Climsoft V4 – Data Entry Guide

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1. Introduction

Welcome to Climsoft version 4 Data Entry Guide. This guide will explain how you can enter data for one or multiple elements, such as precipitation, temperature, wind speed, etc., into a variety of different forms. Data entered here will be saved and can later be uploaded or transferred into Observationinitial table for further quality control and then into Observationfinal table.

Climsoft comes with a list of Data Entry forms from where a user can choose the form that suits the set of data to be keying in. To start with, Climsoft administrator has to select from the list only those forms that are required by the key entry operators (Figure 1). The following paragraph describes how this process is undertaken.

2. Setting up Key- entry Forms List

To access the list of all available key-entry forms follow the steps below:
Step 1: Sign into CLIMSOFT as "**administrator**"; then
Step 2: Under the "**Main Menu**" bar go to **"Administration**" button and select **"Data Forms"** on the list to obtain the dialog in Figure 1.
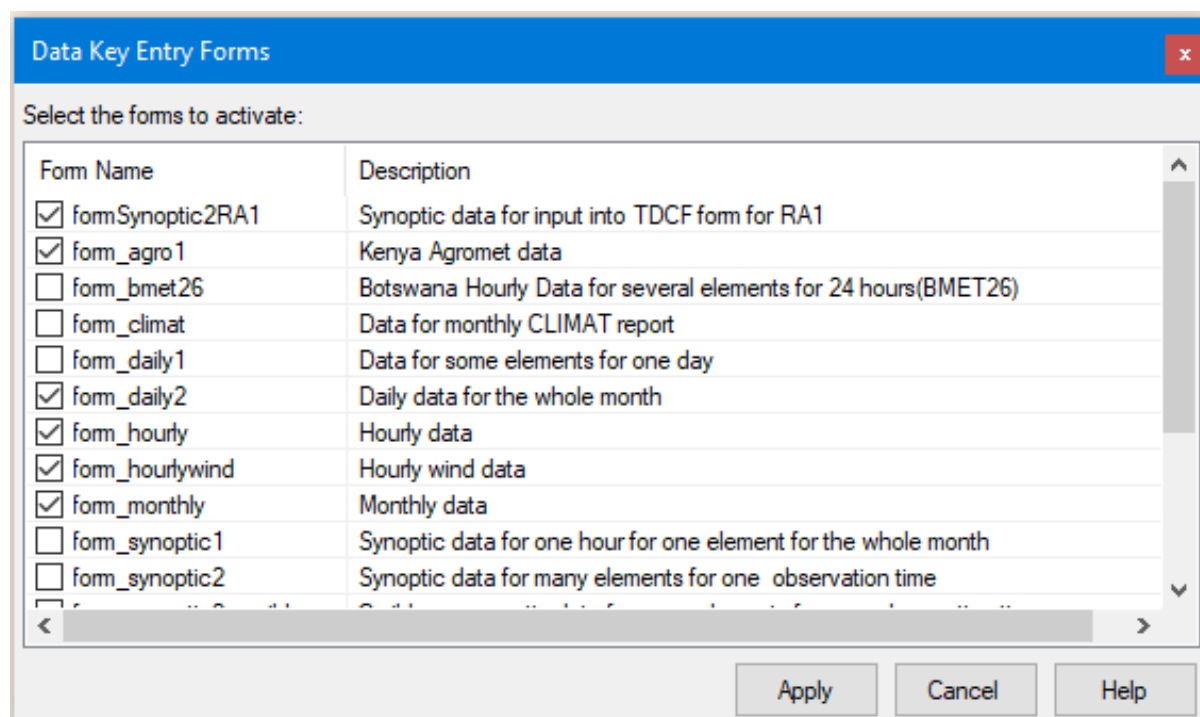

Figure 1 – Data Key Entry forms settings

Step 3: Check the boxes for those forms to be shown and uncheck for those to hide;
Step 4: Click "**Apply"** when through to save the changes and then "**Cancel"** to close the dialog.

3. Data Entry Operation

Before the data entry operation can be done in Climsoft, it is a strict requirement to have station information in the station table. The same requirement applies to the ingestion of external data. So please update the station information before attempting any of these operations.

For key entry, it is also important to check the element information which comes with the Climsoft setup to ensure that all required elements are clearly defined and the element limits that are required for Quality Control (QC) are adjusted where necessary to meet local needs.

To start data entry, follow the steps below:

Step 1: Sign into Climsoft as "**operator"**; then

Step 2: Under the "**Main Menu"** bar, go to **"Data Entry**" icon on the Climsoft "Welcome" screen;

Step 3: Select the data entry form that corresponds to the data to be entered and click OK to open the form (Figure 2).
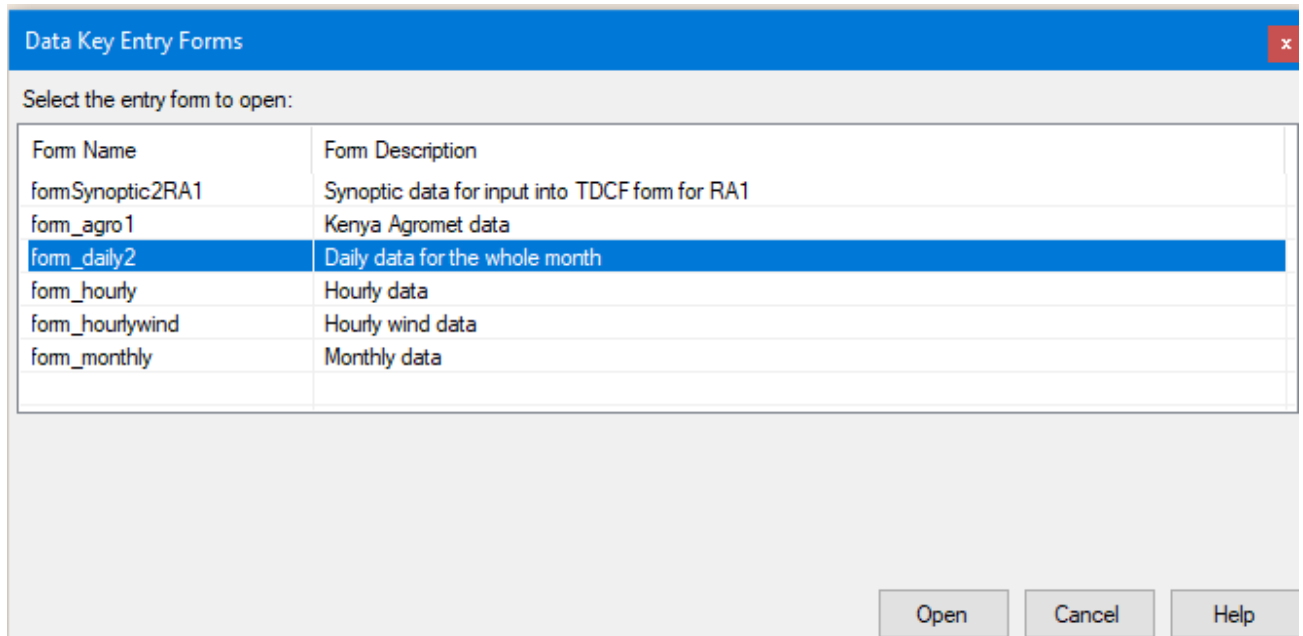
Figure 2 – List of Data Entry forms

Double click on the required form or select and press **"Enter key"** to open it. **OK** button also open as well the selected form and **Cancel** closes the dialog (Figure 3).

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Figure 3 (a) – Data Entry form opening

3.1 Data Entry Forms Layout

All of the data entry forms share a similar layout, making them easy to understand and use. Each form is broken up into the following sections:

1. General information: At the top of the form you will find boxes to input information such as the station name, elements, and the period of time that is being recorded. These are the header fields.

2. Value Boxes: In the centre of the form are the value boxes. This is where you will enter all of the climatic data.

Note: On most forms a **"Flag"** box follows each **"Value"** box. Flag boxes are usually blank, but letter codes may be automatically generated or manually entered to provide additional information in regards to the corresponding "Value" box.

The letter codes are as follows:
M (Missing), the data value is missing;
T (Trace), the data value has been recorded as zero but a small trace was observed;
E (Estimated), the data value is an estimated value rather than an observed value;
G (Generated), the data value has been generated from other values;
D (Dubious), the data value is dubious or suspected.

You cannot enter letter codes directly into the **"Flag"** box. To enter **E** or **G** flags, type the desired letter immediately after the data in the "Value" box.

To enter a **T** flag, type **"T"** immediately after entering 0 in the "Value" box (E.g.:0T).

Figure 3 (b) – Data Entry form operation

Climsoft will automatically generate an M flag if the **"Value"** box is left blank. (You must click on the value box and manually move to the next box using the **<Tab>** or **<Enter>** keys for Climsoft to acknowledge that you have chosen to leave the box blank.

There is also a **"Total"** box. When applicable you can use the "**Total**" box to ensure that the data have been keyed in correctly. Add up all of the values from your original document and enter the amount into the **"Total"** box. On forms where the total box has been disabled, you will not be able to enter a value.

Records Browser: The records browser is located below the total value box and allows you to scroll between records by clicking on the interior arrows located on either side of the "Records" box. Clicking on the exterior arrows will display the first and last record.

Key Entry Commands: The key entry commands are located below the data value boxes, and allow you to perform a number of tasks including adding, deleting and resetting records, as well as inserting or deleting cells (value boxes), and viewing records. The key entry commands are outlined below:

COMMAND	FUNCTION
AddNew	Inserts a new record at the end of the table. Unless the system administrator has specified otherwise, the station name will be the same as the previous record, and the date will be updated to the next in sequence (e.g. the next day if it is a daily record). Users are able to change these fields manually.
Save	Saves data for the newly added record
Update	Updates a selected observation value after being edited.
Delete	Deletes the current record.
Clear	Clears all the data fields in the form. The header fields are not affected.
Cancel	Cancel will cancel the operation
View	Opens a window that displays all the records corresponding to the current form in a single table (data sheet) view.
Close	Closes the form without saving your work.
Help	Provides help regarding the current form
Upload	Upload opens the dialog listing stations with data to be uploaded from a key-entry table into a common table named "observationInitial" where more QC checks are carried out. The operator will then decide whether to select all the stations or few stations and define the period of data to upload.

Table1 – Key Entry Commands

3.2 Common aspects for all data entry forms

1. After selecting a value from a dropdown list e.g. a station name, or entering a value in a textbox, the **Enter** or Tab key must be pressed for the value to be registered on the form and for the cursor to move to the next cell;

2. Some key-entry forms have provision for entering the "**Total**" for elements that require the sum of values for a particular column of observation data. The Climsoft administrator must configure the metadata in the element table to enforce the requirement for the total to be entered for the elements that need a total to be entered during data entry process;

3. Some buttons are enabled or disabled depending on the situation. For example, the "**Save**" button is enabled only after clicking the "**Add New**" button in order to enter a new record;

4. The "**Add New**" button is automatically disabled until the "**Save**" button has been clicked to save data for the newly added record;

5. When the cursor leaves a particular textbox or dropdown list after pressing the "**Enter**" key, quality control (QC) checks are carried out on the value that has just been entered. Figure 4 shows a QC message that pops up after entering a value that has failed the QC check for upper limits when entering daily data;

Fig 4 - QC checks during key-entry

6. All key-entry forms have an "**Upload**" button for transferring data from a key-entry table into a common table named "**observationInitial**" where more QC checks are carried out. This button is not enabled for a user with the role of operator, but is enabled for users with the role of operator supervisor, QC and administrator;

7. All key-entry forms have a "**View**" button for viewing the data that has been entered in datasheet view (Figure 5).

8. To facilitate locating a required record, the rows are order in ascending order by station ID, element ID, and date/time attributes;

9. In the datasheet view mode, a key-entry operator can delete selected row by clicking the "**Delete**" button;

10. The operator can also update a selected observation value by editing the selected observation value and clicking the "**Update**" button.

Important

Values that form part of the row index (or form header information) cannot be edited in datasheet view. An important feature of the datasheet view functionality is that in a network arrangement where multiple key-entry operators enter data into the same key-entry table from different workstations, a key-entry operator can only view and make changes to the data records that he/she has entered. In the key-entry form view, where navigation through all

records entered is possible for all key-entry operators, the "**Delete**" button is disabled for the key-entry operator, but enabled for the operator supervisor and administrator to minimize the chances of operators deleting each other's data (Figure 5).

Figure 5 – Key entry in datasheet view

3.3 Special features for specific key- entry forms

Special features for specific data entry forms are:

1. Units of measurement for some specific elements.

Just below the header area of the form for daily data shown in Fig 6, there is a section for indicating units of measurement for some specific elements. This is meant to accommodate entering historical data over different periods where the units of measurement for those elements might have changed.

For example, the oldest historical paper records in some National Meteorological and Hydrological Services (NMHSs) had units of degrees Fahrenheit for temperature which were later changed to degrees Celsius. Similarly, the oldest records for precipitation could be having units of inches which were later changed to millimeters.

2. Automatic change of the next element

The form for daily data is designed for entering different elements, with the next element being changed automatically after clicking the "**Add New**" button, being controlled by the sequencer.

However, there may be need to enter only a single element for several months, especially in the case of rainfall data from rainfall stations. In such cases, the element sequencer can be turned off by un-checking the "**enable element sequencer**" checkbox.

3. Automatic change of dates on the data entry form

The form for daily data has textboxes for entering observations values for each day from day 1 up to a maximum of day 31. If the value of the month entered in the header section of the

month has a maximum number of days that is less than 31, textboxes associated with day numbers beyond the maximum number of days for that month will be disabled. This applies to months with 30 days and also for the month of February with 29 days for a leap year and 28 days for a non-leap year.

4. Setting default value

The daily form and the hourly form have provision for assigning the same value for all observation days for a particular element. This is most appropriate especially when entering rainfall values of zero for the whole month, thereby reducing the number of key strokes substantially.

5. Customize hours of observations for hourly forms

Hourly form can be configured for entering observation data for all hours or for selected synoptic hours. The form for entering hourly wind provides for fast entering of wind direction and speed as one number in the same textbox with the direction and speed automatically separated into different textboxes (Figure 6). The splitting of the combined wind value into direction and speed is based on the configured number of digits for direction and speed. This configuration is done as described under "**Configuring general settings**". This form has also provision for entering wind data for all hours or for selected synoptic hours, similar to the same configuration available on the hourly form.

Figure 6 - Key- entry form for hourly wind data

6. Automatic calculation of derived elements

The form for entering synoptic data for an observation made up of many elements at the same hour of observation (Figure 7), provides for the automatic calculation of derived elements, namely, mean sea level pressure, geopotential height, dew-point temperature and relative humidity.

Figure 7 - Data entry form for many elements observed at the same time

Note: *The automatic calculation of mean sea level pressure and geopotential height require station elevation data to be available in the station metadata table.*

4. Configuring Data Entry Forms Sequencer

There is therefore need to customize the order or sequence in which the element name changes on the element list box.

4.1. Sequencer configuration for Hourly Data Entry Form

For the hourly form, the required sequencer configuration is done on the appropriate dialogue which is accessed via Climsoft Main Menu as follow:

Step 1: Sign into Climsoft as "**administrator"**; then

Step 2: Under the "**Main Menu"** bar go to **"Tools**" button**"** and select **"Sequencer Configuration" then "Hourly"** on the list to obtain the dialog in Figure 8 below:
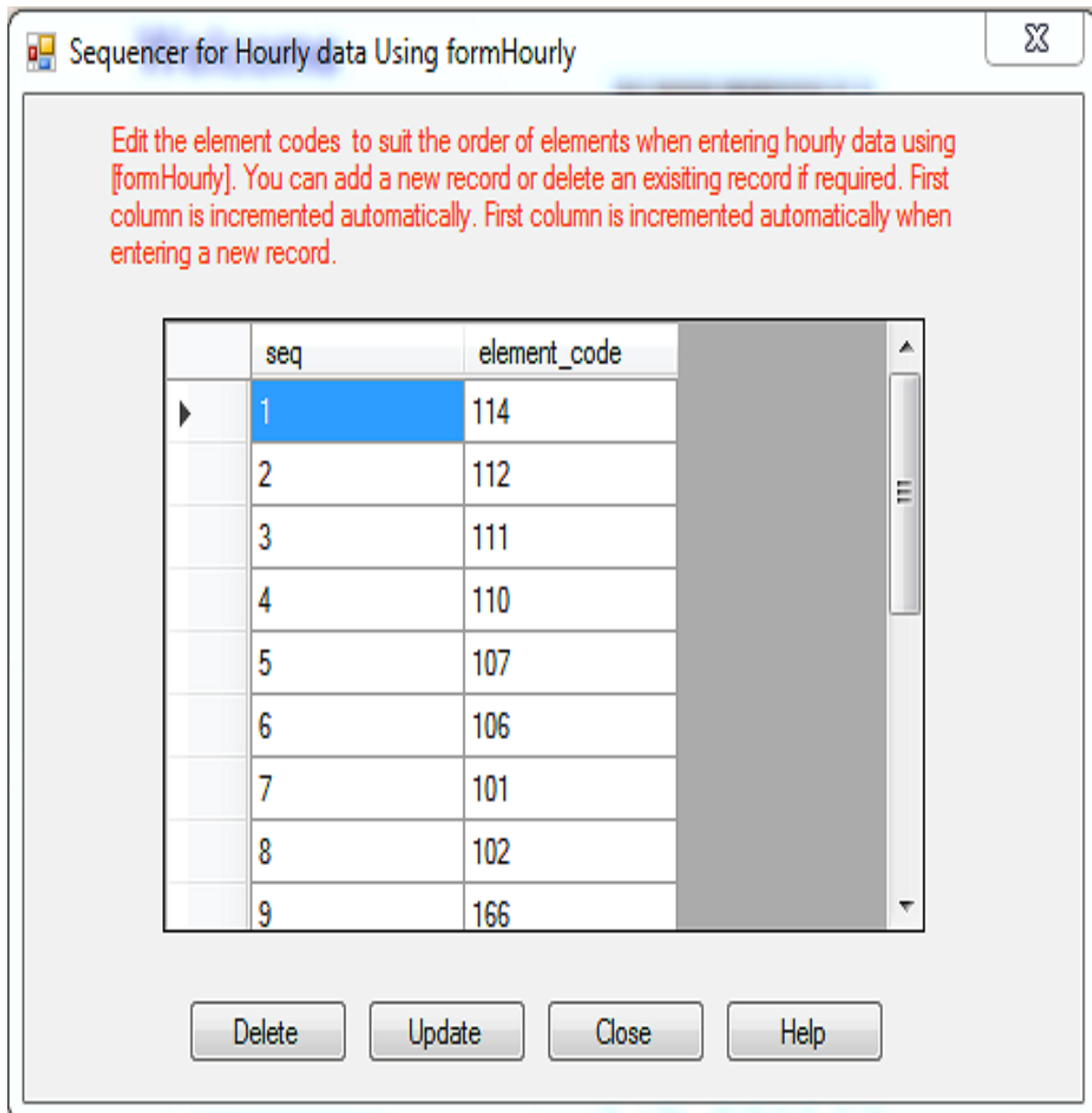

Figure 8 - Configuring sequencer for hourly data

4.2 Sequencer configuration for Daily Data Entry Form

Similarly, the dialogue for configuring the sequencer for daily data is accessed as follow:

Step 1: Sign into Climsoft as "**administrator"**; then
Step 2: Under the "**Main Menu"** bar go to **"Tools**" button**"** and select **"Sequencer Configuration" then "Daily"** on the list to obtain the dialog in Figure 9 below:
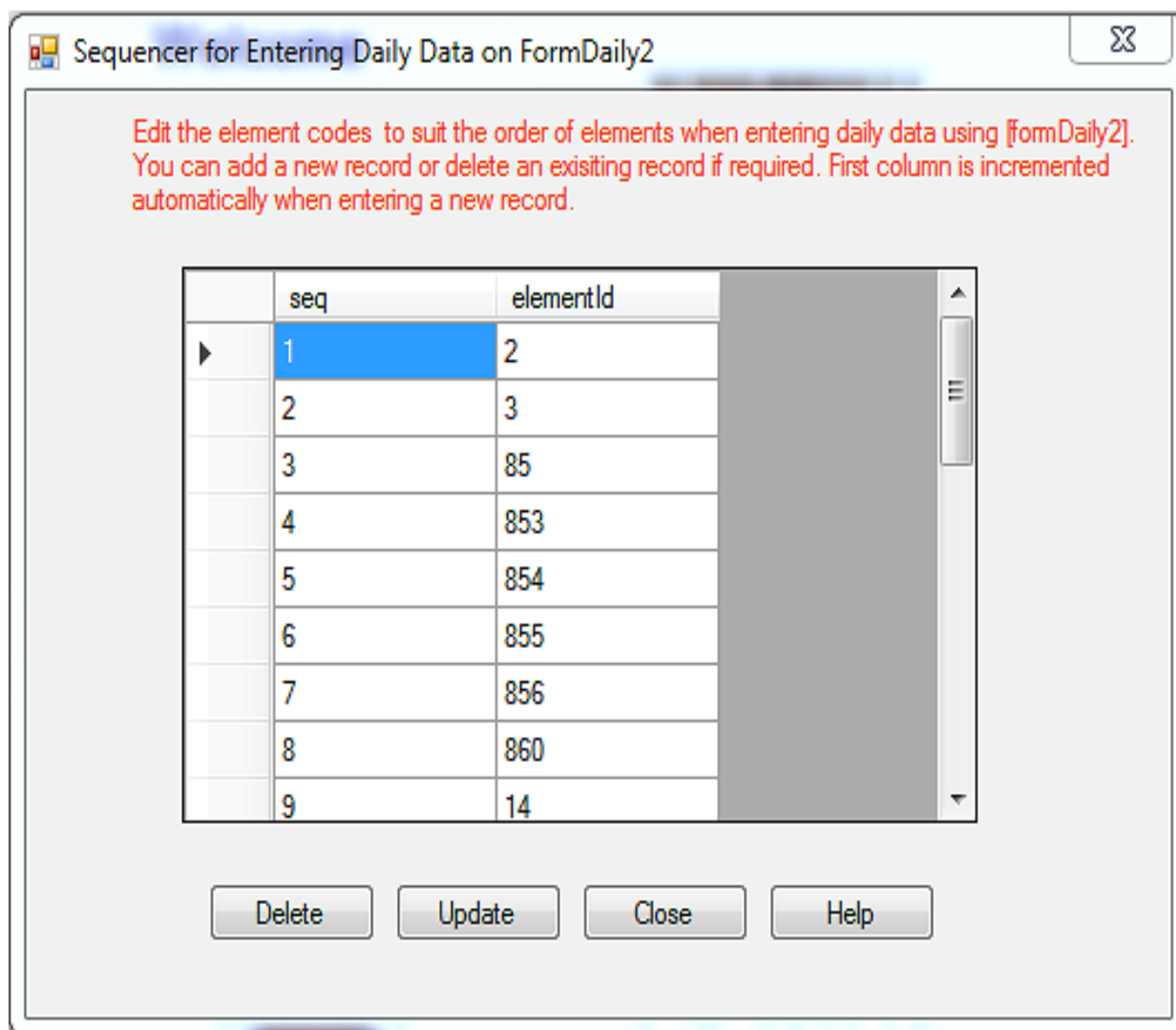
Figure 9 - Dialogue for configuring sequencer for Daily data

Note: *In addition to the sequence of the elements, the date/time sequence is also affected automatically and this sequence does not require any customization since it will be the same for any location.*

4.3 Configuration of synoptic hours for Hourly Data Entry forms

The form for hourly data can also be used for entering data for selected synoptic hours when required. This is done by disabling the textboxes for non-synoptic hours by clicking the button "**Enable synoptic hours only**". This button is located just below the header information on the hourly form (Figure 10) as shown below:

Fig 10 - Hourly form enabled only for synoptic hours

When the button "**Enable synoptic hours only**" has been clicked, its label immediately changes to "**Enable all hours**"; so it allows toggling between "all hours" and "synoptic hours".

4.4 Configuration of specific synoptic hours on hourly form

To configure the specific synoptic hours that would be enabled on hourly form, follow the steps below:

Step 1: Sign into Climsoft as "**administrator"**; then
Step 2: Under the "**Main Menu"** bar go to **"Tools**" button**"** and select **"FormHourly time selection"** on the list to obtain the dialog in Figure 11 below:
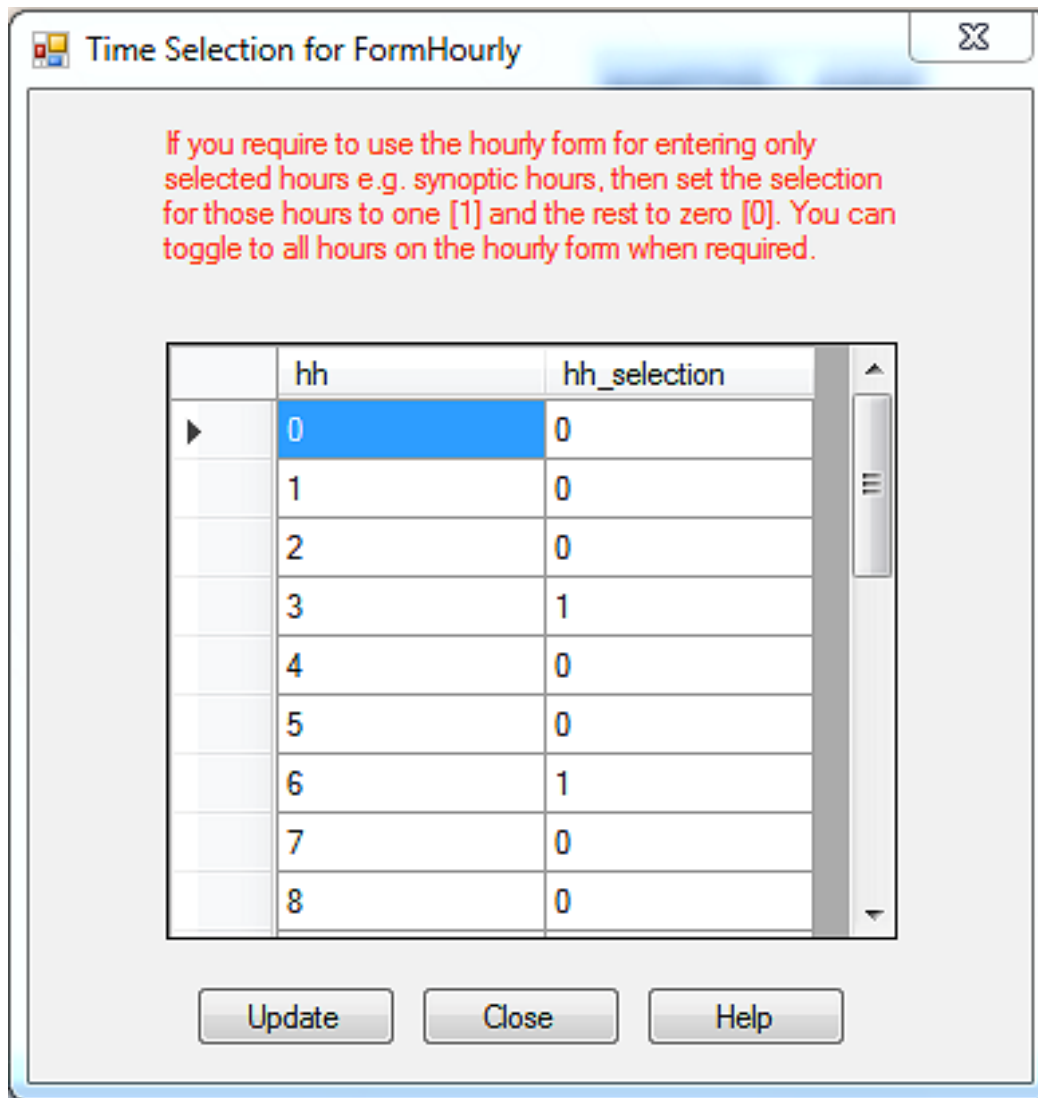
Figure 11 - Configuring synoptic hours to be enabled on hourly form

Note: For any question or further clarifications, contact the Climsoft Helpdesk at support@Climsoft.org