Mongolian Gobi ERA Map Viewer

November 22, 2014

Application Overview

Gobi ERA Map Viewer is a web-based mapping application (http://s3.amazonaws.com/DevByDesign-Web/MappingAppsVer2/Gobi/index.html) which gives users the ability to display and access all spatial data created and used by TNC while developing Ecoregional Assessment of the region.

Application Layout

Gobi Map Viewer is comprised of two main components; the map resources panel (left section) and the map display (right section). The map resources panel gives users the ability to modify the displayed map and view information with regards to the maps available. The map canvas displays the spatial data associated with the application. A set of map tools (described in more detail under the Map Tools section) provides the users with a number of tools to aid in setting the view extent of the displayed map, provides feature level information, allows for users to add their own data, and provides map output capabilities.

Figure 1. Opening page of Gobi web mapping application

Map Tools

The map tools can be displayed or hidden by clicking on the red arrow to the right of the *Map Tools* text. To select a tool the user clicks on that tool image. Some of the tools will automatically change the display when the tool is clicked while others require the user to interact with the map display. Full Extent sets the map to display back to the map extent shown when the viewer was opened. Zoom In allows the user to zoom the map display into a specific area by clicking on the tool and then maneuvering the mouse pointer to the area they would like to zoom into. This is accomplished by holding the left mouse button down and dragging the mouse across the map until they have drawn a rectangle encompassing their area of interest and then releasing the button. Zoom Out interacts similarly but zooms the map display out based on the ratio of the box to the current display so the smaller the box the greater factor the map will be zoomed out. Pan allows the user to move the display of the map without changing the scale of the map. The user must hold down the left mouse button and drag the pointer to move the map and release the button to end the panning. Next and Previous tools allow the user to scroll back and forth thru all the dispays viewed in a web session.

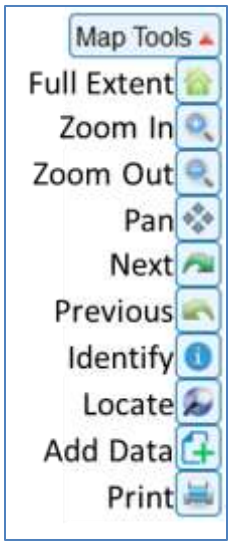

Figure 2. Map tools

The Identify tool allows the user to display information associated with a map which is visible (i.e. checked within the Map Resources panel, see Map Resources section of this document) on the map. In order to use the tool it must first be selected and then the user needs to click on a feature displayed by in the map. A window will be displayed listing all the information found for that location associated with any of the visible features (Figure 3). If multiple layers are visible and the user clicks on a location with features from these layers, the window will display an arrow with the layer name. The user can click on the arrow to see all attribute information for the feature clicked on. To close the window, click the X upper right-hand corner of the box.

Figure 3. Identify Window

The Locate tool gives user the ability to zoom to a location using geographic (i.e. Latitude and Longitude) or UTM (i.e. Northing and Easting). The user must input either of these coordinate pairs into the Loacate dialog (Figure 4) and click on the Zoom To button. A red "**X**" will indicate the location with the map display zooming in and centering on this position. For inputting UTM coordinates, the user must first select a UTM zone. Each new position inputted by the user will clear the previous one. To clear the last located position, the user can click on the Clear button which will remove the red "X" and clear the location input boxes.

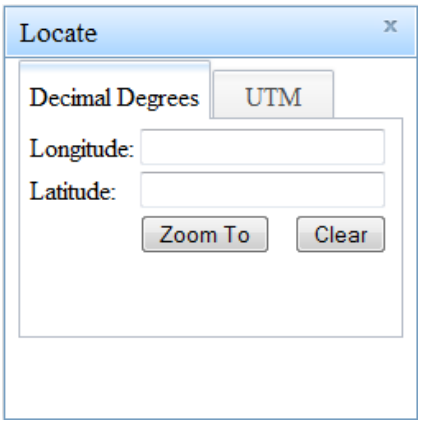

Figure 4. Locate Dialog

The Add Data tool gives users the ability to display their own information within the map display. The user must first click on the Browse… button in the Add Zipped Shapefile dialog (Figure 5) and then select a local zipped file containing an ESRI shapefile. At minimum, this zip file must contain the following files: .shp, .shx, .dbf and .prj). One the user selects the zip file the application will extract the spatial data from the zip file and display it on the map. Additionally the map display will zoom to the extent of these data. Uploaded data is not saved anywhere and is only

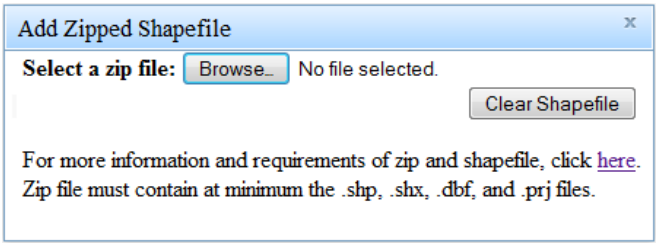

Figure 5.Add Data Dialog

displayed during the user web session. All features within the shapefile are displayed as a graphic and will have associated attributes of the shapefile available when clicking on the feature. The user can clear the most recently added dataset by hitting the Clear Shapefile button.

The Print tool provides users with the ability to create a map which can be saved or printed by the user. By clicking on this tool, the Map Properties dialog (Figure 6) is displayed. Through this dialog, the user can set both the title and author of the map by inputting the appropriate text. The units for the scale bar can be set to Kilometers, Miles, Meters, and/or Feet. A legend for the map will automatically be created if the box is checked. The user can select a variety of page sizes (i.e. letter, tabloid, A3, A4) and orientation (i.e. portrait or landscape). Finally the map produced can be created in a PDF, PNG, or JPG file format. Once the user has set all the parameters, they can click on the Create Map button which will start the process of creating the defined map. Once the process has been completed a hyperlink displaying Click Here for Map will be produced which allows for the user to access the map. The user must close the dialog by clicking on the X in the upper right portion of the dialog to return to the interactive mapping application. **Note:** Due to limits with regards to map spacing, layers with long legends or lengthy item descriptions may not be produced even when legend property is checked.

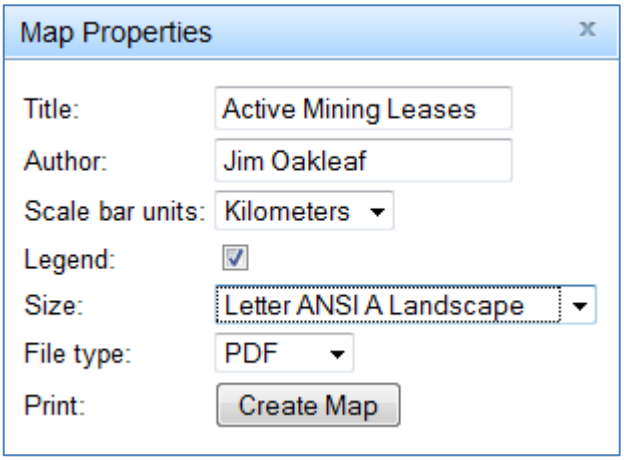

Figure 6. Map Properties Dialog

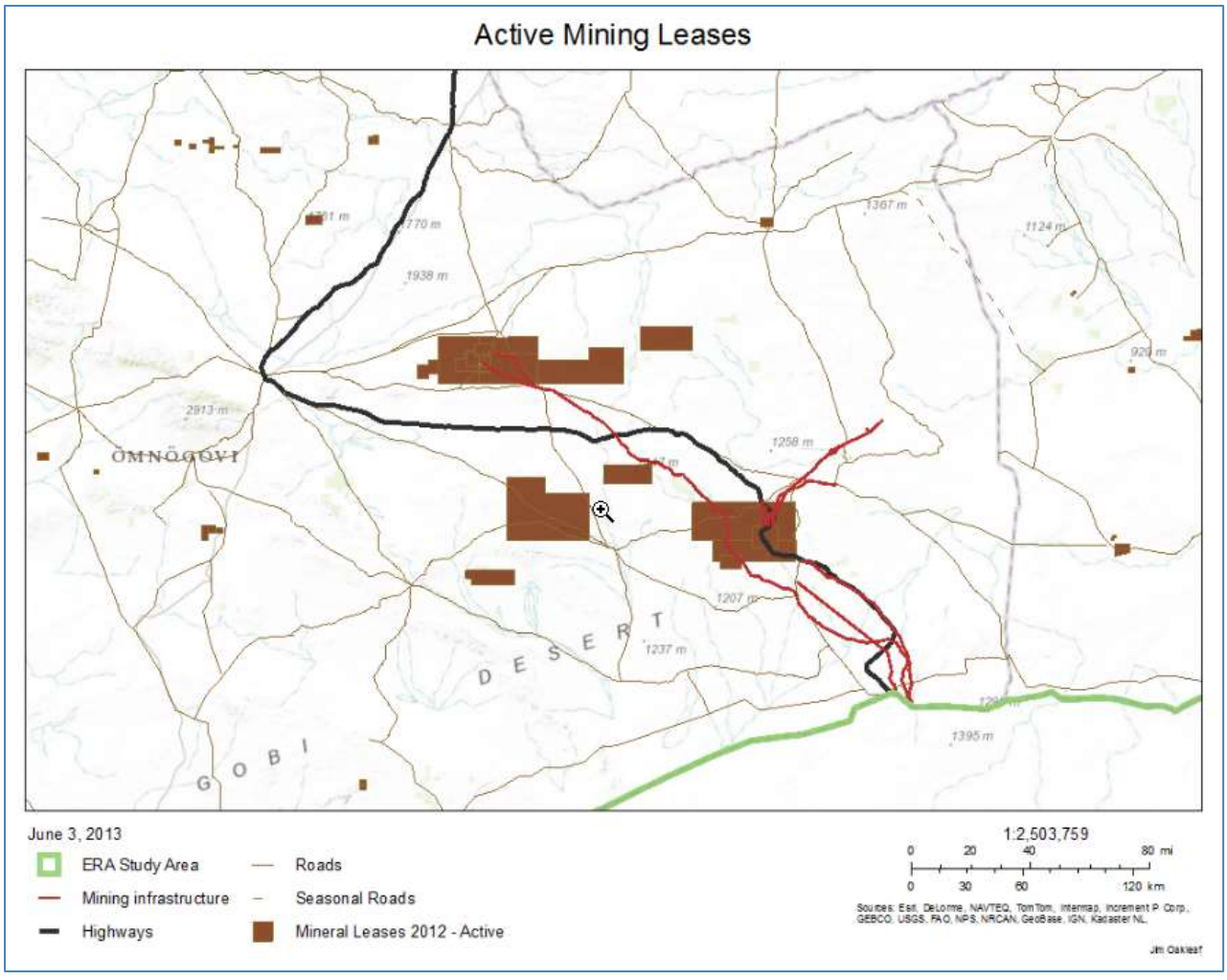

Figure 7. Map output example

Map Resources Panel

The Map Resources Panel (Figure 8) gives users the ability to modify and display maps within the viewer. There are five major grouping of maps; *Conservation Priority Maps, Future Threat Maps, Current Disturbance Maps, Biological Maps,* and *Background Maps*. Additionally there is an *Additional Map Resources* group allowing the user to display reference data (i.e. Study Area, Aimag and Soum borders), change the transparency of the displayed maps, and view the legend of the currently displayed maps. All groupings can be expanded or contracted by clicking on the heading name. To turn on a map within any group (except *Background Maps)*, the user clicks the check box in front of the layer name. To change the background map, the user clicks on one of the thumbnail images listed under this heading. To obtain more information on any of the maps, the user can click on the ⓘ icon to the right of the map name. This will open a dialog containing information on how the map was created.

Figure 8. Maps resource panel

Data Access

Data Request Dialog

To access data produced in the analysis, the user needs to click on the Data Request link found in the upper-right corner of the application and fill out the Data Request dialog (Figure 9). The user must fill out all information and accept the data use clause by clicking on the check box. To view the data use clause the user can click on the View Clause link. Then by clicking on the Submit Request button, a table listing available data to download will be produced within this dialog, e.g. Figure 10. The user can then download data by clicking on the *File Access* links provided.

Figure 9. Initial data request dialog

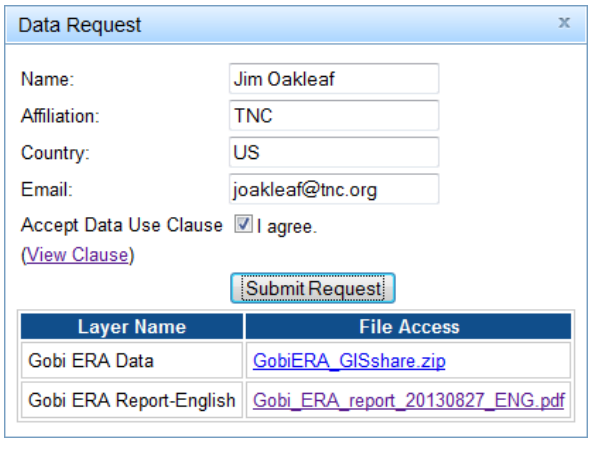

Figure 10. Data request dialog after submitting

Settings Necessary for Data Access with Internet Explorer

When using Internet Explorer (IE), most users using standard security settings will need to make minor changes to these settings in order to be presented with a list of downloadable data. To access these settings users will need to go under Tools>Internet Options and select the security tab (Figure 11). The users must add in http://184.72.33.222 and http://s3.amazonaws.com as a trusted site. It will be necessary to uncheck *Require server verification…* in order to add these two websites (Figure 10). The user must also *Enable* for *Access data sources across domains* within the Security Settings – Trusted Sites Zones dialog (Figure 12). To access this dialog, the user needs to click on the Custom level… button within the Internet Options> Security tab (Figure 13). Once these settings have been changed the user must reload the application with IE browser window, again click on the Data or Report Request link, fill out the form and click on the Submit Request button. This time the user should obtain a list of downloadable data for the application.

Figure 11. Internet Explorer Options dialog.

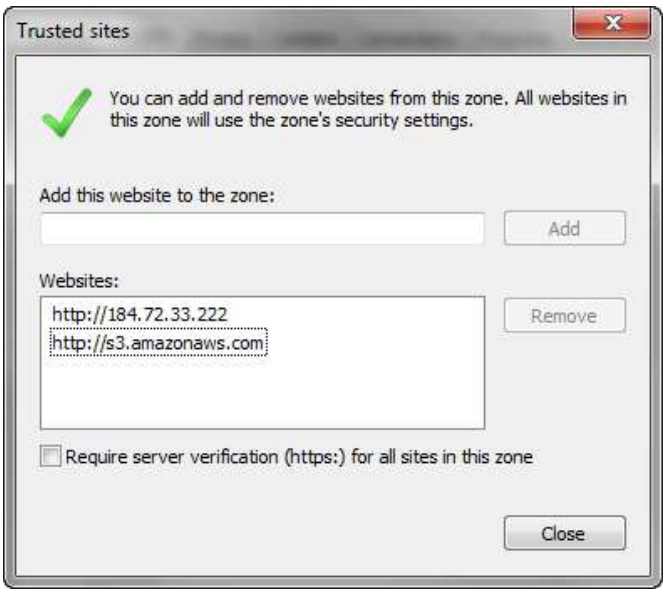

Figure 12. Trusted sites dialog

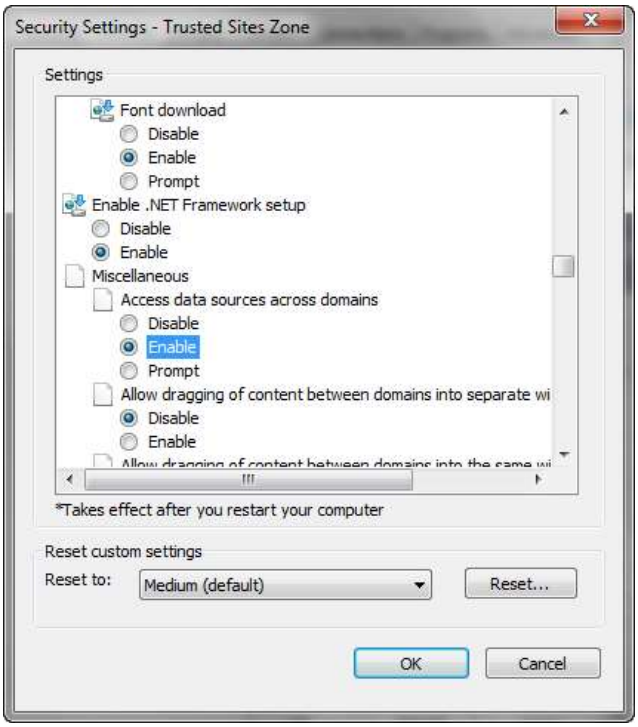

Figure 13. Security Settings dialog.

Technical Description of Application

The *Mongolian Gobi ERA* web map was developed using HTML, CSS and JavaScript with mapping functionality built using the ArcGIS API for JavaScript. Maps being displayed and all analysis routines are built using ESRI ArcGIS Server technology. This application has been developed and tested for use in the most recent versions of Firefox and Internet Explorer. It has also been tested successfully to run in Google Chrome and should run in other compatible Internet browsers.