



# Generating Land Cover Data from Satellite Image

# Process: Image Classification



Index	
	Water
	Vegetation
	Urban land
	Sand



## Data Needed:

- Data filename: Landsat7.tif (raster file)



Plugin Needed:

- Semi-Automatic Classification Plugin (SCP)

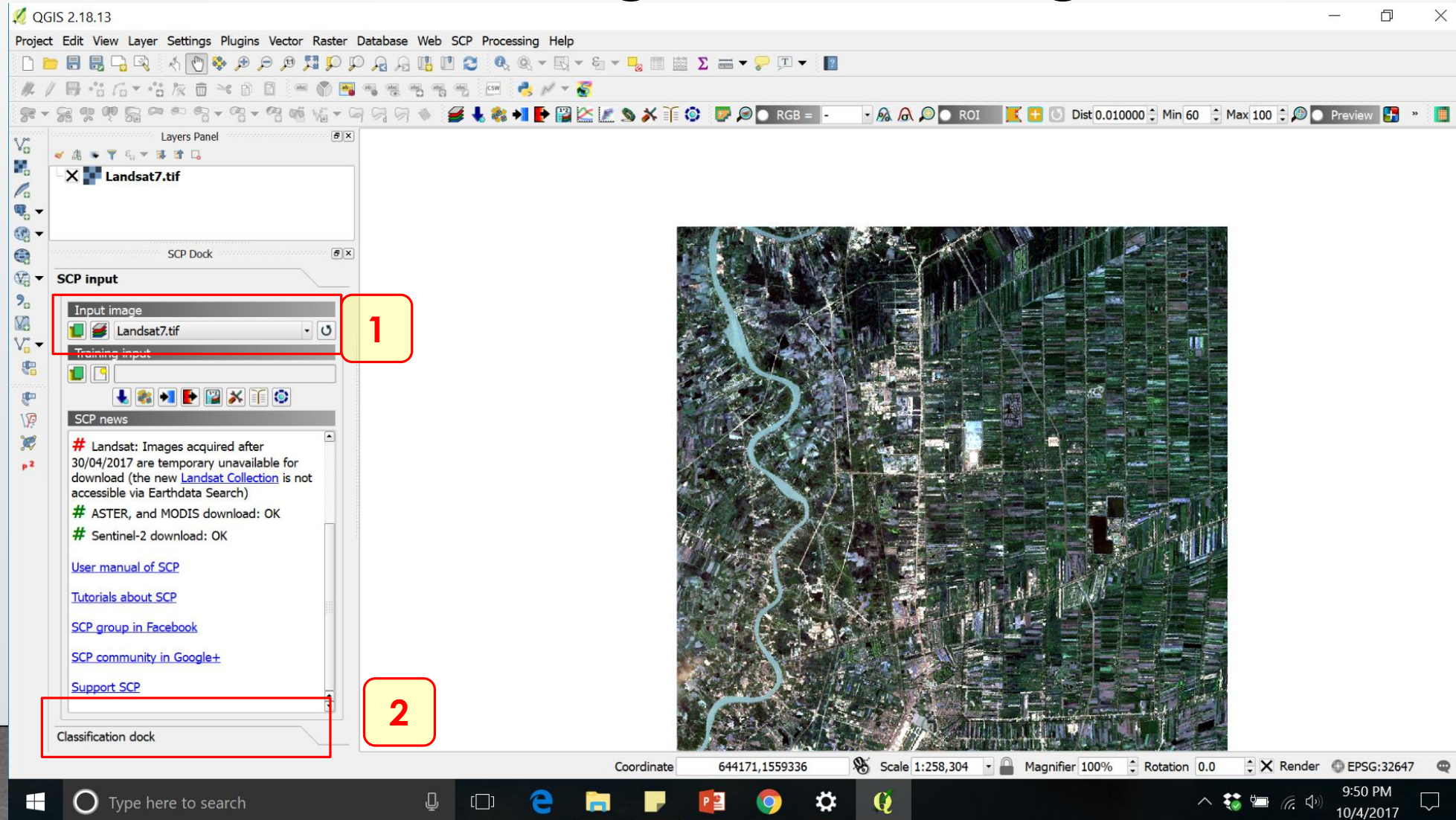


# Image classification with SCP

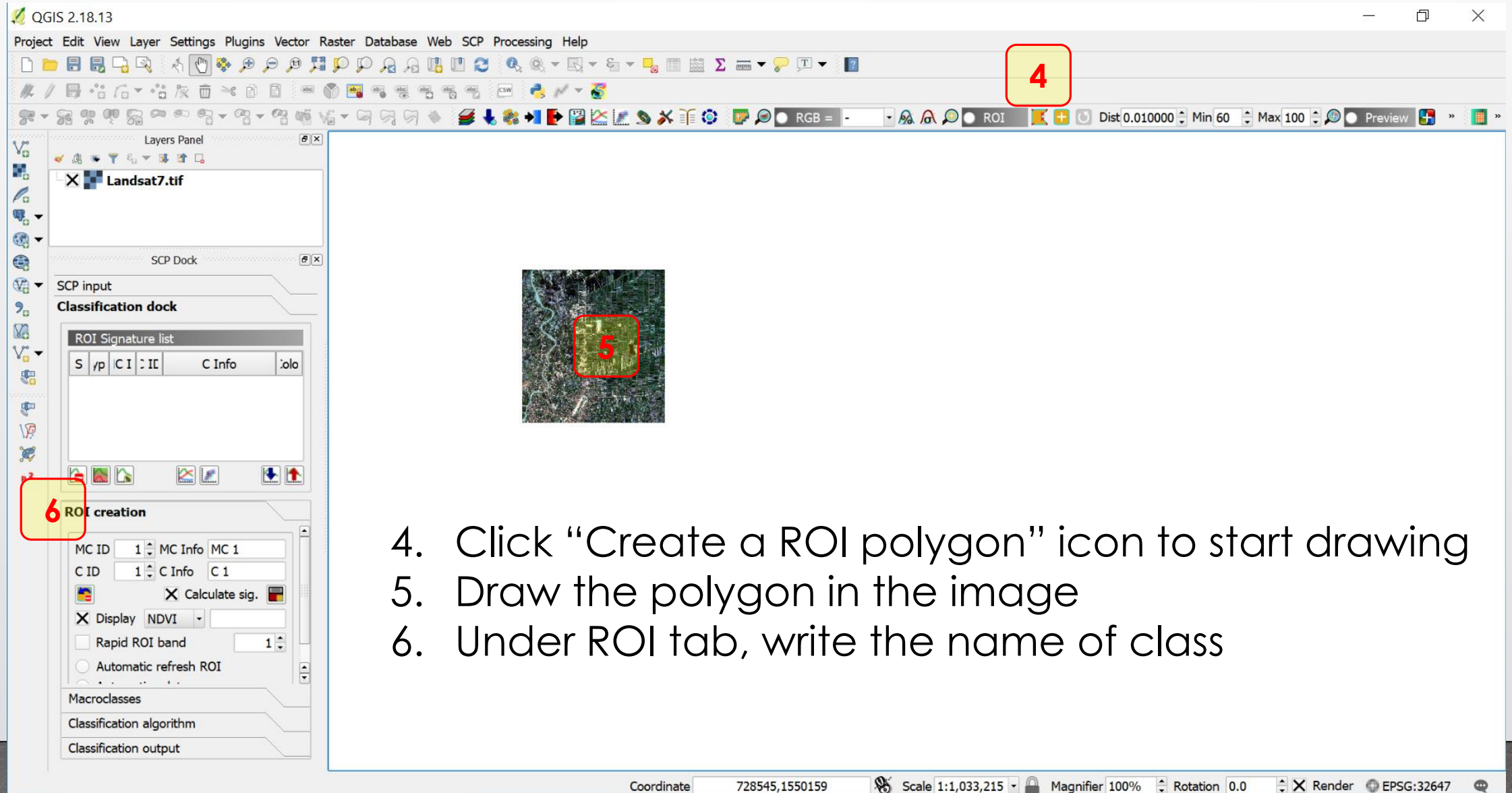
1. Install and activate Semi-automatic classification (SCP)
2. Load the image to be classified



### 3. Create training area or Region of



### 3. Create training area ROI (cont)



The screenshot displays the QGIS 2.18.13 interface. The top toolbar contains various icons, with a red box labeled '4' highlighting the 'Create a ROI polygon' icon. The main canvas shows a satellite image of a forest with a red polygon labeled '5' drawn over a specific area. The left sidebar contains the 'Layers Panel' with 'Landsat7.tif' loaded, the 'SCP Dock' with 'SCP input' and 'Classification dock' tabs, and the 'ROI creation' tab highlighted with a red box labeled '6'. The 'ROI creation' tab shows fields for 'MC ID' (1), 'MC Info' (MC 1), 'C ID' (1), and 'C Info' (C 1), along with checkboxes for 'Calculate sig.', 'Display' (NDVI), 'Rapid ROI band' (1), and 'Automatic refresh ROI'. The bottom status bar shows the coordinate '728545,1550159', scale '1:1,033,215', magnifier '100%', rotation '0.0', and projection 'EPSG:32647'.

4. Click “Create a ROI polygon” icon to start drawing

5. Draw the polygon in the image

6. Under ROI tab, write the name of class

### 3. Create training area ROI (cont)

**ROI creation**

MC ID 1 MC Info MC 1

C ID 1 C Info C 1

X Calculate sig.

**MC ID** – is General Class ID  
**MC Info** – is General Class Name

**CID** – is Sub-class ID  
**C Info** – is Subclass Name

**Example:**

**MC ID** – 1  
**MC Info** –  
Water

**CID** – 1



### 3. Create training area ROI (cont)

SCP input

**Classification dock**

ROI Signature list

	S	/p	C I	IL	C Info	olc
1	X	B	1	1	Clear	Blue
2	X	B	2	2	Building	Purple
3	X	B	1	3	Turbid	Red
4	X	B	3	4	Crop land	Green
5	X	B	4	5	Uncultivated	Dark Green

ROI creation

MC ID 4 MC Info Barren land

C ID 6 C Info Uncultivated

☒ Calculate sig.

Change color symbol

Note: After each class, click "Calculate sig"

Keys:

1. To end drawing: right click
2. To draw another polygon of the same class name: right click + Ctrl

## 4. Define Classification Algorithm

SCP Dock

SCP input

**Classification dock**

ROI Signature list

	S	yp	C I	IC	C Info	olo
1	X	B	1	1	Clear	Blue
2	X	B	2	2	Building	Orange
3	X	B	1	3	Turbid	Cyan
4	X	B	3	4	Crop land	Green
5	X	B	4	6	Uncultivated	Brown

ROI creation

MC ID  MC Info

C ID  C Info

☒ Calculate sig.

☒ Display

☐ Rapid ROI band

☐ Automatic refresh ROI

☐ Automatic plot

Macroclasses

Classification algorithm

Classification output

**Classification algorithm**

Use ☐ MC ID ☒ C ID

Algorithm  Threshold

Land Cover Signature Classification

Use ☐ LCS ☐ Algorithm ☐ only overlap

Classification output



# 5. Preview first

QGIS 2.18.13

Project Edit View Layer Settings Plugins Vector Raster Database Web SCP Processing Help

Layers Panel

20171004\_225351456000previewtemp.tif

- 0 - Unclassified
- 1 - Clear
- 2 - Building

SCP Dock

SCP input

Classification dock

ROI Signature list

	S	/p	C I	II	C Info	Color
1	X	B	1	1	Clear	Blue
2	X	B	2	2	Building	Orange
3	X	B	1	3	Turbid	Green
4	X	B	3	4	Crop land	Light Green
5	X	B	4	6	Uncultivated	Brown

ROI creation

Macroclasses

Classification algorithm

Use ☐ MC ID ☒ C ID

Algorithm

Spectral Angle Mapping Threshold 0.0000

Land Cover Signature Classification

Use ☐ LCS ☐ Algorithm ☐ only overlap

Classification output

Preview


Screen Recorder ( 14:04 119.7 MB )

Resume Save Discard




## 6. Specify classification output


**Classification algorithm**

Use ☐ MC ID ☒ C ID 

**Algorithm**

Spectral Angle Mapping  Threshold  

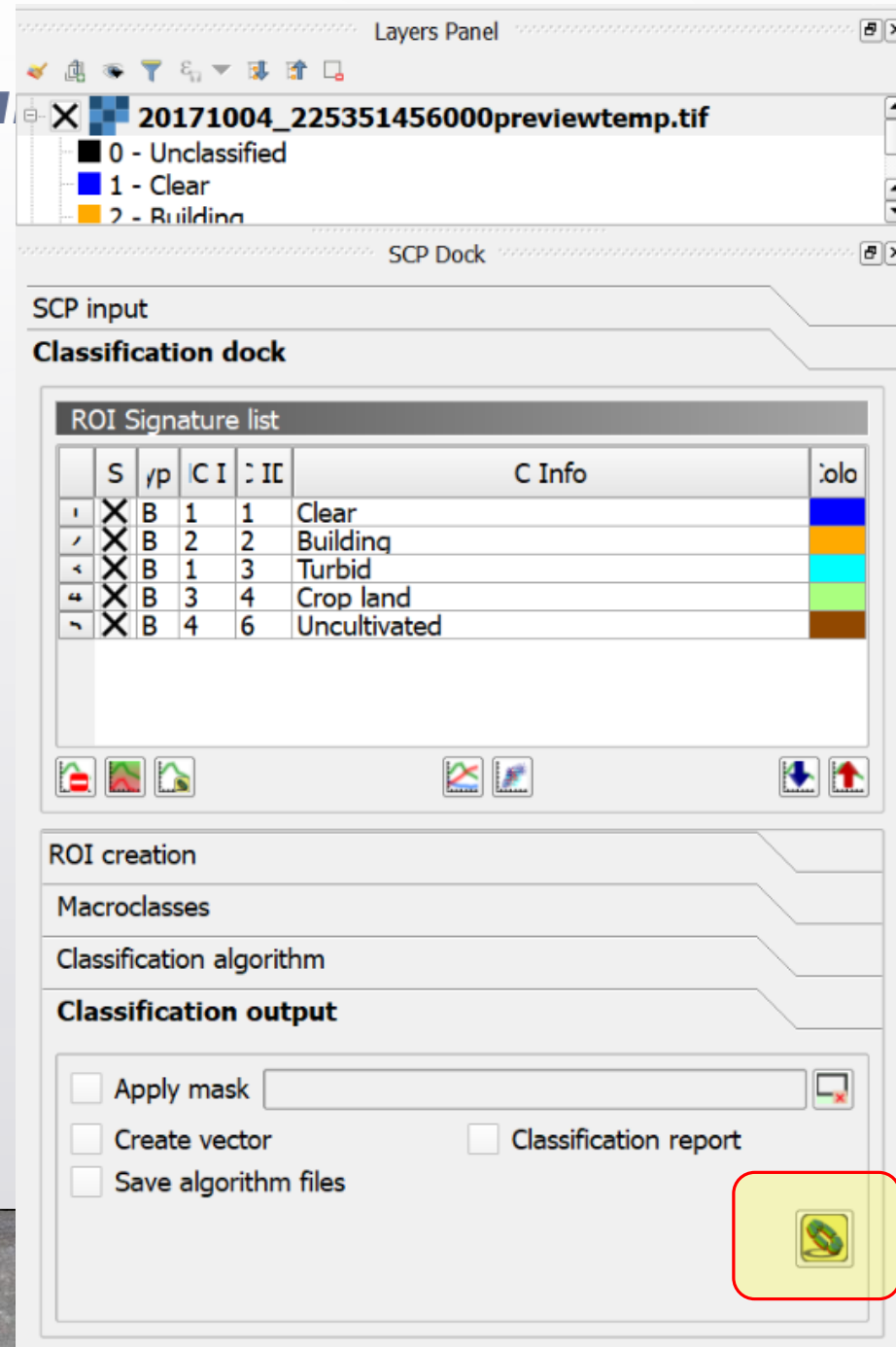
**Land Cover Signature Classification**

Use ☐ LCS ☐ Algorithm ☐ only overlap 

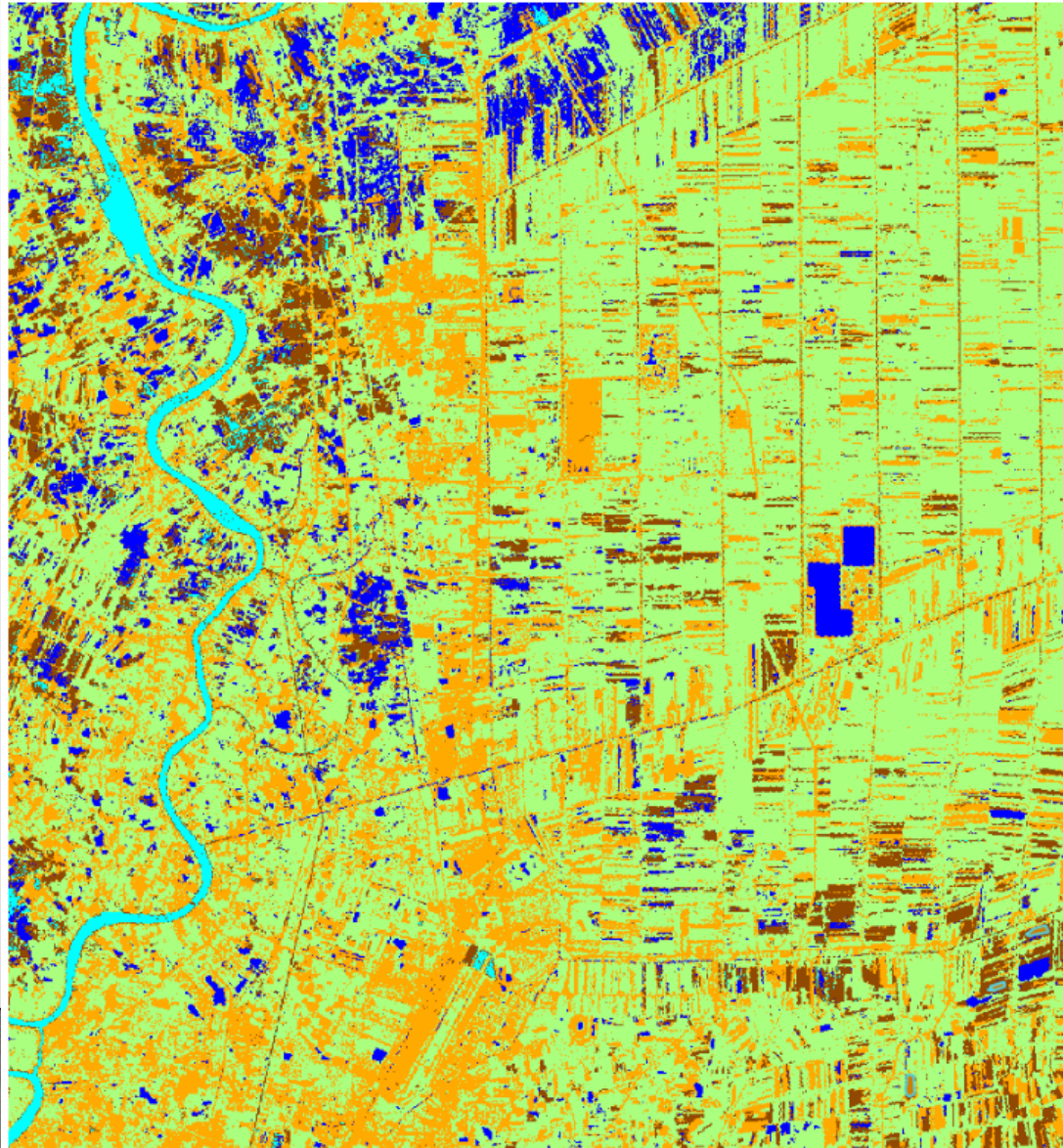
**Classification output**



## 7. Run



## 8. Output



- 0 - Unclassified
- 1 - Clear
- 2 - Building
- 3 - Turbid
- 4 - Crop land
- 6 - Uncultivated



Thank you