URBAN TACTICAL PLANNER

U.S. ARMY CORPS OF ENGINEERS BUILDING STRONG®

Description and Background

The US Army Geospatial Center (AGC) has investigated the urban mapping problem and has developed an expeditious process to analyze, map and display layers of urban area information. This information, terrain and cultural, is presented and easily manipulated with the use of ArcGIS software -- a user-friendly, flexible, geospatial tool. The digital data formats in ArcGIS are very flexible and can be adjusted to meet specific customer needs. The product is capable of exploiting numerous data inputs such as DTED, commercial imagery, NGA topographic products, and intelligence sources. AGC can produce this data set in about six weeks depending on the size of the urban area. The capability of meeting rapid response requirements is addressed by providing only mission essential data for valid DA requirements. Therefore, it is not inclusive nor strictly an intelligence data set in the traditional sense; it is a terrain analysis data set. The data set can be produced to operate at the unclassified level by using the appropriate data sources for that level (such as imagery, maps, and ground photos).

Key Capabilities

The urban environment is displayed as an aggregate of features that affect urban area operations, such as building form and function (broken out as polygons of like-building types), building height, vertical obstructions, terrain features, bridges, lines of communication, landmarks, etc. These features are shown as themes or layers that can be displayed, on-or-off, as decided by the user. Attribute tables that provide additional information, e.g., building data, vertical obstruction data, road and bridge data, are linked to these layers. In addition, with the click of a button, hot-links provide the user with more information: ground photos of the terrain and building types, and architectural drawings or site plans (if available). These themes or layers are displayed on top of a map or image base at the user's discretion. Fly-throughs can be viewed using TerraExplorer software. The user can apply this data to their specific needs. For example, a soldier could determine the key features within their operational area, such as a mosque or other cultural sites, and the area extent of “residential” built-up terrain or an Army aviator can display only those features that affect navigation (landmarks), route choice, and landing. Planners for ground operations can display urban areas that will likely be occupied by noncombatants, show the approach routes to town, and also display key terrain on their area of operation, such as a ridge surrounding the town or the tallest buildings in the town. Each urban area is presented at varying degrees of detail. A user can show an overview of the area (showing relief and major routes for example), zoom into an urban view or larger scale, and finally down to a one square kilometer view of a selected site or sites within the urban area. The product can be tailored to specific customer requirements. A library of UTP's can be accessed using TerraExplorer on PKI, SIPRNET and JWICS. PKI site is https://cac.agc.army.mil/ .

Product Development

UTP data is available for download in shapefile format, some urban areas are available in GeoPDF and KML/KMZ formats. The newest versions of UTP datasets are built with Arc Geodatabases utilizing NGA Feature Attribute Coding Catalogue structure for portability. Future development is moving towards the Ground Warfighter Geospatial Data Model (GGDM). The GGDM is a superset of the data model schema used by the National Geospatial-Intelligence Agency (NGA) Topographic Data Store (TDS) schema which in turn is based on the NFDD or National System for Geospatial-Intelligence Feature Data Dictionary. Users will also be able access all UTP datasets via a common geodatabase access point (e.g. AGE-GeoGlobe and/or on ArcGIS Server). Users can also use UTP via GeoServices (currently on SIPRnet only network). GeoServices allows a user to ingest the data with numerous options, such as web mapping services (WMS) as well as REST and SOAP or simply viewing the worldwide UTP data with a web browser.

Current Status

The product has undergone various enhancements and is continuing to evolve. Requirements production started in FY98. AGC employs in-house and contract capabilities to generate this data set and product. A reprioritization or any new requirements can be submitted to the HQDA DCS G-2. Product specifications have been compiled. As of FY12, 360+ data sets have been completed and posted on AGC homepages. Currently, the level of information over an urban area is tied to its priority. TerraExplorer models have been created and posted with UTP data over them in order to enhance the ease of use and visualization of the data. Data can be accessed with a free viewer and streamed over a network to the user.

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