



THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

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Information Technology and Systems Center

DRAFT

**User's Manual for the Map Maker**

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INFORMATION TECHNOLOGY AND SYSTEMS CENTER

# User's Manual for the Map Maker

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# Map Maker

The Map Maker is used to display GIS information served in the form of web map services (WMS), web feature services (WFS) or web coverage services (WCS). Map Maker was implemented using the open source Chameleon Web Mapping Framework. Chameleon was developed by the DM Solutions Group of Ottawa, Canada from a set of re-usable components for clients in the Government of Canada. It is widely used along with the open source Minnesota Map Server to provide web map services through a web-based interface. This section describes how the Map maker is invoked and employed to display GIS information.

## Invoking Map Maker

The Map Maker may be invoked by entering the following URL into a standard web browser:

**<http://mapa.itsc.uah.edu/GulfofMexico/mapmaker/index.phtml>**

A page will appear as shown by Figure 1 below.

## Map Maker Functionality

The Map Maker possesses functionality that is consistent with that of numerous commercial and open source web map viewers. The display is dominated by the map window that appears in the center of the display. The coordinates of the map are preset to the area of interest. In this case the Southeastern USA and Gulf of Mexico. A list of default layers appears on the right. This list is organized into categories. Each category may be expanded or collapsed by clicking on the “+” plus sign.

Beneath the map are several items. On the left is the reference map, a smaller version of the main map. Users click and drag the mouse over this small map to change the coordinates of the main map. For example one could draw a rectangle over the state of Florida to “Zoom” the main map to that region (Figure 2).

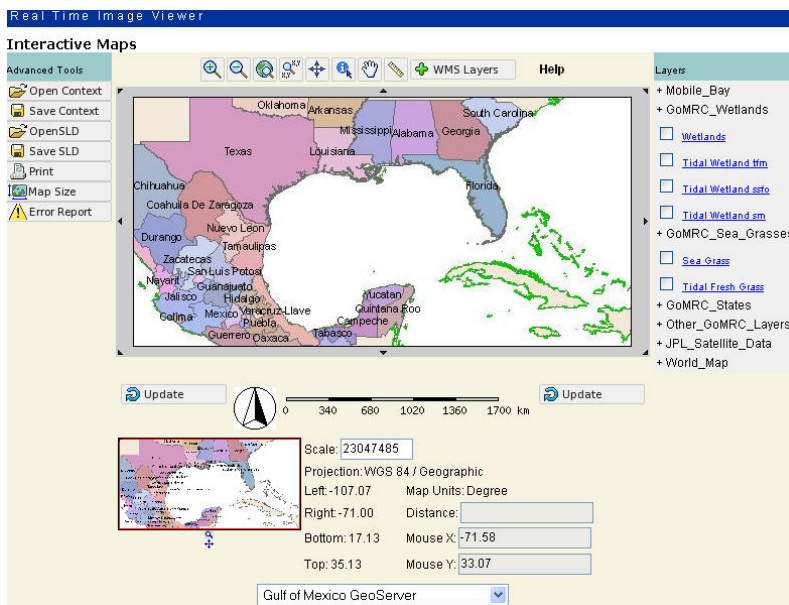


Figure 1 Map Maker main window

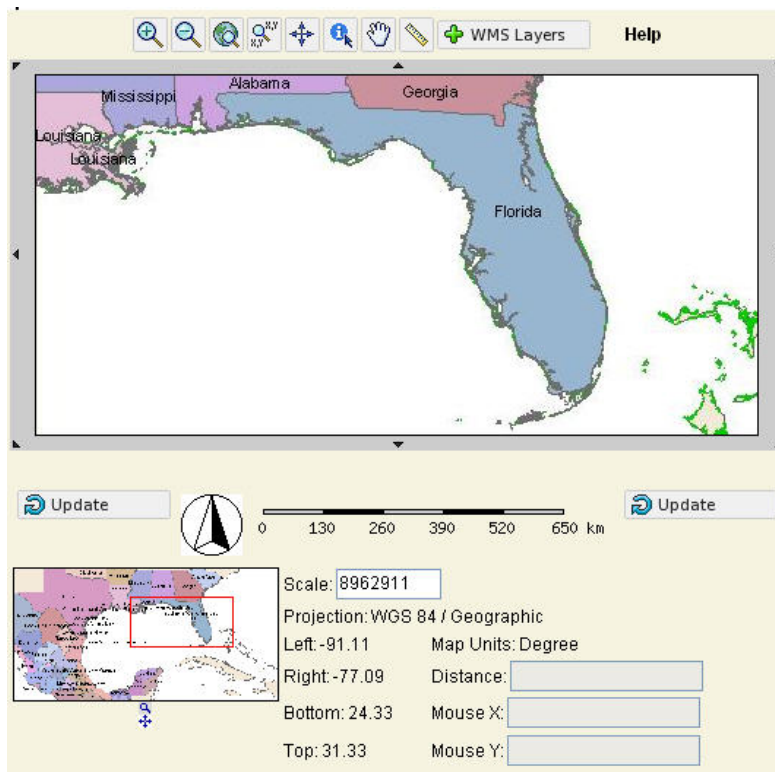


Figure 2 Map zoomed to Florida using reference map

To the right of the reference map is geographic location information. There are four numbers representing the longitude of the left and right sides and the latitude of the top and bottom of the main map coverage. The units, in this case degrees, employed for latitude and longitude are shown next. The Distance textbox displays the output when using the ruler tool. When the mouse is over the main map its location is output to the Mouse X and Mouse Y text boxes.

Just below the main map on each side are two identical buttons called Update. These are used to update the map following a change in the layer selection. Layers do not automatically appear when their respective check boxes are checked. Users must click on the “Update” button to add or remove layers from the main map. Finally, there is a scale bar centered below the main map.

Several standard tools are located above the map. These are summarized below:



**Zoom In:** After clicking on the magnifying glass (containing a plus sign) to select it the user may click on the main map window to zoom in. The map is reloaded and centered at the click point.



**Zoom Out:** After clicking on the magnifying glass (containing a minus sign) to select it the user may click on the main map window to zoom out. The map is reloaded and centered at the click point.



**Zoom to Full Extent:** Clicking on this icon reloads the main map and restores it to its full extent.



**Zoom to Bounding Box:** Clicking on this icon causes a dialog box, Figure 3, to open where the user may specify latitude and longitude coordinates and then zoom the main map to those coordinates.



**Center Map:** Clicking on this icon activates map center mode. Afterwards the user may click on the map at any point. The map will reload with the selected point at the center.



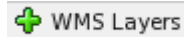
**Identify Feature:** Clicking on this icon activates the query functionality. Afterwards the user may click on a layer visible within the main window to obtain information about the feature (Figure 4). The layer must contain metadata about the feature for the query function to return meaningful information.



**Pan:** Clicking on this icon activates pan mode. Afterwards the user may place the mouse cursor over the main map and “drag” the map to a new location. When the mouse button is released the map will be reloaded at its new location.



**Distance Tool:** Clicking this icon activates the distance measure tool. Afterwards the user may click and drag the cursor over the main map to get the distance between two points or the total distance of a number of connected straight-line paths. Figure 5 shows the distance tool employed to measure the distance from New Orleans to Mobile. The distance is also shown in the Distance text box below the main map display. To terminate the distance measurement tool, press the ESC key.

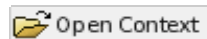


**WMS Layers** Clicking this button opens the Layer Explorer allowing the user to load layers from remote web map servers. The Layer Explorer is explained in detail later in this document.


The image shows two input forms for map navigation. The top form, titled "Bounding Box Coordinates", has a header with a small coordinate icon and the title. Below the title is a text box with the instruction: "Please enter the coordinates of the bounding box (i.e. extents) of the area you wish to view." There are four input fields: "Max Y" with the value "35.23", "Min X" with the value "-107", "Max X" with the value "-70", and "Min Y" with the value "16.77". A "Zoom" button with a magnifying glass icon is located at the bottom right of this form. The bottom form, titled "Point Coordinates", has a header with a small coordinate icon and the title. Below the title is a text box with the instruction: "Please enter the coordinates of the location (i.e. point) you wish to view." There are two input fields: "X:" with the value "-88.5" and "Y:" with the value "26". A "Zoom" button with a magnifying glass icon is located at the bottom right of this form. Below both forms is a "Cancel" button with a yellow 'X' icon.


**Figure 3 Bounding box for entry of latitude and longitude coordinates**


On the left are several “Advanced Tools” A summary of the function of these tools follows:




**Open Context** Load Context: Load a previously saved context. A map context is an XML document that describes the appearance of layers from one or more WMS servers, and can be transferred between clients while maintaining startup views, the state of the view (and its layers), and storing additional layer information.


 Save Context Save Context: Save a map context. Please see above for Map Context.


 Open SLD Open Styled Layer Descriptor (SLD): This tool allows users to get information about feature(s) within a layer. It is mainly used for Vector data layers and must be pre-defined in WMS servers.

 Save SLD Save Styled Layer Descriptor (SLD): Allow user to save SLD information. SLD must be pre-defined in the WMS server.

 Error Report Error Report: Show any errors when displaying a map.

 Map Size Map Size: Change the size of the main map display

 Print Print Map: Send a copy of the current map to the printer.

 Query Results

Mexico States

GoM States

Wetlands

SAV Current

Restoration Sites

AREA	CODE	FID	LENGTH	_LAYERID_	_SHAPE_
7523737.51805	35	34	4477.12097168	2	[Geometry]

Over Water Structures

FID	Id	_LAYERID_	_SHAPE_
1251	0	0	[Geometry]


 Close

Figure 4 Results of query

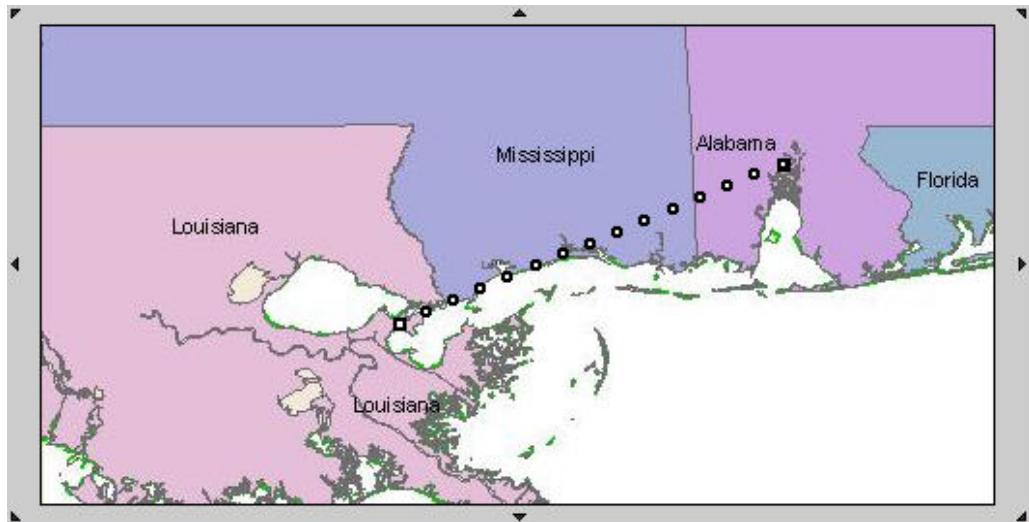


Figure 5 Results of using the Distance tool

## Loading and Removing Layers

To add layers to the map display, the user simply selects the desired layers by checking the check boxes next to the layer name (Figure 6). Once the layers are selected, they are added to the map by clicking the “Update” button below the main map display.

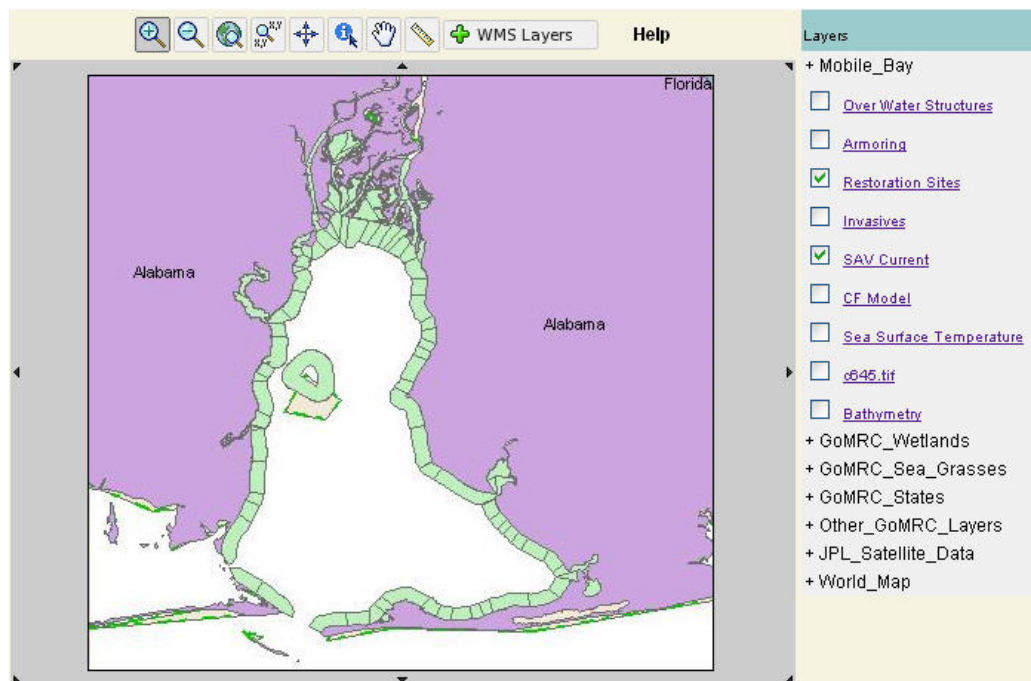


Figure 6 Map reloaded with two new layers visible

## The Layer Explorer

The default list of layers are all served by the local web map server located at the National Space Science and Technology Center (NSSTC) located in Huntsville Alabama. The Map Maker can also download and display layers hosted by remote web map servers. The tool for doing this is known as the layer Explorer. To open the layer Explorer the user clicks the “WMS Layers” button at the top right of the main map display. This opens the Layer Explorer in a separate window (Figure 7).

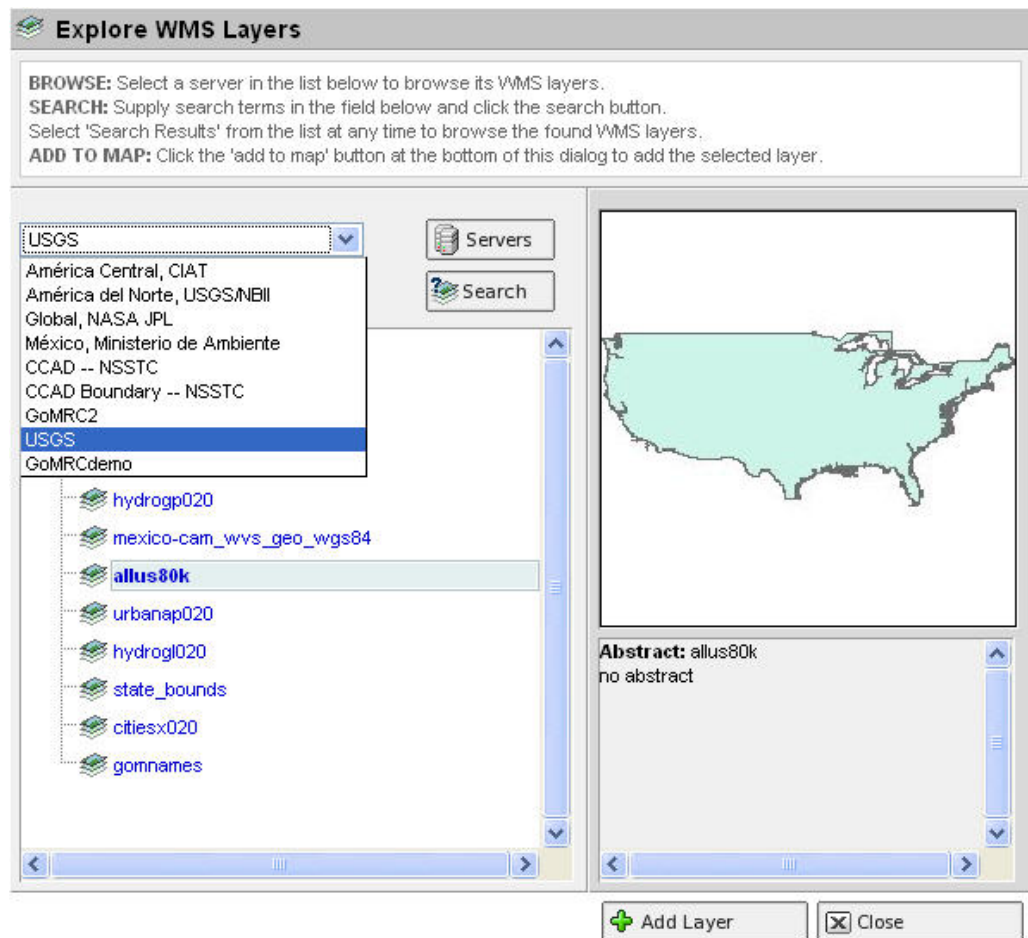
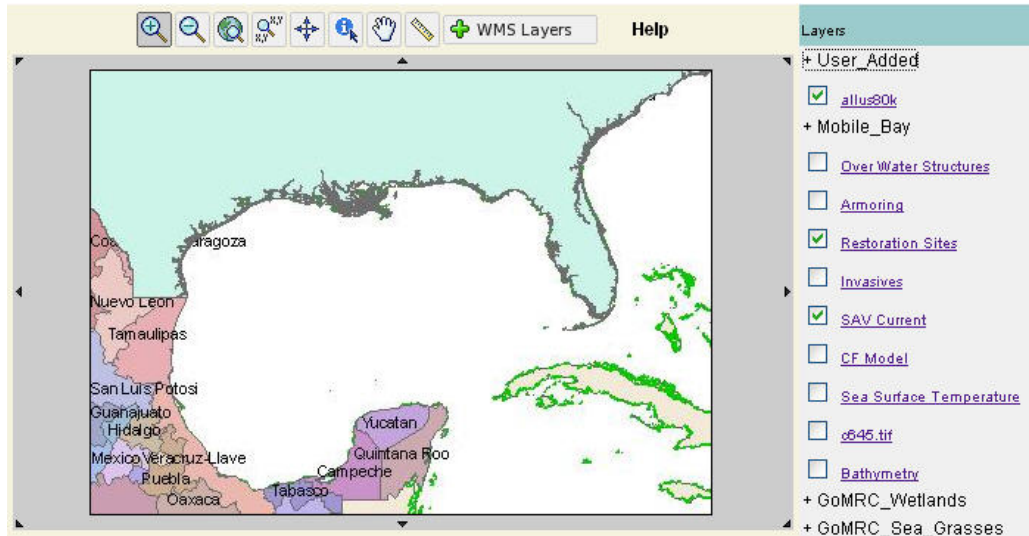


Figure 7 Layer Explorer Window

## Adding a Layer from a Remote Server

Adding a new layer is a simple process. With the layer Explorer window open, the user can browse a list of available web map servers. By clicking on a server name the list of layers it serves can be viewed in the window directly below. In Figure 8 the USGS web map server was selected and the layers available are shown. The

user may then preview a layer by clicking on its name. In Figure 8 a layer with the name “allus80k” is previewed. The user can add this layer to the current set of Map Maker layers by clicking the “Add layer” button. If this option is chosen, the layer will be added to the current set of layers and its name will be inserted at the top of the list on the right of the main map window (Figure 9). Once the layer is added it may be removed from the main map display in the same manner as all other layers. Its name will remain on the list of layers as long as the Map Maker session is running.

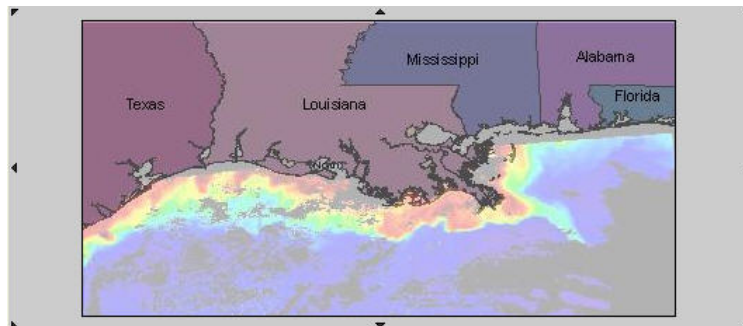


**Figure 8 Map with remote layer added**

## Invoking the Map Maker with a Specified Layer

The Map Maker may also be invoked with a specific layer in view by appending a reference to the desired layer to the URL. An example is shown by Figure 9.

[http://mapa.itsc.uah.edu/GulfofMexico/mapmaker/index\\_gomrc.phtml?keyword=redtide](http://mapa.itsc.uah.edu/GulfofMexico/mapmaker/index_gomrc.phtml?keyword=redtide)



**Figure 9 Map Maker with Red Tide image loaded**