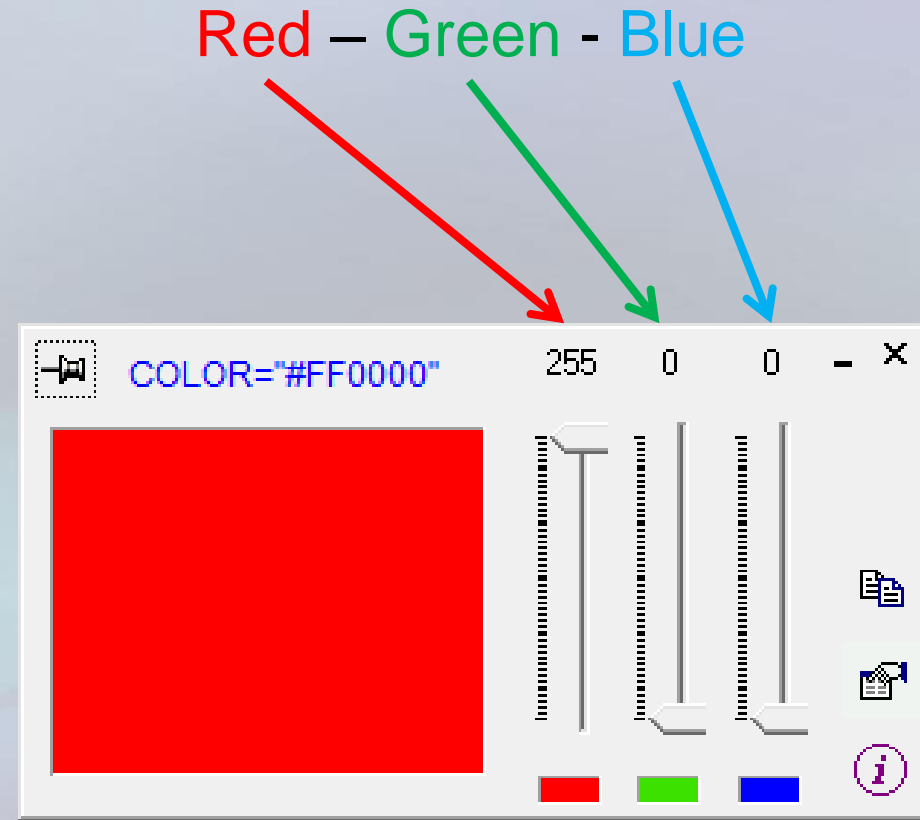
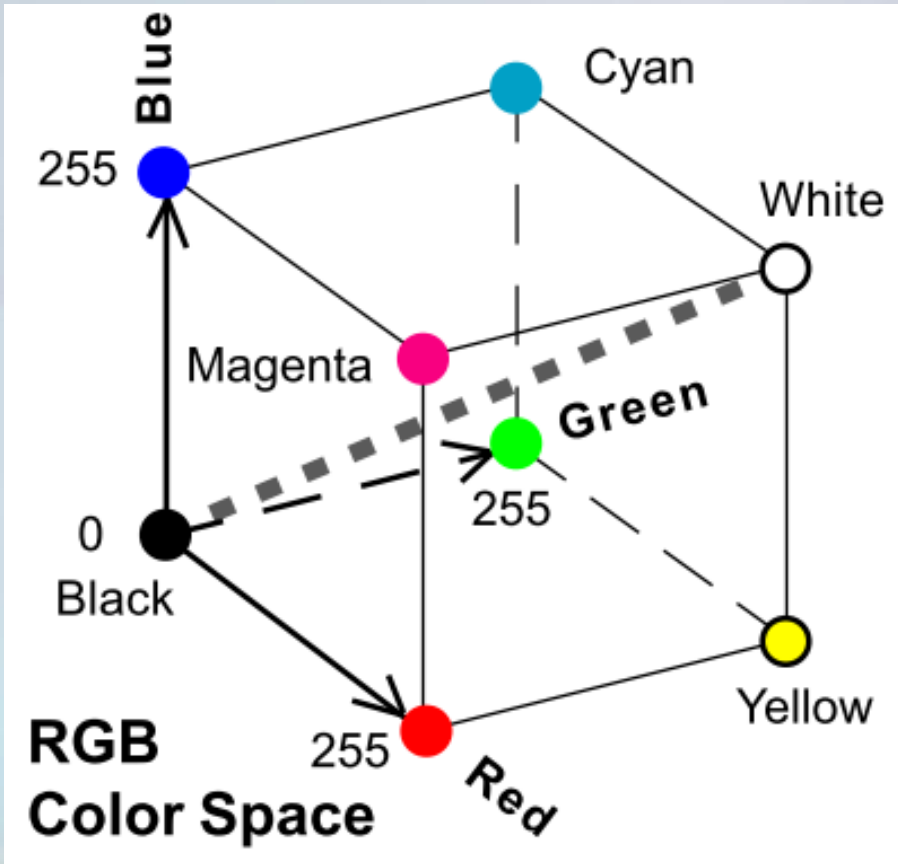
## Eklemeli renk teorisi



## Çıkarmalı renk teorisi



# RGB (Red – Green - Blue) Kavramı

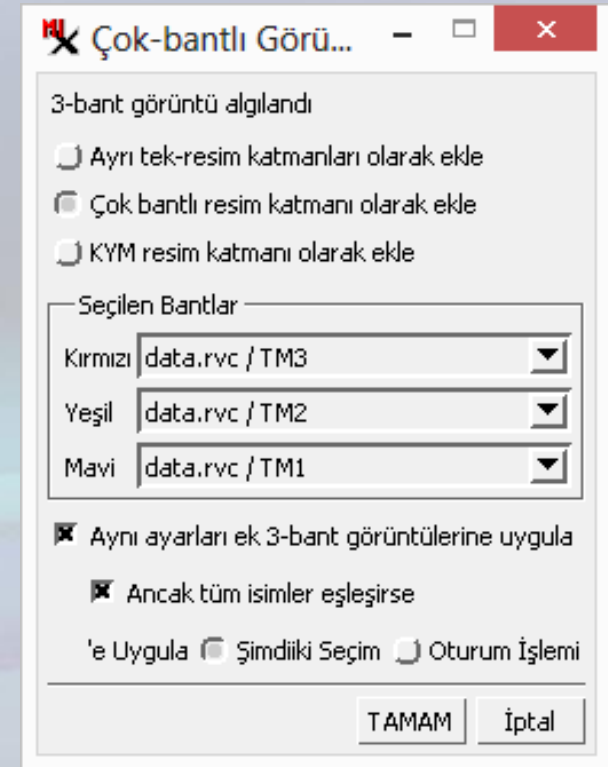
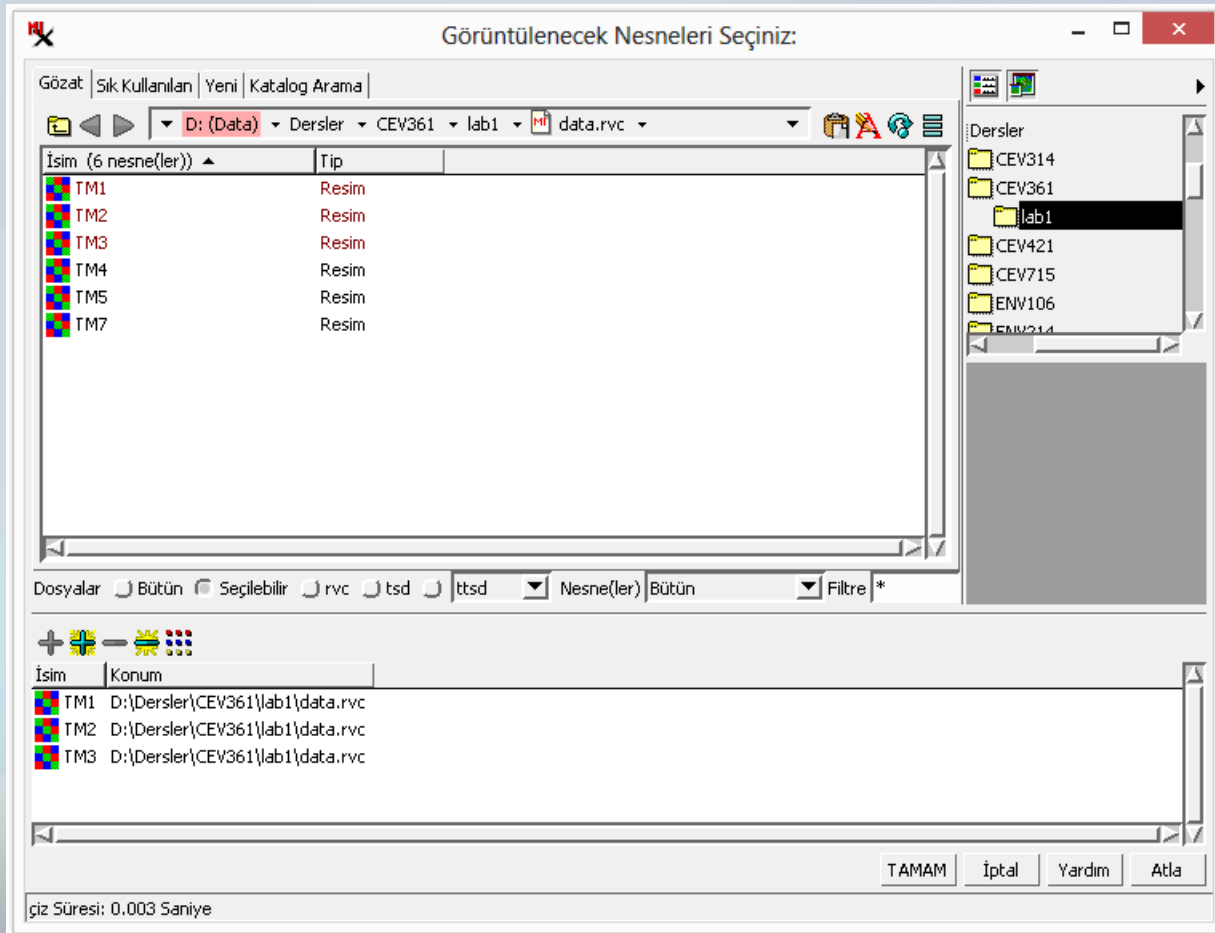


<https://www.programming.de/download/archive/rgbmixer.zip>



# TNTMips Görüntü Yöneticisi

- Ana Menü > Görüntüle > Yeni > 2B...



# TNTMips – RBG Görüntü

Görüntü Grubu 2 - 1 Görüntüsü

Görüntü Araçlar GPS Seçenekler Kısayollar

TM3, TM2, TM1 (çok-bantlı)

Büyüt Ölçeği Göster 1:226598

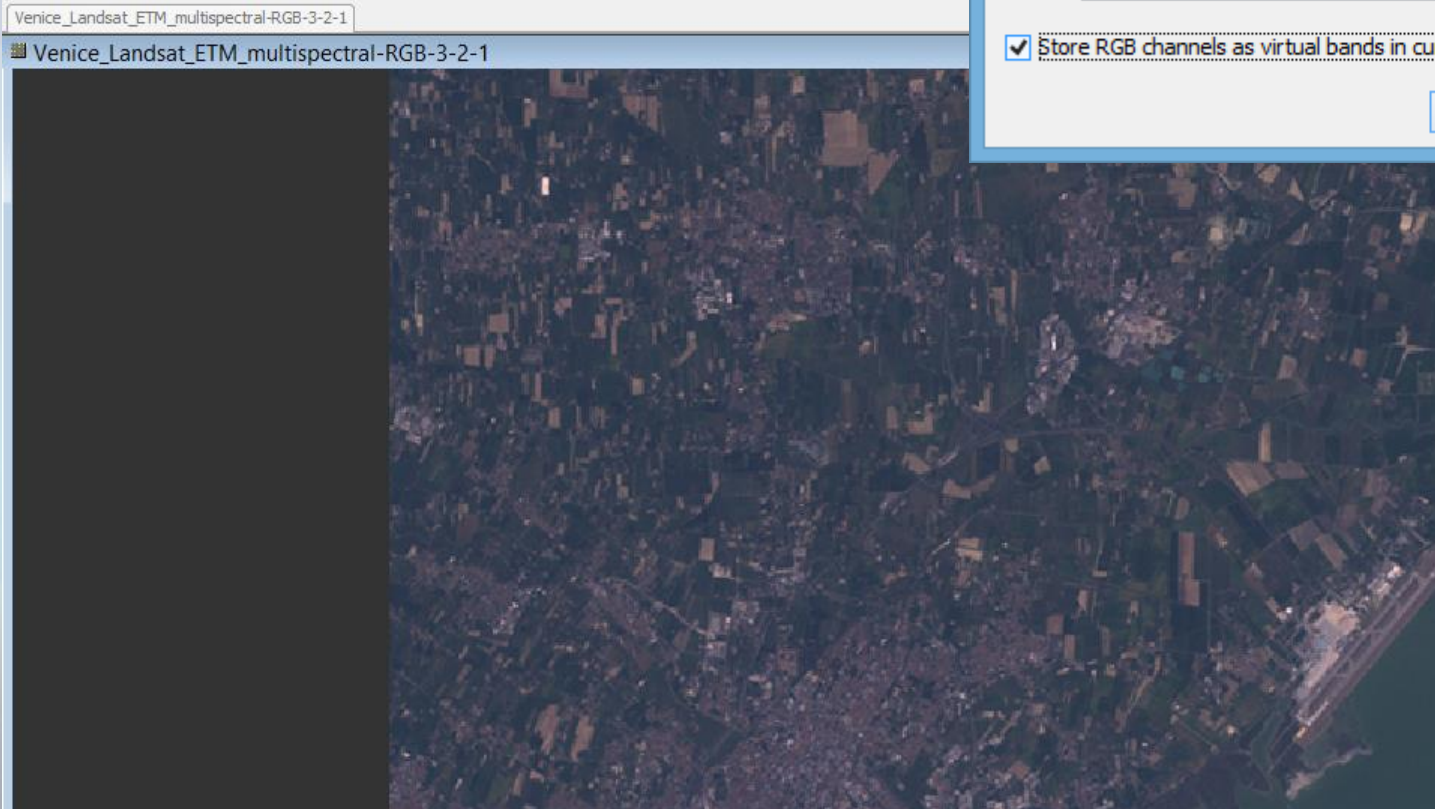
çiz Süresi: 0.021 San 224710 D 4190530 K m E 29 52 22 N 37 49 12 1:226598

5000 m 2 mi

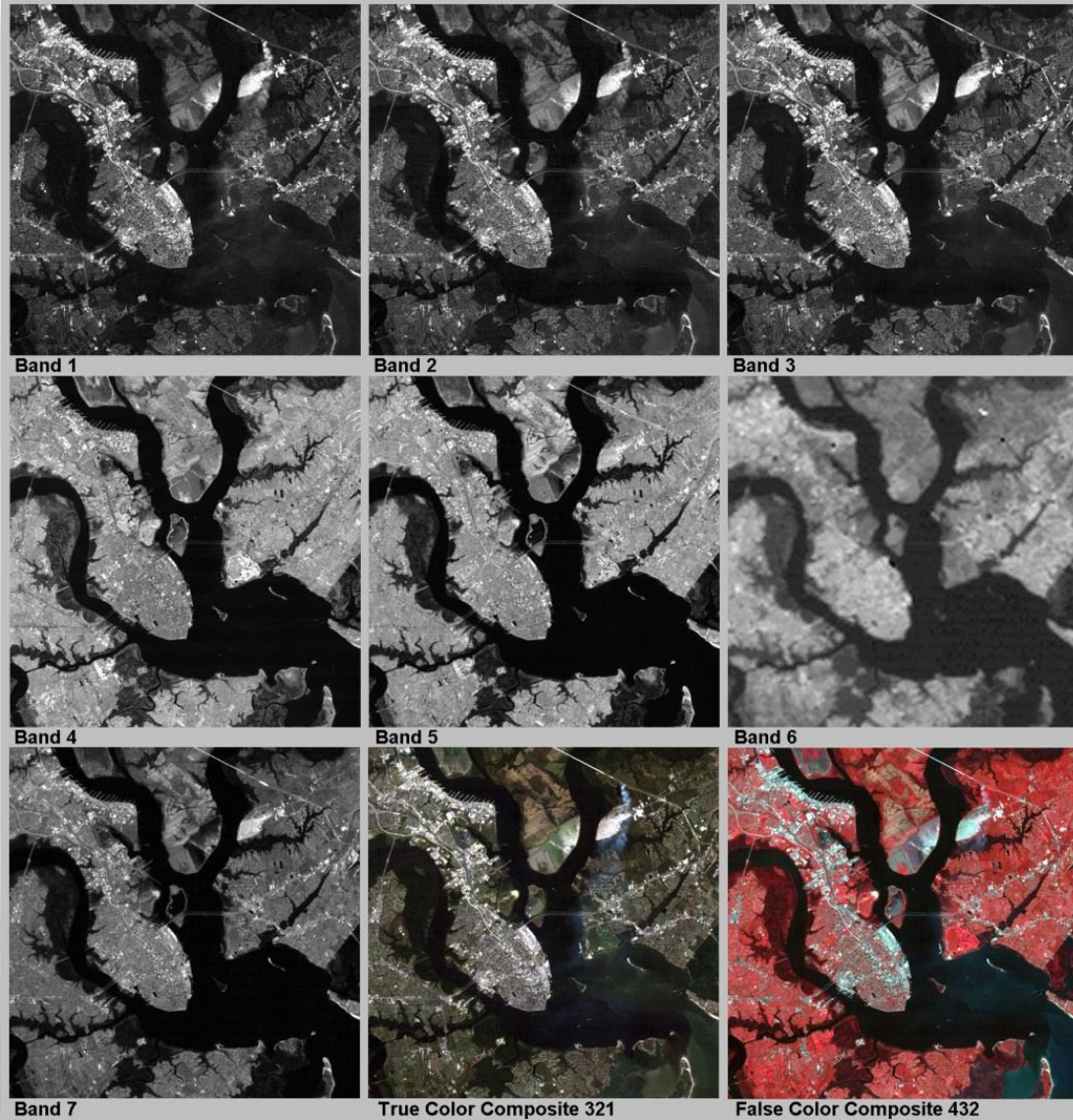
The screenshot displays a GIS application window titled "Görüntü Grubu 2 - 1 Görüntüsü". The interface includes a menu bar with "Görüntü", "Araçlar", "GPS", "Seçenekler", and "Kısayollar". Below the menu is a toolbar with various icons for navigation and editing. The main workspace shows a satellite image of a landscape with a large green area, likely a lake or reservoir. A legend on the left identifies the image as "TM3, TM2, TM1 (çok-bantlı)". A scale bar at the bottom right indicates 5000 meters and 2 miles. The status bar at the bottom provides coordinate information: "çiz Süresi: 0.021 San", "224710 D 4190530 K m", "E 29 52 22 N 37 49 12", and "1:226598".

# LEOWorks – RGB Görüntü

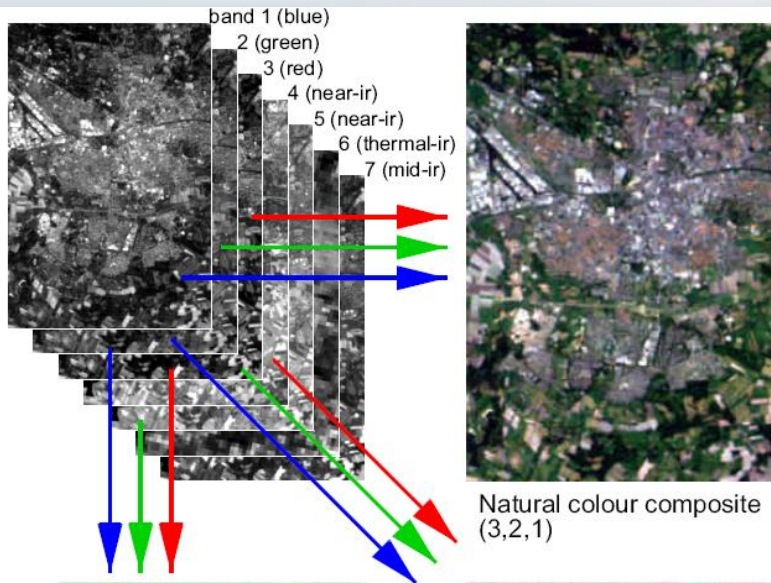
- View > New RGB View



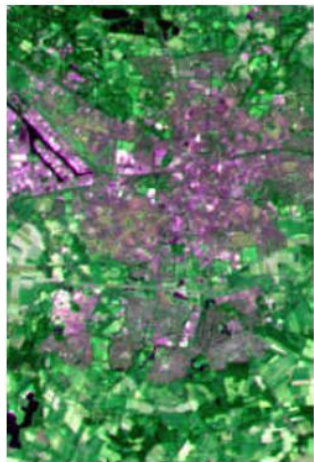
# Landsat 7 Bantları



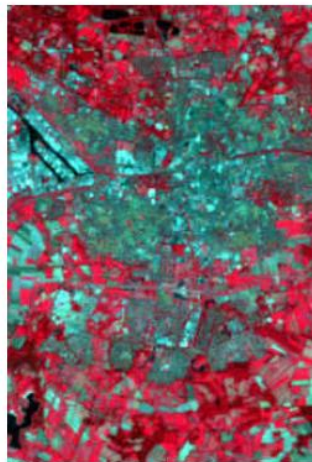
# Bant Kombinasyonları



Natural colour composite (3,2,1)



Pseudo-natural colour composite (3,5,2)



False colour composite (4,3,2)



# Landsat 7 – True Color Image

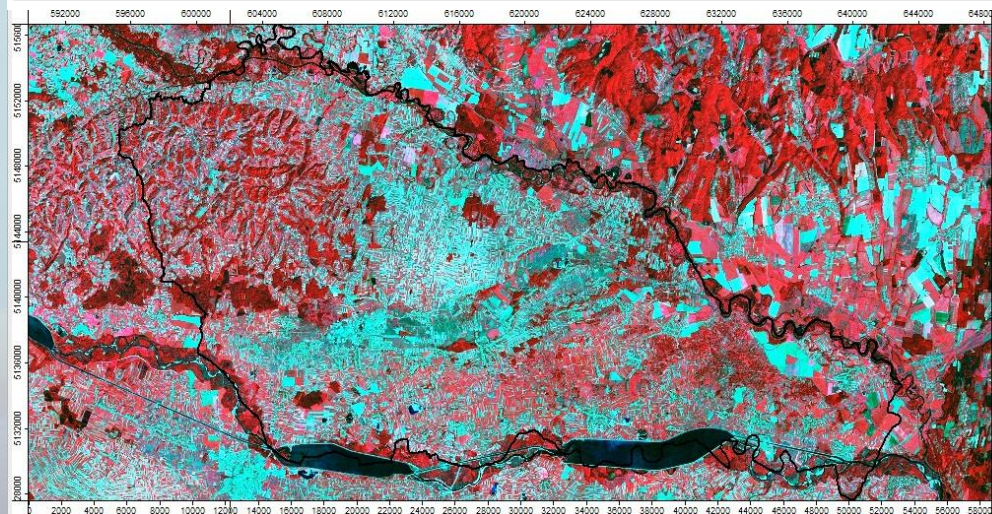
<b>Ground Cover Type:</b>	<b>In Natural Color (3,2,1), appears:</b>
Trees and bushes	Olive Green
Crops	Medium to light green
Wetland Vegetation	Dark green to black
Water	Shades of blue and green
Urban areas	White to light blue
Bare soil	White to light gray



<http://zlatko-horvat.com/landsat-data/>

# Landsat 7 – False Color Image

<b>Ground Cover Type:</b>	<b>In False Color: (4,3,2), appears:</b>
Trees and bushes	Red
Crops	Pink to red
Wetland Vegetation	Dark red
Water	Shades of blue
Urban areas	Blue to gray
Bare soil	Blue to gray



# Landsat 8 - Bant Kombinasyonlari

Name	Description	Bands
Natural Colour	<i>"True" Colour visualization</i>	4-3-2
Colour Infrared (Vegetation)	<i>Vegetation appears bright red</i>	5-4-3
Short Wave Infrared (urban)	<i>Urban structures appear blue</i>	7-6-4
Agriculture	<i>Crop monitoring</i>	6-5-2
Geology	<i>Emphasizes geological forms</i>	7-6-2
Water/Land	<i>highlights water bodies</i>	5-6-4
Bathymetric	<i>for estimating sediment</i>	4-3-1

<https://www.avenza.com/tag/false-colour/>



# Common Landsat Band Combinations

Images: Landsat 8 Path 46 Row 27 acquired August 23, 2020. Band numbers displayed as R,G,B.

## Natural Color



Landsat 8/9 OLI	4,3,2
Landsat 7 ETM+	3,2,1
Landsat 4-5 TM	3,2,1
Landsat 4-5 MSS	N/A
Landsat 1-3 MSS	N/A

## Color Infrared (CIR)



Landsat 8/9 OLI	5,4,3
Landsat 7 ETM+	4,3,2
Landsat 4-5 TM	4,3,2
Landsat 4-5 MSS	3,2,1
Landsat 1-3 MSS	6,5,4

## False Color (Urban)



Landsat 8/9 OLI	7,6,4
Landsat 7 ETM+	7,5,3
Landsat 4-5 TM	7,5,3
Landsat 4-5 MSS	N/A
Landsat 1-3 MSS	N/A

## False Color (Vegetative Analysis)



Landsat 8/9 OLI	6,5,4
Landsat 7 ETM+	5,4,3
Landsat 4-5 TM	5,4,3
Landsat 4-5 MSS	4,3,2
Landsat 1-3 MSS	7,6,5

## Shortwave Infrared



Landsat 8/9 OLI	7,5,4
Landsat 7 ETM+	7,4,3
Landsat 4-5 TM	7,4,3
Landsat 4-5 MSS	N/A
Landsat 1-3 MSS	N/A

# Landsat TM Bant Özellikleri ve Kullanım Alanları

## Bant Kullanımı

- 1 Bitki ve toprak arasındaki farklılıkları, ormanlık alanları ve kıyı çizgisinin haritalanması
- 2 Canlı bitkilerin yeşil bölümleri
- 3 Farklı bitki türlerinin tespiti, litoloji ve toprak arasındaki sınırın saptanmasında
- 4 Bitkilerin miktarını saptamada, litolojilerin tanımlanmasında, toprak/litoloji ve kara/su arasındaki kontrastlığı gösterir
- 5 Kurak alanlar, su miktarı, kar ve buz arasındaki farkın bulunmasında
- 6 Sıcaklık miktarı, bitkiler, termal kirliliğin ve jeotermal alanların belirlenmesinde
- 7 Litoloji ve toprak arasındaki sınırın belirlenmesinde, toprak ve bitkilerdeki su miktarının saptanmasında