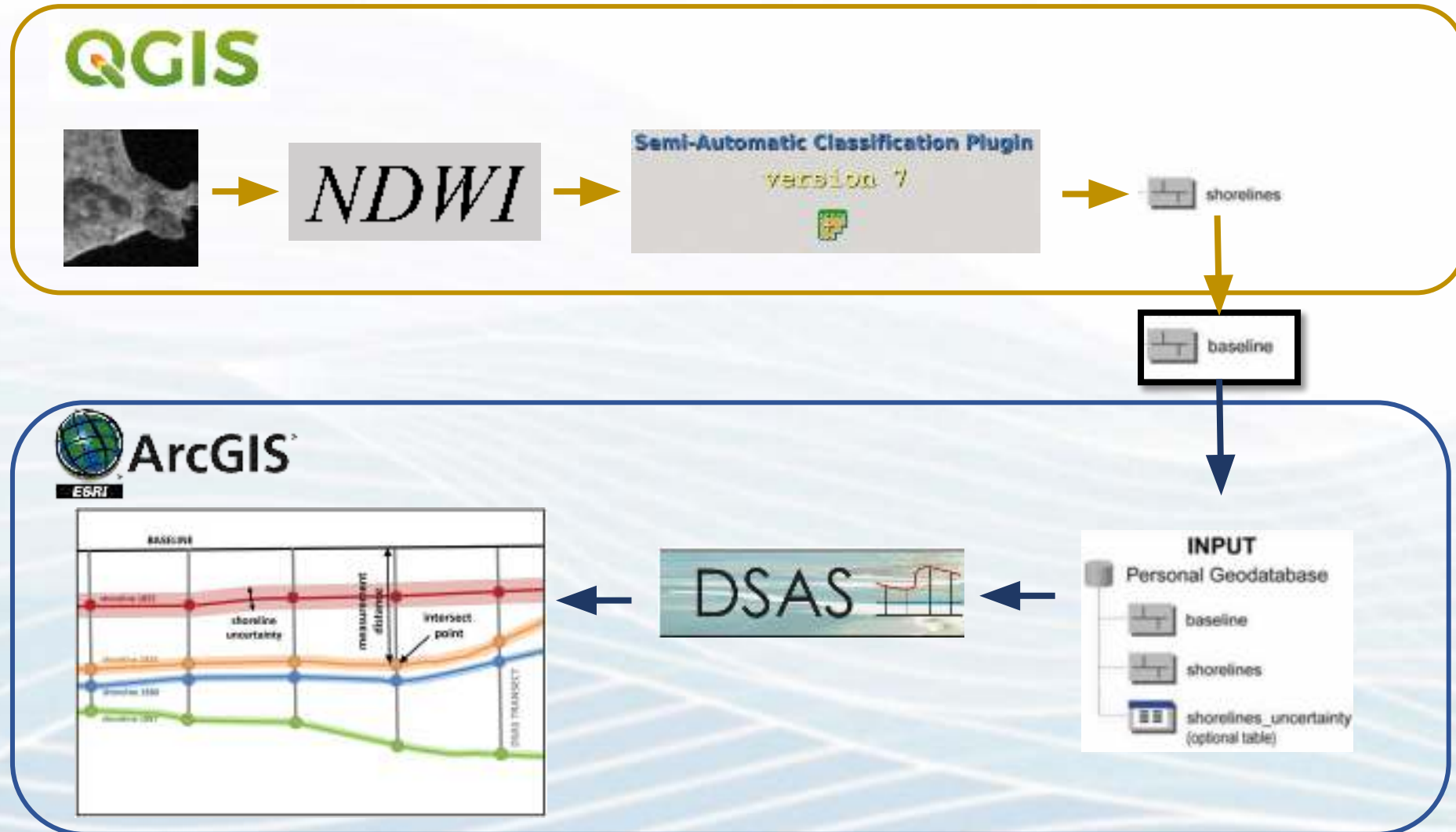


Theory Session 2

Shoreline Extraction

Methodology workflow



Land / Water Indices

The **Normalized Difference Water Index (NDWI)** value is used to produce a binary classification of water vs. non-water (McFeeters, 1996)

$$NDWI = \frac{(GREEN - NIR)}{(GREEN + NIR)}$$

NDWI is a very useful index in Remote Sensing:

- Land / sea interface mapping,
- Inland water detection

The **Modified Normalized Difference Water Index (MNDWI)** uses green and SWIR bands for the enhancement of open water features.

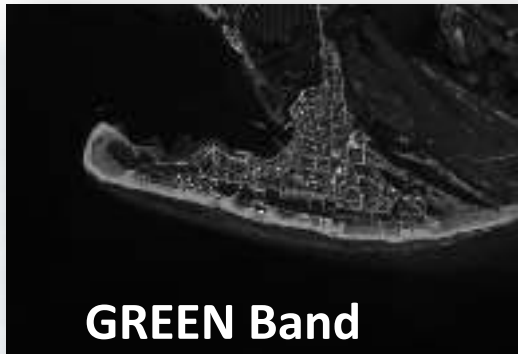
$$mNDWI = \frac{(GREEN - SWIR)}{(GREEN + SWIR)}$$

It also diminishes built-up area features that are often correlated with open water in other indices.

Shoreline extraction methodology - Step by Step



Methodology



GREEN Band



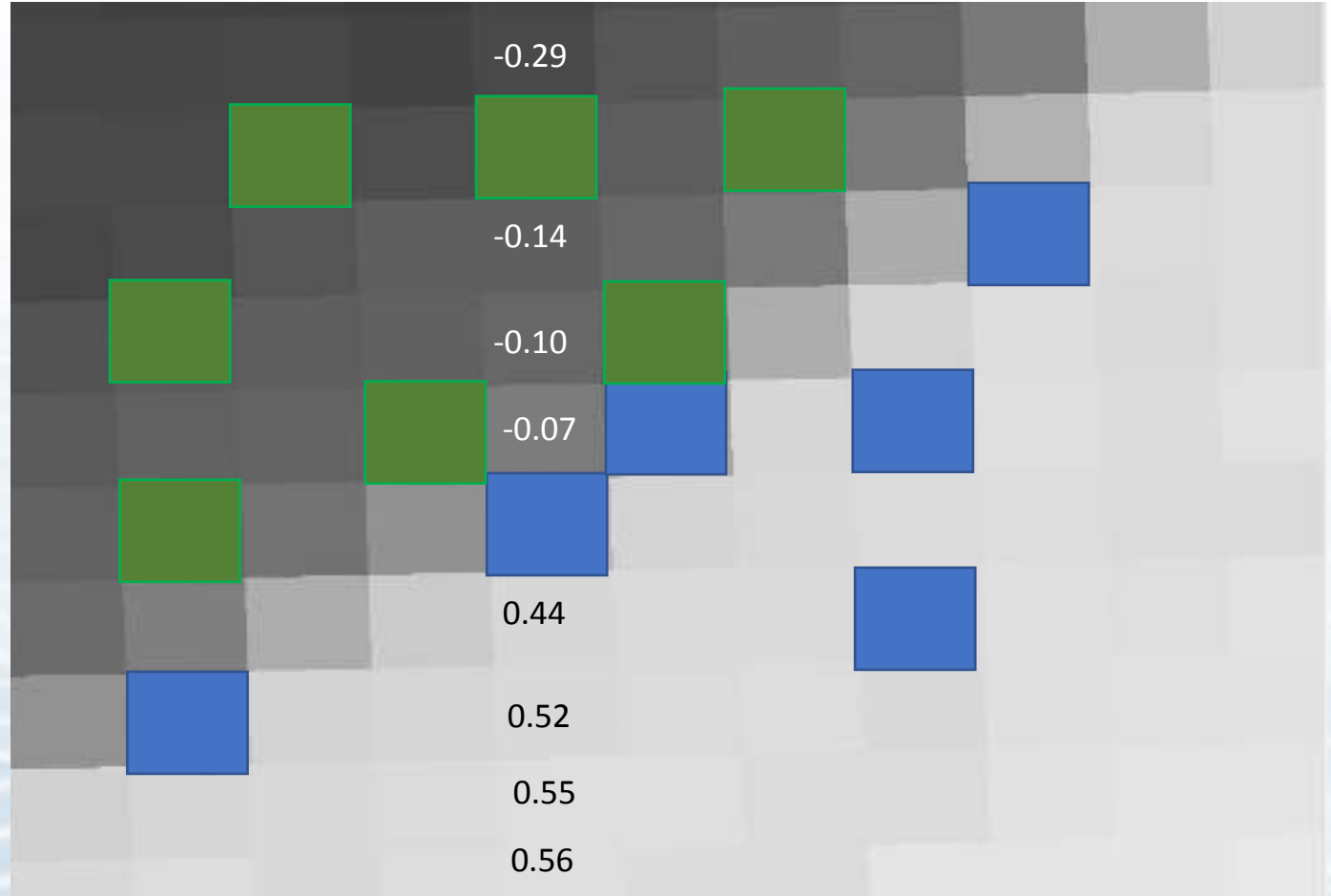
NIR Band

$$NDWI = \frac{(GREEN - NIR)}{(GREEN + NIR)}$$



Methodology

Train of algorithm



Methodology

Satellite image classification



Methodology

Convert Raster to Vector

Raster – Conversion – Polygonize (Raster to Vector)



Methodology

Shoreline extraction

SAGA – Convert Polygons to lines



Historical shorelines



Practical Session 2

Shoreline Extraction

