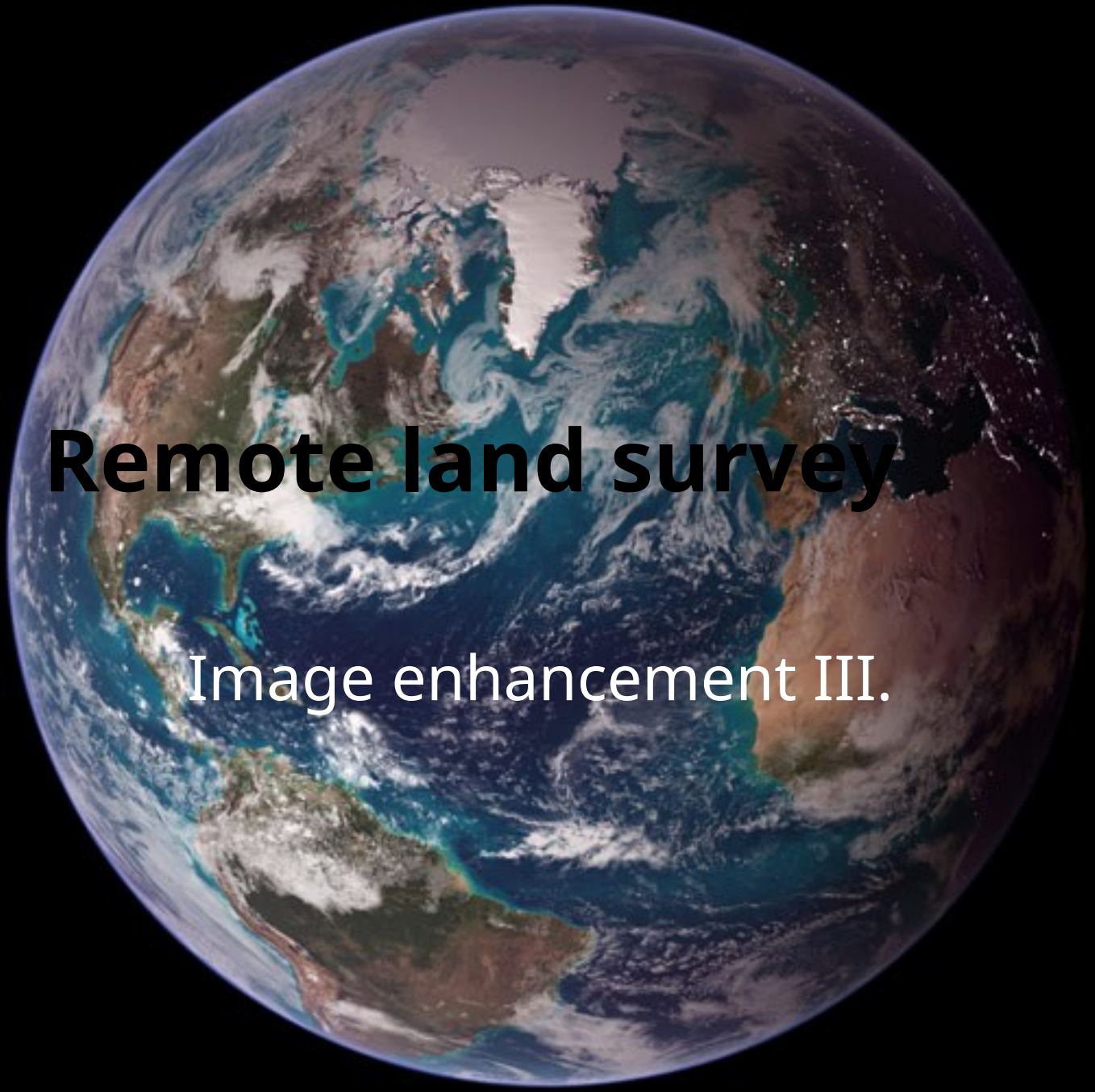
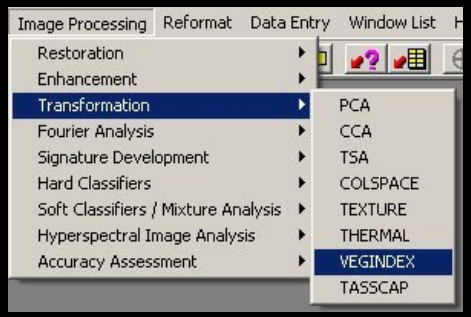


Remote land survey

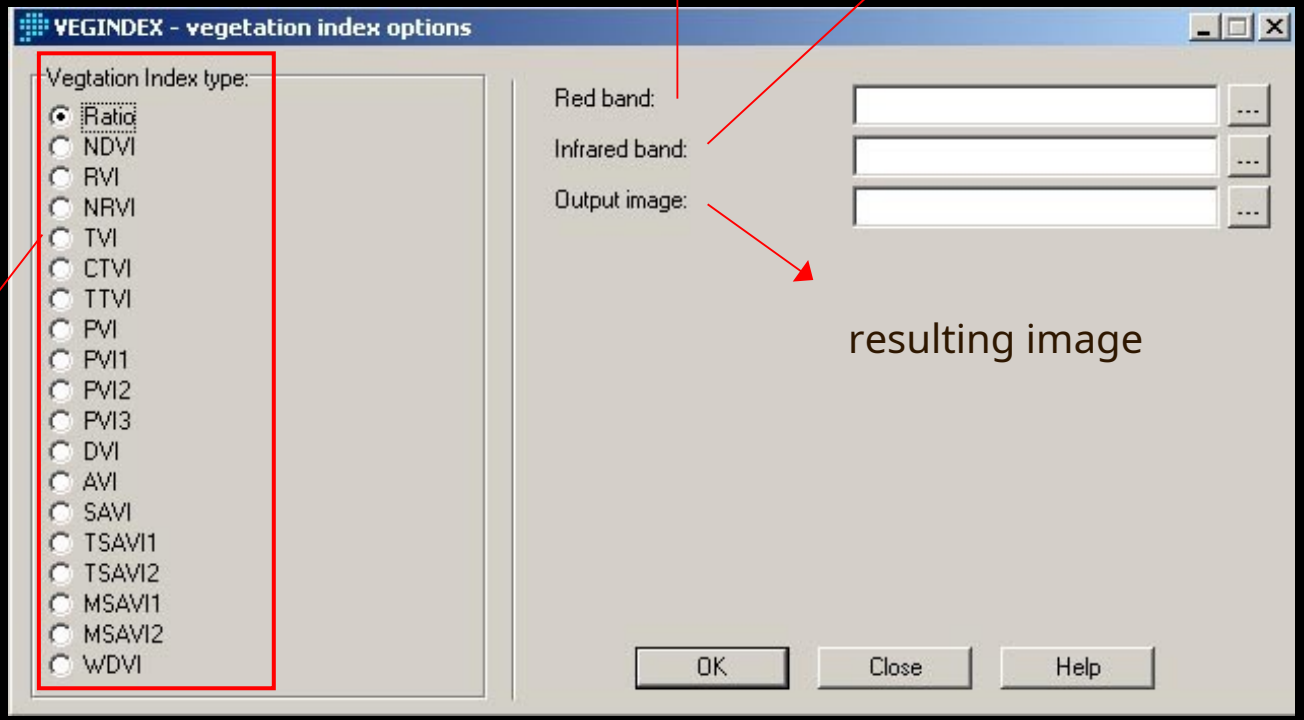
Image enhancement III.

Idrisi Taiga: vegetation indices



red band

infrared band

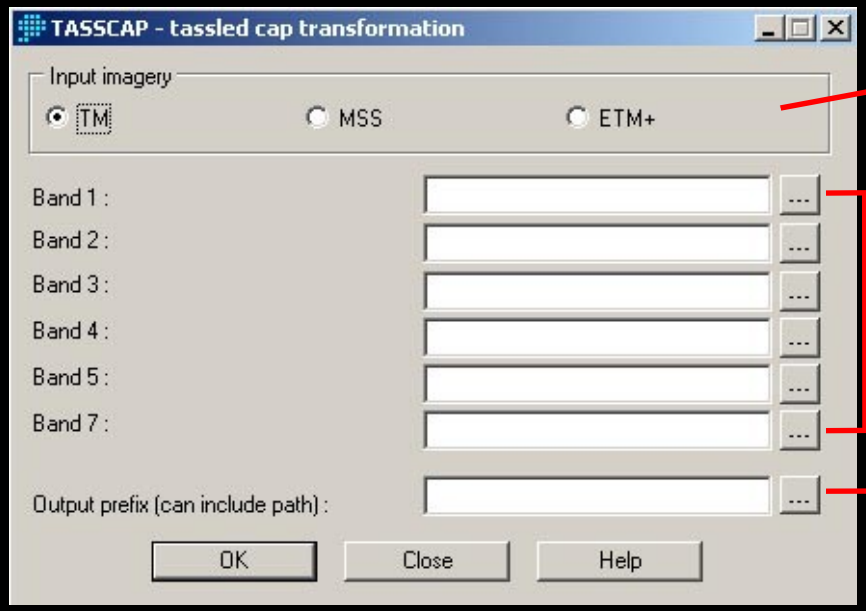


resulting image

choice vegetation index

Idrisi Taiga: TASSCAP module

(menu Image Processing / Transformation) calculates indices depending on vegetation biomass and moisture conditions, the result is several images: "Brightness" showing soil reflectance, "Moistness" humidity and "Greenness" is referred to asGreen Vegetation Index(Green Vegetation Index, GVI) and shows the vegetation cover



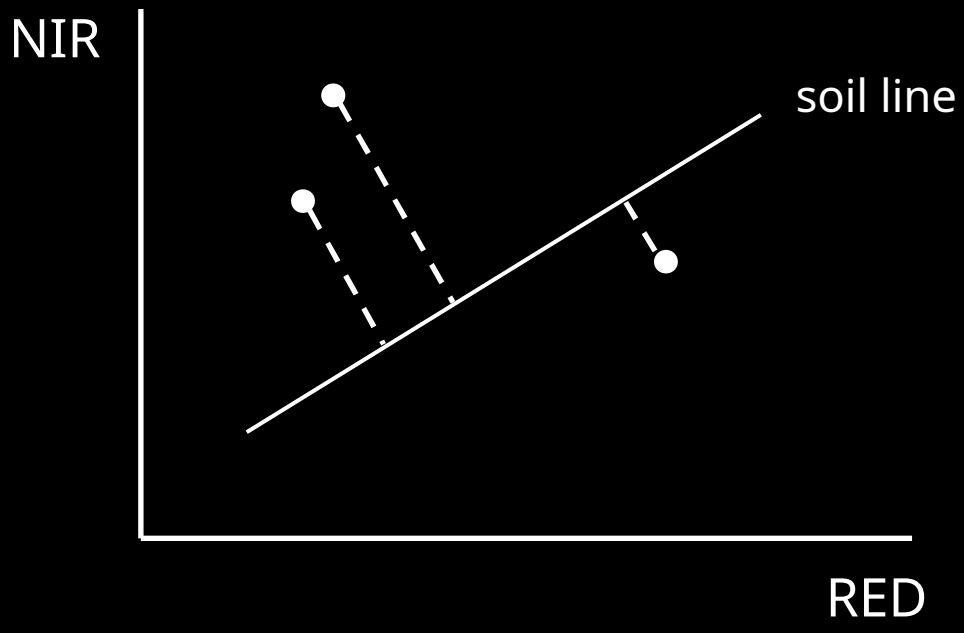
the sensor from which the used images come

individual input channels

entering an overlay for emerging images

Perpendicular Vegetation Index

$$PVI = (RED_{Mr} - RED_{in})^2 + (NIR_{Mr} - NIR_{in})^2$$

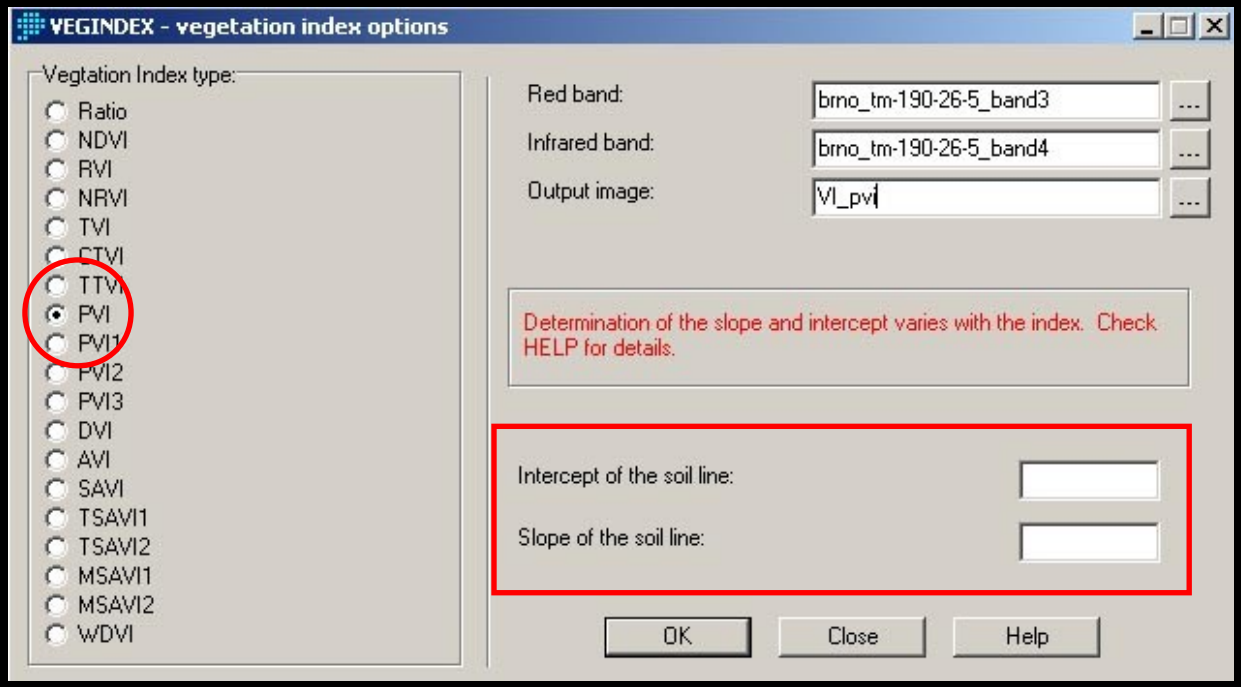


distance from the line

land determines the value

PVI

Idrisi Taiga: PVI

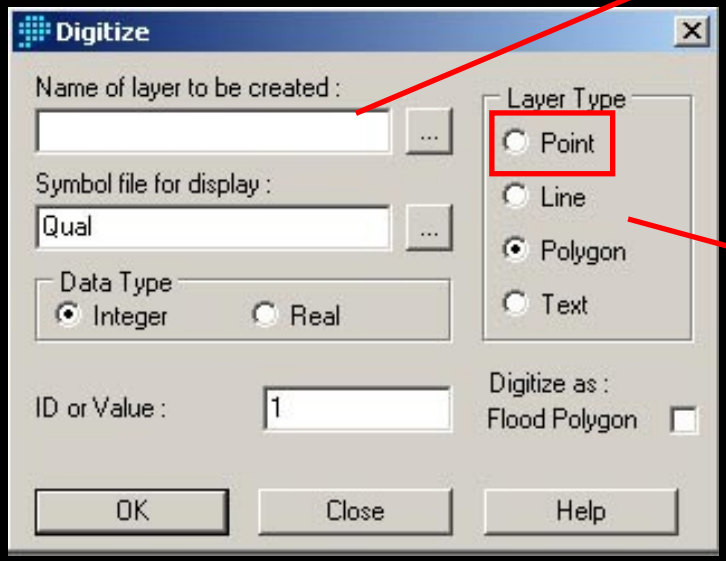


to obtain these quantities we need to calculate a linear regression of pixels representing bare soil in the red and infrared bands

1) NDVI calculation where we identify bare soil pixels (probably negative values)

2) On-screen digitization of points representing bare soil (at least 50 points covering soil variability - color, moisture...)

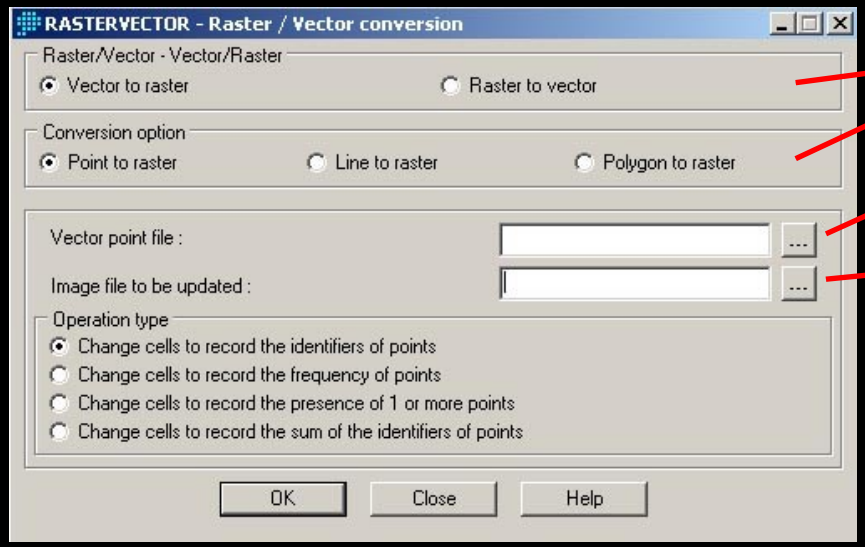
create delete save



name created vector layers

vector type

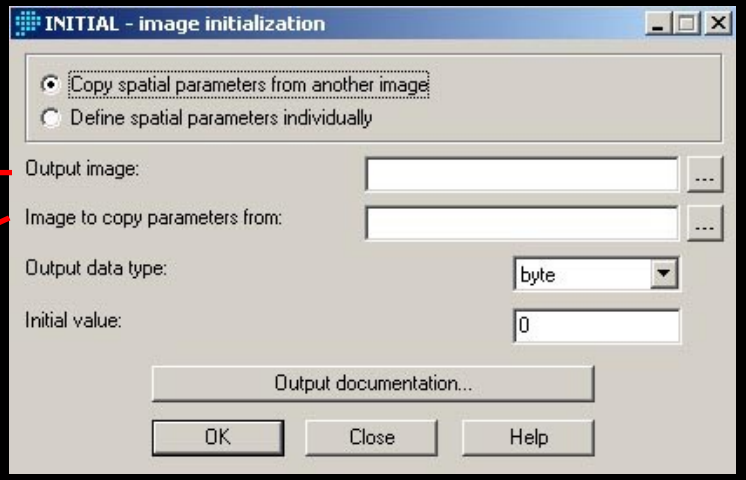
3)Converting a vector layer of points to a raster with the RASTERVECTOR module (Reformat menu)



R/V, V/R transfer options

vector file name

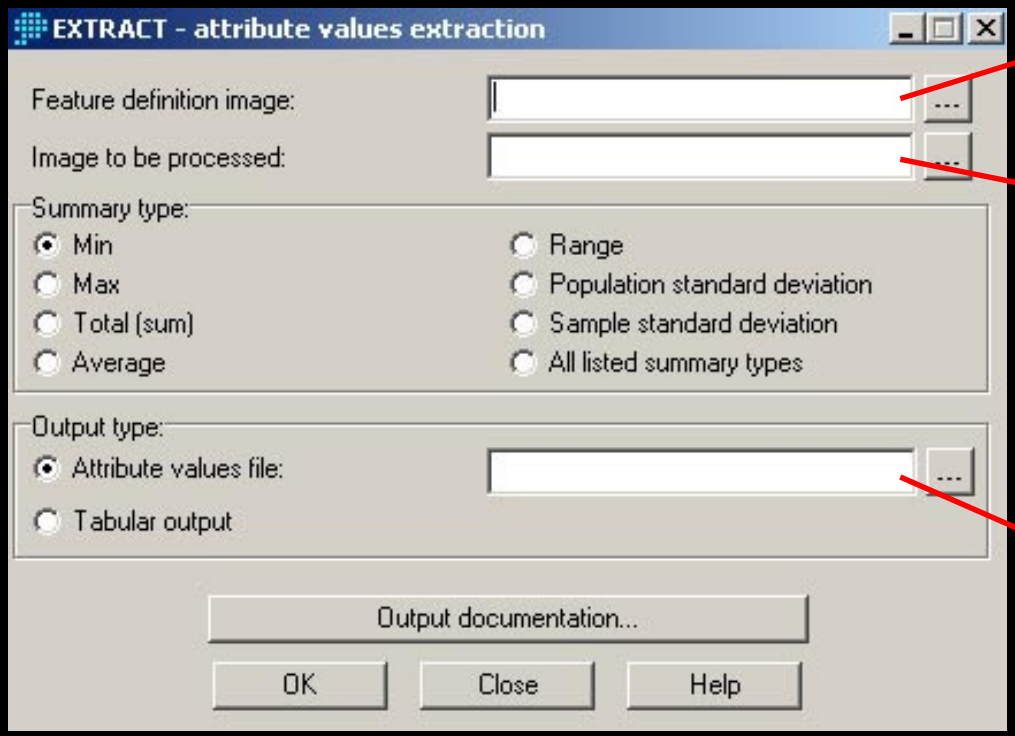
raster file to be "enhanced" - after entering a new name, the INITIAL module will be started



the resulting image (the "enhanced" one)

the file from which the image parameters are to be copied (e.g. NDVI)

4) Extraction of values from RED and NIR bands, EXTRACT module (GIS Analysis / Database Query menu), you need to create 2 files, for each band separately

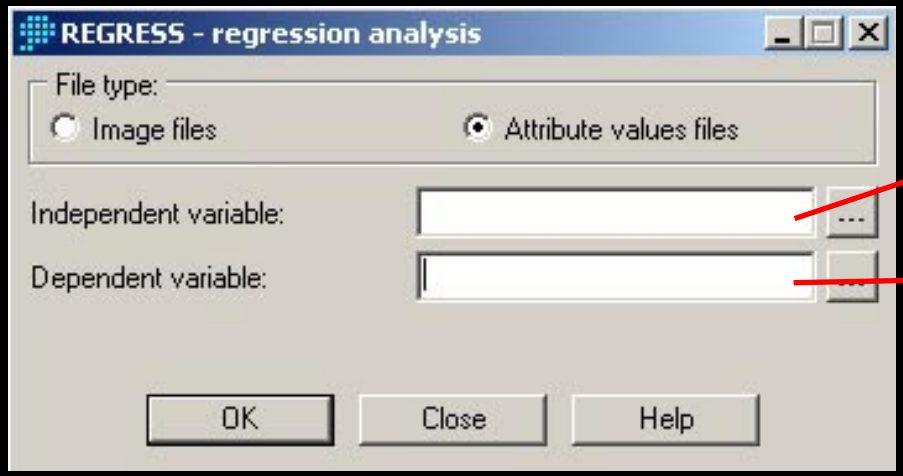


defining raster (just created with points)

the image from which the information is to be obtained (RED, NIR channels)

the name of the creation attribute file

5) Regression calculation by the REGRESS module (GIS Analysis / Statistics menu), PVI requires values from the NIR band as an independent variable



6) Substitution of values to calculate PVI in the VEGINDEX module

$y = a + bx$

intercept = a

slope = b