CRWR-Vector v.1.1

An ArcView Extension for Analysis of Vector Data

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Scripts modified by : Francisco Olivera

Date : April 13, 1999

Extension file name : VECTOR11.AVX

Instructions file name : VECTOR11.HTM

The CRWR Vector extension adds a pull-down menu in the menu list of the View documents.

Menu: CRWR-Vector

PROJECT

Input themes:

   Legend bar: One (or more) active feature theme(s)

Output : One (or more) projected feature theme(s)

Methodology : Projects the feature theme(s) from the source projection to geographic projection, and then from geographic projection to the target projection. If the view units are decimal degrees, the source projection is taken as geographic. Note: The number of projection systems supported by ArcView Project is less than that supported by Arc/Info.

FISHNET

Input themes: None

Output : Polygon theme (fishnet)

Methodology : Creates a polygon theme of rectangles with the shape of a fishnet. The user is prompt for the size of the fishnet, and for the number of rows and columns.

THEISSEN POLYGONS

Input themes:

>   **Legend bar:** An active point theme

Output : Polygon theme (Theissen polygons)

Methodology : Builds Theissen polygons from a point theme. A boundary polygon can be used from another theme or one can be generated from the convex hull of the points.

CLIP BY GRAPHIC

Input themes:

>   **Legend bar:** An active feature theme (if more than one is active, the script takes the first theme)

>   **View:** One selected graphic (of the polygon type)

Output : Feature theme

Methodology : Clips out the part of the feature theme that falls within the selected graphic. Attributes are transferred, but areas, perimeters and lengths are not updated.

POLYGONS TO POLYLINES

Input themes:

>   **Legend bar:** A polygon theme

Output : Polyline theme

Methodology : Converts selected polygons to polylines and creates a new shapefile. If no features are selected all polygons are processed.

POLY TO POLY PROPERTY TRANSFER

Input themes:

>   **Dialog box:** A target polygon theme

>   **Dialog box:** A source polygon theme

Output : Modified target-polygon-theme attribute table with a new field.

Methodology : Adds a new field in the attribute table of the target polygon theme, and populates it with area-weighted average or most frequent values of a property defined in a source theme.

UPDATE FEATURE GEOMETRY

Input themes:

    Legend bar: One (or more) active polygon or polyline theme(s)

Output : Updated attribute table of the active polygon or polyline theme(s).

Methodology : Adds or updates area and perimeter fields in the attribute table of active polygon theme(s), and adds or updates length field in the attribute table of active polyline theme(s).

ADD XY TO TABLE

Input themes:

    Legend bar: One active point or polygon theme (if more than one is active, the script takes the first theme).

Output : Two new fields in the attribute table of the active theme.

Methodology : Calculates the XY coordinates of the selected points of the point theme, or the centroid of the selected polygons of the polygon theme, and stores theme in two new fields of the attribute table.

ADD RECORD NUMBER TO TABLE

Input themes:

    Legend bar: One (or more) active feature theme(s)

Output : New field in the attribute table of the feature theme.

Methodology : Adds a field to the attribute table of the feature theme and populates it with the record number.

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how to create Thiessen polygons in ArcView

How to Generate Thiessen Polygons from Points

CHGIS provides county level points but not county level polygons for all of China. If you would like to assocate county level data to polygons for Thematic Mapping, described above, you can use the County Points together with an encircling polygon to generate Thiessen Polygons. Thiessen Polygons essentially enclose the space around each point using an algorithm to calculate the location of a boundary mid-way between the available points. The resulting Thiessen polygons encompass all the space that lies less than half-way between the Thiessen polygon center point and any other Thiessen polygon center point. To do this, we have included an ArcView extension on this CD-ROM with the permission of the author, **Prof. Francisco Olivera**, Texas A & M University.

- first add the **vector11.avx** file to your ArcView Extensions folder as described on the CRWR Extension page.

- open the extension by selecting CRWR-Vector from the FILE | EXTENSIONS menu

- open a polygon layer and select a single polygon that you wish to be the outer limit of your Thiessen Polygons. In this example we choose the area of Tibet using the SELECT TOOL:
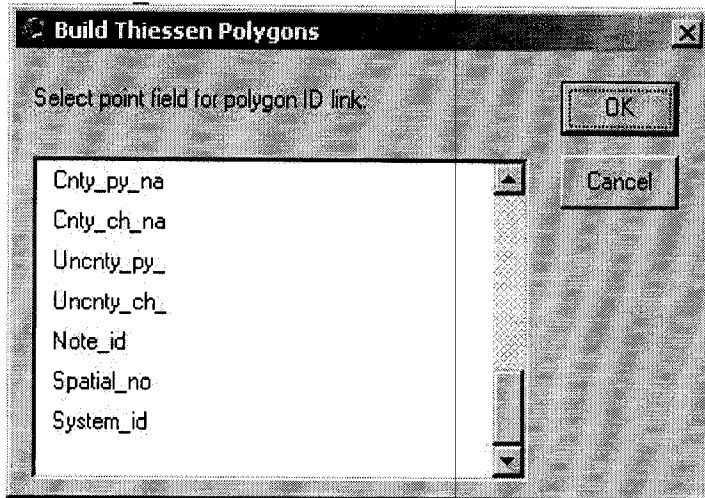

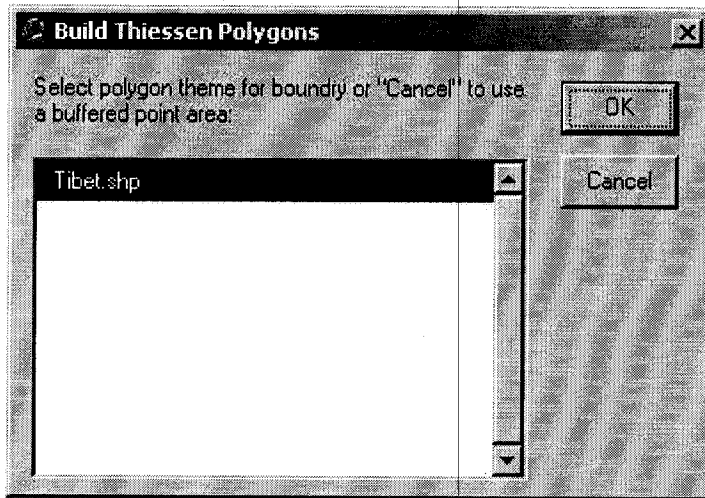- the area of the selected polygon should be colored yellow:
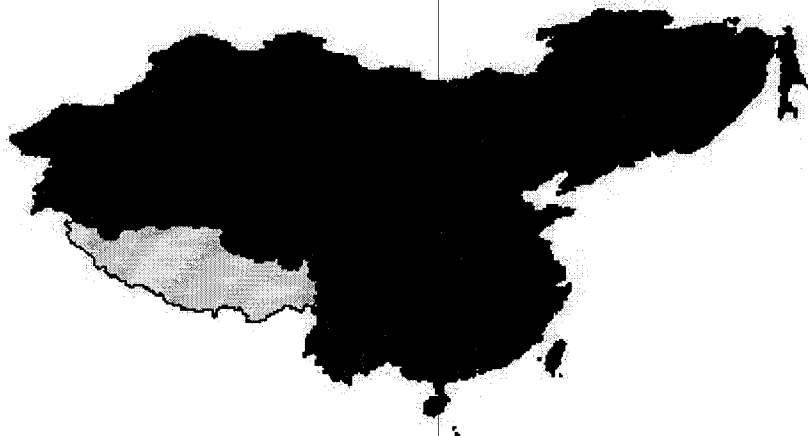
- select CONVERT TO SHAPEFILE from the THEME menu

- choose a folder and filename to keep your outer polygon file

- when prompted to add new theme to view choose YES

- DELETE the original theme from the view

- zoom in on the new TIBET theme

- add the COUNTY POINTS theme (CCAP_PTS)

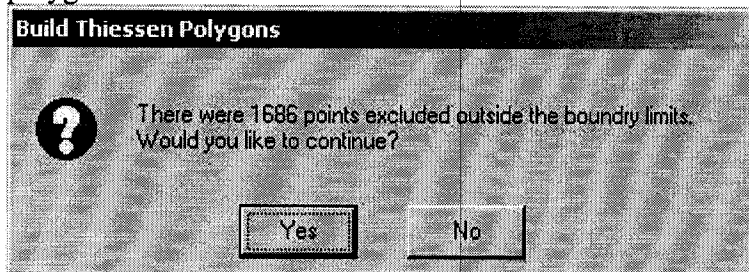- choose THIESSEN POLYGONS from the CRWR-Vector Menu

- you will be prompted to select the FIELD in the points file to use as the link to the Polygons. Select SYSTEM_ID:

Build Thiessen Polygons

Select point field for polygon ID link:

OK

Cancel

Cnty_py_na
Cnty_ch_na
Uncnty_py_
Uncnty_ch_
Note_id
Spatial_no
System_id

- you will be prompted to select the polygon theme to use as the outer boundary. Select your Tibet THEME from the list:

Build Thiessen Polygons

Select polygon theme for boundry or "Cancel" to use a buffered point area:

OK

Cancel

Tibet.shp

- you will be prompted to continue by discarding all the point features that lie OUTSIDE the Tibet polygon. hit YES to continue:

Build Thiessen Polygons

There were 1686 points excluded outside the boundry limits. Would you like to continue?

Yes

No

- you will be prompted to choose a new name for the output Thiessen polygons file. hit OKAY

- the new Thiessen polygon file should display on your View.

- now you can join your data to the Thiessen polygons and create thematic maps:
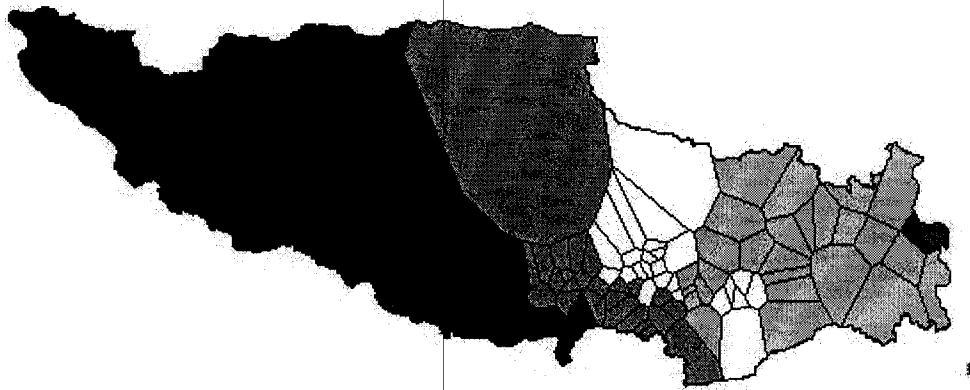
Linked below are some examples of Thiessen Polygons for Shanxi Province, using the CHGIS 1820 County Seats as the central points. After the Thiessen Polygons were created, statistics for Population and Changping Grain Quota were joined to the the counties and thematically mapped.

- Thiessen polygons for Shanxi Counties using prefectures for outer boundaries
- Shanxi Counties 1820 Population raw population for each county
- Shanxi Counties 1820 Population by Area population normalized by area of each county
- Shanxi Counties 1820 Changping Grain Storage Quotas quota figures for each county
- Shanxi Counties 1820 Changping Quotas by Area quota figures normalized by area of each county