



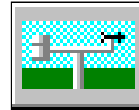
SECTION 8

*Weather Program
Smartweather™*

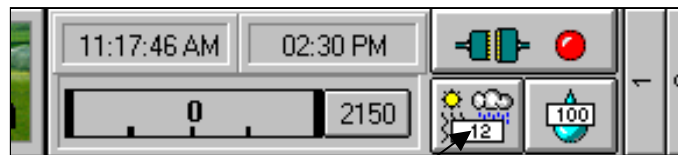
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Please note: This section will be available for the Stratus II software program in the future. For the Nimbus II software program Weather, Smart Weather Alarms and Multiple Weather stations are available with the purchase of the specific keycode software module.

Weather Program



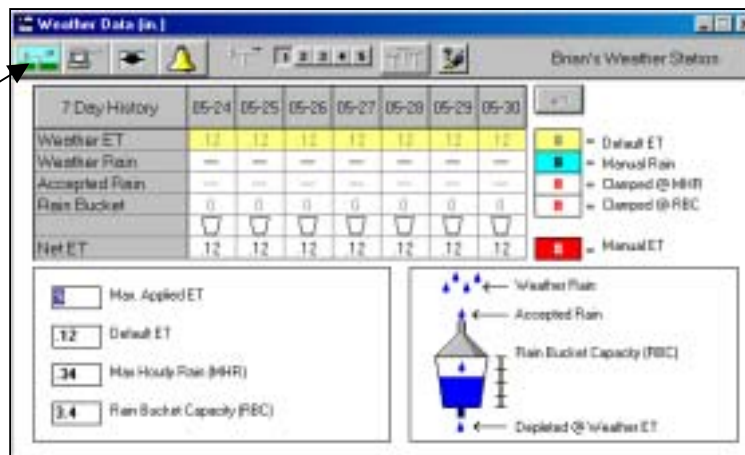
The “Weather Program” may be accessed from the “Front Office” screen tool Bar.



Today's ET/Weather Data icon

- Click on the “Today's ET/Weather Data” icon.
- The Weather Data screen will be displayed.

“Weather Program” icon button

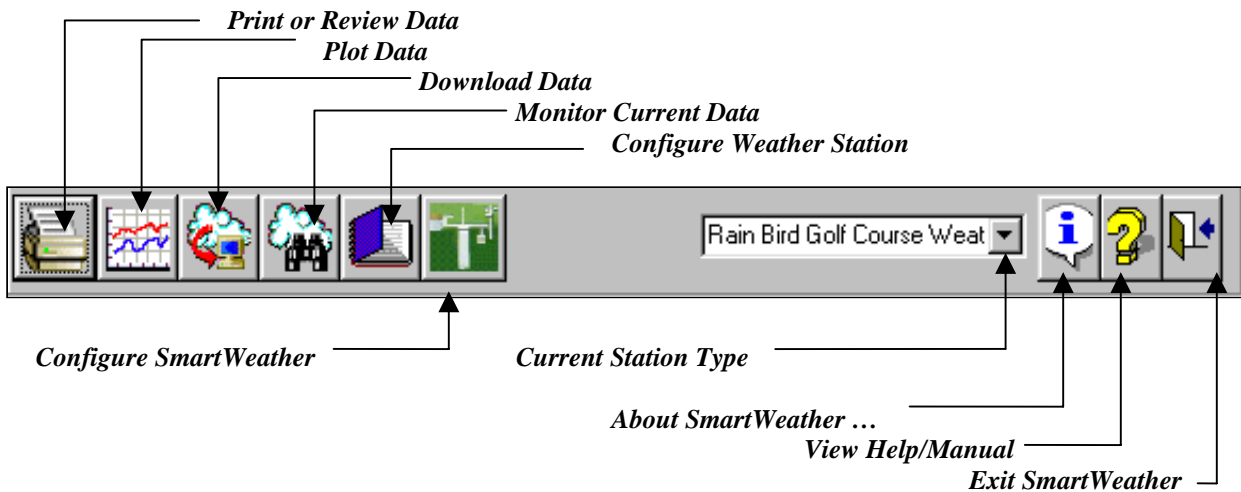
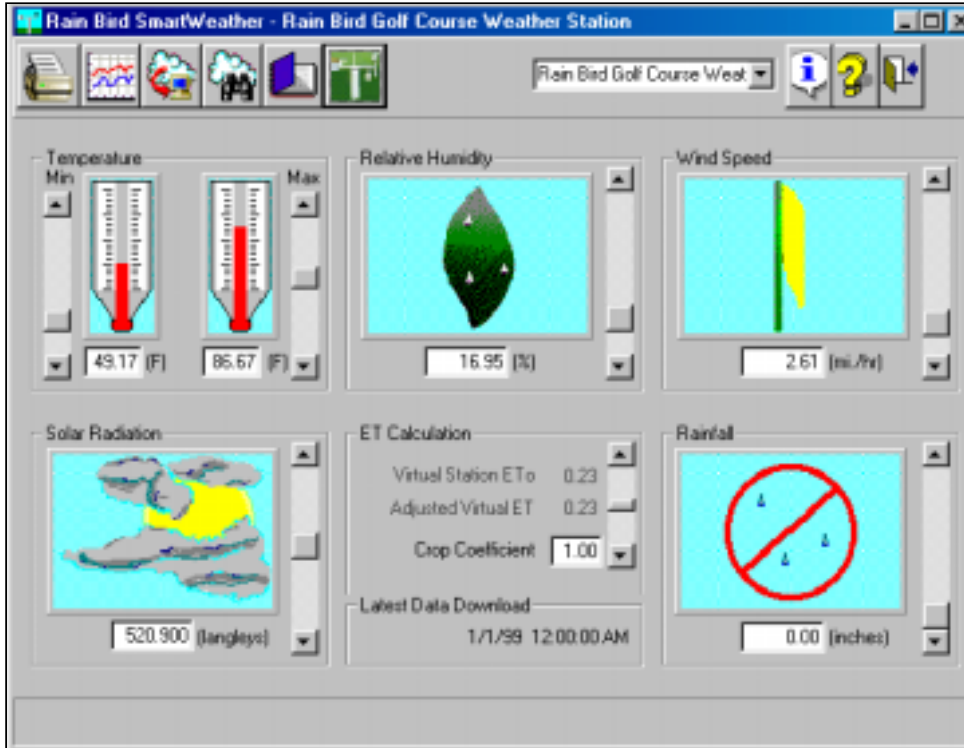


- Click on the “Weather Program” icon button.



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d) The Weather Program screen will be displayed.



Manual ET Data Entry

If there is no Weather Station on the course, then use the “Virtual Weather Station #1” screen to enter data each day, for the following factors.

Minimum Air Temperature
Relative Humidity
Solar Radiation

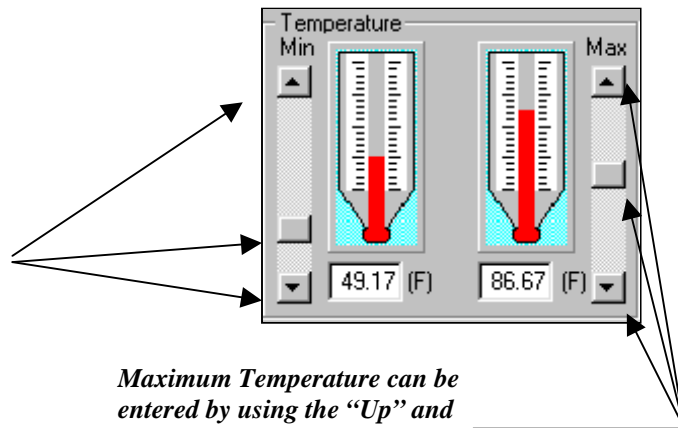
Maximum Air Temperature
Wind Run
Rainfall

There are a number of ways to gather this data on a daily basis, such as local area airport, weather channel, individual instruments, etc. After the entry of data, the system will calculate a Weather ET value, which will be used to adjust the system.

Minimum and Maximum Temperatures

The minimum and maximum daily air temperature may be entered into the temperature section of the screen.

Minimum Temperature can be entered by using the “Up” and “Down” arrows or the “sliding scale.”



Maximum Temperature can be entered by using the “Up” and “Down” arrows or the “sliding scale”

Example :

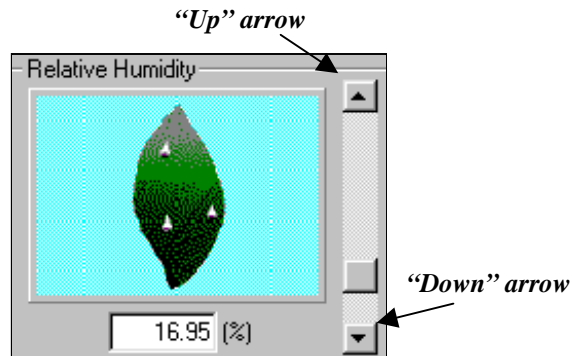
*Minimum Temperature = 49.17 Degrees F.
Maximum Temperature = 86.67 Degrees F.*

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Relative Humidity

The daily Relative Humidity value may be entered into the Relative Humidity section of the screen.

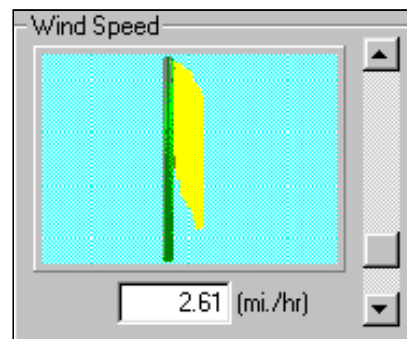
Relative Humidity value can be entered by using the “Up” and “Down” arrows or the “sliding Scale.”



Wind Run

The Wind Run value may be entered into the Wind Run section of the screen.

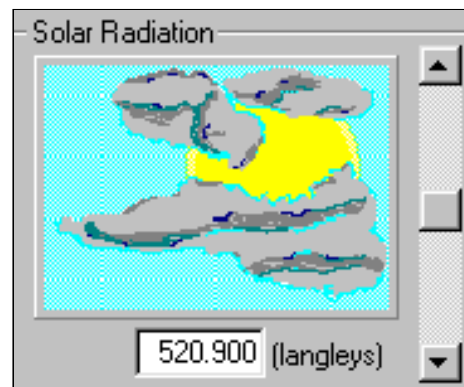
The “Wind Run”(in Miles per Hour) can be entered by using the “Up” and “Down” arrows or the “sliding scale”



Solar Radiation

The Solar Radiation value may be entered into the Solar Radiation section of the screen.

The Solar Radiation (langleys) value may be entered by using the “Up” and “Down” arrows or the “Sliding Scale”

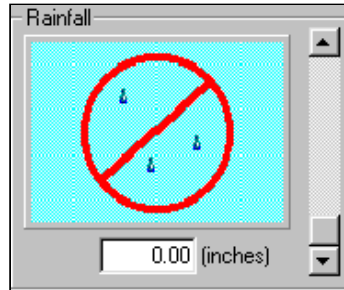


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Rainfall

The Rainfall value for the past 24 hour period may be entered into the Rainfall section of the screen.

The Rainfall value (inches) may be entered by using the “Up” and “Down” arrows or the “Sliding Scale”



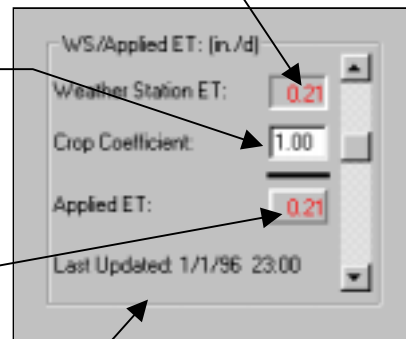
Weather Station “ET” Value

With the above data entered, the system will automatically calculate the Weather ET value (ins/day). This is displayed in the “WS/Applied ET” section of the screen.

Crop Coefficient displayed here - (can be changed) using “Up” and “Down” arrows

Applied “ET” value displayed here

Weather Station ET value displayed here



Last Update

Plotting Weather Data

Click on the “Plot Data” icon on the Virtual Weather Station screen to “plot” the data entered.

“Plot Data” icon

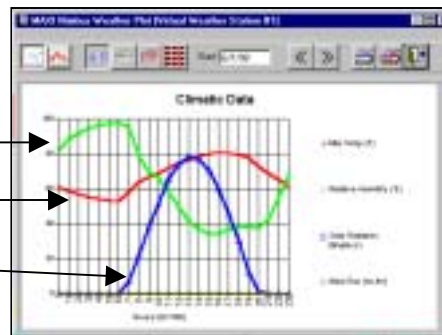


The Weather Data entered will then be displayed in a graphic form.

Relative Humidity (Green Curve)

Maximum Temperature (Red Curve)

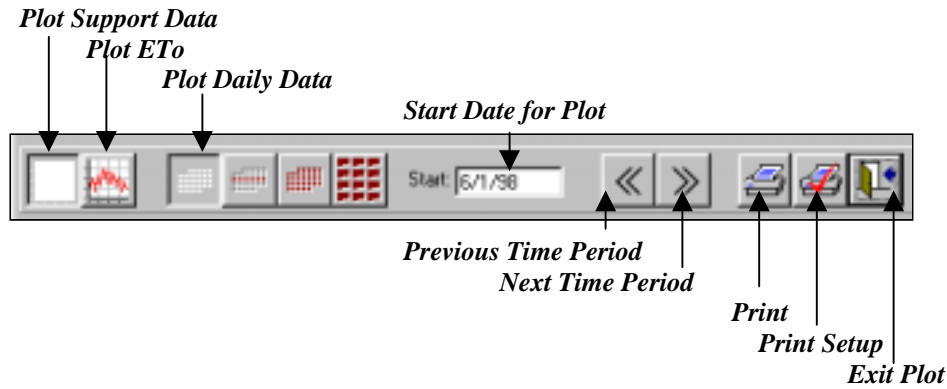
Solar Radiation (Blue Curve)



WEATHER DATA – PLOT SCREEN

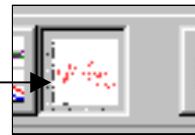
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Weather Data - Plot Screen Tool Bar



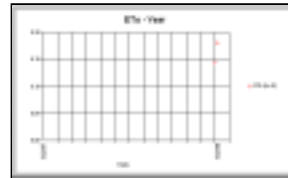
Plotting "ETo"

"Plot ETo" icon

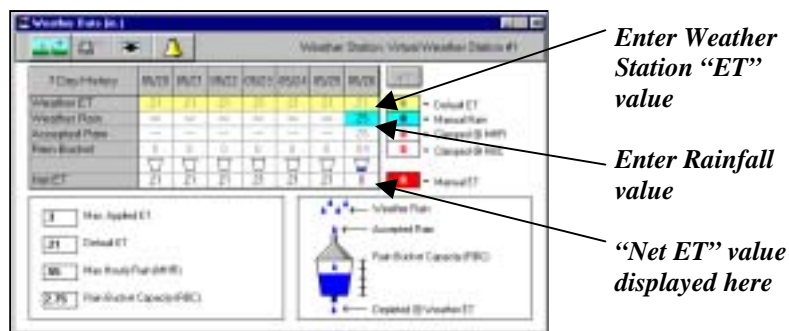


To "plot" the "Eto," click on the "Plot ETo" icon on the Weather Data – Plot Screen tool bar.

The "ETo" graph will be displayed.



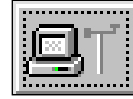
With the Weather "ET" value from the "Virtual Weather Station" screen and the Rainfall figure, it is now possible to go to the "Weather Data" screen and manually add this data in order to get a "NET ET" value for today.



- Enter the "Weather Station ET" value, as calculated on the "Virtual Weather Station #1" screen.
- Enter the "Rainfall" figure.
- The accepted rainfall figure will automatically be entered.
- The "Rain Bucket" capacity will also be automatically entered.
- The resultant "NET ET" value will be calculated and automatically entered.

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Weather Station Configuration



Weather Station on the Site

If a Weather Station is present on the site, then it needs to be set up in the following manner. The Weather Station will poll the instruments, every five seconds over a 24-hour period. With this data, the system will then calculate a Weather ET value, which will be automatically entered into the Weather Data table at the designated “Download” time.

*Weather Station Configuration icon
(at the top of the Weather Data screen)*



- a) Click on the “Weather Station Configuration” icon.

- b) The following general information screen will be displayed.

Designate the type of units to be used by clicking on the units tab

Select the type of modem being used

When all data is correct, click on the Save and Exit button

ET Weather Station		Units	
Station #1 Name	Virtual Weather Station		
Station Type	Virtual Station		
Latitude	35	Elevation (feet)	300
-Station Settings-			
COM Port	COM1		
Connection Type	Direct Connect		
Download Time			
Phone Modem	Generic modem		
Station Phone #	999-9999		
Alarm Callback #	999-9999		
-DHS-			
User Name	Undefined		
Password	Undefined		
Phone Number			
Save and Exit		Cancel	

Enter the COM port that is being used

Designate the method of communication to be used (direct or modem)

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- c) Select the Virtual Weather Station desired by clicking on the drop down arrow, and highlighting the desired station.



NOTE: At this time, the Weather Station may be renamed

- d) The Weather Station Configuration screen will be displayed.
- e) Enter the Latitude of the Weather Station location, by clicking on the cell and typing in the correct latitude.
- f) Enter the Elevation of the Weather Station location, by clicking on the cell and typing in the correct Elevation (in feet).
- g) If telephone communication is used between the computer and the Weather Station, enter the telephone number being used by clicking on the cell and typing in the number.
- h) Enter the “Download” time desired, for the computer contacting the Weather Station and downloading the weather station data. Click on the cell and enter the time, using military time.
- i) When all data is correct, click on Save and Exit.

The “configuration” of the Weather Station is now completed. The data will be displayed on the screen for the specific Weather Station chosen.

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Monitor Weather Station or “Download” W/S Data

To monitor the “Weather Station” online or to download the data from the Weather Station, go to the appropriate Weather Station screen. This can be accessed from the tool bar on the “Weather Data” screen.

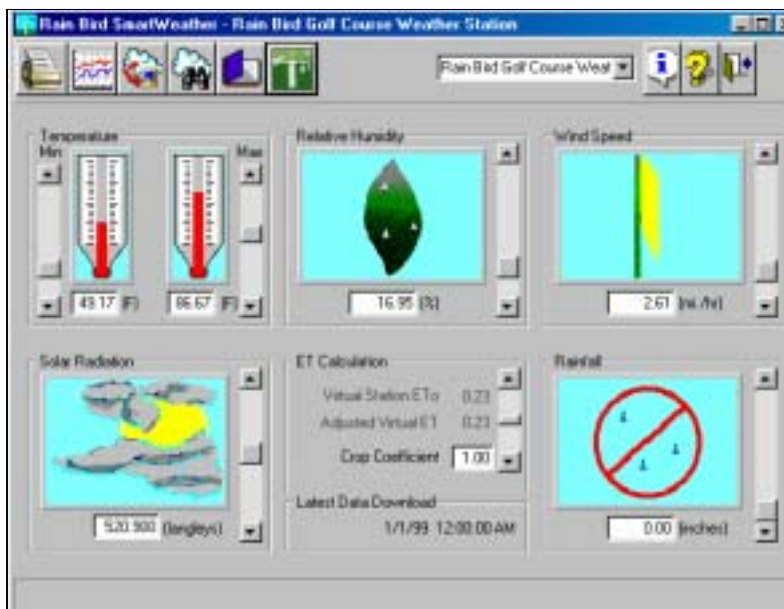
Weather Data screen Tool Bar

Weather Program
icon button



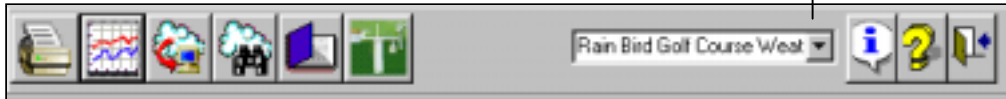
a) First click on the “Weather Program” icon button.

b) The “Virtual Weather Station”
screen will be displayed.

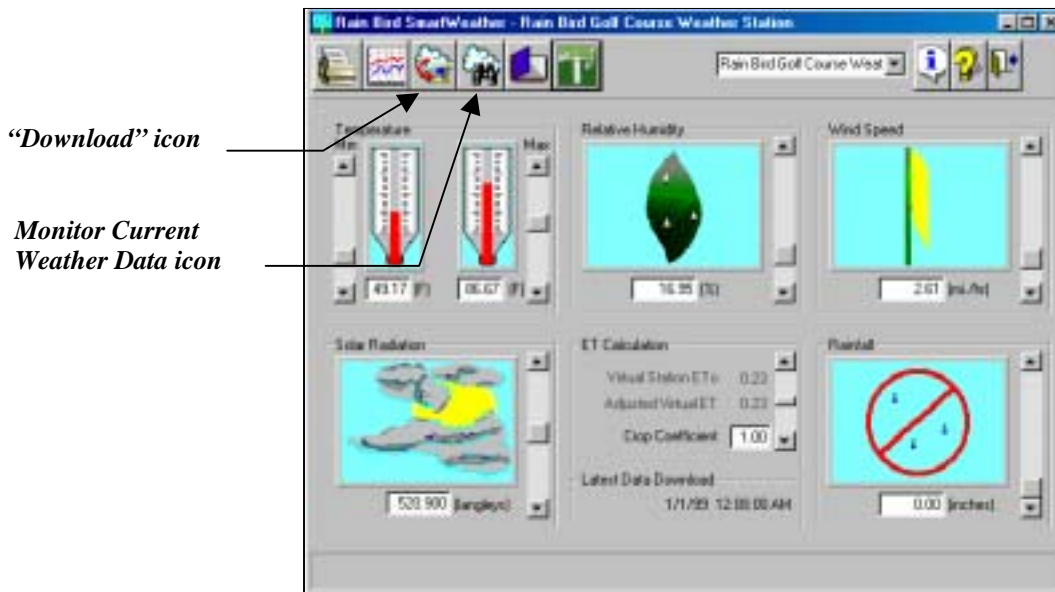


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- c) Next click on the drop down arrow and choose the appropriate Weather Station.



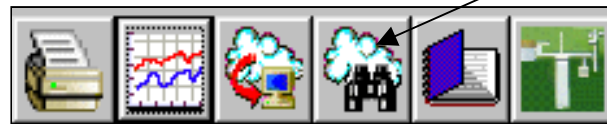
- d) For this example, the screen for Weather Station #1 will be displayed.



MONITOR CURRENT WEATHER DATA

Monitor Current Weather Data icon

- a) To monitor Current Weather Data, click on the Monitor icon.



- b) The Weather Station #1 screen data will be “filled in”, giving the current weather data as being sensed by the various sensors on the Weather Station.

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DOWNLOAD CURRENT WEATHER DATA

“Download” Current Weather Data icon

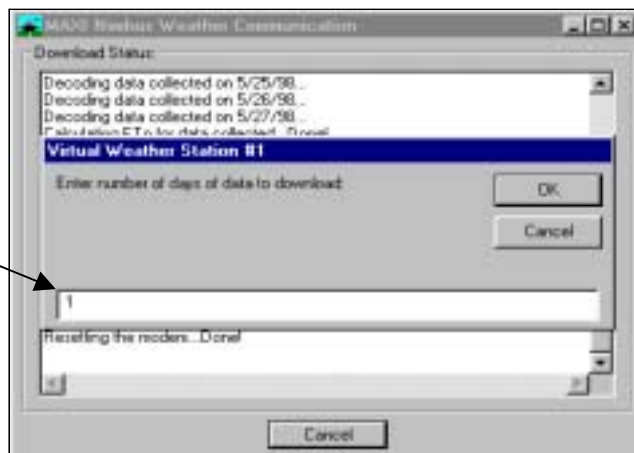
- a) To download the Current Weather Data, click on the “Download” icon.



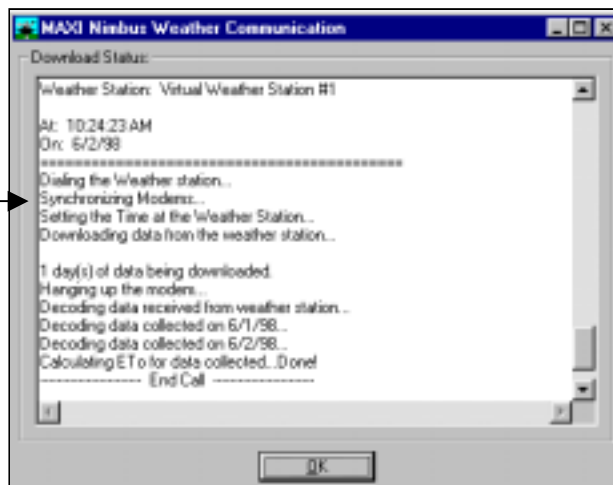
- b) The following screen will be displayed.

- c) Enter the number of days of data desired.

- d) Click OK.

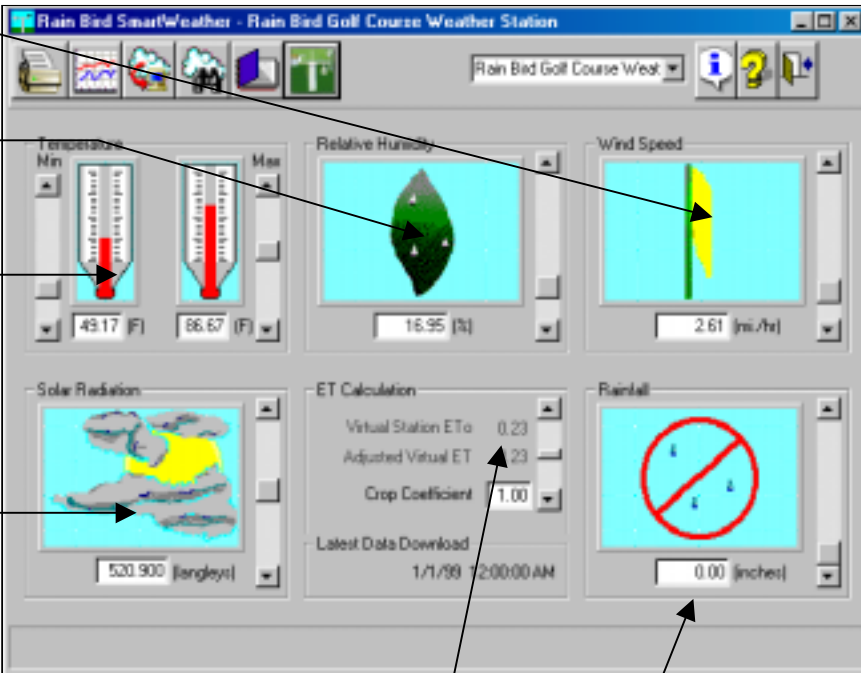


- e) The following screen will be displayed, with the computer calling the Weather Station to download the data.



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- f) The Weather Station #1 screen data will be filled in, showing the Downloaded Weather Station Data for the past 24 hour period.



Wind Run = 2.61 mi/hr displayed here

Relative Humidity of 16.95% displayed here

*Max. Air Temp. of 86.67 deg. F
Min. Air Temp. of 49.17 deg. F displayed here*

Solar Radiation of 520.900 Langleys is displayed here

Weather Station ET & Applied ET value is displayed here

Rainfall =0 is displayed here

NOTE !

The above procedure is for a “Manual Download” of data from the Weather Station. An “Automatic Download” will occur at the time that has been programmed and the above procedure would not normally be used. However, the data on an “Automatic Download” will “fill-in” on the Weather Station Screen, just as shown in the screen above.

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Upon an automatic or a manual download, the calculated Weather ET value on the Weather Station Screen will be automatically entered into the Weather Data screen.

Green cell indicates the value was manually entered

Yellow cell indicates it is the default value

White cell indicates it is a value that was "downloaded" from the Weather Station

Weather Sta. ET value is entered automatically

Weather Rain & Accepted Rain would be automatically entered

System "NET ET" will be calculated and entered here

7 Day History	05-24	05-25	05-26	05-27	05-28	05-29	05-30
Weather ET	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Weather Rain	—	—	—	—	—	—	—
Accepted Rain	—	—	—	—	—	—	—
Rain Bucket	0	0	0	0	0	0	0
Net ET	0.12	0.12	0.12	0.12	0.12	0.12	0.12

A Red cell (for NET ET value) would indicate that the value was "Manually" entered

The system would now automatically adjust all stations of the system, based on an ET value of 0.12 for the next cycle – thus just adding back the amount of water that the plant used, based upon weather conditions over the past 24 hours.

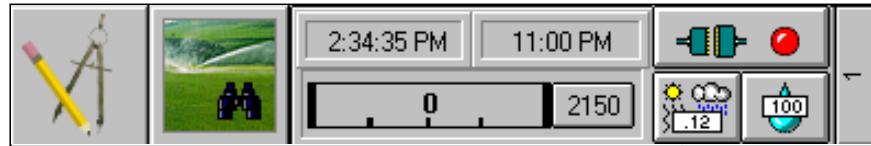
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SmartweatherTM



This feature programs certain “actions” to be automatically taken, based upon weather conditions. As an example, the system can automatically discontinue certain portions of the irrigation cycle should the wind reach or exceed a preset velocity.

The “Smart Weather” feature may be accessed from the “Front Office” screen Tool Bar.



Today's ET/Weather Data icon

- a) Click on the “Today’s ET/Weather Data” icon.
- b) The Weather Data screen will now be displayed.

“Smart Weather” icon

7 Day History	05/21	05/22	05/23	05/24	05/25	05/26	05/27
Weather ET	.27	.27	.27	.27	.27	.27	.11
Weather Rain	--	--	--	--	0	.25	0
Accepted Rain	--	--	--	--	0	.25	0
Rain Bucket	0	0	0	0	0	0	0
Net ET	.27	.27	.27	.27	.27	.02	.11

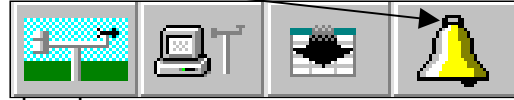
Max. Applied ET
 Default ET
 Max Hourly Rain (MHR)
 Rain Bucket Capacity (RBC)

Legend:
 [Yellow] = Default ET
 [Blue] = Manual Rain
 [Red] = Clamped @ MHR
 [Red] = Clamped @ RBC
 [Red] = Manual ET

Diagram Labels:
 Weather Rain
 Accepted Rain
 Rain Bucket Capacity (RBC)
 Depleted @ Weather ET

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- c) Click on the “Smart Weather” icon.



- d) The “Smart Weather” screen will now be displayed.

“ADD” a line button
 “DELETE” a line button
 “SIMULATE ALARM CONDITION” button

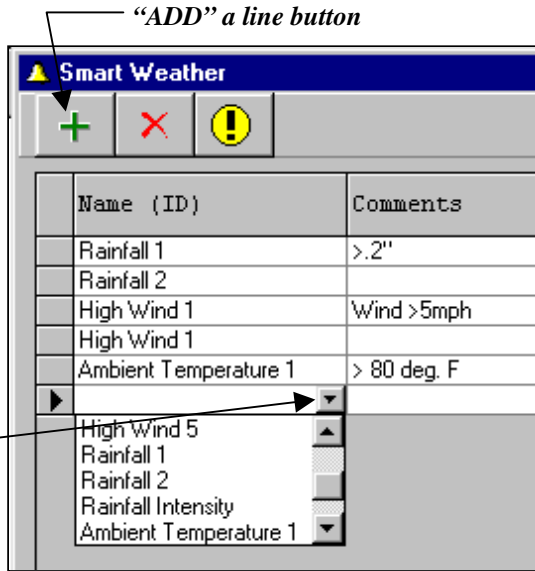
Name (ID)	Comments	IF Condition	DO What	TO Whom
Rainfall 1	>.2'	On	System Off	
Rainfall 2		Reset	System On	
High Wind 1	Wind >5mph	On	Pause	✓
High Wind 1		Reset	Resume	✓
Ambient Temperature 1	> 80 deg F	On	Start	

ID of Sensor involved
Comments desired
Condition of Sensor Switch
Action to be taken when threshold is met
Program or Schedule to react

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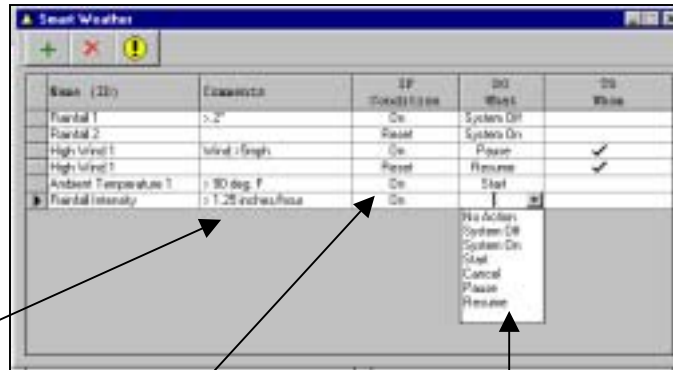
Add a Sensor to Smartweather

- a) To add a Sensor to the system, click on the “ADD” button at the top of the screen.
- b) Next click on the NAME ID cell to display the “down arrow.”
- c) Then click on the down arrow to get the drop-down screen.



- d) Now click on the Name (ID) to give to the sensor.

- e) The Sensor NAME (ID) will now be entered into the table.



- f) To enter comments, click on the cell and type the comment.

*sensor condition Default is “ON”
alternative is “RESET”*

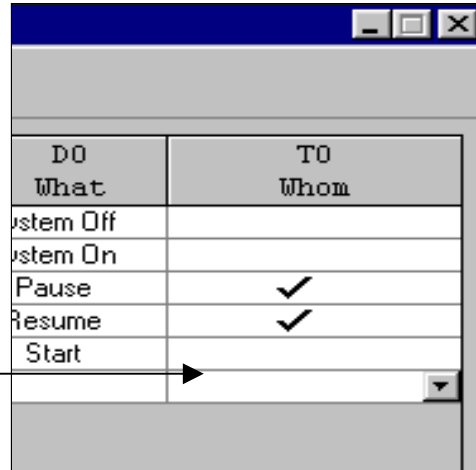
- g) Click on “Do What” cell to get “down arrow.” Then click on “down arrow” to get “drop-down” screen. Click on the Action to be taken.

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h) The final entry that needs to be made is to designate the Program and/or Schedule that is to be affected by this sensor.

i) Click on the “To Whom” cell to get the “down-arrow” displayed.

j) Then click on the down arrow to display the drop-down screen.



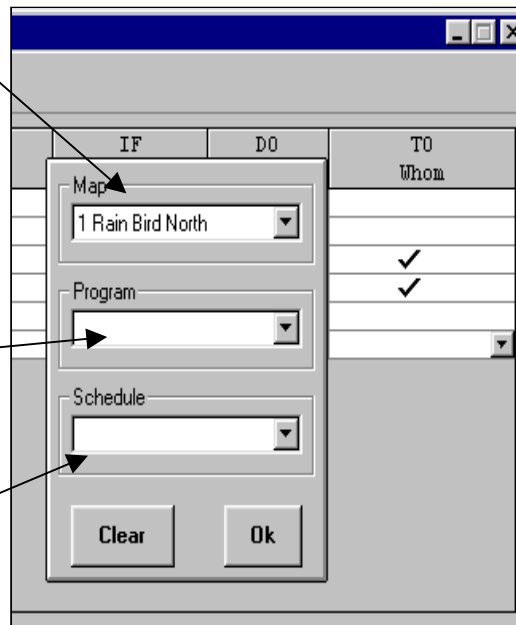
DO What	TO Whom
System Off	
System On	
Pause	✓
Resume	✓
Start	▼

k) The drop-down screen allows user to specify the Program and/or Schedule that is to be affected by this sensor.

Enter Program that is to be affected by this sensor

Enter the Schedule that is to be affected by this sensor

When all data is correct, click OK



“Drop-Down” screen

IF	DO	TO Whom
Map	1 Rain Bird North	✓
Program		✓
Schedule		▼

Clear Ok

l) Other Sensors may be added in a similar manner.