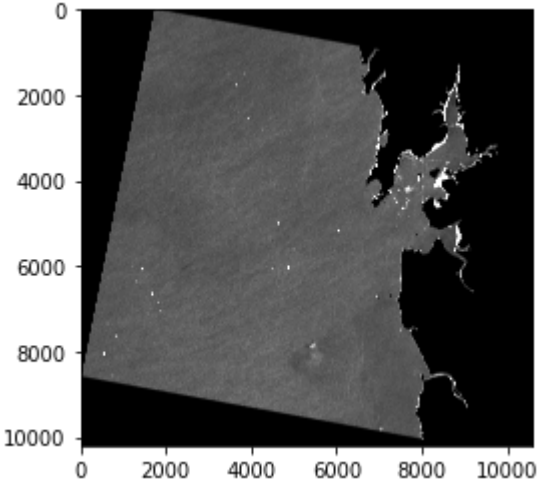
Importing Modules

In [1]:
```
import import_ipynb
import CFAR as cfar
import GeoProcess as gp
import numpy as np

DATA_PATH = 'Dataset_963A/'
```

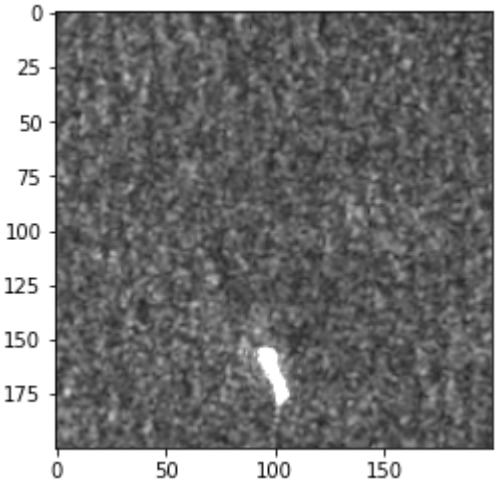
```
importing Jupyter notebook from CFAR.ipynb
importing Jupyter notebook from GeoProcess.ipynb
```

In [2]:
```
#Computing rows and columns
band_data_arr = gp.readGeoTiff(DATA_PATH+'LandMasked_Amplitude_VV.tif')
rows,col = band_data_arr.shape
#print(rows,col)
gp.visualizeImg(band_data_arr)
```



In [3]:
```
subset_img = gp.subsetImg(band_data_arr,5400,5600)
gp.visualizeImg(subset_img)
gp.save_img2Geotiff(subset_img,DATA_PATH+'CFARResults/Input.tif')
```

```
Image Saved Succesfully.
```



In [20]:
```
#arr = np.array(np.arange(36))
#arr = arr.reshape(6,6)
backgroundWindow_size = 9
guardWindow_size = 7
targetWindow_size = 5
pfa = 0.999
sf = cfar.scaleFactor(pfa,backgroundWindow_size,targetWindow_size)
print(sf)

win = cfar.sliding_window(subset_img,backgroundWindow_size)
```

```
0.0010005092711455887
```

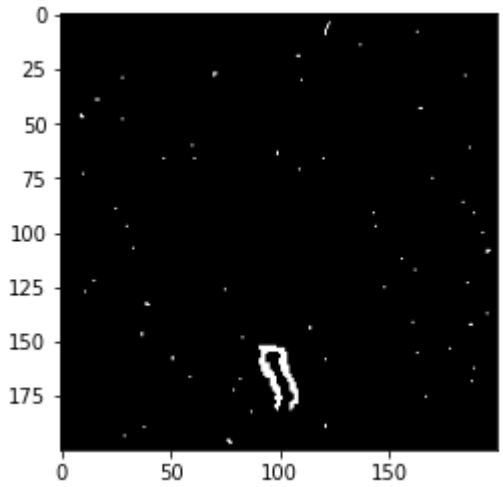
In [21]:
```
Dvi_img = []
finalImg = []

for w in win:
    guard,noise = (cfar.get_GuardWindow(w,backgroundWindow_size,guardWindow_size))
    P = cfar.noisePower(noise,backgroundWindow_size,guardWindow_size)
    #P = 30

    target,back = cfar.get_TargetWindow(guard,guardWindow_size,targetWindow_size)
    Dvi = cfar.DetectionVariable(target,back,backgroundWindow_size,targetWindow_size)
    Dvi_img.append(Dvi)

    T = sf*P

    if Dvi > T:
        finalImg.append(0)
    else:
        finalImg.append(1) #Valid Ships
```

In [22]:
```
finalImg = np.array(finalImg).reshape(subset_img.shape)
finalImg.shape
```

Out[22]:
```
(200, 200)
```

In [23]:
```
gp.visualizeBinaryImg(finalImg)
gp.save_img2Geotiff(finalImg,'Dataset_963A/CFARResults/Output'+str(backgroundWindow_size)+str(guardWi
```

```
Image Saved Succesfully.
```



In [ ]: