

# ILWIS 2.2 new features

This chapter gives a brief overview of new and improved functionality of ILWIS 2.2. For detailed information, see chapters 3, 4, 5, 6, 7, and 8, or the on-line Help.

## 1.1 Visualization and Annotation

### **Interactive Color Composite**

Maps in a map list can be shown directly as a color composite in a map window. The Display Options of the map list allows you to interactively specify which bands of the map list should be displayed and how they should be mapped on colors.

### **Improved representation class**

A *representation class* now stores more information. For points, any symbol font with a certain color and size can be used. Segments can be displayed by complex line types (single, double, triple, dot, dash, dash-dot, dash-dot-dot, blocked, symbol); polygons can be displayed with hatchings or patterns. The annotation legends for points, segments and polygons have been adapted to visualize these new representation methods.

### **Special symbols for ID point data with attribute data**

A point map with an identifier domain and a linked attribute table can now be displayed using one column to define colors and another to define symbols. Furthermore, the attributes can be used to display ID point maps as arrows (e.g. for magnetic fields or wind speed and direction), piecharts, bar graphs, line graphs, composite bars and volume cubes.

### **Store multiple texts in an Annotation Text object**

An *Annotation Text* object is a new object designed to store multiple texts with a fixed location on a map. Font properties such as font type, size, color, justification, rotation etc. can be set for individual text elements. An *Annotation Text* object can be created from a point map, segment map or polygon map (i.e. as automatic labels), or from scratch. You can visually edit an *Annotation Text* object in the Annotation Text editor in a map window, or as a table in a table window.

## 1.2 Referencing and Transformation

### **New types of georeferences**

The new georeference types *GeoRefOrthoPhoto* and *GeoRefDirectLinear* handle aerial photographs of non-flat terrain. The georeferences can be completely defined

with the help of a DTM, specified tiepoints and, for the GeoRefOrthoPhoto, the camera parameters. This enables monoplottting by mouse on a scanned aerial photograph as well as the creation of an orthophoto by using the Resample operation.

#### **New projections**

The following projections have been included: *Bonne*, *Cassini*, *UPS*, *Oblique Mercator*, *General Perspective*.

Furthermore, some national topographic systems and their projection parameters were included: *Gauss-Krueger (D)*, *Gauss-Boaga (I)*, *Lambert Conical Conformal (F)*.

#### **New types of coordinate systems**

The following coordinate systems types, which are not based on a projection, have been defined:

- a *CoordSystemFormula* relates to another coordinate system with a user-defined shift, scaling, rotation or by a user-specified formula.
- a *CoordSystemTiePoints* relates to another coordinate system with a user-specified transformation method and a series of tiepoints. This enables you to work with local coordinate systems and to handle imported vector data that is not georeferenced.
- a *CoordSystemLatLon* enables datum transformations on geographic coordinates.

## **1.3 Statistics**

#### **Improved Spatial correlation operation**

Semi-variances can now be calculated with a user-specified lag. You can choose between omni-directional semi-variances or bi-directional semi-variances with a user-specified direction, tolerance and bandwidth. In a graph window, you can display the semi-variogram and draw semi-variogram models through the output semi-variance values.

#### **More possibilities to create graphs**

Besides creating graphs from data in columns, you can now also define a graph by an expression as  $y = f(x)$ , use a least squares fit, and draw semi-variogram models through semi-variance values obtained from the Spatial correlation operation.

#### **New operation Kriging**

From a point map and a user-specified semi-variogram model, the Kriging operation calculates kriging estimates. Both Simple Kriging and Ordinary Kriging are available. Optionally, an error map can be obtained.

#### **Enhanced column statistics in a table window**

Statistics on columns is now available from the menu of a table window and is enhanced. You can calculate: minimum, maximum, sum, average, variance, standard

deviation and standard error of one column, and the correlation and covariance of two columns. Furthermore, a Students *t-test* and a  $\chi^2$ -*test* can be performed.

## 1.4 Other operations

### **New operation: Change domain of table**

After calculations or import, it may be useful to change the domain of a table. One of the options is to use a column from the table to define the new domain; in that case aggregations are possible.

### **New operation: Table to point map**

From a table containing X and Y coordinate columns, a point map can be created.

### **New operation: Glue tables**

The operation glues multiple tables together. The operation is automatically called when multiple identifier maps with attribute tables are glued together.

### **Glue raster maps**

The operation now accepts more than two input raster maps; this allows for easy mosaicking. Furthermore, when combining class and value maps, the result will become a color map that can be used for presentation purposes.

### **Cross (TableCross)**

An option has been added to ignore or include undefined values in the input maps in the output table.

### **Polygons to points**

An option has been added to ignore or include undefined polygons in the output point map.

## 1.5 Miscellaneous

### **Table window**

You can now edit multiple fields at the same time. Furthermore, pasting data from the clipboard into a table with domain `None` without active selections will add the pasted data to the table as records.

### **Import/Export**

- All improvements in the three patches of ILWIS 2.1 are incorporated.
- Arc/Info .E00 import has been improved.
  - Split files (E00, E01, E02 etc) can now be read sequentially
  - Attributes are now imported into one or more attribute tables
  - Raster grid (GRD) can now be imported.
- Arc/View Shape import has been added.
- DXF import and export have been improved.
  - Import of DXF polygon maps now gives proper ILWIS polygons.
- TIFF import and export will now use GeoTIFF extensions.
- Import and Export are now available in the script and on the command line.

**Dialog boxes**

All dialog boxes now have COPY and PRINT commands in the system menu; under Windows 95 this is also reachable by using the right mouse button on the title bar.

**DDE**

DDE improvements have been added to let the calling application have a better control over the communication of ILWIS commands.

- Parentheses ( ) are no longer stripped from the command, so also definition statements can be issued from the DDE-client.
- Square brackets [ ] around commands are now optional.
- Ending a command with a semicolon will send the command directly to the script processor and only return after the command is finished. The semicolon can also be used to delimit commands on a line. The commands will be executed in sequence.

**New script commands**

- `additemtodomaingroup domainname upperlimit classname [classcode]`
- `begincomment`  
*This is comment*  
`endcomment`
- `message any text to display`
- `pause seconds`
- `show -noask mapname.ext`
- `crtbl tblname domain | nrrecs`
- `crmap mapname georef domain`
- `crpntmap mapname coordsys domain`
- `crsegmap mapname coordsys domain`
- Numerous commands to import files into ILWIS from another format or to export ILWIS objects to another format.