STK ANALYSIS WORKBENCH

Analysis Workbench streamlines, organizes, and extends the fundamental computational capabilities of STK.

It contains these application-wide tools:

Time Tool. Creates components that produce instances or intervals of time.

Vector Geometry Tool. Creates components that define location, pointing, and orientation in 3D space.

Calculation Tool. Creates components that produce various time-dependent quantities.

Spatial Analysis Tool. Creates calculations and conditions that depend on locations in 3D space which are, in turn, provided by user-definable volume grids.

Creating components

- Select from a large number of installed components or create custom components that meet your needs.

- Create custom computational flows by using the results produced by some components as inputs for other components.

Access components

A set of components is automatically created for all access objects.

Time Tool components

Time Tool components deal with time related quantities and include the following types.

Time Instant. Defines components that produce a single moment in time.

Interval. Defines components that produce a single interval of time.

Interval List. Defines components that produce an ordered list of time intervals.

Collection of Interval Lists. Defines components that produce a collection of related interval lists.

Time Array. Defines components that
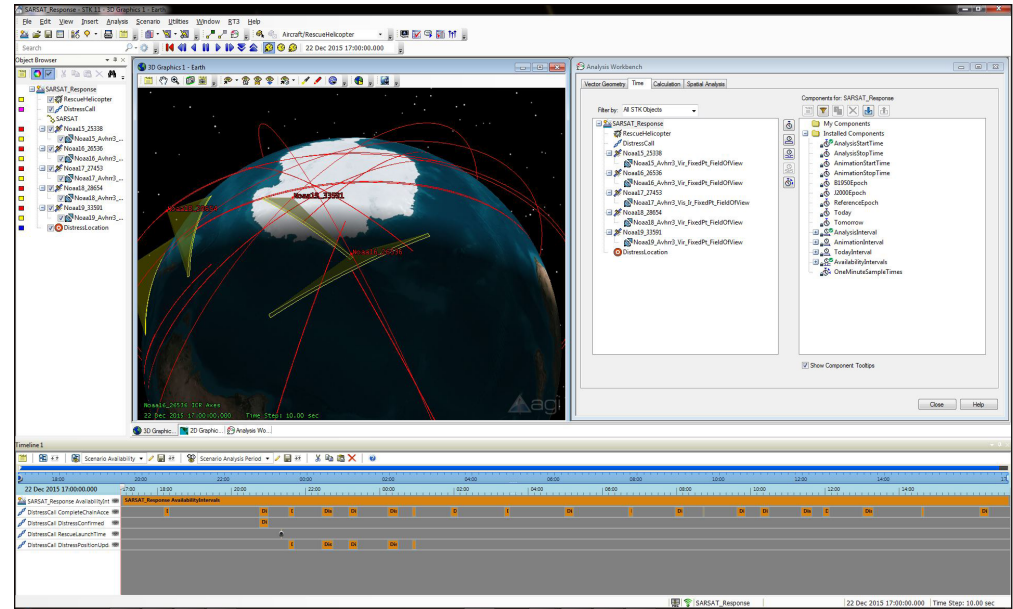
produce intervals of time within which there are ordered arrays of times. The times may or may not be evenly spaced.

Vector Geometry Tool (VGT) components

VGT components deal with time-varying placement and/or orientation in 3D space and include the following types:

Vector. Defines direction in 3D space as well as magnitude.

Axes. Defines orientation and rotational motion of a triad of mutually orthogonal unit vectors in three-dimensional space.

Points. Defines location and translation motion in three-dimensional space.

Coordinate System. Defines location and translation motion of the origin and orientation and rotational motion of a triad of mutually orthogonal unit vectors in three-dimensional space.

Angle. Defines angular separation between two vectors or planes.

Plane. Defines location and translation motion of the origin and orientation and rotational motion of a two-dimensional plane in three-dimensional space.

Calculation Tool components

Calculation Tool components produce time-varying computational results which

can be transformed and analyzed further, and include the following types.

Scalar. Defines components that produce scalar time-varying calculations.

Condition. Defines a scalar calculation, which is considered to be satisfied when it is positive and not satisfied when it is negative.

Parameter Sets. Defines a set of related scalar calculations. They can be organized into multiple nested parameter sets but each parameter set contains related calculations which typically represent various aspects or parameterizations of one common phenomenon.

Spatial Analysis tool

Includes the following component types:

Spatial Calculation. A calculation that depends on both time and location.

Spatial Condition. A scalar condition that depends on both time and location.

Volume Grid. A collection of enumerated points placed in 3D space, using steps taken in each coordinate and using various coordinate types.

Fully integrated with STK

Report and graphs. Any of the installed or user-created components can be used in reports and graphs.
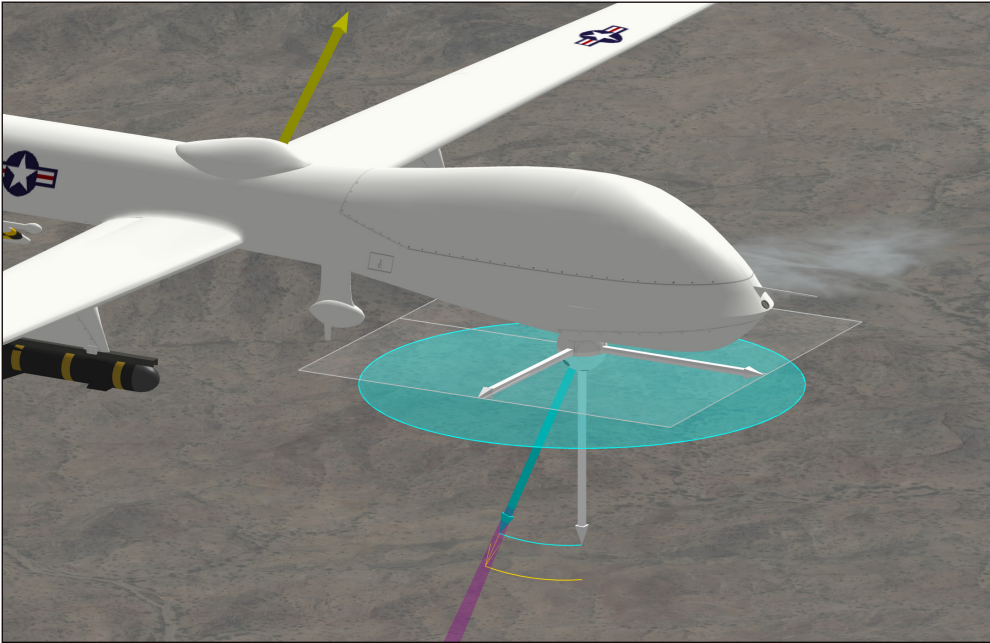
Combining spatial calculations and volume grids in volumetric objects generates report and graph calculations over time and across grid points.

All components from Time and Calculation Tools have on-the-spot, right-click, reporting options that enable you to generate reports and graphs using all of the relevant information from the selected component without first having to create a new style.

Timeline View. Time components can be added to the Timeline View which provides another way to display and operate on time components. They can be added via the Timeline View menus or dragged and dropped into the Timeline View from the Analysis Workbench window.

Create data files. You can create external files of Analysis Workbench components that can be imported into STK.

Visualize 2D and 3D time-dynamic data. Any of the installed or user-created components can be used to visualize 2D and 3D time-dynamic data.

Connect and Object Model. Components can be accessed via the STK Connect interface, the STK Object Model interface, and the STK scripting interface which supports Perl, VB Script and MATLAB.