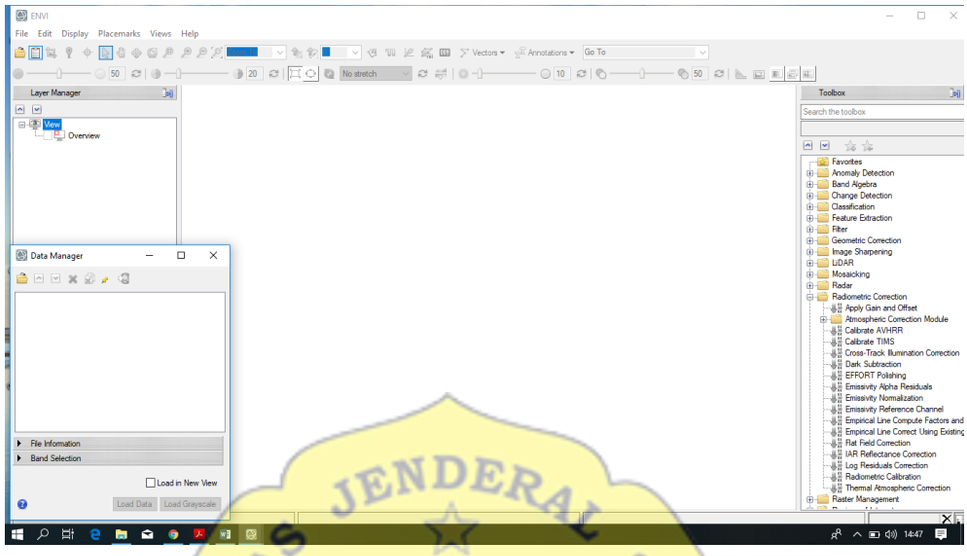
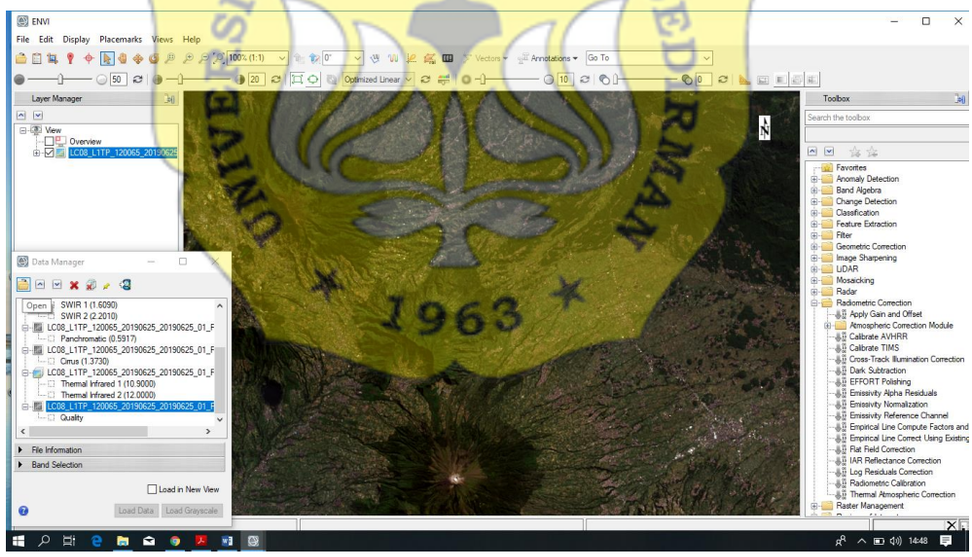
LAMPIRAN 1

Kalibrasi sensor citra dan koreksi atmosfer

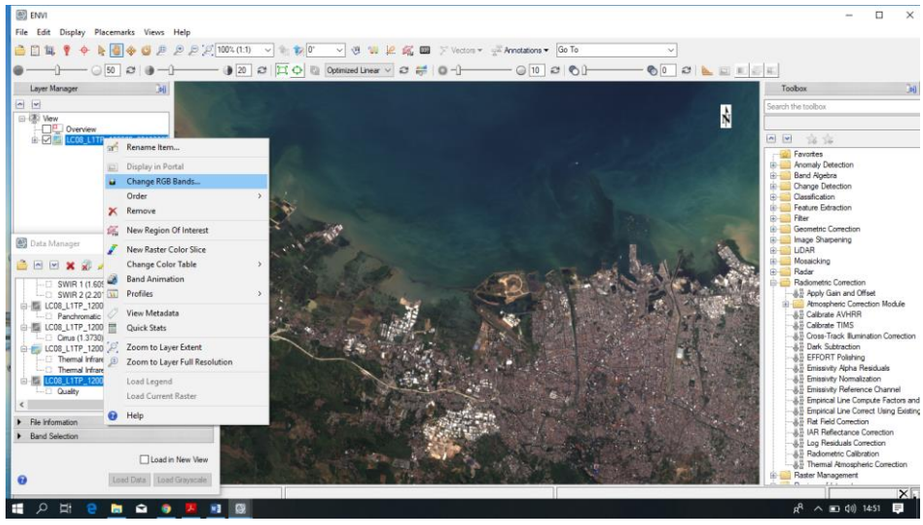
1. Buka software envi 64 bit, klik icon data manager



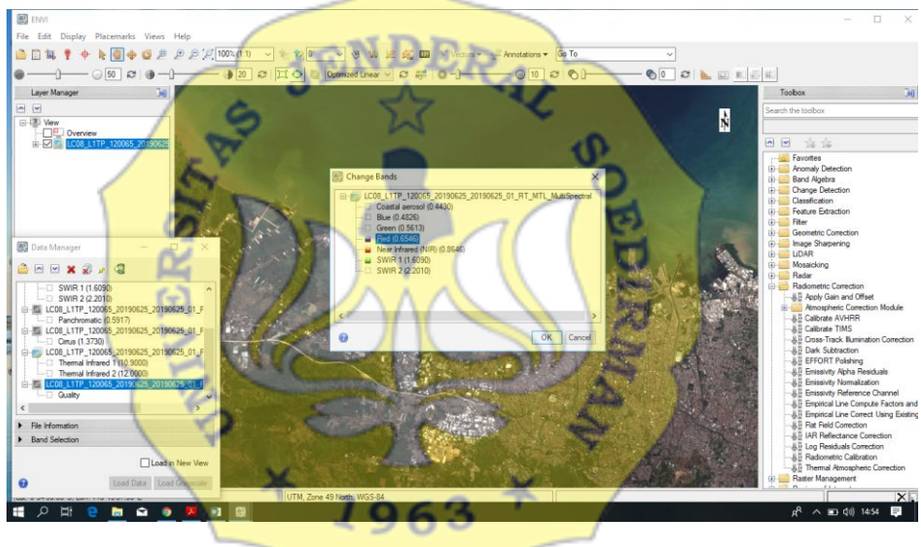
2. Open data manager, open file MTL



3. Untuk melihat tampilan warna mangrove, maka dapat mengubah band RGB, dengan cara klik kanan pada jendela layer manager file citra yang akan diubah tampilan band RGB nya : change RGB band

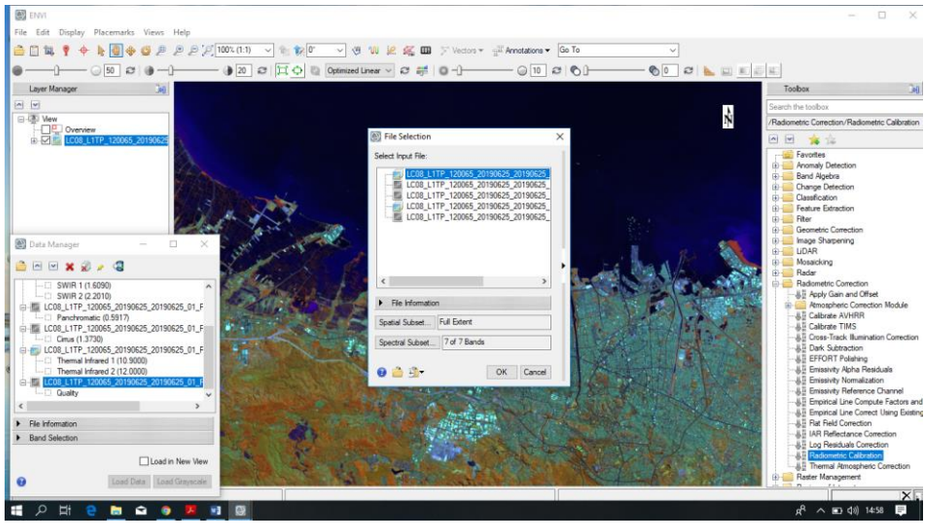


4. Masukkan dengan cara klik band yang akan dipilih : R (Near Infrared/Band 5), G (SWIR 1/Band 6), B (Red/Band 4), lalu klik OK

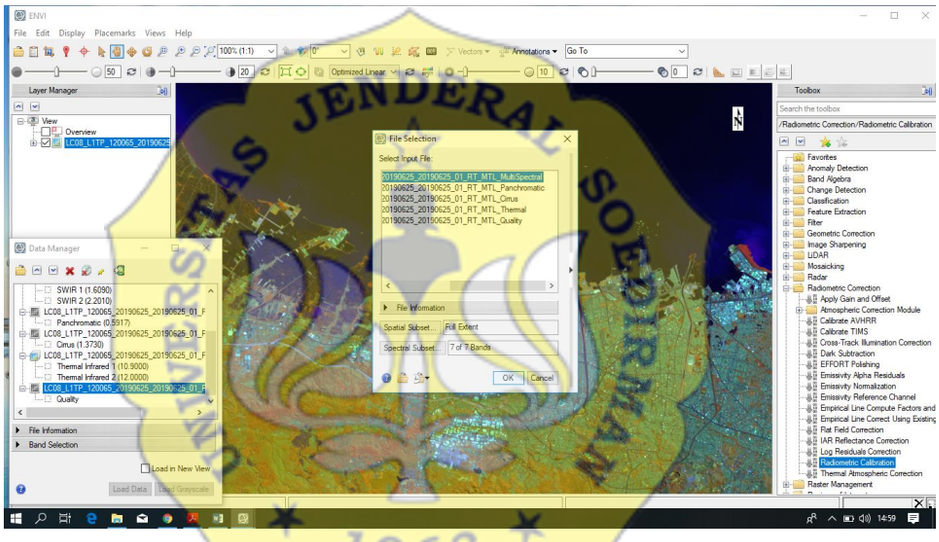


Koreksi Radiometrik

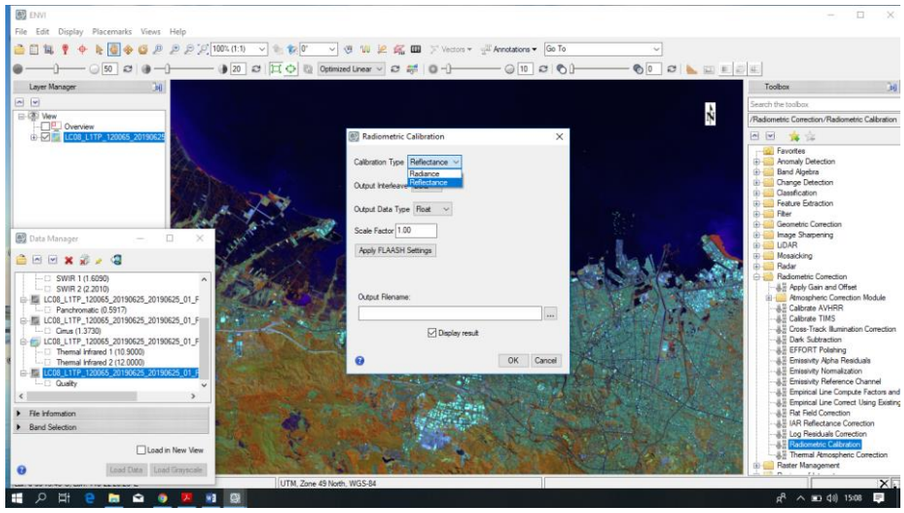
1. Pada menu tampilan toolbox berada disebelah kanan. Pilih radiometric correction → Radiometric calibration



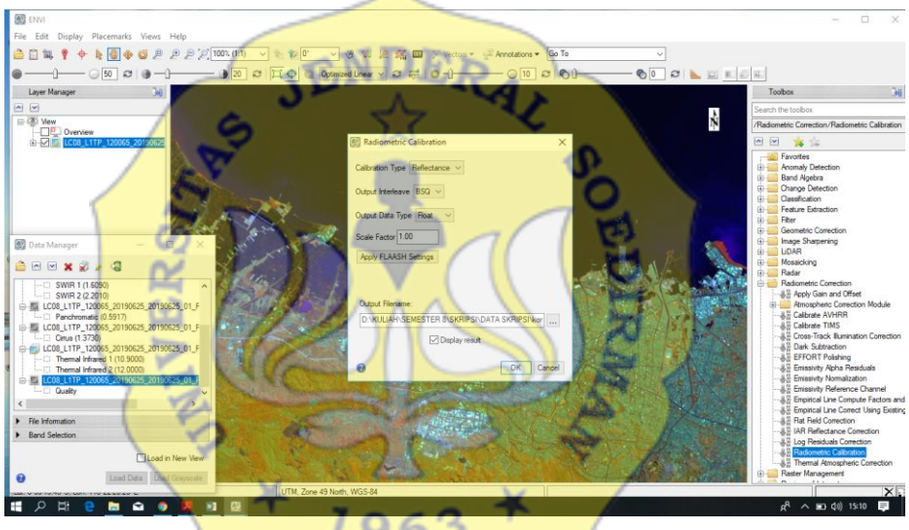
2. Pilihlah input file selection MTL Multispectral, kemudian klik OK



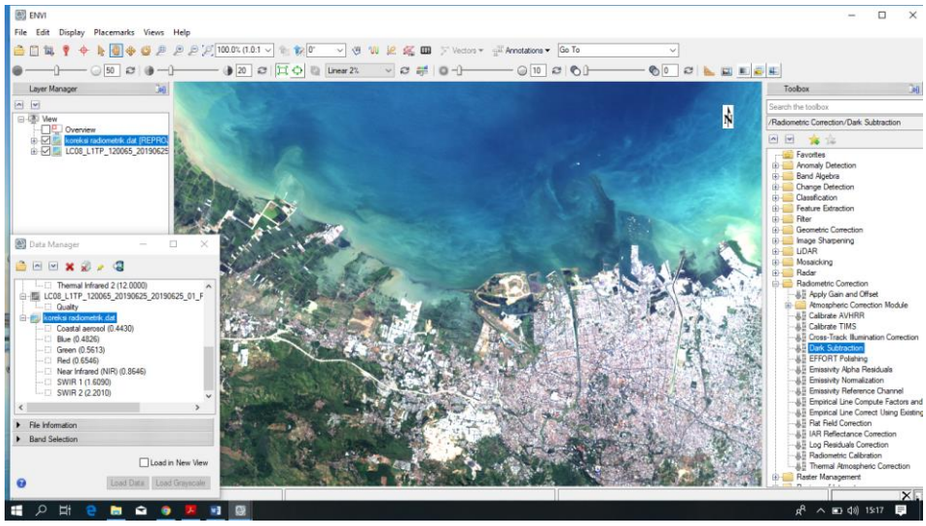
3. Pada jendela tampilan radiometric calibration pilihlah calibration type : reflectance, output interleave: BSQ, output data type: float, Scale factor:1



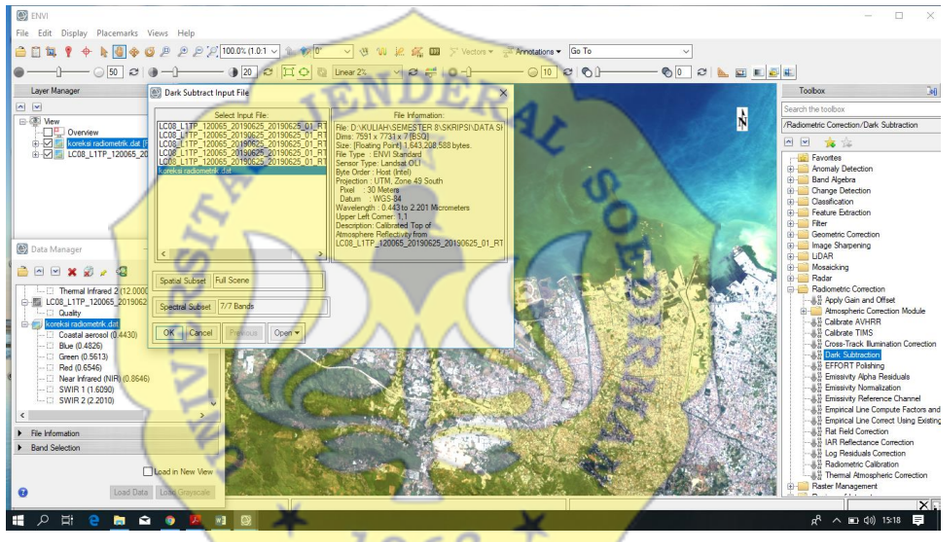
4. Simpan output file name. pilih file tempat menyimpan koreksi radiometric. Lalu OK



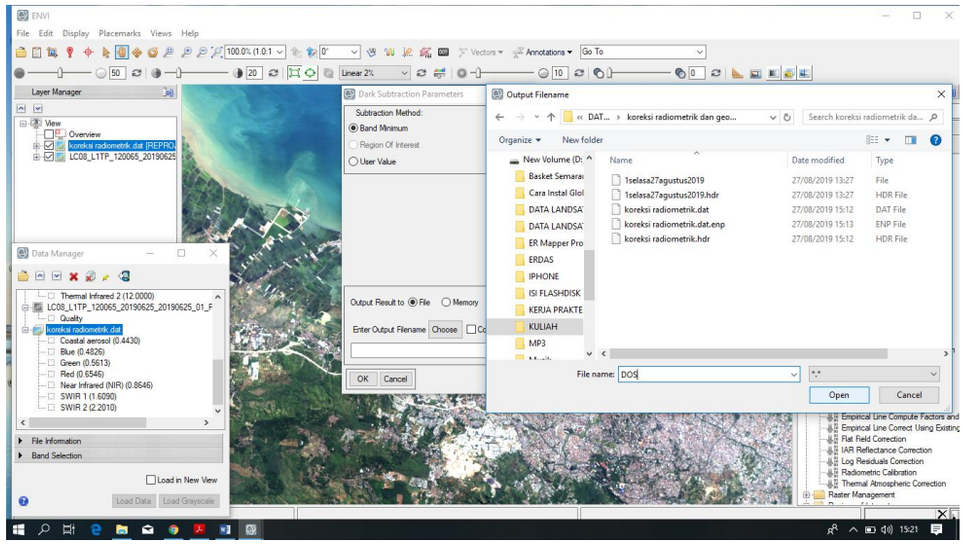
5. Proses koreksi radiometric selesai maka selanjutnya proses DOS atau Dark Object Substraction. Pada toolbox Radiometrix correction → Dark substraction



6. Input file hasil koreksi radiometric sebelumnya, lalu klik OK

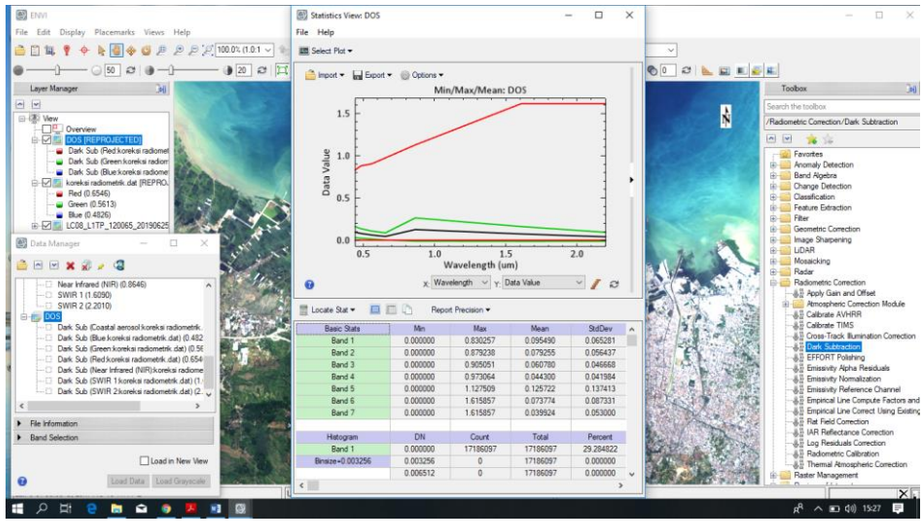


7. Setelah data file dimasukkan maka akan tampil jendela Dark Substraction Parameter, lalu simpan hasil DOS



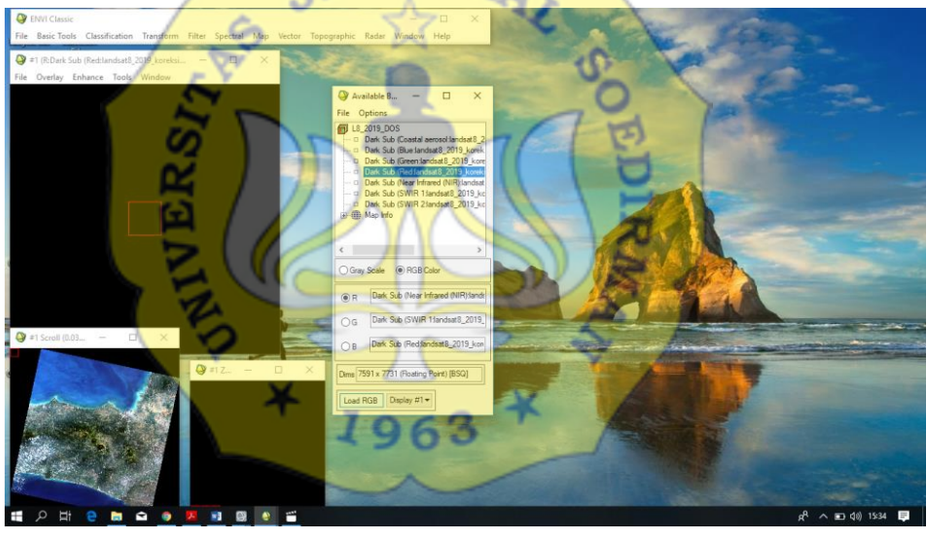
8. Hasil koreksi DOS dapat dilihat dari tampilan layer manager

9. Untuk melihat nilai hasil koreksi DOS dengan cara klik kanan Quick stats

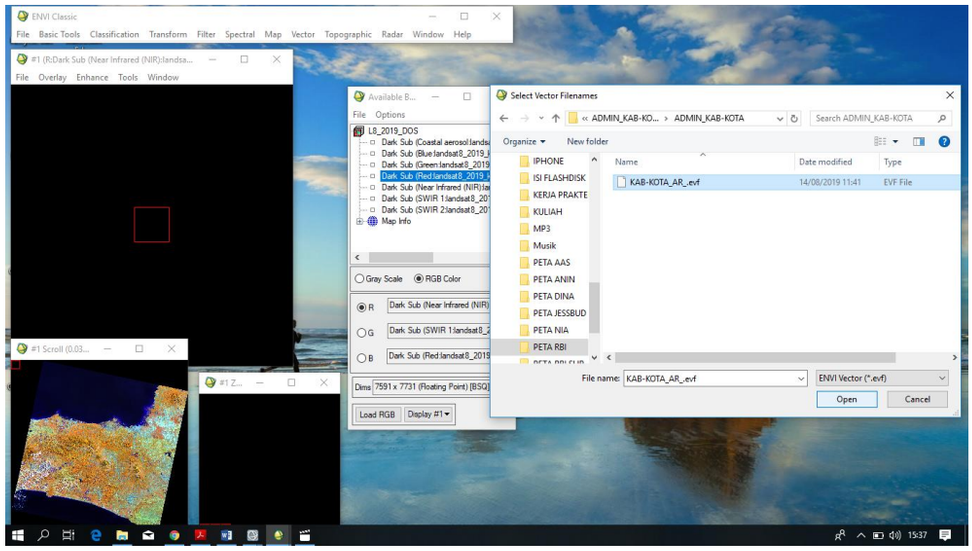


Koreksi Geometrik

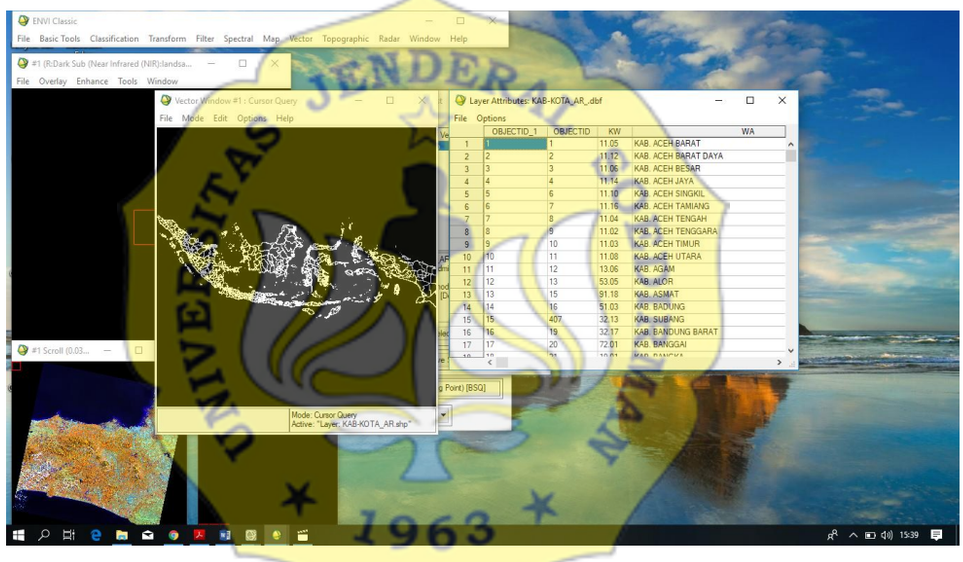
1. Buka file landsat yang sudat terkoreksi radiometric, RGB colour 564



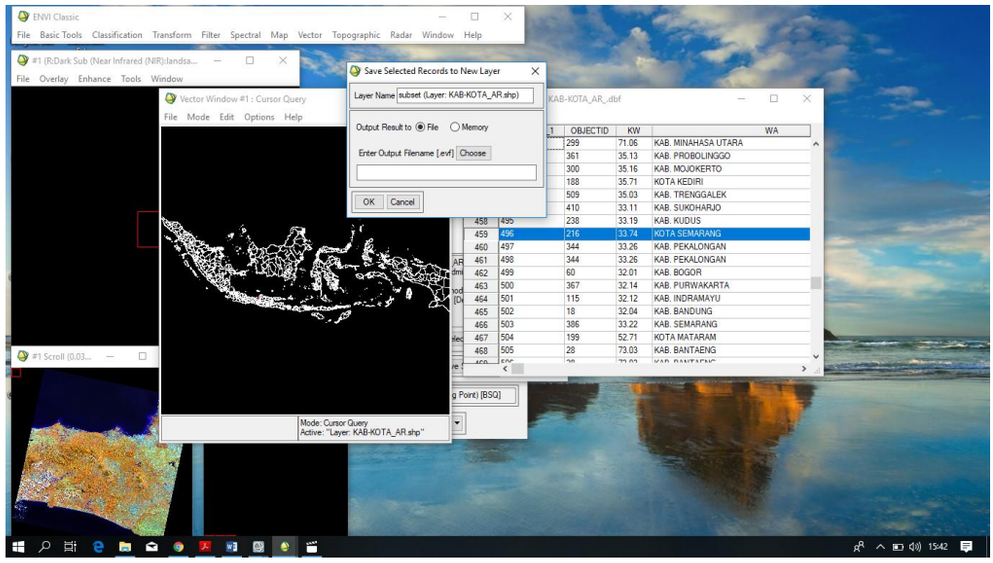
2. Buka file vector Indonesia kab. Shp. File→open vector file



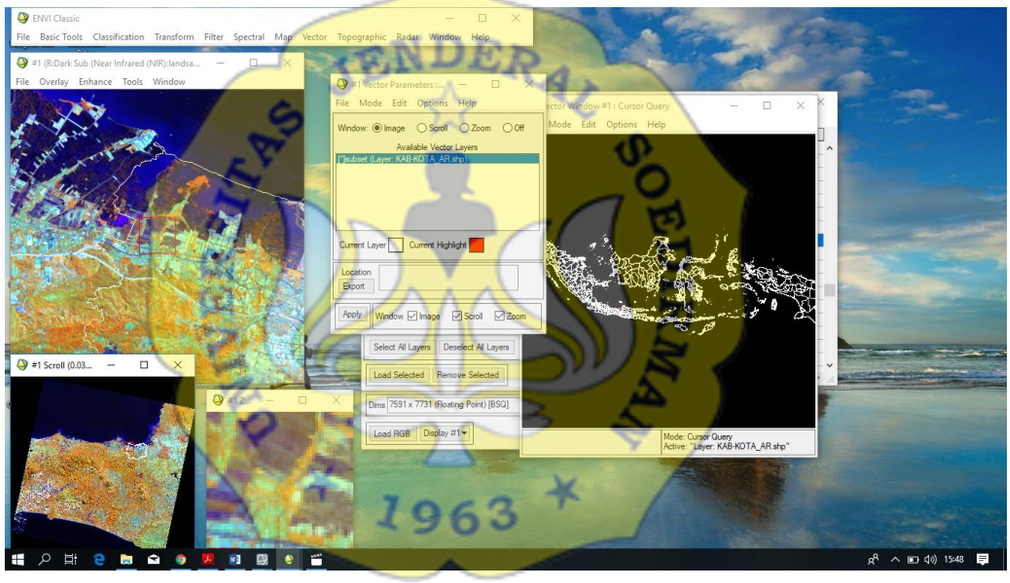
3. Edit → view attributes → cari daerah sesuai citra landsat 8



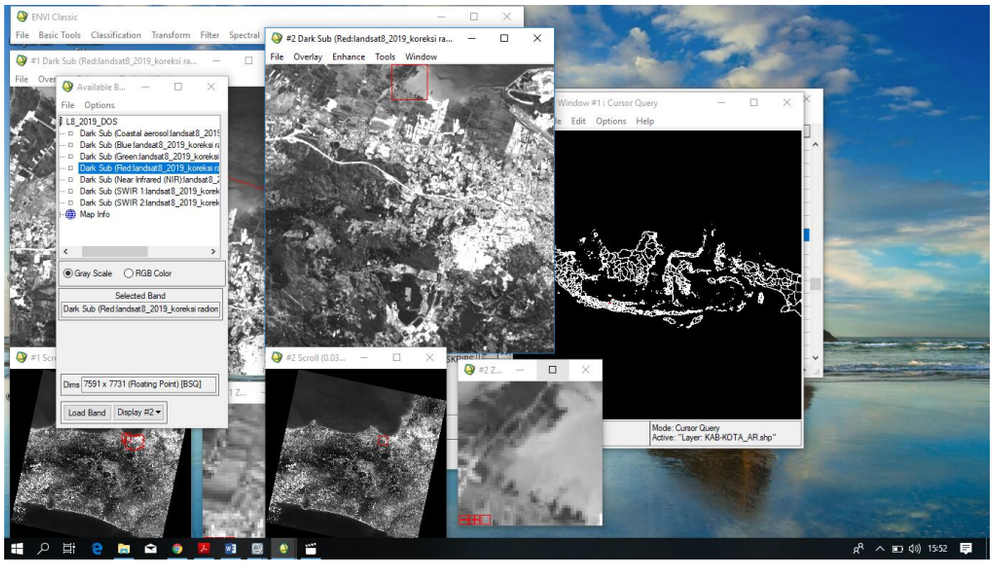
4. File – save selected record to new layer – simpan output file nya – ok



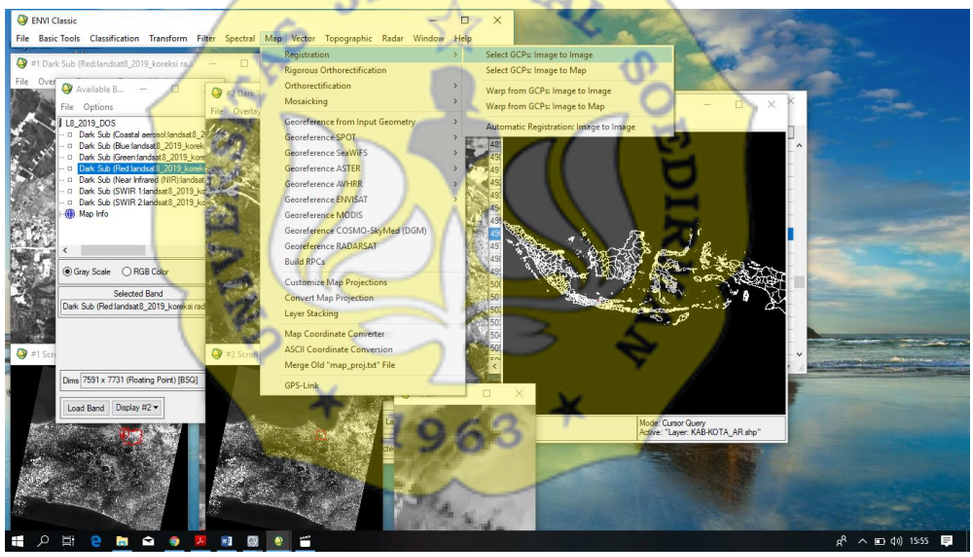
5. Muncul subset, untuk mengecek load selected – display 1



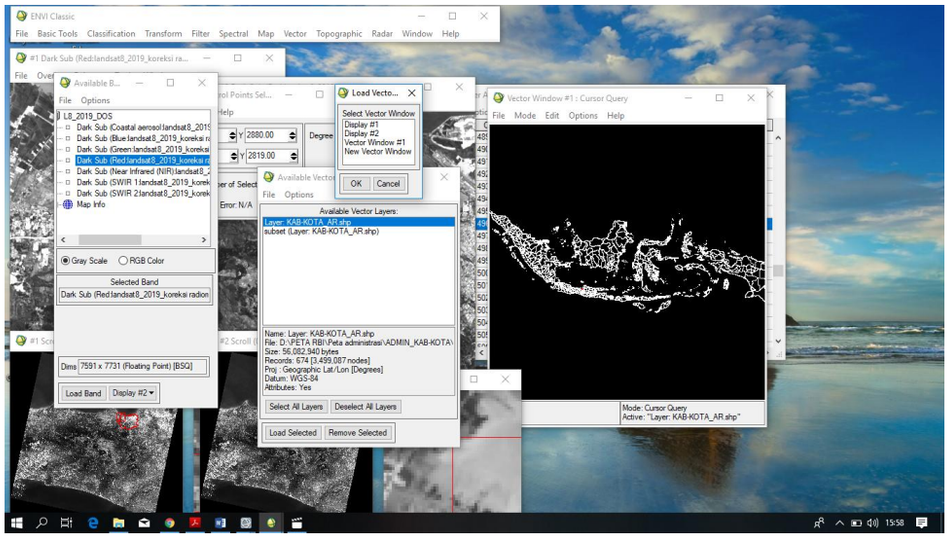
6. Buka new display greyscale yang akan dikoreksi



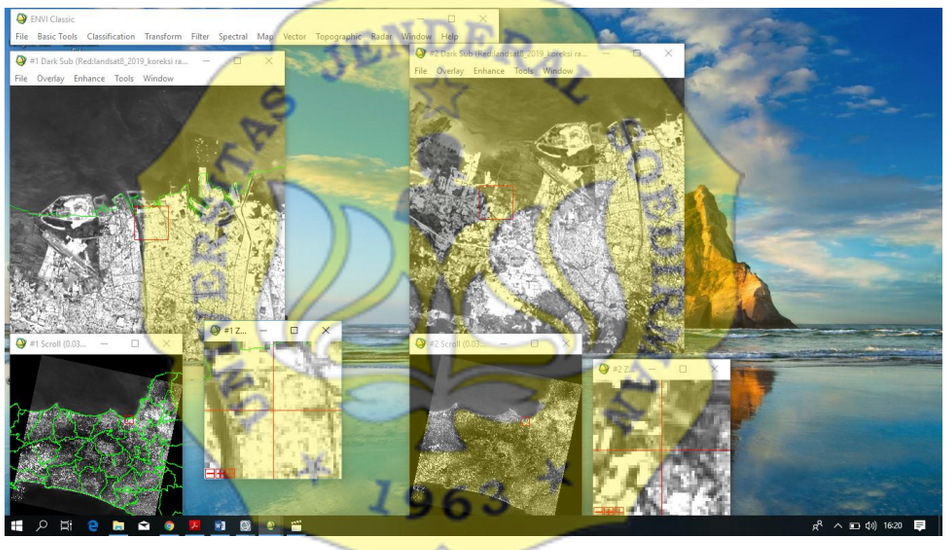
7. Proses koreksi geometric, map→registration→select gcp image to image Base image (image yang digunakan sebagai base) warp image (yg akan dikoreksi/grey scale)



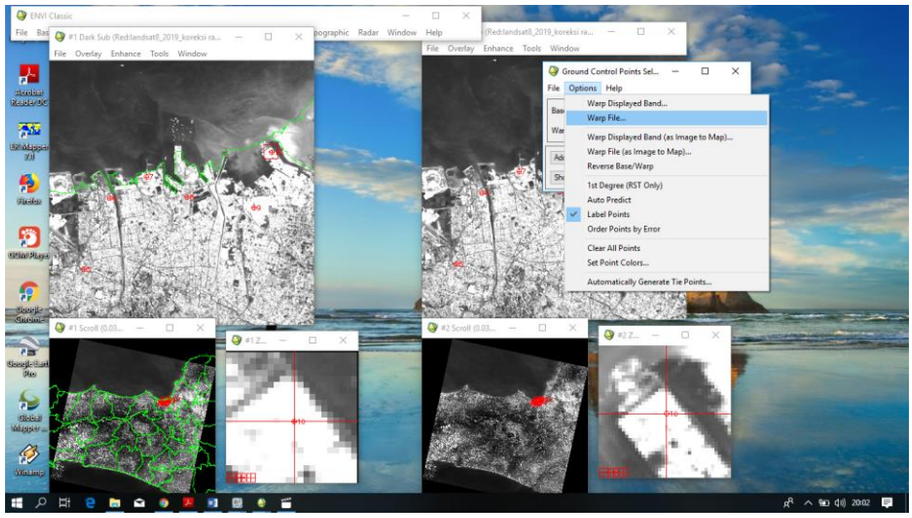
8. Available vector list → pilih layer Indonesia kab.shp di display citra base image



9. Buat GCP selection bebas tapi merata dan tidak boleh diperairan pilih lokasi yang ada di citra, geographic link antara 2 display



10. Setelah semua GCP selesai file – save GCP to ASCII lalu ok
11. Options - wrap file


ENVI Classic
Ground Control Points Sel...
Warp Displayed Band...
Warp File...
Warp Displayed Band (as Image to Map)...
Warp File (as Image to Map)...
Reverse Base/Warp
1st Degree (RST Only)
Auto Predict
Label Points
Order Points by Error
Clear All Points
Set Point Colors...
Automatically Generate Tie Points...

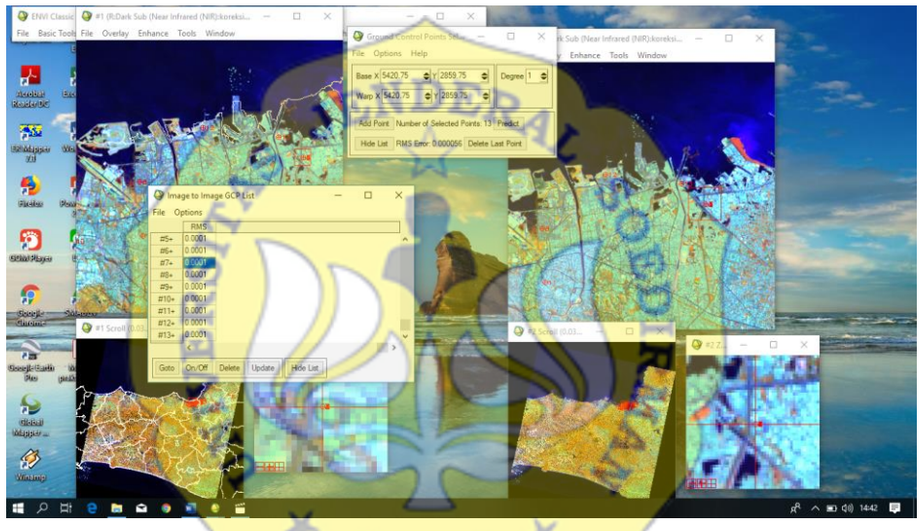
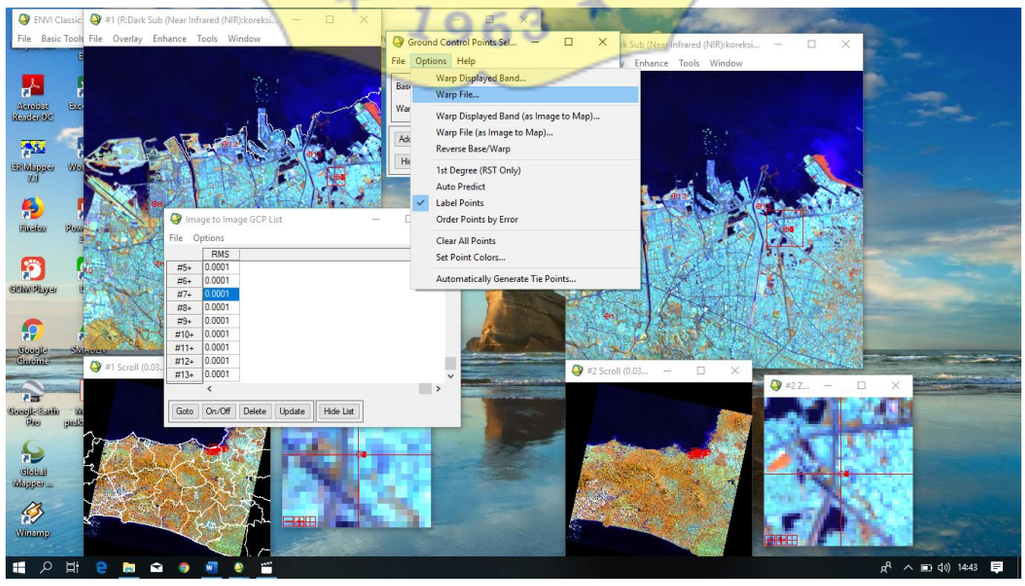
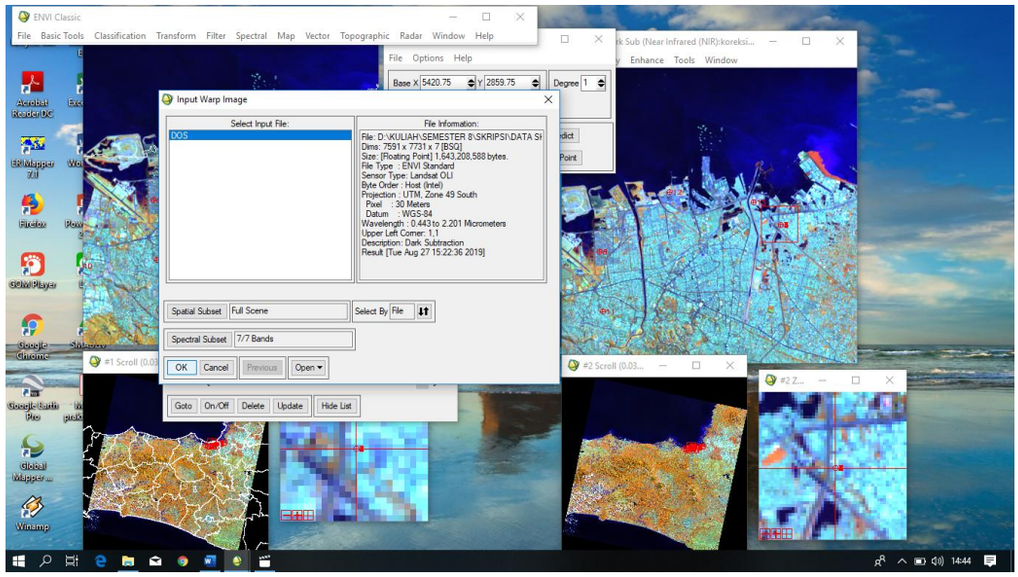
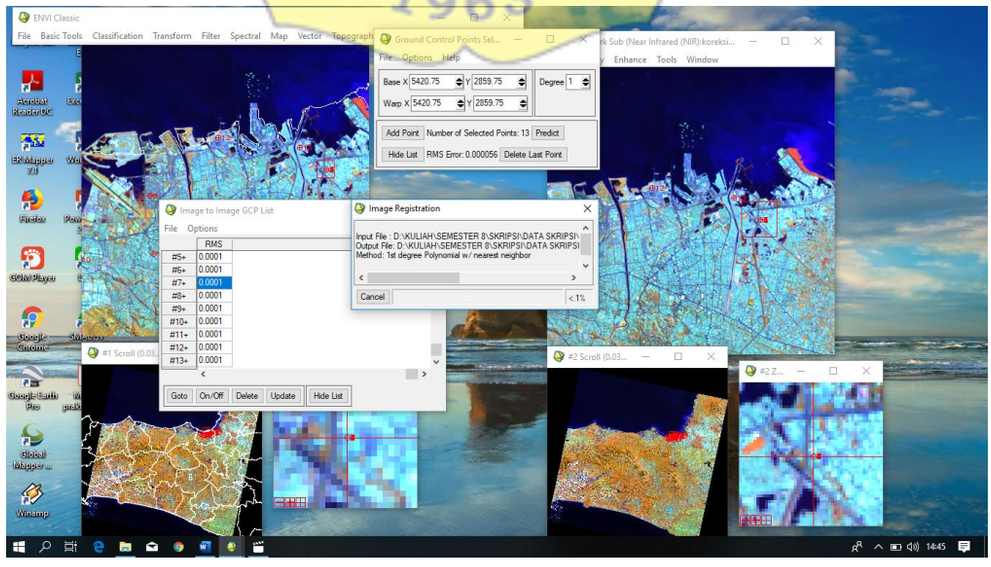


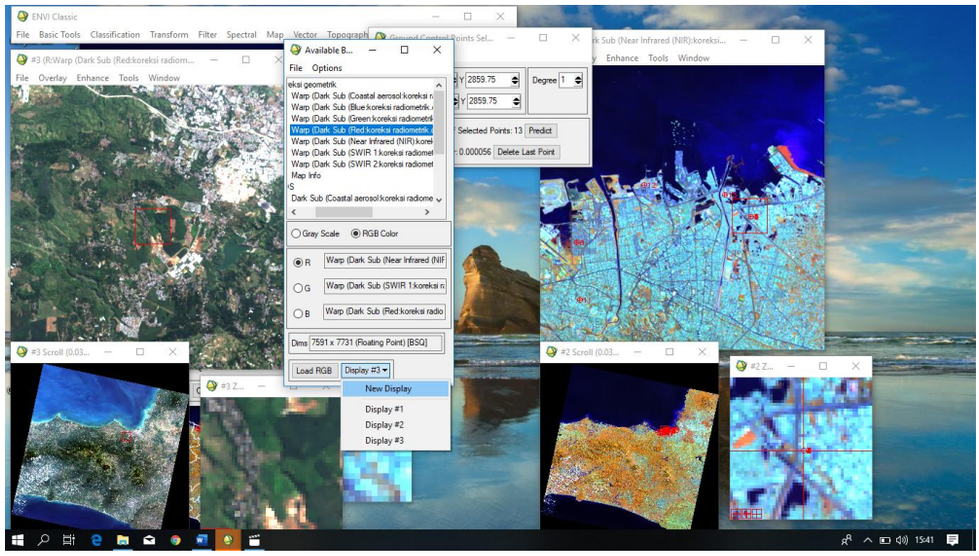
Image to Image GCP List
Ground Control Points Sel...


ENVI Classic
Ground Control Points Sel...
Warp Displayed Band...
Warp File...
Warp Displayed Band (as Image to Map)...
Warp File (as Image to Map)...
Reverse Base/Warp
1st Degree (RST Only)
Auto Predict
Label Points
Order Points by Error
Clear All Points
Set Point Colors...
Automatically Generate Tie Points...
Image to Image GCP List



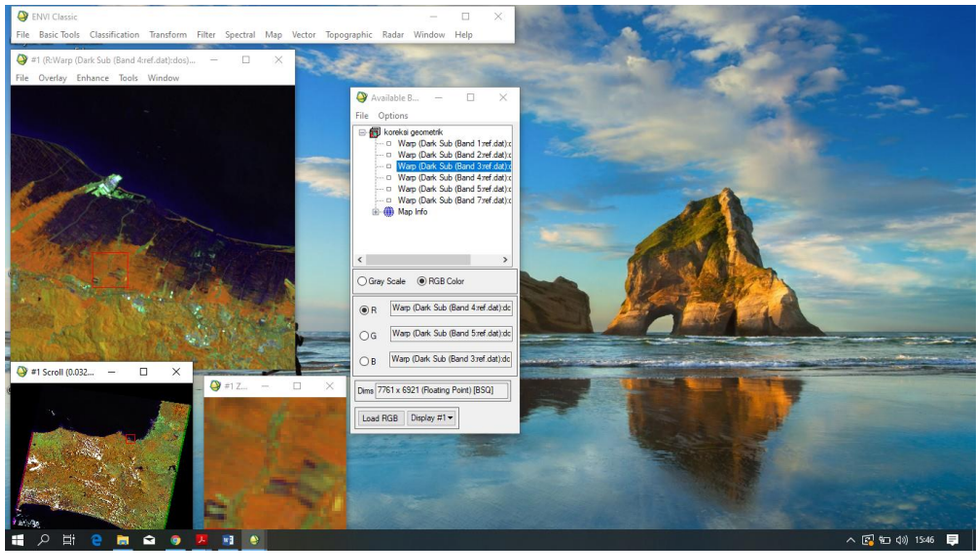
12. Kemudian save hasil koreksi geometrik



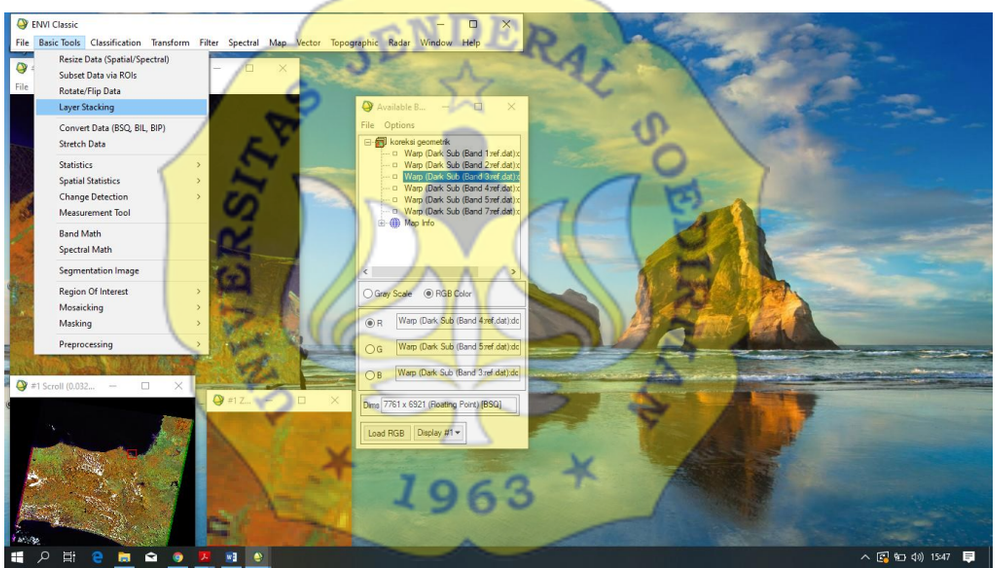


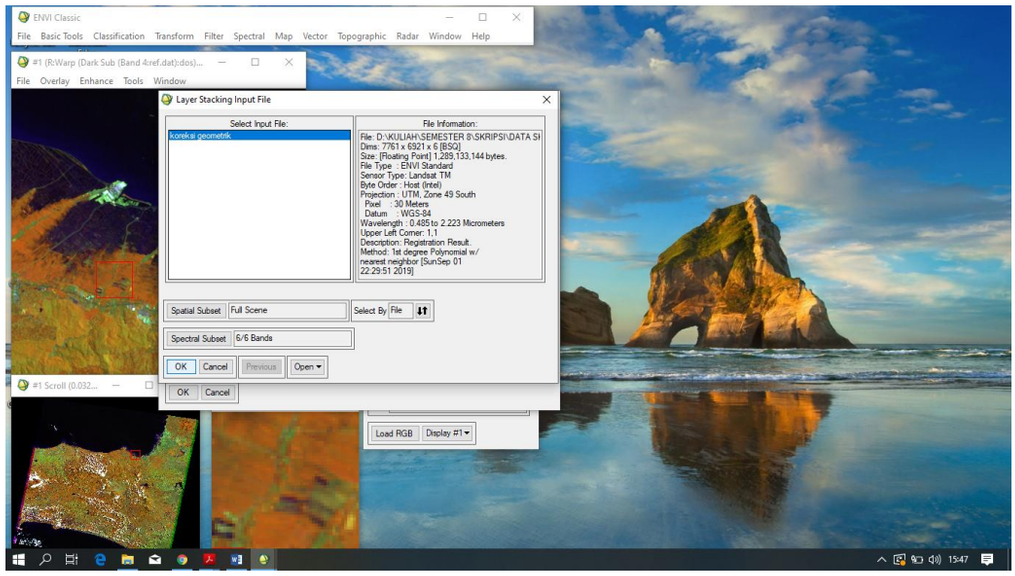
Klasifikasi multispectral Maximum Likelihood

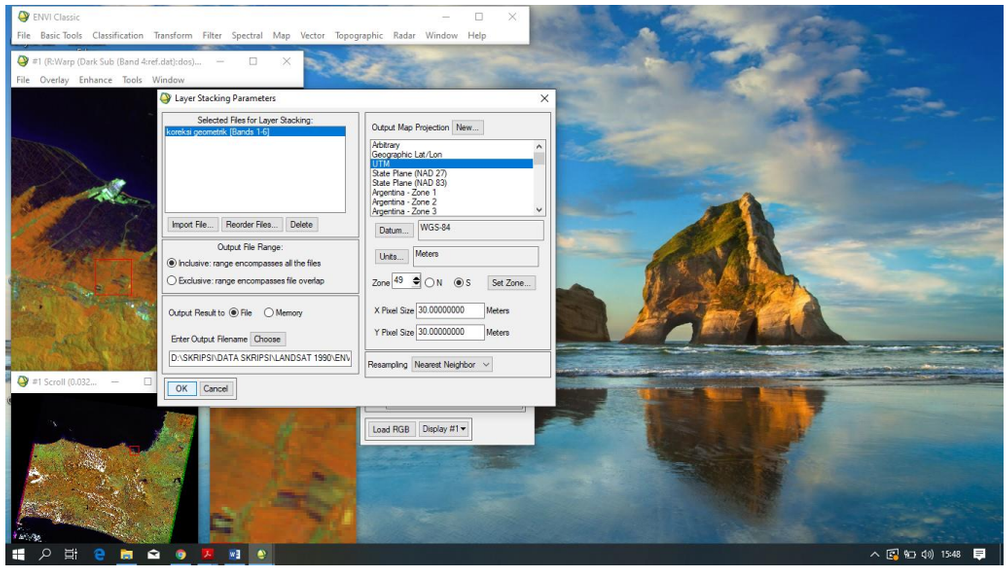
1. Buka ENVI classic → buka file hasil koreksi radiometric dan geometric → dalam table available band list, klik RGB color masukkan composite warna vegetasi



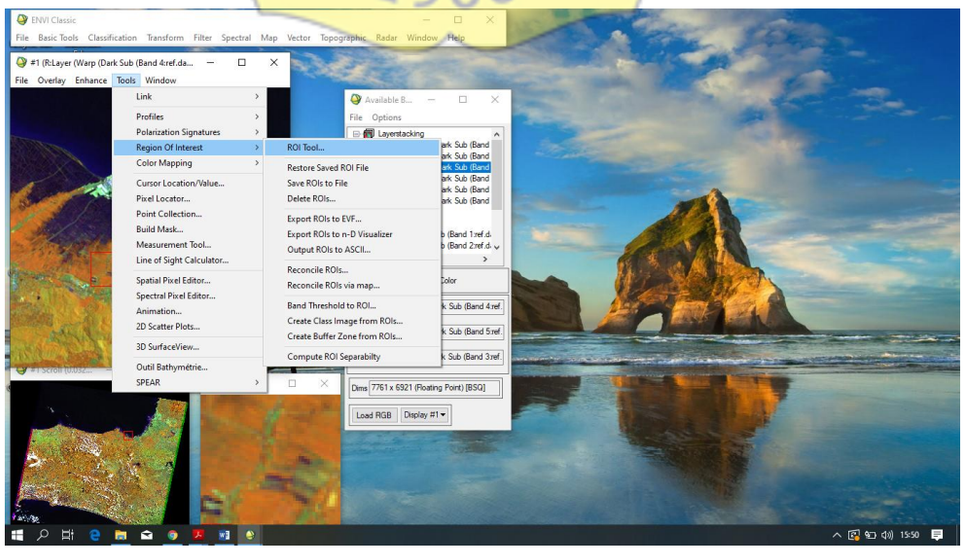
2. Untuk menggabungkan band menjadi satu klik Basic tool → Layer stacking → Import file → klik file yang akan diolah → save file



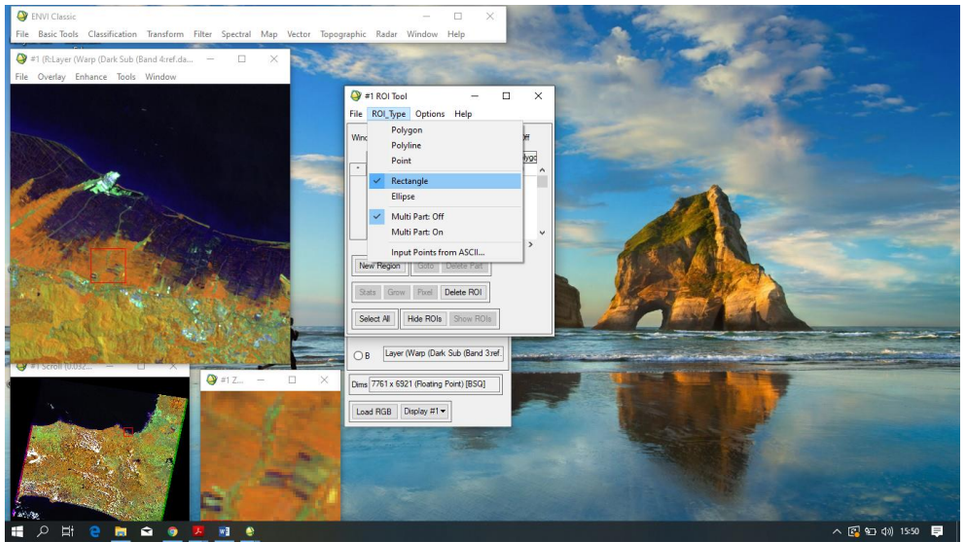




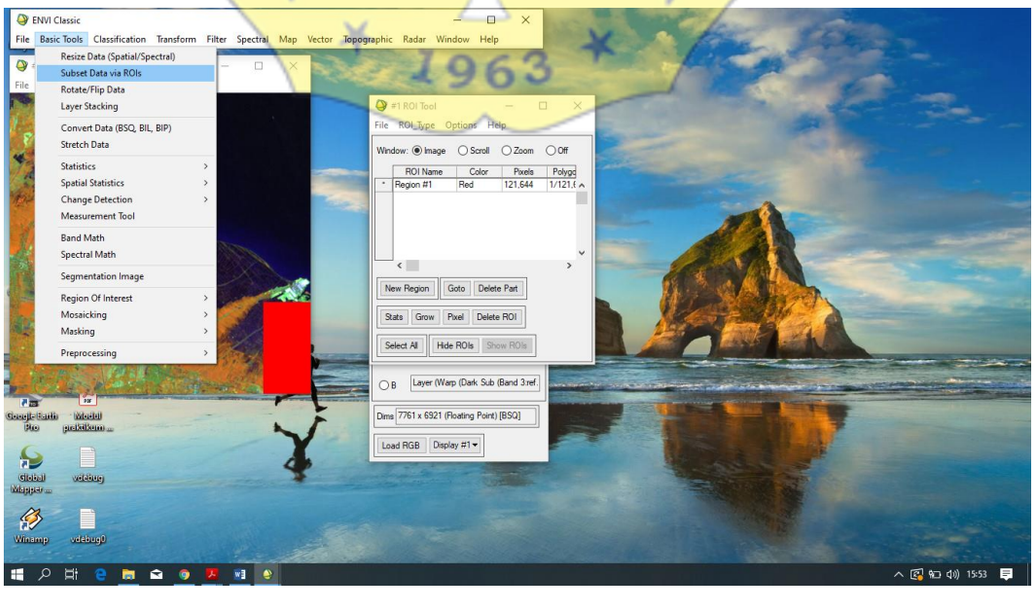
3. Cropping ROI. Klik tools → Region of Interest → ROI tools



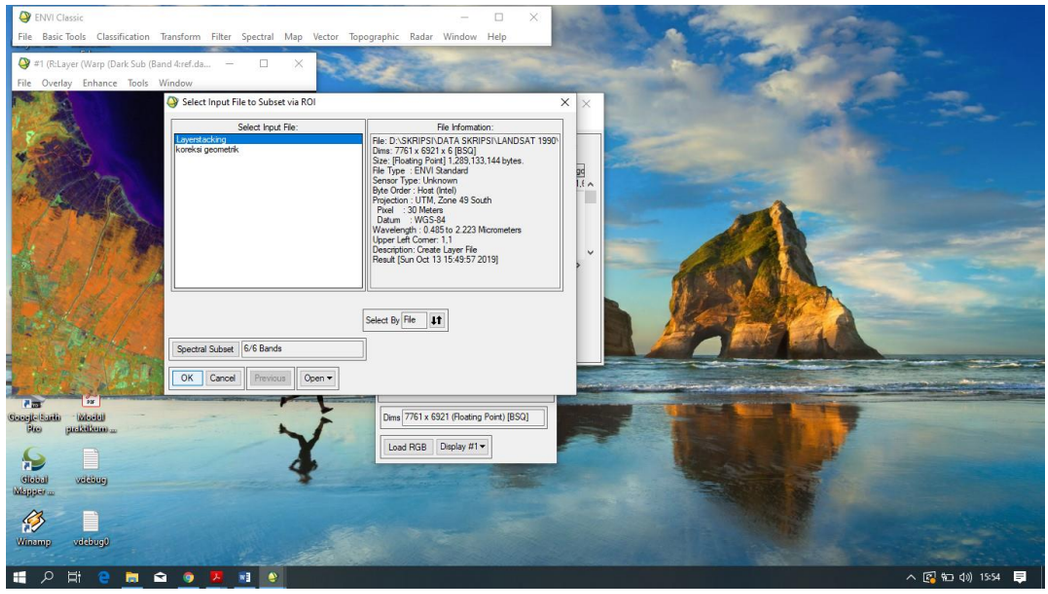
4. Dalam ROI type pilih rectangle, lalu digitasi sesuai daerah yang kita teliti



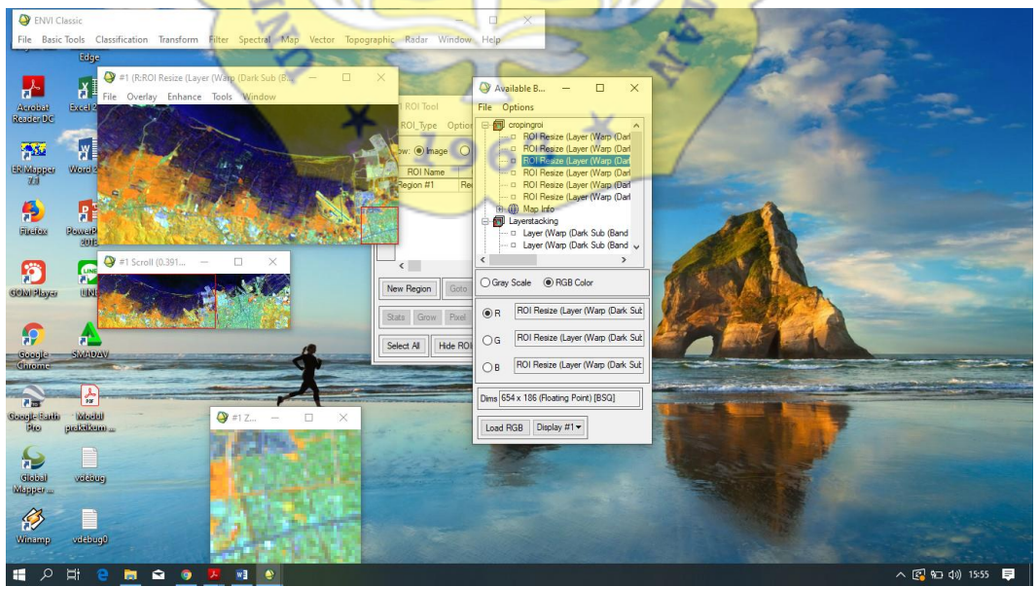
5. Klik Basic tools → Subset data via ROI



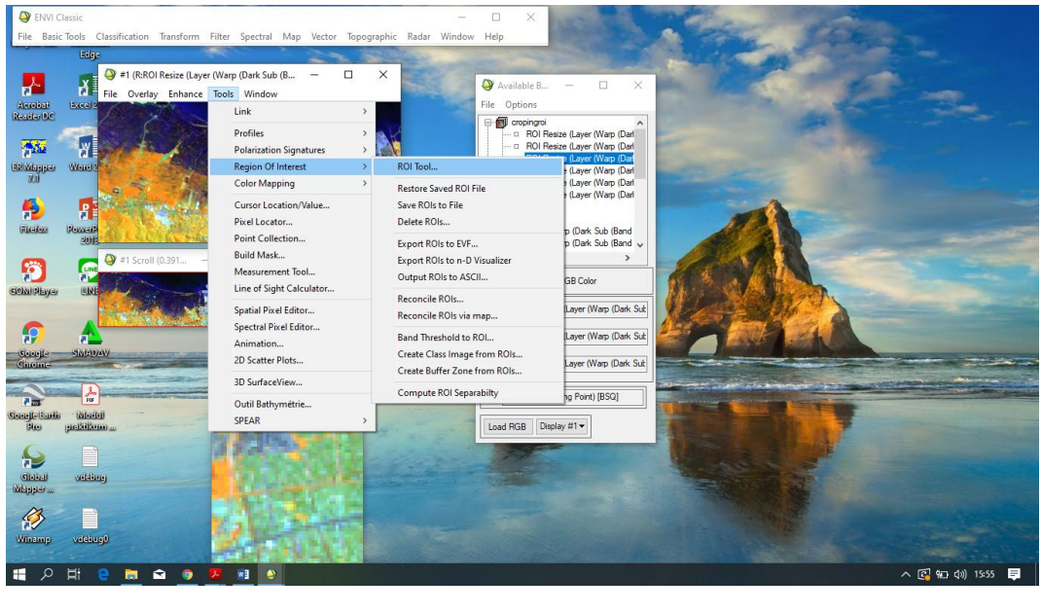
6. Kemudian save hasil cropping



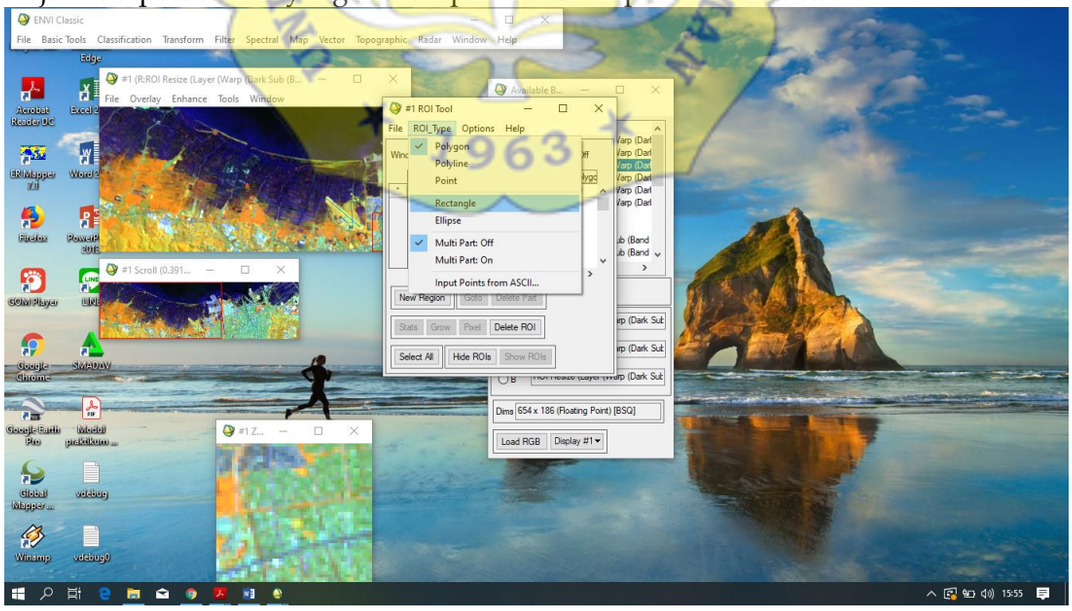
7. Lalu dalam table available band list dilakukan ulang pewarnaan komposit dalam cropping



8. Mencari sampel yang akan dijadikan sebagai parameter klasifikasi (region of interest) diambil dari citra hasil komposit 564. Klik tools→region of interest→ROI tools



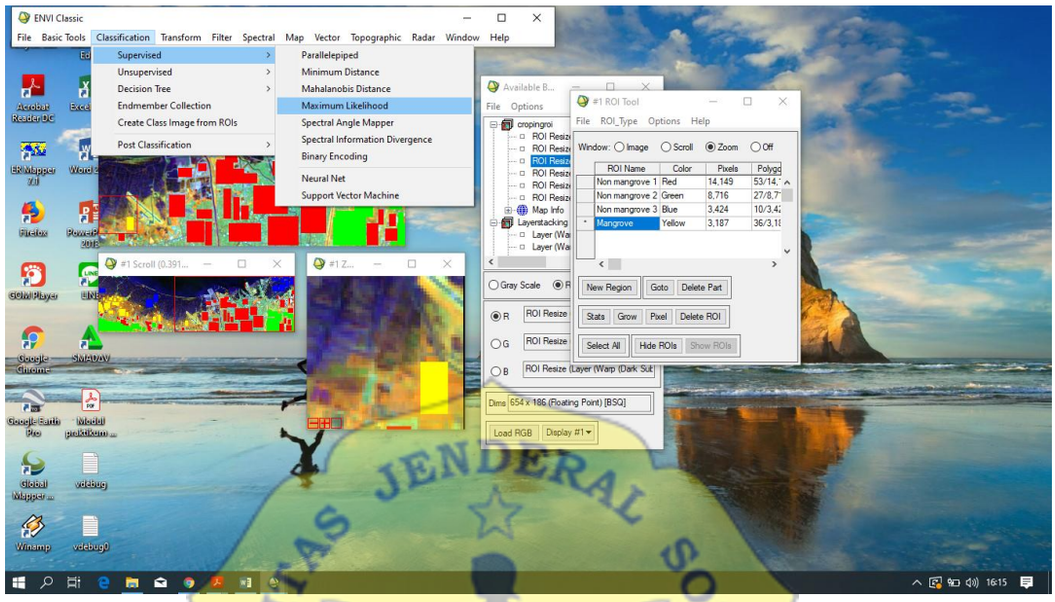
9. Klik ROI type→Rectangle lalu klik pada bulatan zoom. Window merupakan jendela yang akan diambil sampelnya, zoom dipilih karena zoom merupakan jendela perbesaran yang menampilkan kenampakan lebih detail



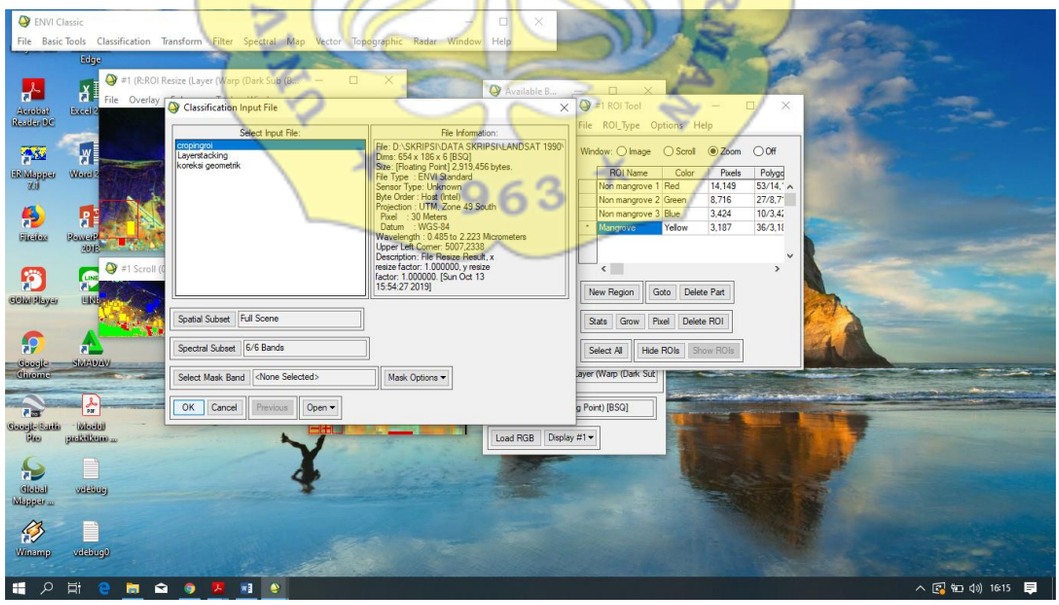
10. Kenampakan yang akan diambil sampelnya meliputi
    a.Non mangrove1 : lahan terbangun (kenampakan berwarna biru cyan)
    b. Non mangrove2 : vegetasi non- mangrove (kenampakan jingga agak kekuningan)

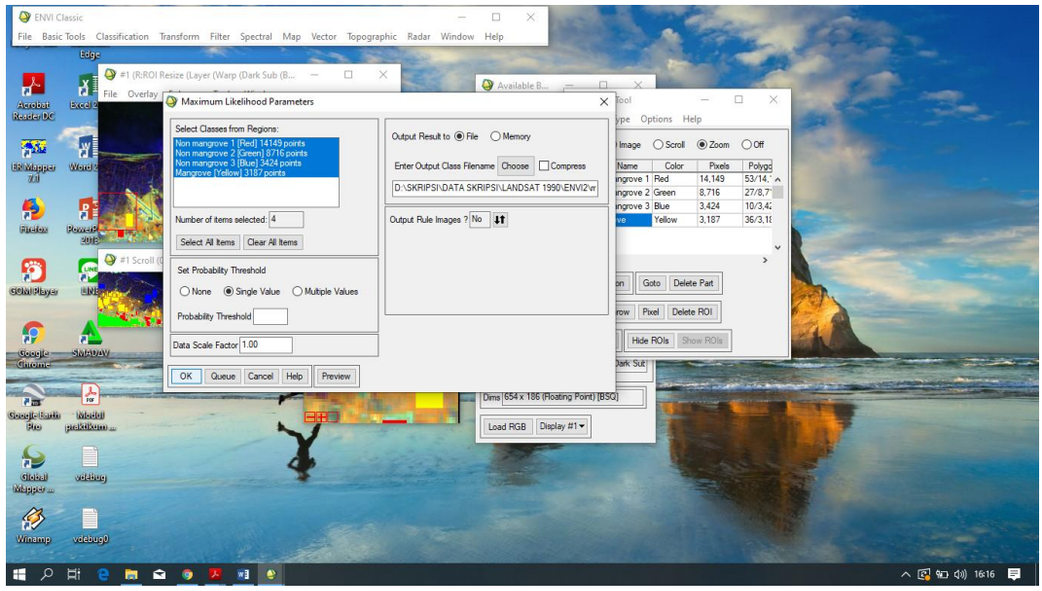
c. Non mangrove3 : sawah dan lahan tergenang (kenampakan biru kehitaman berpola)
d. Mangrove : mangrove berbagai kerapatan (kenampakan jingga pada alur sungai)

lalu klik classification→supervised→maximum likelihood

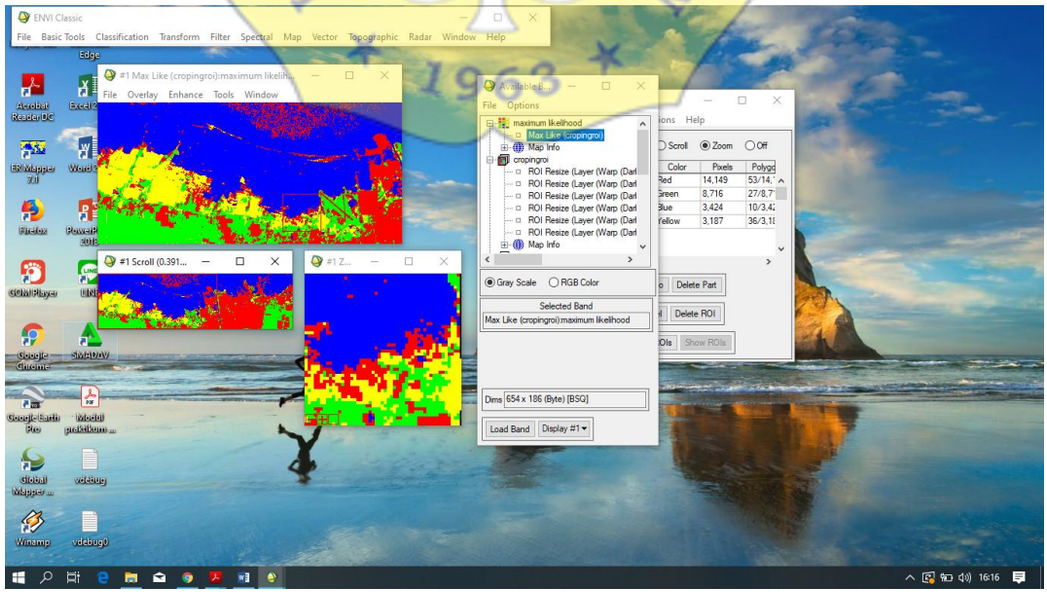


11. Lalu buka hasil cropping kemudian pilih 4 hasil klasifikasi kemudian save file

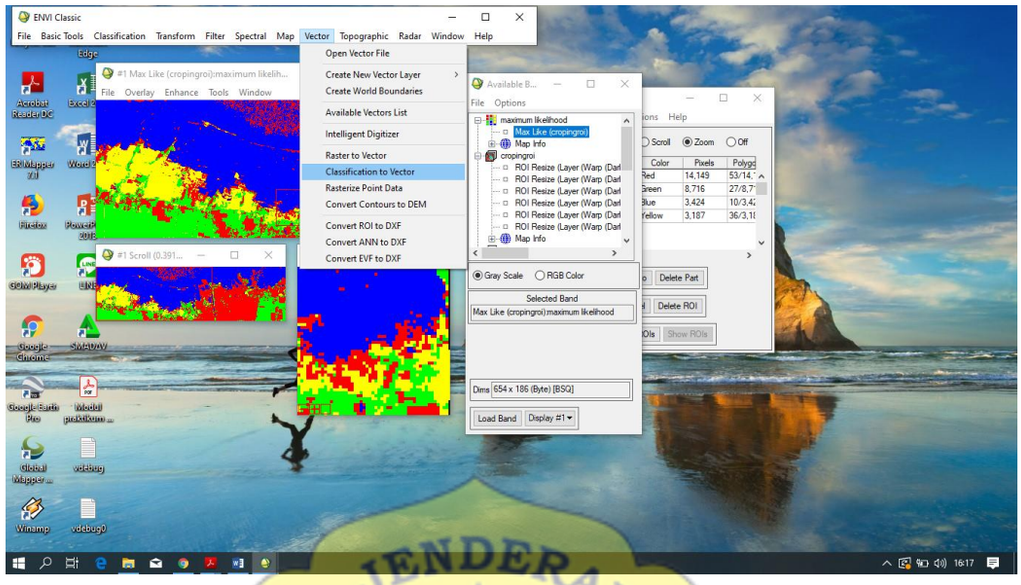


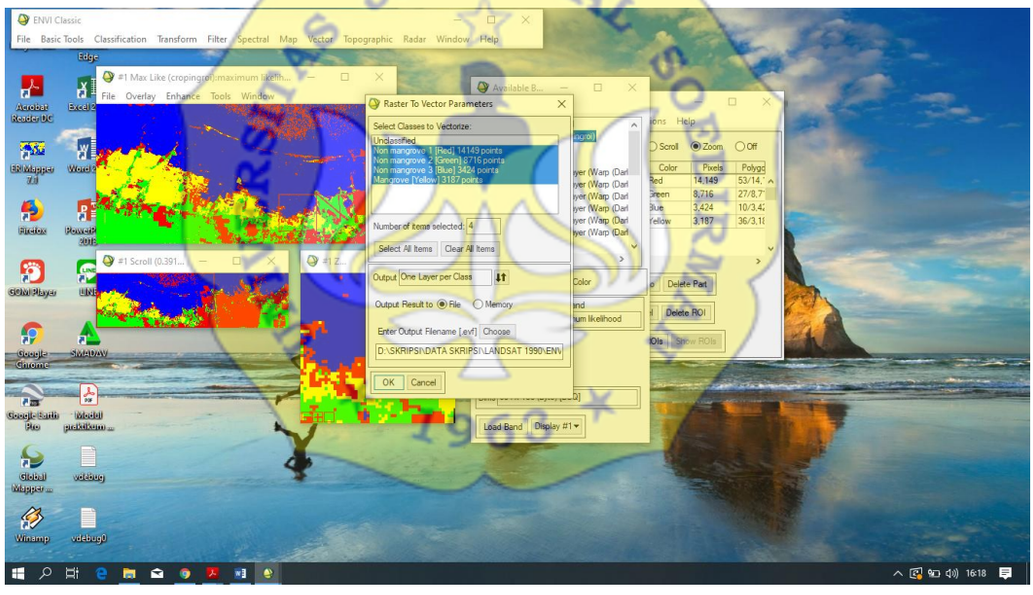


12. Kemudian Load RGB

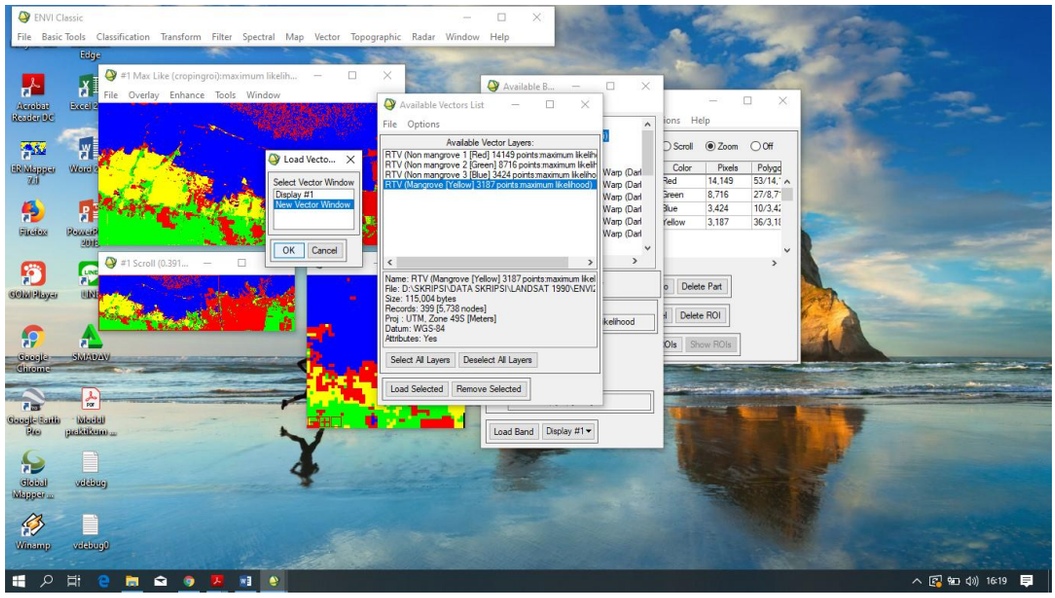


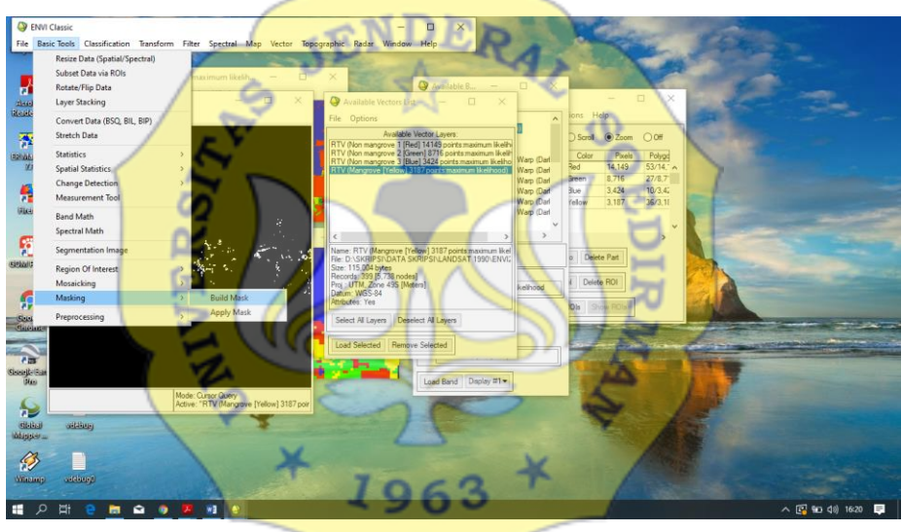
13. Kemudian klik vector → classification to vector. Ubah output menjadi one layer per class dan beri nama vector. Maka data otomatis berubah menjadi vector tiap klasifikasi.

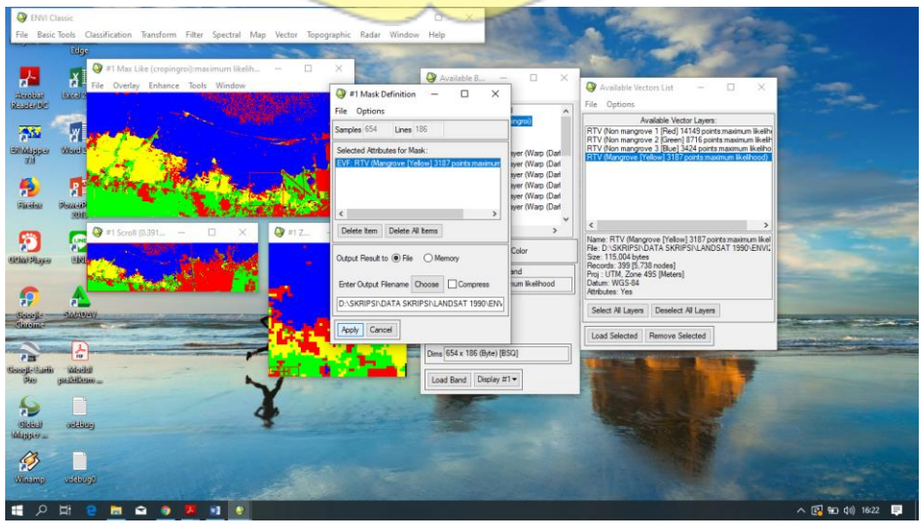


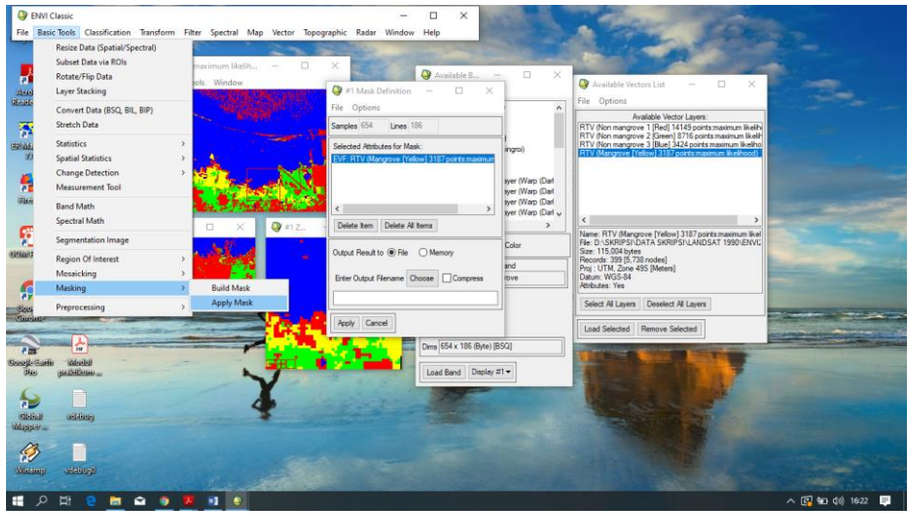


14. Membuat masking dengan hasil klasifikasi mangrove sehingga citra yang akan dianalisis hanya terfokus pada wilayah mangrove. Klik pada toolbar Basic Tools > Masking > Build Mask

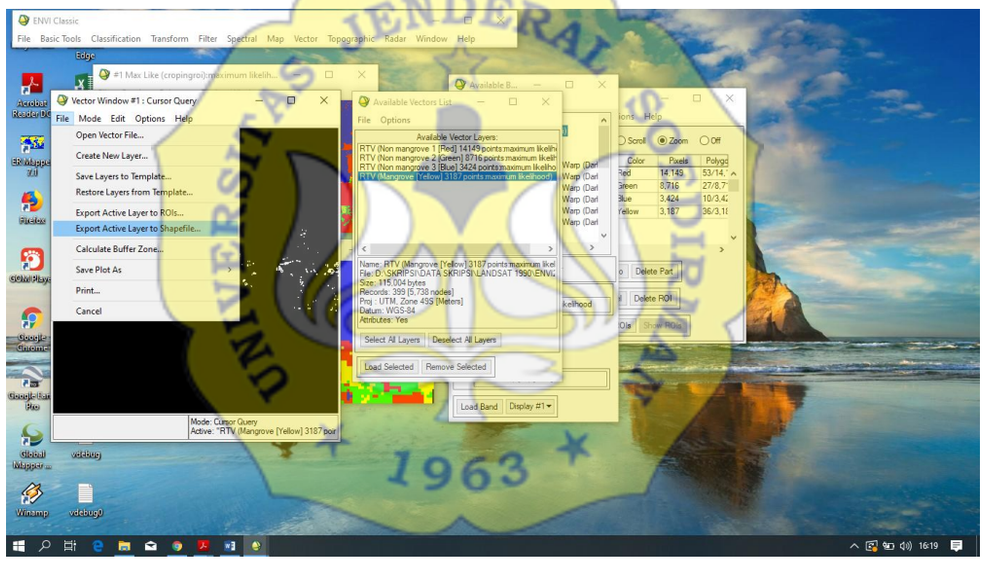

ENVI Classic
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 Max Like (cropingroi):maximum likelih...
File Overlay Enhance Tools Window
Load Vecto...
Select Vector Window
Display #1
New Vector Window
OK
Cancel
Available Vectors List
File Options
Available Vector Layers:
RTV (Non mangrove 1 [Red] 14149 points maximum likelih
RTV (Non mangrove 2 [Green] 8716 points maximum likelih
RTV (Non mangrove 3 [Blue] 3424 points maximum likelih
RTV (Mangrove [Yellow] 3187 points maximum likelihood)
Select All Layers
Deselect All Layers
Load Selected
Remove Selected
Load Band
Display #1
Delete Part
Delete ROI
Show ROIs

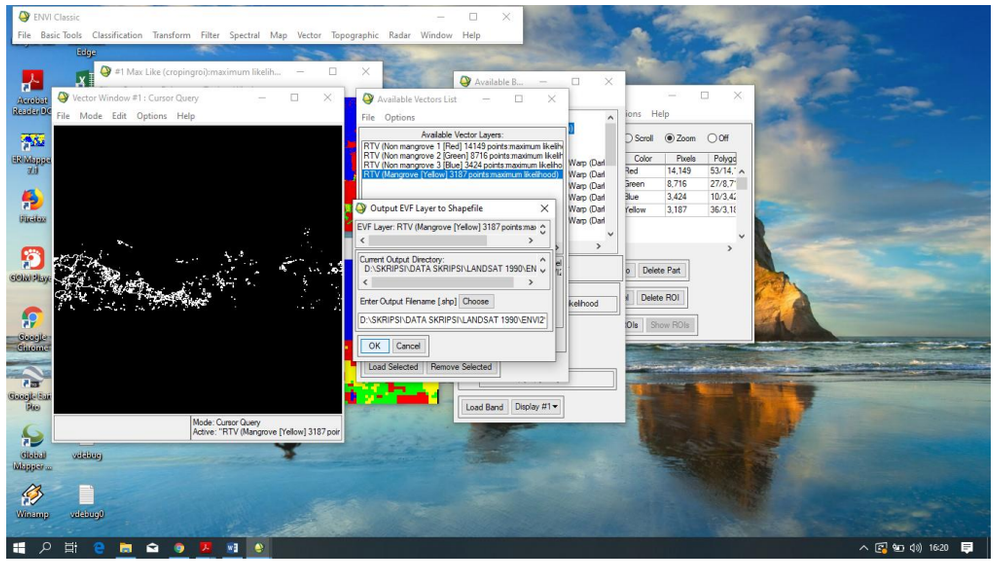

ENVI Classic
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
Resize Data (Spatial/Spectral)
Subset Data via ROIs
Rotate/Flip Data
Layer Stacking
Convert Data (BSQ, BIL, BIP)
Stretch Data
Statistics
Spatial Statistics
Change Detection
Measurement Tool
Band Math
Spectral Math
Segmentation Image
Region Of Interest
Mosaicking
Masking
Preprocessing
Build Mask
Apply Mask
Available Vectors List
File Options
Available Vector Layers:
Select All Layers
Deselect All Layers
Load Selected
Remove Selected
Load Band
Display #1


ENVI Classic
File Basic Tools Classification Transform Filter Spectral Map Vector Topographic Radar Window Help
#1 Max Like (cropingroi):maximum likelih...
File Overlay Enhance Tools Window
#1 Mask Definition
File Options
Samples 654 Lines 186
Selected Attributes for Mask:
EVF: RTV (Mangrove [Yellow] 3187 points maximum
Delete Item
Delete All Items
Output Result to File Memory
Enter Output Filename Choose Compress
Apply
Cancel
Dims 654 x 186 (Byte) [BSQ]
Available Vectors List
File Options
Available Vector Layers:
Select All Layers
Deselect All Layers
Load Selected
Remove Selected
Load Band
Display #1



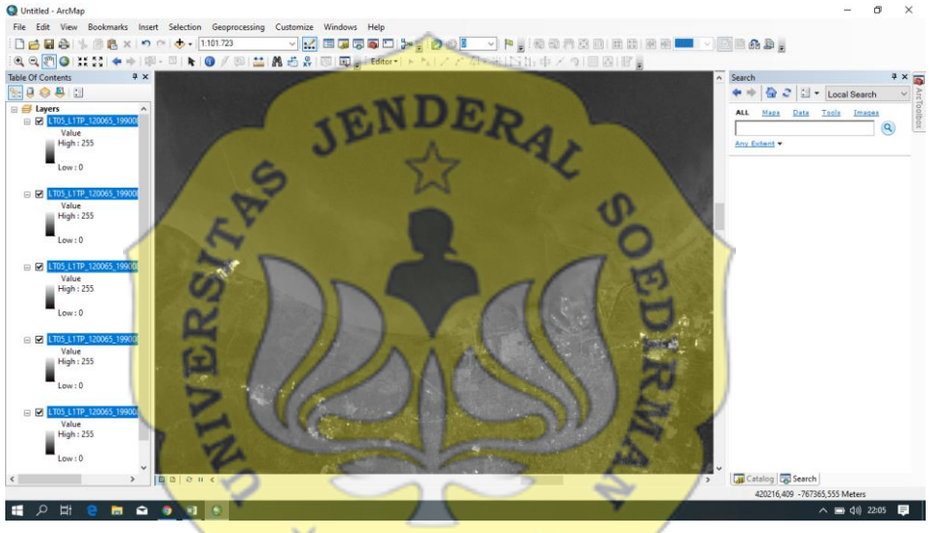
15. Untuk mengubah data vector ke shapefile, pada window baru pilih File Export active layer to shapefile lalu save file



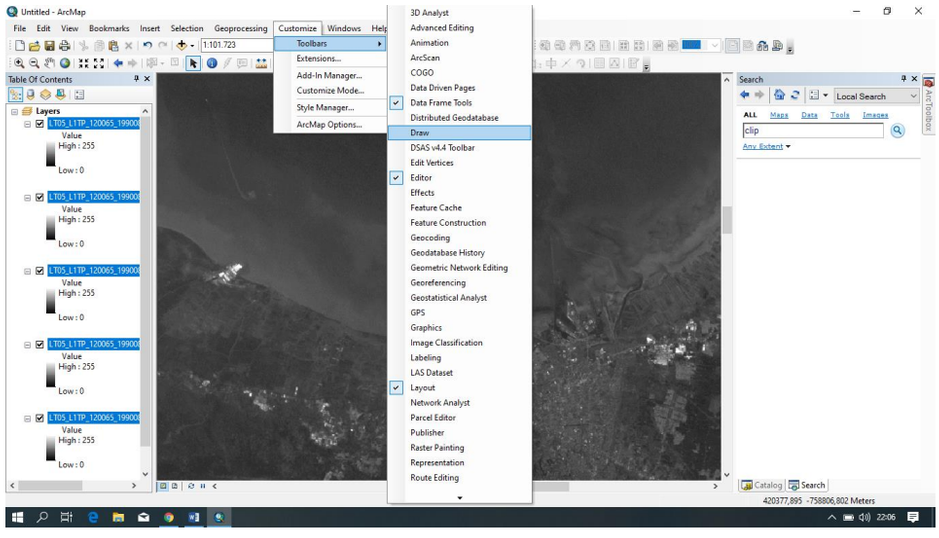


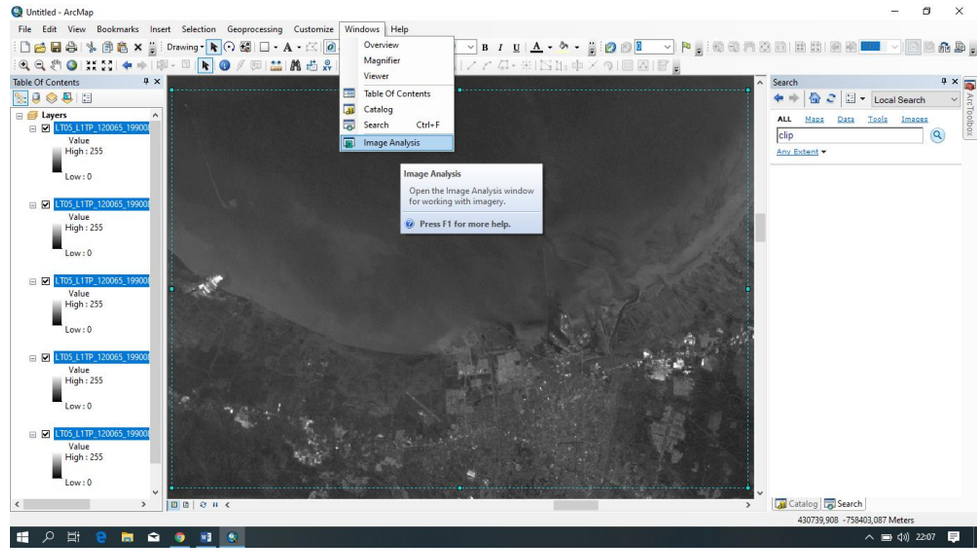
Pengolahan data citra

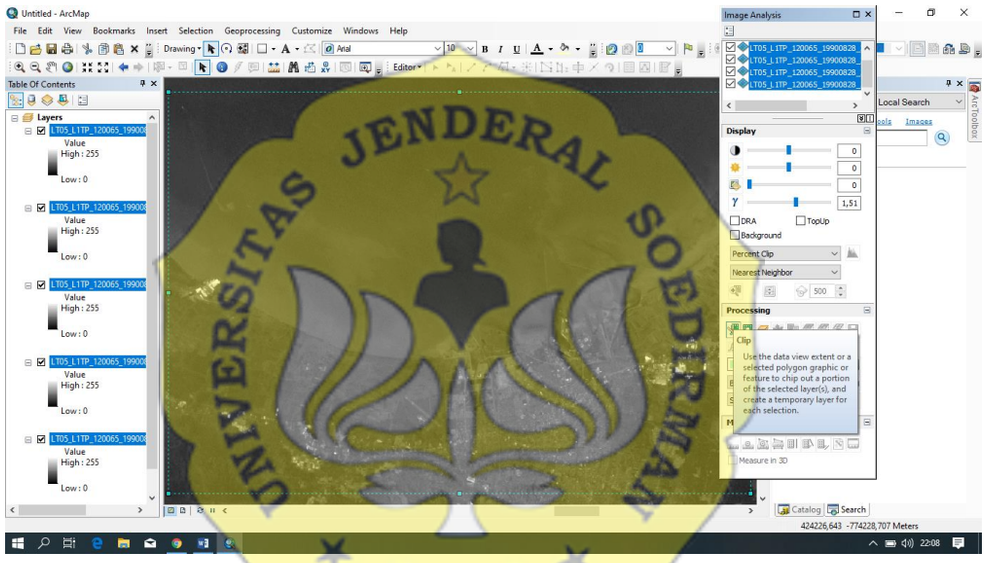
16. Input file data citra dengan cara klik add data→pilih file landsat yang akan diolah



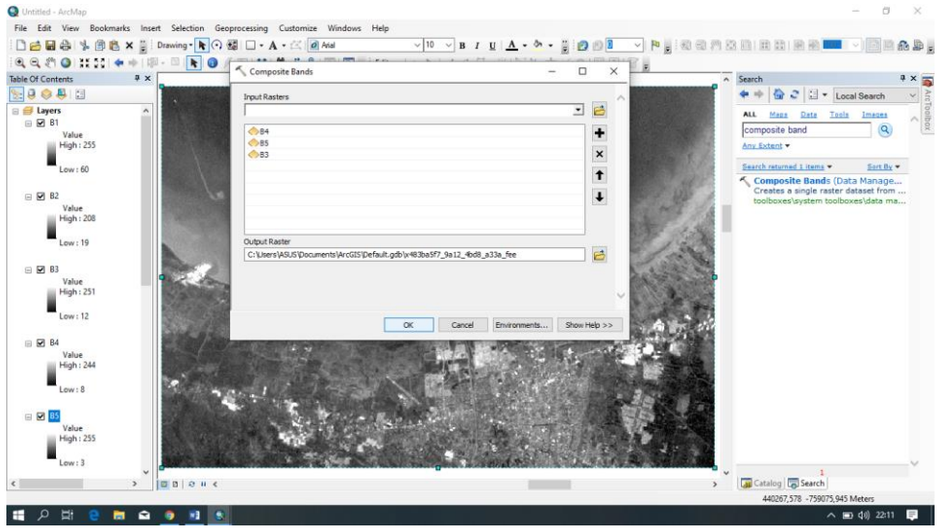
17. Crop citra, klik draw→windows→image analysis→pilih citra yang akan di crop→clip



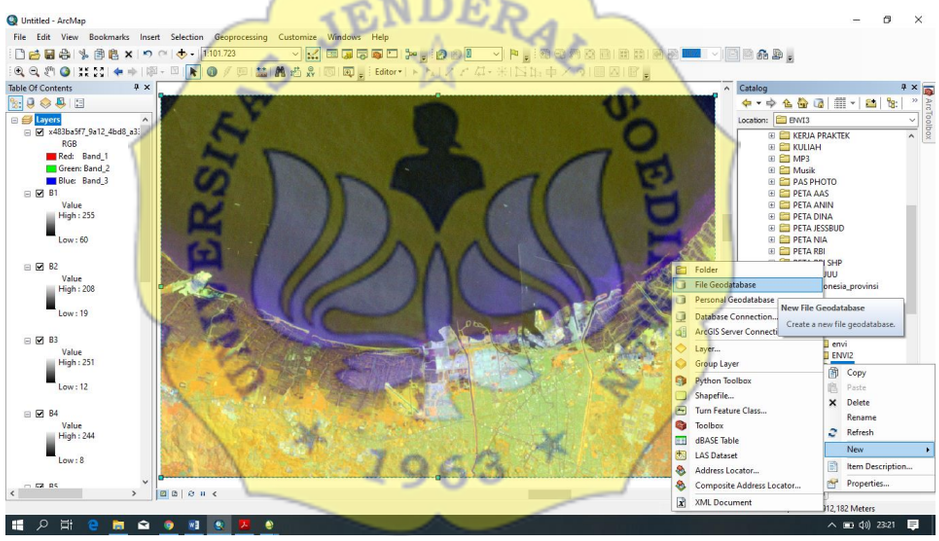


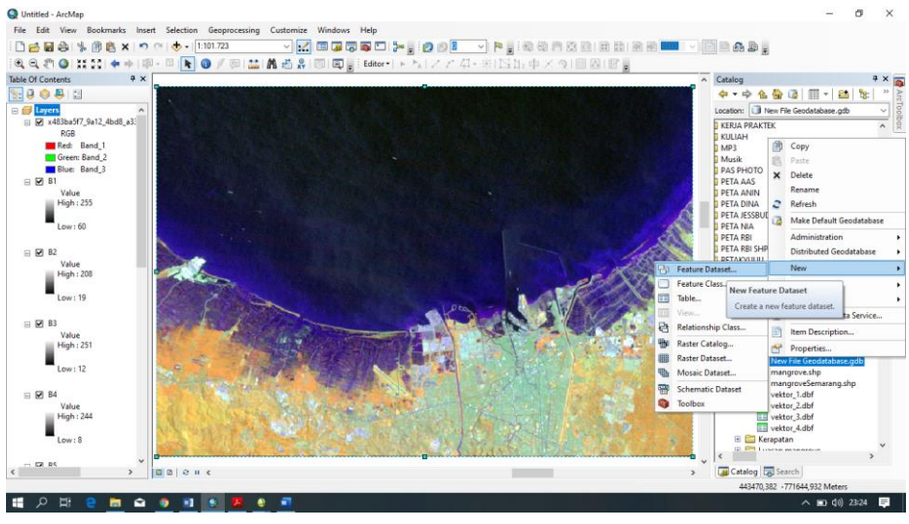


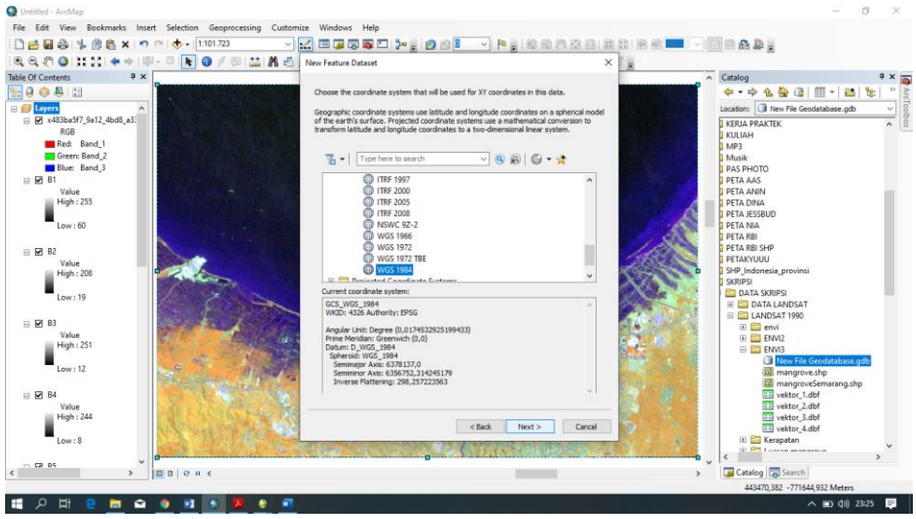
18. Composite band, masukkan band 564 untuk vegetasi mangrove

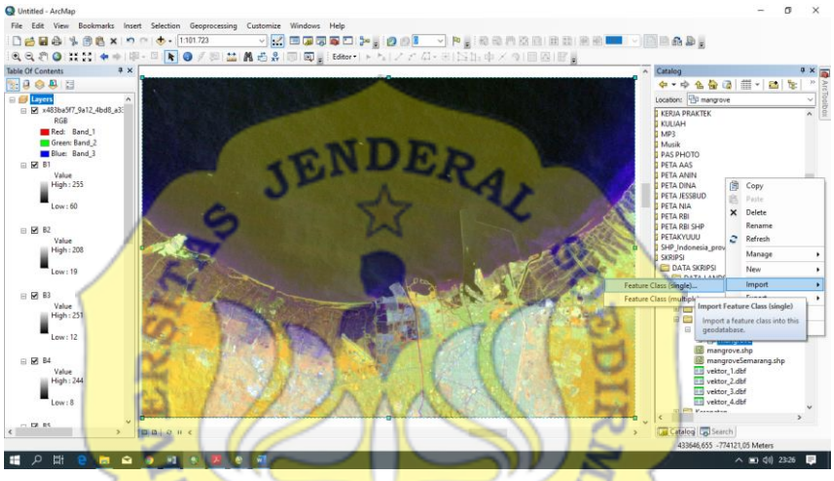


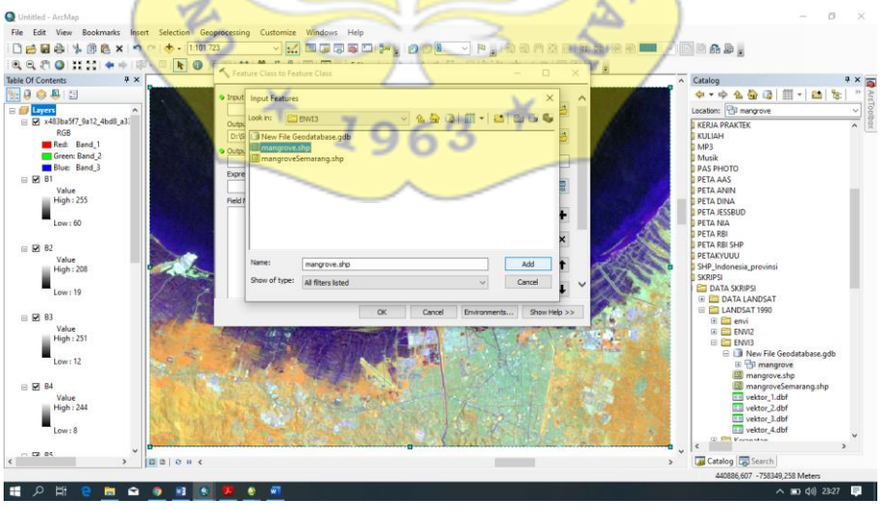
19. Lalu klik feature class pada catalog untuk pengkelasan mangrove→masukkan file mangrove shp yang telah diklasifikasi pada ENVI

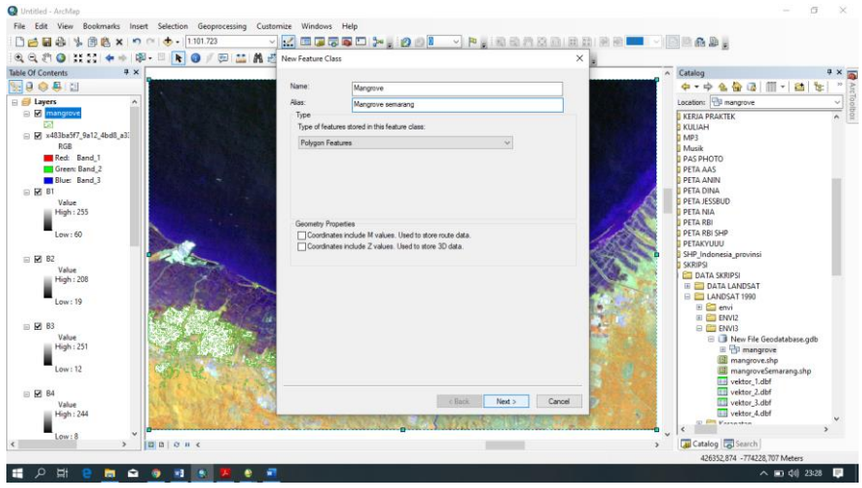


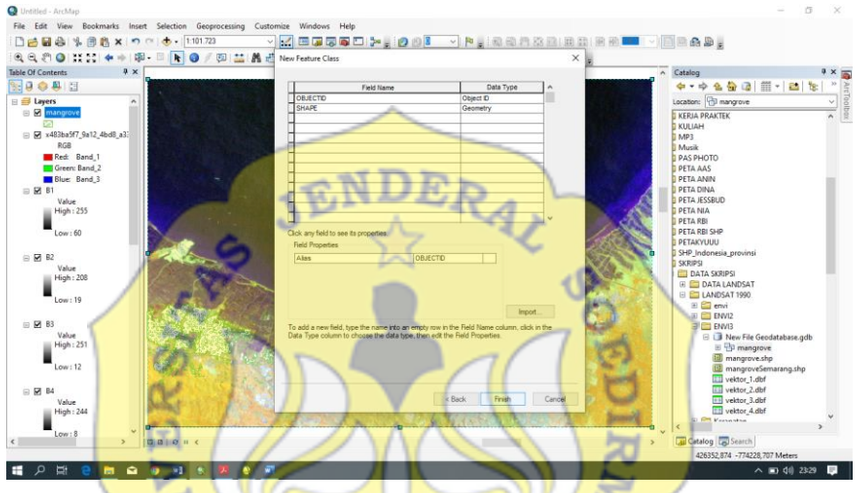




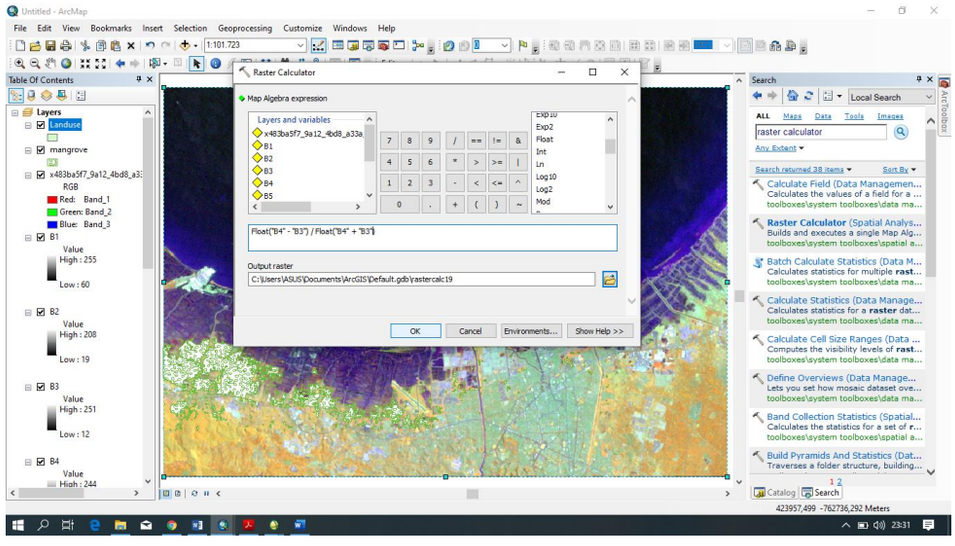




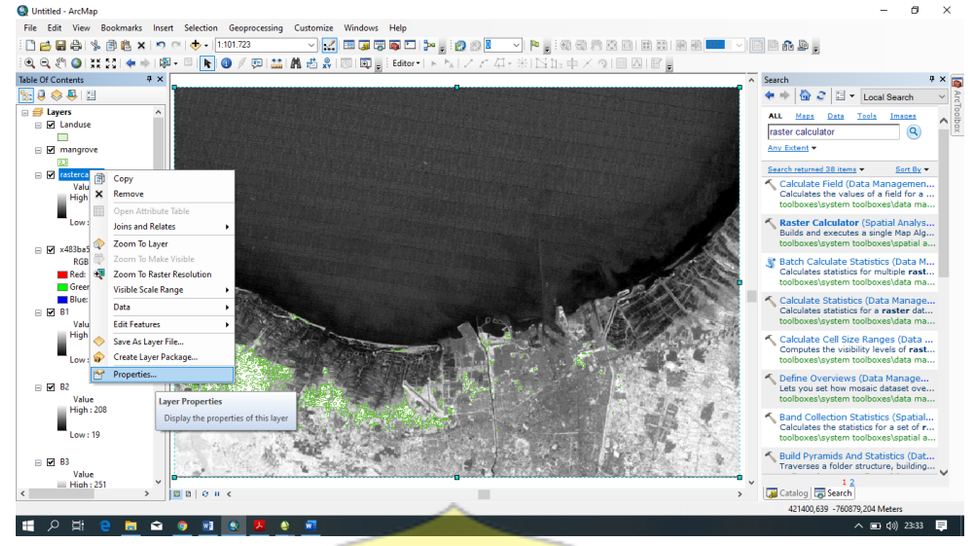


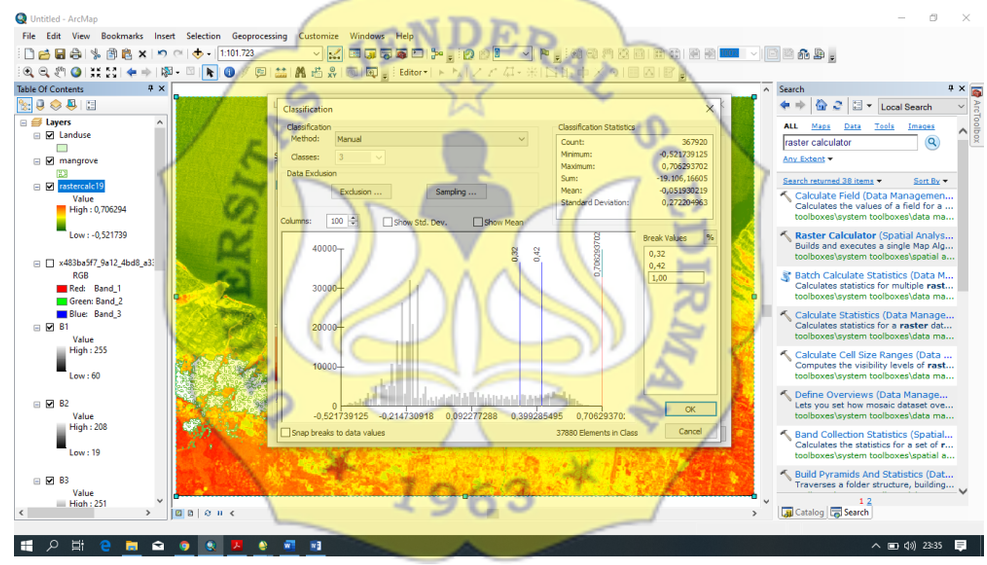


20. Untuk memasukkan rumus NDVI klik Raster Calculator→masukkan rumusnya→lalu OK

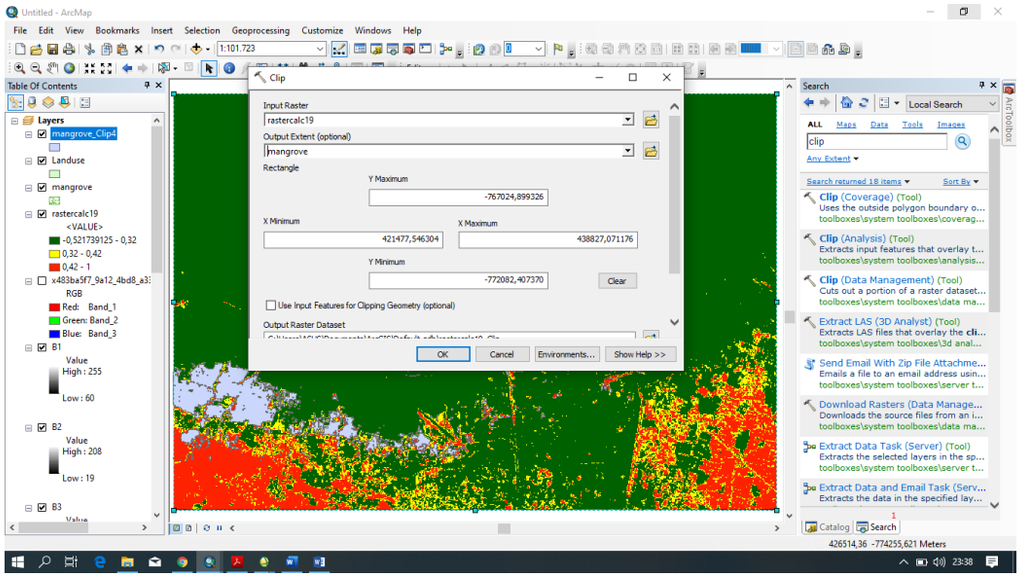


21. Lalu ubah warna sesuai warna standart mangrove, klik kanan pada layer→properties→Simbology

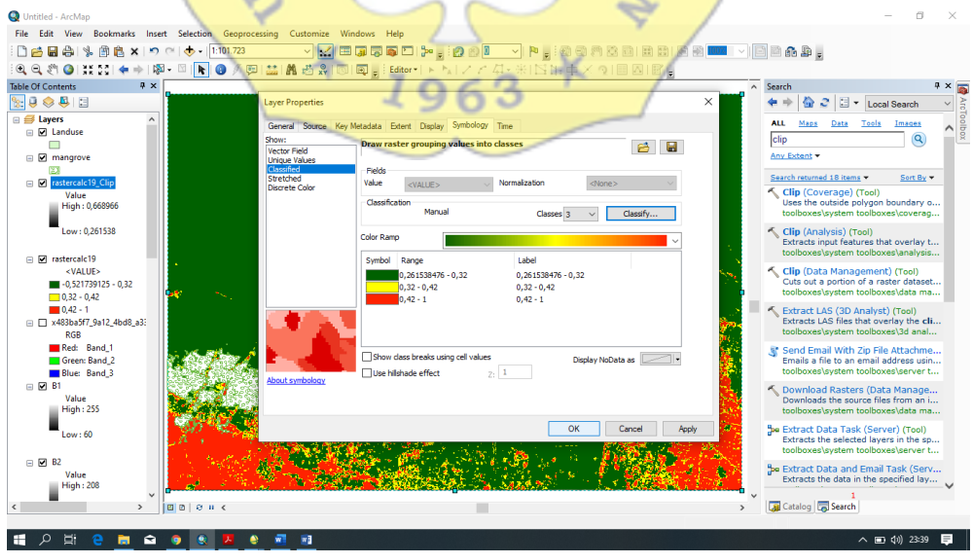




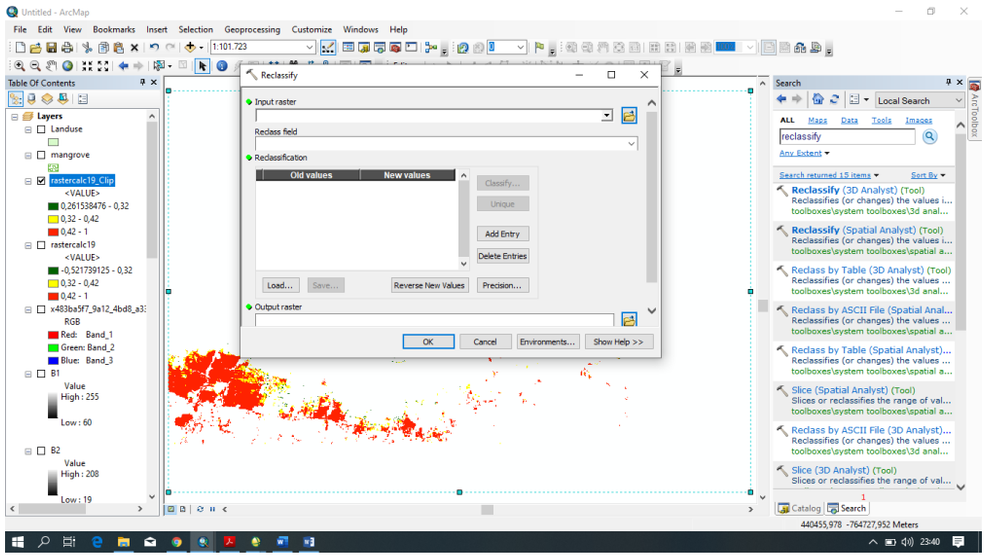
22. Potong citra untuk pengklasifikasian mangrove, klik clip→input raster→output mangrove→lalu OK



23. Lakukan pengklasifikasian tingkat kerapatan mangrove sesuai literatur



24. Lakukan pengklasifikasian ulang untuk menghitung luasan tiap kerapatan. Klik reclassify→classification→atur tingkat kerapatan sesuai literatur→lalu OK


Untitled - ArcMap
Reclassify
Input raster
Reclass field
Reclassification
Old values
New values
Classify...
Unique
Add Entry
Delete Entries
Load...
Save...
Reverse New Values
Precision...
Output raster
OK
Cancel
Environments...
Show Help >>
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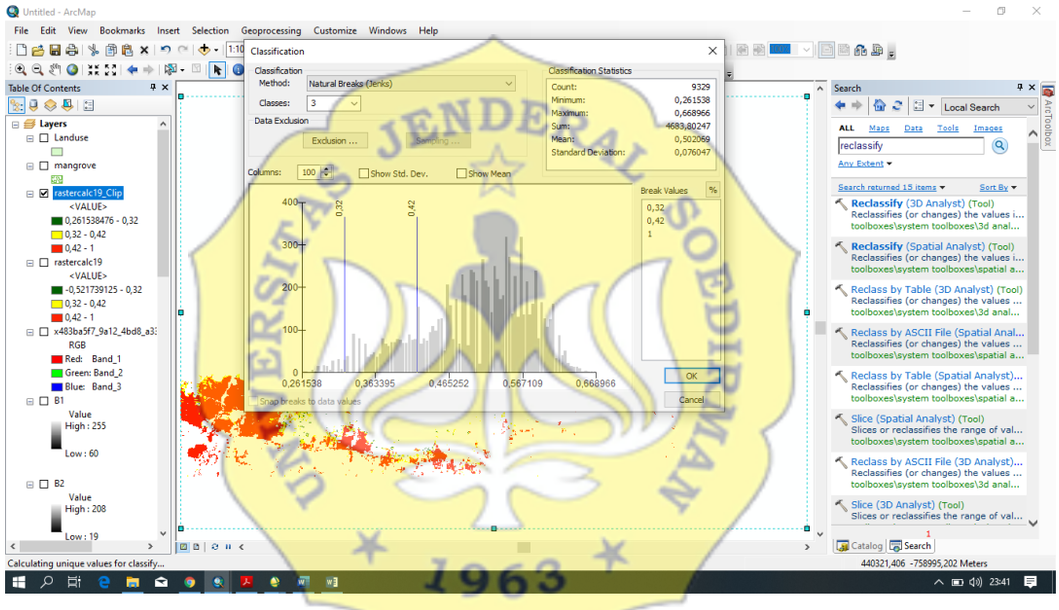
reclassify


Untitled - ArcMap
Classification
Method:
Natural Breaks (Jenks)
Classes:
Data Exclusion
Exclusion ...
Sampling ...
Classification Statistics
Count: 9329
Minimum: 0,261538
Maximum: 0,668966
Sum: 4683,80247
Mean: 0,502069
Standard Deviation: 0,076047
Columns:
Show Std. Dev.
Show Mean
Break Values
0,32
0,42
1
0,261538
0,363395
0,465252
0,567109
0,668966
Snap breaks to data values
OK
Cancel
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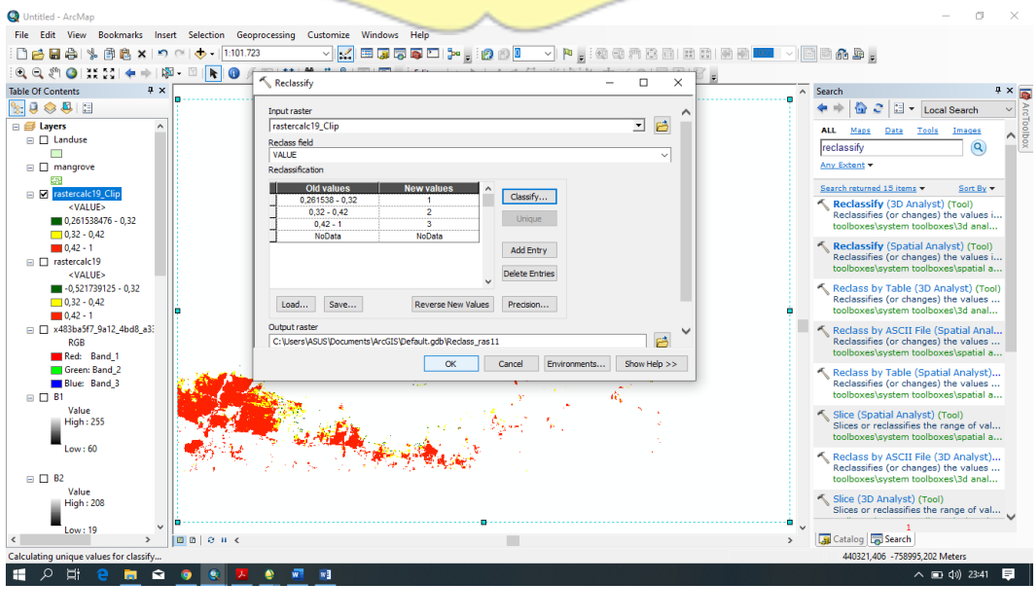
Untitled - ArcMap
Reclassify
Input raster
rastercalc19_Clip
Reclass field
VALUE
Reclassification
Old values
New values
0,261538 - 0,32
0,32 - 0,42
0,42 - 1
NoData
1
2
3
NoData
Classify...
Unique
Add Entry
Delete Entries
Load...
Save...
Reverse New Values
Precision...
Output raster
C:\Users\ASUS\Documents\ArcGIS\Default.gdb\Reclass_ras11
OK
Cancel
Environments...
Show Help >>
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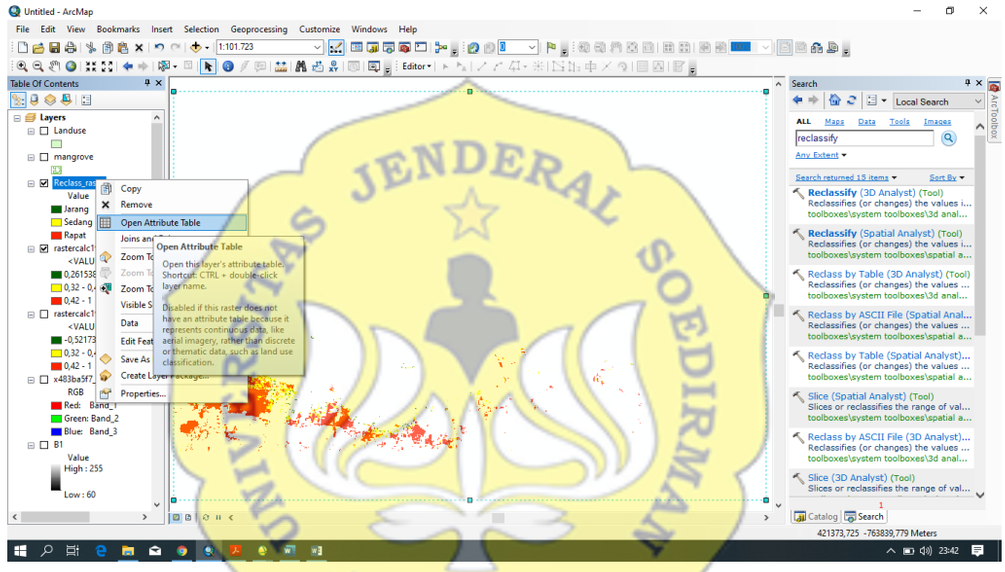
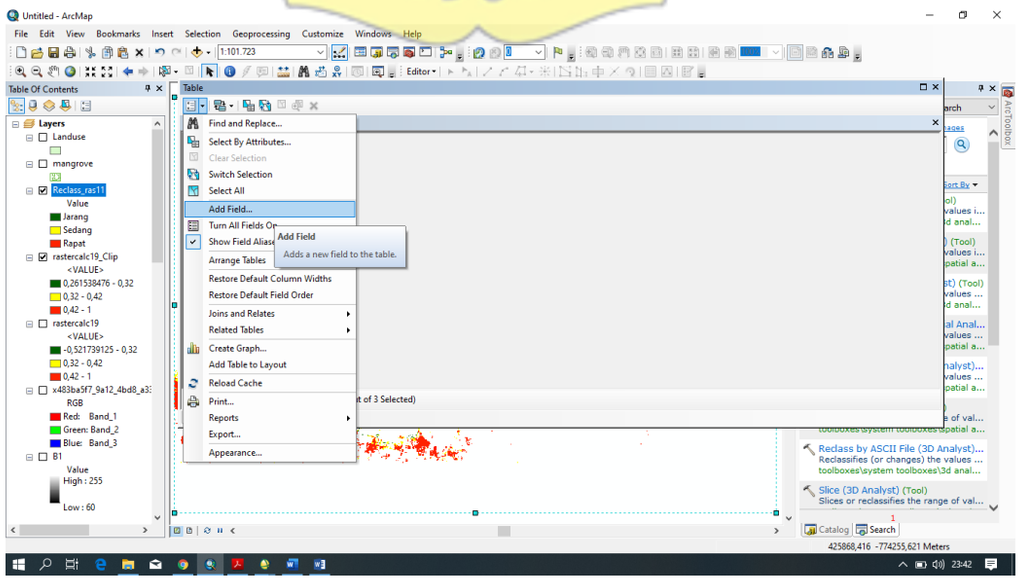
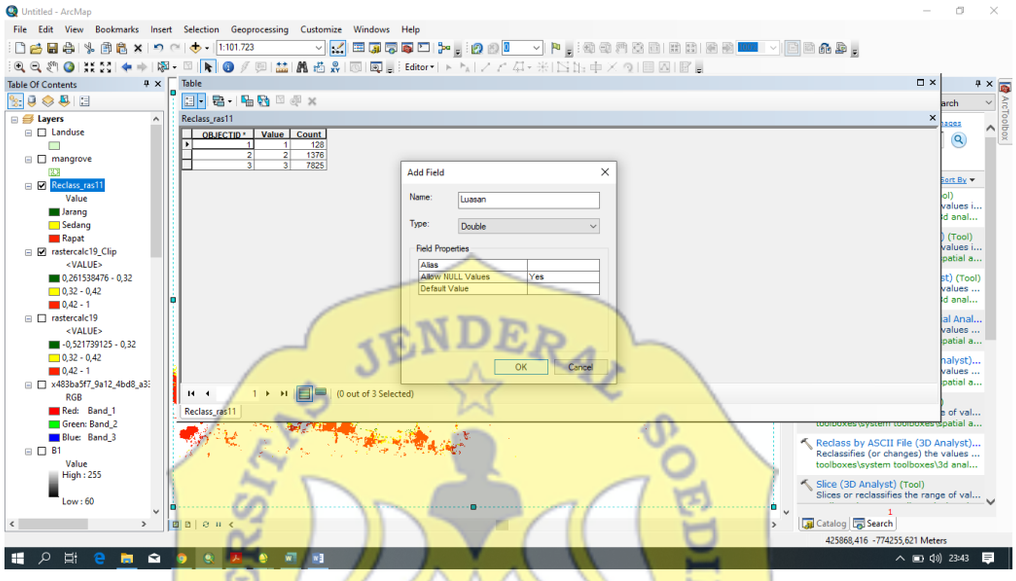
25. Pada layer reclassify klik open attribute table



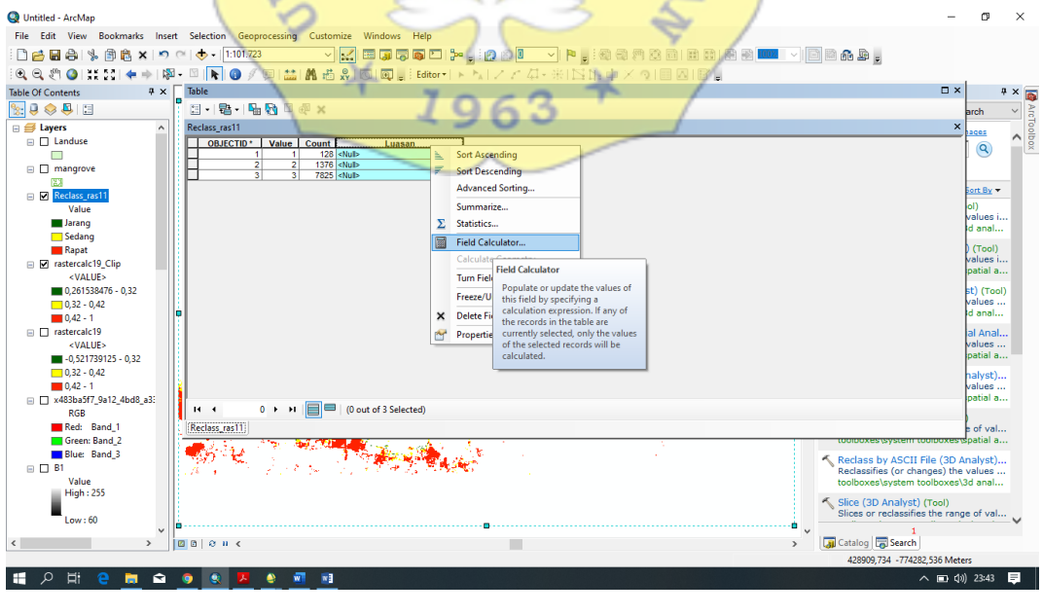
26. Kemudian add field



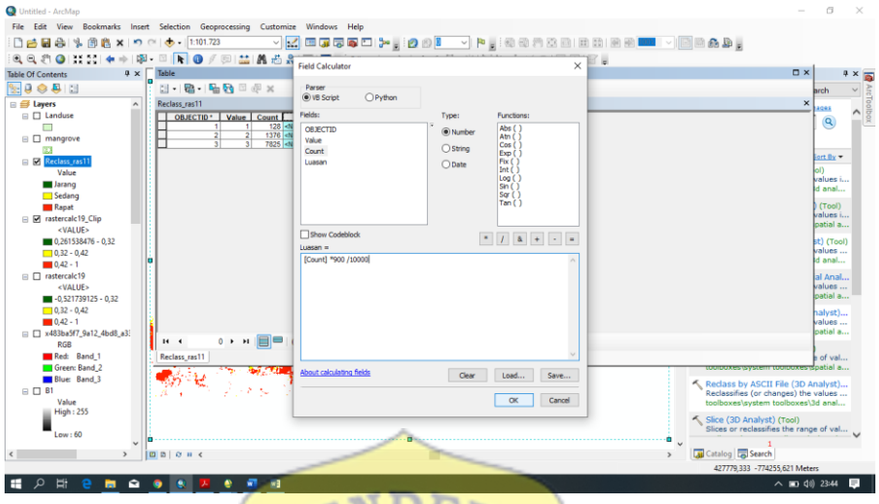
27. Setelah muncul icon Add field, pada name diberi nama Luasan



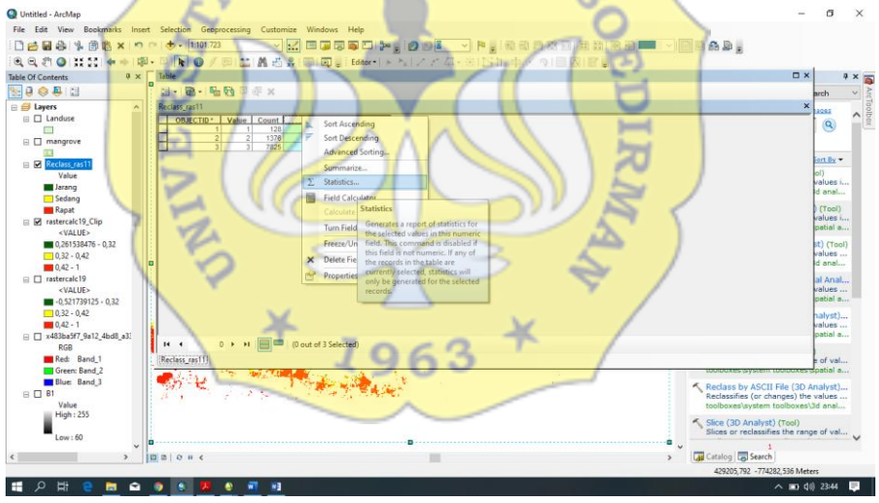
28. Kemudian setelah muncul, block pada table luasan lalu klik kanan kemudian field calculator

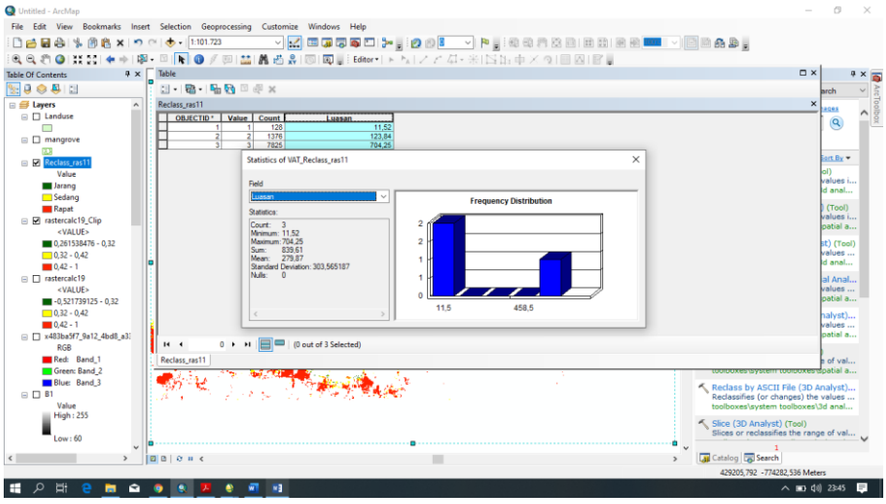


29. Lalu masukkan rumus (Count*900/10000) lalu OK



30. Untuk melihat seluruh luasan klik kanan pada table luasan lalu pilih statistic





LAMPIRAN 2

Latitute	Longitut	Latitute	Longitute
-6.953553026542	110.31649402343	-6.961811967194	110.32632800750
-6.952704023570	110.31549297273	-6.961240991950	110.32613698393
-6.952818017453	110.31518401578	-6.961377030239	110.32653696835
-6.952723972499	110.31480196863	-6.961629996076	110.32700300217
-6.952468995005	110.31457096338	-6.961926966906	110.32755101100
-6.952019976452	110.31478302553	-6.961015015841	110.32586398534
-6.951849991456	110.31481596641	-6.960583012551	110.32523198985
-6.952000027522	110.31468898058	-6.960374973714	110.32535302453
-6.952371010557	110.31422101893	-6.960666999221	110.32571596093
-6.952243018895	110.31370704062	-6.960746962577	110.32584101893
-6.952042020857	110.31359899789	-6.963449036703	110.34746699966
-6.951629966497	110.31385397539	-6.963022984564	110.34743296914
-6.951234005392	110.31313899904	-6.962521998212	110.34786002710
-6.951788971201	110.31294101849	-6.962484028190	110.34808197990
-6.951977983117	110.31342599541	-6.962405992672	110.34826696850
-6.953065032139	110.31477103941	-6.962128970772	110.34843703732
-6.953556966037	110.31465101056	-6.961724963039	110.34859403037
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-6.954202037305	110.31486500055	-6.961432015523	110.34880600870

Latitute	Longitute	Latitute	Longitute
-6.954558016732	110.31475796364	-6.961258007213	110.34887800924

-6.954213017598	110.31444498338	-6.961539974436	110.34848799929
-6.953961979598	110.31425303780	-6.960963970050	110.34800503403
-6.953839017078	110.31395598315	-6.960749980062	110.34729500301
-6.953616980463	110.31356002204	-6.960260979831	110.34625497647
-6.953860977665	110.31360696070	-6.960228960961	110.34576597624
-6.953791994601	110.31313799322	-6.963061038405	110.34715795889
-6.943897996098	110.30776795931	-6.962913013995	110.34659796394
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