



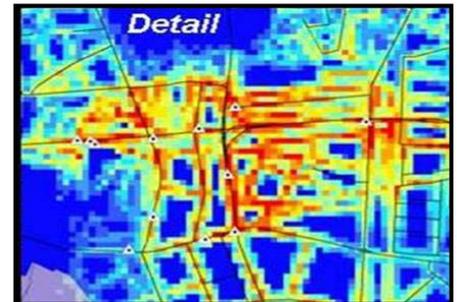
US Army Corps
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Engineer Research and
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Threat Mapper

Description and Background

Capturing and displaying spatial data are now common activities. Likewise, capturing and displaying reoccurring or significant activities, such as attacks or violent crimes, are also common. Analyzing these activities and understanding where they occur spatially is crucial for preventing future events or apprehending the perpetrators. Frequently, patterns exist that may help explain these events. Unfortunately, analysts may be unable to recognize these patterns for many reasons, such as the complexity of the data or the activity. The need for tools to help analysts recognize patterns has created an explosion in forecasting or prediction analysis software. Threat Mapper is one such tool, developed jointly by US Strategic Command (STRATCOM) and the Engineer Research and Development Center's Topographic Engineering Center (TEC).

Threat Mapper uses an empirical modeling process to generate credible estimates for location of future threat events. That is, given data of past threat activity and relevant feature information, Threat Mapper forecasts future threat areas by recognizing the spatial patterns established by the precedent of earlier events. Threat Mapper indicates the likelihood of threat activity by measuring the spatial similarity between past observations and surrounding features. The resulting product is a threat map.



Threat Mapper can assess a variety of enemy or criminal activity. Additionally, the behavior of interest is not limited to the enemy. For example, activities by civilians, refugees, government or businesses are all candidates for analysis. Threat Mapper (i.e. spatial similarity) is helping develop more informed intelligence estimates (IE). The IE is the best assessment of the situation, including enemy disposition and activity, useful for intelligence, surveillance and reconnaissance (ISR), tactical, logistical or stability operations.

Capabilities

Threat Mapper allows the user wide latitude in selecting the features important to analysis while providing a user-friendly graphic interface that is easily learned by users with some geographic information system (GIS) experience. Statistics generated by the package help the user interpret the value of the features selected and the validity of the results. Because of its flexibility, Threat Mapper can model virtually any event that can be represented geographically. Users can reclassify the output to emphasize important aspects of the analysis. Threat Mapper is written in VB.net, making it easily customizable by either TEC or the skilled user.

Status

Threat Mapper is an extension to ESRI's ArcGIS software. It is available free of charge from TEC. Threat Mapper will also be available in the next software release of the Digital Topographic Support System

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