



**Geographic Mapping Technologies, Corp.**

Soluciones Avanzadas en Sistemas de Información Geográfica

# Tecnología para el Análisis de Imágenes: ENVI

Yarimar Soto González

# Geographic Mapping Technologies, Corp.

Soluciones Avanzadas en Sistemas de Información Geoespacial



16 AÑOS





# Análisis de Imágenes

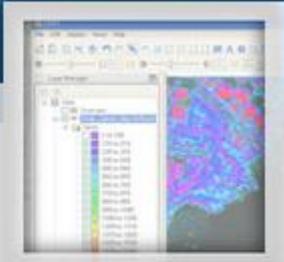
# Análisis de Imágenes

- **Inventario de cultivos**
- **Inventario de cobertura de suelo**
- **Inventario de uso de suelo**
- **Seguimiento de procesos de repoblación natural**
- **Evaluación de condiciones de estrés en la vegetación**
- **Inventario de cobertura vegetal**
- **Estimación de modelos de escorrentías**
- **Estudio de erosión de playas y arenales**



ENVI

# ENVI



ENVI



ENVI  
for ArcGIS



ENVI LiDAR



ENVI Services  
Engine



ENVI  
SARscape

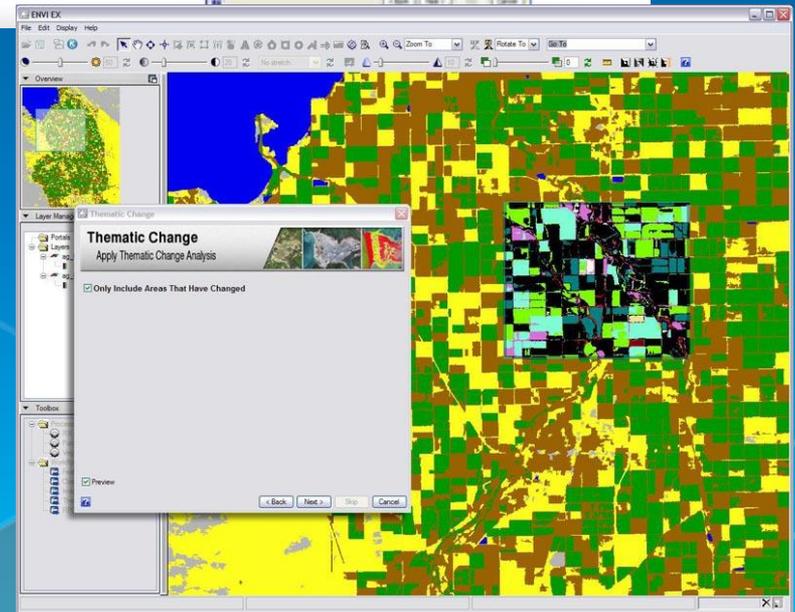
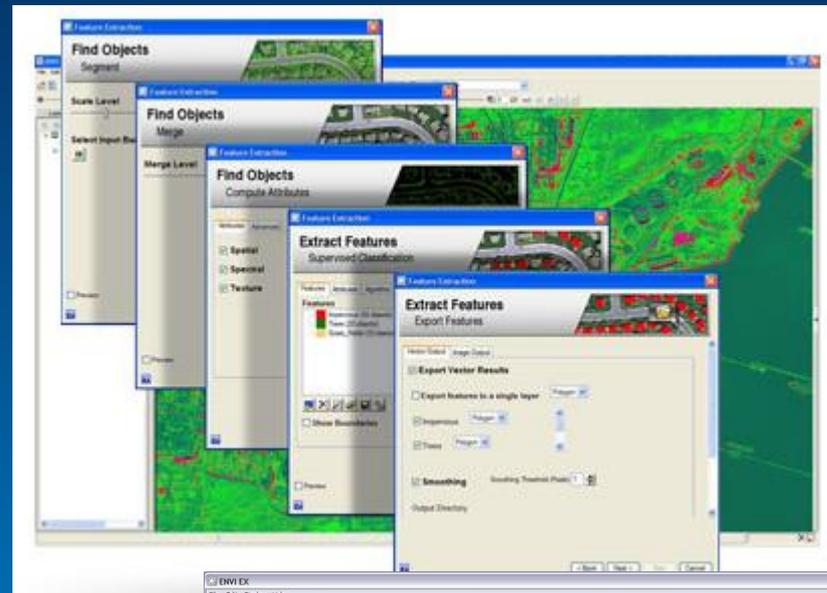
# ENVI

- Nueva interfaz más intuitiva
- Maximización el área de la pantalla gracias al modelo de ventana única
- Navegación de los datos con la nueva ventana que permite ver múltiples vistas de forma simultánea
- Creación de multiples vistas
- Visualización de alta velocidad
- Nuevas y avanzadas herramientas de procesamiento
- API flexible para customización



# ENVI Workflows

- Anomaly Detection
- Change Detection
- Classification
- Thematic Change
- Feature extraction
- RPC orthorectification
- Image registration
- Viewshed Analysis



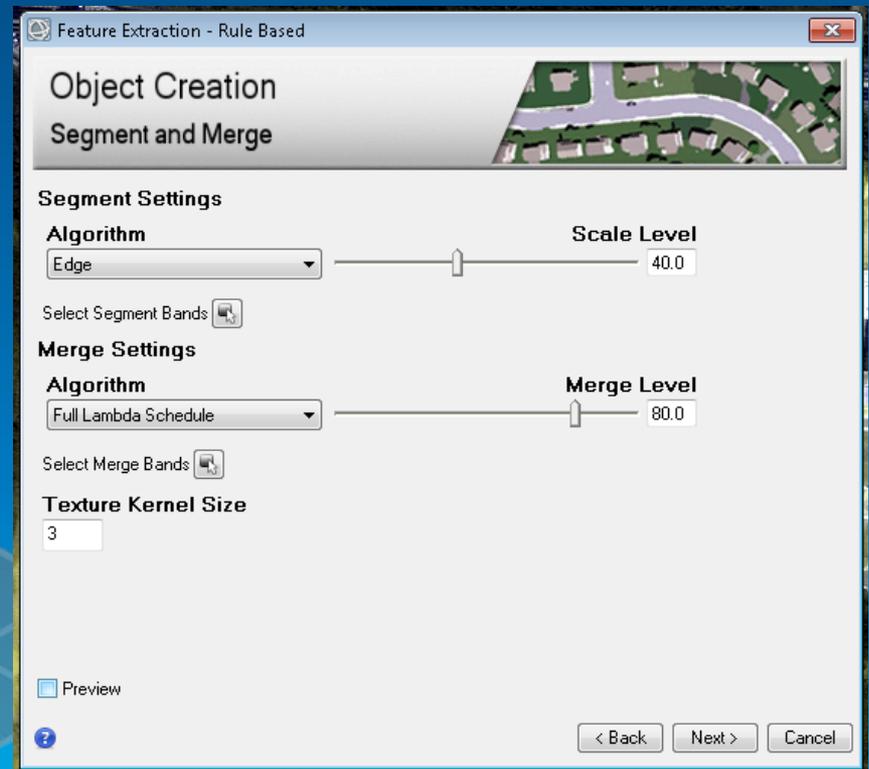
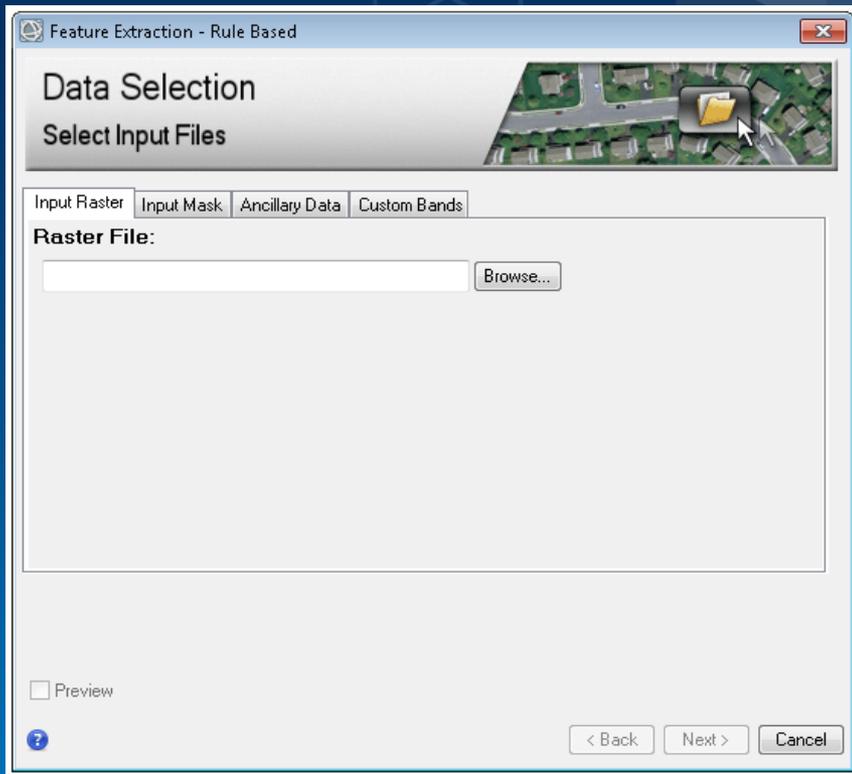


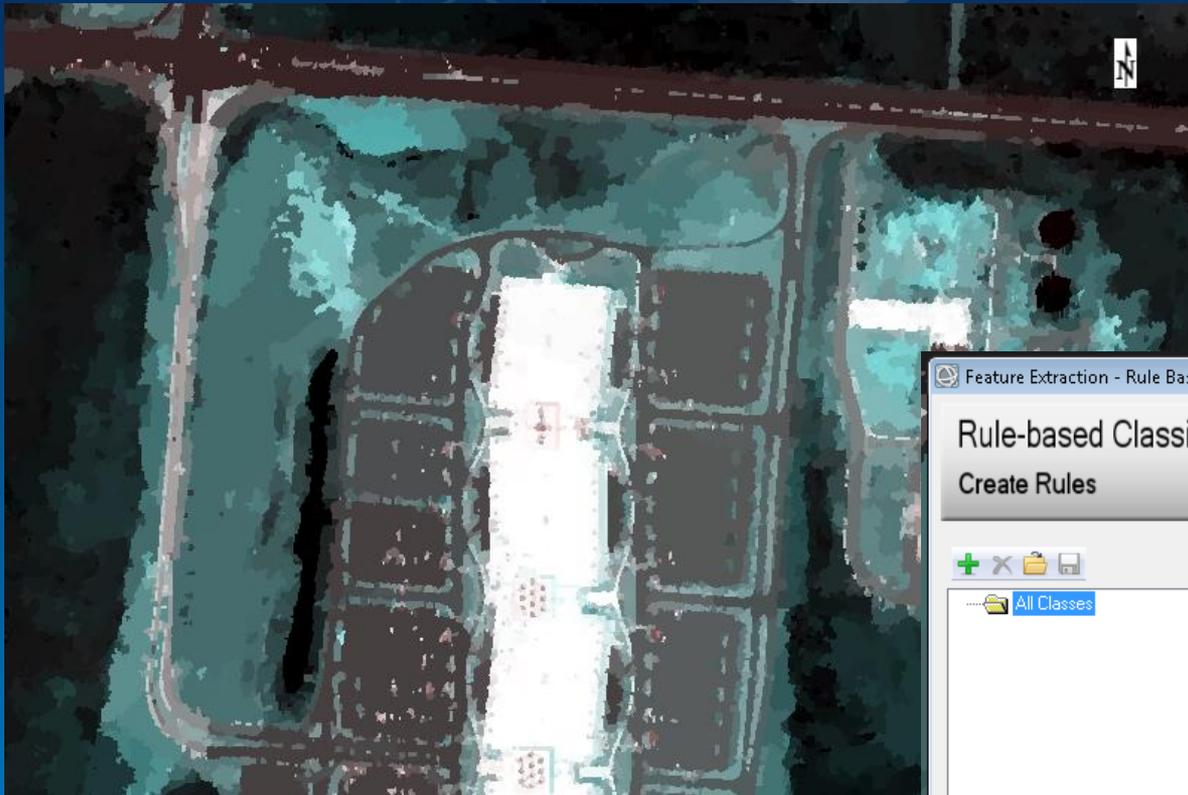
# Área de Estudio





# Feature Extraction





Feature Extraction - Rule Based

### Rule-based Classification

Create Rules





All Classes

Class Properties	
Class Name	
Class Color	■ (0,0,0)
Class Threshold	0

Preview

### Feature Extraction - Rule Based

## Rule-based Classification

### Create Rules



All Classes  
 Asfalto [Threshold = 0.50]  
 Rule [1.0]  
 Spectral Mean(Band 1) < 1

Class Properties	
Class Name	Asfalto
Class Color	■ (255,0,0)
Class Threshold	0.5

Preview

### Feature Extraction - Rule Based

## Rule-based Classification

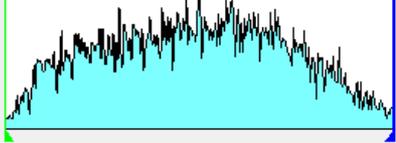
### Create Rules



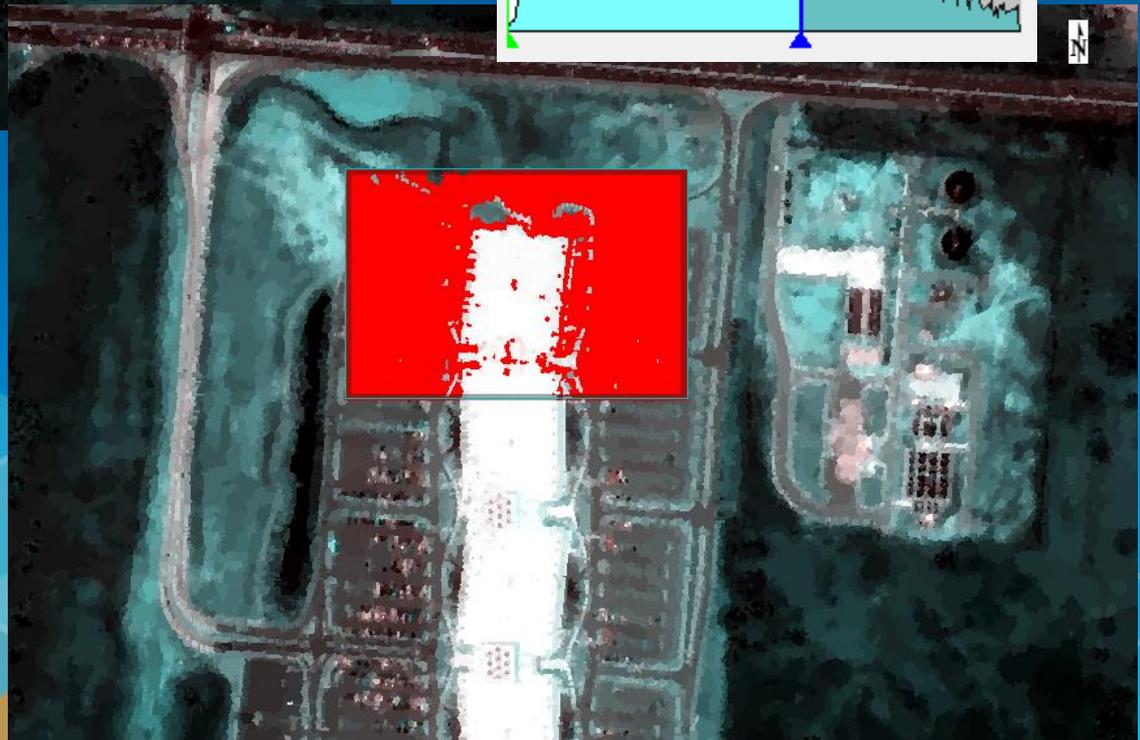
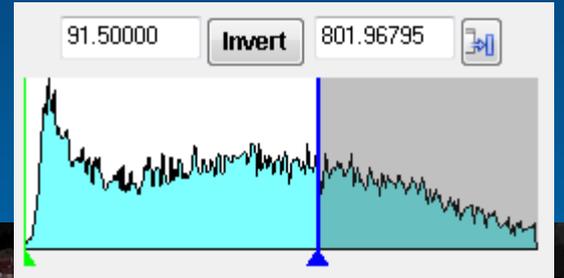
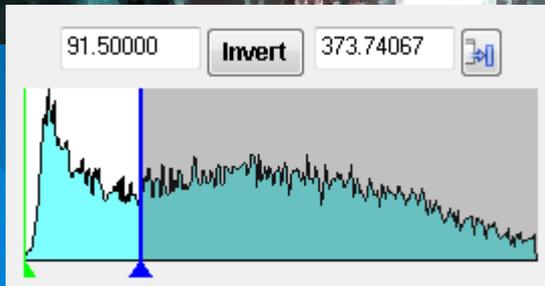
All Classes  
 Asfalto [Threshold = 0.50]  
 Rule [1.0]  
 Spectral Mean(Band 4) < 1

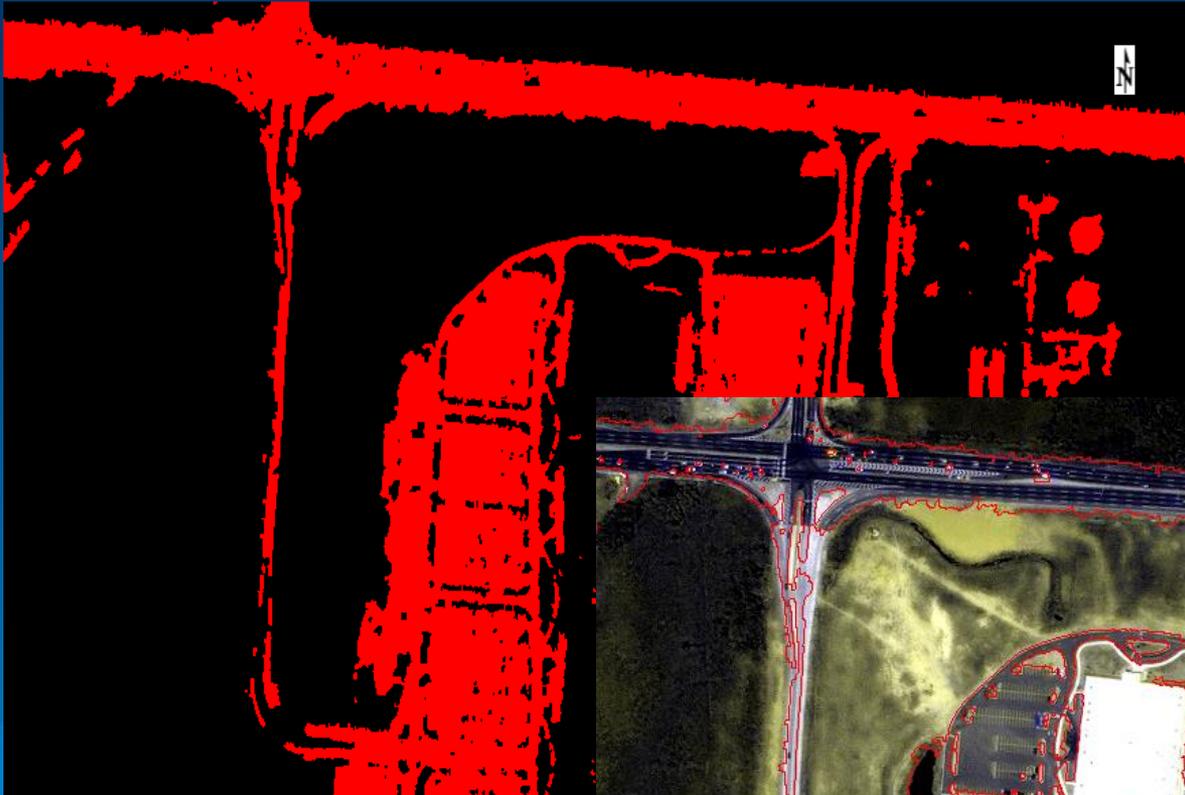
Attributes: **Advanced**  
 Type: Spectral Name: Spectral Mean  
 Band: Band 4

Show Attribute Image  
 111.40000  1983.00000



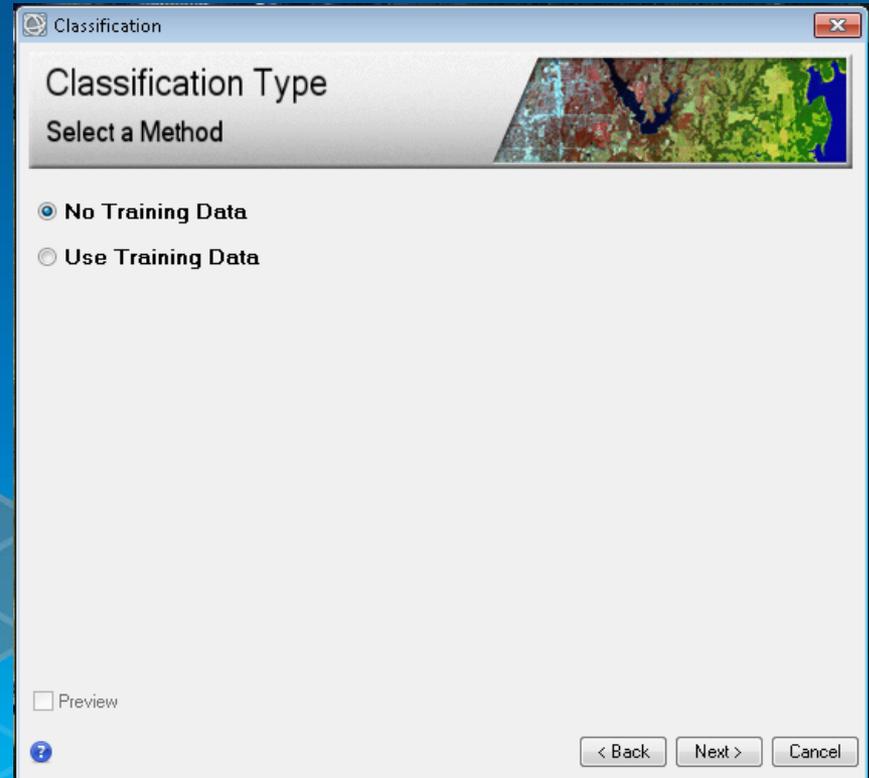
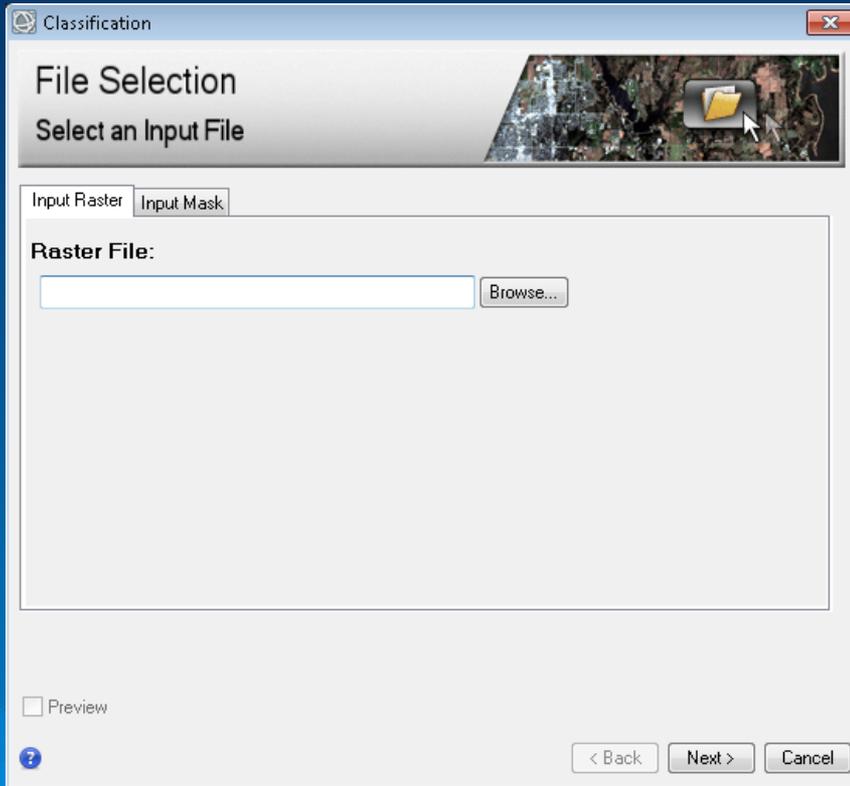
Preview







# Classification Unsupervised



Classification

## Unsupervised Classification

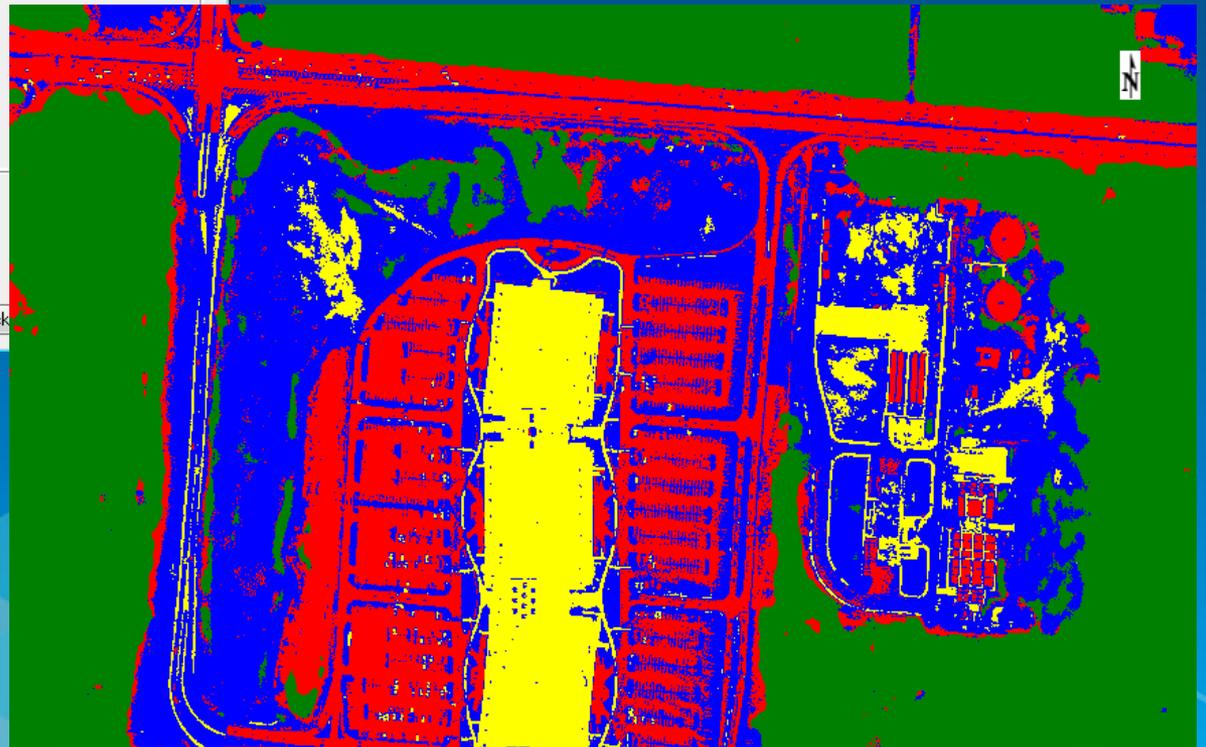
### Set ISODATA Parameters

Classes **Advanced**

**Requested Number of Classes**

Preview

[?](#) [< Back](#)



Classification

## Cleanup

### Refine Results

**Enable Smoothing**  
Smooth Kernel Size  
3

**Enable Aggregation**  
Aggregate Minimum Size  
9

Preview

[?](#) [< Back](#)

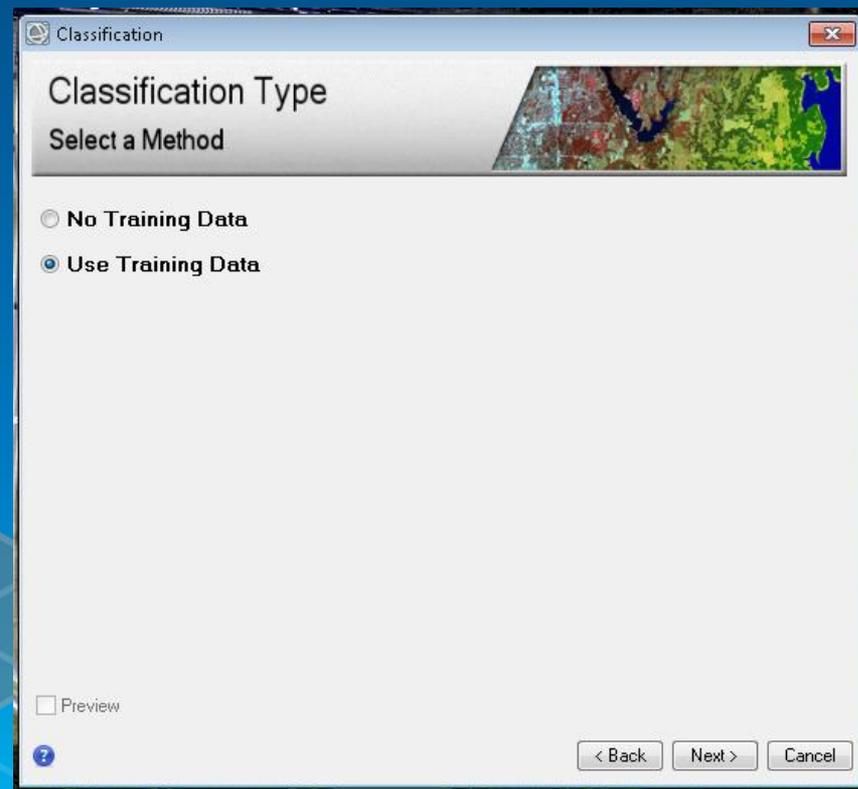
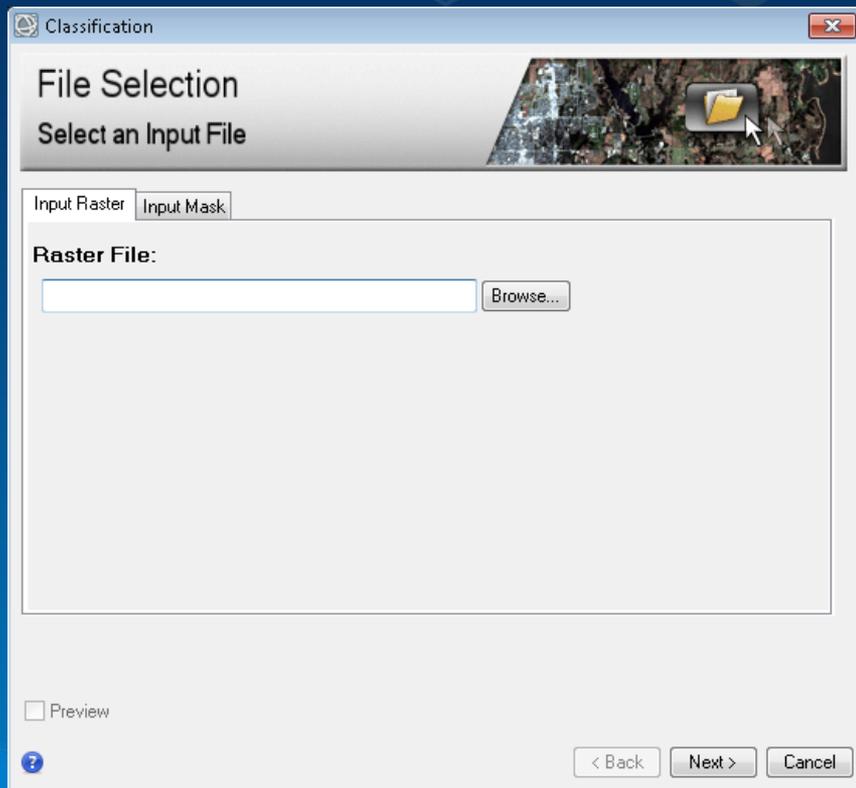
Classes

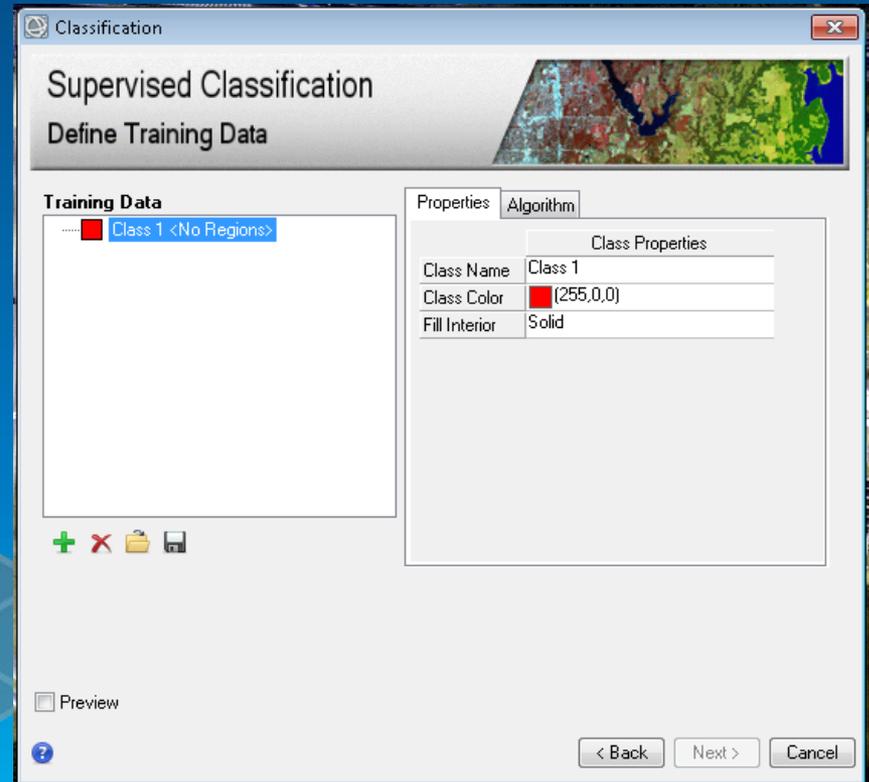
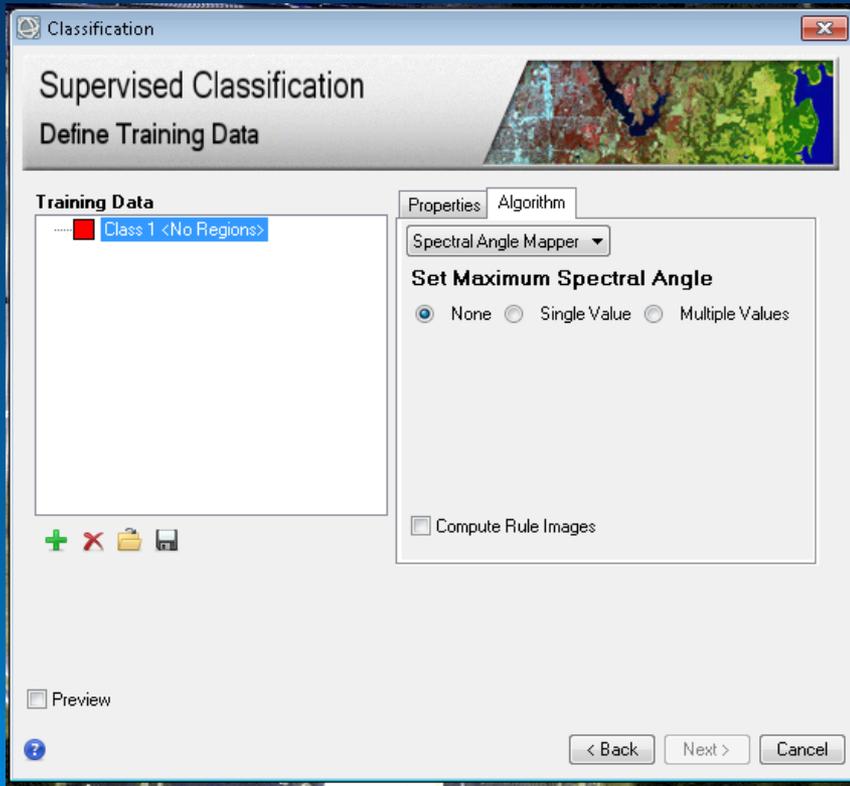
- 0: Unclassified
- 1: Asfalto
- 2: Vegetacion
- 3: Terreno
- 4: Construido





# Classification Supervised





Classification

### Supervised Classification

#### Define Training Data



**Training Data**

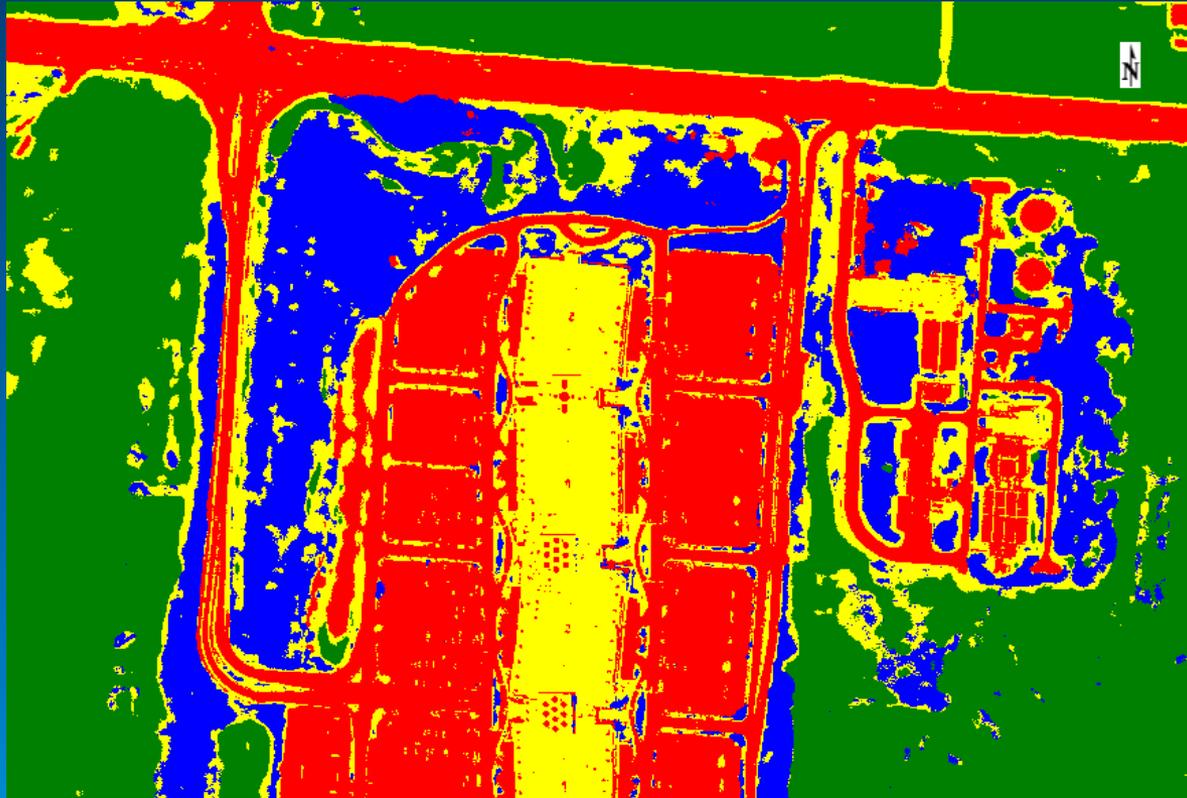
- Asfalto <No Regions>
- Vegetacion <No Regions>
- Terreno <No Regions>
- Construido <No Regions>

Properties Algorithm

Class Properties	
Class Name	Asfalto
Class Color	(255,0,0)
Fill Interior	Solid

Preview

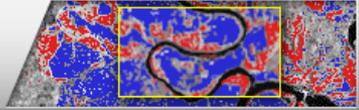




Classification

### Cleanup

#### Refine Results



**Enable Smoothing**

Smooth Kernel Size  
3

**Enable Aggregation**

Aggregate Minimum Size  
9

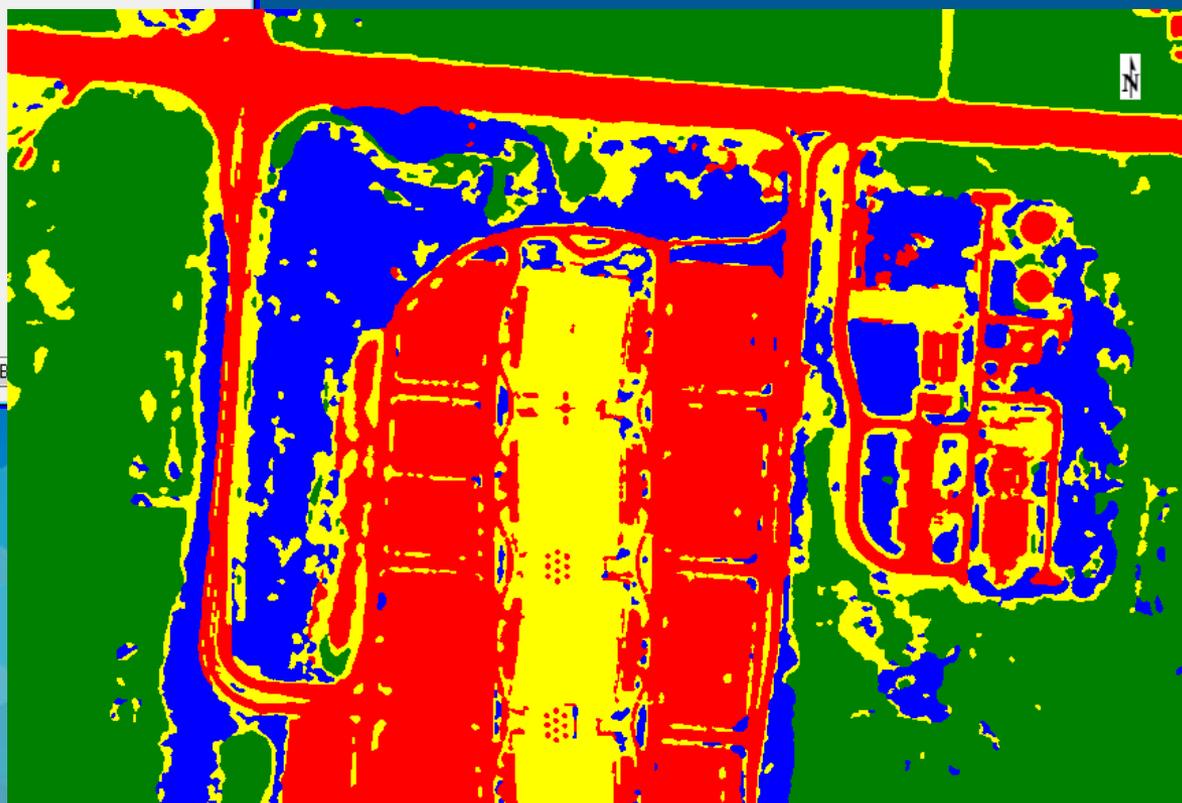
Preview

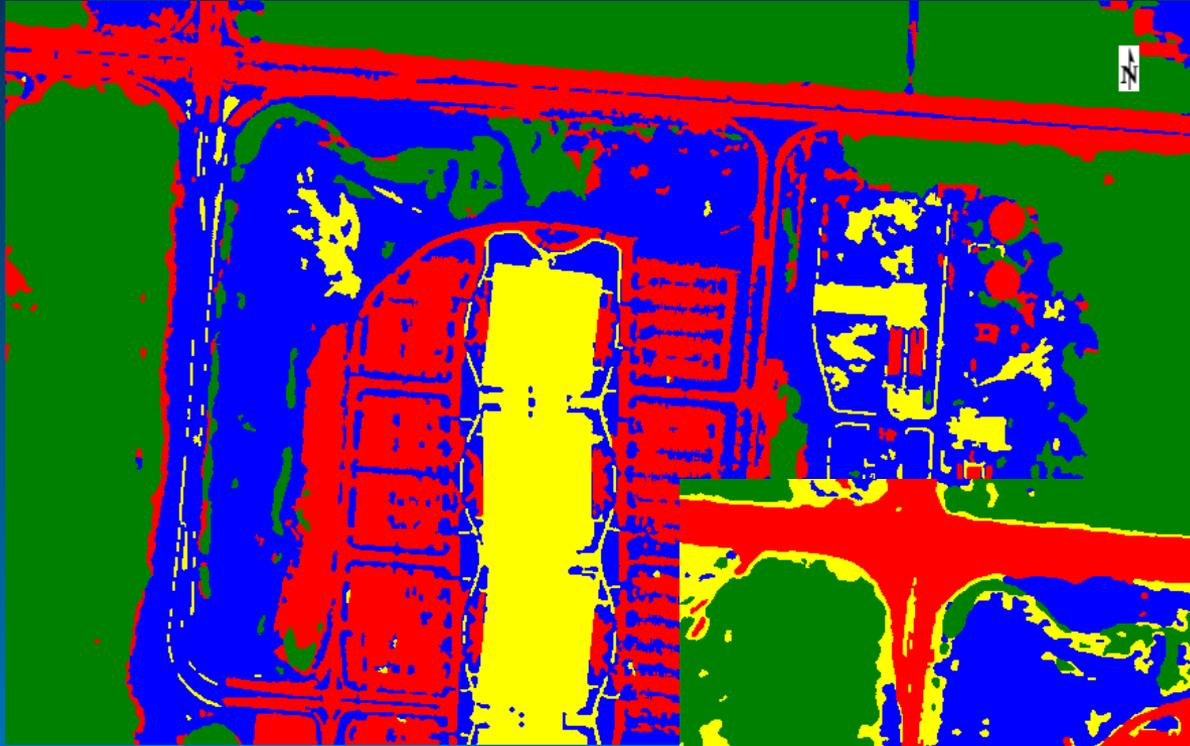
?

< B

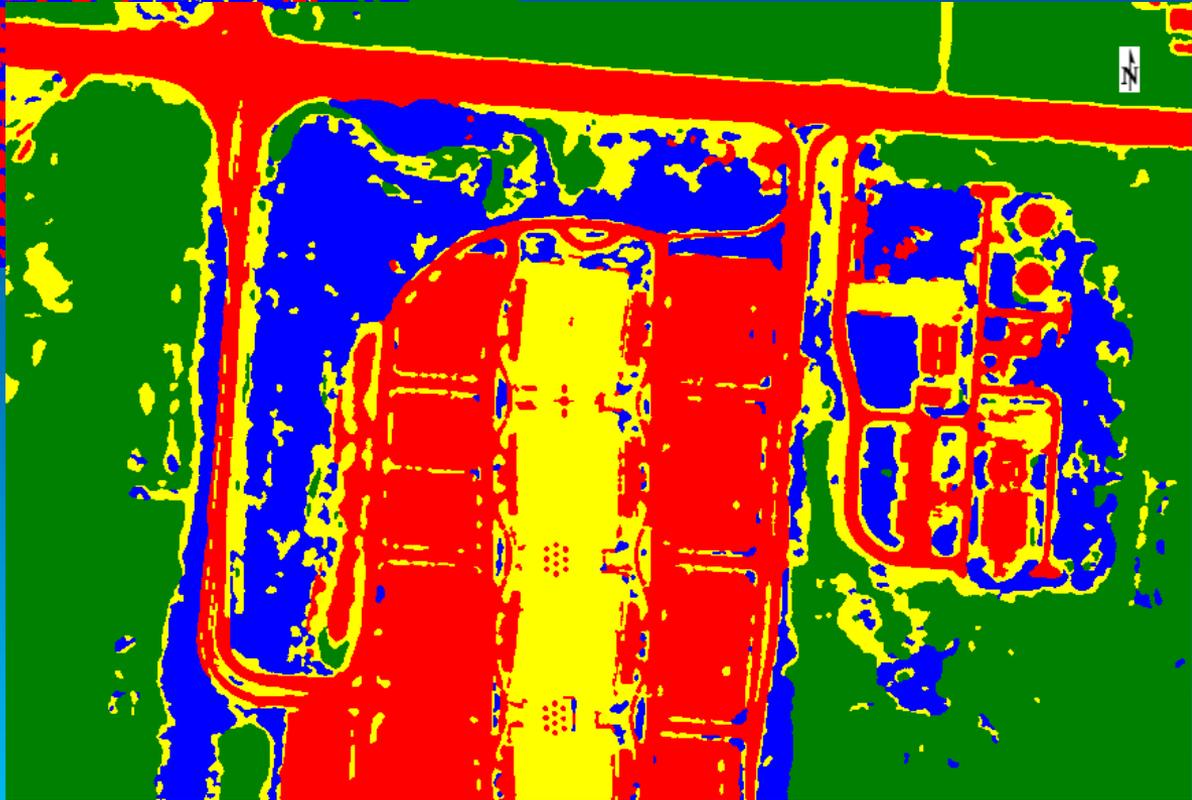
Classes

- 0: Unclassified
- 1: Asfalto
- 2: Vegetacion
- 3: Terreno
- 4: Construido





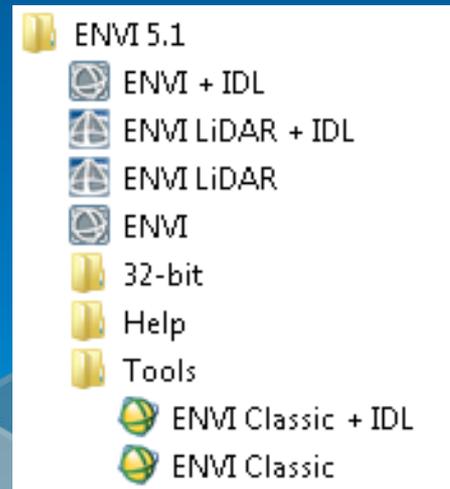
**Clasificación  
Supervisada**



**Clasificación  
No Supervisada**

# Conclusión

- ENVI 5 le provee al usuario una interfaz más intuitiva
- Flujos de trabajo automatizados que permiten obtener información de las imágenes de manera rápida
- ENVI Classic



# Gracias

