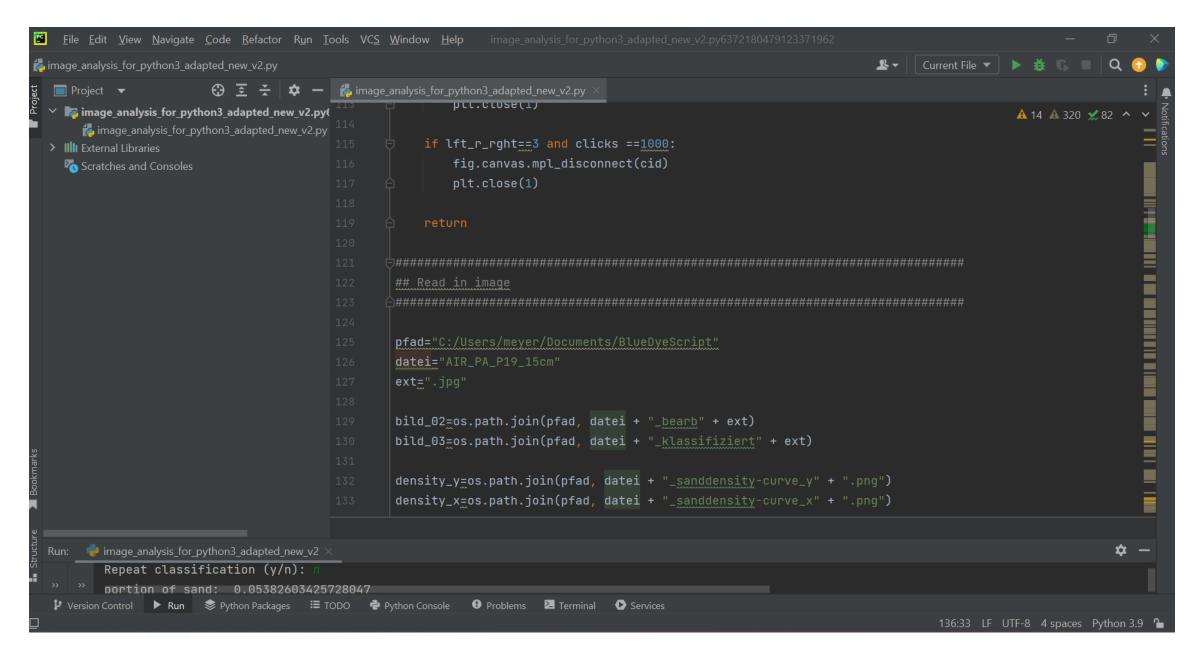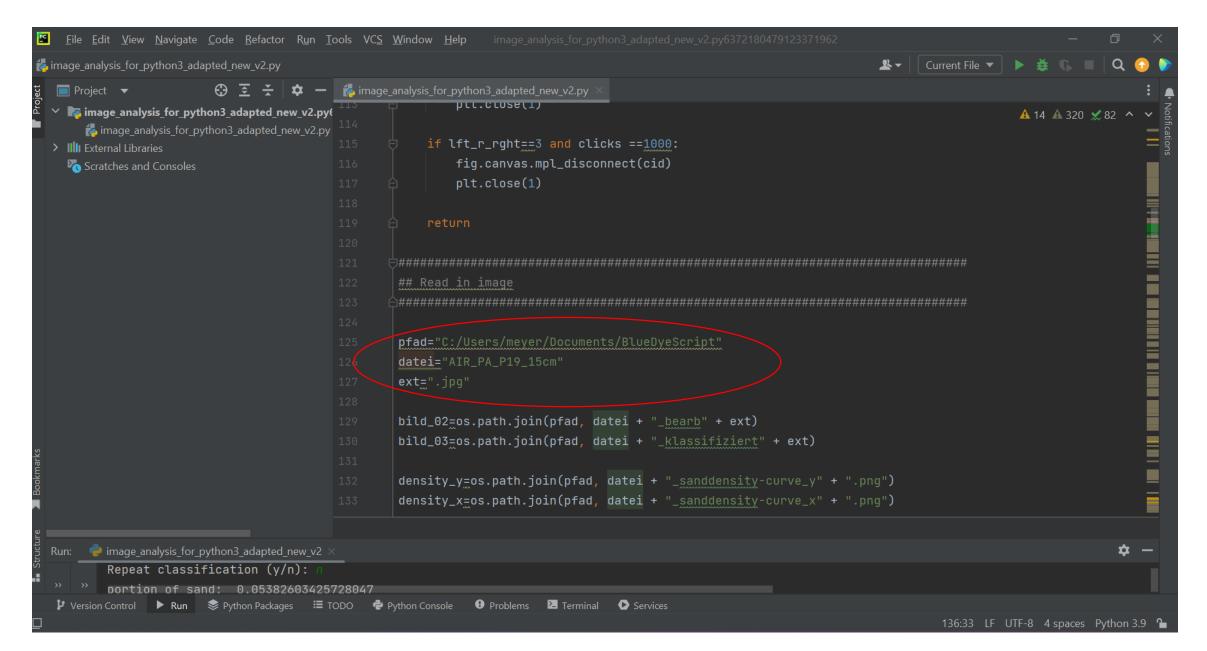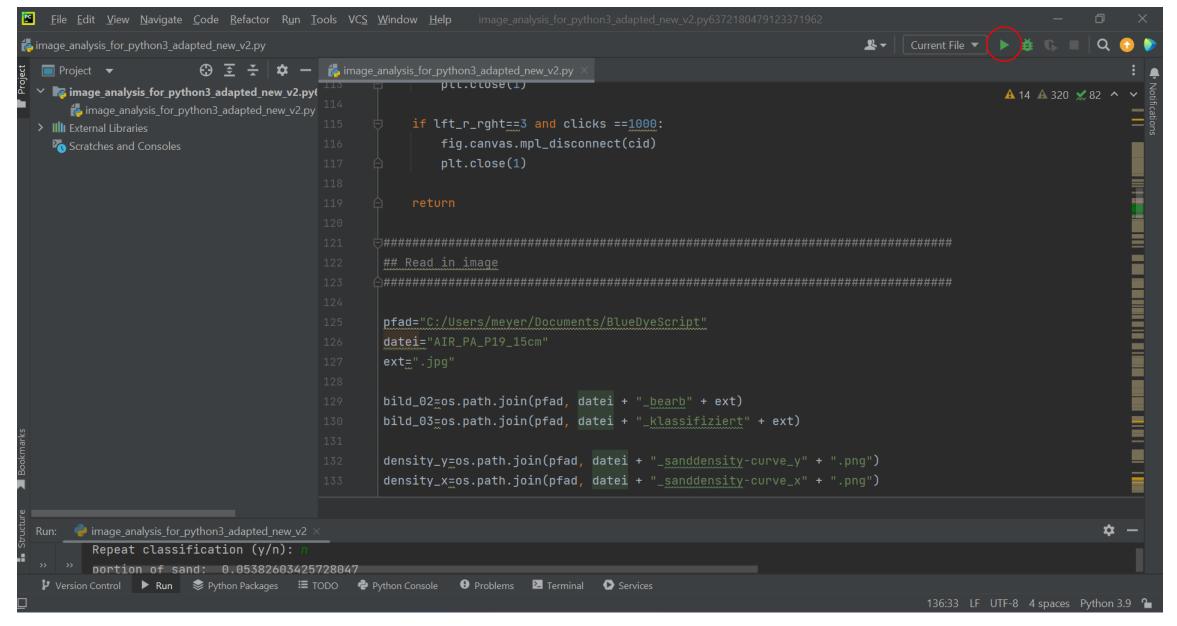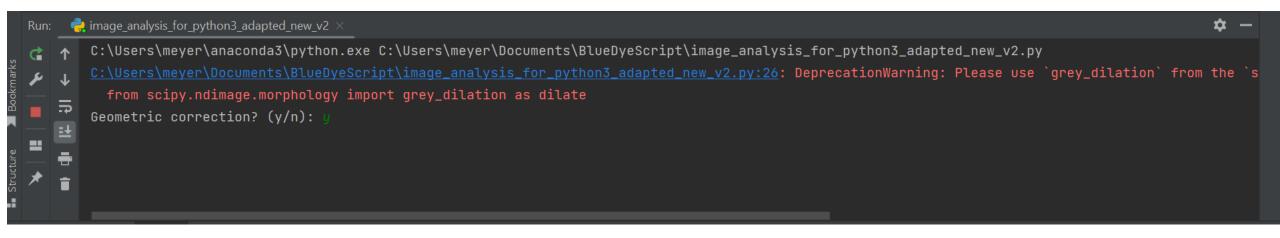Pycharm interface with the blue dye script open

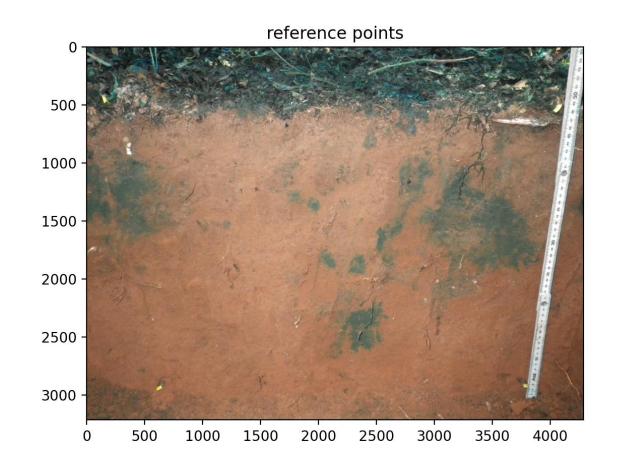# Update path, file name and extension

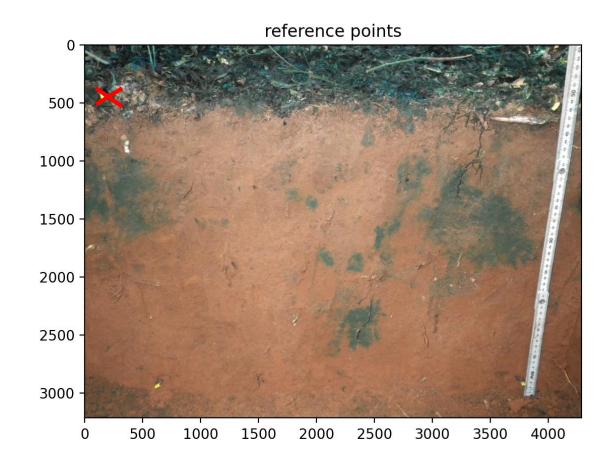Click Play

Geometric correction? Write "y"

This window pops up
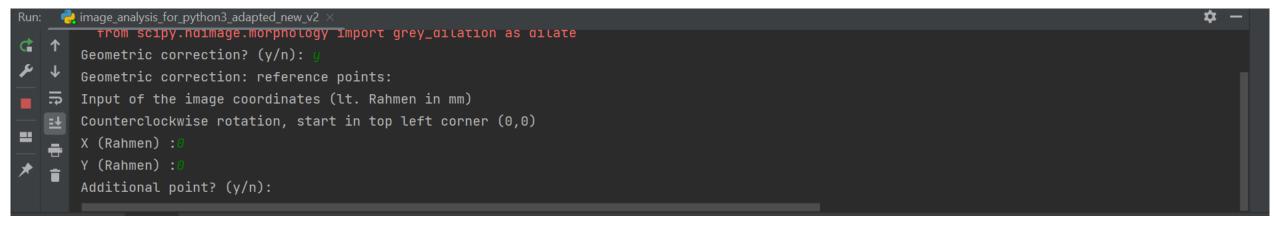
Select with the mouse the first point

Fill in the coordinates of the first point (in milimeters):

X: 0

Y: 0

Additional point? Type "y"

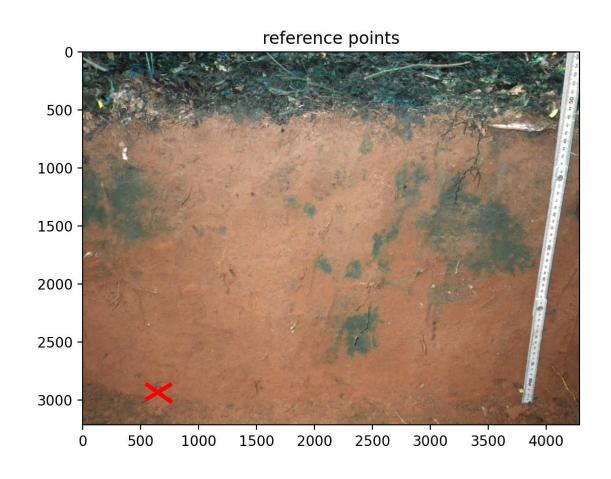The photo pops up again
Select the other point

Fill in the coordinates of the second point (in milimeters):

X: 0

Y: 450

Additional point? Type "y"

```
Y (Rahmen) :0
Additional point? (y/n): y
Geometric correction: reference points:
Input of the image coordinates (lt. Rahmen in mm)
Counterclockwise rotation, start in top left corner (0,0)
X (Rahmen) :0
Y (Rahmen) :450
Additional point? (y/n):
```
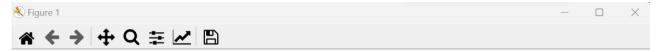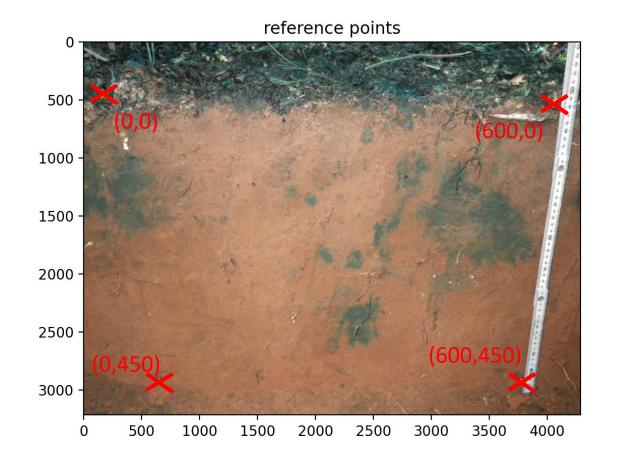
Do the same for the four points

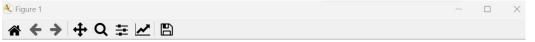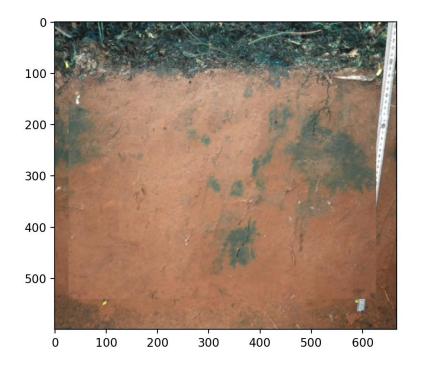In my case, I had measured in the field that the frame was 60cm x 45 cm

When finished,
Additional point? "n" for no

- The geometrically corrected figure window will pop up. Check it, and close the window. Go back to the script

Recut image? Select "y"

This window will pop up, then just select top left and bottom right corners

The cut figure will pop up. Check it and close the window. Go back to the script

Stop script here? No
Then fill in:
lower boundary hue
upper boundary hue
lower boundary val
upper boundary val

```
Run:        image_analysis_for_python3_adapted_new_v2  ✕
         counterclockwise rotation, start in top left corner (0,0)
         X (Rahmen) :600
         Y (Rahmen) :0
         Additional point? (y/n): n
         Recut image? (y/n): y
         Stop script here? (y/n): n
         Grenzen Eingeben
         lower boundary hue:
```
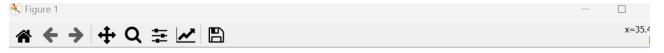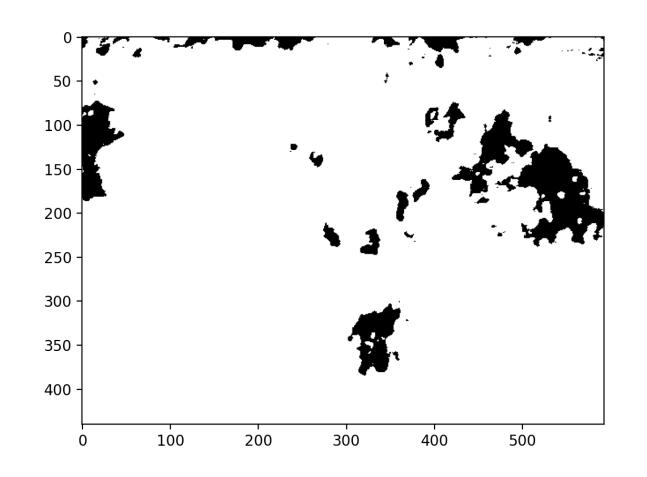
Values I used:
lower boundary hue: 50
upper boundary hue: 200
lower boundary val: 0
upper boundary val: 0

The classified figure will pop up. Check it, close the window. Go back to the script

Run: image_analysis_for_python3_adapted_new_v2
```
Grenzen Eingeben
lower boundary hue: 50
upper boundary hue: 200
lower boundary val: 0
lower boundary y: 0
portion of sand:  0.07721140579487966
portion of not sand:  0.9227885942051204
Repeat classification (y/n):
```

- If you liked the classification, "repeat classification -> no"
- If you want to try again with other boundaries, "repeat classification -> yes"

- "Portion of sand": pixels classified as blue -> 7.7%

During the process, it has generated some files in the folder specified. The classified figure is there.

Here's what the "data" file looks like:

You can open it in Excel (values separated by comma) to double-check:

sum	total	ratio				
20146	260920	0.077211				
1	1	1	1	1	1	1
1	1	1	1	1	1	1
1	1	1	1	1	1	0
1	1	1	1	1	0	0
1	1	1	1	1	1	0
1	1	1	1	1	1	1
1	1	1	1	1	1	0
1	1	1	1	1	1	1
1	1	1	1	1	0	0
1	1	1	1	0	0	0
1	1	1	1	0	0	0
1	1	1	1	0	0	0
1	1	1	0	0	0	0
1	0	0	0	0	0	0
0	0	0	0	0	0	0