

FileEditSelectionViewGoRunTerminalHelp

mosiac_final.ipynb - Visual Studio Code

mosiac_final.ipynb X

C:\Users\DELL\Desktop> mosiac_final.ipynb > Mosaicing the images > from osgeo import gdal

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myenv (Python 3.8.13)

Mosaicing the images

▶

from osgeo import gdal

[47] ✓ 0.2s

Python

import os

os.chdir(r'E:\PYTHON-ASSIGNMENT\mosaic')

[48] ✓ 0.9s

Python

file_names = ['ASTGTMV003_S21E047_dem.tif', 'ASTGTMV003_S22E047_dem.tif', 'ASTGTMV003_S22E048_dem.tif', 'ASTGTMV003_S21E048_dem.tif']

[49] ✓ 0.1s

Python

ds=gdal.Open(file_names[3])

print(ds)

[50] ✓ 0.1s

Python

<osgeo.gdal.Dataset; proxy of <Swig Object of type 'GDALDatasetShadow *' at 0x000002A400BC47E0> >

geotransform = ds.GetGeoTransform()

originX = geotransform[0]

originY = geotransform[3]

OS Python week 4: Reading raster data [11]

pixelWidth = geotransform[1]

pixelHeight = geotransform[5]

ds.ComputeExtents(ds)

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myenv (Python 3.8.13)

```
def compute_extents(ds):
    trf = ds.GetGeoTransform()
    left = trf[0]
    right = trf[0]+trf[1]*ds.RasterXSize
    top = trf[3]
    bottom = trf[3]+trf[5]*ds.RasterYSize
    return(left,right,bottom,top)
```

[51] ✓ 0.1s Python

```
ds_list = list()
for file in file_names:
    dataset = gdal.Open(file)
    ds_list.append(dataset)
```

[52] ✓ 0.1s Python

```
mos_left,mos_right,mos_bottom,mos_top = compute_extents(ds_list[0])
mos_left
```

[53] ✓ 0.1s Python

... 46.99986111111111

```
for i in range(1,len(file_names)):
    left,right,bottom,top = compute_extents(ds_list[i])
    mos_left = min(left,mos_left)
    mos_right = max(right,mos_right)
    mos_top = max(top,mos_top)
    mos_bottom = min(bottom,mos_bottom)
```

[54] ✓ 0.1s Python

```
print(mos_left mos_right mos_bottom mos_top)
```

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myenv (Python 3.8.13)

```
print(mos_left,mos_right,mos_bottom,mos_top)
```

[55] ✓ 0.1s Python

... 46.9998611111111 49.000138888888888 -22.000138888888888 -19.9998611111111

```
prj = ds_list[0].GetProjection()
```

[56] ✓ 0.1s Python

```
trf = ds_list[0].GetGeoTransform()
```

[57] ✓ 0.9s Python

```
mos_trf = list(trf)
mos_trf
```

[58] ✓ 0.1s Python

... [46.9998611111111,
0.000277777777777778,
0.0,
-19.9998611111111,
0.0,
-0.000277777777777778]

```
# mos_trf[0]=left
# mos_trf[3]=top
```

[59] ✓ 0.1s Python

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myenv (Python 3.8.13)

```
driver = gdal.GetDriverByName('GTiff')
```

[60] ✓ 0.1s Python

```
import math
```

[61] ✓ 0.1s Python

```
width = math.ceil((mos_right-mos_left)/mos_trf[1])
height = math.ceil((mos_bottom-mos_top)/mos_trf[5])
```

[62] ✓ 0.9s Python

```
out_ds = driver.Create('final_mosaiced.tiff',width,height,eType=gdal.GDT_UInt16)
out_ds.SetProjection(prj)
out_ds.SetGeoTransform(mos_trf)
```

[63] ✓ 0.1s Python

...

```
for ds in ds_list:
    trns = gdal.Transformer(ds,out_ds,[])
    suc,xyz = trns.TransformPoint(False,0,0)
    x,y,z = map(int,xyz)
    data_out = ds.GetRasterBand(1).ReadAsArray()
    out_ds.GetRasterBand(1).WriteArray(data_out,x,y)
```

[64] ✓ 1.1s Python

```
mosaic_dataset = out_ds.ReadAsArray()
```

[65] ✓ 0.1s Python

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myenv (Python 3.8.13)

[66] ✓ 1.4s

Python

out_ds.BuildOverviews('average',[2,4,8,16,32])

...

0


[67] ✓ 3.9s

Python

import matplotlib.pyplot as plt
plt.figure(figsize=(10,10))
plt.imshow(mosaic_dataset,clim=(50,100),cmap=
| | 'gray',extent=(-1, 1, -1, 1))

...

<matplotlib.image.AxesImage at 0x2a402517100>



[68] ✓ 0.2s

Python

out_ds.FlushCache()
del ds_list

0 0 0

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