

AgroET GUI

Description of General Features of the Graphical User Interface

Once the user logs in to AgroET the first screen the GUI displays is shown in Figure 1. The screen is divided into three main sections which are outlined by three polygons in Figure 1. The first section is the model run options and is located in the upper left hand side of the screen where three icons are stacked vertically with some options to the right of them (red rectangle), the second section is the middle of the screen in which a map is displayed with a set of horizontal icons on the top right hand corner to control the map (green rectangle) and third section is on the upper right hand side of the screen where three vertical icons control the GIS layers that are displayed and some GIS settings (purple rectangle).

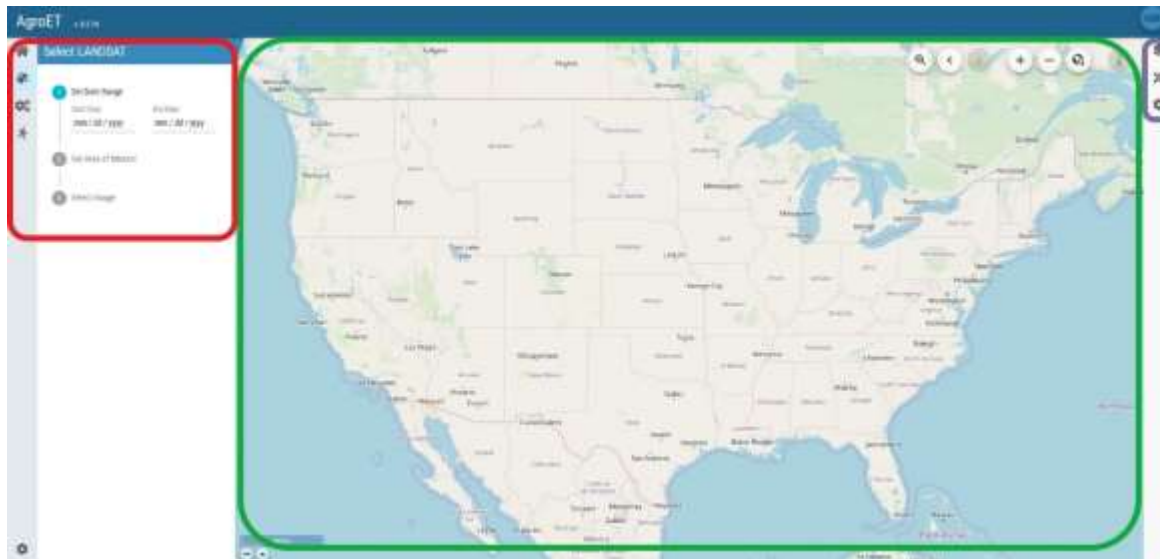


Figure 1. Initial Page of AgroET Graphical User Interface (GUI)

The purple rectangle on the right hand side of Figure 1 contains three icons stacked vertically and they allow the user to control the GIS layers display in the middle of the GUI and set some of the characteristics of the GIS layers. The three icons are shown in Figure 2 (a).

Getting Started:

The flow of the model is controlled by the three icons on the upper left hand side of the screen. The icons represent the home screen, the Select LANDSAT screen and the Process Scene options from top to bottom respectively.

If the user selects the second icon (**Select LANDSAT**) the user is able to:



- 1) set date range for the model to search for the available satellite images;
- 2) define the area of interest (AOI);
- 3) select the satellite image to process;
- 4) extract the weather data for the date of the selected satellite image; and
- 5) run the model using the default model option values.

If the user selects the Select LANDSAT icon:  the following options are displayed as shown below:

1. The user first sets the range of dates that the model will use to search for satellite images (blue circle with a 1 shown in Figure 1a). The user first defines the **Start Date**. The model automatically sets the **End Date** to one month after the Start Date. The user can manually modify the End Date set by the model. Once the user clicks on either the day, month or year of the **Start Date** a pop-up window is displayed with the current date highlighted as shown below in Figure 1(b). If the user clicks on one of the days in the month shown then the start date is populated with this date and the end date is populated with one month later and the second step will become active as shown in Figure 1(b). If the user decides that the selected date is not what they want they can click on any of three entries of the **Start Date** or **End Date** and modify the date. If they click on the month (in the case shown in Figure 1(b) if they click on December 2019 then a list of months and year will be displayed as shown in Figure 1(d). The user can select another month and/or year or scroll up and down with the arrows at the top and bottom of the months and years as highlighted in Figure 1(d) as shown in Figure 1(d) and select a different month or year or select the up and down arrows both for month or year to select a different month or year from those displayed on the screen. The user can also select the arrows next the month as shown in Figure 1(d) and scroll one month at a time backwards or forward.




Figure 1. Selecting of the Date Range. a) Initial Date Range selection; b) changing the start date (or end date); and c) once a date has been selected.

2. Once the user has selected a range of dates to search for Landsat images the second step is to set the **Area of Interest (AOI)**. The user can define the AOI in one of the following three ways: 1) selecting the first icon shown in Figure 2 (square with a pencil inside) and drawing a rectangle for the AOI; 2) selecting the second icon which allows the user to delineate a polygon; and 3) selecting the third icon with allows the user to select the files that define the AOI shapefile. The three icons are shown in Figure 2 and are described below.



Figure 2. Icons for selecting of the Area of Interest (AOI)

If the user selects the left icon in Figure 2  the user can delineate the AOI as a rectangle. The user clicks on a location and then moves the cursor to the other corner of the rectangle and clicks. This defines the rectangle that will be used as the AOI (shown in Figure 3).

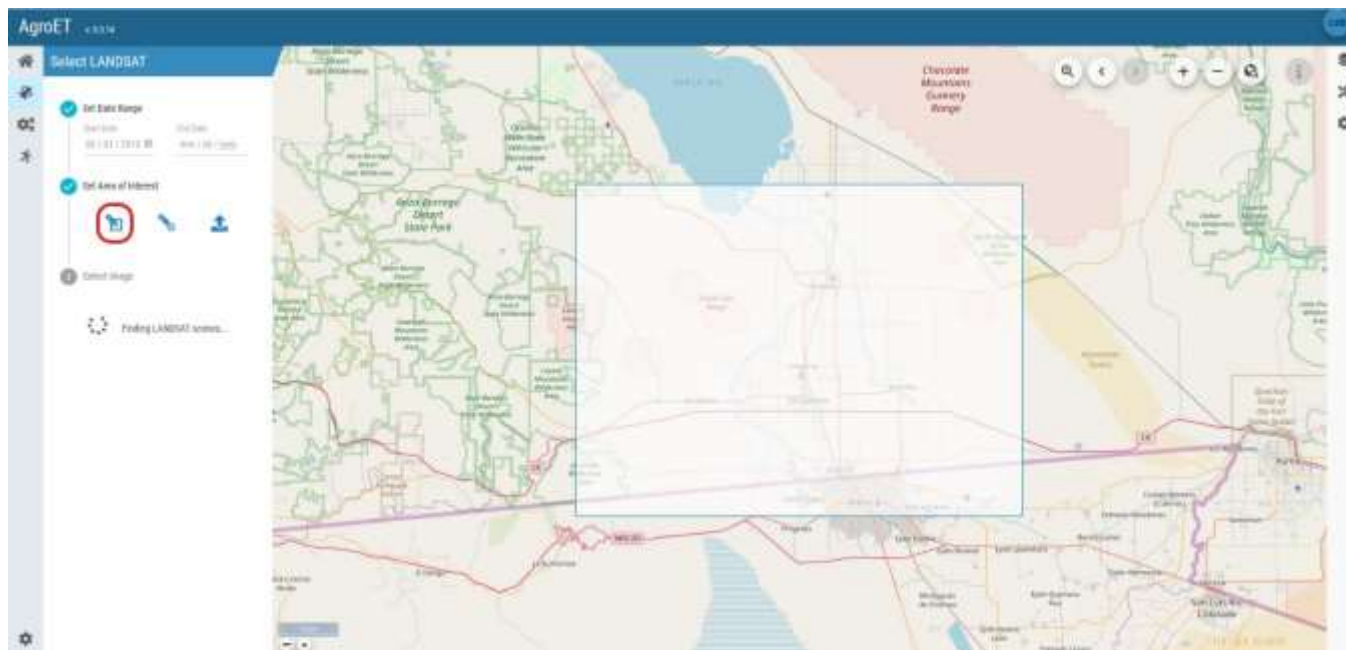



Figure 3. Delineating the AOI using a user defined rectangle

If the user selects the middle icon highlighted in Figure 2  the user can define the AOI as a polygon. The user clicks on the vertices of the polygon and once they reach the last vertex the double click and the system closes the polygon (shown in Figure 4).

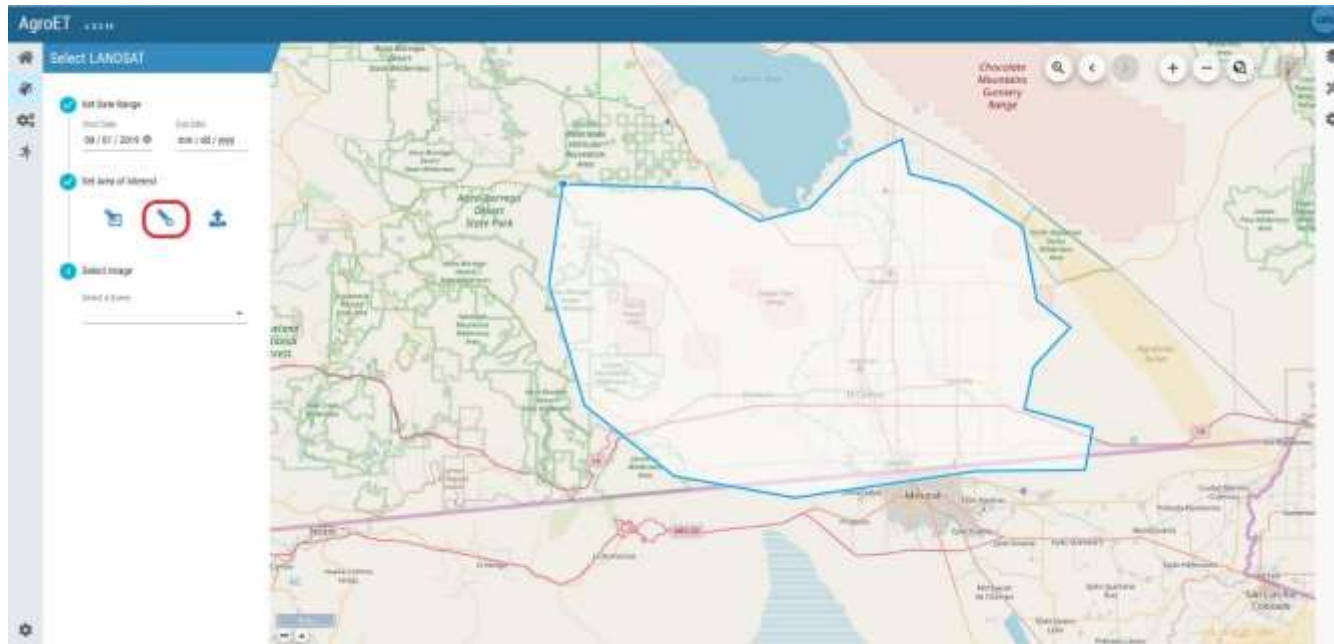



Figure 4. Defining the AOI by a user defined polygon

If the user selects the right icon in Figure 2  the user can define the AOI by selecting the files associated with a shapefile. Once the user selects the “upload a shapefile” icon a file selection box is displayed (as shown in Figure 5). At that point the user selects all the files associated with the AOI shapefile as shown in Figure 5.

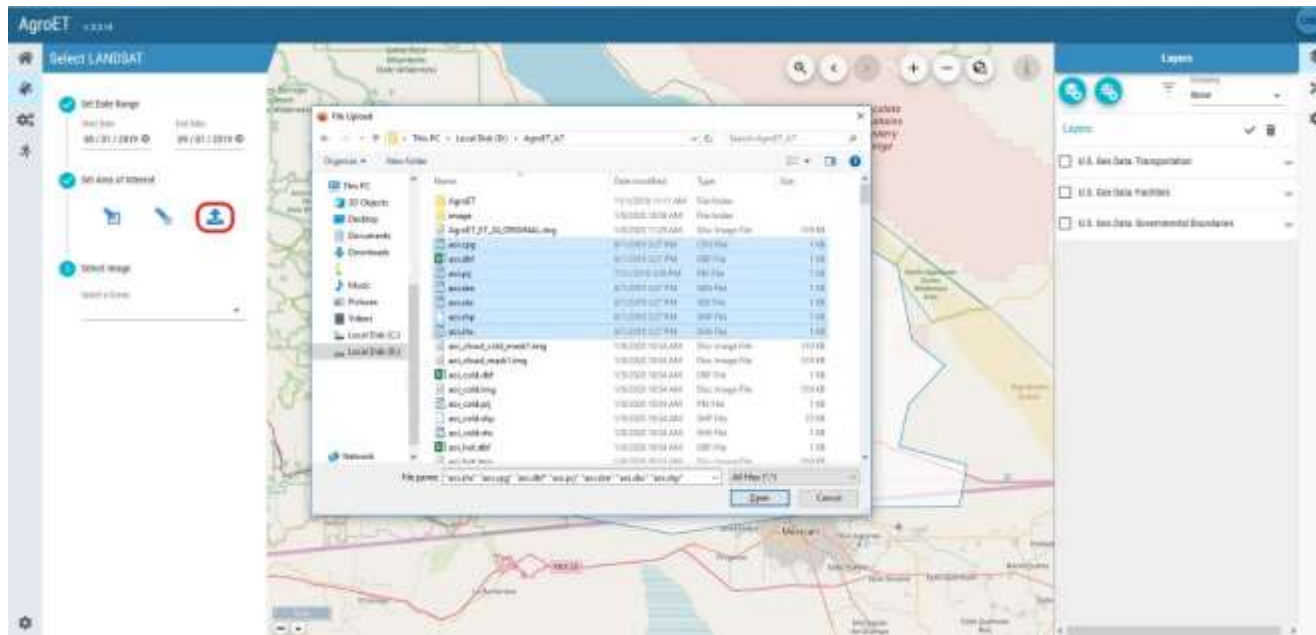


Figure 5. Using a shapefile to define the AOI

Once the AOI is defined the program extracts all the Landsat images that cover even part of the AOI during the time period specified by the user in the “Set Date Range”. Once the program determines the available Landsat images they are displayed in a pull down menu as highlighted in the red box in Figure 6. The user presses the arrow on the right hand of “Select a Scene” and a list of available satellite images is displayed. The list of images contains the following information: 1) the first three characters of the name indicate the type of satellite image it represents (LT5 = Landsat5; LE7 = Landsat 7 and LC8 = Landsat 8); 2) the date the image was acquired; 3) the percent cloud cover for the whole image; and the row and path of the image. The user can scroll down the list and select one by clicking on the left mouse button.

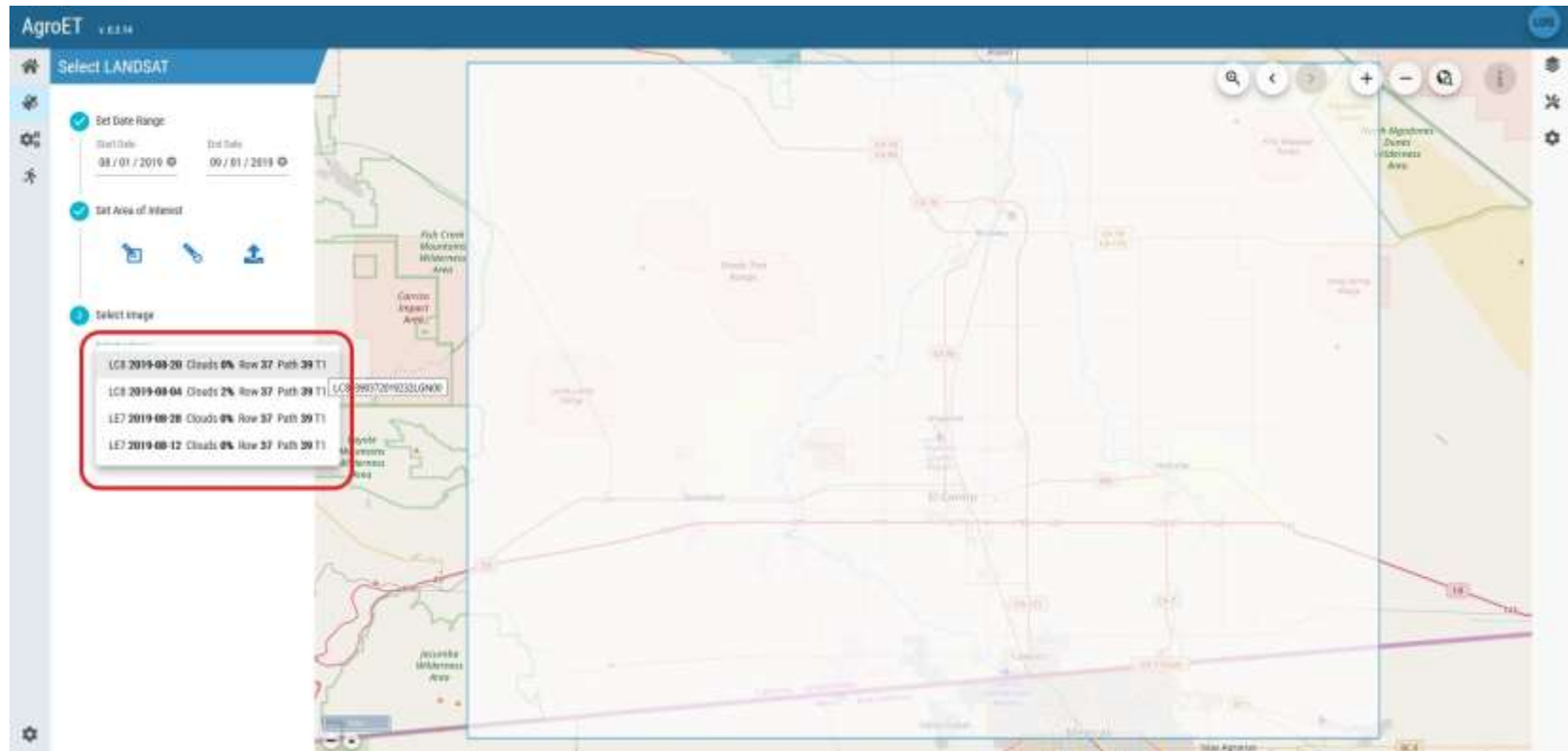


Figure 6. List of available satellite images that cover even part of the AOI during the user defined time period.

Once the user selects one of the Landsat images the thumbnail of the Landsat image is displayed below the selected image as shown in Figure 7. The footprint of the satellite image and the extent of the clouds is displayed on the screen overlaid over the AOI. This allows the user to identify in more detail (beyond the thumbnail) if the satellite image is acceptable. In addition, a table of the available weather stations that the model will use are displayed on a table at the bottom of the screen (below the map). The user can de-select any of the weather stations by clicking the blue check mark on the left hand side of the table. Any weather stations that are de-selected will not be used by the model in the run. Once the user is satisfied with the Landsat image and the weather station data they select the RUN AGROET button (above the thumbnail of the landsat image) and the model will start running.

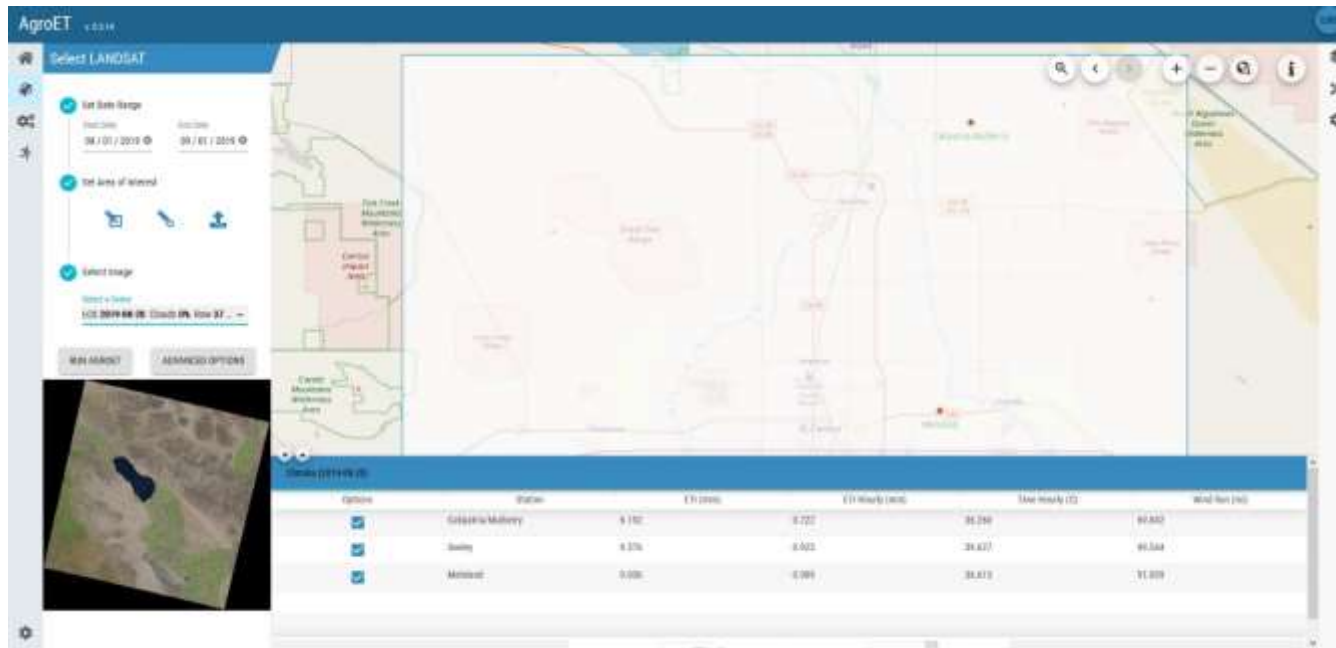


Figure 7. Once the user selects a Landsat image its thumbnail is displayed and below the map a table of the weather stations and the date for each that the model will use.

The user can select some advanced options in the model by selecting the “ADVANCED OPTIONS” button above the Landsat thumbnail shown in Figure 7. If the user selects the “ADVANCED OPTIONS” the model will display the screen shown in Figure 8. The user can select either the Hot and/or the Cold Points that the model will use for determining the maximum ET points and the minimum ET points for calibration of the results. The user can also select

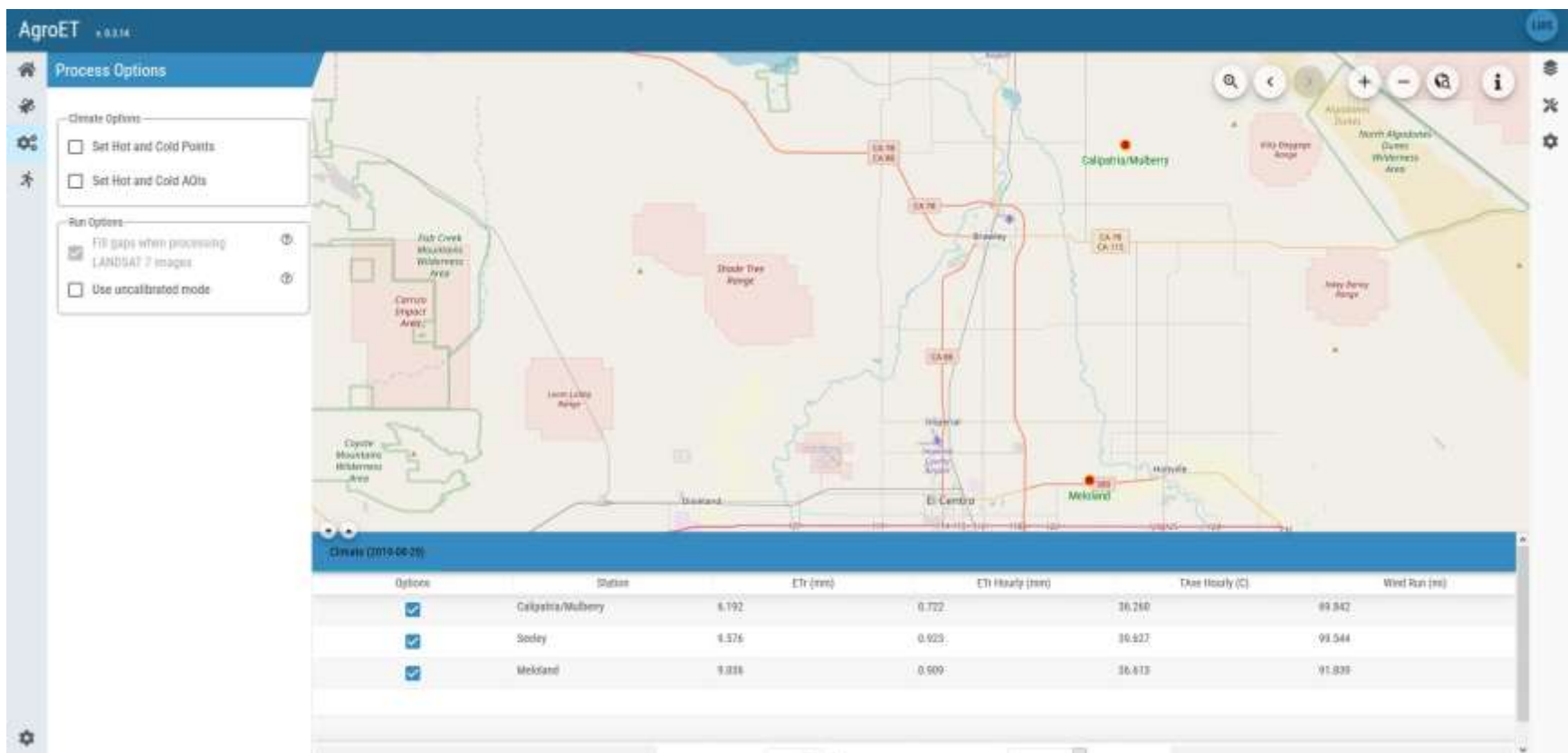


Figure 8. The advanced options the user can set for the model.

Process Options

Climate Options

Set Hot and Cold Points

Cold   

Hot   

Set Hot and Cold AOIs

Run Options

Fill gaps when processing
LANDSAT 7 images

Use uncalibrated mode



Climate (2019 06 30)

Options	Station	ETI (mm)	ETI Hourly (mm)	TMax Hourly (C)	Wind Run (mi)
<input checked="" type="checkbox"/>	Colusa/Marysville	6.192	0.722	36.260	63.642
<input checked="" type="checkbox"/>	Seelye	9.576	0.920	39.627	91.544
<input checked="" type="checkbox"/>	Mendocino	9.038	0.809	36.612	91.039

LUIS

Layers

Grouping: *None*

Layers

- U.S. Geo Data: Transportation
- U.S. Geo Data: Facilities
- U.S. Geo Data: Governmental Boundaries

State or Territory Small-Scale labels

- County or Equivalent
- State or Territory Small-Scale
- State or Territory Large-Scale

General Layers

Opacity 100 %

APPLY CLOSE




U.S. Geo Data: Governmental Boundaries



Select Area of Interest




State or Territory Small-Scale labels




- County or Equivalent
- State or Territory Small-Scale
- State or Territory Large-Scale

Layers


   Grouping
None

Layers  

- U.S. Geo Data: Transportation 
- U.S. Geo Data: Facilities 
- U.S. Geo Data: Governmental Boundaries 

Select one of the following:

- Draw a Point** 
- Draw a Line
- Draw a Polygon
- Draw a Box
- Draw a Rectangle
- Draw a Circle
- Known Boundaries
- User-Supplied Layer