



FieldClimate

extended user manual

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Table of Content

FAQ	4
PREFACE	4
1. HOW TO USE FieldClimate	5
1.1 Registration	5
1.2 Login	6
1.3 User menu	6
1.3.1 ADD/REMOVE STATION	6
1.3.2 USER SETTINGS	7
1.3.3 API SERVICES	7
1.4 STATION LIST	9
1.5 NOTIFICATIONS LIST	10
2. MAIN DASHBOARD	11
2.1 DASHBOARD SETTINGS	11
2.1.1 ADD WIDGET	12
2.1.2 WIDGET SETTINGS	12
2.2 DASHBOARD STATION-LIST WIDGET	13
3. ACCUMULATOR TOOL	14
3.1 DEGREE DAYS	14
3.2 CHILLING UNITS	15
3.3 RAIN SUM	16
4. WEATHER FORECAST PAGE	16
5. WORK PLANNING PAGE	18
5.1 TROPICAL SOWING WINDOW	19
6. DISEASE MODELS PAGE	19
7. SOIL MOISTURE PAGE	20
7.1 CUSTOM VIEW	21
7.1.1 AVERAGE	21
7.1.2 SUM	22
7.1.3 PAW	23
7.2 SOIL TEXTURE CALIBRATION	24
8. CropVIEW® PAGE	26
8.1 FRUIT DIAMETER TOOL	26
9. iSCOUT® PAGE	27

9.1 INSECT DETECTION TOOL	28
9.2 iSCOUT PESTS	28
9.2.1 ADD A NEW PEST	29
9.3 iSCOUT GLUE BOARDS	30
9.4 iSCOUT SEASONS MANAGEMENT	31
9.5 MONITORING DATA	31
9.6 CAMERA SLIDESHOW	32
10. STATION SETTINGS PAGE	32
10.1 CONFIGURATION	32
10.1.1 Time zone and location settings	32
10.1.2 Logging and transfer settings	33
10.1.3 CropVIEW® and iSCOUT® configuration page	34
10.2 SENSORS AND NODES	34
10.3 SMS WARNINGS	35
10.3.1 Phone numbers	35
10.3.2 Setup SMS warning	36
10.4 NOTIFICATIONS	36
10.4.1 Create new alerts	36
10.5 INFORMATION	37
10.6 CORRECT PRECIPITATION DATA	37
11. SAMPLING DATA VISUALIZATION PAGES	39
11.1 SoilGuard SAMPLING DATA VISUALIZATION	39
11.2 DualEx SAMPLING DATA	40
11.3 iMETOS MobiLab SAMPLES	40
11.3.1 How to upload data from iMETOS MobiLab?	40
11.3.2 How to visualize MobiLab data in FieldClimate?	41
12. CALCULATED SENSORS	41
12.1 VIRTUAL SENSORS	41
12.1.1 EVAPOTRANSPIRATION	41
12.1.2 VPD	42
12.1.3 DEW POINT	42
12.1.4 DELTA T	42
13. VIDEOS	43

FieldClimate is the cloud for owners of iMETOS® Systems.

All iMETOS® devices are sending data to the web servers of FieldClimate and are easily accessible through desktop website or mobile apps. This way, data can be reached from anyplace and anytime.

FAQ

1. Do iMETOS® devices have automatic daylight saving time adjustment?

This feature has been introduced in our new database system, but it will work only if the time zone of the device is set correctly. We recommend checking Station Setting > Configuration > Station Time Zone. If the station time zone is not properly set, you find a warning message. You can store the time zone simply by clicking on SAVE LOCATION.

2. Are my names and unit settings imported from the old FieldClimate version?

Yes, your names and units defined in the old version are imported and the system continue to overwrite with settings of the old version until you click on the DISABLE AUTO-SYNC button in Station Settings Page. If you are ready to use preferable the fieldclimate.com, we recommend to click on this button to disable the automatic synching and your new setting will be regularly saved. Once you press this button for on of your stations, the setting is extend to all stations in your account.

PREFACE

FieldClimate is the cloud platform used to present agrometeorological data collected by iMETOS® weather stations and data loggers.

Key changes with the New Generation of FieldClimate:

- Renewed user interface based on widgets
- Improved vizualization of data
- Fasted and more flexible
- All iMETOS® services integrated on one platform as a holistic solution

FieldClimate

Since 2005 the cloud for agrometeorological data collected by METOS weather stations.

Renewed user interface with a widgets structured dashboard, which makes FieldClimate more user-friendly and versatile.

Innovative design and improved visualization of data in graphs and tables.



New database structure, which will make it even faster and more flexible.

All the applications and services of the PI holistic solution for smart agriculture, like the latest CropVIEW, are fully integrated with a **unique login**.

1. HOW TO USE FieldClimate

1.1 Registration

Go to <https://fieldclimate.com/login>



1. Create your Username.

2. Insert your Password.

3. Insert your personal data.

5. Check the boxes.



6. Click here to continue.

4. Set the language and the country.

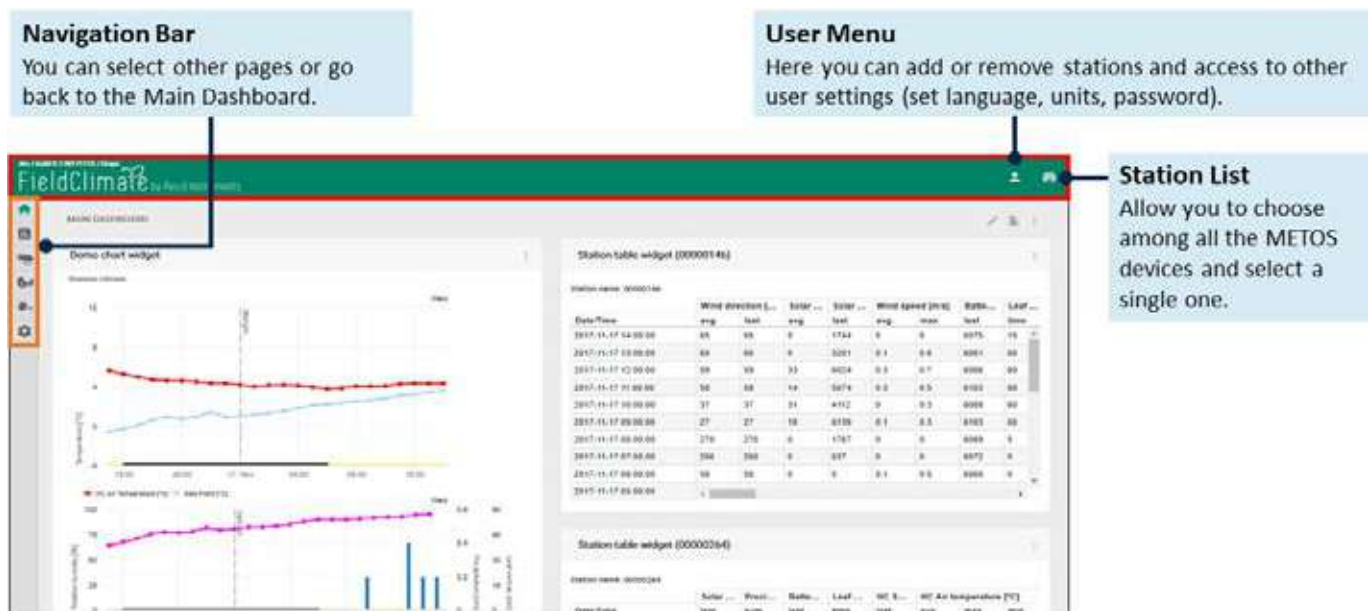
Check your email and click on the link to activate the newly created user account.



1.2 Login



Once your account has been successfully created, insert your username and password to login and the main dashboard will appear to you. On the top right corner there are two icons which represent the first steps to use the powerful FieldClimate platform and to set the main configurations. The two icons symbolize (from left to right) user menu and station list which functions are explained below. Through Navigation bar, which is located on the left side, you can select other pages or go back to the Main Dashboard.



1.3 User menu

1.3.1 ADD/REMOVE STATION

Click on the icon user menu: here you can add or remove stations and access to other user settings. To add your device, click on user menu > Add/Remove station. It will ask you for a Station ID number and a station key. Now the little silver colored sticker which came with your iMETOS® has to be used. This sticker contains two keys. Key 1 gives the power to change all the settings on the iMETOS® whereas key 2 is only valid to see the data of the system. To be able to set up the iMETOS® please enter the key 1 here. If you entered the correct key your station list will be enlarged by this iMETOS® and it can be selected. In User Settings password can be changed.

3. Insert Station ID number.

1. Click on the **User Menu** icon.
2. Select **Add/Remove station**.

4. Insert the **station Key** (provided on the station sticker).

Key 1: you be able to change station configuration settings.
Key 2: read-only access.

Time	Temp	Humid	Wind	Light	HC 1	HC 2
2017-10-09 10:00:00	18.0	65	1.5	1000	0	0
2017-10-09 11:00:00	17.5	68	1.2	1000	0	0
2017-10-09 12:00:00	17.0	70	1.0	1000	0	0
2017-10-09 13:00:00	16.5	72	0.8	1000	0	0
2017-10-09 14:00:00	16.0	75	0.5	1000	0	0
2017-10-09 15:00:00	15.5	78	0.3	1000	0	0
2017-10-09 16:00:00	15.0	80	0.2	1000	0	0
2017-10-09 17:00:00	14.5	82	0.1	1000	0	0
2017-10-09 18:00:00	14.0	85	0.1	1000	0	0
2017-10-09 19:00:00	13.5	88	0.1	1000	0	0
2017-10-09 20:00:00	13.0	90	0.1	1000	0	0
2017-10-09 21:00:00	12.5	92	0.1	1000	0	0
2017-10-09 22:00:00	12.0	95	0.1	1000	0	0
2017-10-09 23:00:00	11.5	98	0.1	1000	0	0

1.3.2 USER SETTINGS

Click on User menu > User Settings to change and update the user settings. In particular, you can update the password, personal information and more settings like the language and the unit (metric or imperial). Remember to update the settings once you finished.

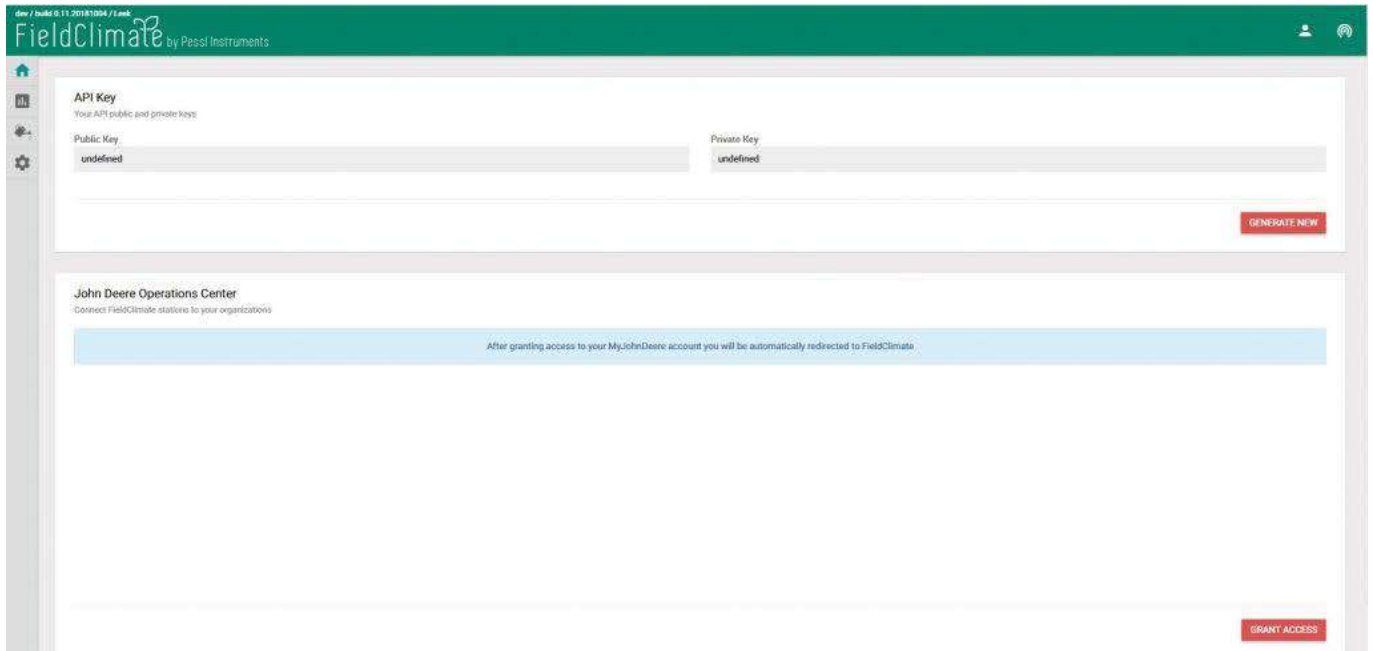
1.3.3 API SERVICES

CONNECTING FIELDCLIMATE TO THE JOHN DEERE OPERATION CENTRE

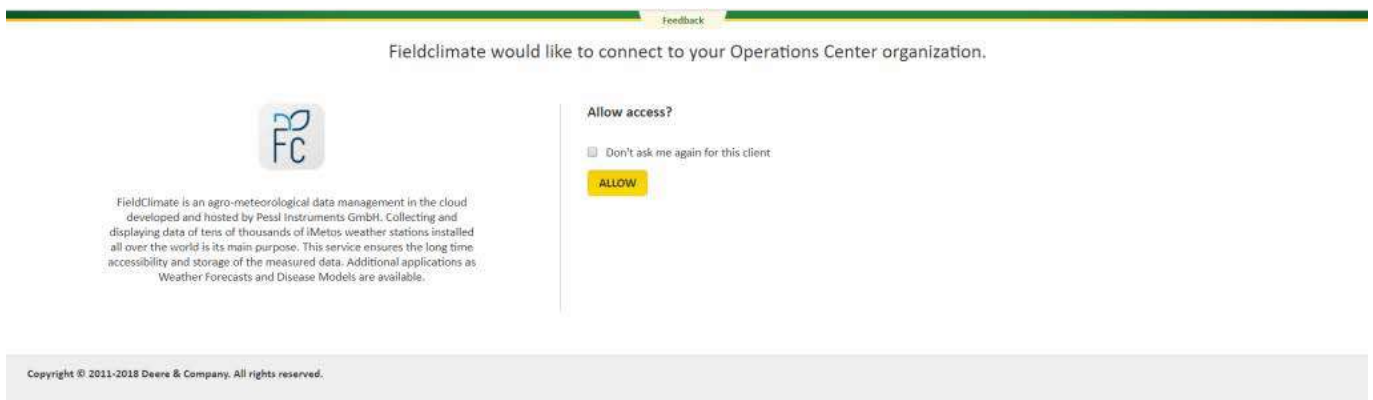
1. User menu > API services

The screenshot shows the FieldClimate interface. At the top, there's a 'User Menu' dropdown with options: 'Profile', 'User Settings', 'Language', 'Unit', 'API services', 'Help and support', and 'Logout'. The main area features a world map with a location marker, a weather chart for 'London, UK' showing temperature and precipitation, and a 'Messages' section with a 'mefetch' logo.

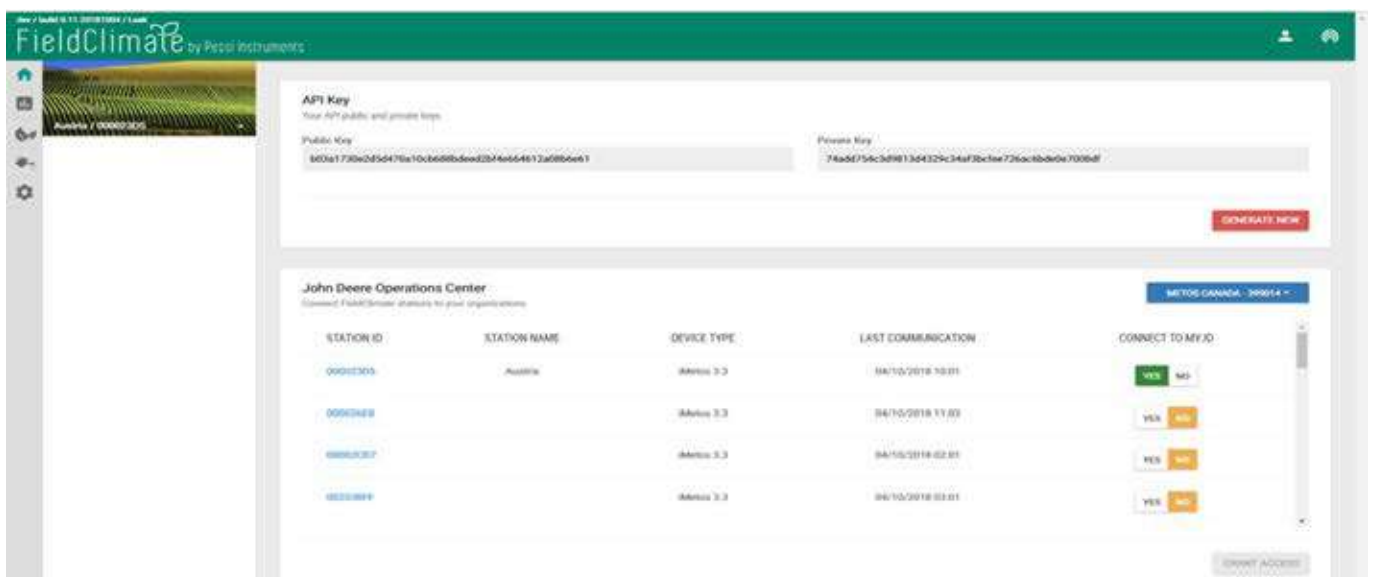
2. Click the "GRANT ACCESS" button, and this may take a couple of minutes, but you will be redirected to the John Deere Operations Centre Organization. Note: in order to be redirected you need to have a John Deere Operation Center account.



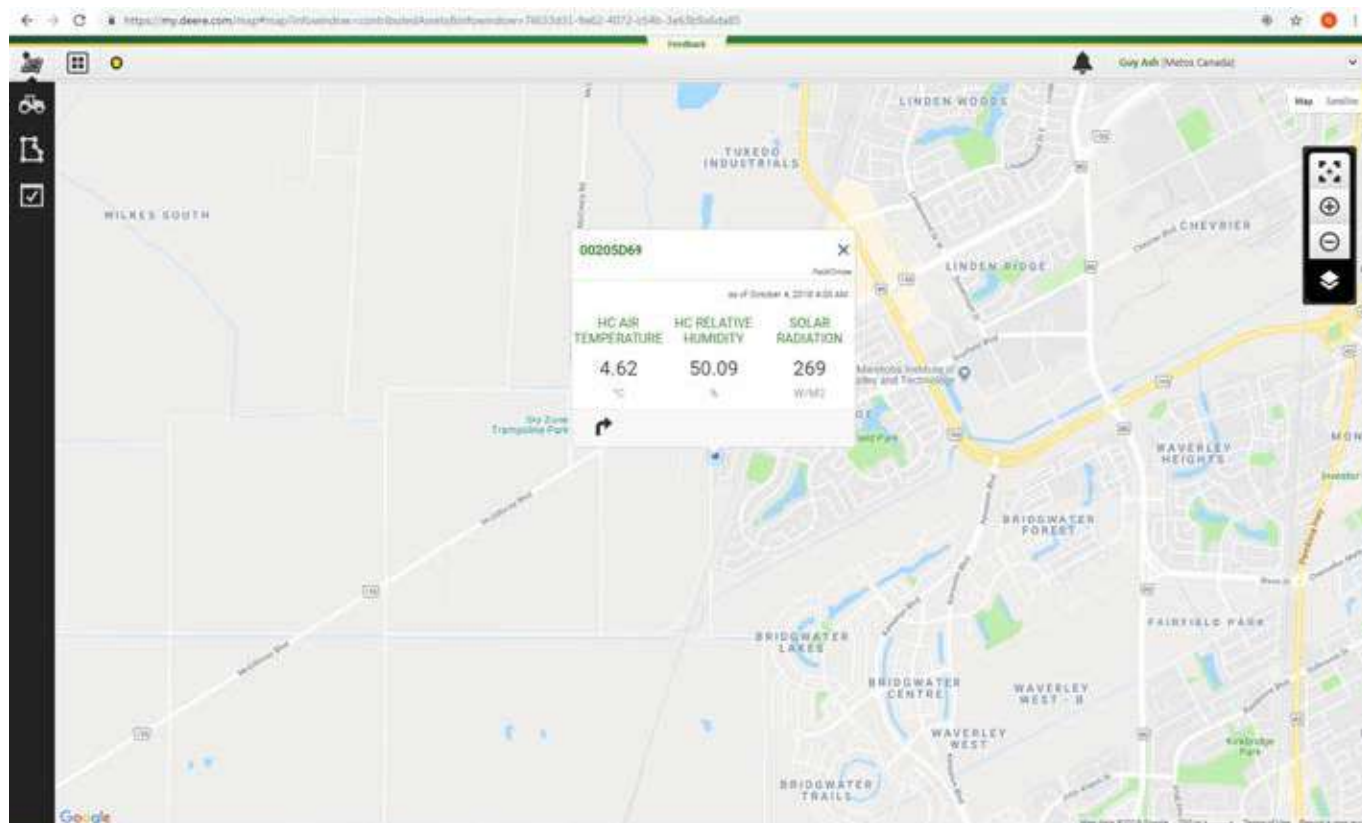
3. You will be asked to connect to a John Deere account. Click the “ALLOW” button and also check the “Don’t ask me again for this client” box



4. In FieldClimate choose the John Deere Organization you want to connect with. You will then be presented with a list of station/devices. Click YES to which ones you want to connect to the John Deere Operation Center. **All stations/devices will be listed, but only the ones that you have Key 1 access for will be connected. In other words, key 2 stations cannot be connected to My John Deere.**



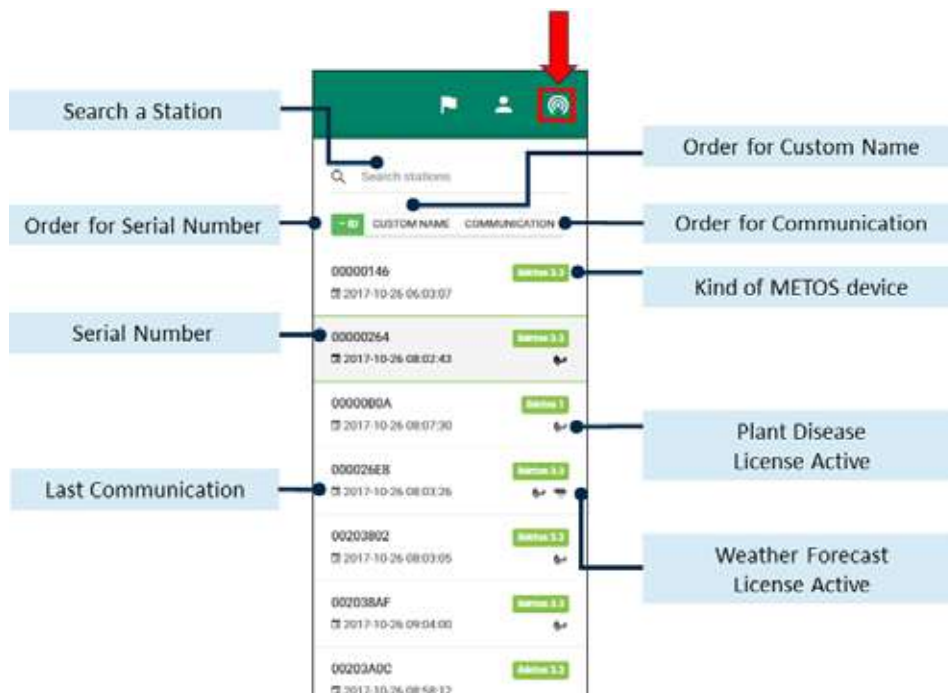
5. Once you have granted access to the FieldClimate stations/devices you will be connected to the John Deere Operation Centre (image below).



6. If you want to add stations or devices later, you can by clicking YES to connect to my John Deere. Again, to add a station/device you need to have Key 1 access.

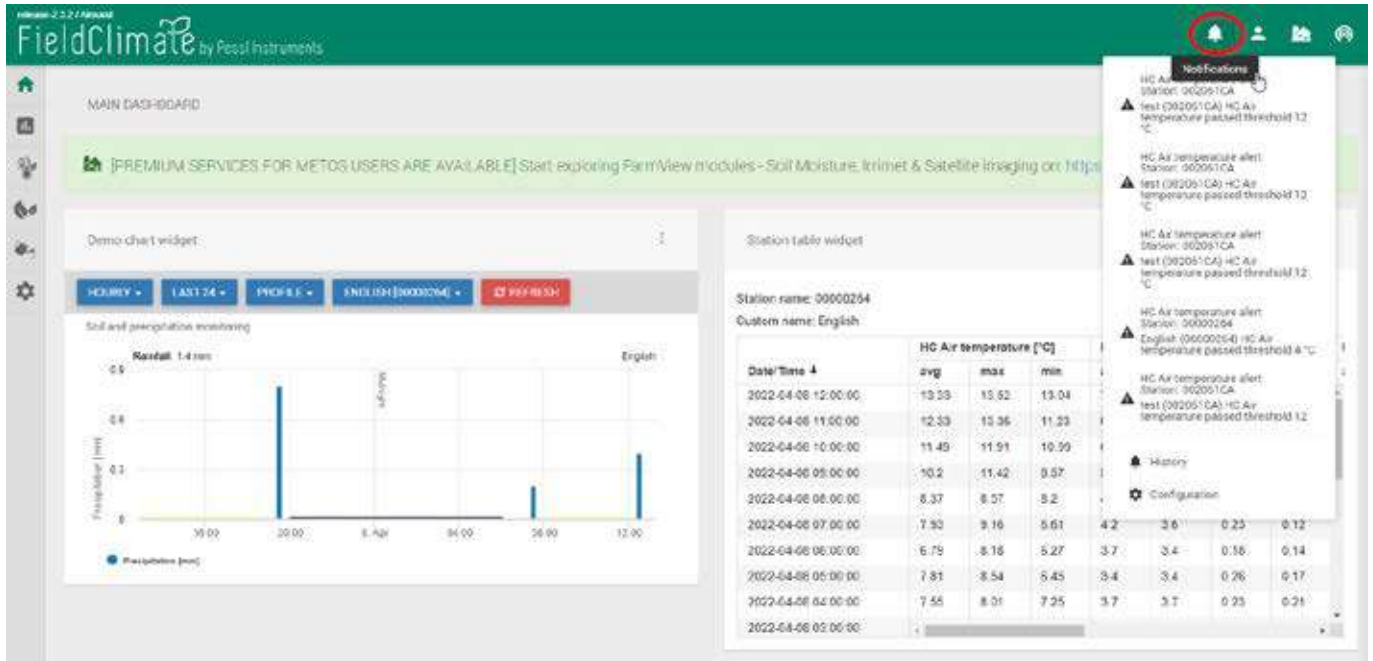
1.4 STATION LIST

Click on the Station List icon which allow you to choose among all the METOS devices and select a single one. Each station has its own serial number, custom name and its last communication: you can find the station by name or serial number. It is possible also to see if the iMETOS® device has the plant disease or weather forecast licenses active. Remember that for these services you need to have the corresponding licenses active.



1.5 NOTIFICATIONS LIST

Notifications can now be seen on server level, as a list on the top-right menu of FieldClimate. Apart from the individual notifications page, inside station settings, users now have a dedicated page to access all notifications, from all stations, in the same place. The notifications list counts with: a list of unread alerts, a history page with all the historical notifications, and a configuration page for general editing.

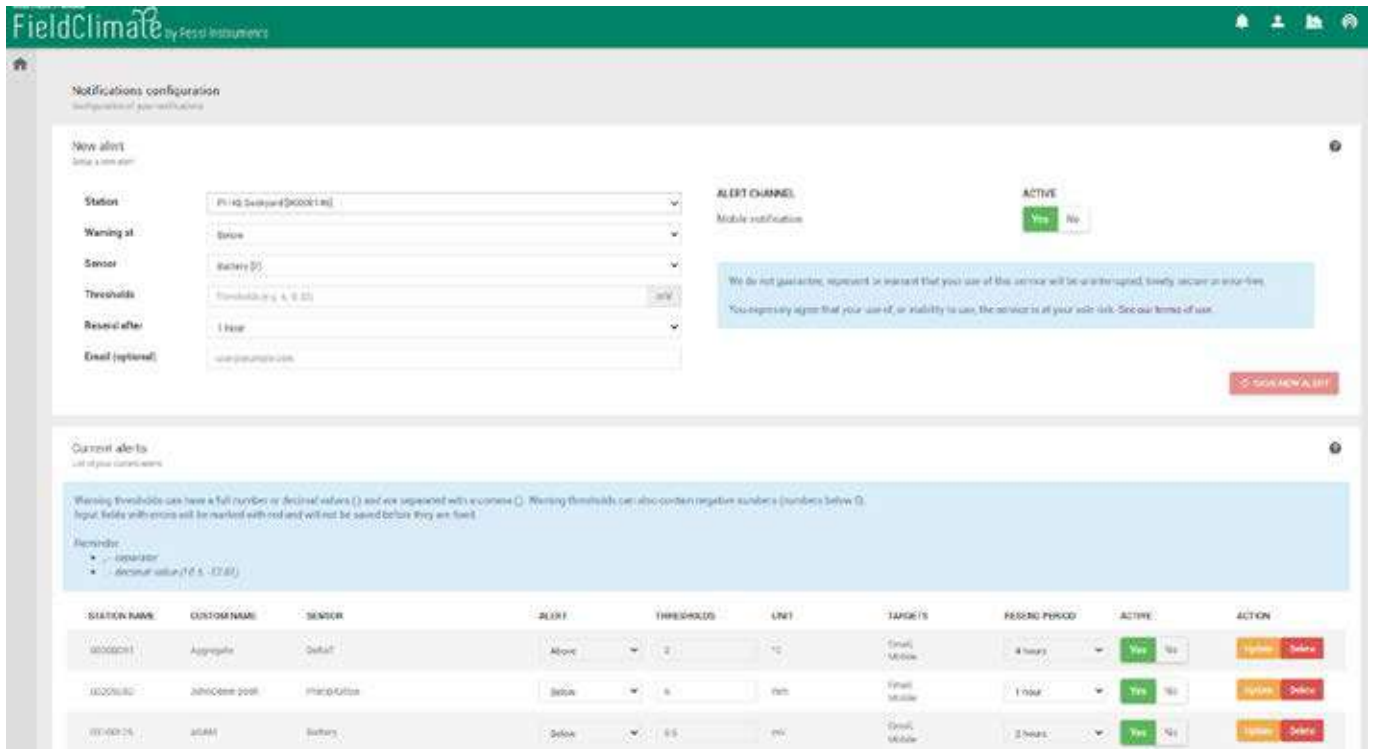


In the History section, users can see all the notifications. While, on Configuration, you can create new alerts per station ID, likewise, check all the existent alerts for that particular station.

History page:



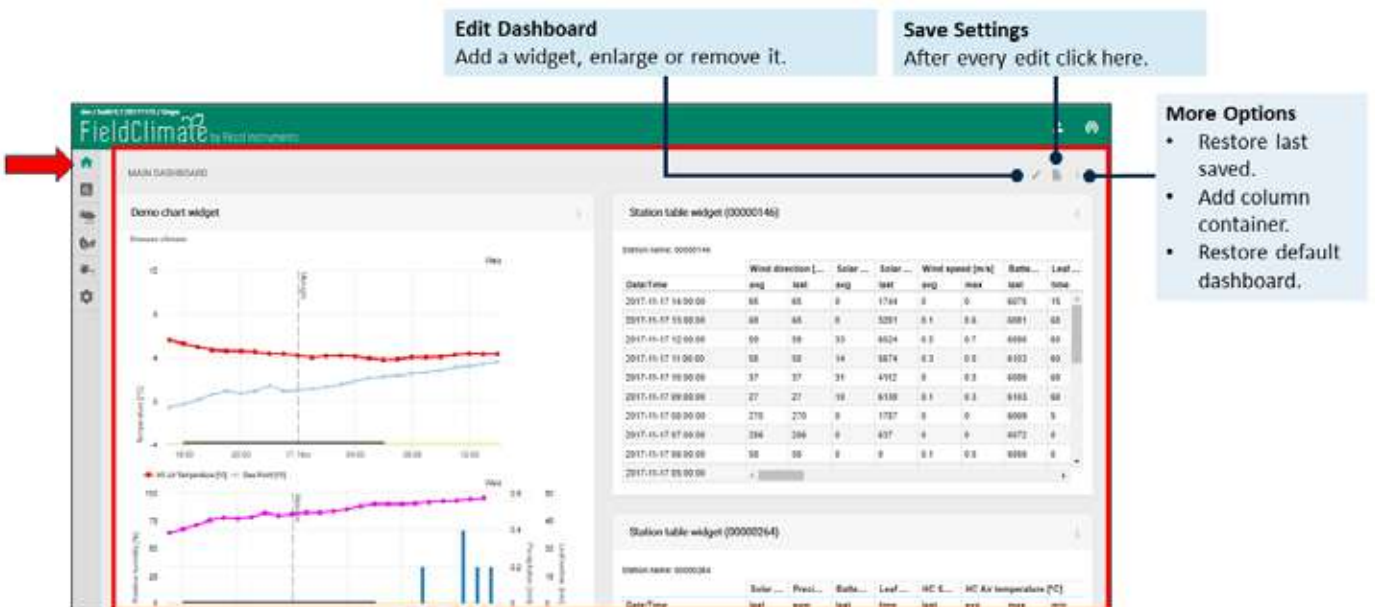
Configuration page:



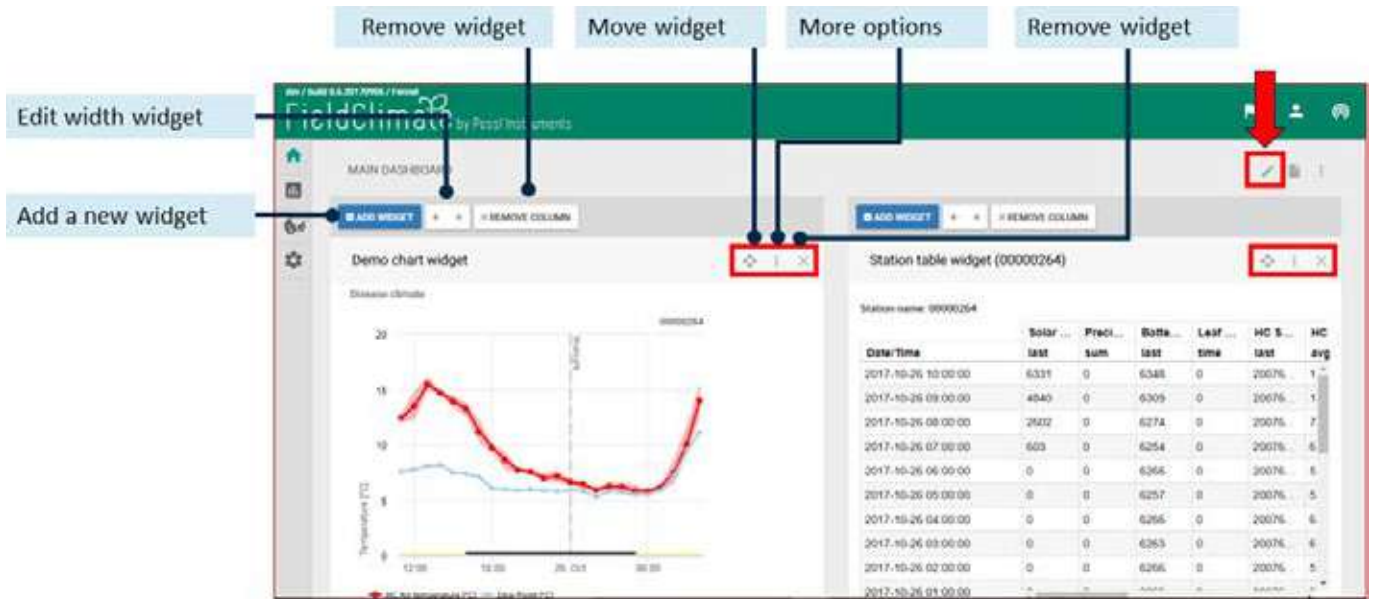
2. MAIN DASHBOARD

2.1 DASHBOARD SETTINGS

Thanks to the new Dashboard, with a widgets structure, the user can manage better the fast access to the services of highest interest between historical data, localized high-precision weather predictions, disease models, soil moisture data, CropVIEW images, insect traps and other DSS (Decision Support Systems). When you selected your METOS device, the site will reload and you will see the main Dashboard. You can completely customize Dashboard with data of your interest (tables and graphs). For example, you can edit the Dashboard adding or removing widgets.



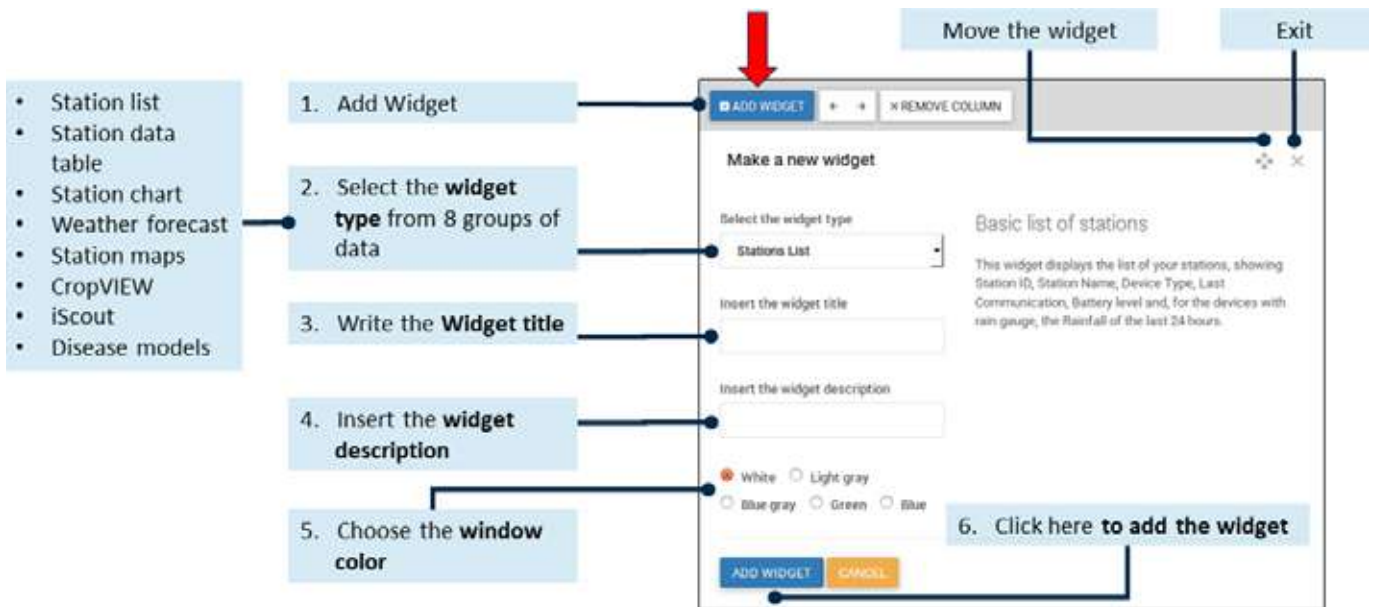
Clicking the “Edit Dashboard” button, a bar over each widget will appear whereas you can add one, edit its width or remove it.



2.1.1 ADD WIDGET

Click the “Add Widget” button and a new window will appear and you have to insert:

- Select the widget type.
- Insert the widget title.
- Insert the widget descriptions and choose the color for the window.

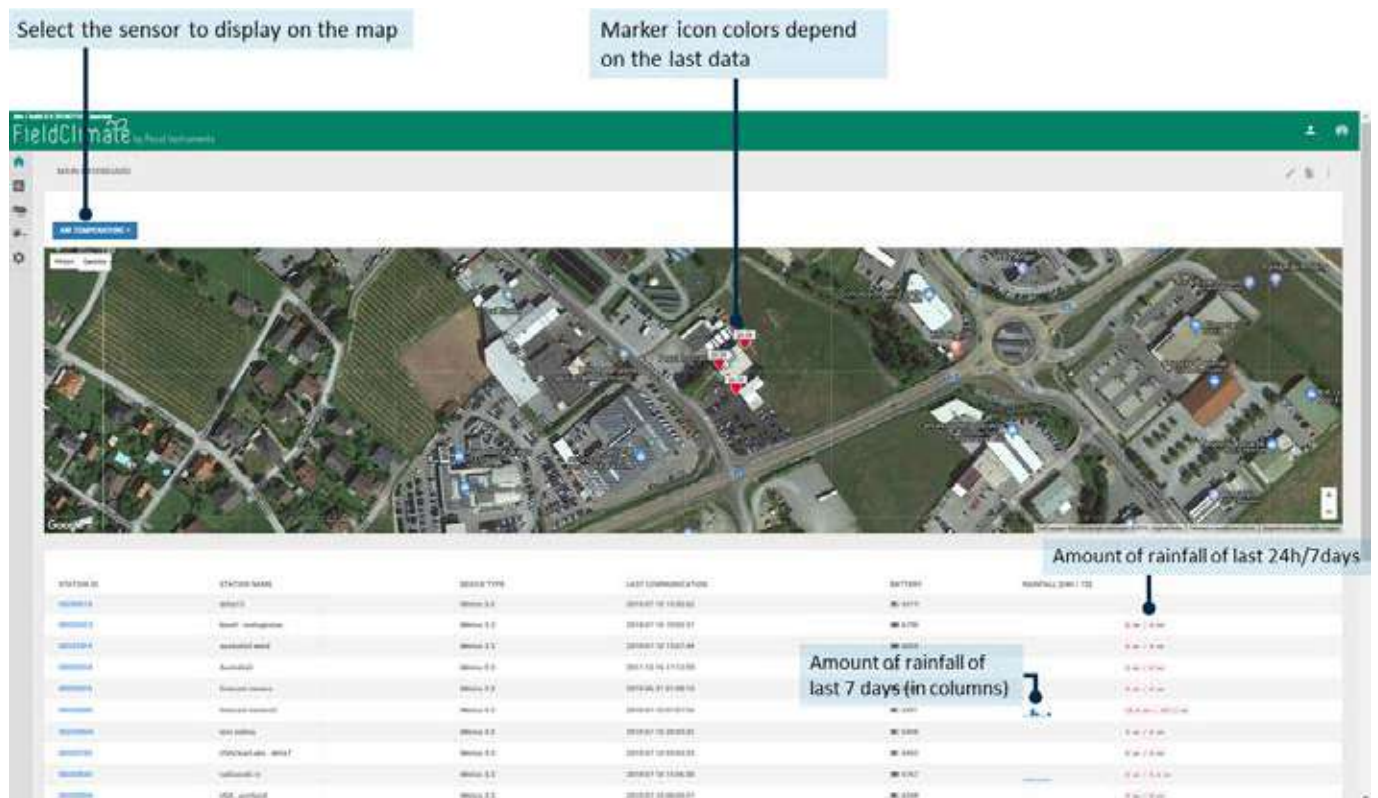
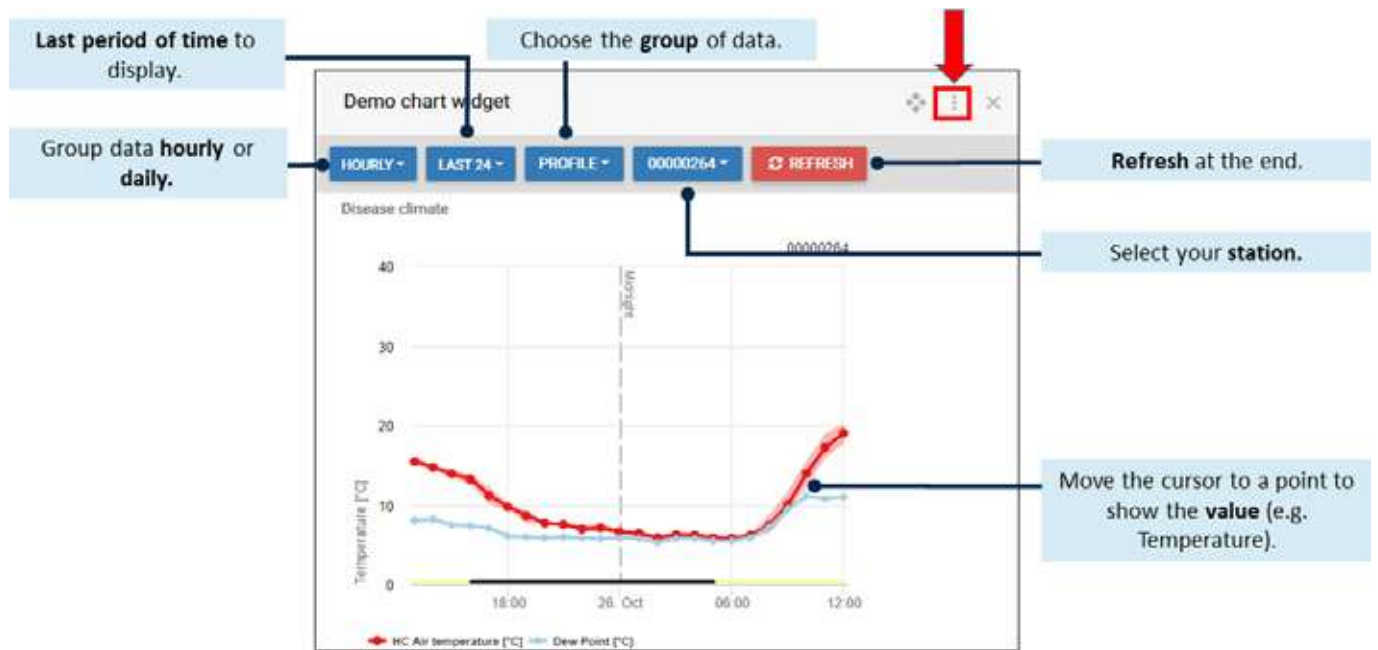


Now you can choose the widget type from: Station list, Station data table, Station chart, Weather forecast, Station maps, CropVIEW, iSCOUT and Diseases models.

2.1.2 WIDGET SETTINGS

Click “More options” and more edits appear. You can also move the widget into the Dashboard or remove it. In addition to that, you can group the data hourly or daily and select the last period of time to display

(8h, 24h, 48h, 72h). If you click the "Profile" button you can choose the type of data between All sensors (it includes all the sensors connected on the iMETOS® device) and the other groups such as Disease climate, Growing climate, Wind monitoring, Frost and Temperature monitoring Soil or Precipitation monitoring. Be sure to click the "Refresh" button after making any changes to all settings, otherwise edits will be lost.



2.2 DASHBOARD STATION-LIST WIDGET

The station-list widget is located on the FieldClimate dashboard page. With this tool, users can easily evaluate station conditions regarding battery, last communication, and other selectable sensors such as rainfall, air temperature, etc. Other than data display, it is also possible to download the customized list as an excel file.

FieldClimate

Choose between the selectable sensors and customize your station for a project.

Export the full data as an excel file

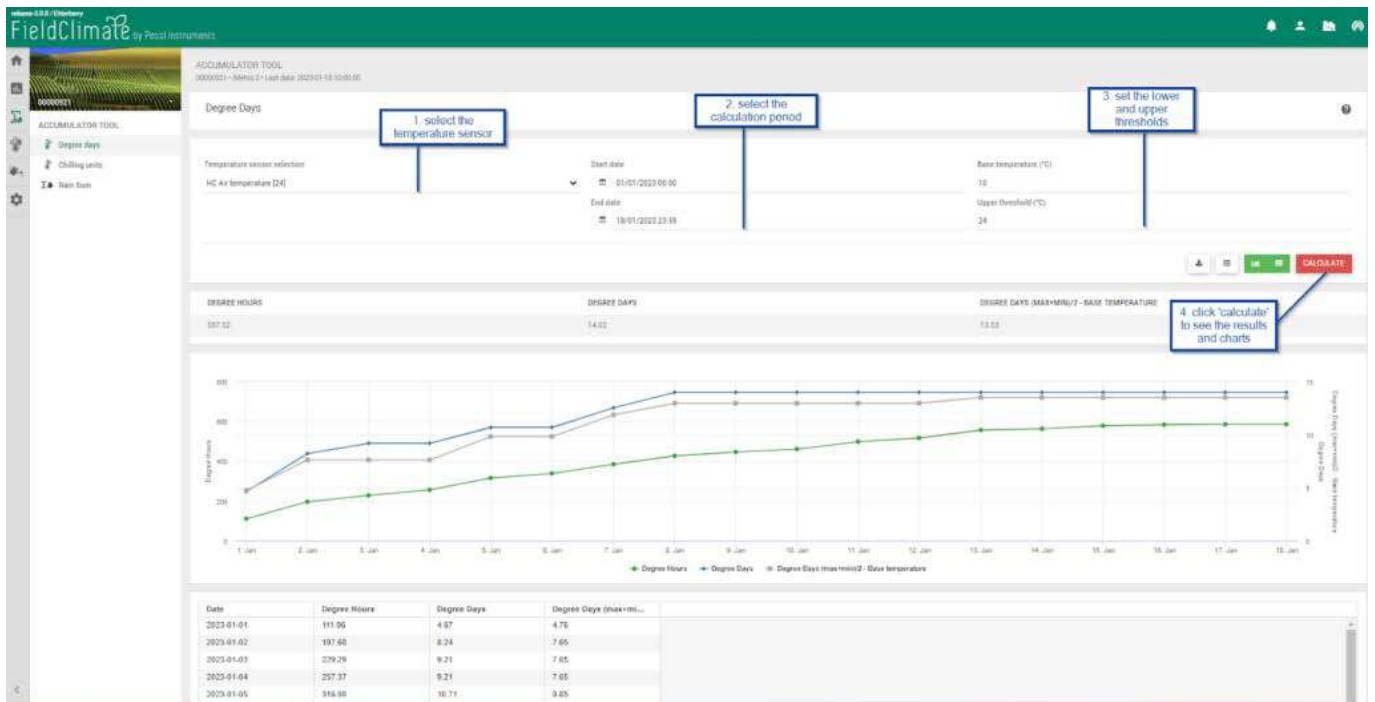
Columns can be sorted from ascending to descending order, or vice versa.

Filter (units) parameters via the 24/7 values or via graphic indication.

STATION ID	STATION NAME	DEVICE TYPE	LAST COMMUNICATION	BATTERY [mAh]	AIR TEMPERATURE [°C]	RAINFALL 24H / 7D [mm]
00238683	Wing scheduler	Metro 3.3	2022-02-17 07:01:13	6482	21.01	0 mm / 3.8 mm
00235442	Wind speed & CO2	Metro 3.3	2022-02-17 17:02:37	6322	2.69	0 mm / 8.8 mm
002325FE	WF test	Metro 3.3	2021-09-05 11:00:32			
002341C5	WF test	Metro 3.3	2021-02-17 10:05:14			
0023462A	Flight sensor	Metro 3.3	2020-11-19 02:04:41			
00234C1D	Weather forecast sensor	Metro 3.3	2021-08-11 21:02:48			
00235A42	Water temp	Metro 3.3 CO2	2021-03-26 13:03:04			
00236227	Water Depth	Metro 3.3	2022-01-25 02:03:30	6454	-15.4	0 mm / 1.2 mm
00234630	Warning remote	Metro 3.3	2022-02-17 16:02:52	6322	13.90	0.0 mm / 40.4 mm
00000F96	VMS-Machul	Virtual Station	2022-02-17 16:06:00		16.22	0 mm / 19 mm
00000418	VStat Job F9C	Virtual Station	2022-02-17 16:05:08		6.75	1.6 mm / 5.61 mm
0000041E	VStat V10941	Virtual Station	2022-02-17 16:05:11		16.4	0 mm / 17.8 mm
0000041D	VStat	Virtual Station	2022-02-18 01:05:11		13.82	0 mm / 3 mm
00000006	Virtual Station (nearby 00040254)	Virtual Station	2022-02-17 16:05:03		13.56	0 mm / 12.3 mm
01000801	Versailles (0001) - A1000045WE	Virtual Device station	2020-12-08 23:16:08			

3. ACCUMULATOR TOOL

3.1 DEGREE DAYS

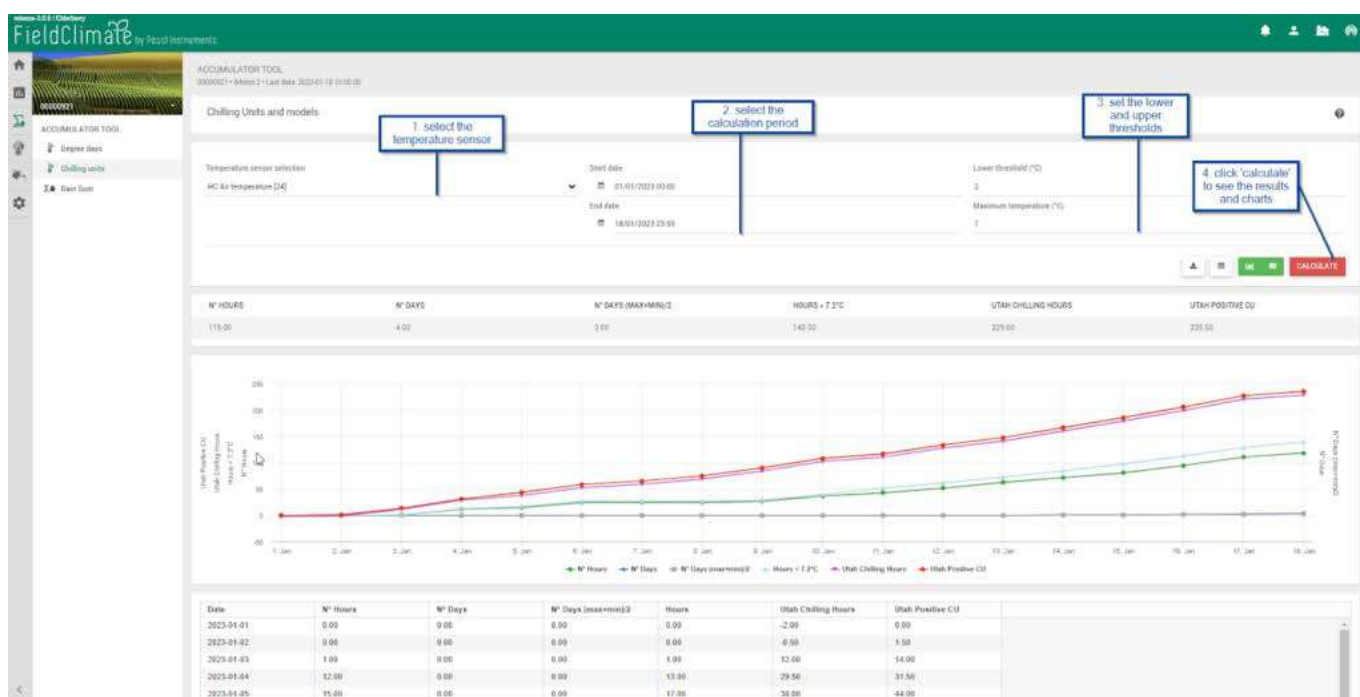


3.2 CHILLING UNITS

The Utah model is more complex because it introduces the concept of relative chilling effectiveness and negative chilling accumulation (or chilling negation). According to Richardson et al. (1974) temperatures between 0 and 16°C promote the breaking of rest, whereas temperatures > 16°C negate such effects. Maximum promotion occurs at 7°C (1 h at 7°C = 1 chill unit); higher and lower temperatures within the 0-16°C range are less effective. This model has been modified as more information has become available.

The Positive Chill Units (PCU) model is a modification of the Utah Model, which does not consider the negative values for the chill accumulation, and which is designed for situations where, because of the abundance of high winter temperatures (temperatures > 16 °C), the final values are negative.

This model has been found to give a more accurate estimation of winter chilling in areas with mild winters or subtropical climates.



3.3 RAIN SUM

Chilling Units and models

1. select the temperature sensor

2. select the calculation period

3. set the lower and upper thresholds

4. click 'calculate' to see the results and charts

N° HOURS	N° DAYS	N° DAYS (MAX-MIN) [2]	HOURS + 7.2°C	UTAH CHILLING HOURS	UTAH POSITIVE CU
119.00	4.00	3.00	140.00	229.00	235.50

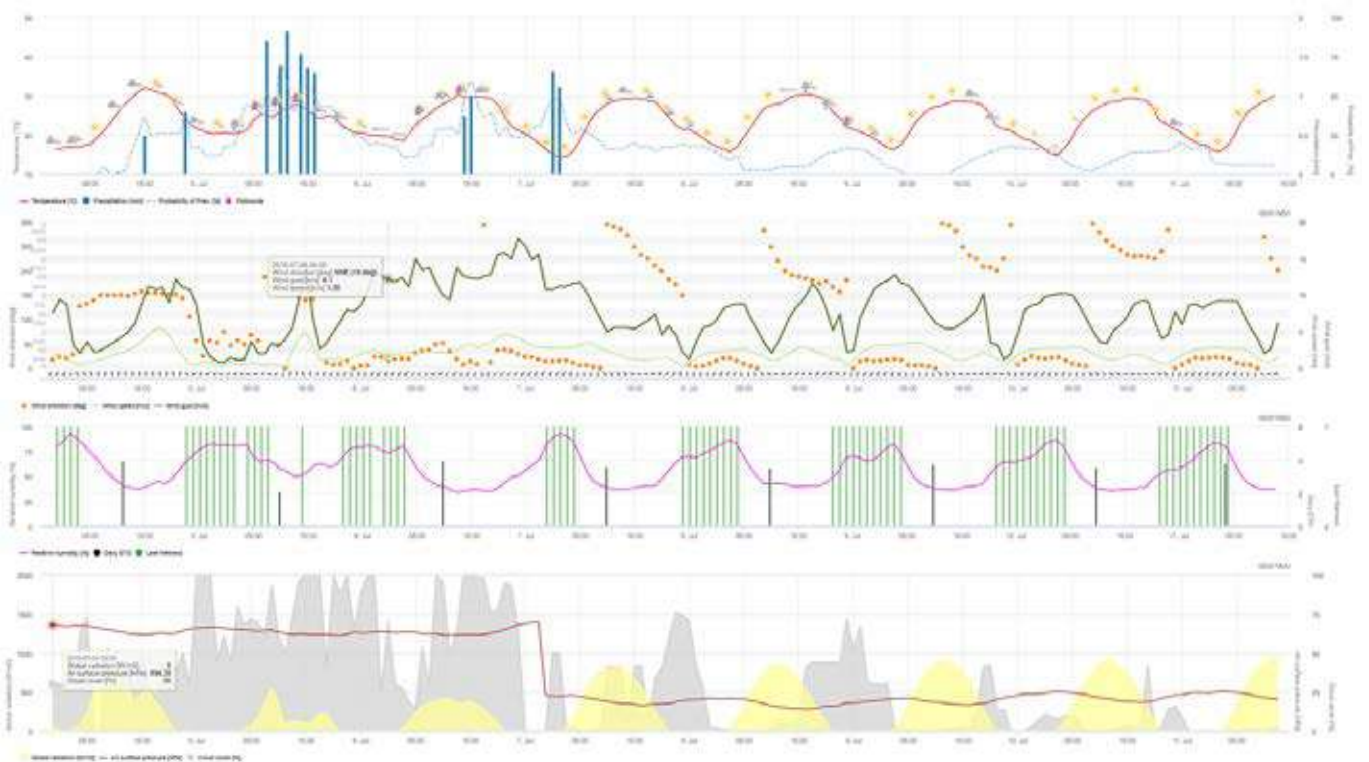
Date	N° Hours	N° Days	N° Days (max-min) [2]	Hours	Utah Chilling Hours	Utah Positive CU
2023-01-01	0.00	0.00	0.00	0.00	-2.00	0.00
2023-01-02	0.00	0.00	0.00	0.00	0.00	1.50
2023-01-03	1.00	0.00	0.00	1.00	12.00	14.00
2023-01-04	12.00	0.00	0.00	13.00	29.50	31.50
2023-01-05	15.00	0.00	0.00	17.00	35.00	44.00

4. WEATHER FORECAST PAGE

For iMETEO you need to have the corresponding license active. It is a joint product of Meteoblue and Pessi Instruments. It combines past data with a forecast of the main meteorological variables on an hourly basis for 7 days. An iMETOS® station is needed: the observation data is sent to the <https://ng.fieldclimate.com/login> database, and the weather forecast is automatically adjusted to the conditions of the specific iMETOS® weather station. Data can be additionally combined with spray conditions, growth, irrigation and disease forecast models. In Weather Forecast page you can choose different ways to view weather forecast in your site.

Details: 3 days weather forecast as default, you can also see next 7 days. Parameters calculated hourly: air temperature (°C), precipitation (mm), probability of precipitation (%), wind direction (deg), wind speed and gust (m/s), relative humidity (%), daily evapotranspiration (mm), leaf wetness, global solar radiation (W/m²), cloud cover (%), surface air pressure (hPa).

Hoover over a data point on the chart to see forecasted data at a certain time

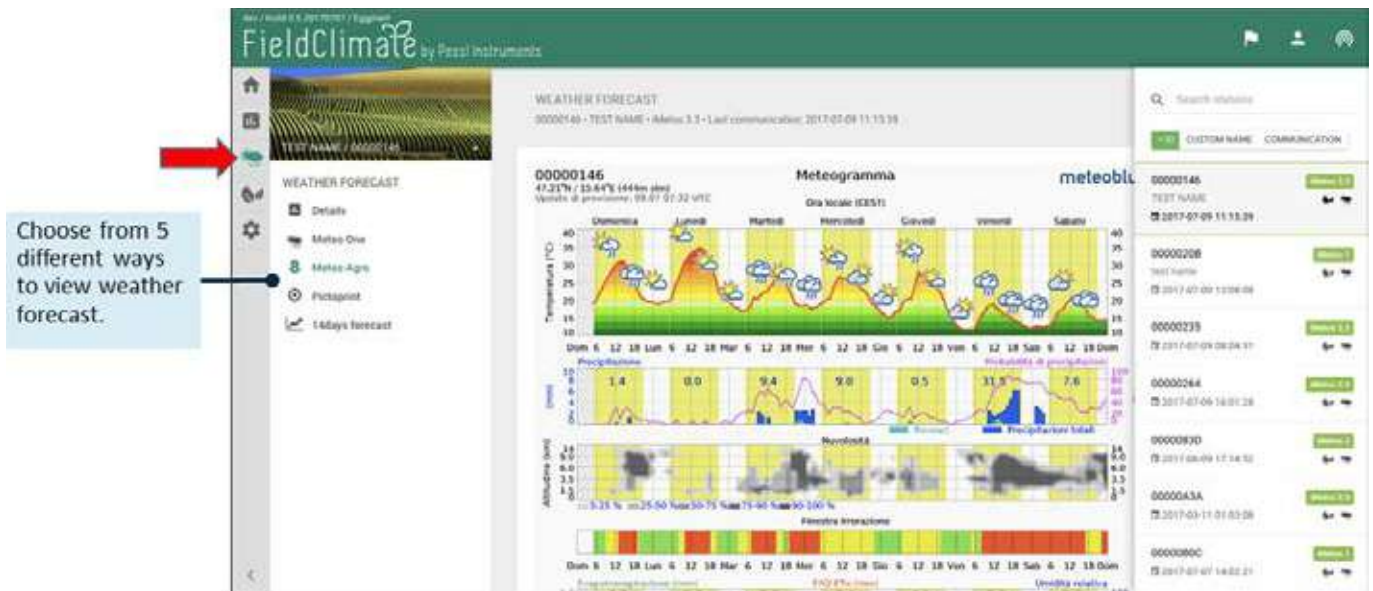


The wind direction in degrees is displayed by orange dots, while at the bottom an arrow helps you to understand the wind flow better. In the rectangle (tooltip) detailed data are available in all the graphs.

Note that ET₀ is a daily calculation.

In the last chart, air pressure is at station altitude, while global solar radiation and total cloud cover refer to that portion of sky over the station.

- Meteo One: a 7 days localised weather forecast with all meteorological data.
- Meteo Agro: a 7 days localised weather forecast with agronomic information, plant protection window.



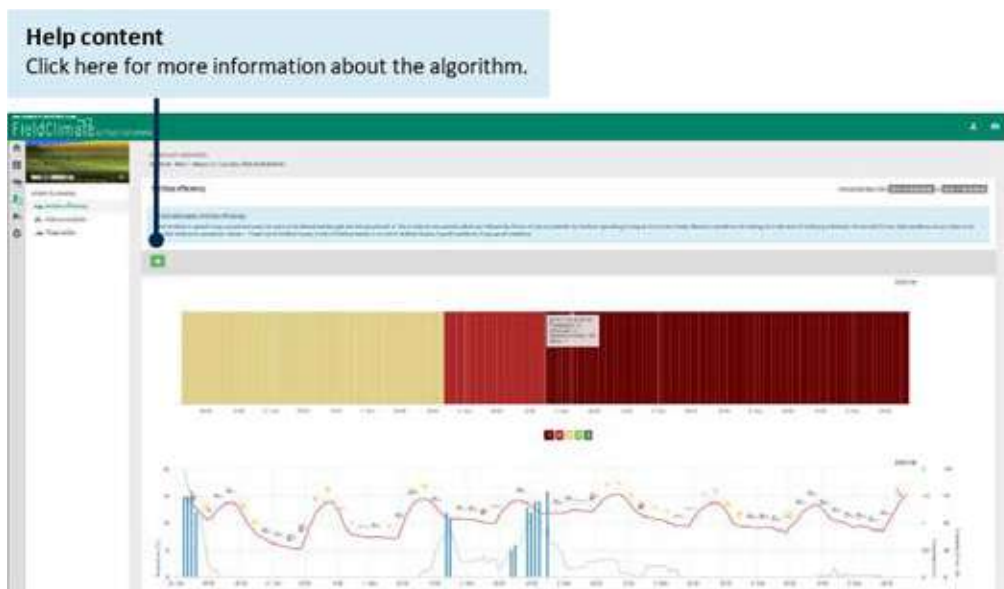
- Pictoprint: a 7 days localised weather forecast with rainSPOT (15 km range).
- 14 days localised forecast.

5. WORK PLANNING PAGE

You will be able to access this page only if you have the Weather Forecast license activated.

Pessl Instruments developed in the last 6 years a series of Work Planning algorithms based on the combination of real measurements of rain and temperature and the hourly 7-day weather forecasts. The work planning forecast based service information are available on hourly resolution for the next 7 days.

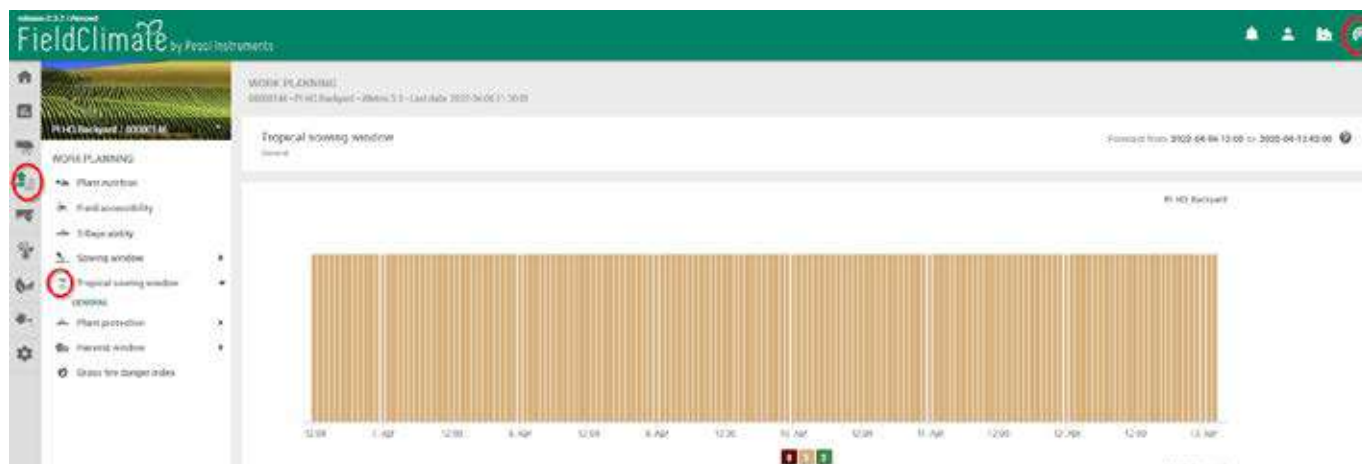
The work planning algorithms indicate the most suitable (green colour) and the worst period (red colour), with more intervals in between, to perform and plan the requested operation in your specific field. Field accessibility and tillage ability are based on precipitation and show the better and worse periods to access and work the field. Fertilizing efficiency is calculated from wind gust, precipitation and relative humidity and shows in green colour the most suitable period to spread fertilizer. More information are available on the help content. Below is an example of the Fertilizing efficiency window in FieldClimate login. These services are all displayed in the first chart, while the second one shows the correspondent weather forecast.



5.1 TROPICAL SOWING WINDOW

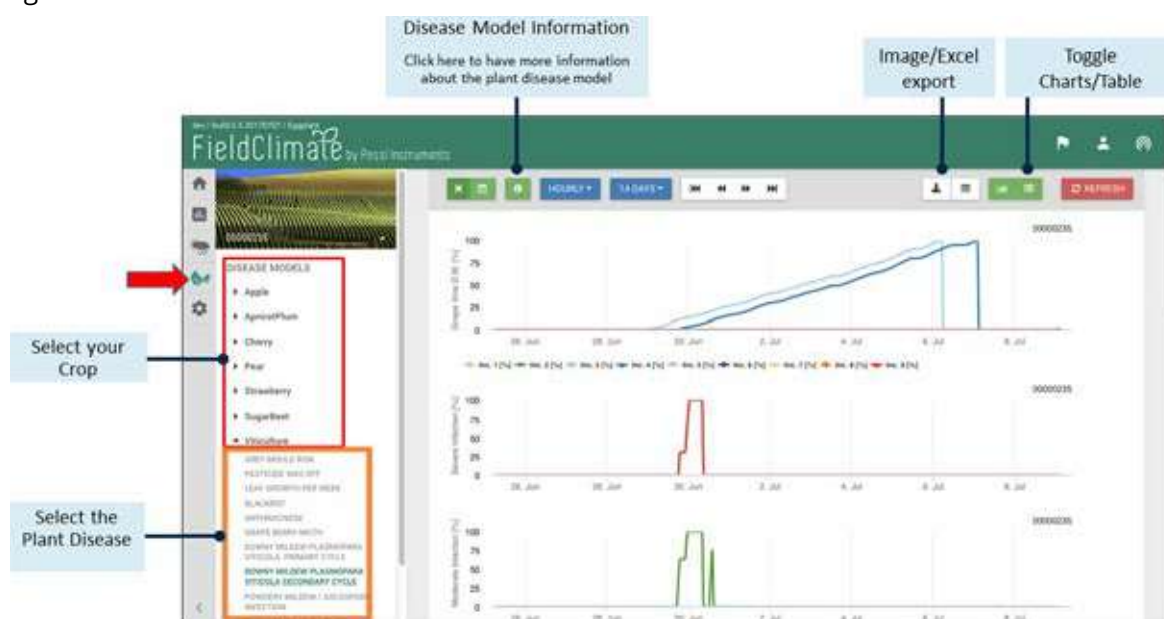
This model estimates the general sowing suitability for crops grown in a tropical environment. Measured rainfall, as well as the forecast of rainfall, and temperature are considered by the model.

Suitable sowing periods will be marked green (score: 2). However, too high maximum temperatures in the forecast, overall low precipitation, or a forecast of extremely high hourly precipitation are unfavorable and are, therefore, marked as less suitable (yellow, 1) or unsuitable (red, 0) sowing conditions.



6. DISEASE MODELS PAGE

Once you chose the station, select your crop and the corresponding disease model. In the menu on the upper side, as explained in the Station Data chapter, choose the time lapse to show the chart/table. Then you can click on “Disease model information” to have more informations about the graphic of each disease. Graphs and tables show, for example, the disease risk (%), the infection progress (%) which are of key importance for the decision-making process for the farmer. Data is displayed hourly and you can select either the last period of time (from 24h to 30 days) or the time period from the calendar. You can also export data as image or csv, displaying it in a chart or table and at the end remember to refresh.



If you would like to learn more and have more detailed information about our Disease Support System visit [this website](#).

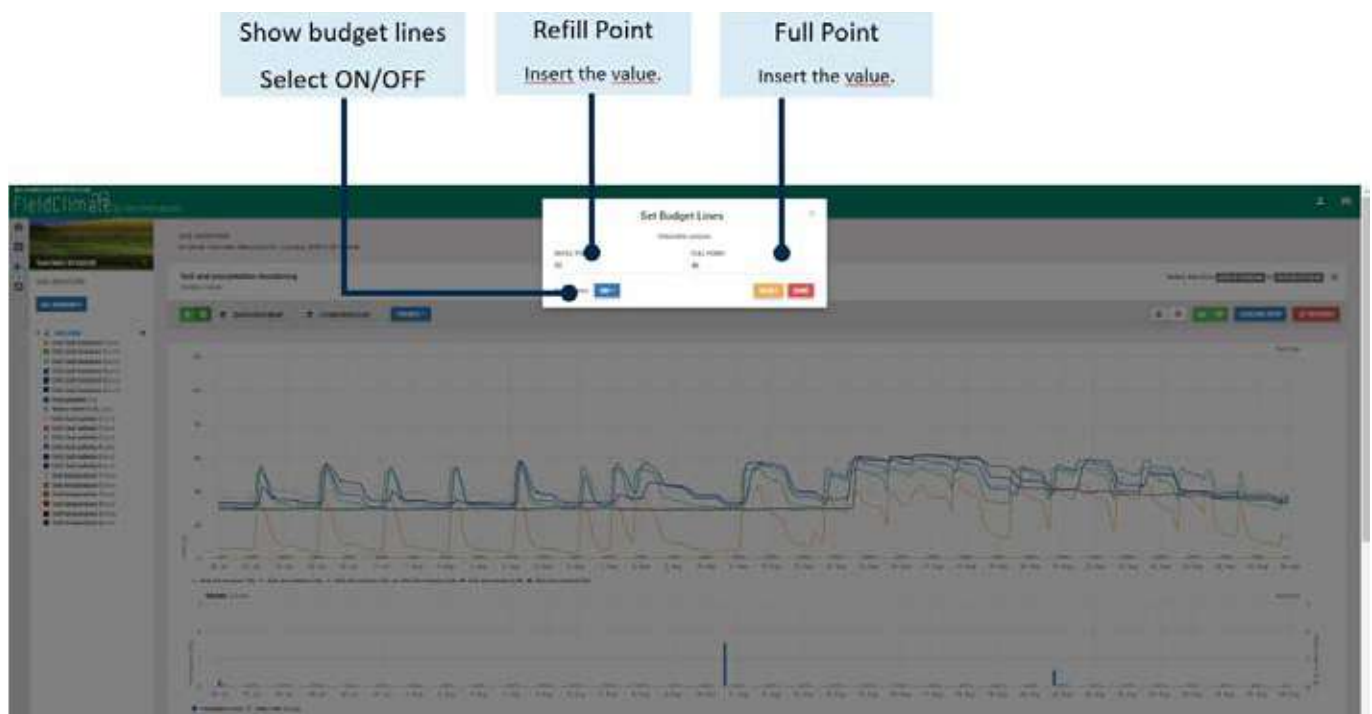
7. SOIL MOISTURE PAGE

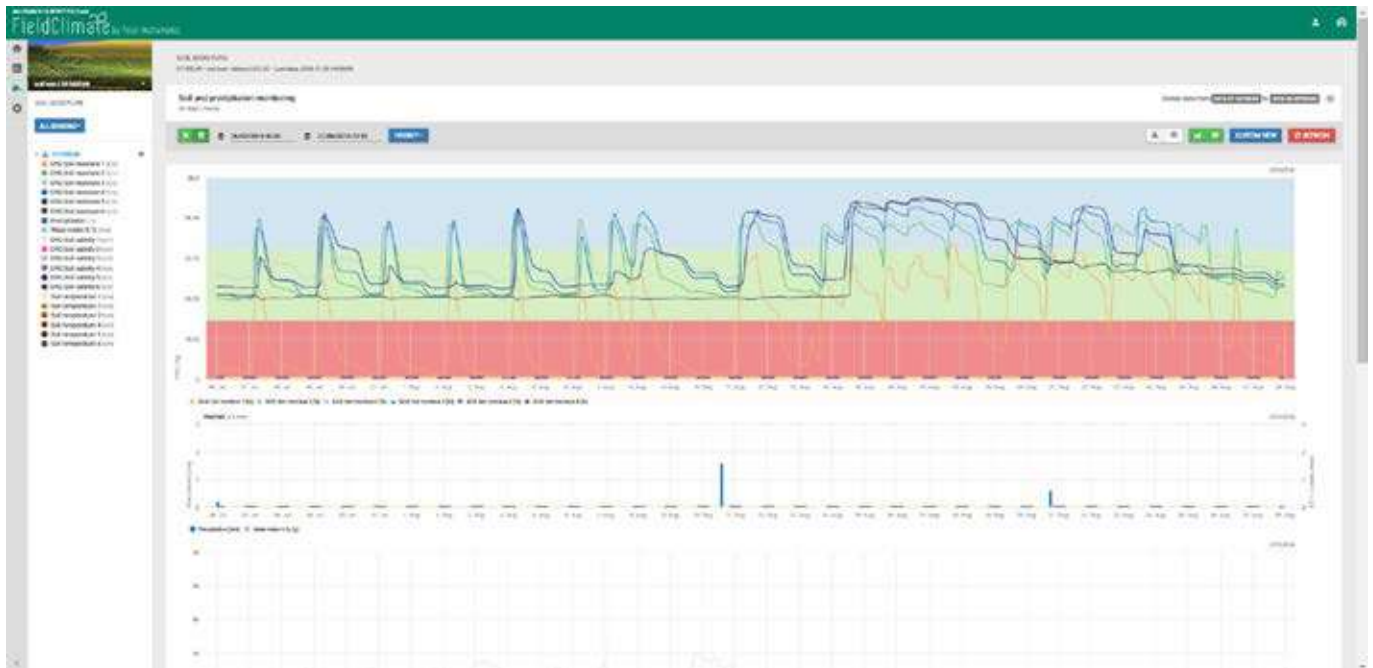
In this page you will find all your soil moisture sensors connected with your iMETOS® device which data are displayed in the charts. On the left side you will find all your sensors and you can select only that ones of your interest. In the upper menu you can choose the Time period for displaying your data, then remember to refresh. You can set the budget lines to apply the colored bands in the chart indicating different moisture conditions.



To access the settings box, you have to click on the settings icon in the left menu. Remember to select the option "Show bands". You can set the Refill Point and the Full Point; be sure at the end to click "Save configuration" otherwise edits will be lost.

For different nodes you can configure settings separately.

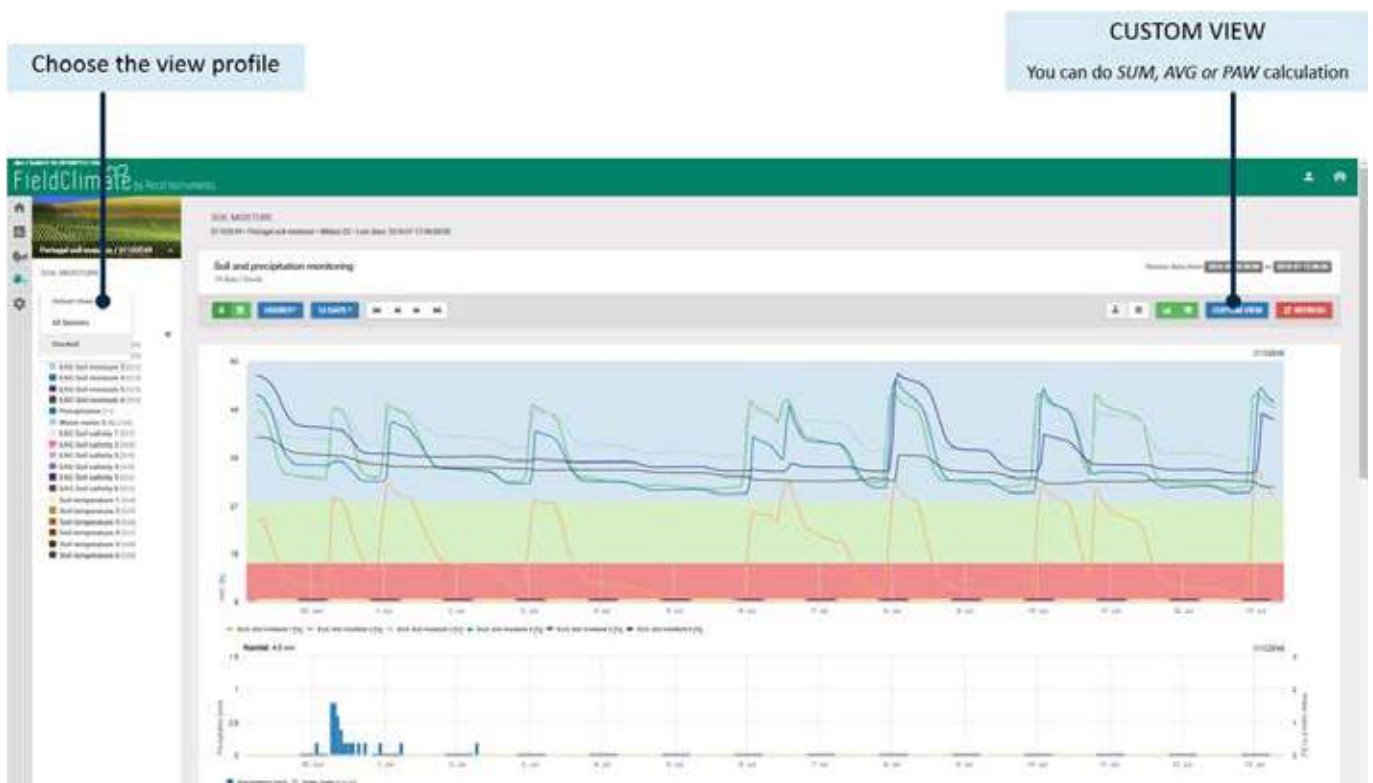




7.1 CUSTOM VIEW

Click on “CUSTOM VIEW”; write a custom view name, select the type of calculation (AVG, SUM or PAW) and sensor (Volumetric or Tensiometric), and then select the sensors you want to do the calculation. Don't forget to SAVE at the end.

7.1.1 AVERAGE



7.1.2 SUM

Select sensors that you want to do the calculation

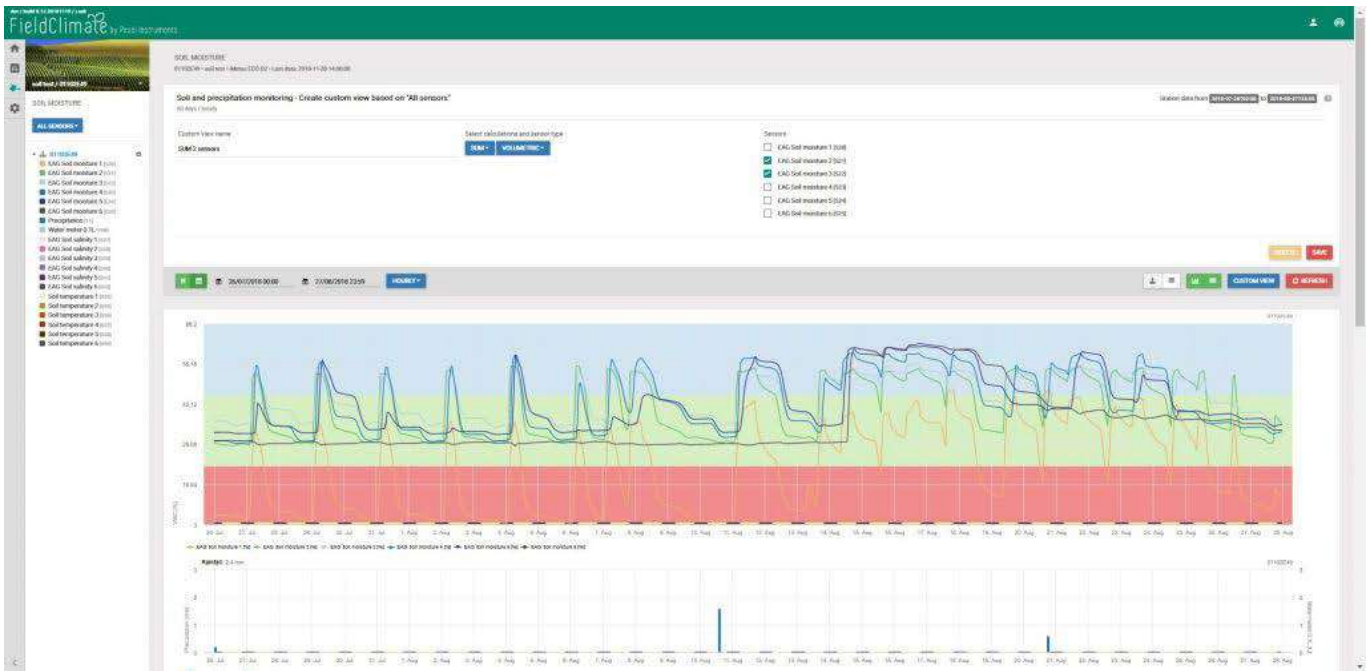
SAVE or DELETE this new profile you created



Select from the list the custom view created

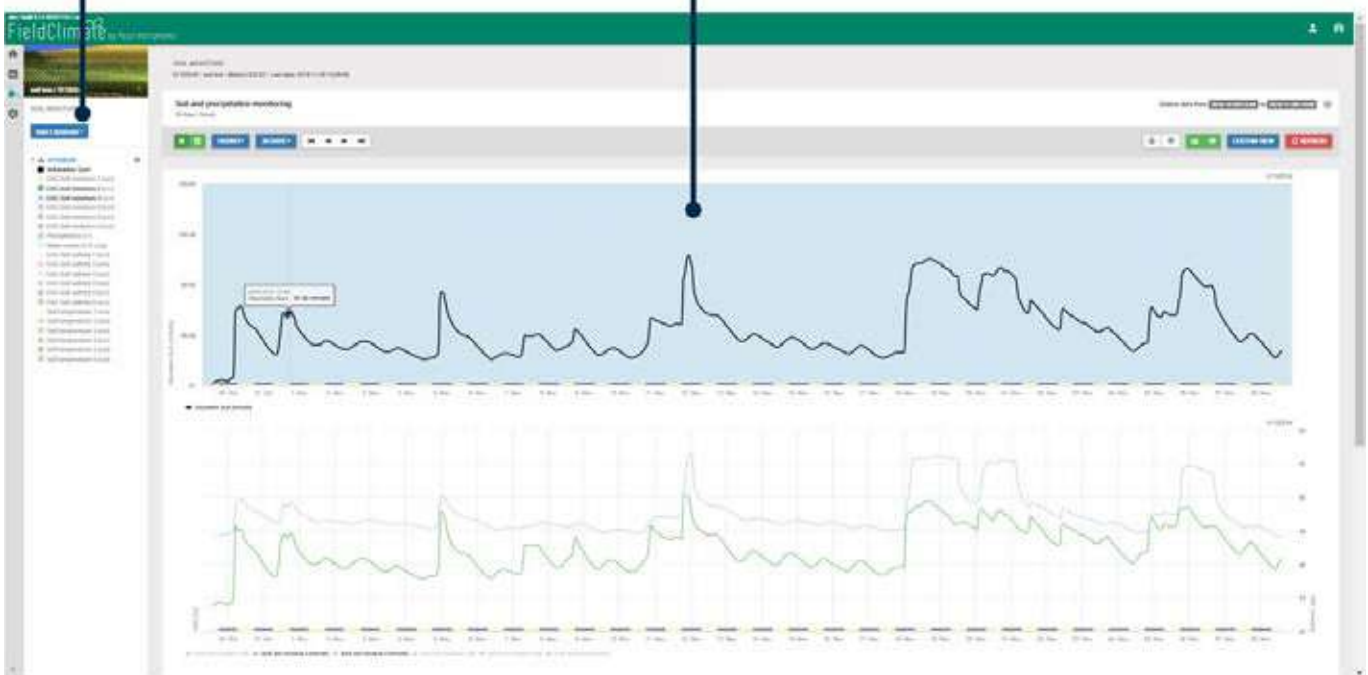
New AVG profile created





Select from the list the custom view created

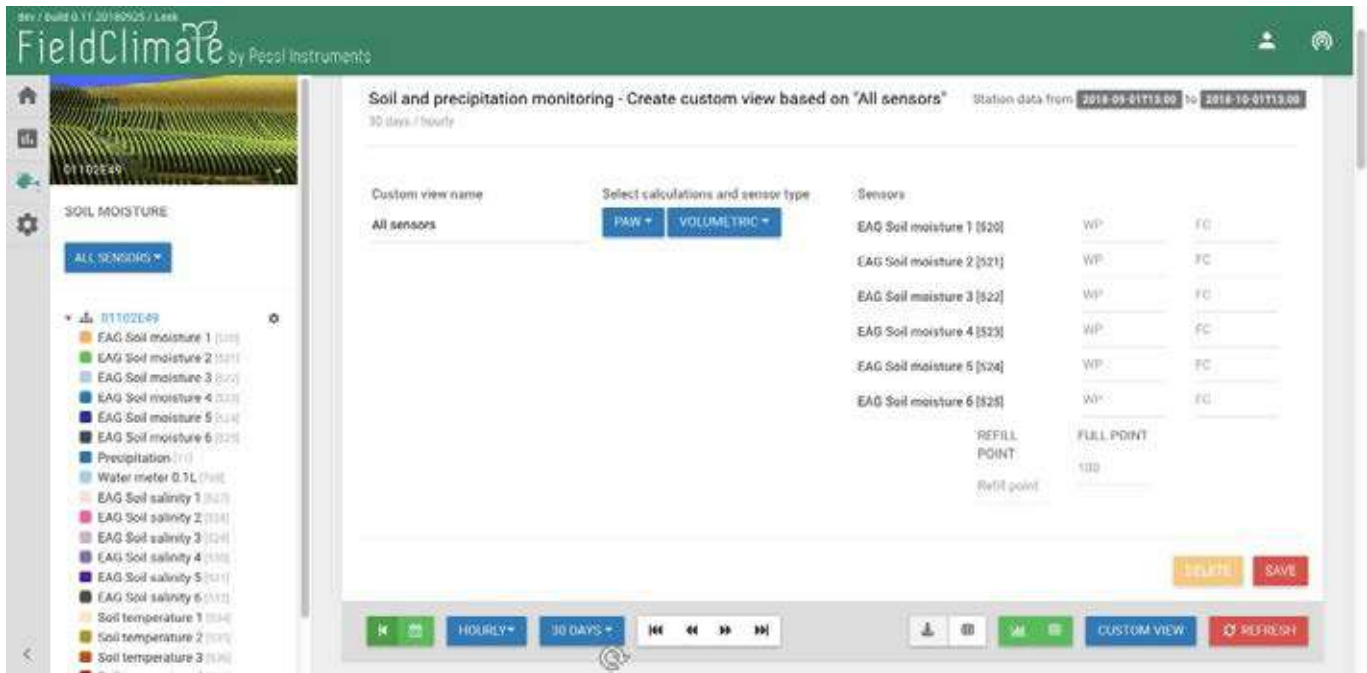
New SUM profile created



Note: when you calculate SUM for n sensors, Refill Point and Full Point values will be multiply for n as well.

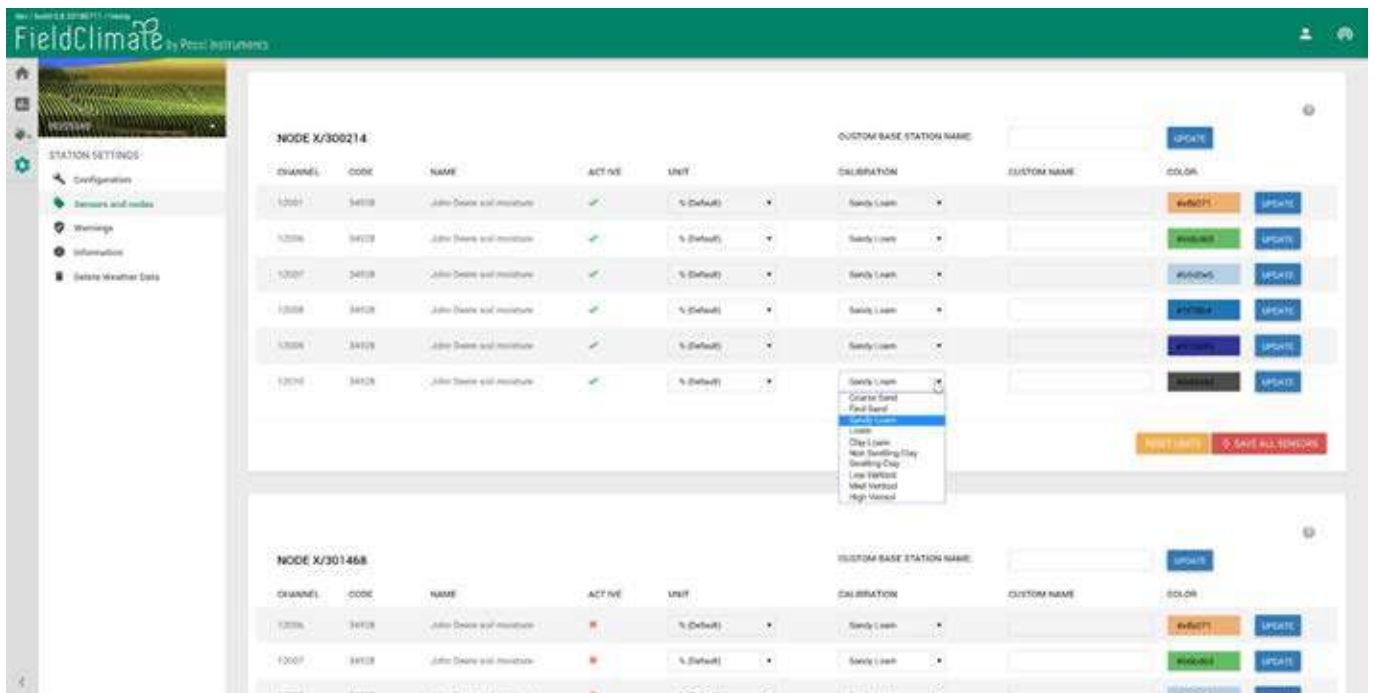
7.1.3 PAW

The PAW (Plant Available Water) calculation applies normalization to VWC data, based on WP (Wilting Point) and FC (Field Capacity) that you have to set in the related boxes for every sensor data serie. The calculated outputs are displayed for every sensor in terms of PAW, where 100% correspond to the Full Point (or Field Capacity), whereas the default value for Refill Point is set at 50%, but can be modified based on different crop water requirements. The Budget Lines defined the colored bands (red, green, blue) are referred in this case to the Full Point fixed at 100% and the Refill Point set in the Custom View Box.

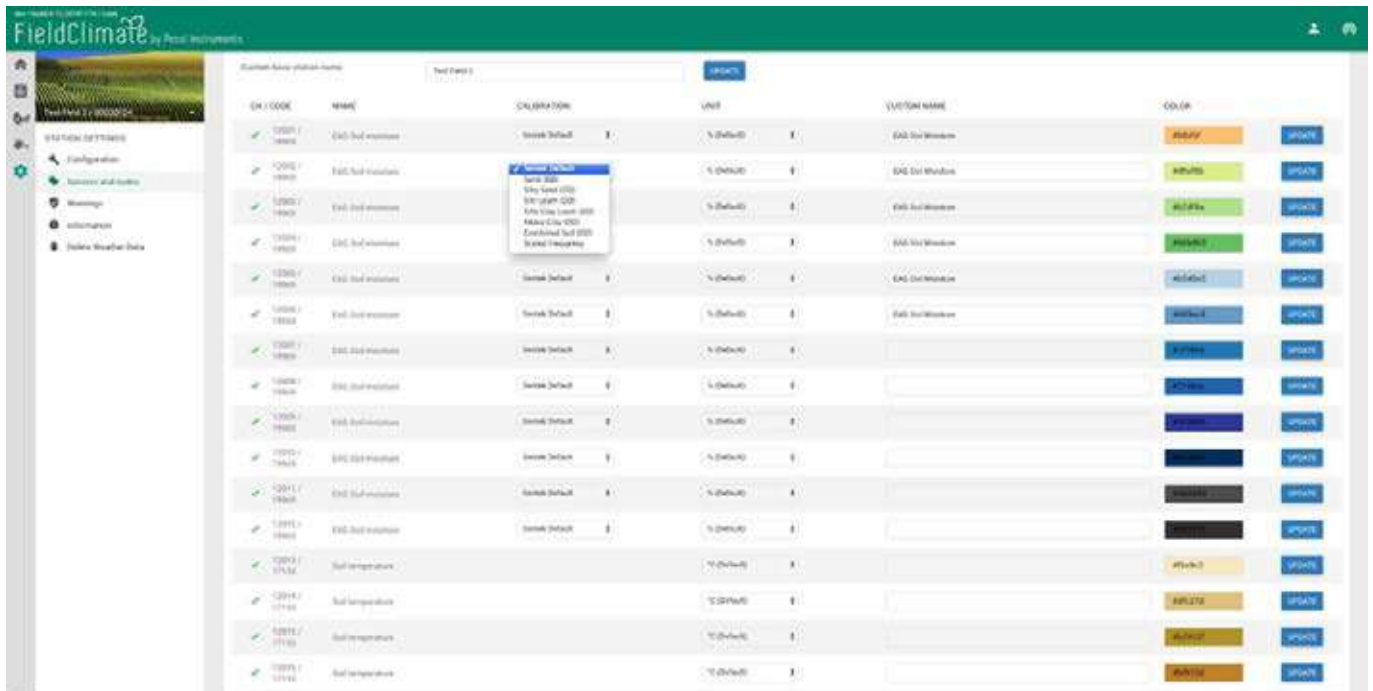


7.2 SOIL TEXTURE CALIBRATION

For some soil moisture profile probes additional column CALIBRATION is available in Settings -> Sensors and nodes, where you can select different soil texture calibration equations to be applied to your soil moisture data. The texture calibration options available are the official ones provided by the OEM probe manufacturers.



Below is an example of soil texture calibration on a iMETOS DDT probe.



The RAW value coming from the station is VWC with applied Sentek Default calibration.

The different soil texture calibrations equations follow the following form:

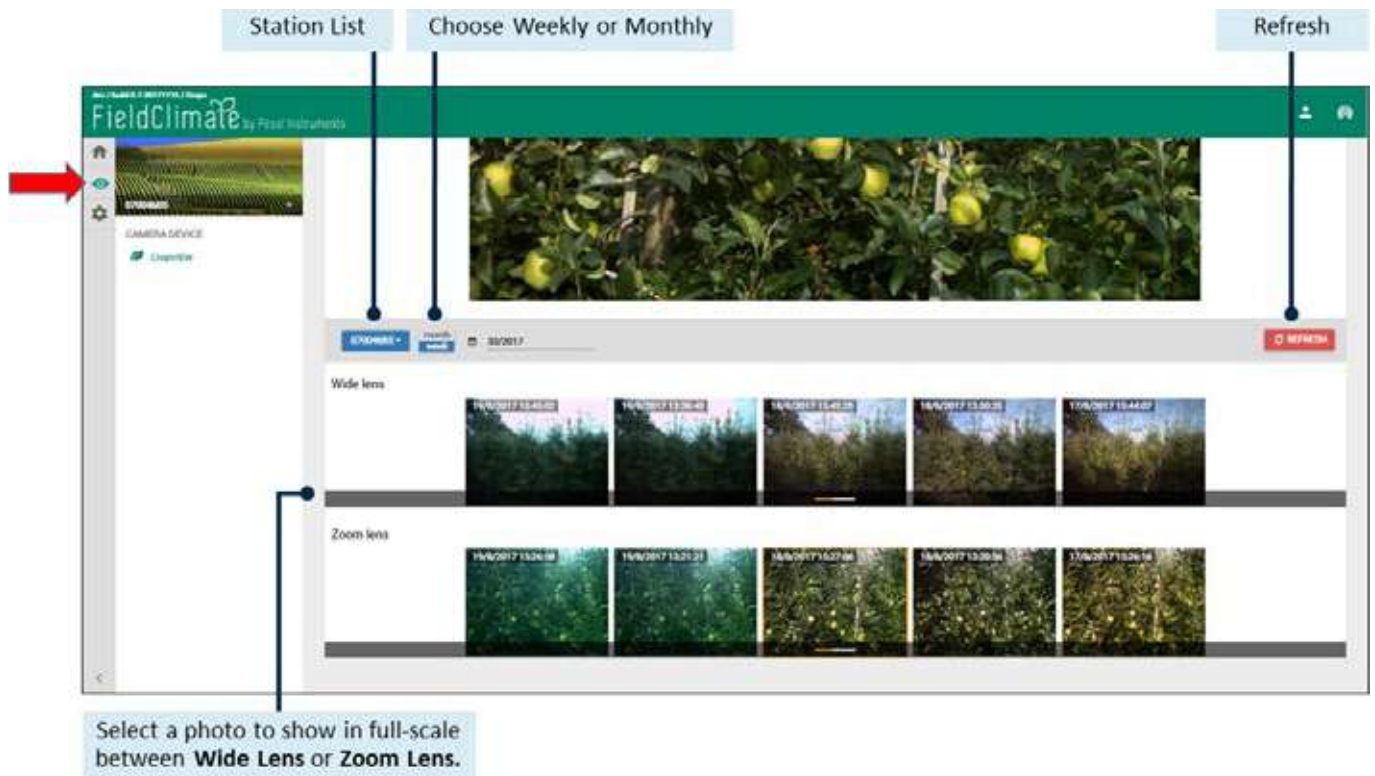
$VWC = ((SF - c) / a)^{1/b}$; where VWC is Volumetric Water Content, SF is Scaled Frequency and the coefficient a, b, c depend on the soil texture as indicated in Table 1.

	a	b	c
Sentek Default	0.1957	0.404	0.02852
Sand (DD)	0.092	0.555	0.189
Silty Sand (DD)	2.475	0.052	-2.077
Silt-Loam (DD)	0.446	0.271	-0.227
Silty Clay Loam (DD)	1.072	0.209	-1.169
Heavy Clay (DD)	0.003	1.487	0.270
Combined Soil (DD)	0.232	0.410	-0.021

Table 1 – Coefficients of different soil texture calibrations equations.

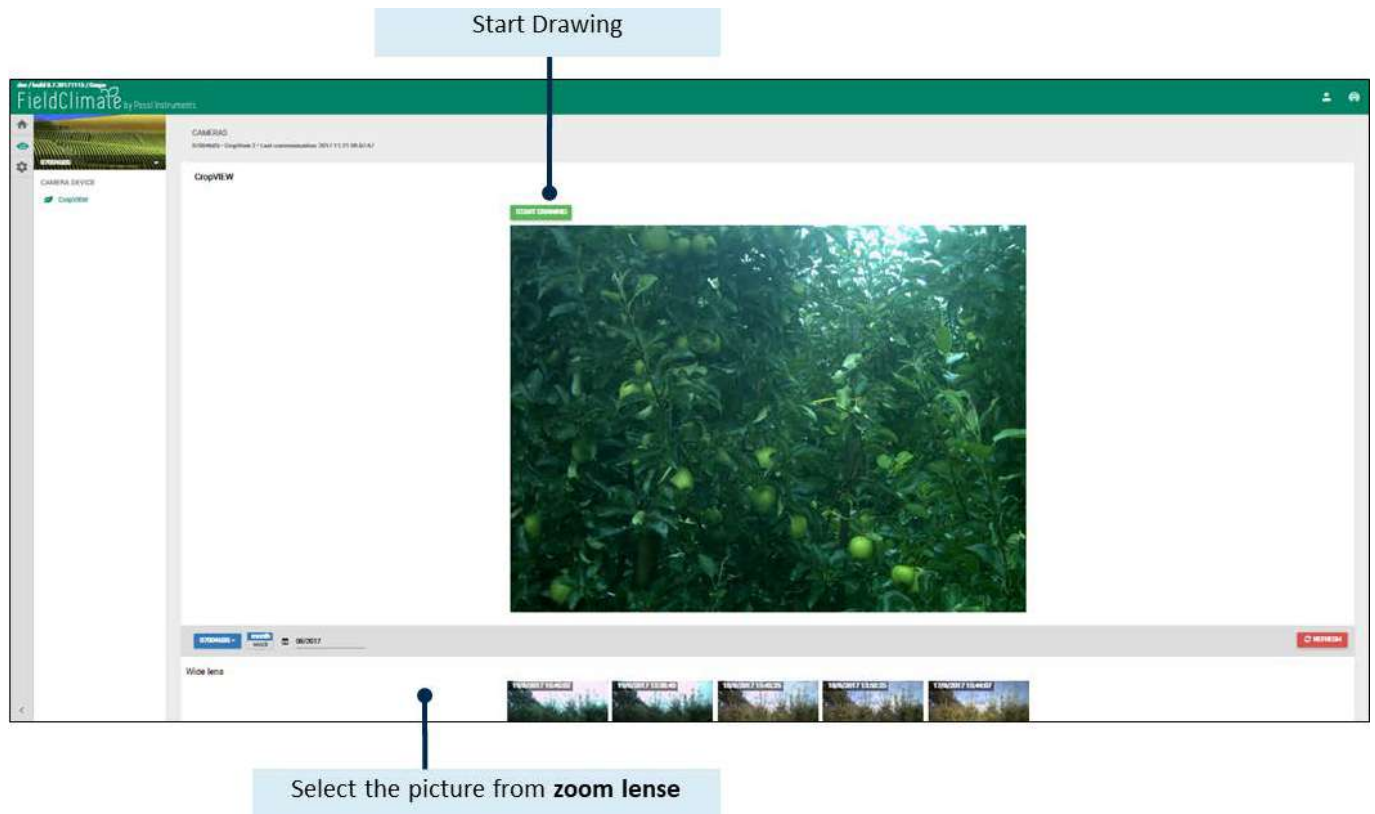
8. CropVIEW® PAGE

It needs to have an CropVIEW® device in your crop. It is an agricultural information system that periodically takes high resolution photos of the crop. Photos are automatically uploaded to the FieldClimate platform and allows continuous crop monitoring and yield control. High resolution images can be analyzed over time in relation to environmental data. To access the CropVIEW page, please click on eye icon on the left side of the bar. After clicking on the eye icon, a new page with full-scale picture will open. Below the full-scale picture, you can find a date selection option and a selection between the two cameras – wide angle lens and zoom lens. With this you can choose which picture to show in full-scale.



8.1 FRUIT DIAMETER TOOL

A new tool is implemented in FieldClimate, which allows you to manually draw circles around fruits, on pictures taken from your orchard or field by CropVIEW device. If you precisely know the distance between the camera and crop, you will also get a reliable measurement of fruit diameter in mm (depends on the distance between camera and crop – more precise it is, more precise will be the measurement). To start using this tool, you must select a picture from zoom camera and click on the “Start Drawing” button on the top of the high resolution picture. Click on the help button (?) next to “Start Drawing” and follow the instructions.

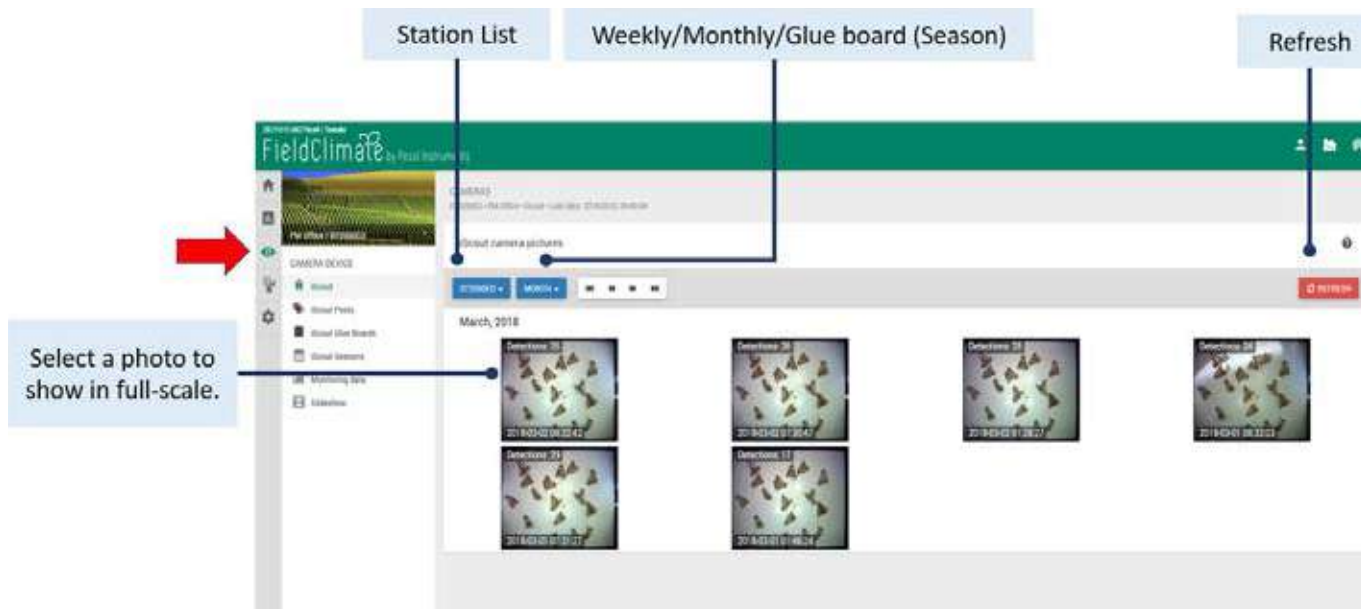


To start drawing on the image, hold SHIFT and LEFT MOUSE button, then move the mouse to draw the circle. Once you release the mouse button the circle will be drawn and fixed on the image. Hovering over the circle with your mouse will color the circle in blue. You can simply select that circle with a left mouse button click. Once the circle is selected, move it around with your mouse while holding down the left mouse button. To edit the circle simply hold down the CTRL key on your keyboard and the left mouse button, then move the mouse to the left if you wish to make the circle smaller, or to the right if you want to make the circle bigger. To discard a circle, select it first by clicking on the circle you wish to remove, then press the DELETE button on your keyboard. To stop drawing click the "Stop drawing" button below.

9. iSCOUT® PAGE

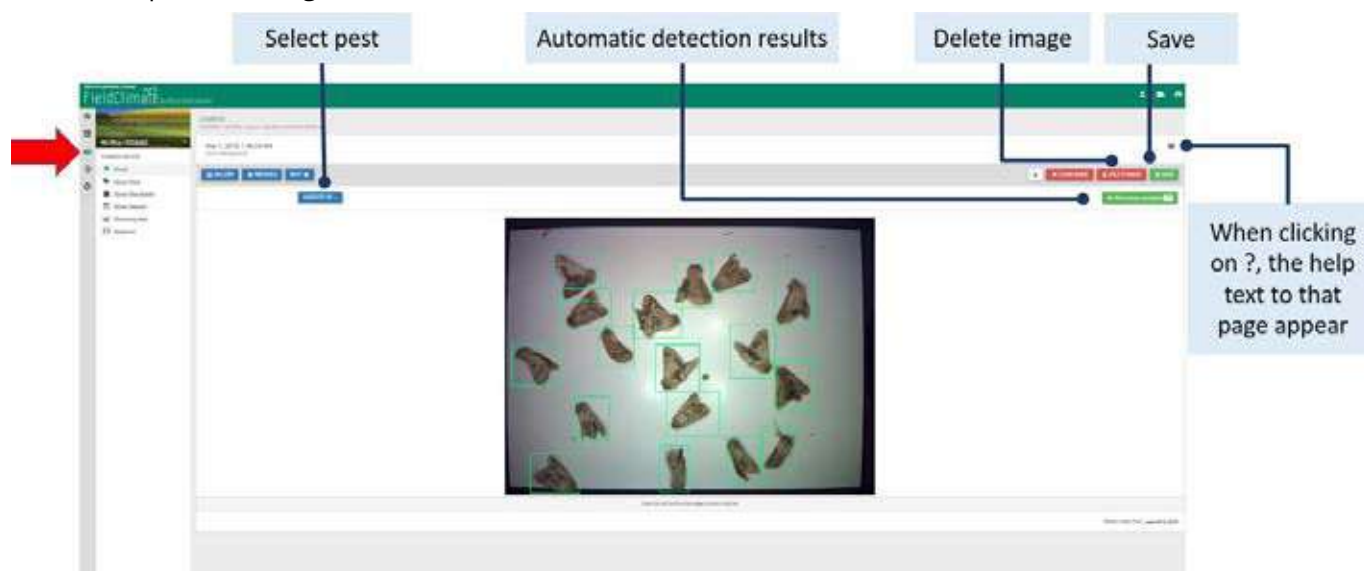
iSCOUT®, a combination of hardware and software with the aim to remote monitor agricultural pest insects. With its integrated electronics and sticky plate, it is smart enough to be hung where needed. In the field, the device is self-sufficient, being powered by a solar panel and a battery. Integrated camera takes high-resolution pictures of the sticky plate within the iSCOUT®. Images are sent via LTE/UMTS to the FieldClimate platform where they are analysed with ML methods. The results are then visible on the web and mobile devices. Those real time data can be used for further analysis and support you timely with your decisions.

The iSCOUT® page in FieldClimate is accessible when clicking on the EYE icon on the left side of the bar. After clicking on the eye icon, a new page with the pictures of your device will open. In the Gallery we show all pictures per month, week, season (you can use the drop-down list to change). Important: click refresh after choosing an option. If you want to see previous months/weeks/seasons use the buttons for moving back or forward.



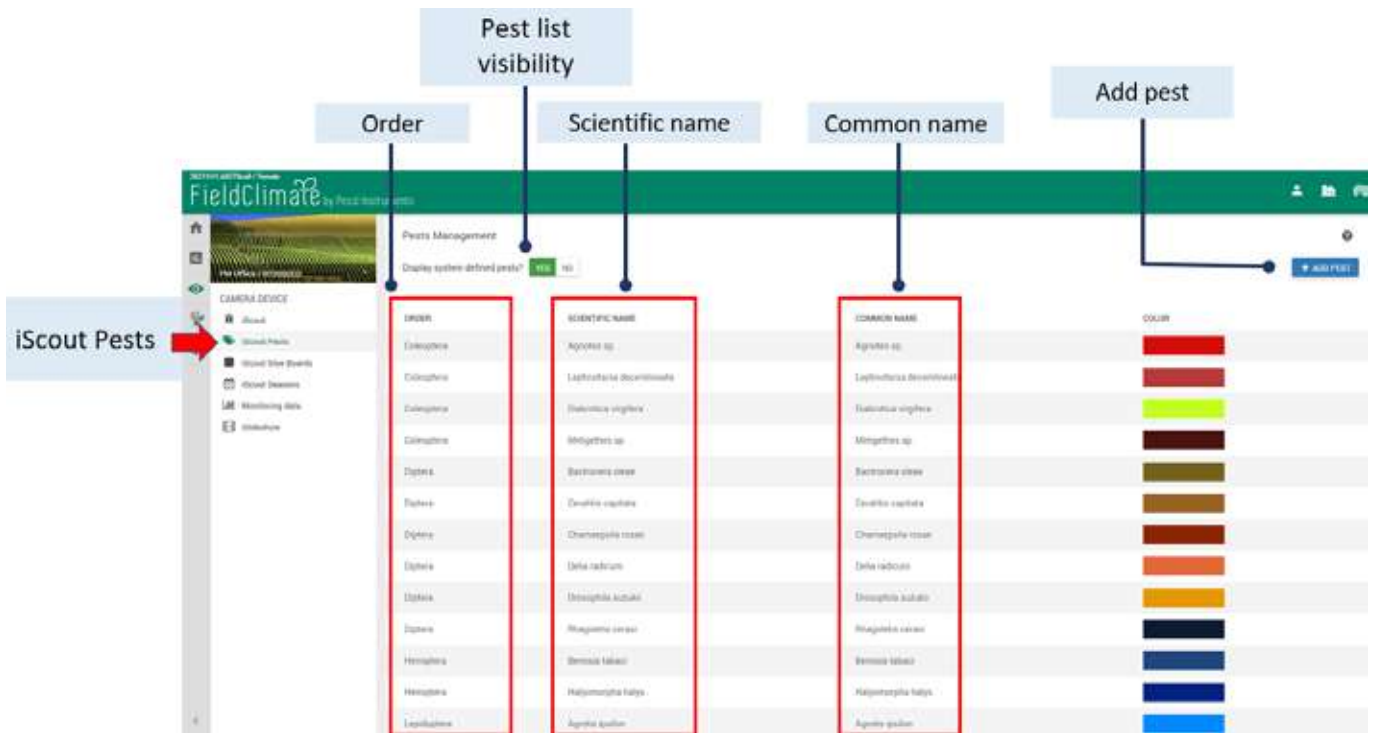
9.1 INSECT DETECTION TOOL

When clicking on a picture the “correction mode” with automatic insect detections, drawn as green rectangles around the insect are shown. Thicker rectangles mark the new insects the system detected, based on the previous image. You can rename the drawn rectangles on the image. Select the rectangle, click on the right mouse button and label/mark the insect according to the default pest insect list or create your own pest list. The detections will be tracked back and forward, so they exist as long as the insect stays in that position. You are also able to draw rectangles manually and name them, however they just stay at the photo the drawing has been made. Remember to SAVE changes. If you want to hide insects that are not in your interest, you can do so by clicking on their name in the right upper corner- detection results and they get inactive (greyish). You can also export the image.



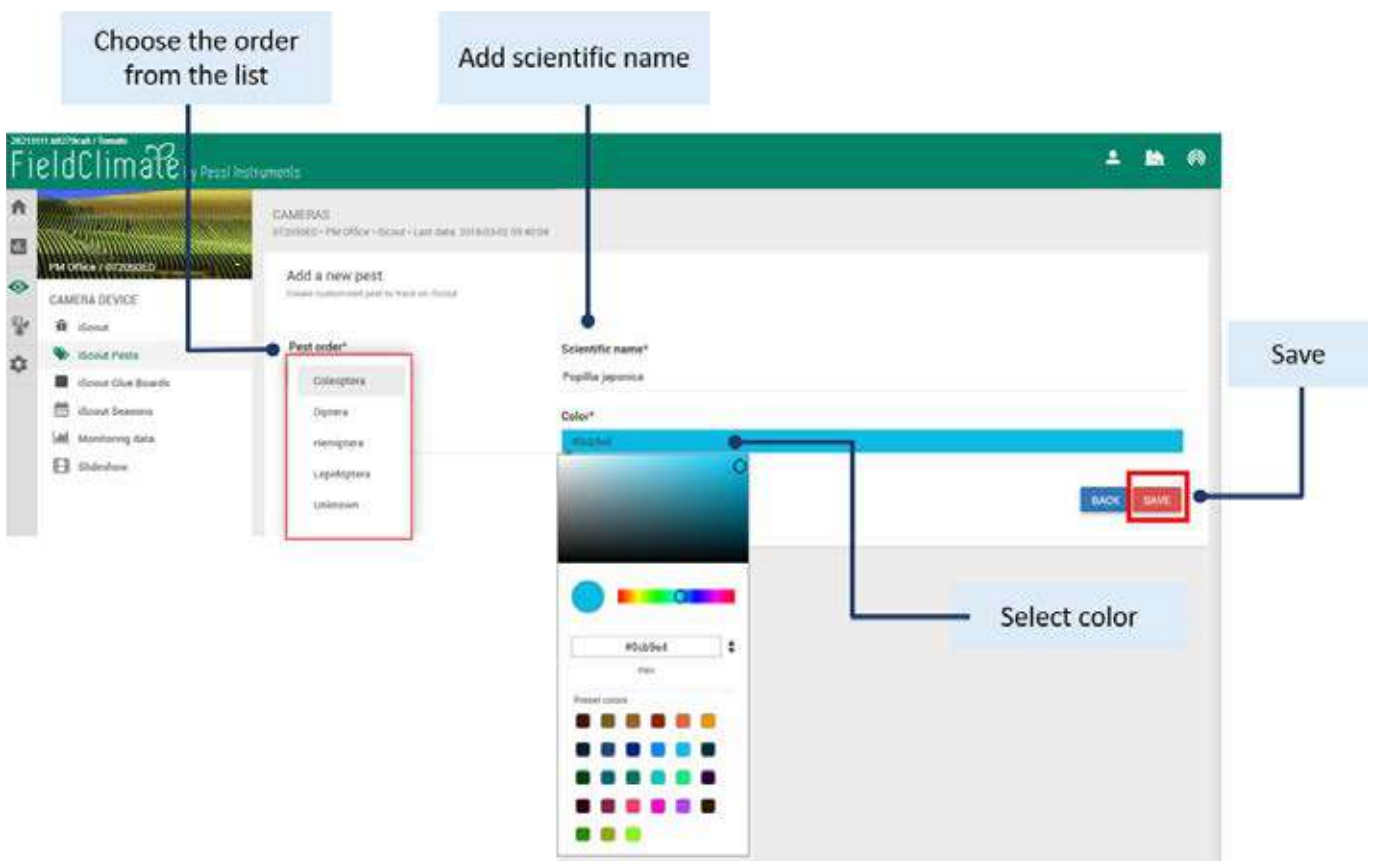
9.2 iSCOUT PESTS

Per default a list of various agricultural insect pests is available. However, you are able to deactivate the visibility of that pest list (click NO on the question “Display system defined pests?”) and create your own pest list with ADD PEST.



9.2.1 ADD A NEW PEST

Here it is obligatory to choose the order of the pest insect, on all other fields you can freely choose the names. That new added pest insect will appear on the pest list and in the correction model to be selected to label on the photo. Remember to SAVE changes.



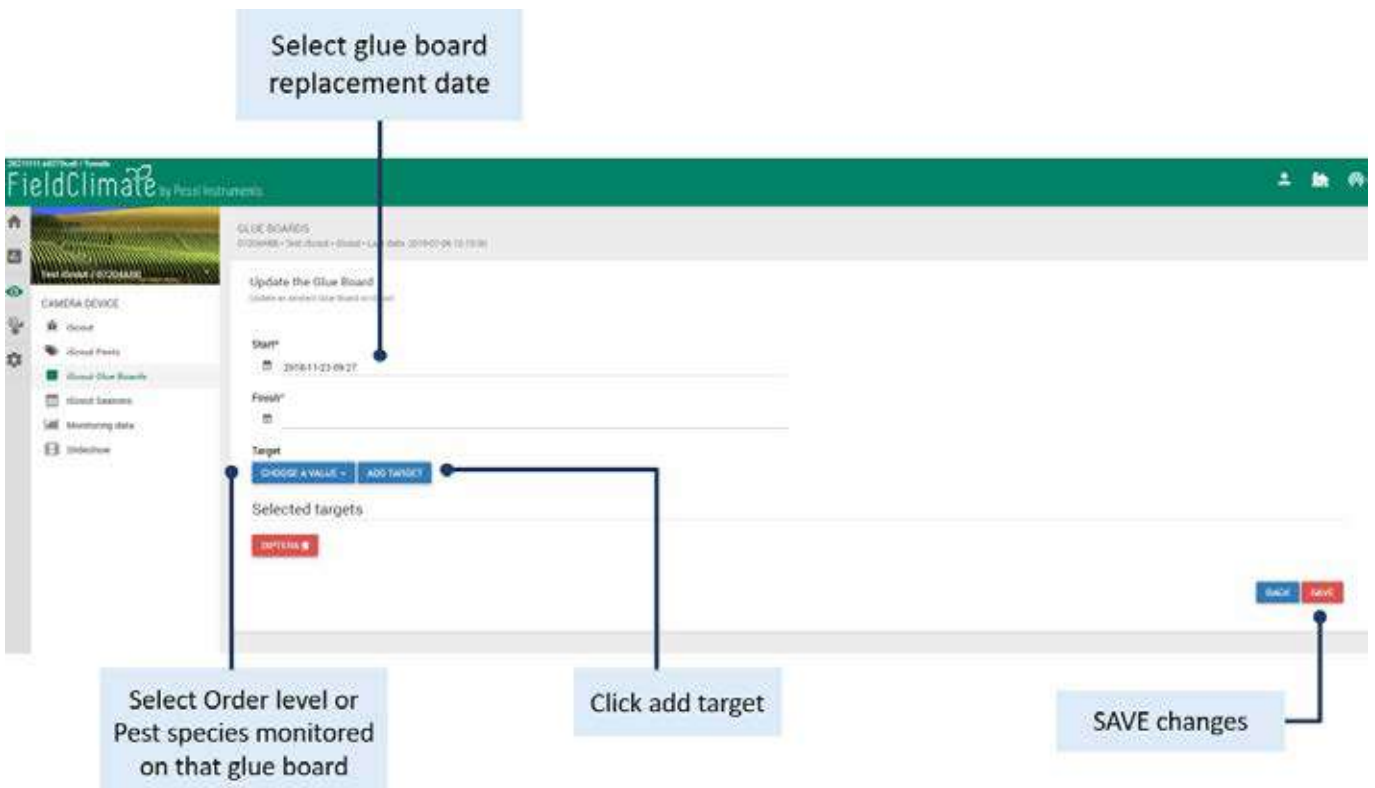
9.3 iSCOUT GLUE BOARDS

iSCOUT glue boards help you to manage your pest monitoring season.



“ADD GLUE BOARD” option allows you to define when the glue board was replaced and when you replaced it with a new one. You can also define the pest insect list (on order or species level) monitored on that glue board by clicking “ADD TARGET”. Using that function and adding specific target insects on the glue board page will influence your detection page with the photos, only those insects that are added to target and are of interest, will be seen and followed on your photos. All the others are handled as “not interested insects” and are hidden automatically.

Be sure to click the “SAVE” button after making any changes, otherwise edits will be lost.

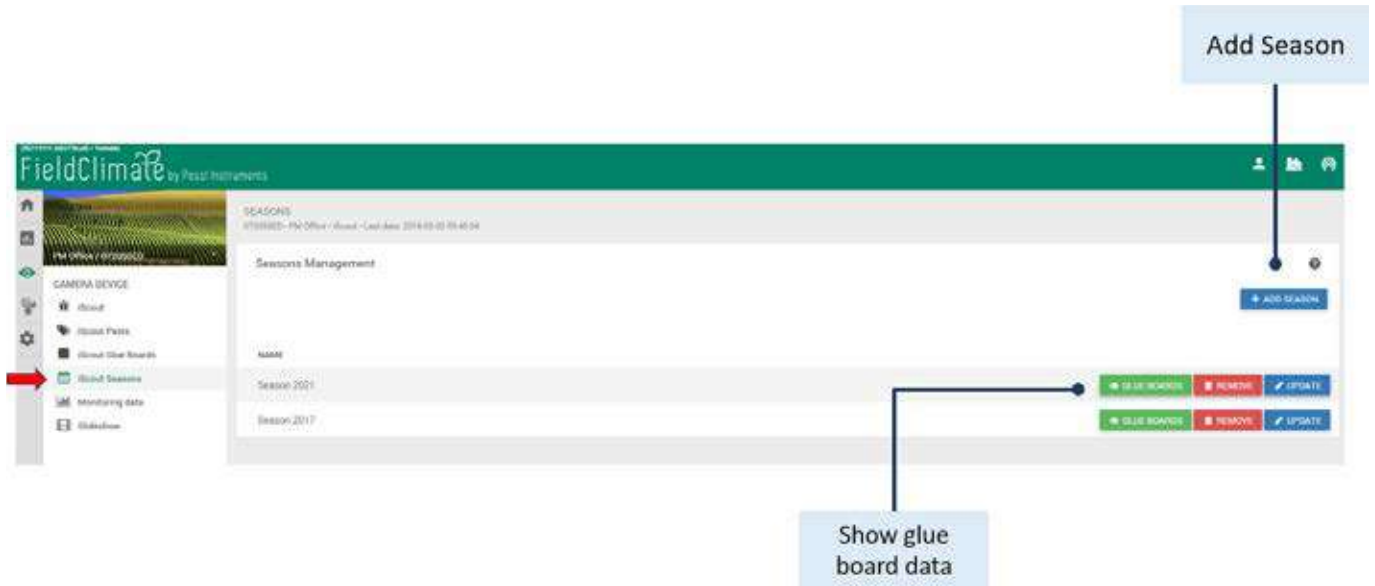


9.4 iSCOUT SEASONS MANAGEMENT

Glue boards are summarized into seasons.

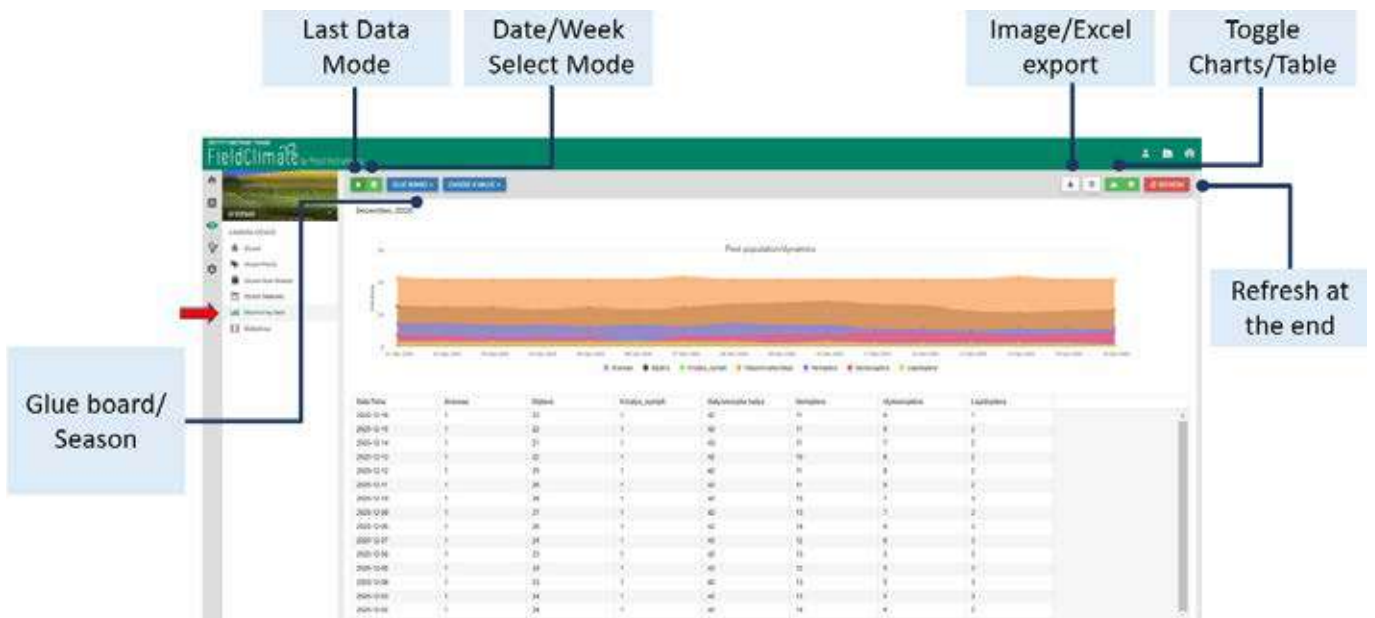
Click “ADD SEASON” to organize photos per season. Be sure to click the “SAVE” button after making any changes, otherwise edits will be lost.

The “GLUE BOARDS” button allows you to see information about glue board (date, insect counts). You can also remove or update seasons info.



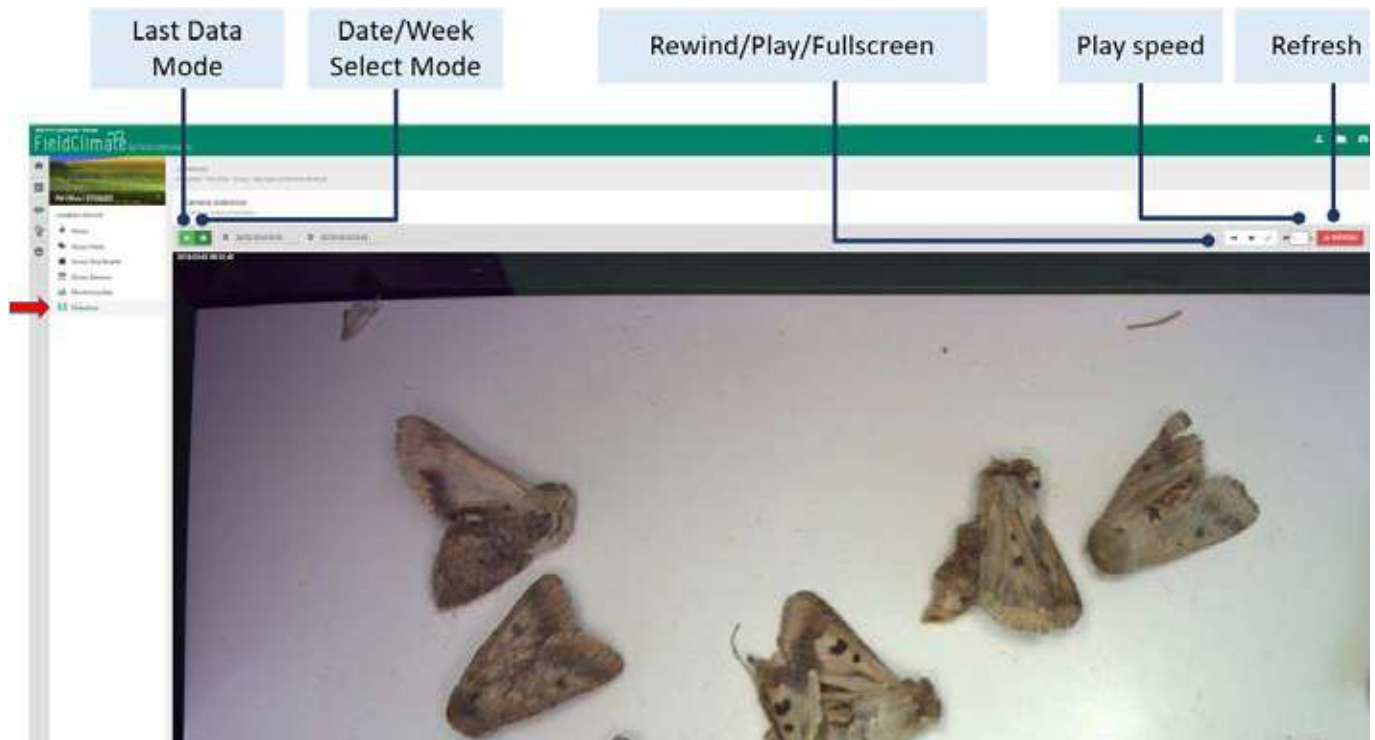
9.5 MONITORING DATA

On this page you will find detections/counts of insects displayed in chart and table form. Click the “Date/Week Select Mode” button to insert the period of time using the calendar to show the data. You can see the data of a specific selected time period (from-to) or of the glueboard or season. When choosing glueboard/season only the targets (defined in glueboards) will be shown and displayed on the monitoring page too. There is the possibility to export charts as image and table as “xls”. Clicking on the Toggle Charts or Toggle Table you can hide chart/table. Be sure to click the “Refresh button” after making any changes.



9.6 CAMERA SLIDESHOW

Camera slideshow enables you to view photos as a slideshow. Click the “Date/Week Select Mode” button to insert the period of time using the calendar to show the data. You can also set how fast the presentation should play, rewind or select Fullscreen. Be sure to click the “Refresh button” after making any changes.



10. STATION SETTINGS PAGE

10.1 CONFIGURATION

10.1.1 Time zone and location settings

Under timezone and location, you need to provide precise information, as weather forecast and other services depend on it. Be aware that precise location and time-zone settings are essential for proper functioning of weather forecast and other services. If your device has a built-in GPS, location and time zone will be acquired automatically.

Otherwise, you can also define location manually in different ways:

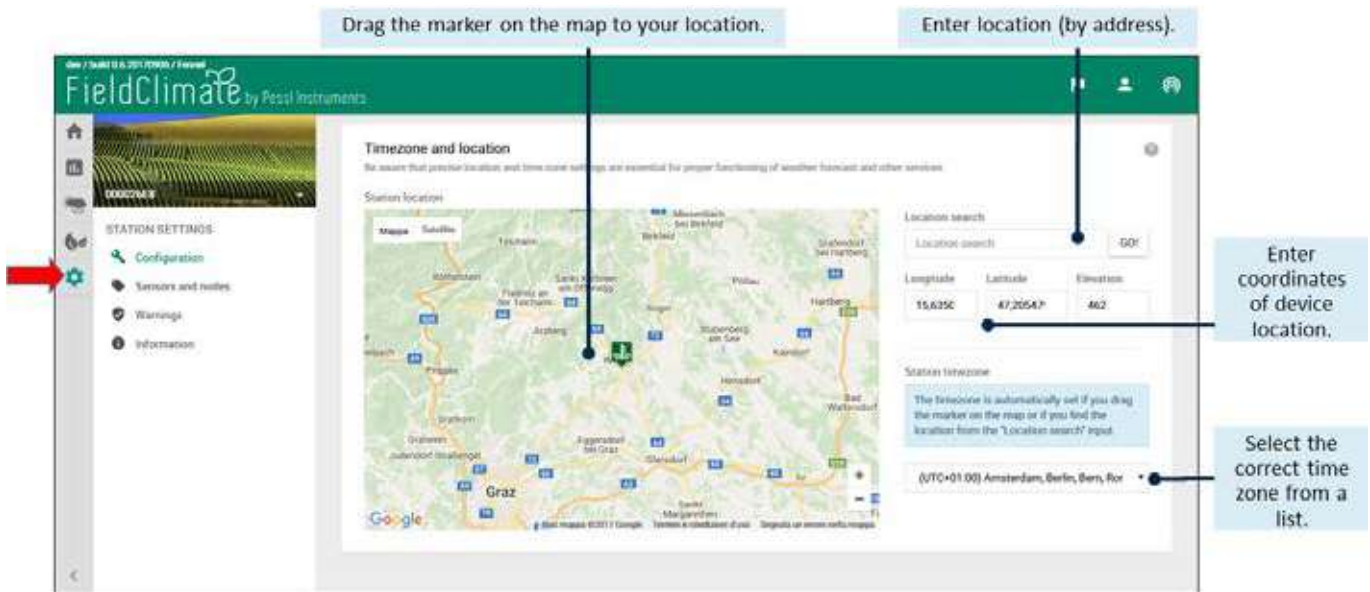
- Drag the marker on the map to your location.
- Enter location (by address) into “location search” box and then click “GO!” button.
- Enter coordinates of device location to “Longitude, Latitude, Elevation” boxes (you can acquire coordinates with help of your mobile phone, if it has built-in gps).

The timezone is automatically set if you drag the marker on the map or if you find the location from the “Lo-

ation search” input. For entering the time zone manually:

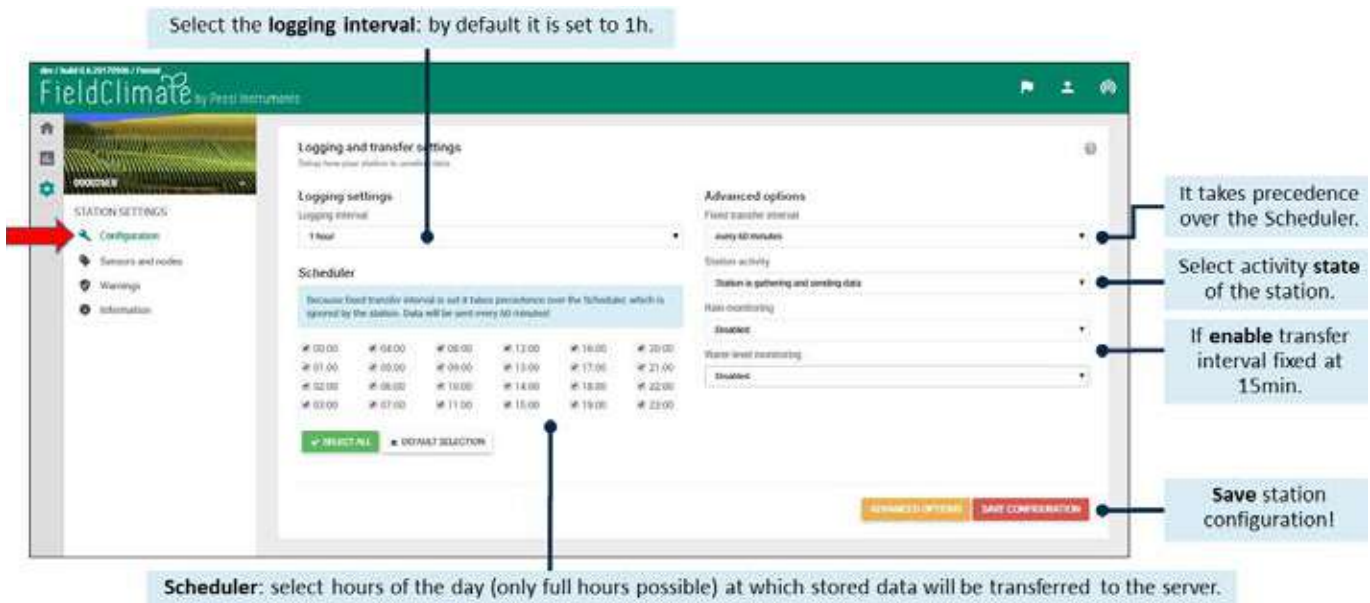
- Select the correct time zone from a list.

When you finish with configuration, do not forget to save the new settings (click on “save location” button).



10.1.2 Logging and transfer settings

Under transfer settings, you can define how your METOS device is sending data. The setting for logging interval and transmission times will work with the default values, as long it is not changed. The logging interval is set to 60 minutes by default. Shorting the logging interval will increase the power consumption and the data transfer cost. It can be set to 10, 15, 20, 30, 60 and 120 minutes. Logging interval means time interval at which your station will read data from all the sensors and store it to memory. With Scheduler you can select hours of the day (only full hours possible) at which stored data will be transferred to the server. You need to select at least one transmission per day. Using less transfer times will decrease the data transfer cost.



You can set also a user-defined fixed settings transfer interval. Click “Advanced Options” button and new menus will appear with next options:

- Fixing transfer interval every 60 minutes it takes precedence over the Scheduler, which is ignored by the station: data can be sent every 10, 15, 20, 30 or 60 minutes. You can also disable the fixed transfer interval option giving the precedence to the Scheduler.
- Station activity: here you can select activity state of the station. You can either turn it completely off, with choosing Station is switched off in the drop-down menu or by selecting Station is gathering but not sending data you will put your station in a mode where it is only logging but not transmitting. By default station is set to normal working mode and is gathering and sending data.
- If rain monitoring is enabled, the iMETOS device measures, logs and transfers data at a fixed 15 minutes interval while it is raining. By default rain monitoring is off. This option is available only at the stations which have rain gauge sensor.
- If water level monitoring is enabled, the iMETOS device sends data to the server every 15 minutes interval during flooding events. The user can define a water level threshold. When the threshold is exceeded, the iMETOS device measures, logs and transfers data in the specified interval. This option is available only at the stations which have water level sensor.

The settings are send to the web server by pressing the “Save Configuration” button.

10.1.3 CropVIEW® and iSCOUT® configuration page

Set up time zone and location: these settings are very important as they are essential for proper functioning of some services. For setting timezone and location CropVIEW settings follow the same settings for a iMETOS® device.

Set up transfer settings: setup how your CropVIEW is sending data. Be aware that taking and sending pictures consumes a lot of data and energy. Therefore, we set a limitation to take pictures three times per day.

Set up camera: setup camera settings. Be aware that bad settings can result in corrupted images. Change this settings only if you are confident to know what you are doing.

For the iSCOUT you can setup how your station is sending data. To maintain the amount of data under 1GB and inside your monthly plan the maximum number of captured images is limited to three per day. During low temperatures please make sure that your station transmits only once per day due to battery saving. You can also customize your Camera settings, but we suggest to maintain the default settings.

10.2 SENSORS AND NODES

In this section, you can define a custom name for your station and all nodes connected to it. Every Metos device is significantly named by a serial number. For most users it is more convenient to name it after the site is installed. Moreover you can also define a custom name and color for every single sensor that is connected to your station. For every single sensor you can also select a unit in which the value of the sensor will be presented on charts and in tables. After defining custom units, names and colors, you need to save your settings. You can do this by clicking on the “update” button for every single sensor or at the “save all” button at the end of the sensor list, to save all at once. The button “Reset Sensors” enables you to reset all sensor units to their default values.

(Important note: When you change the units settings (Metric/Imperial) in the User menu, the change only affects default sensor unit settings and not customized unit settings).

Channel is visible

Sensor name

Check inactive sensors as well

Choose the color to represent your sensor on the station page

Update to save edits for single sensor

Select the preferred unit, custom name and color for each sensor

Save sensors' configuration at once!

CHANNEL	CODE	NAME	ACTIVE	UNIT	CUSTOM NAME	COLOR
0	000	Solar radiation	✓	W/m ² (Default)		YELLOW
2	001	Weather temperature	✓	°C (Default)		PURPLE
4	01	Solar Panel	✓	W/m ² (Default)		ORANGE
5	0	Precipitation	✓	mm (Default)		BLUE
6	6	Wind speed	✓	m/s (Default)		GREEN
9	7	Battery	✓	mm (Default)		BROWN
10	8	Leaf Wetness	✓	mm (Default)		TEAL
11	304	HC Serial Number	✓	No units		WHITE
18	505	HC Air temperature	✓	°C (Default)		RED
19	507	HC Relative humidity	✓	% (Default)		MAGENTA
20	21	Dew Point	✓	°C (Default)		CYAN
26	26	VPD	✓	kPa (Default)		BRIGHT GREEN
31	45	Wind speed max	✓	m/s (Default)		BRIGHT GREEN
36	07	Delta T	✓	°C (Default)		PURPLE

10.3 SMS WARNINGS

10.3.1 Phone numbers

In this section you can define phone numbers and names associated with it, at which you want that a warning SMS will be sent. Under Add phone number please input phone number together with a country code and a custom name associated with it. After filling the input boxes click on "ADD" button to add the phone number. If you want that a warning SMS is sent to more numbers, you can add additional phone numbers to the list. Under List of phone numbers you will see all phone numbers and associated names that you have added. If you want you can also set the state of a phone number from active (by default) to not active (with clicking on "yes/no" button). In this way you can choose which phone numbers from the list warning SMS will be sent. By clicking on "remove" button you can also remove a certain phone number from the list. When you will finish with configuration, do not forget to save new settings that you made (click on "save phone numbers" button).

Insert your phone number.

Add your phone.

Save phone numbers.

Set thresholds at MIN and at MAX.

Phone numbers

Phone number: Name: **ADD**

LIST of phone numbers

PHONE NUMBER	NAME	ACTIVE

Warnings

Warning thresholds can have a full number to decimal values (.) and are separated with a comma (,). Warning thresholds can also contain negative numbers (numbers below 0). Input fields with errors will be marked with red and will not be saved before they are fixed.

CODE	CHANN	CHANNEL	NAME	UNIT	WARNING AT MIN	WARNING AT MAX
30	1	4	Solar Panel	W/m ²	Threshold: 0.0 & 1.0	Threshold: 0.0 & 1.0
6	1	3	Precipitation	mm	Threshold: 0.0 & 1.0	Threshold: 0.0 & 1.0
7	1	7	Battery	mm	Threshold: 0.0 & 1.0	Threshold: 0.0 & 1.0

10.3.2 Setup SMS warning

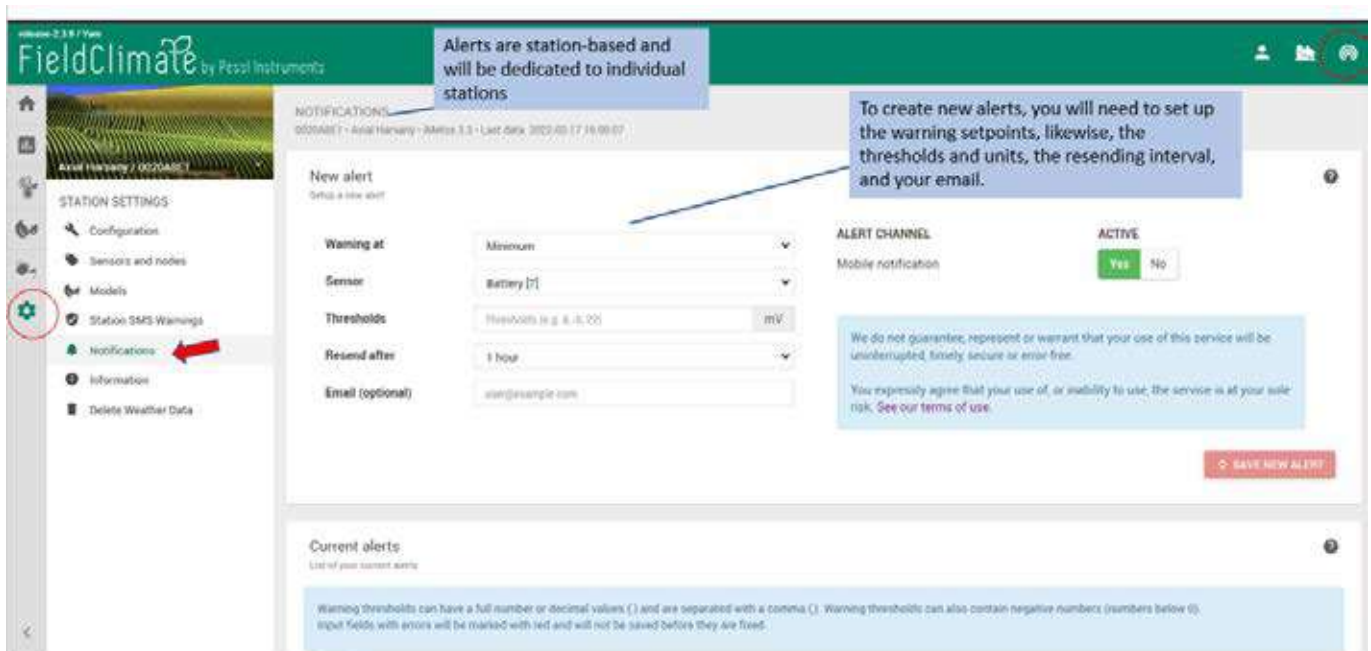
The user can define an upper and lower threshold SMS alarm values for each sensor. If a measured value exceeds (or goes below) the establish threshold, the iMETOS® device will send the SMS with a warning text (name of sensor, actual value, threshold value) to up to 30 different mobile phone numbers. Alarm thresholds are checked every 5 minutes within each measurement. When the iMETOS® receives the sent acknowledgment from the mobile network the iMETOS® device will disable SMS sending for 4 hours. But if a measured value drops below the threshold in 3 consequent measurement cycles, the iMETOS® will again enable the sending of SMS and send the corresponding alarm.

10.4 NOTIFICATIONS

10.4.1 Create new alerts

At the notifications page you can create new alerts, while checking and editing the existing alerts. The first part of the screen consists of the creation of new notifications based on station-level. For a particular station, users can indicate if: warning is at maximum or minimum, choose the sensor type, set up one or multiple thresholds, set the resending time, and optionally add an email address.

Alerts will, then, follow these settings, sent via email or SMS warning – in case a cellphone number was added in the SMS warnings section.



All the notifications created for this station will be visible on the 'Current alerts' section. In this section of the page, users can configure, activate or deactivate a current notification. To save new changes don't forget to click "Update".

This list will indicate all the existing alerts for this station.

Update = save
Delete = deletes the alert

Alerts, once created, can be configured from here, activated or deactivated.

After any alteration on the existing alerts, don't forget to click on update to save your changes.

CHANNEL	CODE	AGGR	SENSOR	ALERT	THRESHOLDS	UNIT	TARGETS	RESEND PERIOD	ACTIVE	ACTION
13	508	last	HC Serial Number	Min	-2	min	Email, Mobile	1 hour	Yes No	Update Delete
7	7	last	Battery	Min	1, 2, 3, 4	mV	Mobile	1 hour	Yes No	Update Delete

10.5 INFORMATION

This page contains only information regarding Basic Information, Network Details, Weather Data and GPS Location and there are not any configuration options. In user defined name it is not showing name as you define it in sensors and nodes, instead it is showing "/" all the time. By clicking on "Station Events" or "Communication History" more information can be shown.

STATION INFORMATION
Station ID: 00000000 - Model: S.S - Last Date: 2017-10-27 16:00:19

Basic information

Station ID	00000000
User defined name	/
Station type	ANLUS S.S
Firmware version	08.301.20170926
Hardware version	29.18021
Logging interval	15 min
Timezone	UTC+1
UID	0441064056204818
IMSI	352501030004276

Network details

Network type	4G/LTE
Country	Austria
Provider	A1 Mobilkom
IMSI	3542301001011000000
APN name	internet
APN username	internet
APN password	internet

Weather data

Created at	2014-01-29 08:25:14
Database from	2005-03-08 12:50:03
Database to	2017-10-27 11:00:18
Last communication	2017-10-27 11:00:48

GPS Location

altitude	462 msl
Latitude	15.620099
Longitude	47.205476

10.6 CORRECT PRECIPITATION DATA

This tool allows users to correct precipitation data from any rain source (physical or virtual stations). The correction needs to be done on the respective rows, for the selected time period, then computed via the 'APPLY' button. Once applied, the changes can be instantly seen on all data pages, likewise, on their applications.

RAIN CORRECTOR
2002-05-31 14:00 - 2002-05-31 14:00

Station Settings: Correct Precipitation Data

Date/Time	Precipitation (mm)	✓
2002-05-31 14:00:01	0.0	✓
2002-05-31 15:30:01	0.0	✓
2002-05-31 13:40:01	0.0	✓
2002-05-31 13:30:01	0.0	✓
2002-05-31 13:20:01	0.0	✓
2002-05-31 13:10:01	0.0	✓
2002-05-31 13:00:01	0.0	✓
2002-05-31 12:50:01	0.0	✓
2002-05-31 12:40:01	0.0	✓
2002-05-31 12:30:01	0.0	✓
2002-05-31 12:20:01	0.0	✓
2002-05-31 12:10:01	0.0	✓
2002-05-31 12:00:01	0.0	✓
2002-05-31 11:50:01	0.0	✓
2002-05-31 11:40:01	0.0	✓
2002-05-31 11:30:01	0.0	✓

Buttons: PREVIOUS, NEXT, APPLY

Callouts:

- Click the gear icon in the left sidebar to access 'Correct Precipitation Data'.
- Click the link 'MacWebCorrectorLocalData' to edit or correct data from your current rain gauge.
- Click the 'Apply Button' to save your changes.
- After clicking the 'Apply Button', click on 'APPLY' to complete your changes on the other FieldClimate pages. Without 'APPLY', changes won't be completed!

To 'Correct Precipitation Data' can be also accessed from the FarmView Irrimet module.

IRRIGATION
Chimney Gardens, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st

Buttons: PREVIOUS, TODAY, NEXT, MONTH, WEEK, DAY

Calendar: March 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Callout: This link will redirect you over to the rain gauge data page. Precipitation corrections can be done from there.

RAIN CORRECTOR
2019-05-17 09:00 - 2019-05-17 09:00

Buttons: PREVIOUS, NEXT, APPLY

Date/Time	Precipitation (mm)	✓
2019-05-17 09:00:00	0.0	✓
2019-05-17 08:45:07	0.0	✓
2019-05-17 08:30:07	0.0	✓
2019-05-17 08:15:07	0.0	✓
2019-05-17 08:00:07	0.0	✓
2019-05-17 07:45:08	0.0	✓

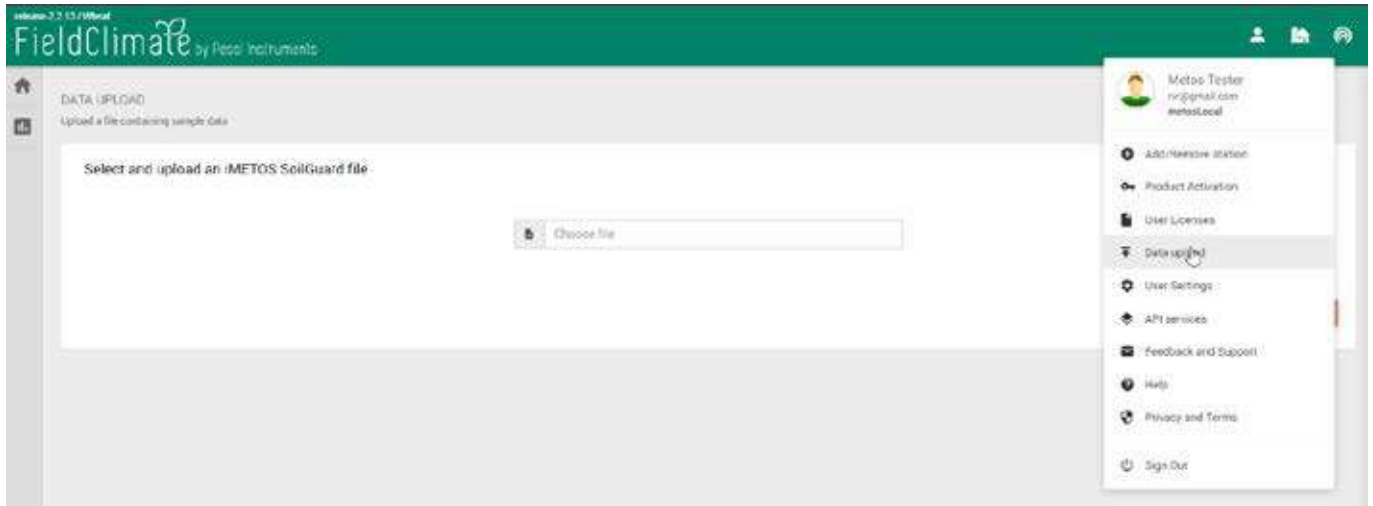
Buttons: PREVIOUS, NEXT, APPLY

Callout: Back to Station. A link to get back to IrriNet data.

11. SAMPLING DATA VISUALIZATION PAGES

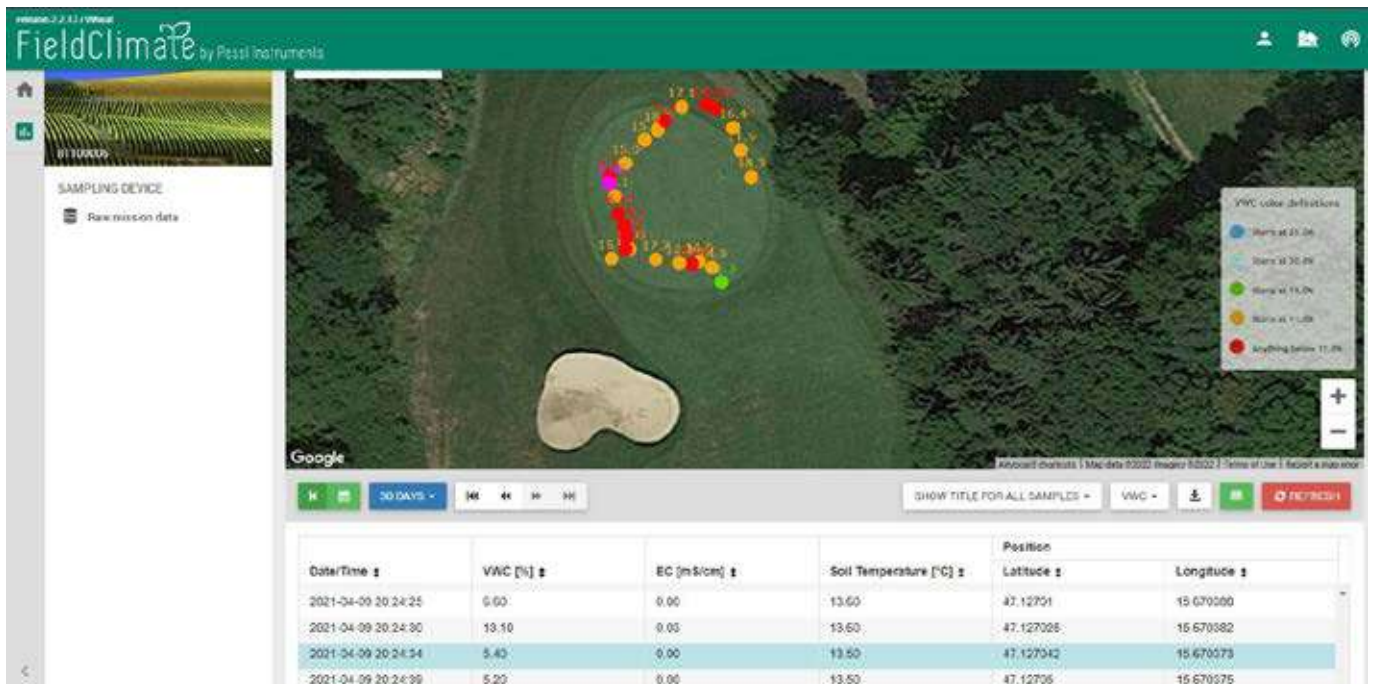
11.1 SoilGuard SAMPLING DATA VISUALIZATION

After uploading the SoilGuard data on your PC, via User menu -> data upload -> CSV file upload, you will be able to visualize your SoilGuard sampling data. Files can only be imported in CSV format.



The data consists of the geolocations of all samples on the map, with a raw-data table down the page. In order to see the accurate location, don't forget to switch on your GPS location on the SoilGuard device before starting with sampling collection, in the field.

The selected sample (violet) can be chosen at any time. The respective measurements will be shown on the raw-data table, highlighted in blue.



FieldClimate by Pesti Instruments

SAMPLING DEVICE DATA
811000004 - SoilGuard Device - Last Data: 2021-04-17 20:41

SoilGuard Device
Soilguard

Station Data from: 2021-03-18 20:41 to: 2021-04-17 20:41

Map Satellite

VWC color definitions:
 - Blue: Below 20.0%
 - Green: Below 20.0%
 - Yellow: Below 20.0%
 - Orange: Below 20.0%
 - Red: Breaching Below 11.0%

Colored thresholds for VWC (Volumetric Water Content) and Soil temperature

Go back in time, and check old samples for the same device. Use the calendar or the default time with the arrows.

Samples with exact geolocation and legend colors according to the selected parameter

Show title for all samples means to show all measurements, while chosen sample only shows for the active/selected one.

Apply filters

11.2 DualEx SAMPLING DATA

Data uploading for DualEx devices can be done through User menu -> data upload -> CSV file upload. The latest data will be visible on the map with the possibility to go back in time via the calendar and/or navigation arrows.

FieldClimate by Pesti Instruments

SAMPLING DEVICE
Raw mission data

Map Satellite

Go back in time, and check old samples for the same device. Use the calendar or the default time with the arrows.

Samples with exact geolocation and measurement values according to the selected parameter

Apply filters

Date/Time	Soil Qual	Temp [°C]	Group	Measure	CHL	FLAV	ANTH	NBI	Position Latitude & Longitude
2020-11-30 10:11:00	0.00	27.00	1.00	1.00	19.42	1.67	0.02	11.87	47.128338
2020-11-12 10:18:12	0.00	20.68	1.00	2.00	19.89	0.84	0.69	11.50	
2020-11-14 10:25:24	0.00	21.87	1.00	3.00	16.76	1.00	0.32	10.27	

11.3 iMETOS MobiLab SAMPLES

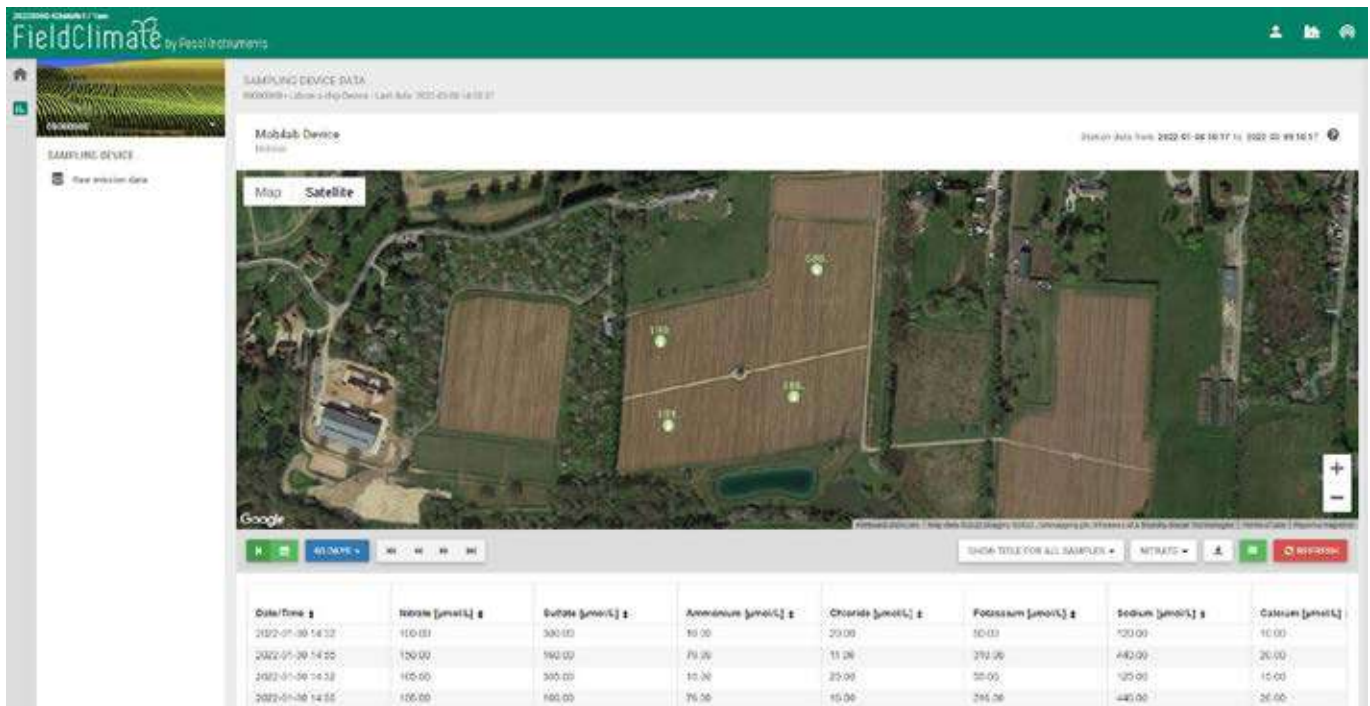
11.3.1 How to upload data from iMETOS MobiLab?

iMETOS MobiLab data can be uploaded via the mobile app: MobiLab Sampler available for Android and iOS version. Step-by-step is below:

- Download the MobiLab app for iOS or Android;
- Register your sample locations on the app, respectively creating individual IDs for each one of them;
- Download the Desktop Software from MobiLab on your computer;
- Within the Desktop Software, execute the measurements for soil or Plant SAP;
- Results will appear on the Desktop Software. For more information, visit our MobiLab web page.
- To visualize data in the FieldClimate platform, users need to sync data from Desktop Software to the FieldClimate server.

11.3.2 How to visualize MobiLab data in FieldClimate?

After the data sync is done, MobiLab data can be accessed via station list or via cropzone list in case of Farm-View users. For the first option, data display will look this:



12. CALCULATED SENSORS

12.1 VIRTUAL SENSORS

Virtual Sensors provide readings of physical properties that are not measured directly but derived from the readings of other sensors.

12.1.1 EVAPOTRANSPIRATION

ET0 daily evapotranspiration is calculated with the FAO-56 Penman-Monteith equation and needs measurements (sensors) of:

- Air temperature
- Air humidity

- Solar radiation
- Wind speed

For more detailed information visit [Virtual sensors page](#).

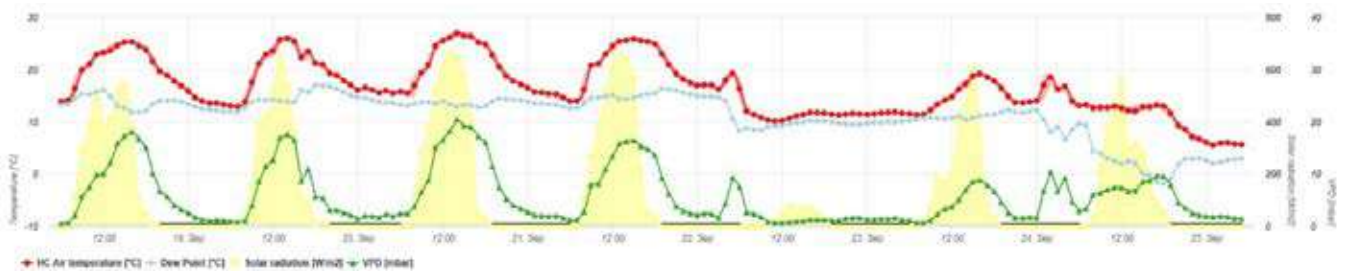
12.1.2 VPD

Vapour pressure deficit requires an hygroclip sensor (air temperature and relative humidity) and is in a close relationship to evapotranspiration. VPD is an indication that takes into account the effect of temperatures on the water-holding capacity of the air, which is what drives transpiration of the leaf surface (transpiration occurs when water pressure in leaves is higher than air vapour pressure).

For more detailed information visit [Virtual sensors page](#).

12.1.3 DEW POINT

It requires air temperature and relative humidity sensor and it is the temperature of when, water vapor held in the air will condense to form a liquid or it's the temperature to which air cools to when dew is formed.

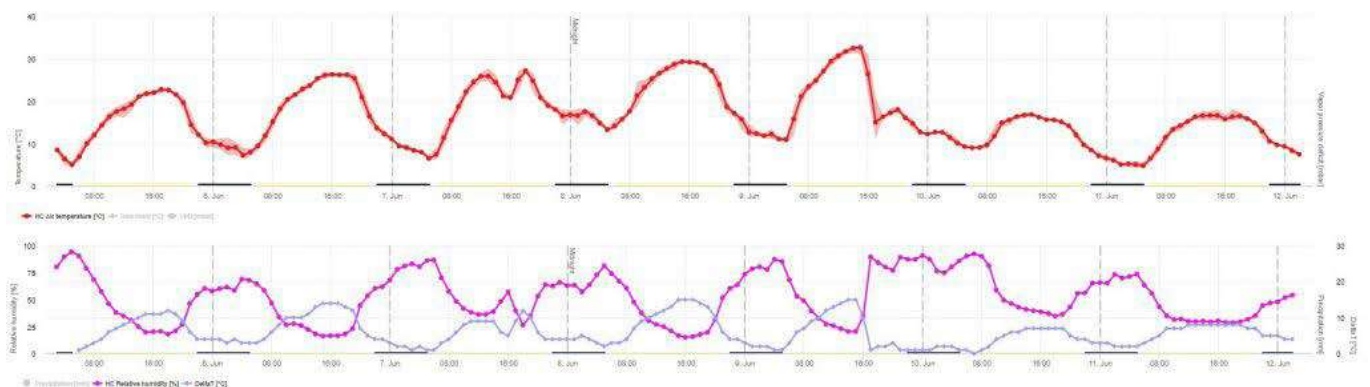


For more detailed information visit [Virtual sensors page](#).

12.1.4 DELTA T

- Delta T calculation requires an hygroclip sensor (Air Temperature and Relative Humidity) installed on the iMETOS station: data can be viewed on FieldClimate in charts and tables with a detailed resolution.
- It is a measure that takes into account the combined effects of temperature and humidity and it indicates whether climatic conditions are suitable for spraying in order to maximize pesticide performance (A. MacGregor, 2010).
- Optimal Delta T range is between 2°C and 8°C.
- Keep monitoring Delta T reading and set up an efficient spray on schedule. Weather conditions can change rapidly during the day, so having the ability to monitor delta T can help to improve pesticide performance.

DELTA IN FIELDCLIMATE



SET DELTA T SMS ALERTS

On-site weather condition readings are required before each spray, in particular a live reading of Delta T is always recommended. Set a minimum or maximum threshold for SMS warning. Delta T live reading is updated every 5 minutes.

Warnings
Setup sms warnings

Warning thresholds can have a full number or decimal values (.) and are separated with a comma (,). Warning thresholds can also contain negative numbers (numbers below 0). Input fields with errors will be marked with red and will not be saved before they are fixed.

Reminder:

- separator
- decimal value (10.5, -12.0)

CODE	CHAIN	CHANNEL	NAME	UNIT	+ WARNING AT MIN.	- WARNING AT MAX.
502	1	1	Drybulb temperature	°C	Threshold (e.g. -5, 22)	Threshold (e.g. 4, -5, 22)
501	1	2	Wetbulb temperature	°C	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
30	1	4	Solar Panel	mV	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
6	1	5	Precipitation	mm	Threshold (e.g. 4, -5, 22)	1.00
7	1	7	Battery	mV	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
506	1	18	HC Air temperature	°C	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
507	1	19	HC Relative humidity	%	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
21	1	20	Dew Point	°C	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)
27	1	35	Delta T	°C	2	8
32603	2	2000	PT1000 Temperature	°C	Threshold (e.g. 4, -5, 22)	Threshold (e.g. 4, -5, 22)

SAVE WARNING SETTINGS

For more detailed information visit [Virtual sensors page](#).

13. VIDEOS

Instructional videos can be found on our [Youtube Channel](#).