

SERVIR Viz Guide

URL : http://www.iagt.org/servir_viz

About SERVIR Viz

NASA World Wind serves as the core technology of SERVIR Viz. SERVIR Viz is a version of NASA World Wind that provides focused access to key WorldWind functionality identified by the SERVIR project team. While SERVIR Viz is distributed as a stand alone executable, the core WorldWind functionality is available and the user interface has been designed to provide quick access to SERVIR products relevant to the Mesoamerica region in an interactive, 3D globe environment. SERVIR Viz is open source, is compliant with current versions of NASA World Wind, and supports the numerous plug-ins and add-ons available from WorldWind Central. It is anticipated that SERVIR Viz will take advantage of future versions of World Wind.

Intended uses of this application

SERVIR Viz was developed to support the seven countries of Mesoamerica, SERVIR participants, educators, scientists, decision-makers, and the general public by providing access to NASA GEOSS data products and Meso-America centric GIS data products (hosted at CATHALAC) in the NASA World Wind GES (Geographic Exploration System). SERVIR Viz is available for download free of charge to the general public. SERVIR Viz is not intended for commercial use.

Requirements and Installation Instructions

- Windows XP or Windows Vista (see directions below for Vista)
- Minimum monitor resolution recommended: 1024 x 768
- Graphics card compatibility:
http://worldwindcentral.com/wiki/Video_Card_Compatibility
- .NET 2.0 and DirectX must be installed, the installer should prompt you to install these components if they are not already installed.
- This application must be installed and used by a user with administrative permissions on the computer
- For Windows Vista users, “allow the application” and then after installing, right-click the SERVIR Viz shortcut icon, and choose Properties, then Compatibility tab, and then make sure the “Run program as administrator” is checked.

SERVIR Viz Quick Start Guide

SERVIR VIZ Toolbar Icon Explanations



Layer Manager - Turns the Layer Manager on and off in the SERVIR-Viz window. The Layer Manager contains a number of data layers and other features that can be turned on and off.



SERVIR WMS Interface - Allows SERVIR-Viz to browse SERVIR WMS server archives and their contents.



Zoom to Location - Zooms SERVIR-Viz to a Latitude and Longitude location based on user input.



Image Overlay - Allows user to load images including 2D maps onto the SERVIR-Viz terrain.



Placemarks - Allows user to mark places of interest on the SERVIR-Viz terrain and export the locations to a Google Earth .kmz file.



Measure Tool - Allows user to measure a point to point distance in meters and provides the bearing in degrees.



GEOSS Decision Support - Provides the user with Global Earth Observation System of Systems (GEOSS) data to look at together and study their interactions on the SERVIR-Viz terrain.



GEOSS Weather - Provides a direct link to GEOSS weather data to be viewed in SERVIR-Viz.



GEOSS Ocean/Marine Environments - Provides a direct link to GEOSS ocean and marine environment data to be viewed in SERVIR-Viz.



GEOSS Disasters - Provides a direct link to GEOSS disaster data to be viewed in SERVIR-Viz.



GEOSS Climate - Provides a direct link to GEOSS climate data to be viewed in SERVIR-Viz.



GEOSS Ecology - Provides a direct link to GEOSS ecology data to be viewed in SERVIR-Viz.



Climate Mapper - The Climate Mapper was developed for SERVIR-Viz to give project designers access to historical weather data as well as projections of climate change. The data are available for an area of about ½ degree ½ degree, or roughly 50km x 50km near the equator. When you click on the map, the tool will pull data for the grid cell surrounding the point where you clicked and display it as a line graph. The data can be exported to a spreadsheet application.



IRI Data Access - Allows users to view data provided by The International Research Institute for Climate and Society (IRI), for the African region. In SERVIR Viz, you can view the IRI maps for a given date range, and click on points in Africa to generate graphs for the area. Products include: Malaria Early Warning System, and Desert Locust Area maps.



Historical Earthquake Query - Allows the user to search USGS Earthquake data with many variables (i.e. geographic area, time, magnitude, etc.) and displays results on the SERVIR-Viz terrain.



Virtual Earth - Connects to and uses data from Microsoft Local Live databases. This includes street maps, USGS imagery, and hybrid maps. Provides adjustable data visibility levels and an address finder.



Demis Worldmap - Adds a world map on the SERVIR-Viz terrain that includes hydrography, cities, airports, roads, and relief shading.



Topo Sheets - Adds topographic maps to the SERVIR-Viz terrain for Mesoamerican countries.



Vector Layers - Activates the Vector Layers under SERVIR Framework in the Layer Manager. The layers here include Main Roads, Rivers, Lakes, Watersheds, etc.



Fire Alerts - Activates the Fire Alerts layer under SERVIR Framework in the Layer Manager. The layer includes data from the past 24 hours or the last 7 days.



Floods - Activates the Floods layer under SERVIR Framework in the Layer Manager. The layer includes data from the last 14 days, labels for the flood areas, and historical data from years past.



Volcanoes - Activates the Volcanoes layer in the Layer Manager. The layer includes data on volcanoes categorized by the country where they are located. Tooltips about each location are visible when label is hovered over with the cursor. Clicking the label activates a hyperlink to get more specific information.



Placenames - Labels cities, counties, and countries based on the current zoom level.



Boundaries - Draws country boundaries and U.S. State boundaries.

Other Key SERVIR VIZ User Interface Facts & Plug-in descriptions



The Layer Manager allows you to turn layers on and off SERVIR-Viz. To expand the headings in the Label Manager, click on the triangles. Turn layers on by checking the box next to the layer name. Turn layers off by un-checking the box next to the layer name. You may have to zoom in to see many of the layers.

Base imagery for SERVIR VIZ includes:

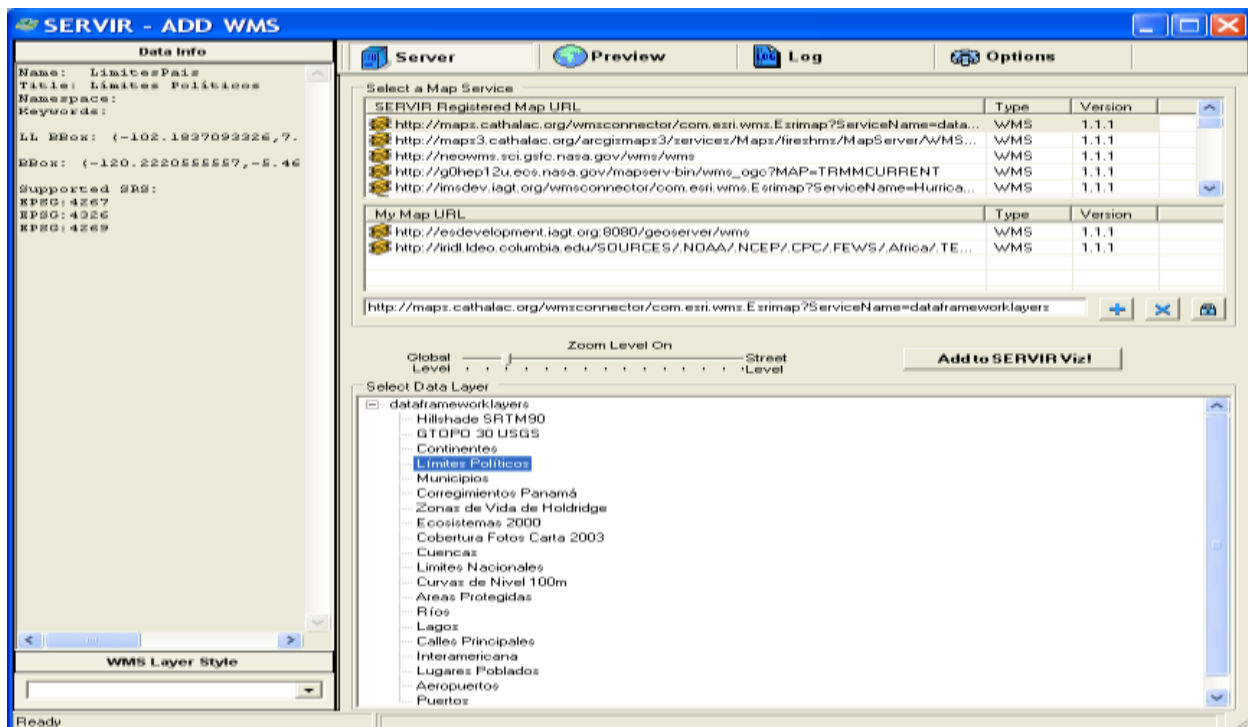
- Landsat 7 - collected 1999-2003, 15 m resolution
- Blue Marble base imagery- 1 km resolution, and
- USGS - topographic maps and ortho-imagery
- SRTM Terrain (90m global, 30m U.S.)

Using the SERVIR VIZ Plug-ins

SERVIR - Add WMS Interface

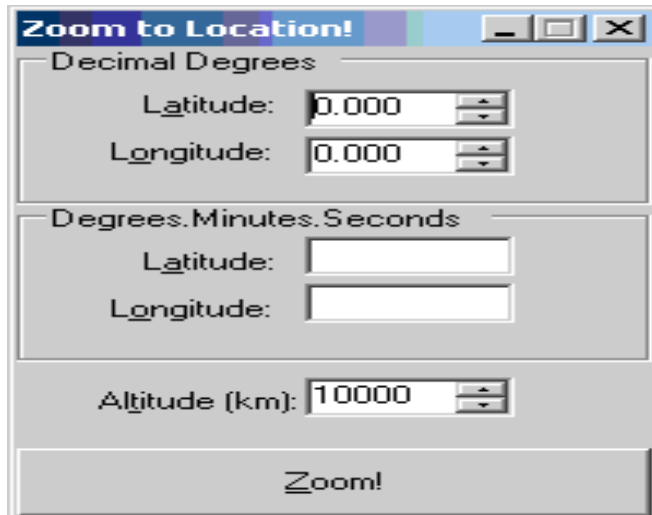
The SERVIR WMS tool allows the Map user to browse, preview, and add data layers to SERVIR-Viz. To search for data layers, select the server URL in the Select Service table by clicking on the row to highlight the server. Selecting a server will populate the Select Data Layer information box with the data layers available from the highlighted WMS service. Select a specific layer in the Select Data Layer information box by clicking on the name to highlight the layer. The Data Info information box will show additional data about the selected layer. To preview the selected layer, click the Preview tab in the main SERVIR - Add WMS dialog box. Use the Preview tab tools to interact with the layer preview. To add this data layer to SERVIR-Viz, make sure the Server tab is selected and then click the Add to SERVIR-Viz! button. Close the SERVIR - Add WMS dialog box by clicking the 'X' in the upper right hand corner of the dialog box. The data layer will be added to the Layer Manager under SERVIR WMS Interface.

The WMS Server list under "SERVIR Registered Map URL" is the community list, which is updated every time the user opens SERVIR Viz. The WMS list under "My Map URL", is a list of WMS servers that the user has decided to add for their own personal use, these WMS servers are not viewable by anyone else except the user who added one to the list.



Zoom to Location

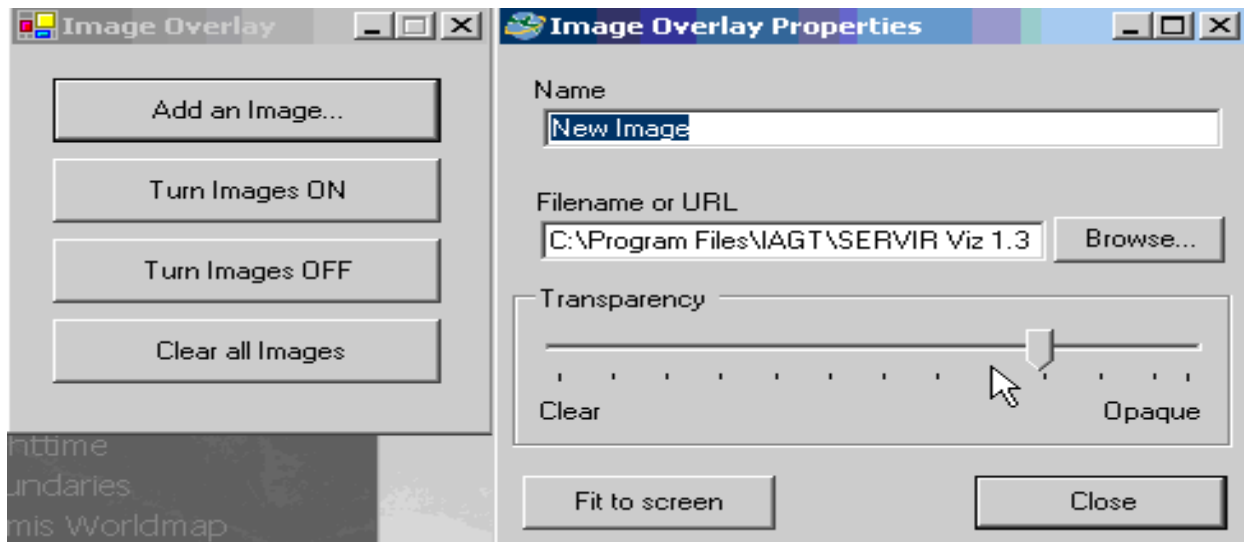
Enter the latitude and longitude of a location in the appropriate boxes depending on coordinate system (decimal degrees or degrees, minutes, seconds).



The "Zoom to Location!" dialog box contains three sections. The first section, "Decimal Degrees", has "Latitude:" and "Longitude:" labels followed by spinners, both set to "0.000". The second section, "Degrees.Minutes.Seconds", has "Latitude:" and "Longitude:" labels followed by empty text boxes. The third section has "Altitude (km):" label followed by a spinner set to "10000". A "Zoom!" button is at the bottom.

Image Overlay

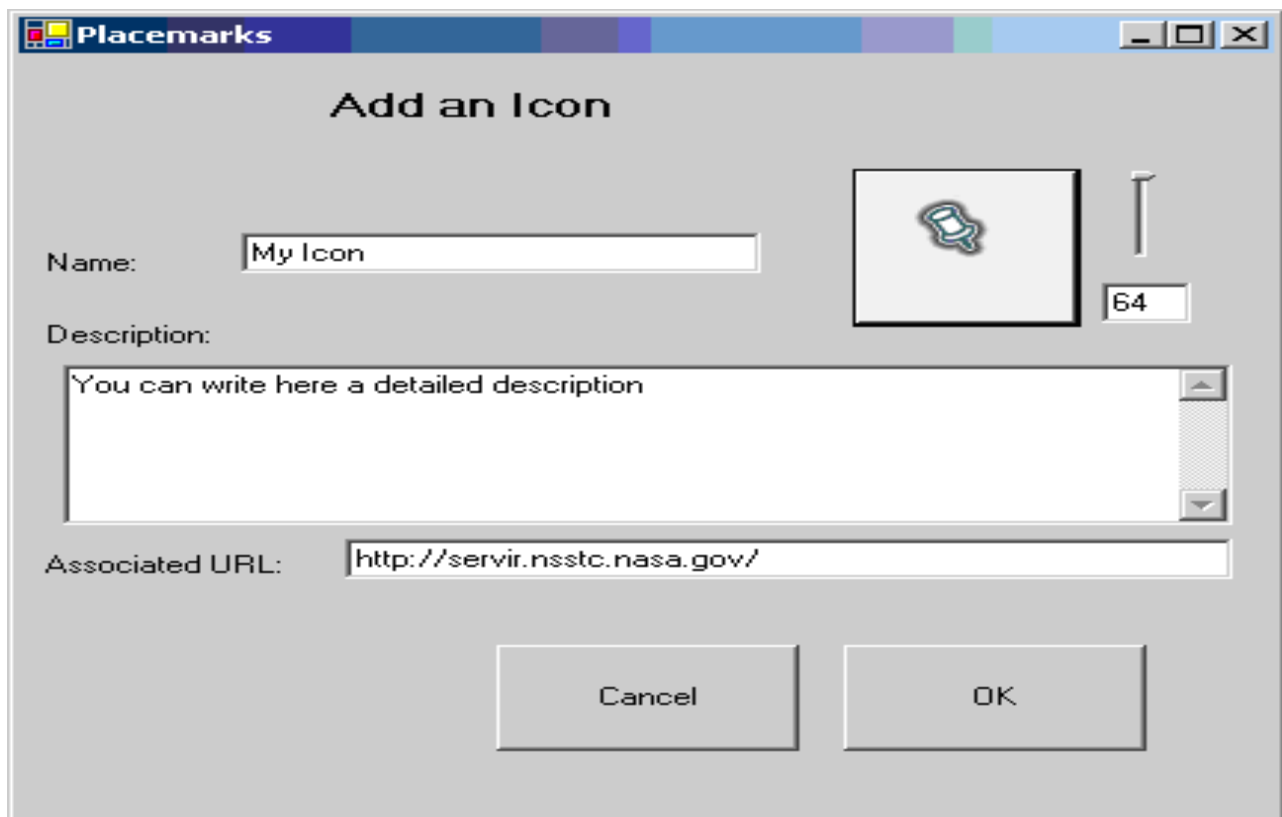
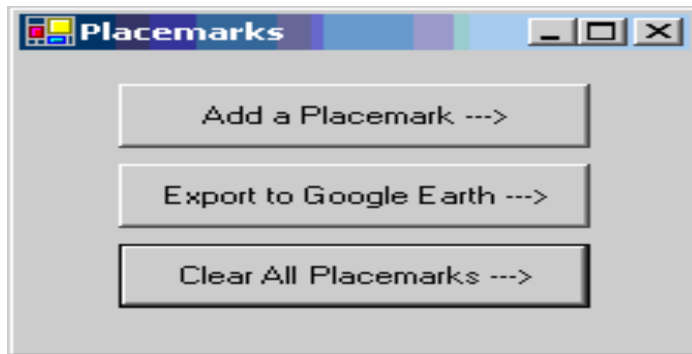
To overlay an image not served via WMS, click Add an Image and wait a moment for a blank white image to initialize. Navigate to the directory where the image is located by using the Browse button. The image is added in the Layer manager under Image Overlay. To turn off the overlay image, click Turn Images OFF or uncheck the box in the Layer Manager. To turn on the overlay image, click Turn Images ON or check the box in the Layer Manager. To remove all image overlays from the screen and the Layer Manager, click Clear all Images.



The "Image Overlay" dialog box has four buttons: "Add an Image...", "Turn Images ON", "Turn Images OFF", and "Clear all Images". The "Image Overlay Properties" dialog box has a "Name" field with "New Image", a "Filename or URL" field with "C:\Program Files\IAGT\SERVIR Viz 1.3" and a "Browse..." button, a "Transparency" slider from "Clear" to "Opaque", a "Fit to screen" button, and a "Close" button.

Placemarks

To add a placemark click Add a Placemark. Click on the area of interest on the SERVIR-Viz terrain. A dialog box will appear. Enter the name to display on the map when you point to the placemark. Enter a description to be viewed in the lower left of the screen when the placemark is pointed to. To add a hyperlink when clicked, enter the appropriate URL.



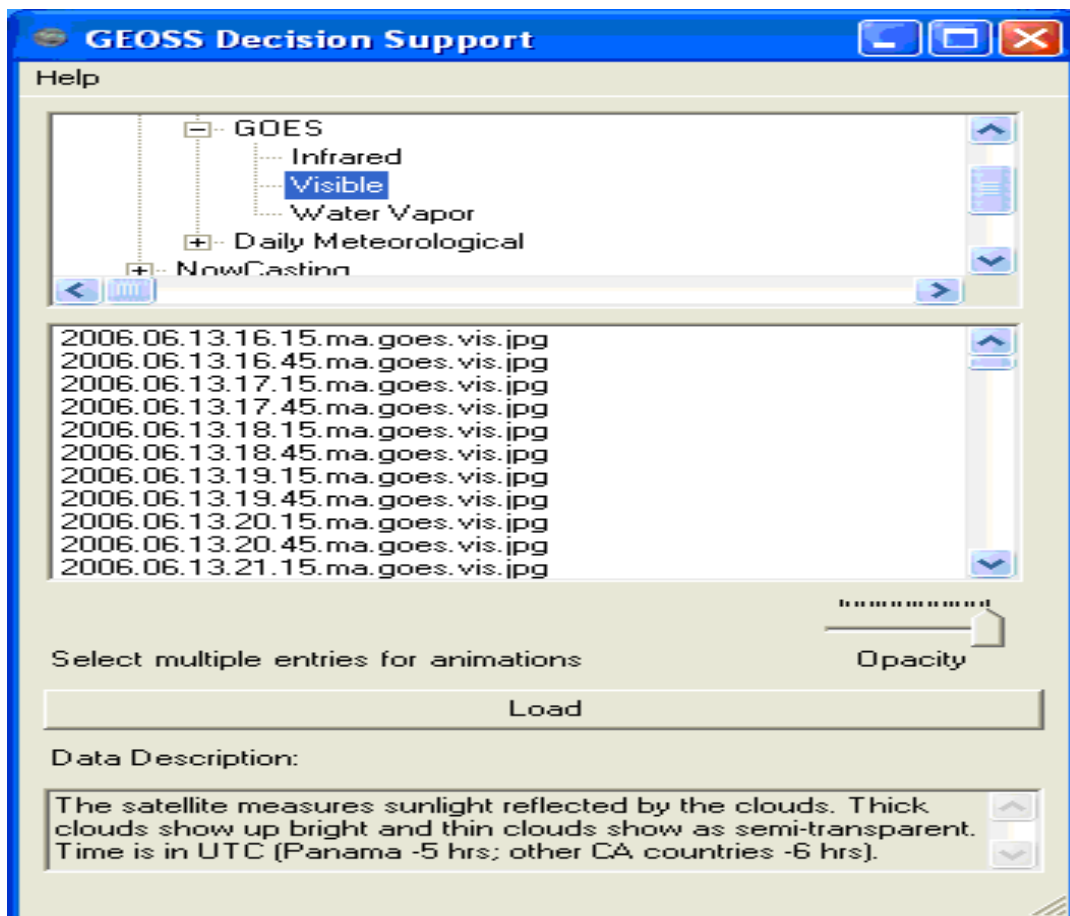
Measure Tool

Click the measure tool, the cursor should change. Then click on the SERVIR-Viz terrain to start measuring. Move cursor to another point and click to stop measuring. Click again to make the measurement line and results disappear.

GEOSS Decision Support

Click on the plus sign to expand the headings. Navigate to the data layer to view. A list of layers should appear in the middle of the window. Click on the layer and look at the bottom for a description of the layer. To add this image to the SERVIR-Viz terrain, click load. To adjust the transparencies use the opacity sliding bar. To see the layers animated, select multiple entries. To clear the images press cancel. To remove the layers from the screen uncheck the box by GEOSS Decision Support in the Layer Manager.

**GEOSS Weather, GEOSS Ocean/Marine Environments, GEOSS Disaster, GEOSS Climate, and GEOSS Ecology all work in a similar manner, although they may not have all of the products that the main GEOSS Decision Support tool does. In most cases, use the GEOSS Decision Support tool.



GEOSS Product Frequency

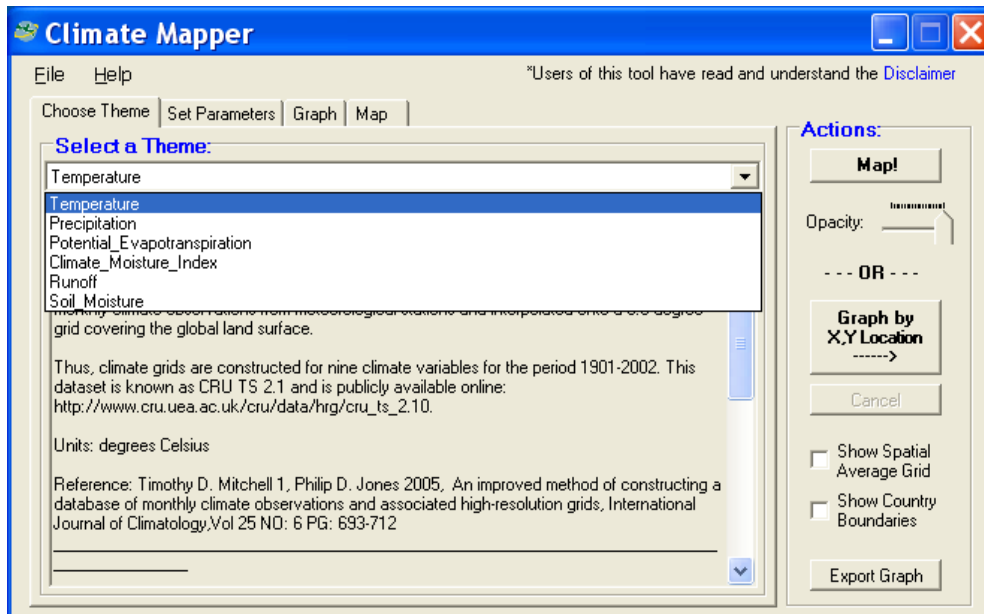
Below is a summary of the frequency of the various near-real time data products available GEOSS Data Products:

- Disasters: 1 hour increments
- Weather:
 - Current Conditions: 30 minute increments
 - NowCasting: 1 hour increments during afternoon/evening
 - MM5 (Prognostico del Tiempo): 1 hour increments
 - Accumulated Rainfall: 3 hour increments for 3hr and 6hr products; 6 hour increments for 12hr and 24hr products; 1 day increments for “2 Day - 2 Weeks” products
 - 3HR TRMM Rain Rate: 3 hour increments
- Climate: Images are predictions, not real-time data products and are not updated regularly
- Ocean/Marine Environments:
 - Red Tides: 1 day increments
 - Aqua and Terra Sea Surface Temperature: roughly 12 hour increments

Climate Mapper

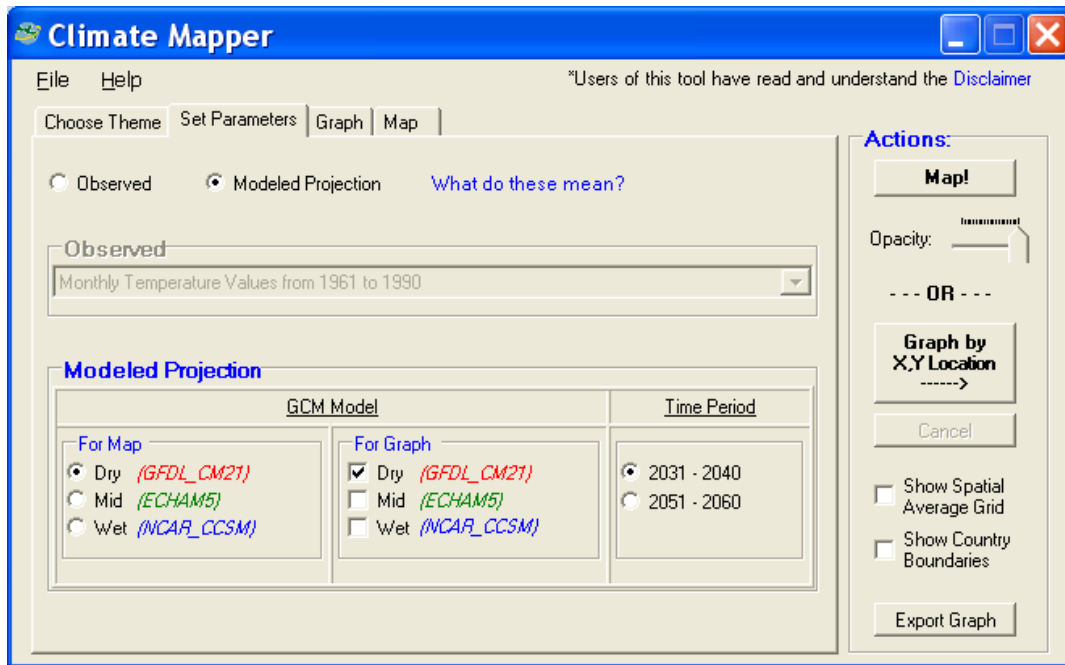
To use the Climate Mapper:

- From the SERVIR Viz screen, Click on the Climate Mapper button
- An interactive screen will appear on top of the SERVIR globe
- From the first drop-down menu, select a theme (e.g., temperature, precipitation, potential evapo-transpiration (PET), soil moisture, or runoff)

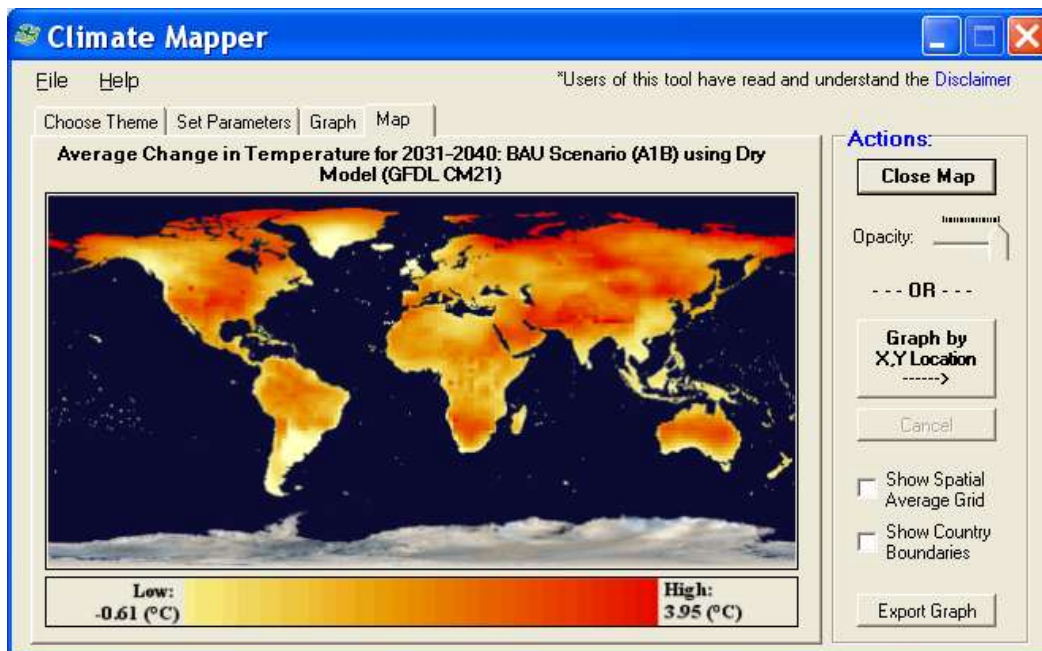


- Under the “Set Parameters” tab, select the radio button for “observed” or “projected” data

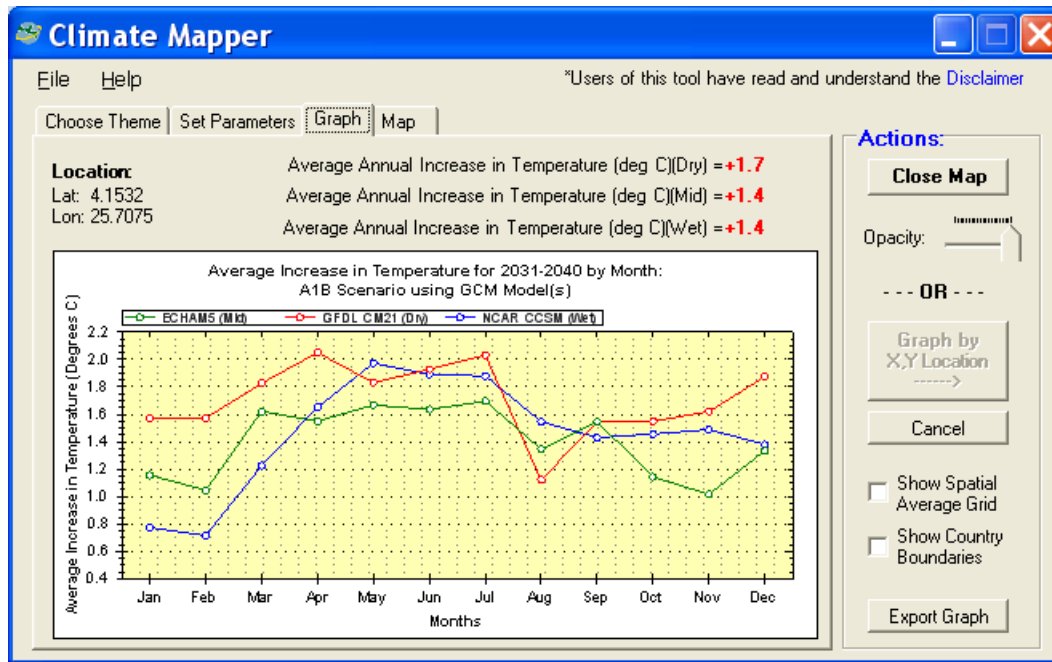
- If you select “Observed,” the drop-down menu entitled “Observed” will become active. You can then choose monthly data for the 30 year period from 1961 - 1991 or the monthly average for that period.
- If you select “Modeled Projection,” you can select 1-3 General Circulation models to display graphically in the table area.



- If you click the “Map” button a map will be generated showing the changes for the whole continent.



- If you choose “Graph by X,Y Location” button, you can click on a spot on the globe and a graph will be generated using the outputs from the grid cell around the point where you clicked. A pushpin image should appear on the globe to show where you clicked.
- If you want to use the data from the graph in a spreadsheet, click “export graph data.” This will save the data in a spreadsheet.

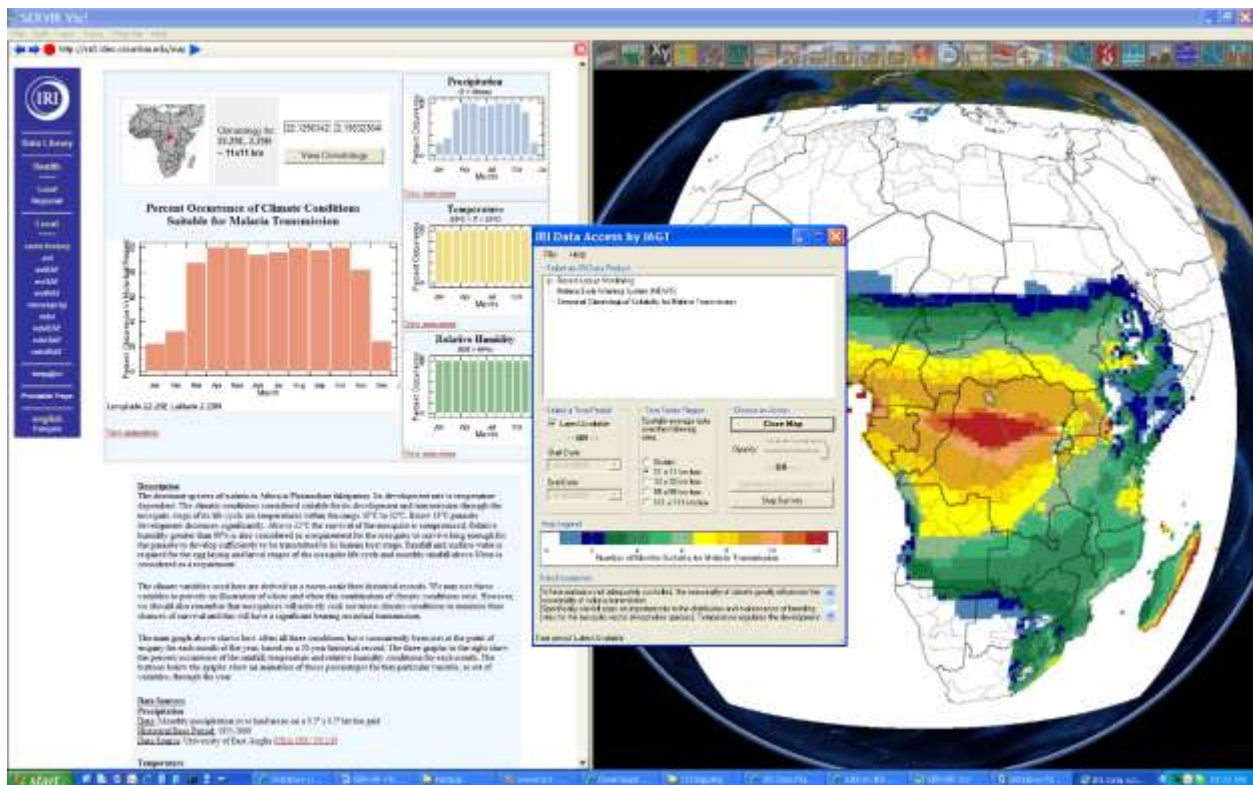


IRI Data Access

To use the IRI Data Access tool:

- The user can select a data product, i.e. Malaria Warning products, Desert Locust Area products, and more.
- Next, choose a date range (or check the "latest available" box), then hit "Map!". This will either load a single image, or begin to download and cache dynamic time series WMS images. If multiple images are available, they will animate. A legend will display if available.
- The user can also select a location, and generate charts and graphs for each data product.
- The graphs and charts may be altered by choosing a different spatial area average. For example, when the user clicks a point, depending on the radio button selection (11x11km), a box is used to spatially average data. These graphs are generated by interacting directly with the IRI website at Columbia University.

- Note: Additional data products, with the same configuration, may be registered via the IRI_Data_Products.xml in the installation directory.



Historical Earthquake Query

Choose your search method. Enter search limitations such as Starting and Ending Year. This is the only information needed for a Global Search. For a rectangular query, the decimal degrees need to be entered for the area to be searched. To search the area currently viewed on the SERVIR-Viz terrain, click Get from WW. This will automatically enter the coordinates of the rectangular viewing area. For a radial query, enter the latitude and longitude for the center of the search. To use the center of the current SERVIR-Viz view, click Get lat/lon from WorldWind. This will automatically enter the current coordinate of the center of the screen. Enter the search radius in kilometers. The default value is 500 Km. When all of the parameters have been entered, click Query Database. A list of the top 5 earthquakes will appear along with a summary of the Total Earthquakes Found. Points will appear where the earthquakes are located on the SERVIR-Viz terrain. Hover the cursor over a certain earthquake to view details about that earthquake. To remove the results from your screen, click Clear.

USGS Historical Earthquake Query

Help

Search Method: 1 = Global Search
2 = Rectangular Search
3 = Radial Search

Search Limiters

Starting Year: Starting Month: Starting Day:
 Ending Year: Ending Month: Ending Day:
 Min Depth: Max Depth: Depth in km
 Min Magnitude: Max Magnitude:

Rectangular Search Decimal Coords and negative for south and west

North East
 South West

Radial Search Decimal Coords and negative for south and west, radius in Km

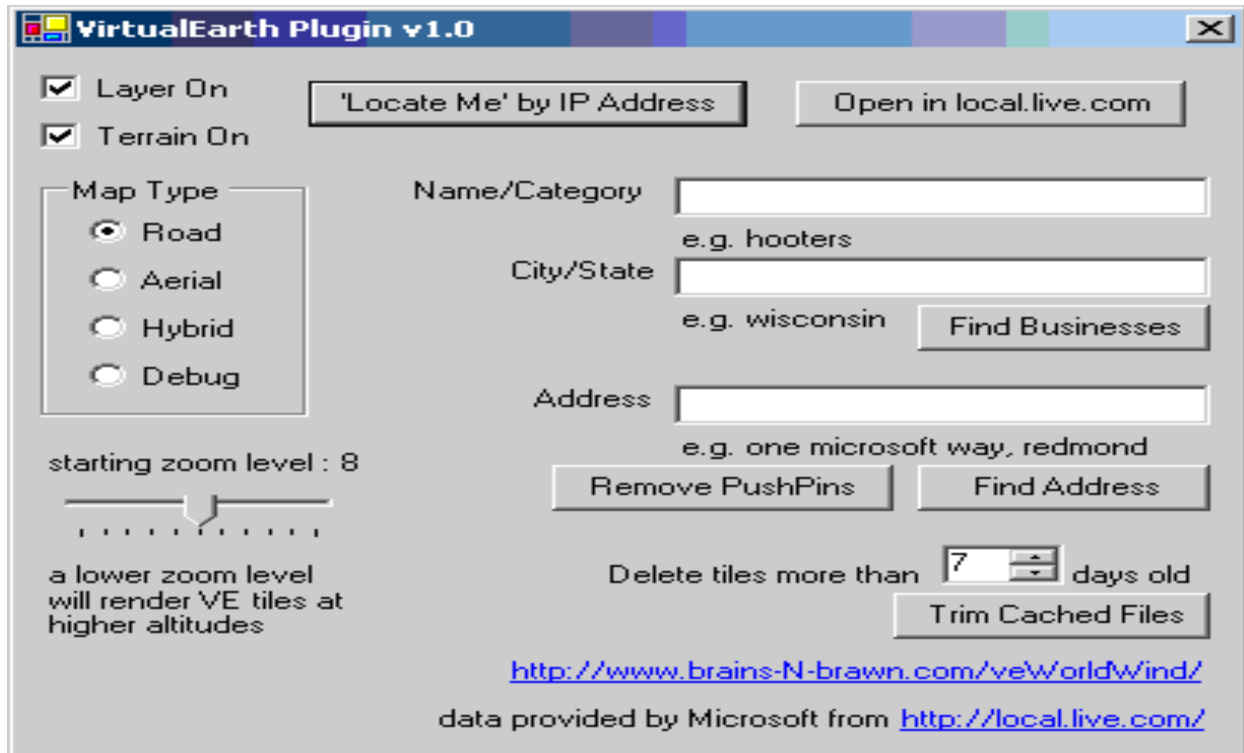
Center Latitude: Center Longitude: Search Radius:

Query Results

Total Earthquakes Found:	0	Top Five Earthquakes
Small Earthquakes (1.0-3.5):	0	1)
Medium Earthquakes (3.6-5.5):	0	2)
Large Earthquakes (5.6-7.0):	0	3)
Major Earthquakes (7.1+):	0	4)
		5)

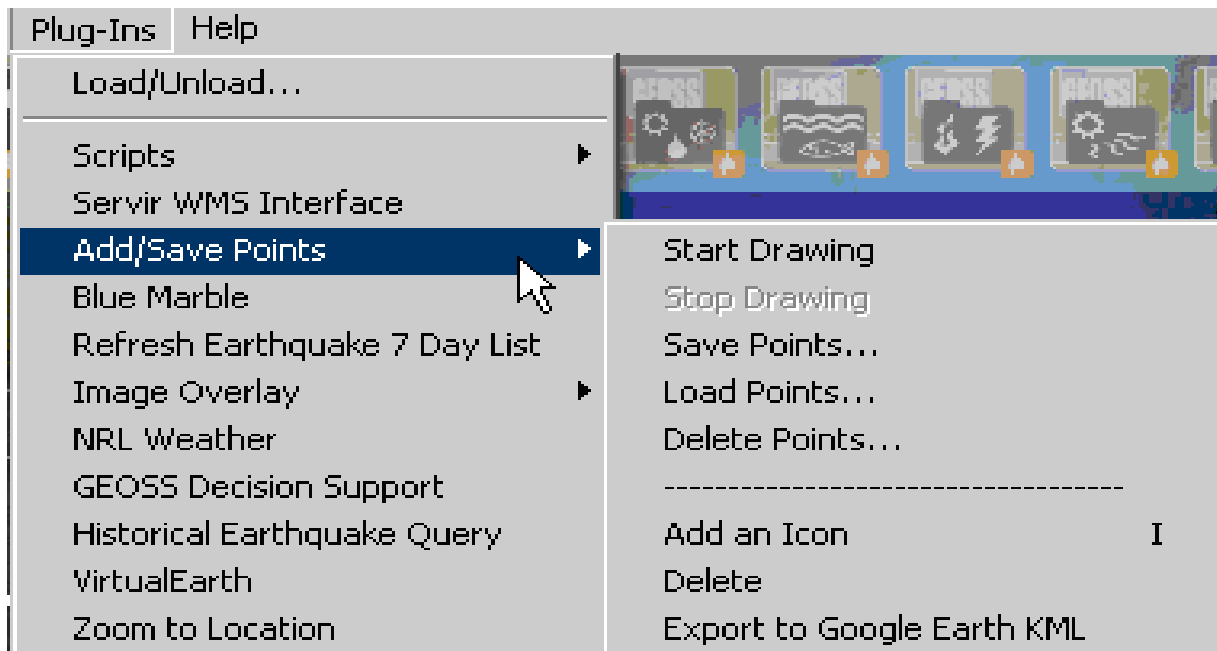
Virtual Earth

Choose between aerial imagery, road maps, or a hybrid map. Virtual Earth will also zoom in to the address of an IP address by clicking the 'Locate Me' by IP Address. Choose to look at different imagery by clicking the buttons under Map Type. A business or an address can also be searched by using Virtual Earth.



Add/Save Points

Make sure that the Add/Save Points layer is turned on in the Layer Manager. Go to the Plug-Ins menu under Add/Save Points and move the cursor over to the right to see the various options for adding/saving/deleting points. To add a point, select Start Drawing and click the mouse in the desired location for the point. When done adding points, select Stop Drawing. To save the points to a file, select Save Points. If you have an X,Y,Z delimited file of points with attributes (i.e. exported from a shapefile), you can load those points into Servir-Viz by choosing Load Points. To remove unwanted points, select Delete Points, to start again (this will only clear the points inside Servir-Viz, not any saved point files). The Placemarks options are also located below the add/save points functionality for convenience; add an icon (placemark) by selecting Add an Icon.



Using SERVIR Viz without an Internet Connection (i.e. Offline)

Caching

SERVIR Viz uses caching to save previously viewed maps/imagery on the user's hard drive. The maps and imagery are then accessed from the user's computer, rather than the internet. For all data that is downloaded for specific zoom layers, i.e. all of the globe imagery, and WMS maps, the data is only downloaded for the areas that the user has visited. For example, if a user zoomed all the way into New York City, and waited for all of the imagery to fully render, the next time the user uses SERVIR Viz, either online, or offline, the imagery will appear very quickly because it is being accessed from the user's computer.

For other products such as the near-real time GEOSS data products, these images are also cached, but since they are simple images (not tiled images for each zoom level), these images are simply stored on the user's computer as soon as they are viewed once.

In order to have the imagery/maps and GEOSS data products available later for offline viewing (without an internet connection,) the user must first open SERVIR Viz and access the latest GEOSS data products, or zoom to the imagery on the globe which is of interest, using an internet connection.

Technical Support

- Use the NASA World Wind Forums
- Go to the SERVIR Viz « Help » menu
- Contact Dan Deneau, IAGT (ddeneau@.iagt.org)

Terms and Conditions

- Users of the SERVIR Viz are subject to our Terms and Conditions.

http://www.iagt.org/servir_viz