UNIVERSITY OF TWENTE.

ILWIS and Toolbox plug-ins

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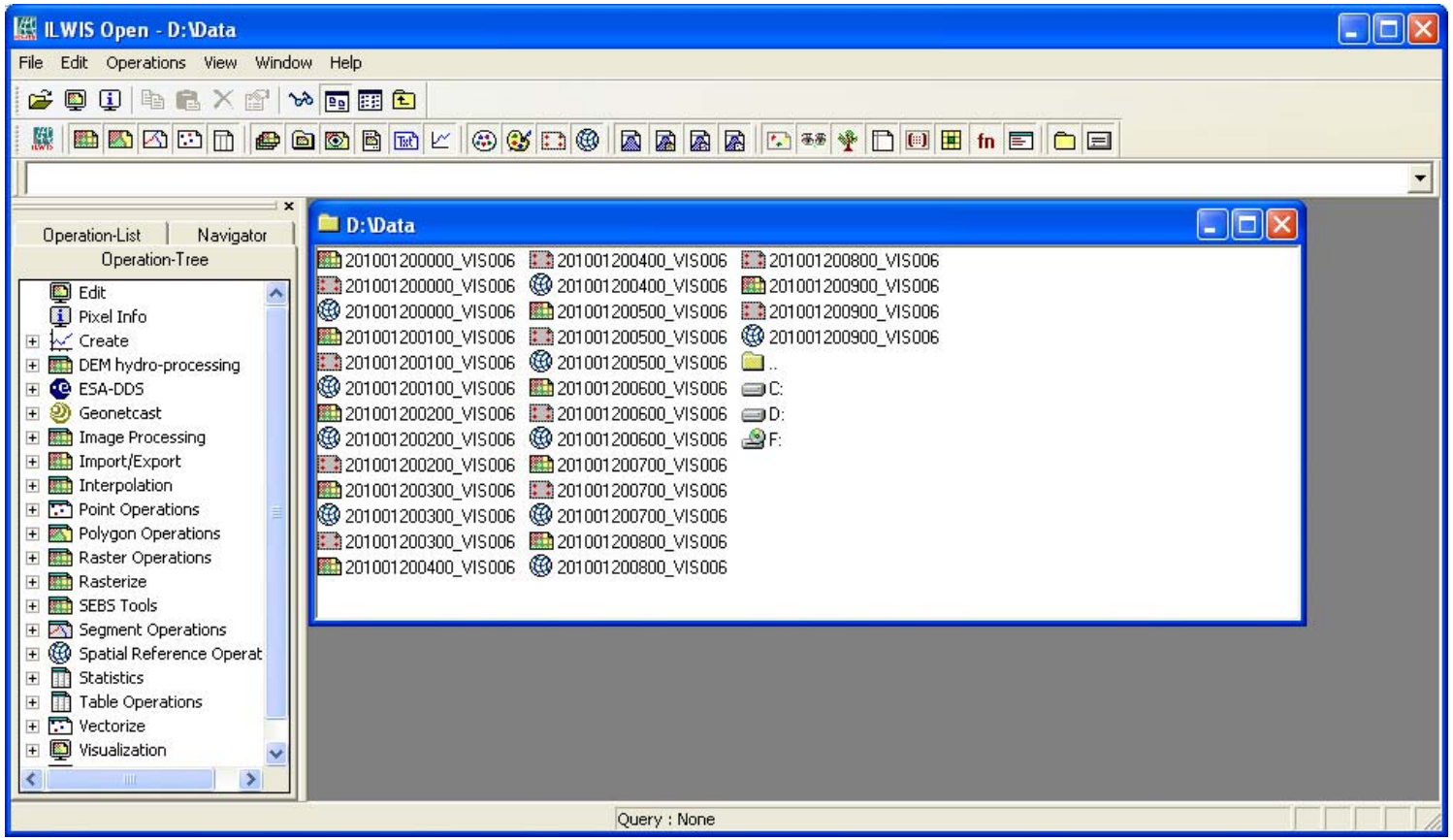
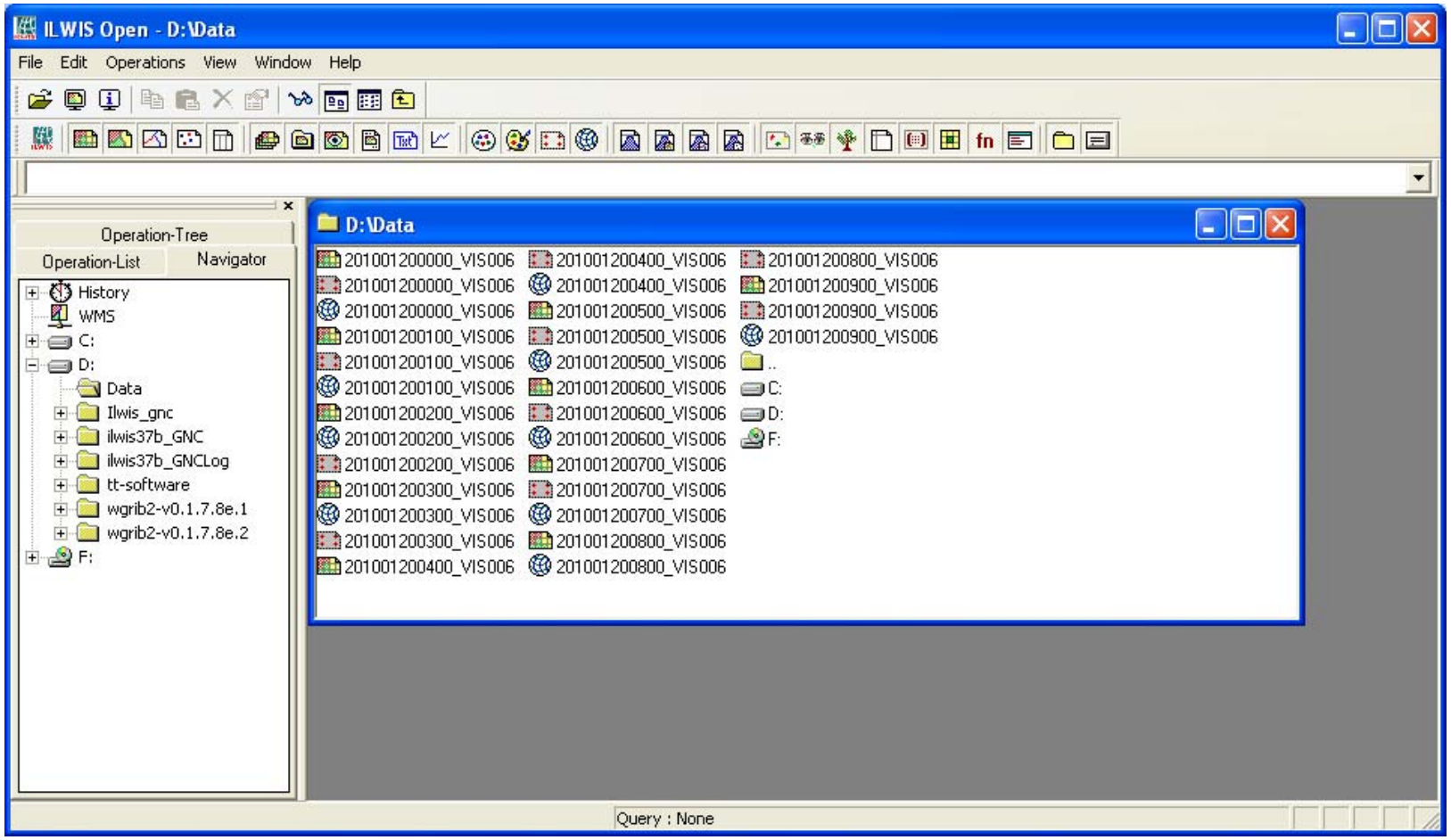
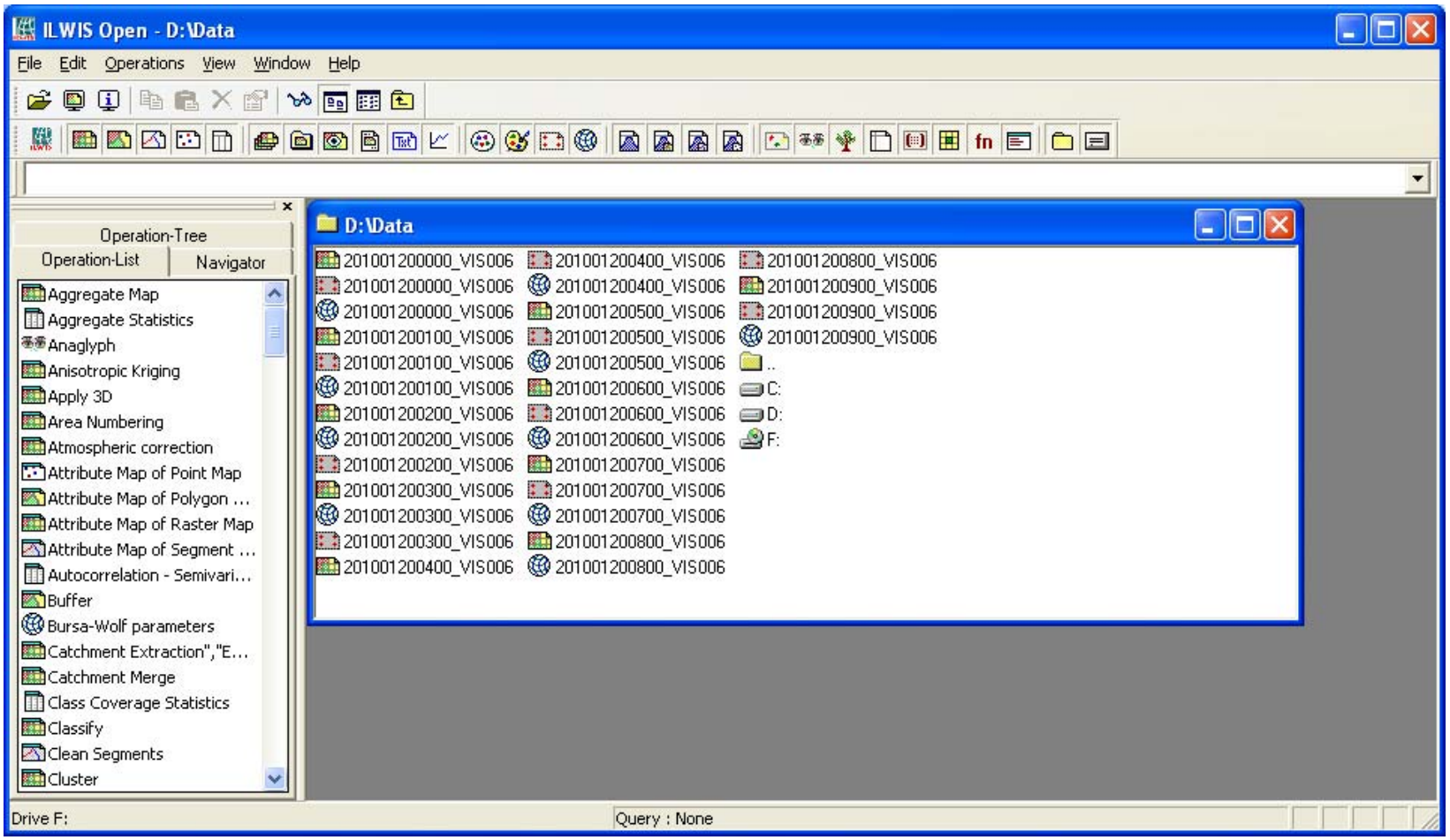
ILWIS


ILWIS Open - D:\Data
File Edit Operations View Window Help
Operation-List
Navigator
Operation-Tree
Edit
Pixel Info
Create
DEM hydro-processing
ESA-DDS
Geonetcast
Image Processing
Import/Export
Interpolation
Point Operations
Polygon Operations
Raster Operations
Rasterize
SEBS Tools
Segment Operations
Spatial Reference Operat
Statistics
Table Operations
Vectorize
Visualization
D:\Data
201001200000_VIS006
201001200100_VIS006
201001200200_VIS006
201001200300_VIS006
201001200400_VIS006
201001200500_VIS006
201001200600_VIS006
201001200700_VIS006
201001200800_VIS006
201001200900_VIS006
C:
D:
F:
Query : None

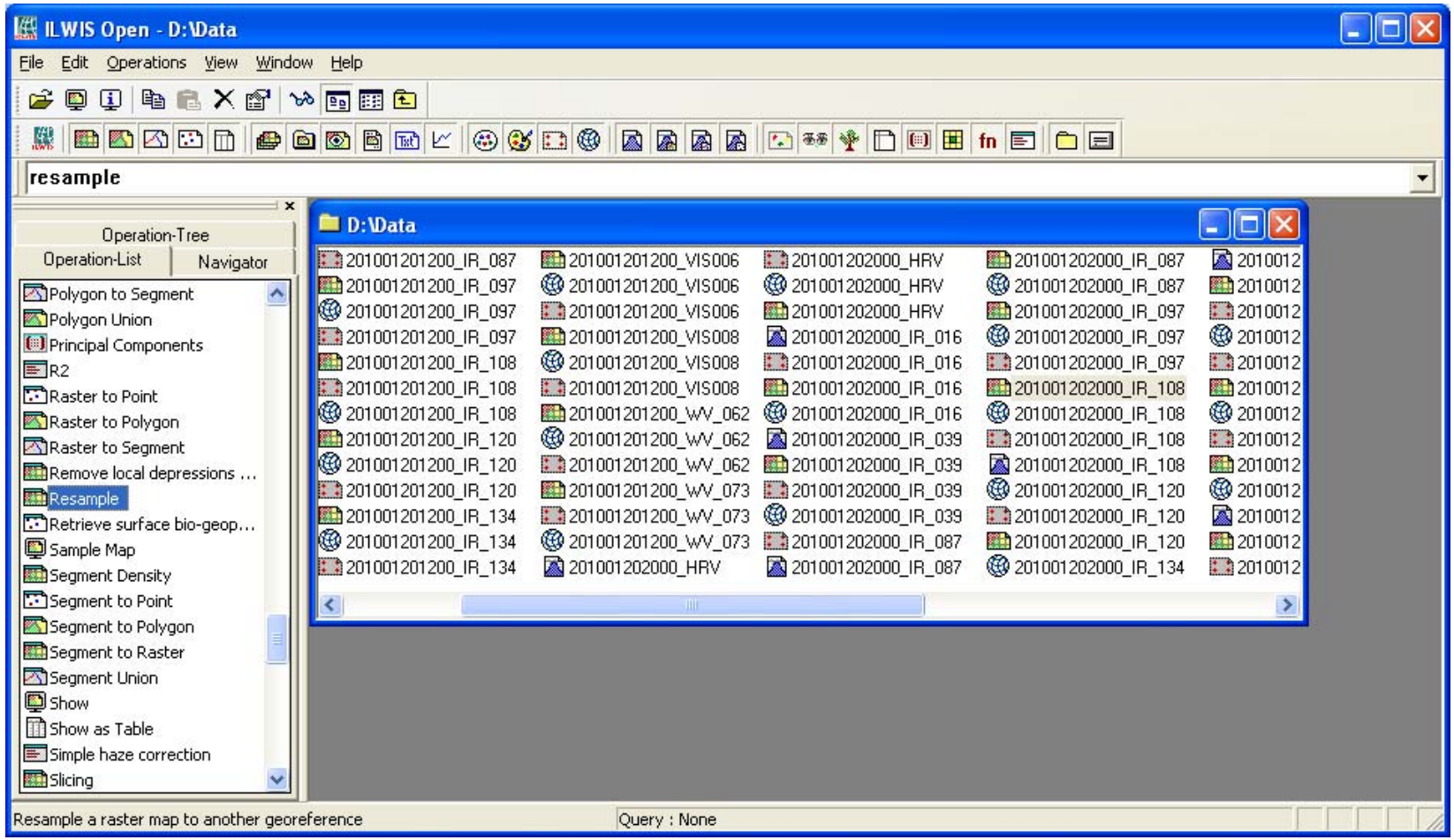
ILWIS - Navigator



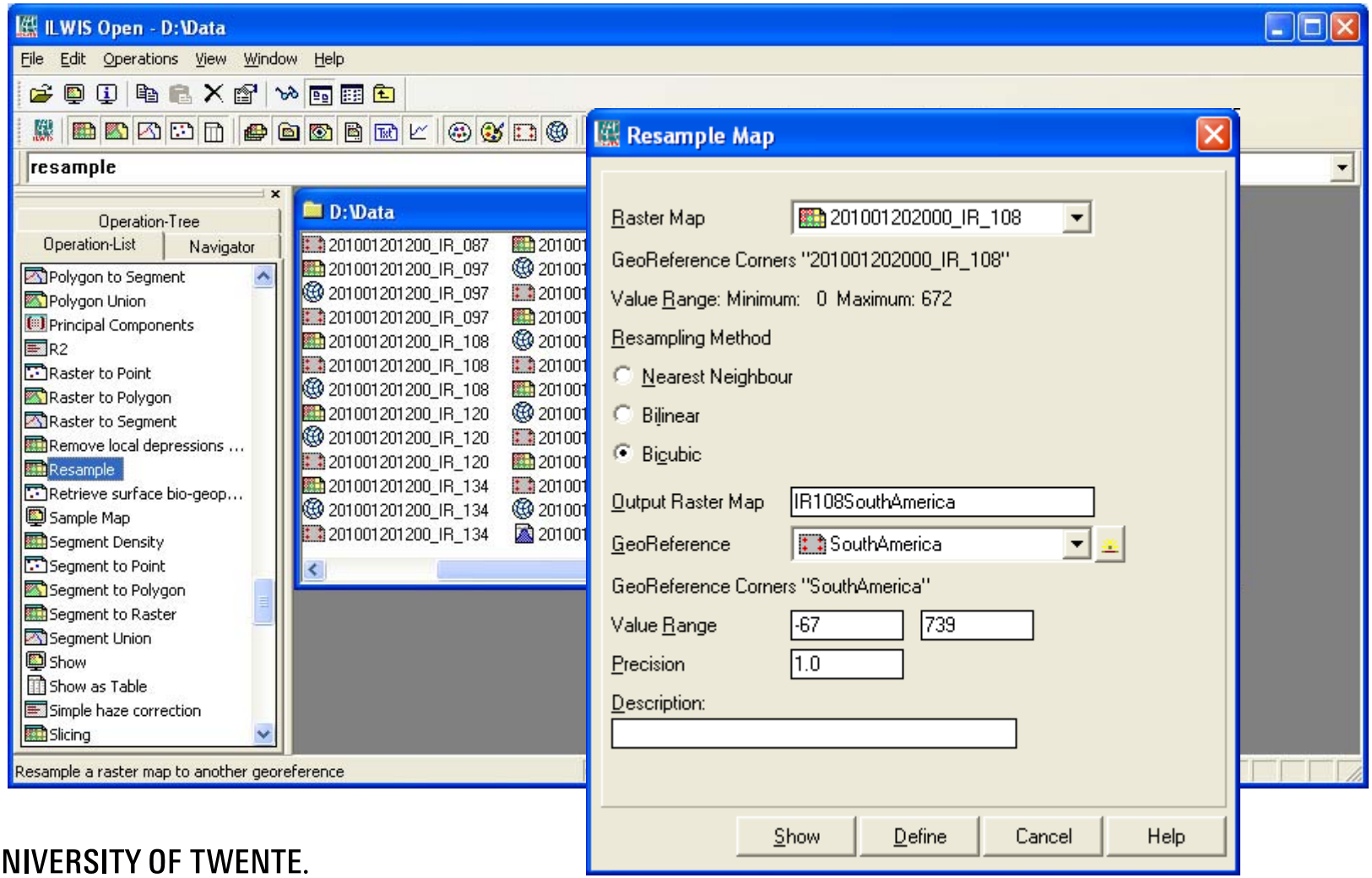
ILWIS – Operation-List



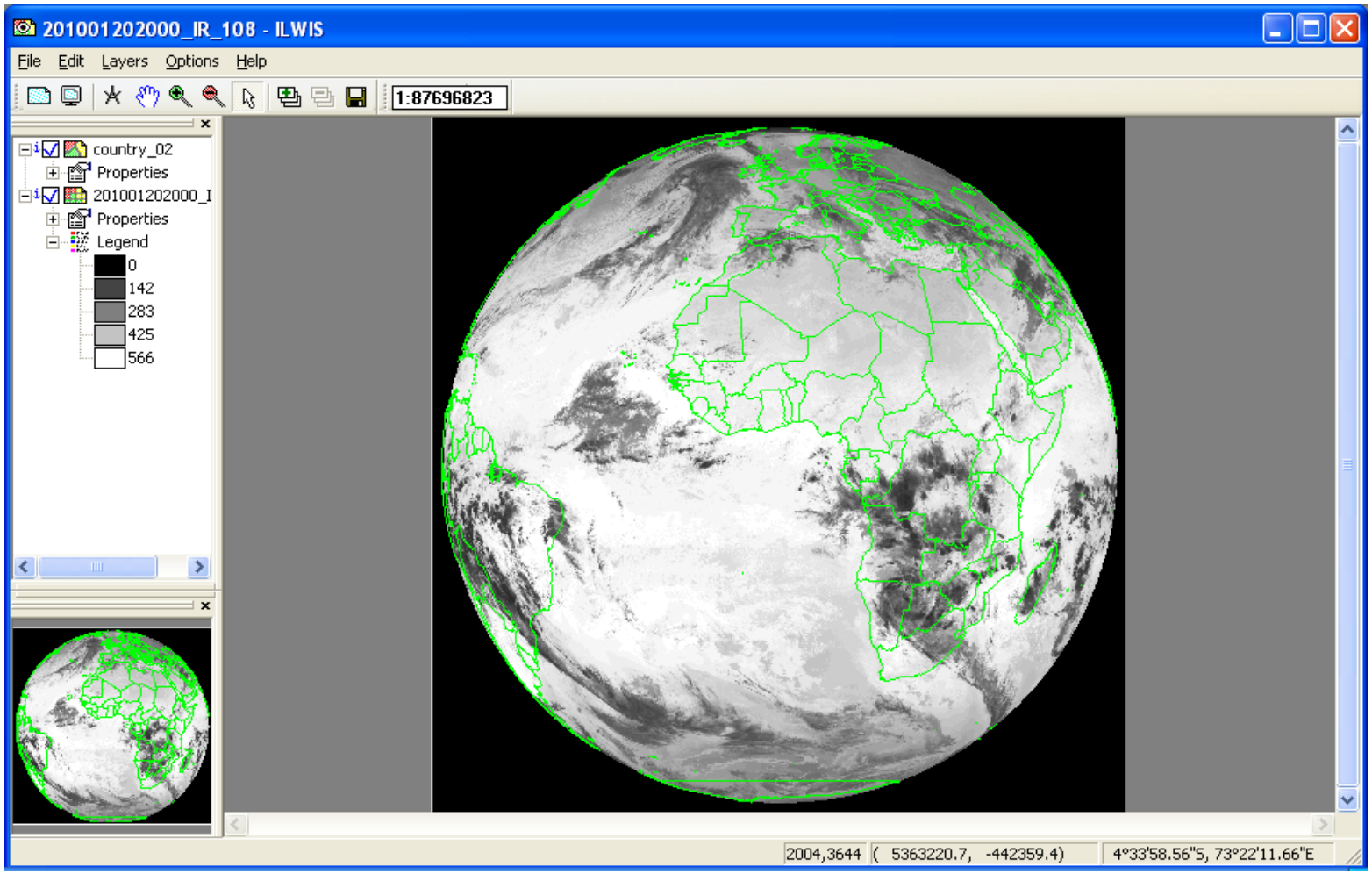
ILWIS – resample command



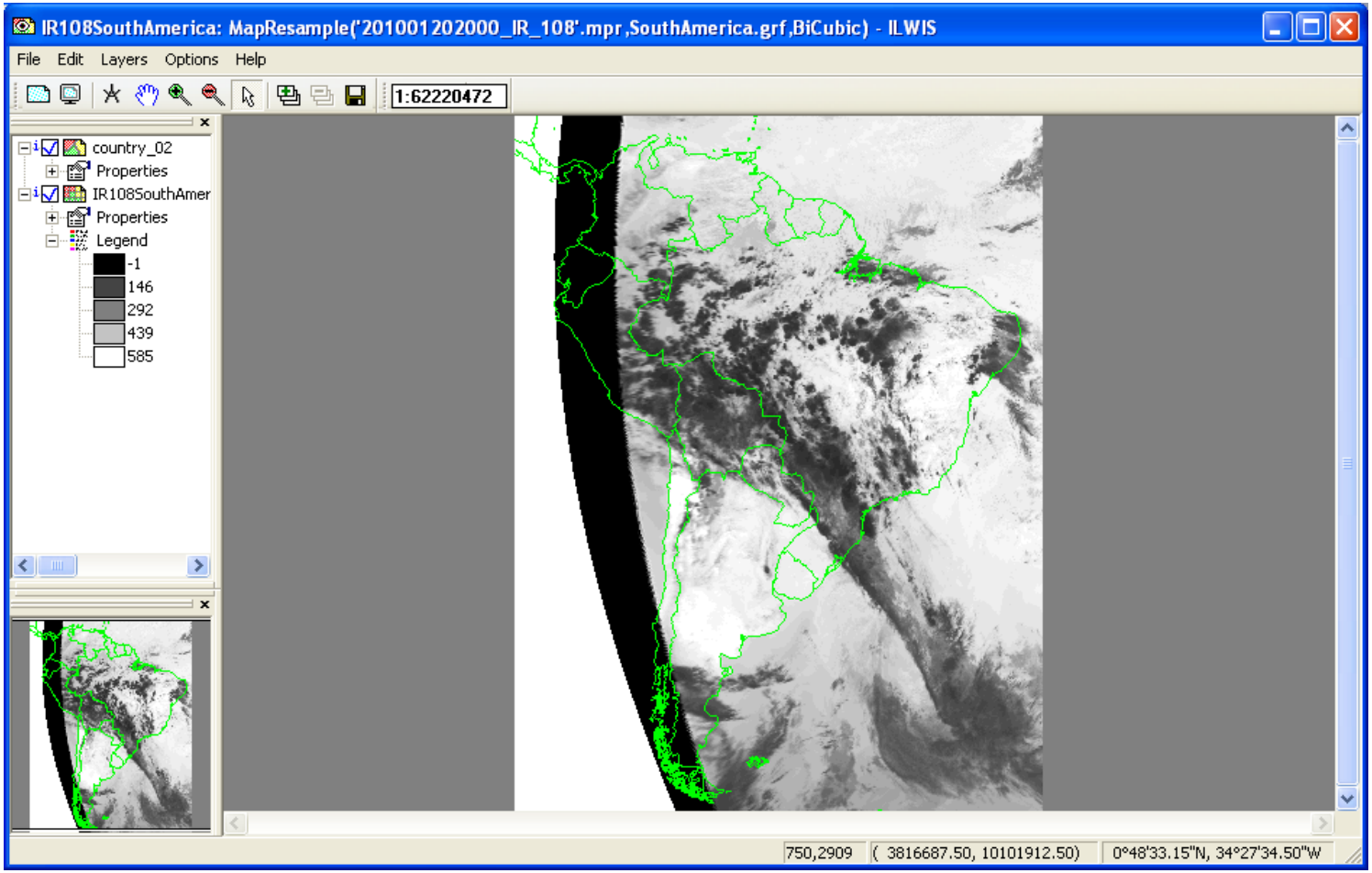
ILWIS – resample command



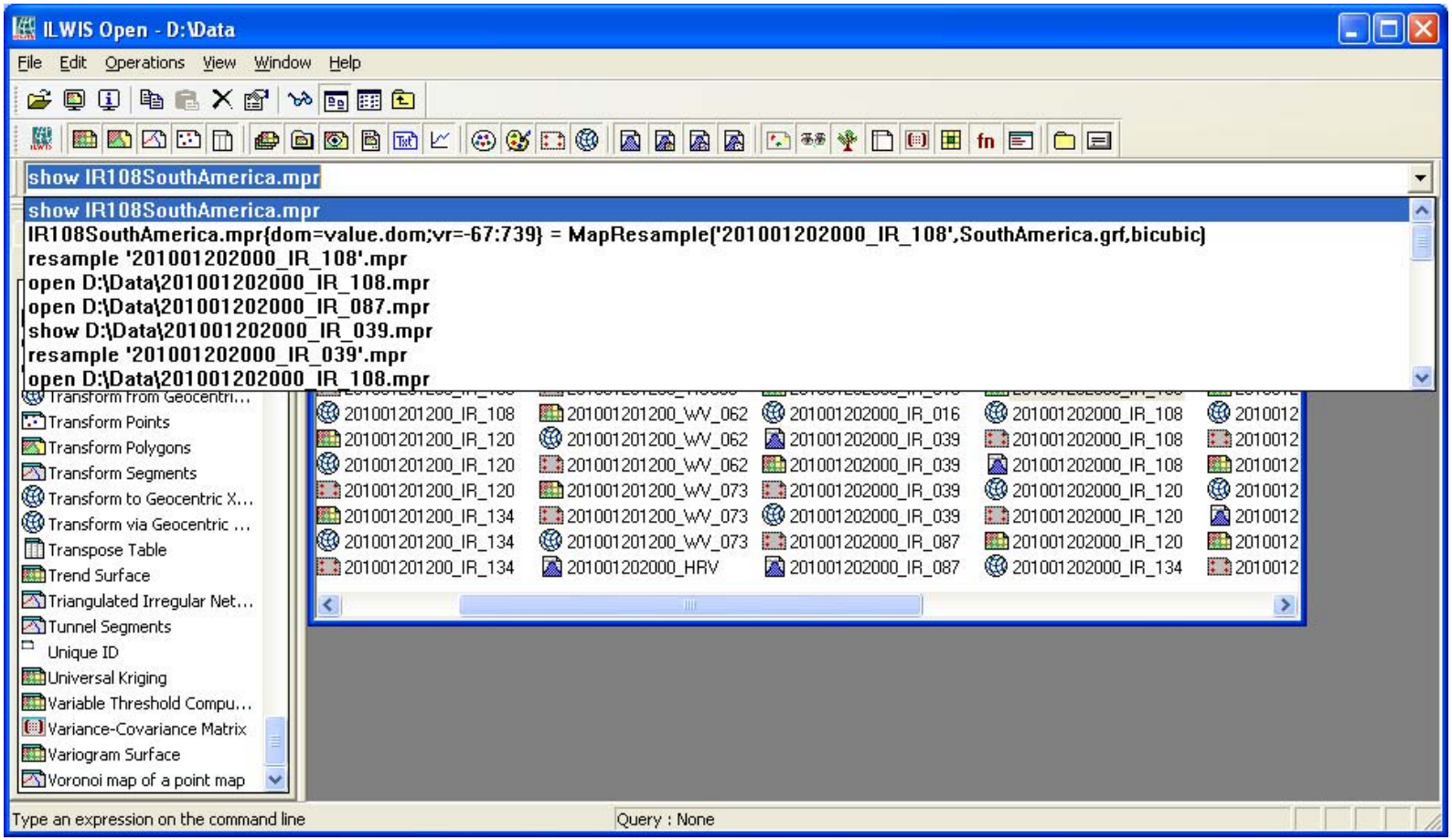
MapWindow - Original MSG IR108 image



MapWindow - Resampled IR108 image



ILWIS – command-line



ILWIS - commands

```
IR108SouthAmerica.mpr =
MapResample
(
    '201001202000_IR_108',
    SouthAmerica.grf,
    bicubic
)
```

ILWIS – commands / map calculus

- `mapC = mapA + mapB`
- `mapC = mapA * mapB – mapA / mapD`
- `mapC = exp(mapA)*cos(mapB)`
- `ndvi = (NIR-VIS)/(NIR+VIS)`

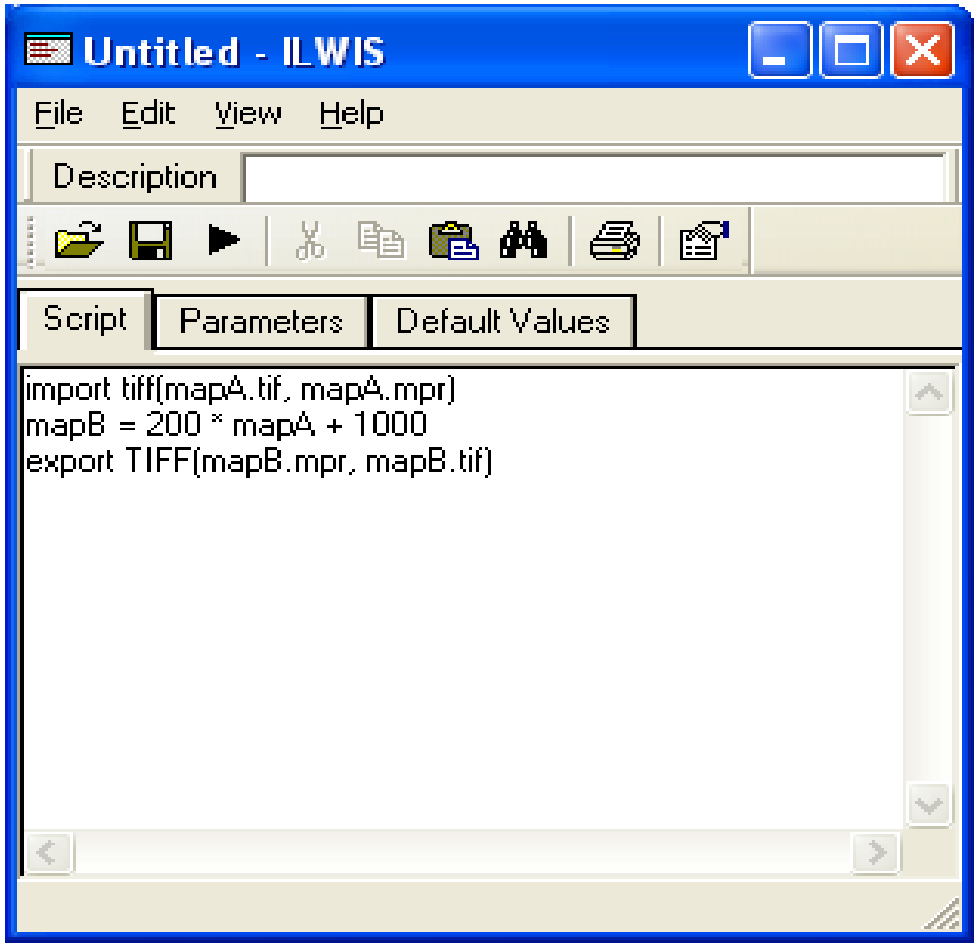
Scripts

- Script = a collection of commands that are executed in order
- All non-interactive ILWIS commands can be scripted

Scripts - Example

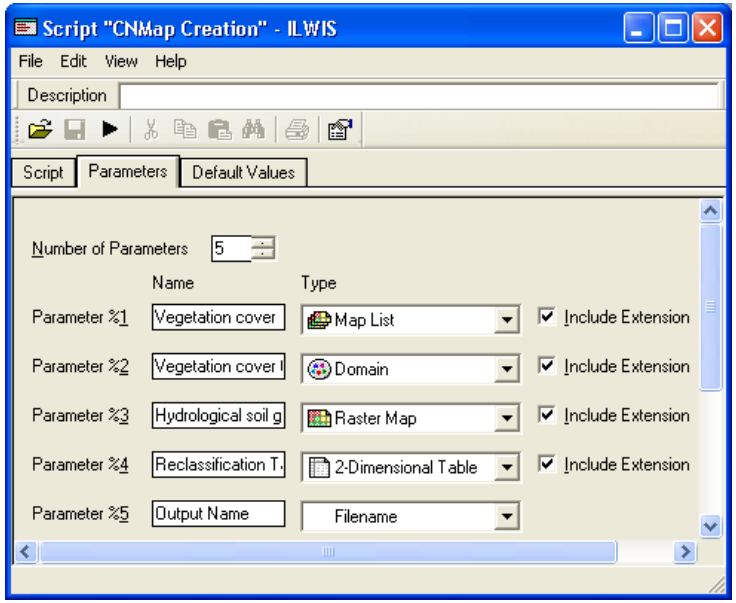
```
import tiff(mapA.tif, mapA.mpr)
mapB = 200 * mapA + 1000
export TIFF(mapB.mpr, mapB.tif)
```

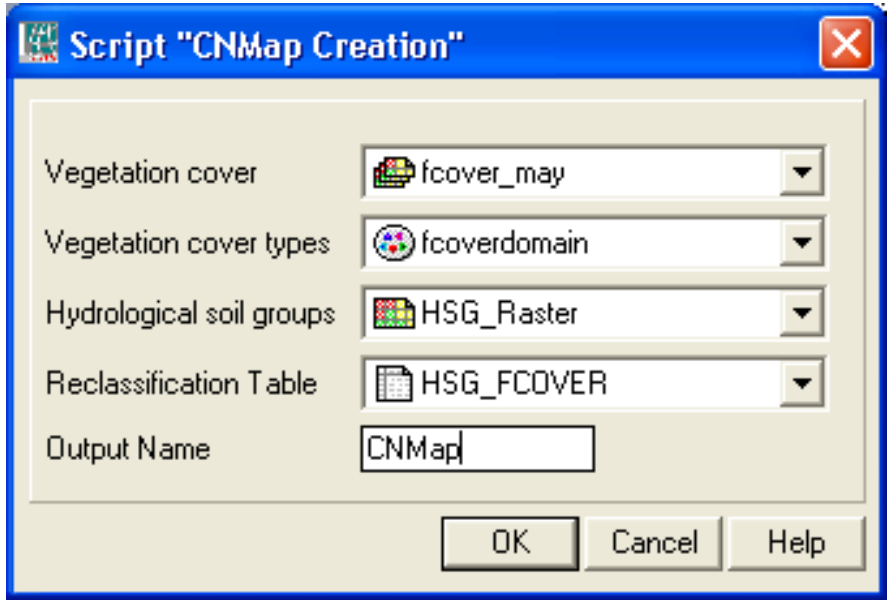
Script editor



Script editor

- Specify parameters ==> automatic form





Scripts - Benefit

- Scripts combine ILWIS algorithms, models and commands to:
  - Create new models/algorithms
  - Automate tasks
  - Connect different tools together

Executing ILWIS commands from other programs

- ILWIS commands can be executed from MS-DOS
- Syntax:

  `ILWIS.exe –C <command>`
- Example:

  `ILWIS.exe –C mapC = mapA + mapB`

Executing ILWIS commands from other programs

- ILWIS commands can be called from other programs:
  - MS-DOS Command-Prompt
  - MS-DOS batch (`.bat`) files
  - Excel
  - Visual Basic
  - ArcGis
  - Java/C#/C++/Python
  - Any program that can execute MS-DOS commands

Executing ILWIS commands from MS-DOS .bat files

- MS-DOS batch files = text files with extension `.bat`
- Each line must be a valid MS-DOS command
- The commands are executed in order

```
D:
cd \geonetcast_workshop\data
del *
```

GEONETCast Toolbox

- The Geonetcast Toolbox combines:
  - ILWIS scripts
  - MS-DOS batch files
  - Other programs, e.g.:
    - `7z.exe`
    - `gdal_translate.exe, etc`
- All scripts and batch files are located at `Extensions\Geonetcast-Toolbox`

GEONETCast Toolbox - menu

config.xml - Notepad

File Edit Format View Help

```
<GeonetCast>
        <Version id="1.0"/>
        <Path value="Extensions\Geonetcast-Toolbox" inifile="geonetcast.ini" />
        <Level1 value="GEONETCast Product Navigator" >
                <Product value="GEONETCast Product Navigator" script="GNC_productnavigator\start_GNC_PN.bat" format=
        </Level1>
        <Level1 value="GEONETCast Data Manager" >
                <Product value="GEONETCast Data Manager" script="" format="" type="DataManager"  folderid=""/>
        </Level1>
        <Level1 value="MSG-HRIT" >
                <Product value="MSG Data Retriever" script="" format="" type="MSGDataRetriever"  folderid=""/>
        </Level1>
        <Level1 value="Calculate MSG angles" >
                <Product value="Calculate solar and satellite azimuth angle maps for MSG Field of View" script="tool
                <Product value="Calculate solar and satellite zenith angle maps for MSG Field of View" script="toolb
        </Level1>
        <Level1 value="Geostationary-LRIT">
                <Product value="Fengyun 2E High" script="toolbox_startscript\GEOSTATIONARY\LRIT_Fenyung2ehigh.isl" f
                <Product value="Fengyun 2E Low" script="toolbox_startscript\GEOSTATIONARY\LRIT_Fenyung2elow.isl" for
                <Product value="GOES EAST" script="toolbox_startscript\GEOSTATIONARY\LRIT_GOES_EAST.isl" format="yyy
                <Product value="GOES WEST" script="toolbox_startscript\GEOSTATIONARY\LRIT_GOES_WEST.isl.isl" format=
                <Product value="MET7" script="toolbox_startscript\GEOSTATIONARY\LRIT_MET7.isl" format="yyyymmddhhmm"
                <Product value="MSG" script="toolbox_startscript\GEOSTATIONARY\LRIT_MSG.isl" format="yyyymmddhhmm" t
                <Product value="MTSAT 1R" script="toolbox_startscript\GEOSTATIONARY\LRIT_MTSAT_1R.isl" format="yyyym
                <Product value="TIR Composite" script="toolbox_startscript\GEOSTATIONARY\LRIT_TIR_Composite.isl" for
        </Level1>
                <Level1 value="Meteorological Product Extraction Facility (MPEF)">
                <Product value="MPEF AMV" script="toolbox_startscript\MPEF\MPEF_AMV.isl" format="yyyymmddhhmm" type=
                <Product value="MPEF CLAI" script="toolbox_startscript\MPEF\MPEF_CLAI.isl" format="yyyymmddhhmm" typ
                <Product value="MPEF CLM" script="toolbox_startscript\MPEF\MPEF_CLM.isl" format="yyyymmddhhmm" type=
                <Product value="MPEF CTH" script="toolbox_startscript\MPEF\MPEF_CTH.isl" format="yyyymmddhhmm" type=
                <Product value="MPEF FIRA" script="toolbox_startscript\MPEF\MPEF_FIRA.isl" format="yyyymmddhhmm" typ
                <Product value="MPEF GII" script="toolbox_startscript\MPEF\MPEF_GII.isl" format="yyyymmddhhmm" type=
                <Product value="MPEF MPEG" script="toolbox_startscript\MPEF\MPEF_MPEG.isl" format="yyyymmddhhmm" typ
                <Product value="MPEF CSR" script="toolbox_startscript\MPEF\MPEF_CSR.isl" format="yyyymmddhhmm" type=
                <Product value="MPEF TH" script="toolbox_startscript\MPEF\MPEF_TH.isl" format="yyyymmddhhmm" type="y
```

GEONETCast Toolbox – ongoing developments

- Change / extend:
  - Toolbox batch files
  - Toolbox scripts
  - Toolbox menu
  - Keep checking for updates

GEONETCast: Multi temporal data handling

- Batch "*looping*" routines:
- Start:
- Data import

multi_lst_start.bat - Notepad

File Edit Format View Help

```
for %%j in (*LSASAF_MSG_LST_SAme*) do bzip2-104-x86-win32.exe -d %%j

for %%j in (*LSASAF_MSG_LST_SAme*) do multiSame_lstimport1.bat %%j
```

multiSame_lstimport1.bat - Notepad

File Edit Format View Help

```
@echo off
echo rem: LST South America in degree Celcius
echo rem: sample file name = S-LSA_-HDF5_LSASAF_MSG_LST_SAme_201005200000


set longfilename=%1
set shortfilename1=%longfilename:~32,12%


"C:\ilwis371_gnc\Extensions\Geonetcast-Toolbox\GDAL\bin\gdal_translate.exe" -of ilwis
hdf5:"S-LSA_-HDF5_LSASAF_MSG_LST_SAme_%shortfilename1%"://lst same_%shortfilename1%


"c:\ilwis371_gnc\ilwis.exe" -C setgrf same_%shortfilename1%.mpr lsa_same


"c:\ilwis371_gnc\ilwis.exe" -C lst_same%shortfilename1%.mpr:=iff(same_%shortfilename1% gt
-7000,same_%shortfilename1%/100,?)


del S-LSA_-HDF5_LSASAF_MSG_LST_SAme_%shortfilename1%
del same_%shortfilename1%.aux.xml
del same_%shortfilename1%.mp*
del same_%shortfilename1%.csy
```