

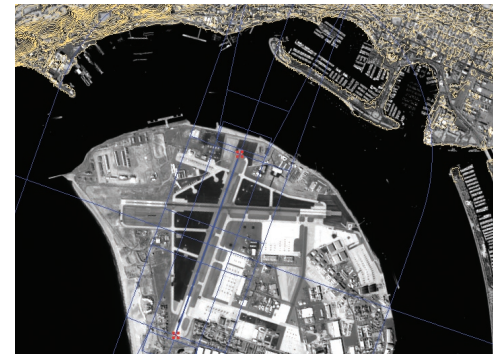
Safe aviation requires detailed, accurate information about obstructions that protrude above the 3D surfaces around the world's airports. Analysts use ClearFlite to document features such as hills, buildings, hangars, trees, towers and antennae that could cause problems for aircraft. The data is used to generate the complex airspace surface models defined by organizations such as the FAA, and is delivered to air traffic controllers, who use the electronic data and maps to maintain safe approaches and take-offs. The obstruction surfaces of more than 800 airports around the world have been collected accurately using ClearFlite.

ClearFlite, winner of the 2006 Jane's ATC Maastricht Award, recognizing excellence in air traffic safety, is a digital mapping tool developed for the aviation industry to help operators identify and collect vertical obstructions in and around airfields. Historically, airfield vertical obstructions were identified using conventional land surveying methods, and documented on paper maps and charts. Although these procedures are accurate, they are also costly and time consuming. Moreover, traditional methods cannot distinguish between a vertical object and a vertical obstruction.

ClearFlite, available in SOCET SET®, uses stereo images along with other SOCET SET functionality to assist operators in defining Obstruction Identification Surfaces (OIS) more efficiently, with a high degree of accuracy. ClearFlite computes the data and generates an OIS model, saving time and allowing analysts to operate in real-time stereo mode to identify obstructions. SOCET SET, BAE Systems digital photogrammetry software application, enables customers worldwide to make digital terrain models, image maps, visualizations, GIS databases, and more from a wide range of airborne and satellite imagery.

BAE Systems developed ClearFlite in response to the National Geospatial-Intelligence Agency's (NGA) Ron Brown Airfield Initiative (RBAI), which was created after a fatal plane crash on April 3, 1996 in Dubrovnik, Croatia, which killed U.S. Secretary of Commerce Ronald Brown and 33 other passengers and crew. The deadly accident was attributed to poor weather conditions, a lack of knowledge of the airfield environment and an off-course approach.

The goal of the RBAI was to produce the safest possible Terminal Procedures (TERPS) for some of the world's busiest airports. TERPS includes detailed information



BENEFITS

Saves fuel costs and time

Gives operators the ability to identify and verify obstructions at their desktops before and/or after field verification

Identifies zones and surfaces for different governing agencies (FAA, NGA, ICAO)

Imports multiple image formats

Performs traditional feature and vector collection

Uses existing GIS and geospatial data

Generates FAA, ANA, RBAI and PANS-OPS surface models automatically

Imports LIDAR data, and intersects LIDAR data with the OIS

Provides 3D stereo view of terrain, features and obstructions

Continuously displays elevation and height data with cursor tracking system

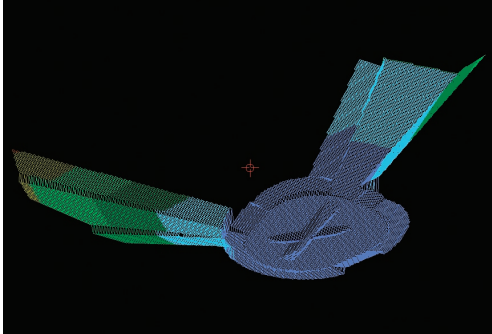
KEY CAPABILITIES

about airfields, runways and vertical obstructions. The RBAI documents all military and civilian airfields throughout the world where U.S. Department of Defense passenger aircraft are anticipated to land three or more times per year. This includes over 3000 airfields worldwide.

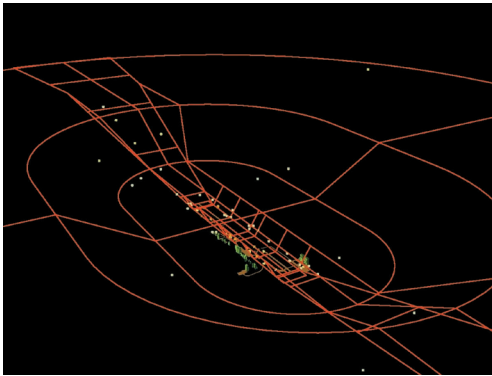
Although ClearFlite was designed to meet the requirements specified in the original RBAI document, it was redesigned in 2002 under the guidance of the National Oceanic Atmospheric Administration (NOAA) Aeronautical Survey Program to incorporate additional surface models, Part 77 and ANA, which support the NGA requirements for the RBAI as well as FAR-77 and ANA survey requirements from the FAA (document 405). These organizations provide 1:12,000 charts that show obstructions, aircraft movement and apron areas, prominent airport buildings, runways, taxiways and other features in the vicinity of the airfield. In addition, ClearFlite can be used with other airfield obstruction specifications by modifying information as described in the data files.

ClearFlite functionality is available bundled with the necessary photogrammetric tools, or as an add-on module in SOCET

SET. It takes advantage of existing SOCET SET capabilities, such as feature extraction and feature export, to facilitate an efficient airfield obstruction extraction process. Additional capabilities include: exporting data to third-party geographic information system (GIS) and 3D visualization applications; generating models automatically for single and multiple runways; and viewing 3D stereo images of runways and airfields.



Three-dimensional mesh of the OIS for airport runways generated using ClearFlite. The different colors represent different elevation ranges.



Virtual polygons or "surfaces," are defined in 3D space sloping up from the ends of each runway to the end of the surfaces. These surfaces around an airport must be kept clear of obstacles.

Uses stereo imagery to identify and map critical runway points

Reads data from numerous airborne and satellite image sources, and takes measurements in a geometrically accurate manner

Creates 3D vector and elevation model of the OIS of a runway

Defines the obstruction area within seven nautical miles around an airfield

Finds all penetrations and all required non-penetrating objects

Analyzes potential obstructions against the OIS

Creates a vertical profile of a runway/airfield approach

Exports data to all major third-party GIS and visualization applications

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