DisAgg Version 2.0

Spatial Disaggregation of Zonal Data
for ArcGIS®

Spatial analyses in the fields of urban and regional planning, transport planning, environment, climate or geology often require high resolution socio-economic data. Such analyses work with raster data to calculate indicators such as exposure to air pollutants or to noise.

In many cases available socio-economic data do not have the necessary spatial resolution. Usually, data on population, employment or housing are available only for larger areas such as provinces, districts, municipalities or other statistical entities, i.e. units that might be too coarse to be used in such spatial models.

This is where DisAgg extension for ArcGIS® might be instrumental. Its main function is to spatially disaggregate zonal data to raster level. Unlike other approaches which distribute zonal data equally to raster cells, assuming same density in all parts of a zone, DisAgg takes account of actual land use schemes, assuming that areas of different density within a zone correspond to different land-use categories. Data are then disaggregated by complex Monte-Carlo simulations.
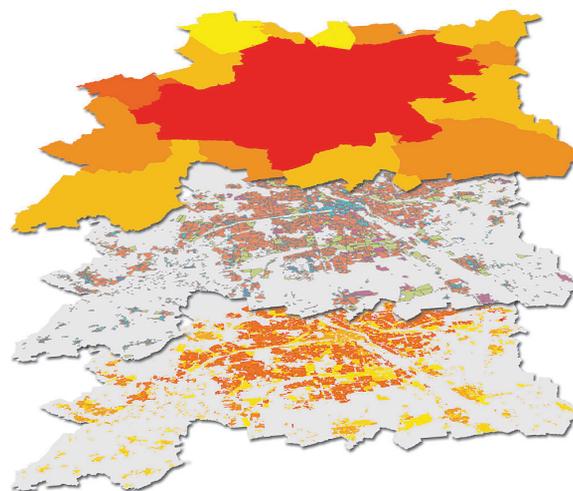
Munich region: city population + land use —> raster population

Required input information

- Zone boundaries (polygons)
- Land use classes (polygons)
- Zonal data (population, households, employment etc.)

Generated output (disaggregated zonal data)

- Raster layer
- Regular point layer
- Polygon layer (optional)

Key features

- User-defined raster resolution
- Selection of spatial subsets
- Disaggregating any zonal data
- Assignment global/local weights
- Save/load parameter settings
- NEW: preview and log function (quality control)
- NEW: automatic stats reports
- NEW: Batch processing
- NEW: full integration into ArcGIS®: GUI, model builder, scripts, command line
- Accessible via ArcMap & ArcCatalog
- NEW: runs as separate process to boost performance
- Multilingual GUI: English, Arabic, German
- Accepted formats: ArcSDE, personal/file geodatabase, shapefile, ArcInfo coverage

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Developed in cooperation with:

RRG
Spatial Planning and Geoinformation

S&W Spiekermann and Wegener
Urban and Regional Research

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Menu Bar

Fields of application

DisAgg can be best applied as an powerful interface linking raster data with small-scale socio-economic data. DisAgg can be integrated within ArcGIS® Model Builder and its scripting capability to build complex spatial models. Applications may include, but are not limited to:

- Environmental applications
- Risk assessment
- Urban/regional planning
- Transport planning
- Market area research
- Business and marketing
- Fire rescue and ambulance

References

The DisAgg algorithms have been successfully applied in a number of case studies. Examples of application areas in Germany are, the eastern part of the Ruhr Area, the urban regions of Hamburg, Hanover, Munster, Kassel, Stuttgart, Karlsruhe and Munich. Internationally DisAgg was applied in Helsinki (Finland), Inverness (Scotland), Brussels (Belgium), Vicenza and Naples (Italy), Bilbao (Spain) and the State of Kuwait.

System Requirements

- ArcGIS® 9.3.1 / ArcGIS® 10
- Windows XP® SP 2 / (SP3 for ArcGIS® 10) / Windows Vista® / Windows 7
- .Net® Framework 3.5
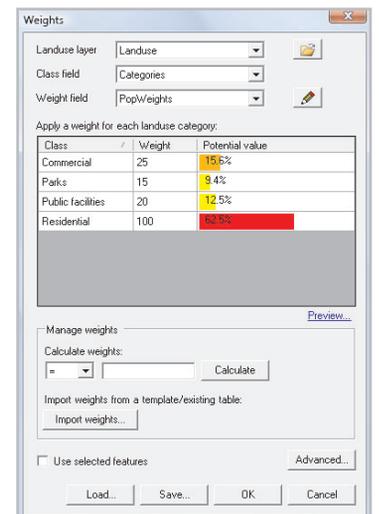
Run Interface

Weights Interface
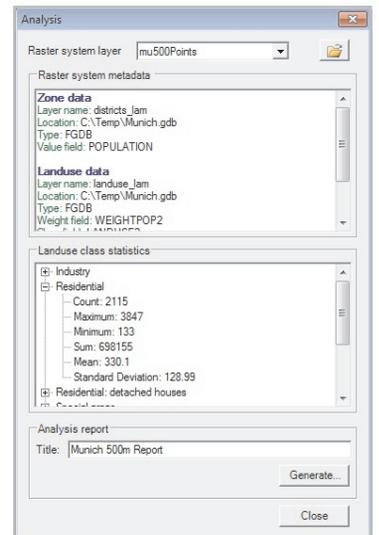
Analysis Interface

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