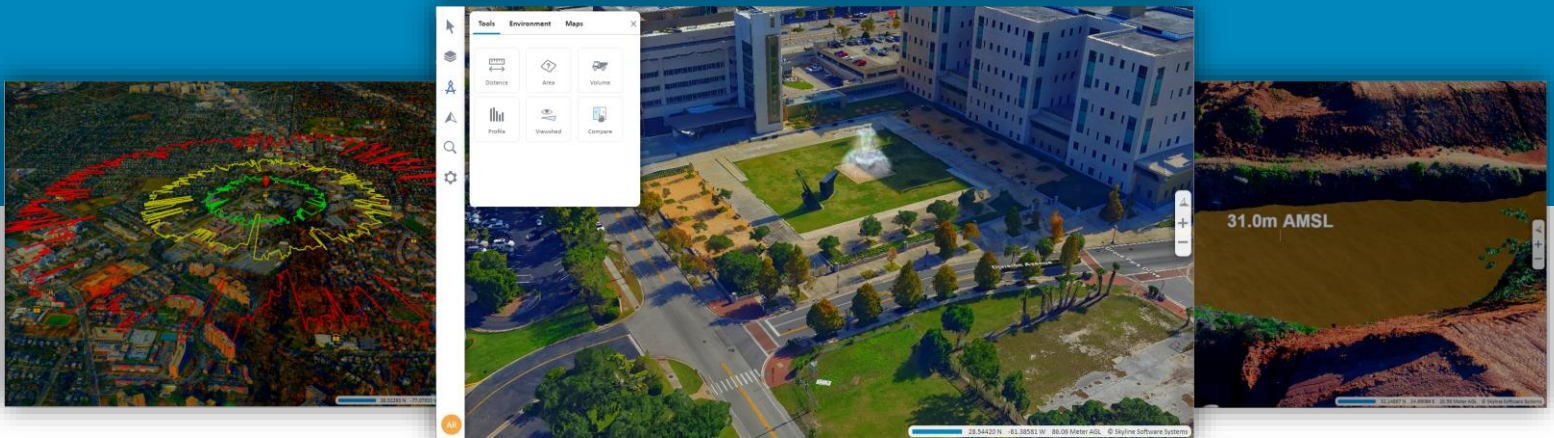


# TerraExplorer Fusion

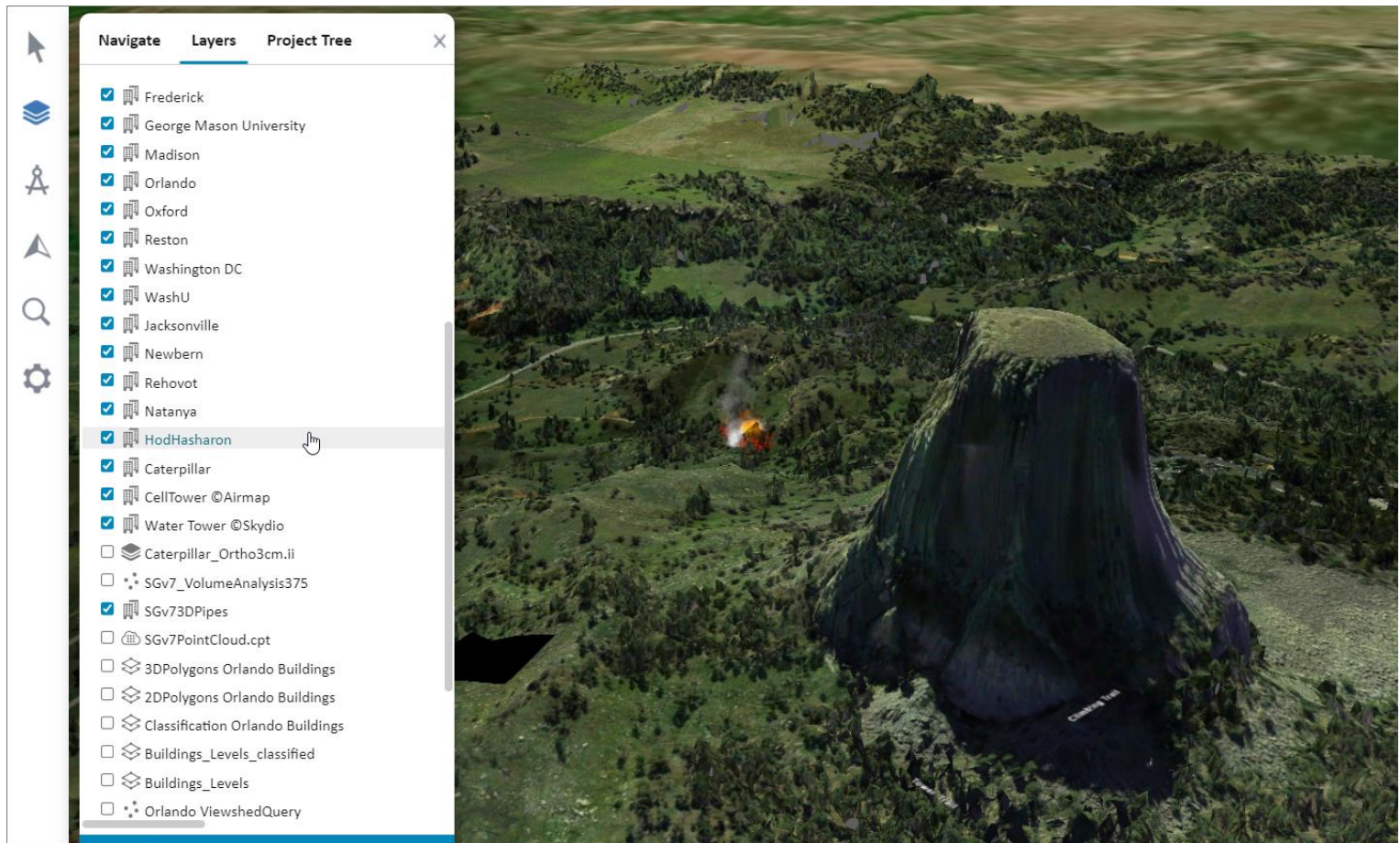
## Release Notes V 8.0



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**TerraExplorer Fusion** is a web-based 3D geospatial viewer that enables you to view and analyze high-resolution, stunningly realistic 3D content right in your web browser with no download or installation required. TerraExplorer Fusion, enables viewing of most online layers and objects published by TerraExplorer Pro, performing measurements and analysis operations, and customizing web applications tailored to any customer needs.

**TerraExplorer Fusion's styling and functionality can easily be customized to match a company's branding and provide the required tools and capabilities.** Using TerraExplorer Fusion (TEF) as a foundation, you can leverage the application framework and functionality, thus reducing the amount of programming required for your customized solution.



## Advantages of TerraExplorer Fusion

The new TerraExplorer Fusion (TEF) 8.0 is based on TerraExplorer Desktop source code converted to Web assembly. This new technology replaces the Cesium Open Source library used previously in TerraExplorer for Web. This conversion technology provides exceptional compatibility, enabling most of the original TerraExplorer Desktop code to run as-is in web browsers with numerous advantages:

- Broad layer and object support – TEF 8.0 supports the vast majority of the layers and objects that the Desktop version does, when published to SkylineGlobe Server.
- Expert-developed engine – The newly developed TerraExplorer Fusion is based on the state-of-the art 3D geospatial engine used by our powerful Desktop viewers. This native Web assembly engine features improved capabilities over the previous Cesium-based engine.
- Improved performance – TerraExplorer Fusion's 3D geospatial engine presents across-the-board performance improvements. These include faster application and content loading times, smoother frame rates, and better memory management, enabling support of complex projects.
- Read the same project file – Both TED and TEF can open the same .fly projects, providing seamless compatibility and interoperability between the two versions.
- Consistent API for code sharing – The overwhelming majority of the API available for TerraExplorer Desktop can be utilized in TEF, ensuring smooth code sharing between external tools and customizations. This makes it easier to leverage existing resources and tailor TerraExplorer Fusion to meet your specific requirements.

## Explore Online Data

TerraExplorer Fusion supports a comprehensive range of online geospatial layers streamed from SkylineGlobe Server and other online services. These include imagery, elevation, 3D mesh, point cloud, and feature layers, along with various types of objects and effects:

- Terrain (SGS MPT / WMS)
- GIS feature (SGS / WFS )
- Imagery (SGS / WMS / WMTS / MapBox)
- Elevation (SGS / WMS / WMTS)
- 3D mesh (3DML / 3D Tiles)
- 3D Models (XPL, DAE, JBL, OBJ)
- Point cloud (SGS CPT)
- KML
- Objects and dynamic objects
- Effects and animations

## Explore Data in Different Coordinate Systems

TerraExplorer Fusion provides a versatile and robust platform for data exploration across various coordinate systems:

- **On-the-Fly Reprojection:** TEF reads all layer types and instantly reprojects them to the project's terrain coordinate system. This allows for seamless integration and accurate visualization of diverse data sources.
- **Planar Coordinate System Support:** TerraExplorer Fusion supports the loading and viewing of both Lat-Long and planar projects, offering versatility in how you explore your 3D World.
- **Grid Shift Files Integration:** The application is designed to automatically read grid shift files (TIFF/GTX/GSB formats) directly from the SkylineGlobe Server repository, making it easy to shift and transform between coordinate systems that have different datums.

## Layer Management

The TEF Project Tree provides quick access to all the project's elements, enabling you to control the appearance of information in the 3D Window. Three tabs are available in the Layers panel so you can easily filter based on the element type you require:

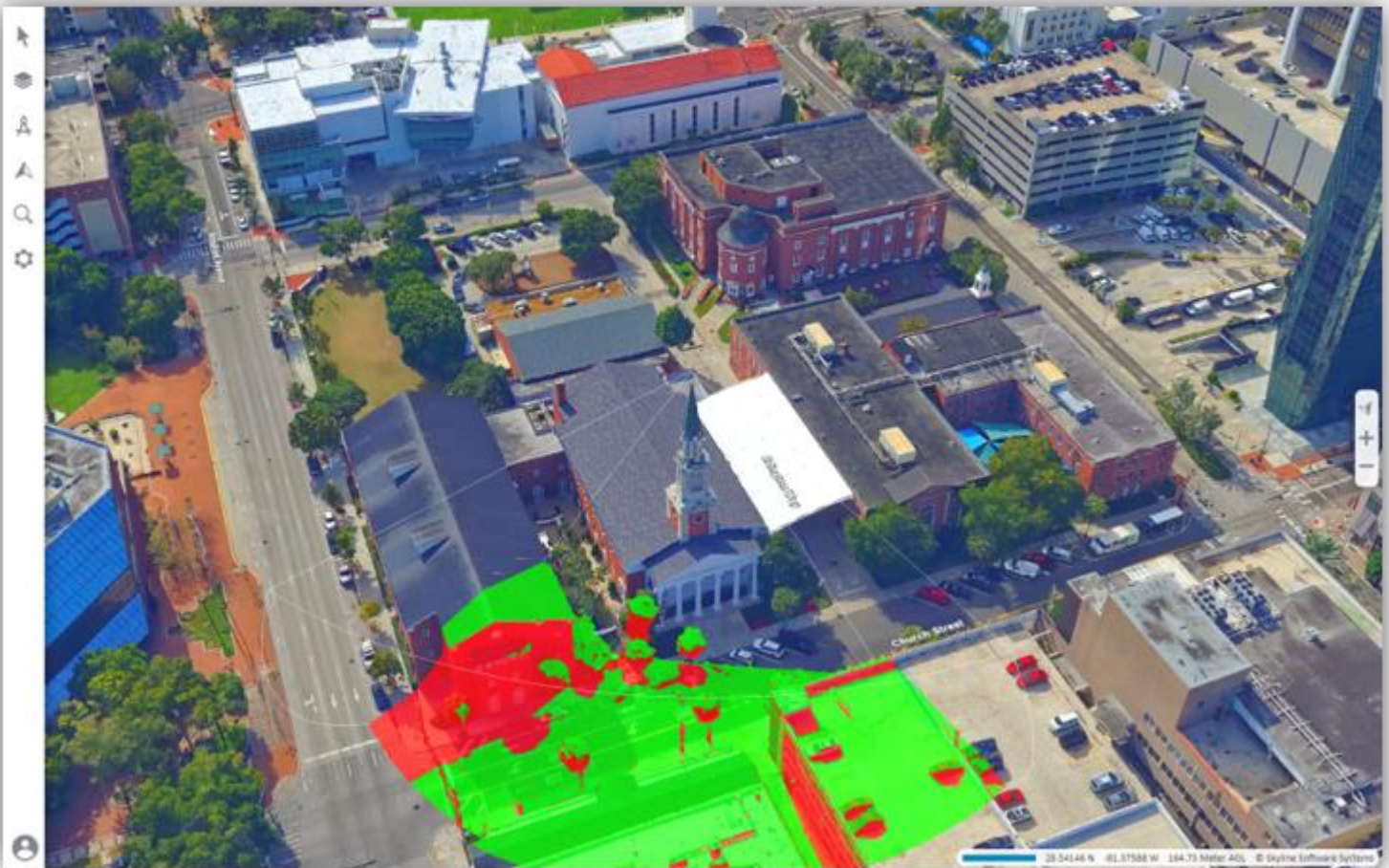
- **Project Tree** – All project elements organized in a tree hierarchy.
- **Navigate** – Flat list of locations and presentations.
- **Layers** – Flat list of layers.

Each tab has a "My Data" section with the data applicable to that tab, which you added to the project, i.e., created locations, measurement objects or loaded layers.

## Measure and Analyze

Zoom in and search the 3D World to gain new perspective. Increase understanding and improve decision making with a set of powerful tools for 3D World measurement and analysis.

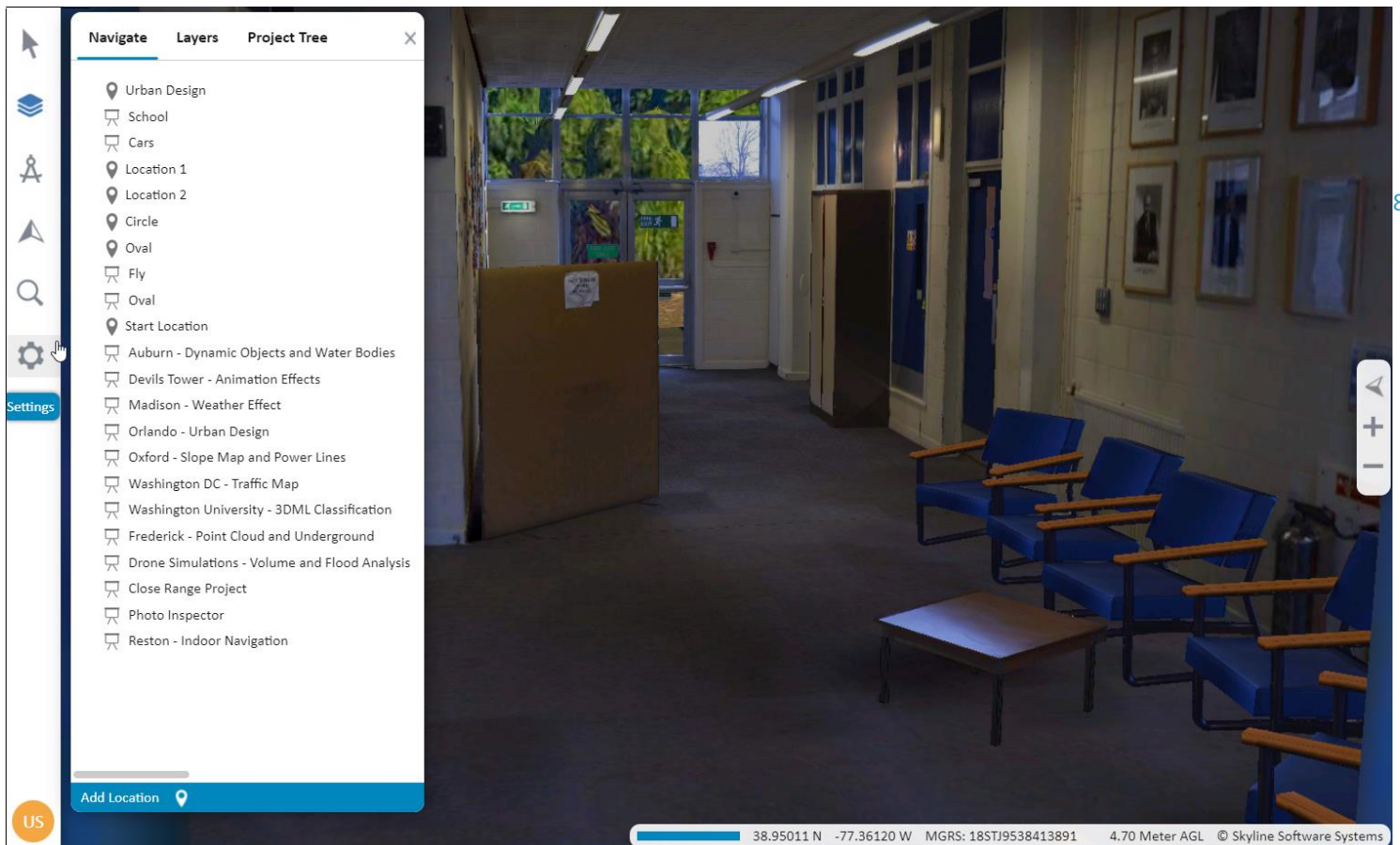
- Distance Measurement
- Area Measurement
- Volume Analysis
- Terrain Profile
- Viewshed Analysis
- Shadow Analysis
- Contour Map
- Slope Map
- Comparison Tool



## Navigation Tools

Range of powerful navigation options that provide enhanced exploration capabilities:

- **3D/2D modes:** Determines the display in the 3D Window: 3D model, flat 2D surface, or 2D model facing North.
- **Underground mode:** For exploring the subsurface of the terrain. You can navigate under the terrain's surface and through buildings. A subsurface grid navigation aid appears when you navigate below the terrain, allowing you to navigate the same way as above ground.
- **Collision detection:** For indoor navigation. Any collision with a solid structure while navigating within the 3D model, stops movement.
- **Slide mode:** Mouse controls movement of the camera. When Slide mode is not activated, the mouse controls movement of the terrain.



## Presentation Tool

Dynamically explore the 3D World via presentations included in projects published from TerraExplorer Desktop to SGS. These presentations merge a custom flight path with distinct displays of the project. Once a presentation is selected from the Project Tree, an intuitive control panel is displayed that includes all the controls necessary to play a presentation as well as a small pane that displays a description of the current step.



## Query Tool

The Information Query tool provides you with data about any point or object in the 3D World. For a point on the terrain, precise location and elevation information is provided, while for a feature object, the tool also displays the object's perimeter and area, and attribute information if available.



## Feature Query and Attribute Table

TEF supports powerful tools for analyzing and filtering your feature layer data. You can select features based on their spatial relationship with a user-drawn polygon, line or point. Or alternatively, use the Attribute Table to select features based on their attribute values.

## Search

Easily navigate to any location with TerraExplorer Fusion's robust search database and functionality. The tool supports a variety of input formats including addresses, places, and coordinates. As you type, our intelligent tool provides suggestions to assist you in finding exactly what you're seeking. It also recognizes variations in address formats across different countries and languages, so you can find your location anywhere on the globe.

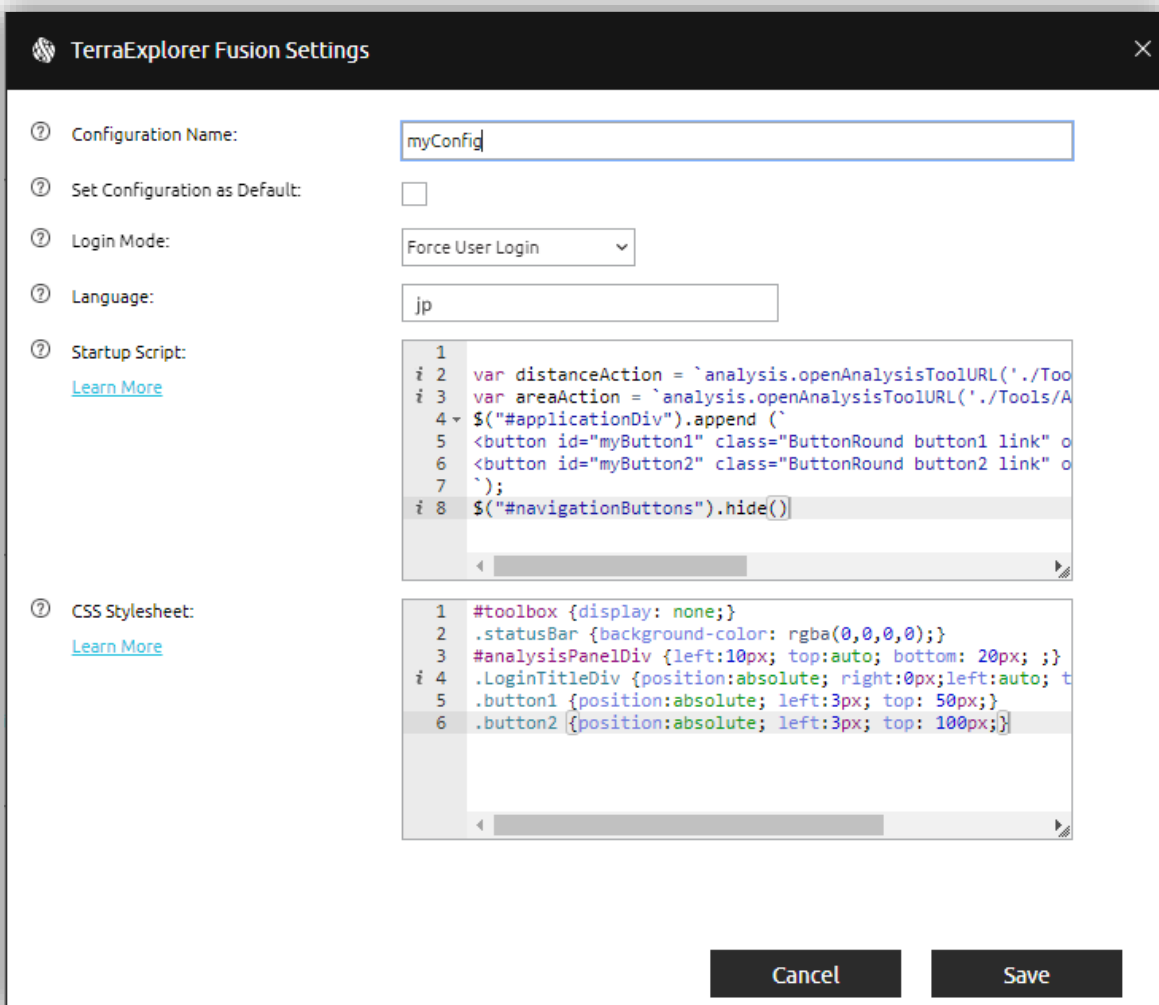
## Project Settings

TerraExplorer Fusion's robust project settings include the following:

- **Render Quality:** Choose from three settings - 'Best', 'High', or 'Normal' - to adjust the visual output according to your needs and system capabilities.
- **Altitude Method:** Customize how the altitudes for objects and layers are interpreted, with options for 'Above Ground' or 'Absolute Value'.
- **Post Effects:** Enhance the aesthetics of your 3D models and the overall 3D view by adjusting a range of post effects such as depth perception, saturation, brightness, contrast, and more.
- **Shadow Color Selection:** Cast shadows in the color of your choice, adding an extra layer of realism to the 3D environment.

## Configure Your TerraExplorer Fusion

TerraExplorer Fusion offers a powerful configuration feature that allows you to tailor TEF to different user groups. With configurations, you can easily customize various aspects of TEF, including logged in user, style sheet, language, and startup script, all in one place. Each configuration is saved in SkylineGlobe Server under a unique name, which can then be shared with the required group of users, by appending it to the shared TEF URL. TEF configurations are created and managed in the TerraExplorer Fusion Settings section of the SkylineGlobe Server Manager Settings page.

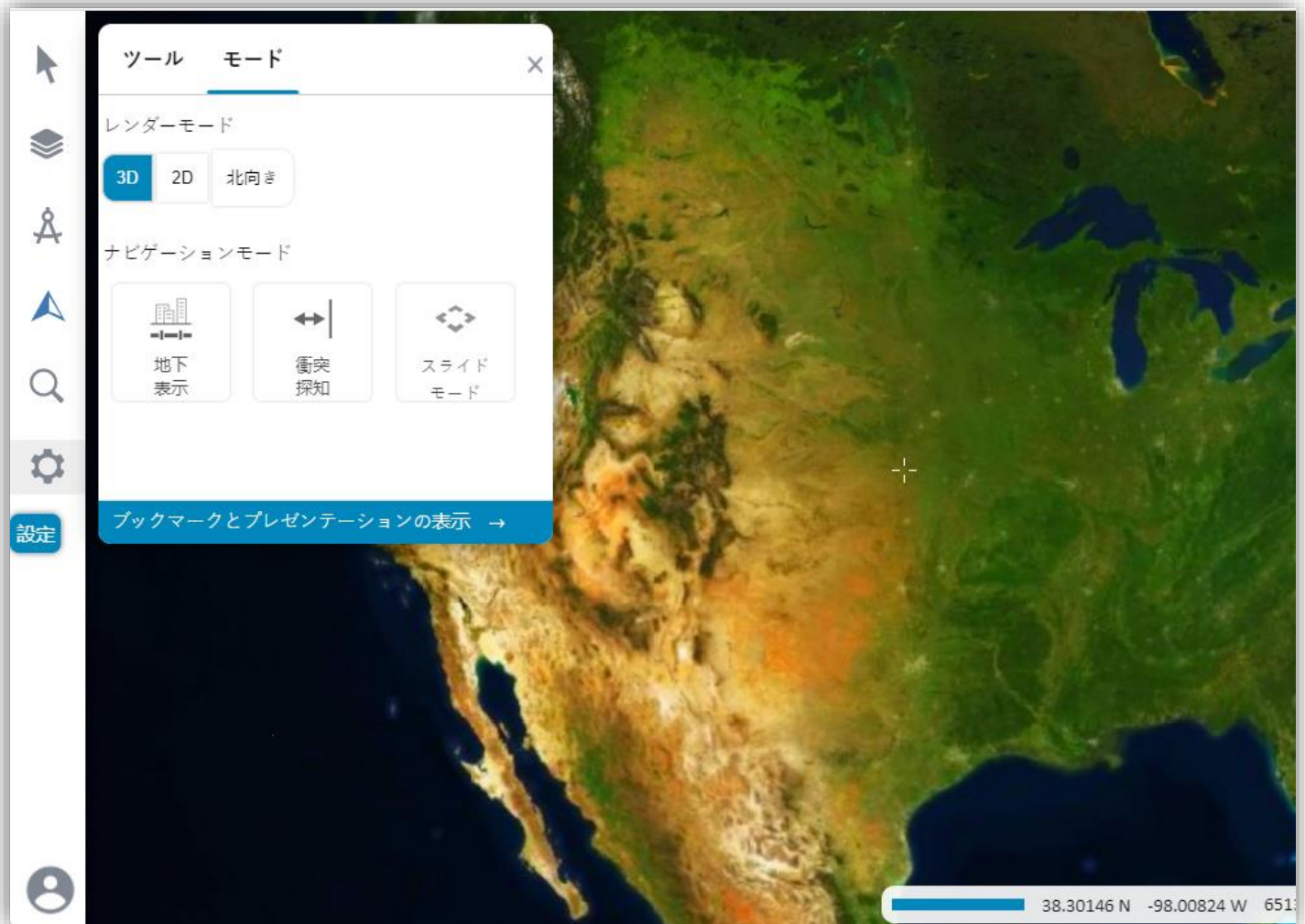


The screenshot shows the 'TerraExplorer Fusion Settings' dialog box. It has a dark header with the title and a close button. The settings are organized into a list on the left and corresponding input fields on the right. The 'Startup Script' and 'CSS Stylesheet' sections include a 'Learn More' link. At the bottom are 'Cancel' and 'Save' buttons.

Setting	Value
Configuration Name:	myConfig
Set Configuration as Default:	<input type="checkbox"/>
Login Mode:	Force User Login
Language:	jp
Startup Script:	<pre>1 2 var distanceAction = `analysis.openAnalysisToolURL('./Too 3 var areaAction = `analysis.openAnalysisToolURL('./Tools/A 4 \$(`#applicationDiv`).append (` 5 &lt;button id="myButton1" class="ButtonRound button1 link" o 6 &lt;button id="myButton2" class="ButtonRound button2 link" o 7 `); 8 \$(`#navigationButtons`).hide()</pre>
CSS Stylesheet:	<pre>1 #toolbox {display: none;} 2 .statusBar {background-color: rgba(0,0,0,0);} 3 #analysisPanelDiv {left:10px; top:auto; bottom: 20px; ;} 4 .LoginTitleDiv {position:absolute; right:0px;left:auto; t 5 .button1 {position:absolute; left:3px; top: 50px;} 6 .button2 {position:absolute; left:3px; top: 100px;}</pre>

## Localization

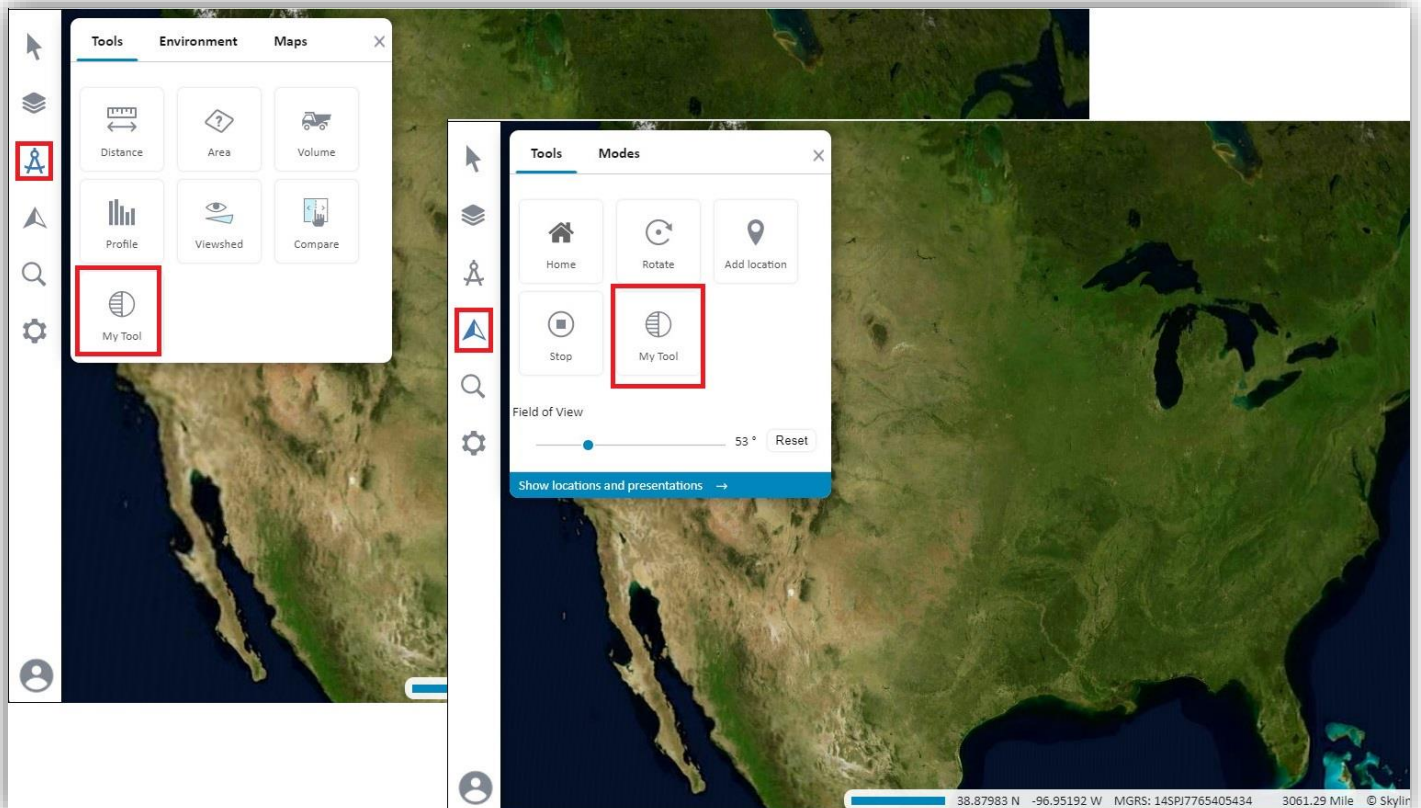
TerraExplorer Fusion offers the flexibility to localize all the text within its side toolbar menu tabs, dialog boxes, and tools. By translating the English strings to your desired language and saving the new string file to the designated directory, you can seamlessly adapt the user interface to your preferred language.



## Add Custom Tools to TEF

TerraExplorer Fusion (TEF) capabilities can be customized and expanded with HTML tools that are added to the Analysis or Navigation tabs on the TEF's side toolbar, and activated, like any other TEF tool. The vast majority of the API available for TerraExplorer Desktop can also be utilized in TerraExplorer Fusion development.

These HTML tools can be created by directly calling SGWorld interfaces, enabling you to use most ISGWorld properties and methods. ISGWorld80 is the main entry point to most TerraExplorer interfaces. Through this interface you can manage your application and 3D content and handle events.



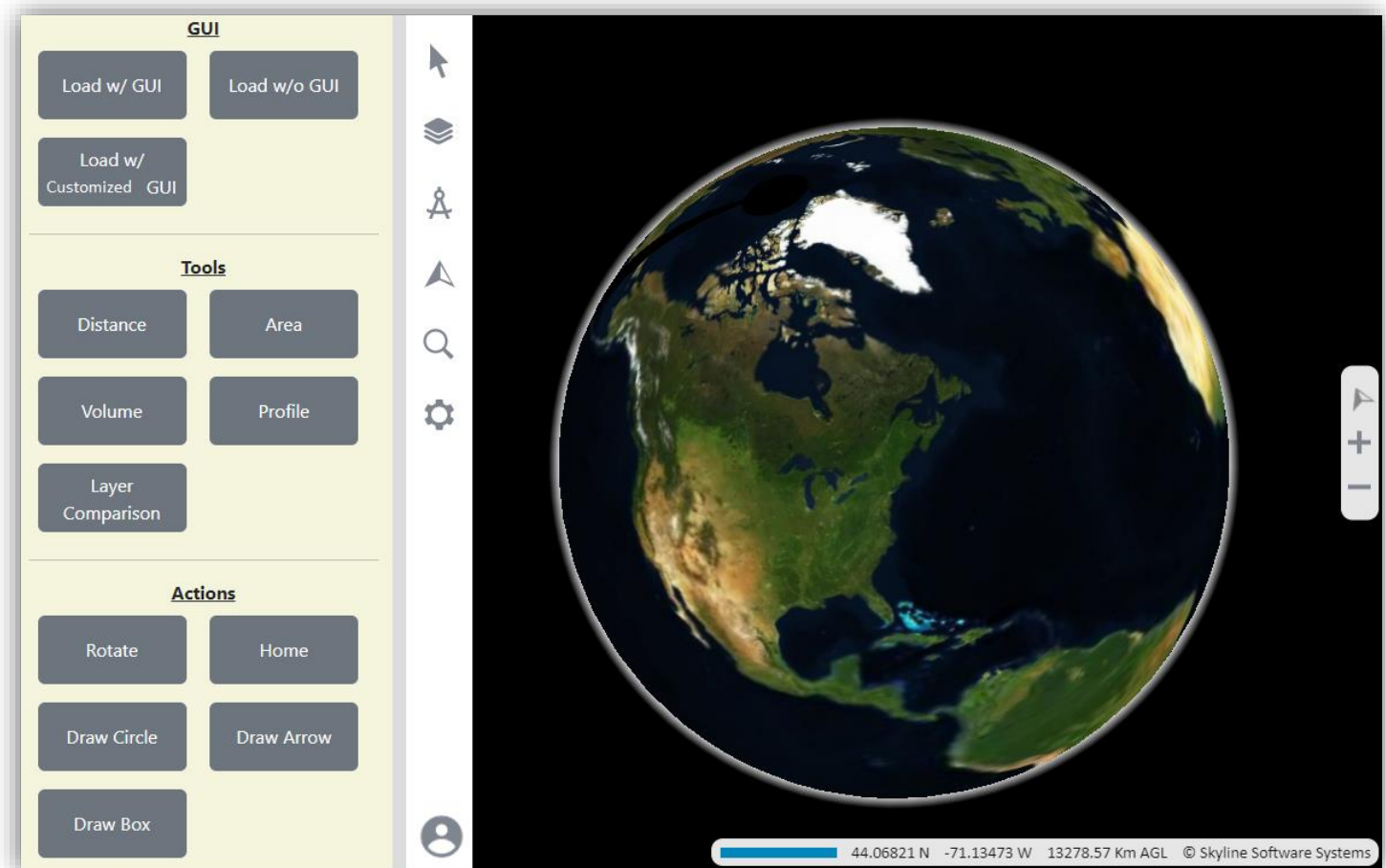
## Color and Style GUI Elements (CSS)

Tailor TerraExplorer Fusion's visual appearance to meet your specific preferences and branding requirements. Using a custom CSS (Cascading Style Sheet) file, you can customize various styling elements to personalize your experience. Easily modify the color scheme, fonts, screen overlay logo, copyright text, default tab, and even the direction (RTL/LTR) of the interface.



## Full GUI Customization

You can create custom TerraExplorer Fusion applications by using iframes to embed the TEF window in your custom HTML. The TerraExplorer and Fusion APIs, can then be used together with any other script to customize your application.



# REQUIREMENTS – TERRAEXPLORER FUSION

Operating System	Windows / Linux / MacOS
System Memory	4 GB RAM (8 GB or more recommended)
Processor	4 cores (8 cores recommended)
Browser	Chrome, Edge, FireFox(*), Safari(*) (* may have limited functionality)

For additional information, check out the [SkylineGlobe Server](#) section and [TerraExplorer Fusion](#) section of our knowledge base.



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