Supervised Classification

[Software to use: Multispec]
We will do a supervised classification by selecting training areas for specified classes from known areas.

Open Multispec, and open an image for classification.

-Selecting Training Fields:

After opening your image, make sure you have selected your area of interest, otherwise the procedure will be applied to the entire image.

Go Processor>Statistics:

Click OK:
An extra window will appear by the name “Project” (usually at the right). This will help you to draw your training areas:

Once you have drawn a training area as the image above, then click **Add To List**. A “Define Class” window will pop up. Name this class as **water**. If you are interested for more areas then follow the previous steps. In this tutorial have been made three classes, one for the water, one as Land (general dark grey area), and one as Soil1 (bright irrigated areas).

Note: A training area can be drawn by rectangular or by polygon (click the check box “Enter Polygon”).
If you need to delete a training area (class) then, select the class in the class list:

And, then selecting “Cut Class” from the Edit menu:

The “Land” class will disappear.
Classification:
From the *Processor* menu select *Classify*. In the Set Classification pop up window, select the near *Image Selection* under Classify to de-select.

Since, we are interested only for the viewable area only, we will select the research of interest area first by dragging a rectangular:

Then go at the previous steps: Processor>Classify:
The “Set Classification Specifications” window now has the option to Classify the Research of Interest area [by selecting the Image Selection check box]:

![Image of classification process]
In the above figure, please note that you have the option to write the classification results to disk or just as overlay image. At this point, we have no need for this file in this case, so leave this button unselected.

Click OK, then OK for Update Statistics at the next window:

In the figure below, the Text Window shows how many pixels have been selected:
For one Class (water):

For three classes (water, land, soil1):

There should be nearly 100% accuracy on the training fields. If the Reference Accuracy is particularly low (say less than 50%) for a class, then the training pixels for that class should be reexamined and new training pixels selected.

Assuming satisfactory results, we are ready to classify the whole area.

**[Training Areas Ended here…]**

**Proceeding to Classification:**
From the Processor menu choose **Classify.**:
Under **Areas to Classify** **de-select** **Training (resubstitution).**
Keep **Image Selection** checked if you need to classify only the area of interest.
Also: select **Disk File** under *Write classification results to:* so that a disk file for later use will be created (later on we will import it in ArcMap)

Note that you may select **Image Window Overlay** to cause the classification to be displayed as an overlay on the image window if you wish to.
Also select the **Create Probability Results File** checkbox so that a classification probability map will be saved to a disk file.
Before you click OK make sure your window show as the below figure:

Select **OK**
Select **Save**. For your .gis file
And **Save** for your probability map.
Summary of the results will display in the text window.

Whenever you feel that you need to continue your work in a later time you may save your project by going to **File>Save Project.** Both training or/and test areas will be saved.

**Ready to open the classification maps (Those are called Thematic Maps):**
[They called “thematic” by the greek name “thema” meaning subject. Those are maps that represent different subjects]
And the probability map (below):
The classification probability map is to evaluate which portions of the image have lower and higher probabilities of being classified correctly. There may be other classes in the image that our training fields do not adequately represent.

You may draw the outlines of the training fields by going to Project> Add as Associated Image: