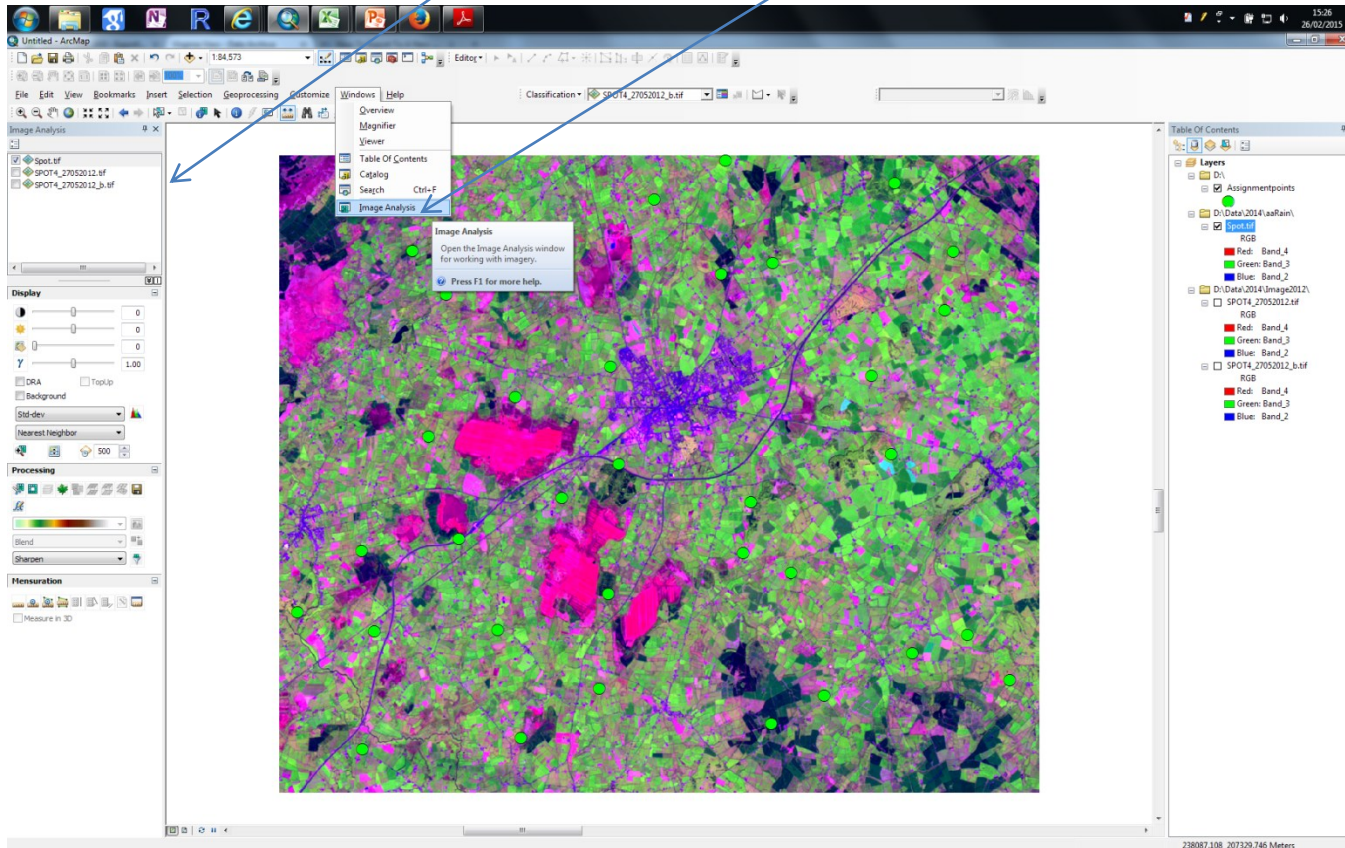


Practical 3

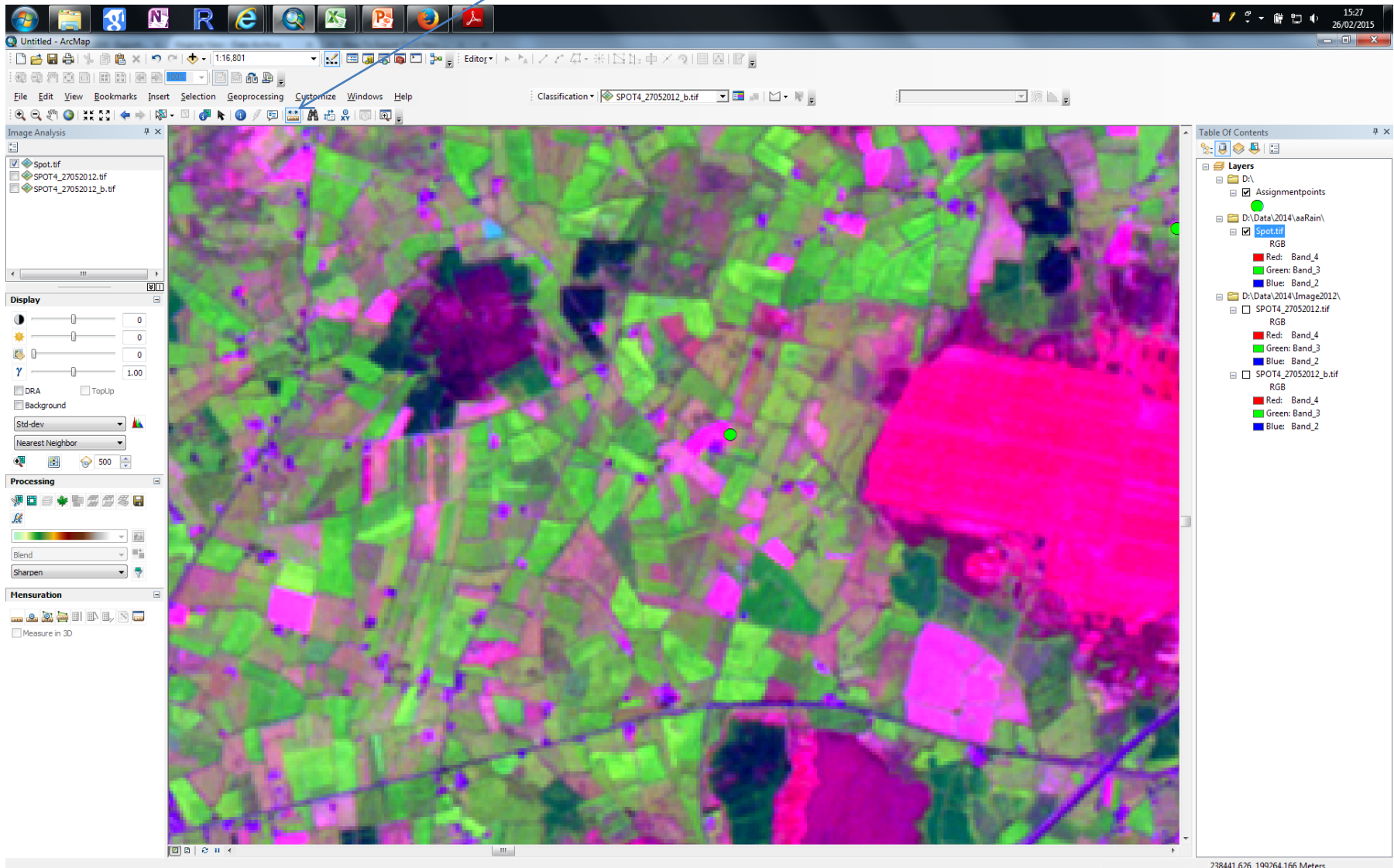
NDVI & Unsupervised classification

First make a combined image of bands 2,3,4 and 8 (see last weeks notes, if you don't already have it)

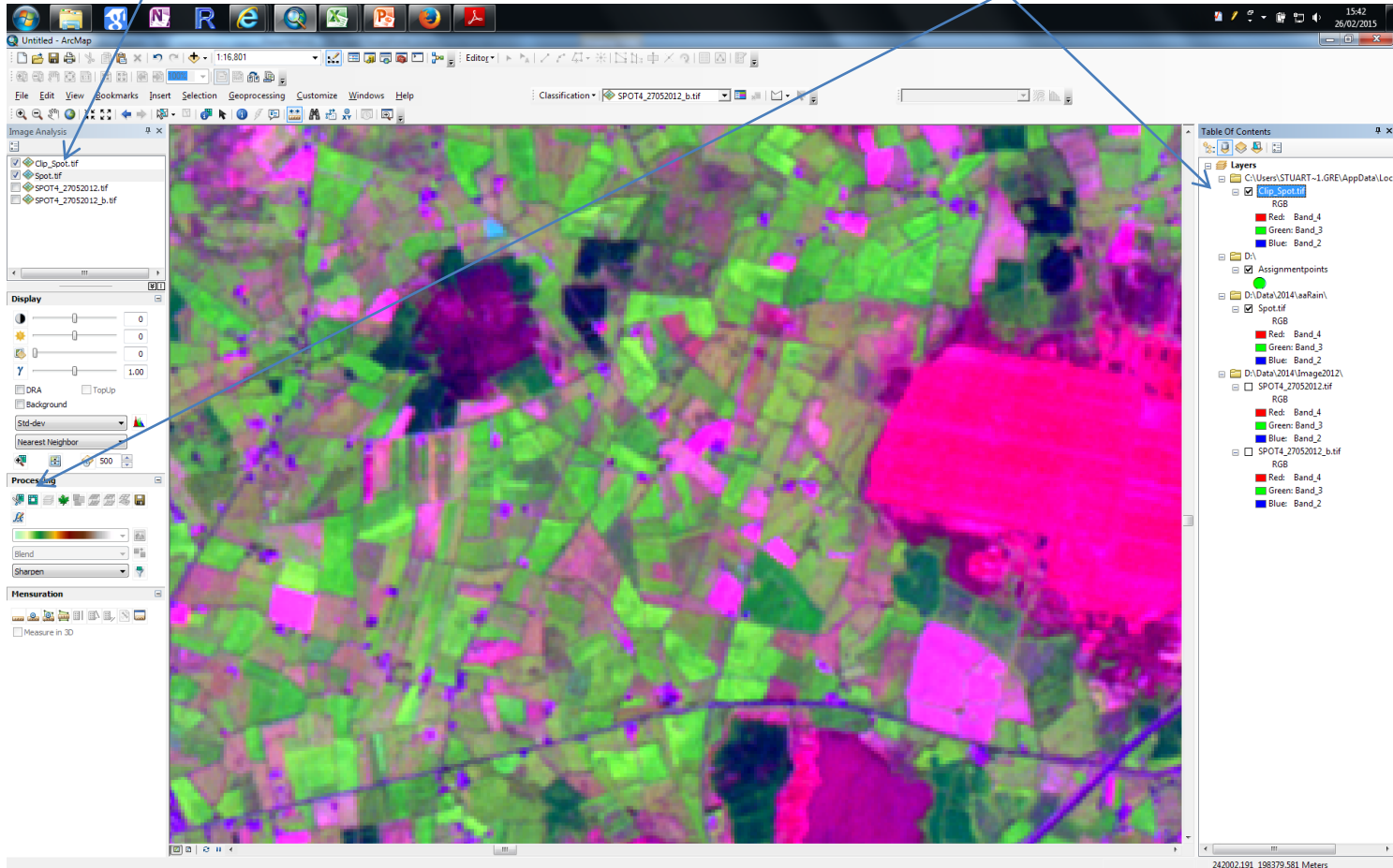
With your 4 band satellite image loaded- Click on *windows-image Analysis*. The image processing window will pop open



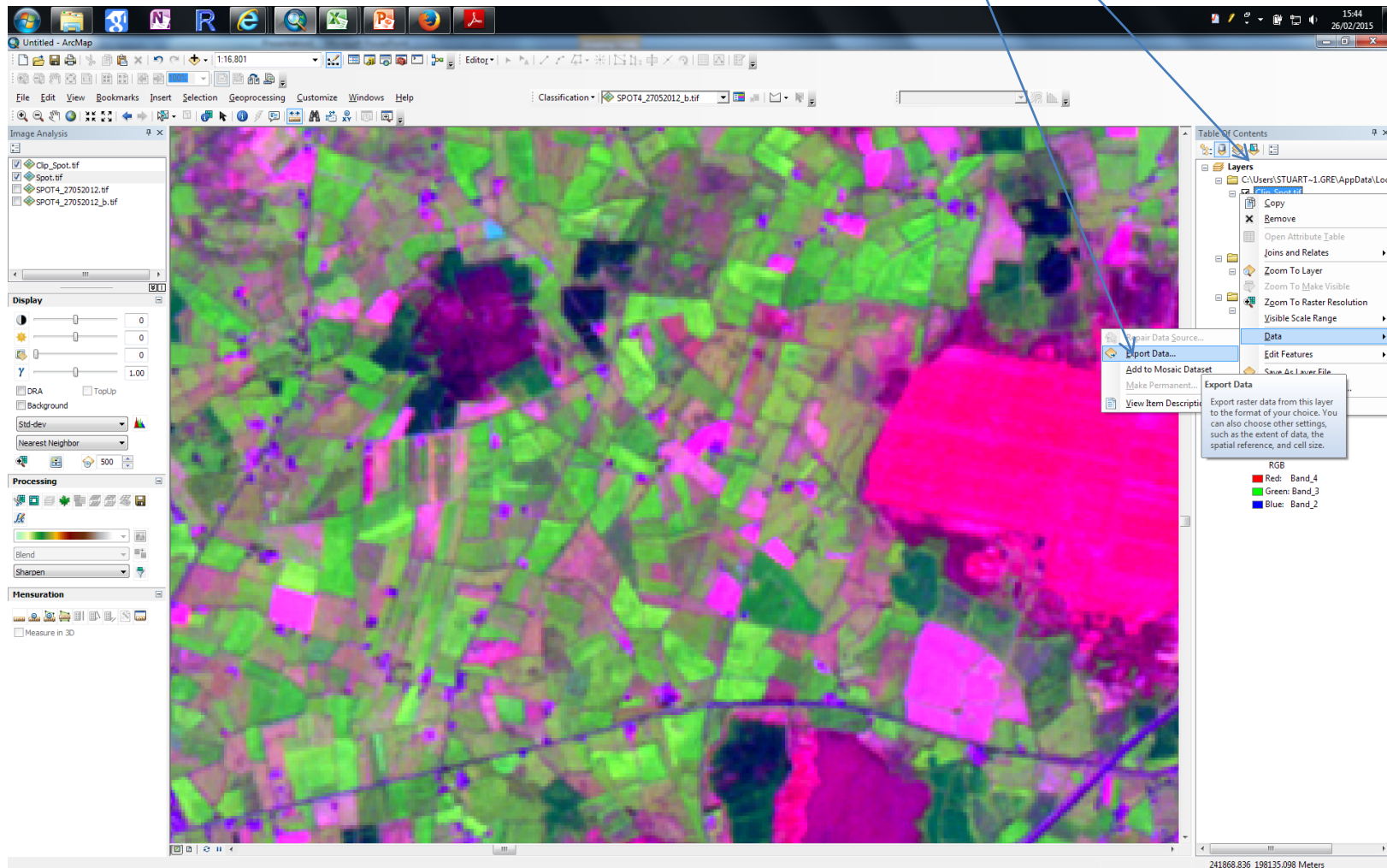
Zoom into an area so
you are looking at a rough 25x25km area (use the
measuring tool to check)



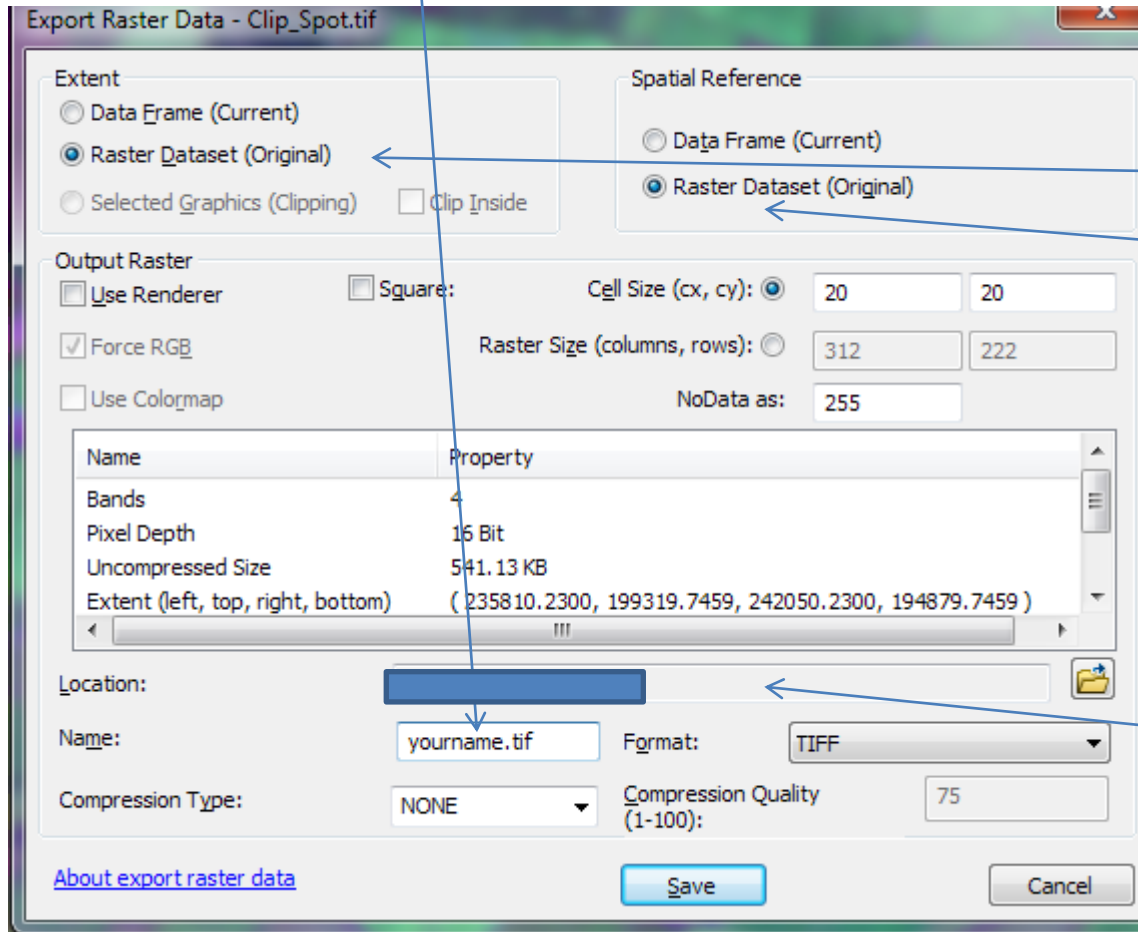
Click on Imagein the image processing window and then click on the Clip Button- you now have a new image loaded- Clip_sat.tif. This is what you use.



Right Click on Clip_sat.tif in table of contents and click on *data-export*



- On the menu change output name to *yourname_sub.tif* and click OK



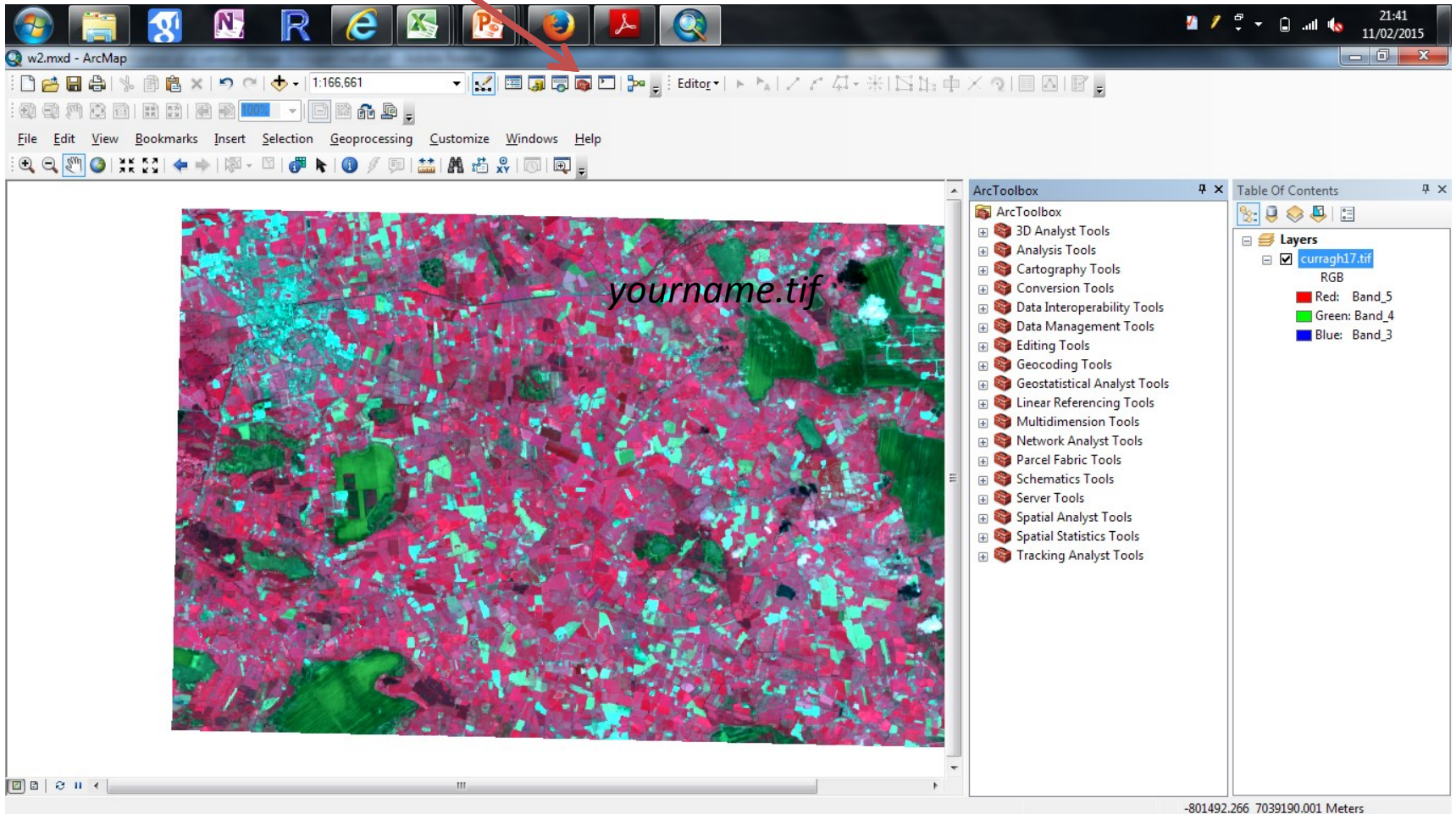
Make sure extent and Reference are set to Original

Save to desktop

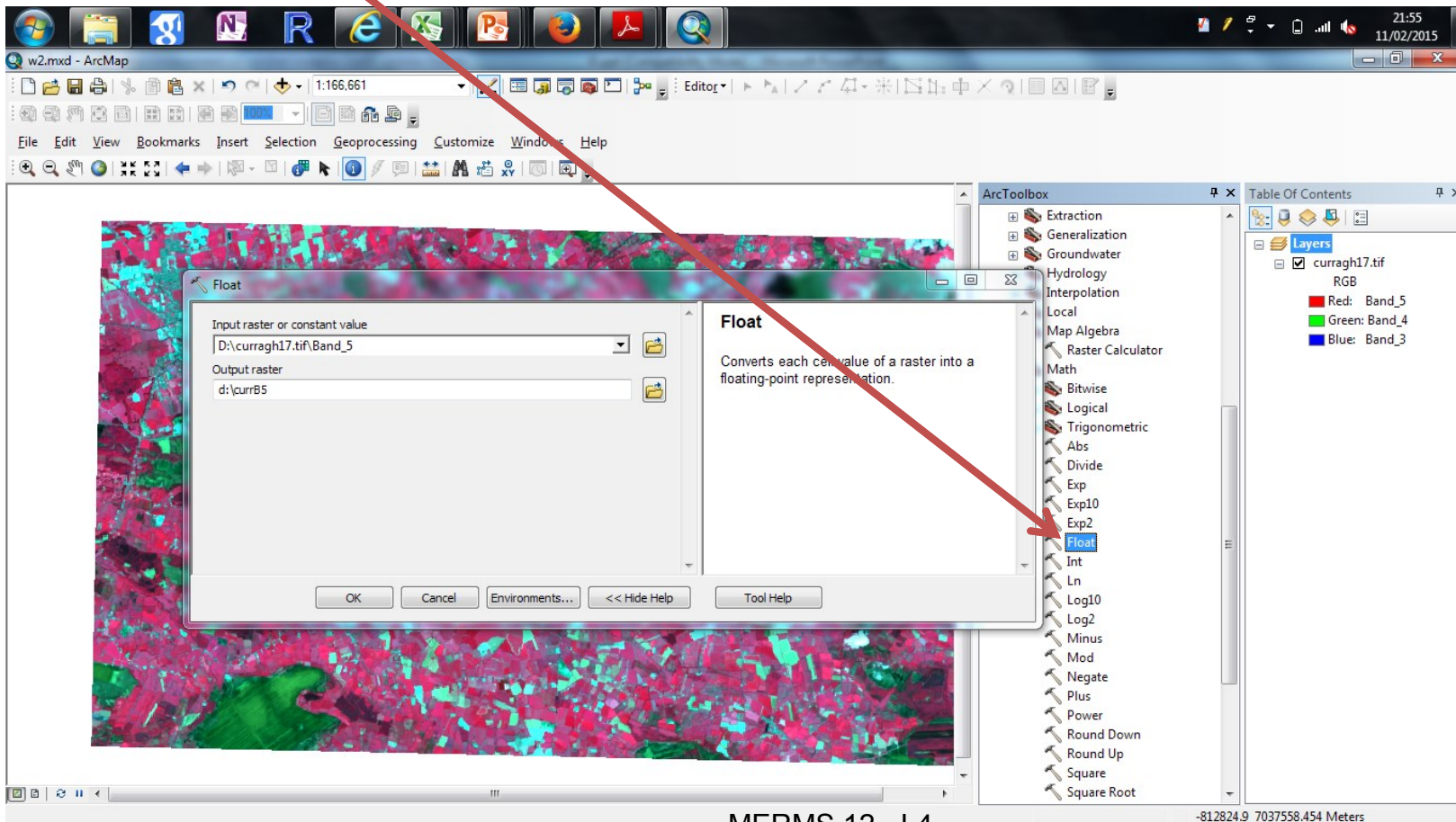
Veg Map with NDVI

- Use the 25km by 25 km iamge you just made

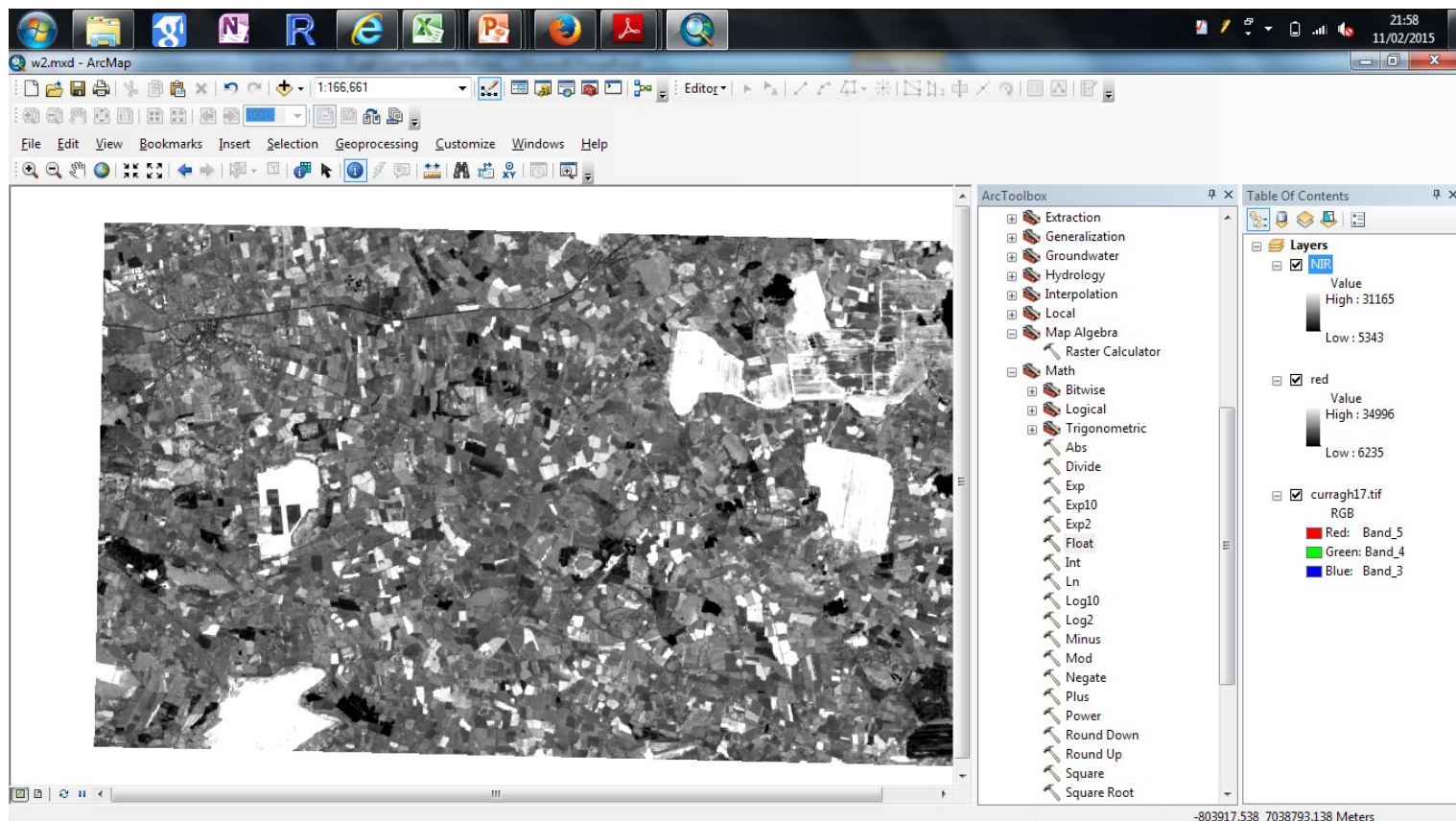
- Load yourname_sub.Tiff into ARC MAP and open the ToolBox window



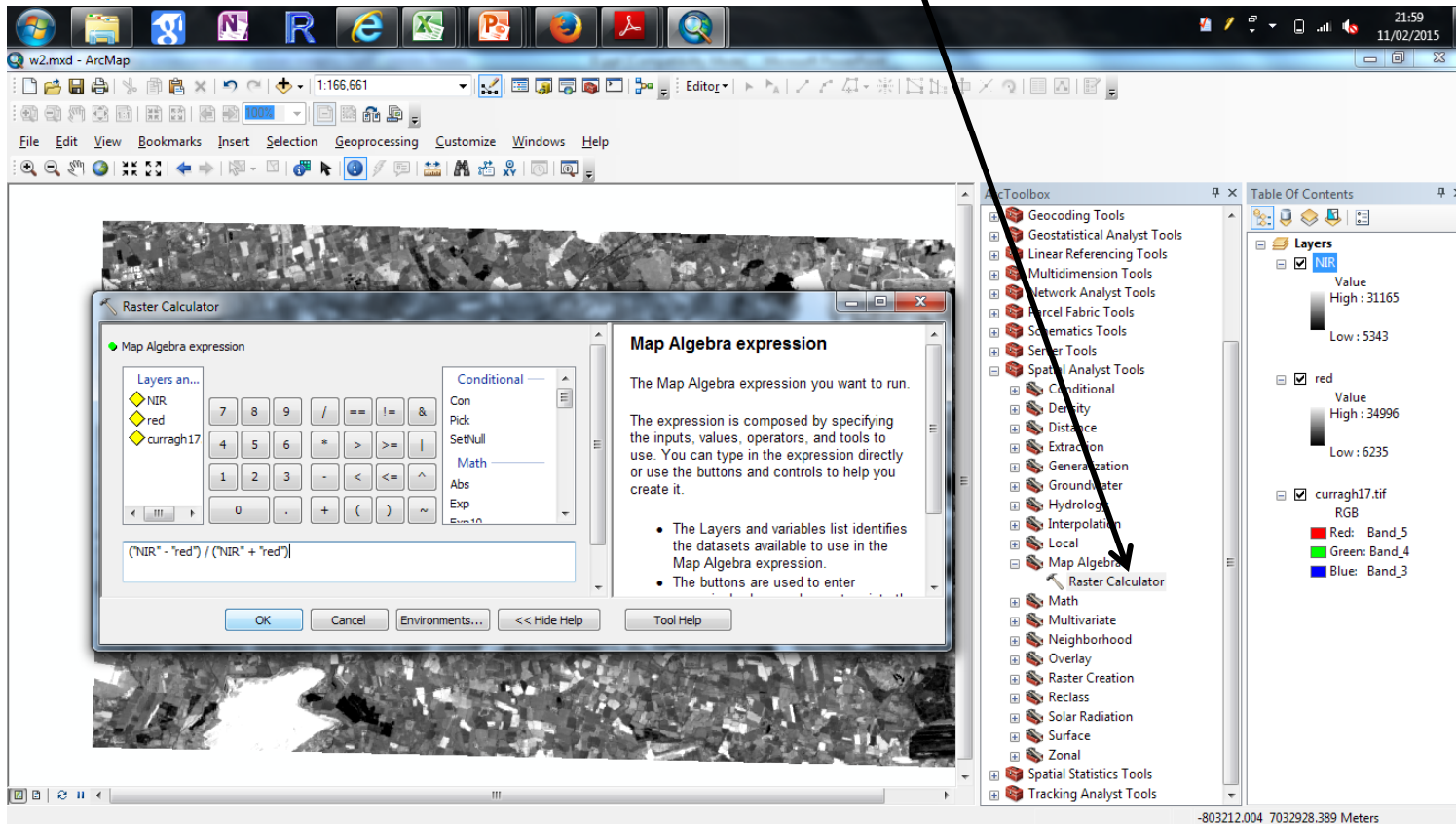
- WE need to convert the image to a floating point format



- Do this for Band 4 (NIR- the original B8) and Band 3 (RED the original band 4). Call the outputs NIR and RED

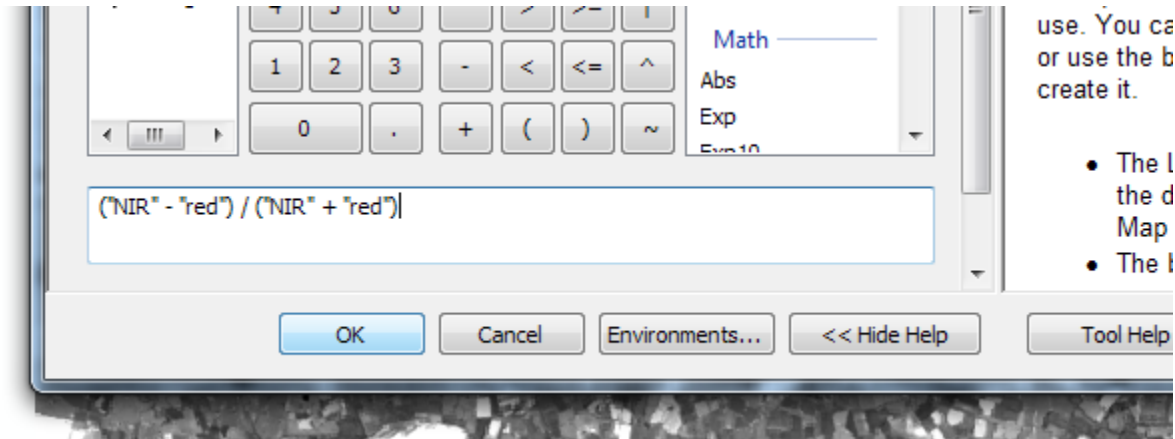


Use Map Calculator to calculate the NDVI image



This is the calculation

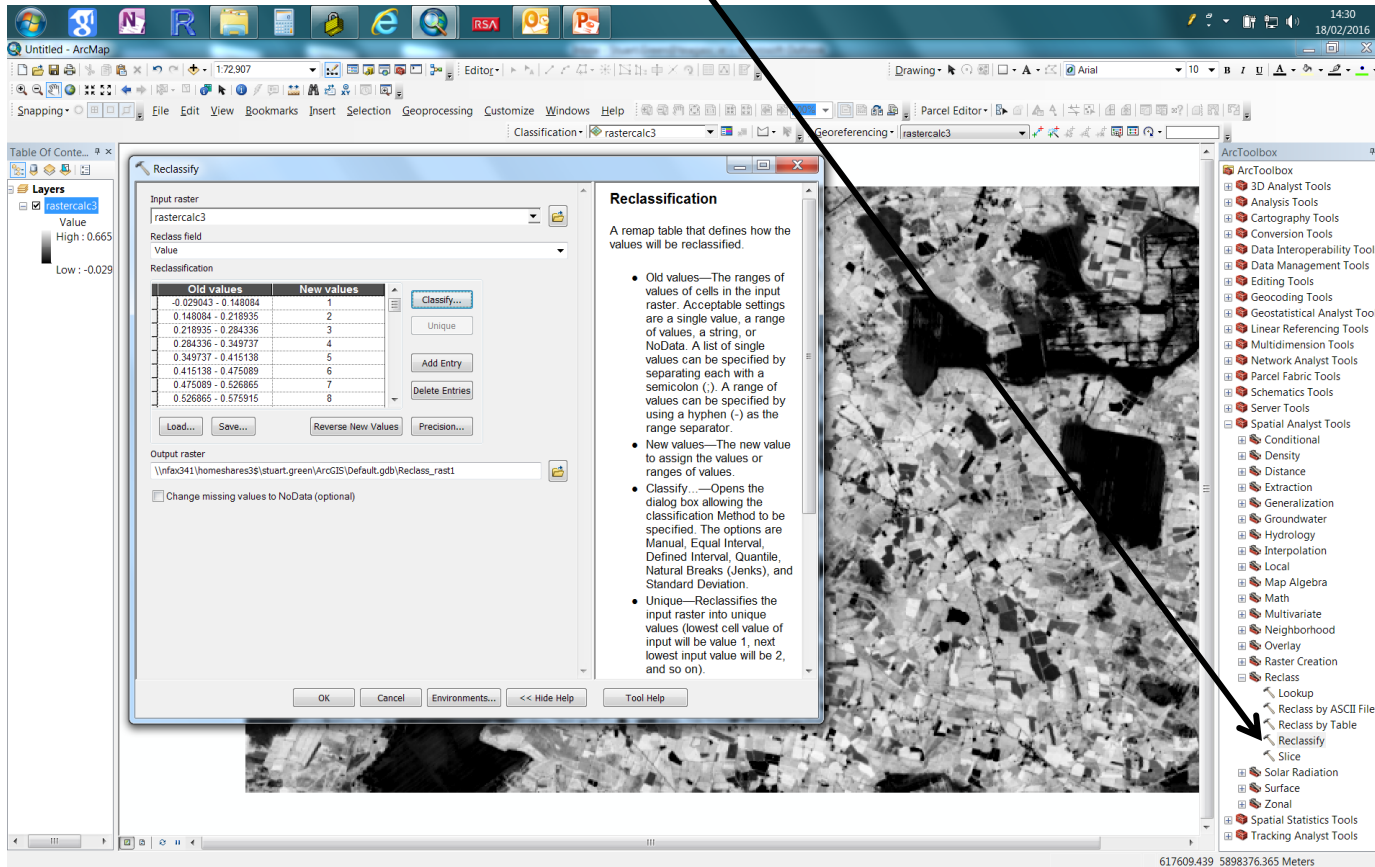
- Press OK



Use the Info button to click around and see the values

The screenshot displays the ArcMap interface. The main map area shows a grayscale aerial photograph of a landscape with various terrain features. The ArcToolbox is open on the right side, listing various tool categories such as Geocoding Tools, Geostatistical Analyst Tools, and Map Algebra. The 'Raster Calculator' tool is highlighted. The Table of Contents on the far right shows a list of layers: 'rastercalc3' (Value: High: 0.665842, Low: -0.0290431), 'Red' (Value: High: 27332, Low: 6179), 'Nir' (Value: High: 34996, Low: 6235), and 'curragh17.tif' (RGB, with Red: Band_4, Green: Band_3, and Blue: Band_2). The status bar at the bottom right indicates the coordinates -805108.126 7040027.822 Meters.

Click onto “reClass->reclassify” and load your NDVI image into pop up menu- we are going to create a vegetation/no-vegetaion map.



On the reclassify menu click “classify...” and change the number of classes to 2. Then change the 1st break values to be your bare soil ndvi value (0.3 in this example) and the second to 1. Click OK

The screenshot shows the ArcGIS Reclassify dialog box. The main dialog is titled "Reclassify" and has the following fields:

- Input raster: rastercalc3
- Reclass field: Value
- Reclassification: Value
- Output raster: \\nfx341\...

The "Classification" sub-dialog is open, showing:

- Method: Natural Breaks (Jenks)
- Classes: 2
- Data Exclusion: Exclusion ... and Sampling ... buttons
- Columns: 100
- Show Std. Dev. and Show Mean: unchecked

The "Classification Statistics" table is displayed:

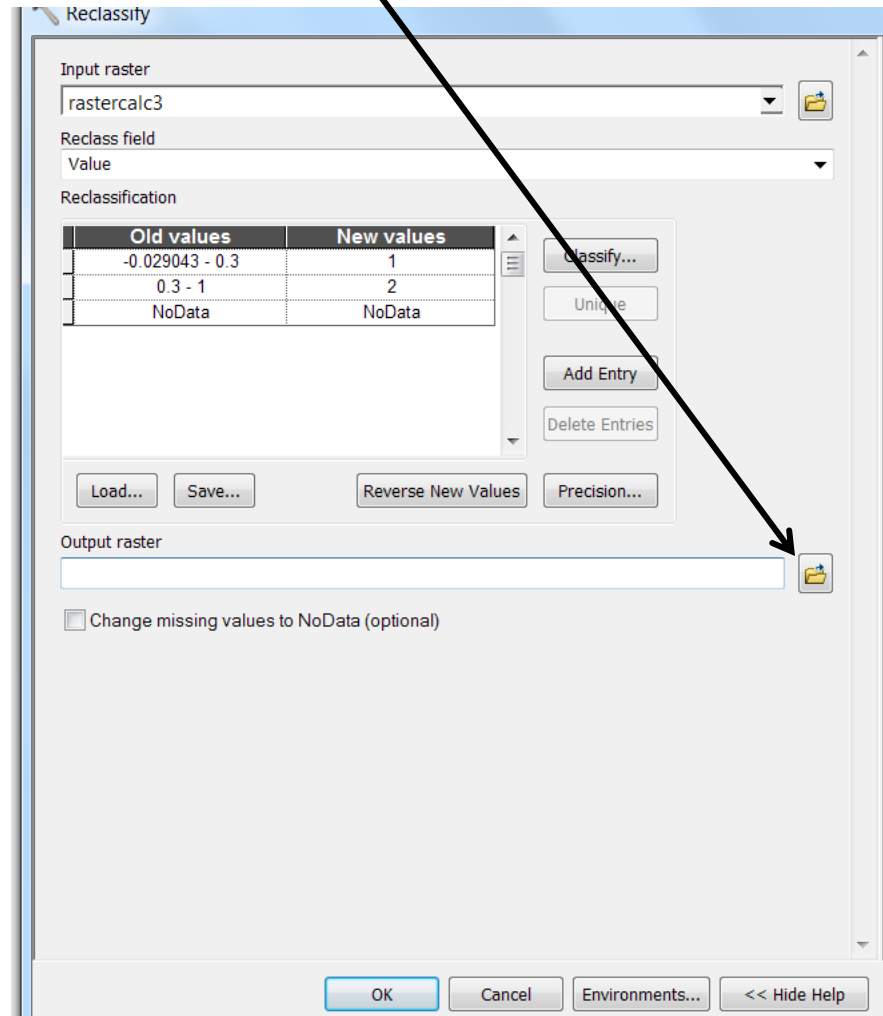
Statistic	Value
Count	750304206
Minimum	-0.029043
Maximum	0.665842
Sum	143000.09561
Mean	0.000191
Standard Deviation	0.009745

The histogram shows the distribution of values with a vertical line at 0.3. The "Reclassification" table shows the following values:

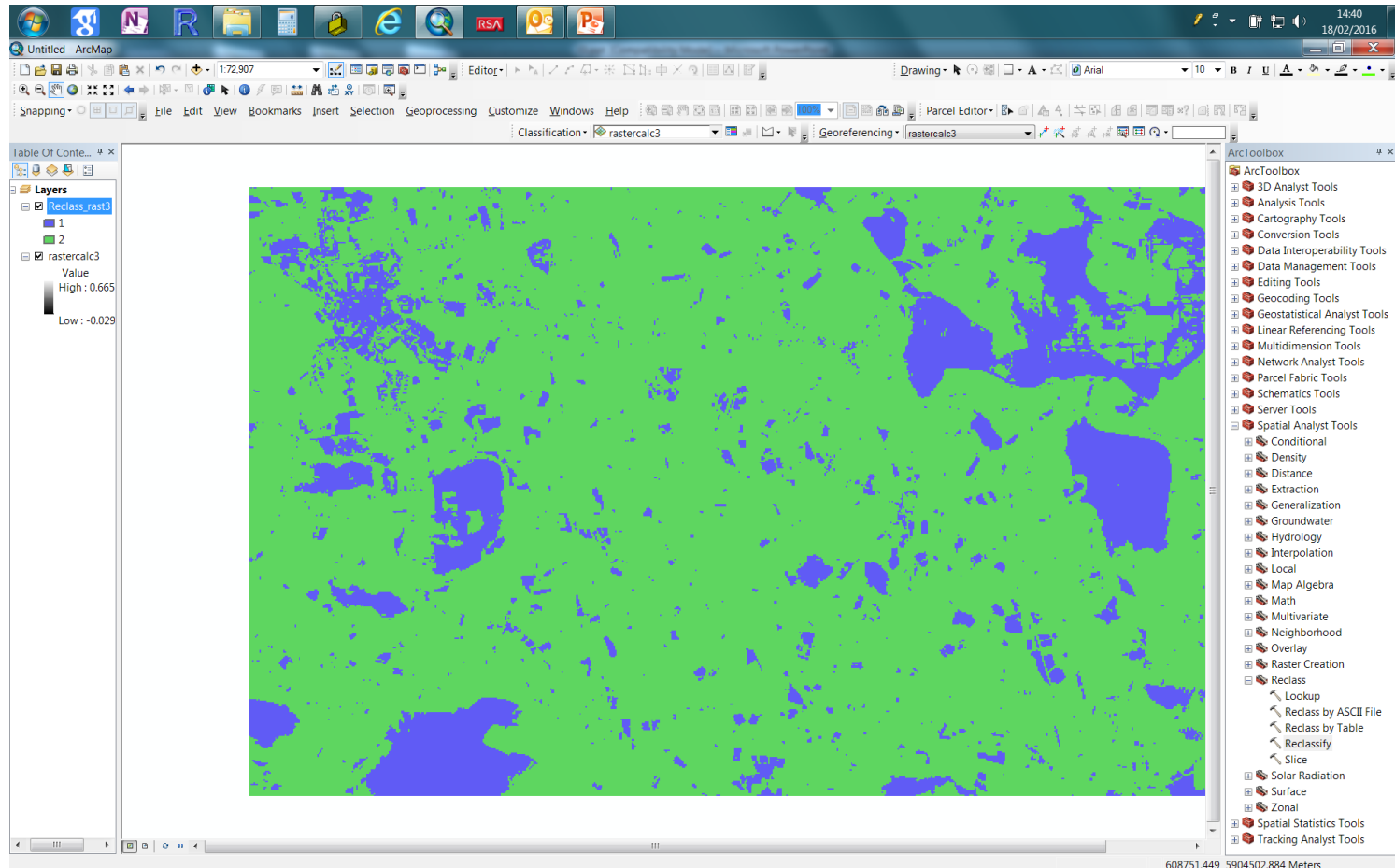
Break Values	%
0.3	
1	

An arrow points from the text above to the 0.3 value in the Reclassification table.

Click the output button and enter a value a name in YOUR directory – do not add an extension. Click OK

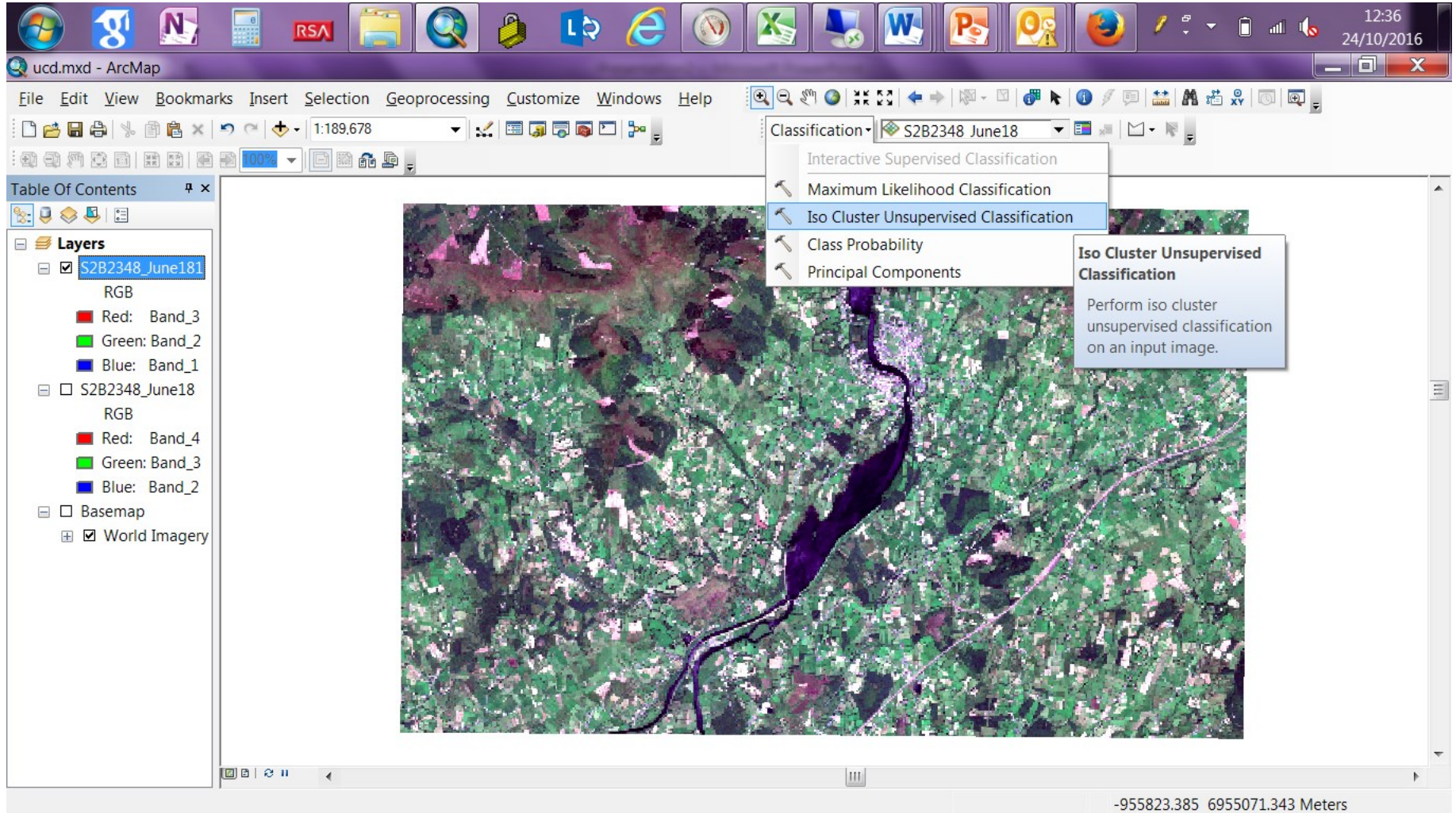


Your output will look a little like this.
You have created a vegetation/no-vegetation mask

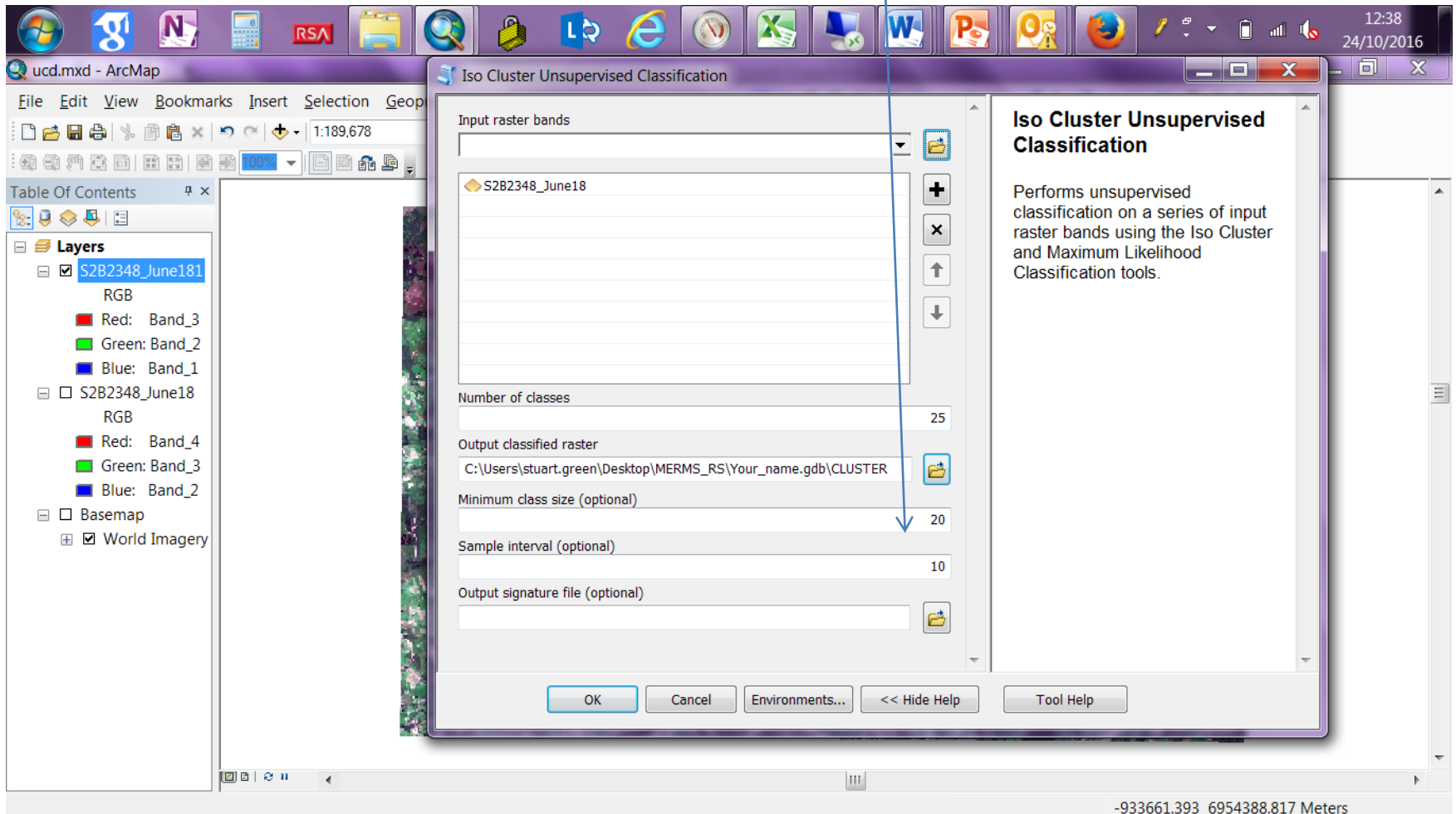


UNSUPERVISED-

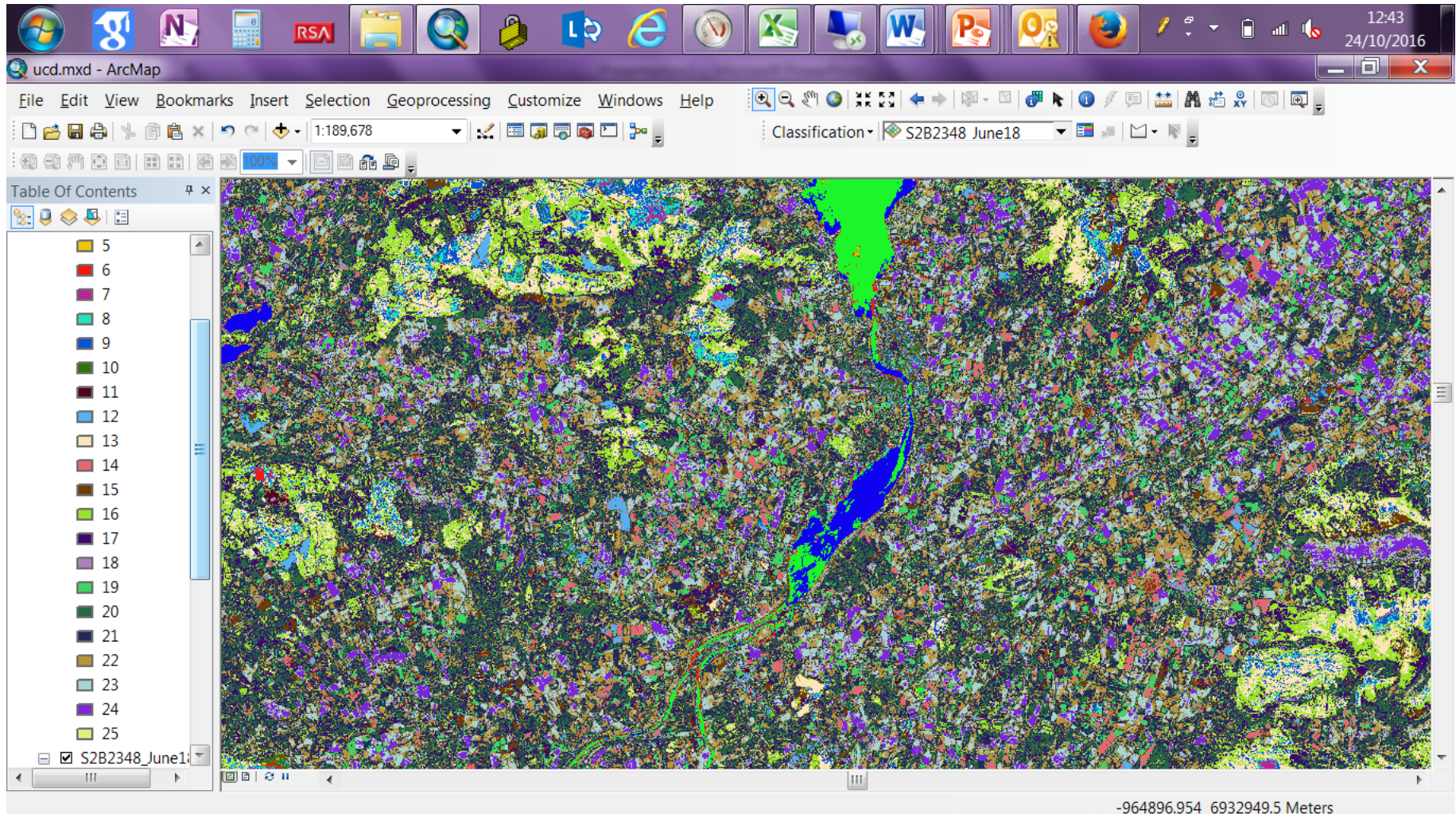
Click on Classification drop down



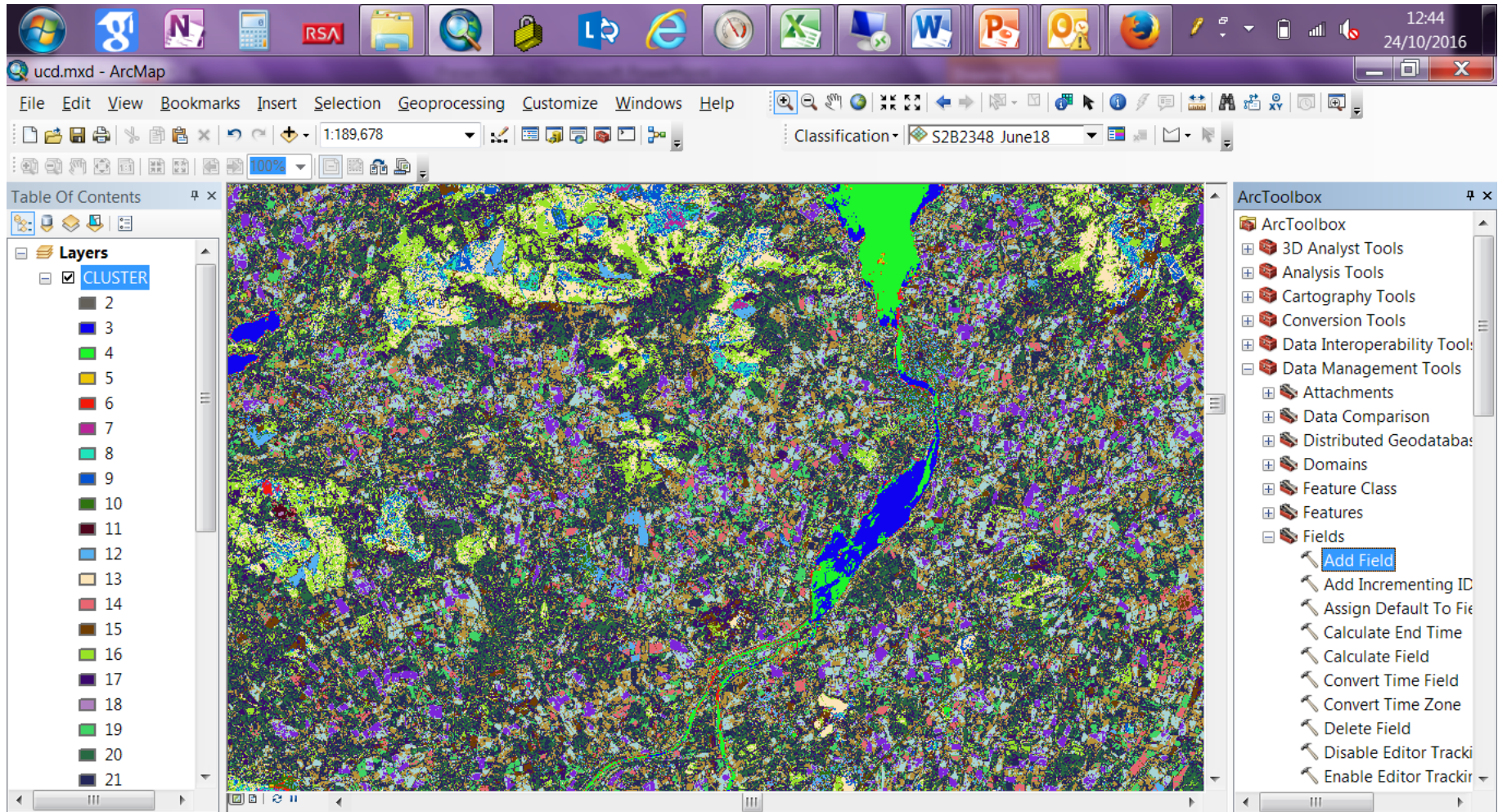
Select your sub-set image.
Output to your Geodirectory.
Select 20 Classes.
Click OK



Your map. You know have to label each “class” with a land cover



ADD text FIELD “LANDCOVER” to you classified map



Geoprocessing tool used to add a new field.

-929646.54 6953585.847 Meters

Give one of these codes to all of your
classes- make your judgements against
the Base Imagery

Grassland

Forest

Natural Vegetation

Bare Soil

Built Land

Water

Switch to layout view and make a map

The screenshot displays the ArcMap interface in layout view. The main map area shows a land cover classification map with a legend in the bottom right corner. The legend is titled "LANDCOVER" and lists the following categories: Bare (white), Built (red), Forest (green), Grass (light green), Natural (yellow), UN (black), and Water (blue). The map is surrounded by a scale bar and a north arrow.

The Table of Contents on the left shows the following layers:

- CLUSTER
 - Landcover
 - Bare
 - Built
 - Forest
 - Grass
 - Natural
 - UN
 - Water
- S2B2348_June1:
 - RGB
 - Red: Band_
 - Green: Band_
 - Blue: Band_
- S2B2348_June1:
 - RGB
 - Red: Band_
 - Green: Band_
 - Blue: Band_
- Basemap

The Table window on the right shows the following data:

Value	Count	Landcover
6	377568	Forest
7	436388	Forest
8	689179	Bare
9	1430422	Built
10	881992	Grass
11	1060878	Grass
12	1436248	Built
13	2308292	Natural
14	1953101	Natural
15	2319343	Natural
16	3447043	Bare
17	5494668	Grass
18	415895	Grass
19	4274422	Bare
20	7104603	Forest
21	10394447	Forest
22	11642162	Grass
23	9511118	Built
24	4728061	Built
25	264703	UN

The status bar at the bottom indicates a scale of -6.39 22.37 Centimeters.