Lab 9: VEGETATION INDICES AND SUPERVISED CLASSIFICATION Tran Quang Bao

1. Vegetation Indices

There are many methods for classifying satellite imagery, and each classification method has its own pros and cons. Today's Lab will guide how to use ENVI/ArcGIS to classify land cover based on the NDVI vegetation index. Two layers of images are provided from the Sentinel satellite image with a resolution of 10m. The formula for NDVI calculation:

$$NDVI = \frac{NIR - RED}{NIR + RED}$$

Sample thresholds for each class of land cover:

Classes	NDVI value
Water	< 0.261
Residential	0.261 - 0.475
Bareland	0.475 - 0.535
Forest	> 0.535

Using ArcGIS

Add bands NIR and RED

ArcToolBox -> Spatial Analyst Tools -> Map Algebra -> Raster Calculator.

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Applying Classify Tool for classification

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2. Supervised Classification

Supervised classification requires that the user select training areas for use as the basis for classification. Various comparison methods are then used to determine if a specific pixel qualifies as a class member.



Supervised Classification Process

Supervised Classification in ArcGIS Add Image



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Activate Image Classification Toolbar

 Right Click in Toolbar => Image Classification.



Create training samples file



• Vẽ các polygon cùn trạng thái (ví dụ Nước)



■ Merge Training Samples → Change Class Name and Color

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• Create sample for other classes



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TURN IN:

- The final layout of the classification map by ArcGIS
- Workflows with description (or paragraphs explaining processes of classification).

<u>Due date:</u> 1 week after having instruction.