

LaQuinta Multispectral camera and Pix4d.



MORE THAN MEETS THE EYE

Technical Note

Revision 1.0
Date 17-june-2020

0 Introduction

This document describes how to setup either Pix4d-Mapper or Pix4d-Field for the LaQuinta multispectral camera.

Note it is not the intention in any way of this document to guide you through all steps of the Pix4d software tools. The intention is only to set the tools up for the LaQuinta camera.

For a more detailed explanation please visit the website of Pix4d.

1.0 Pix4dMapper (rev 4.5.6)

Start Pix4dMapper by clicking on the Icon (figure 1).

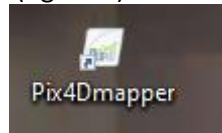


Figure 1.

Mapper will open (takes some time). In the new opened window select new project (see figure 2).

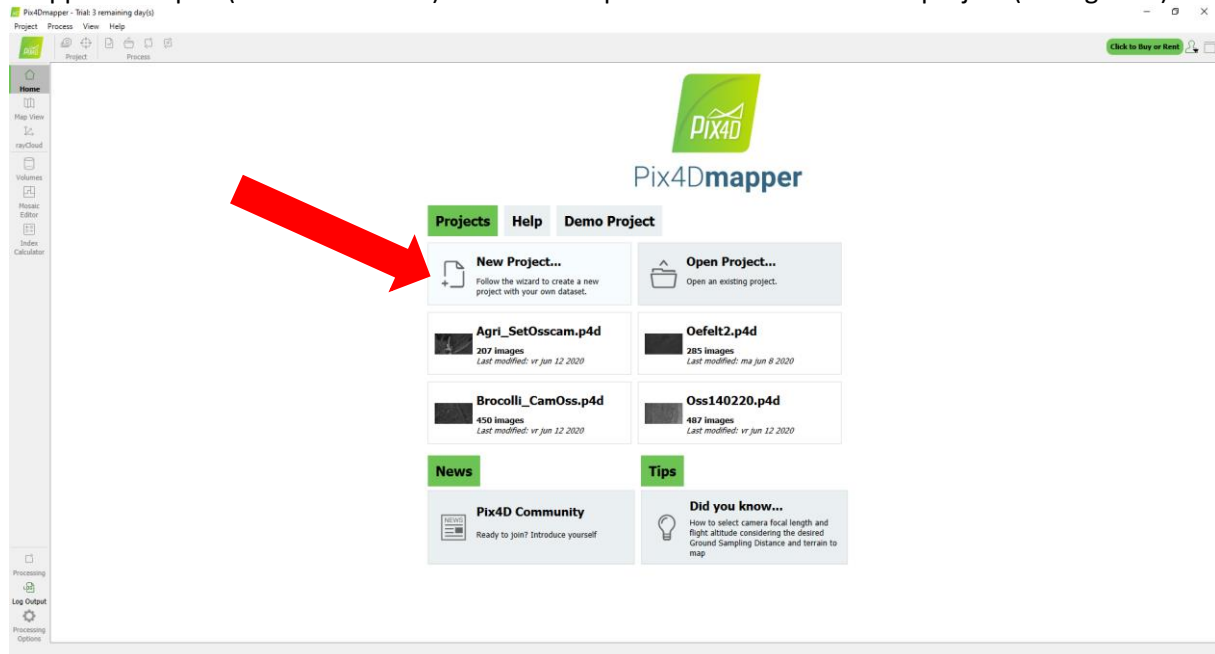


Figure 2

In the pop up window you should enter the name of the project and the location where to store the project and its output. This is shown in figure 3.

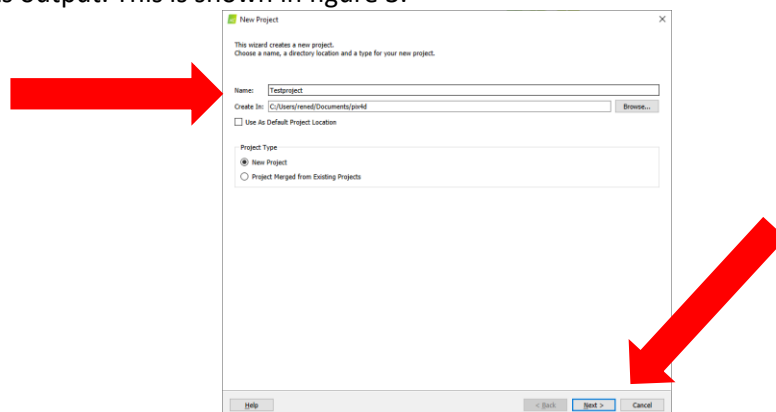


Figure 3

After you entered the project name and location press the 'next' button. Directly following this, a new popup window appears in which you can select the images that you would like to process. You can either select single images or a complete directory. See figure 4.

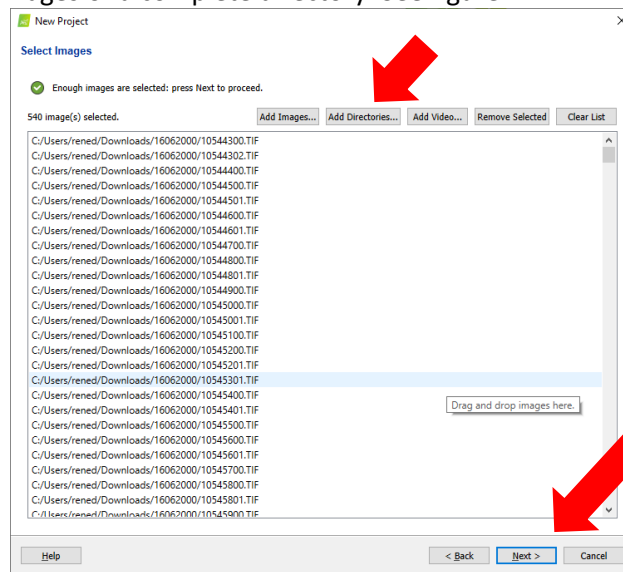


Figure 4

When the images are loaded press 'next'. Now you getting to the part were you can set the parameters for the LaQuinta camera.

In figure 5 you see in the middle "Selected camera model"

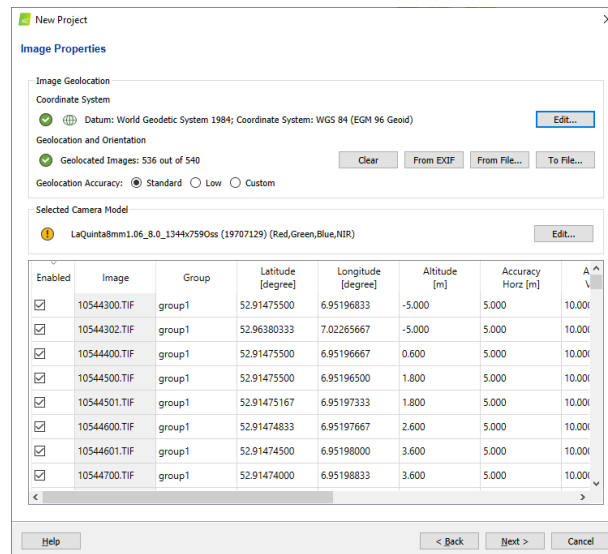


Figure 5

Press on the 'edit' button in the selected camera row. Again a new popup menu will appear. Under the camera model name; press 'edit'.

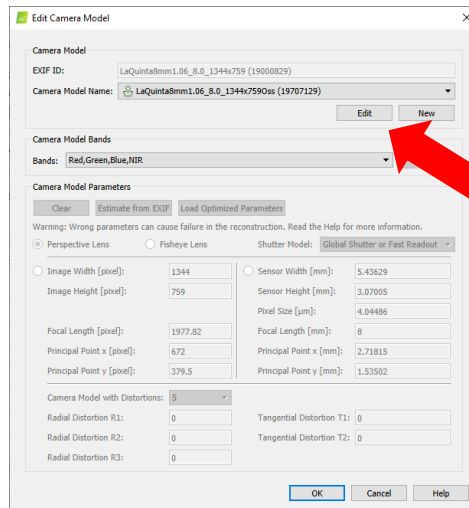


Figure 6

In the following popup window press the ‘Estimate from EXIF’ button. The software will load the parameters from the image files.

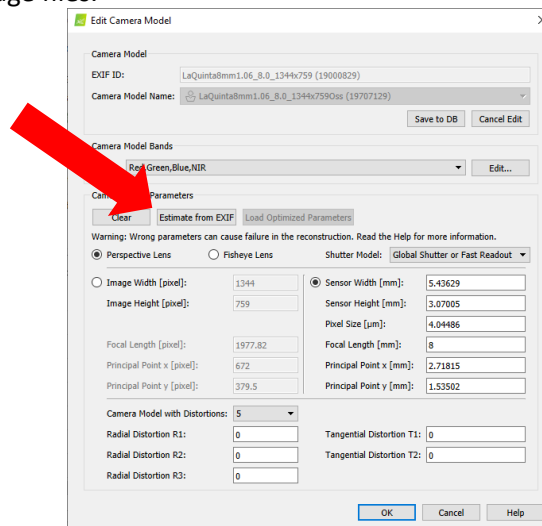


Figure 7

This will result in the following window:

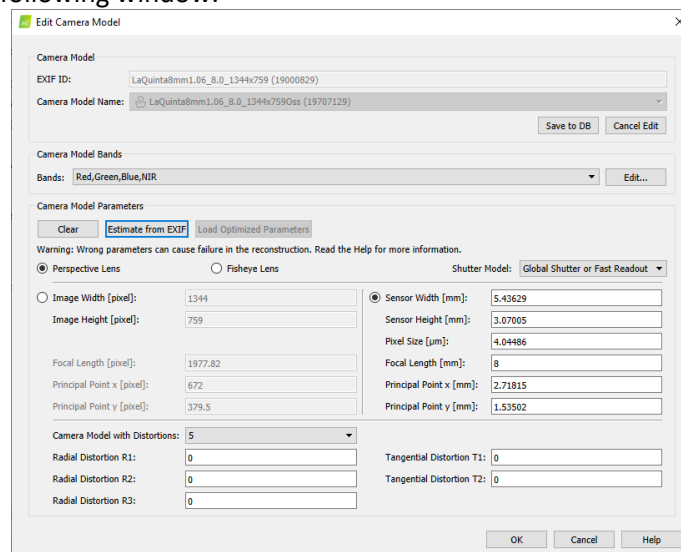


Figure 8

Just above the bar with “Camera Model Parameters” you see the bar with “camera model bands”. If you press in that bar on edit you can see the 4 bands with their weight factors. It is recommended to

leave them on 0.25 for each band. If you are an experienced Pix4d-Mapper user you can change them. The total sum should be 1.

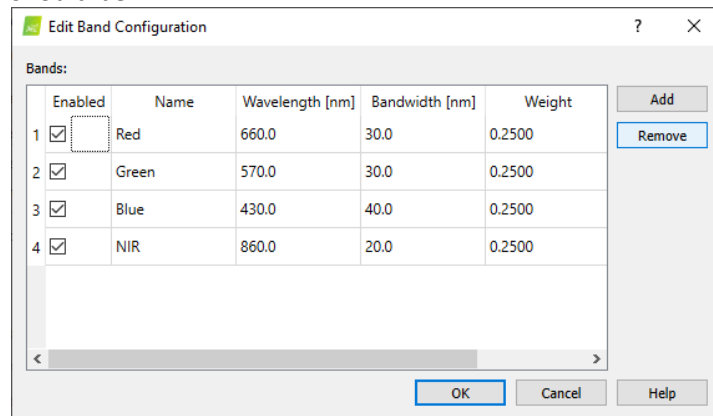


Figure 9.

If this is all set press on the 'OK' button of figure 8. You then return to the menu of figure 5. Press 'next' here. In the next popup press 'next' again. In the window that appears next you should select a processing template:

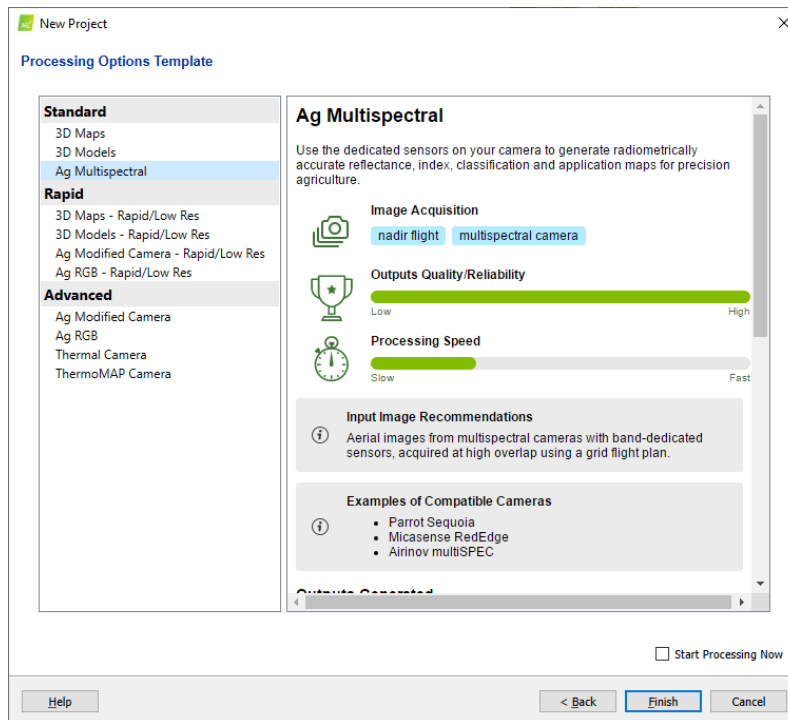


Figure 10

In this example the "Ag Multispectral" mode is selected. Of course you can select another mode. And Choose Processing options (figure 11). In the popup menu (figure 12) under initial processing, select under "keypoints Image Scale" Full as shown in figure 12. Press ok to return to the main window of figure 11. Press on the start button.

Note that the processing can take a long time.

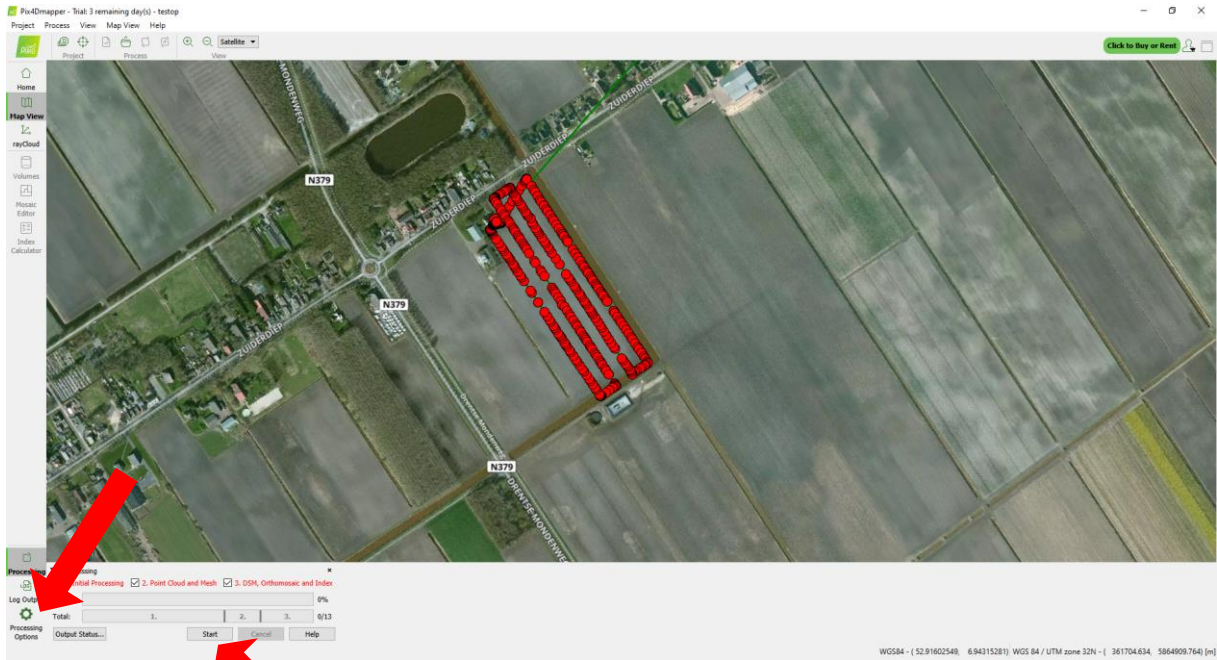


Figure 11

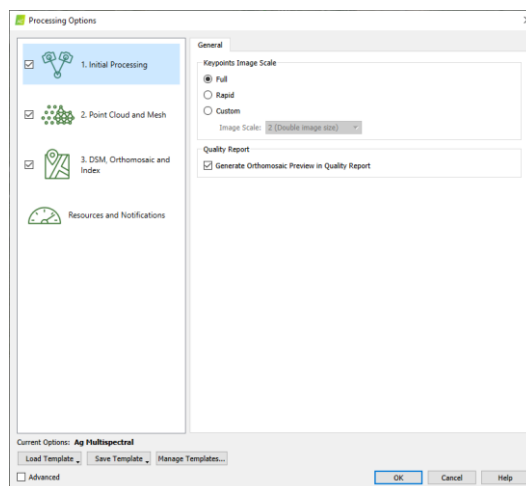


Figure 12

2 Pix4DFields (1.7.1)

Fields is easier to us. To start the software click on the icon (figure 13).

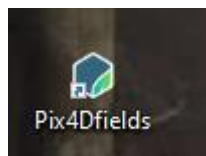


Figure 13.

The main window will open. In here the camera file must be loaded. This file is a short xml file. To do this press on the settings icon. And go to the camera parameter file in the middle (figure 15), and press on it, the window will change to figure 16. Press on "select a file". Navigate to the location with the LaQuinta xml parameter file. Select the file and press Open.

Figure 16 will change to figure 17, and press somewhere in the middle of the main screen so that you are getting back to figure 14.

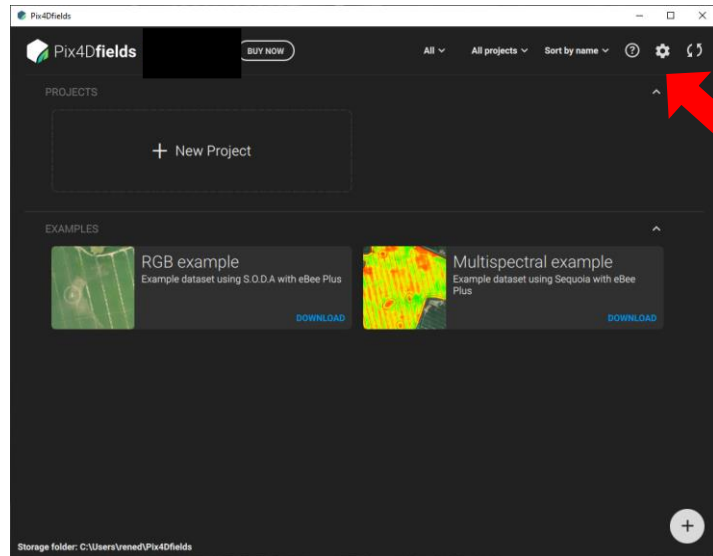


Figure 14.

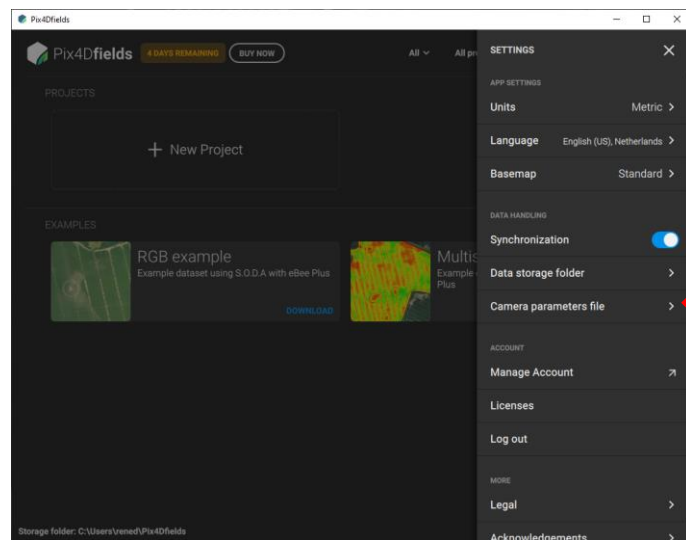


Figure 15

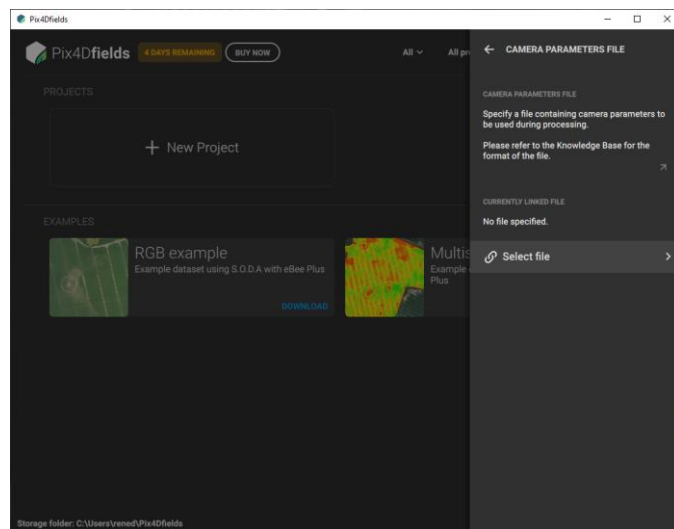


Figure 16

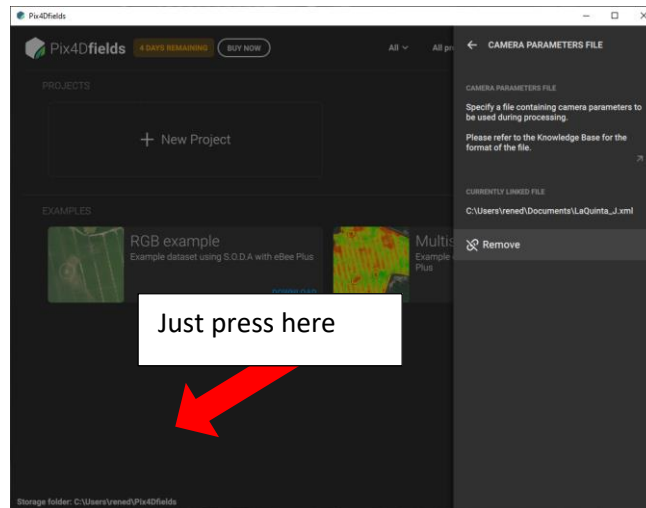


Figure 17

In figure 14 press “new project” see figure 18.

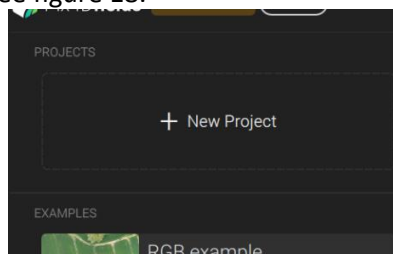


Figure 18.

The window will change and you can import either images again or a complete directory/folder. Select at the left side the option you prefer (either single images or the complete directory at once).

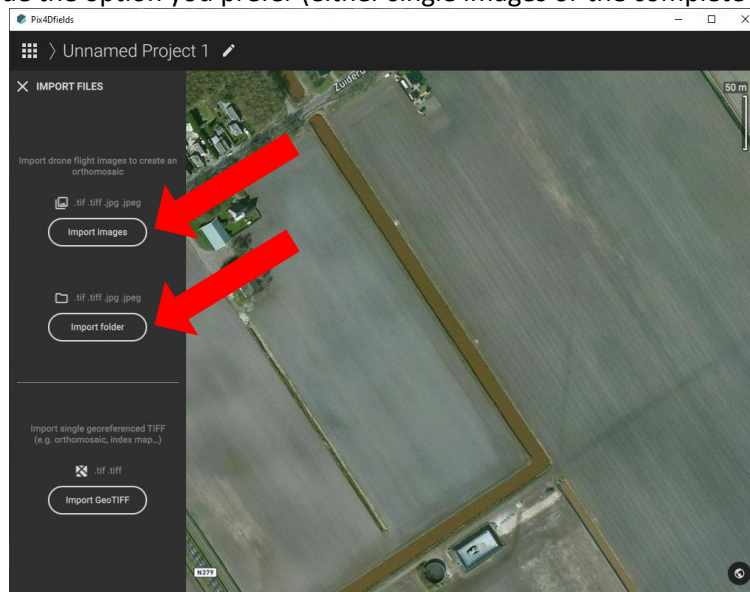


Figure 19

Make sure the at the bottom left .tif .tiff is selected as shown in figure 19. After you selected the images a small popup window appears, just press apply (see figure 20).

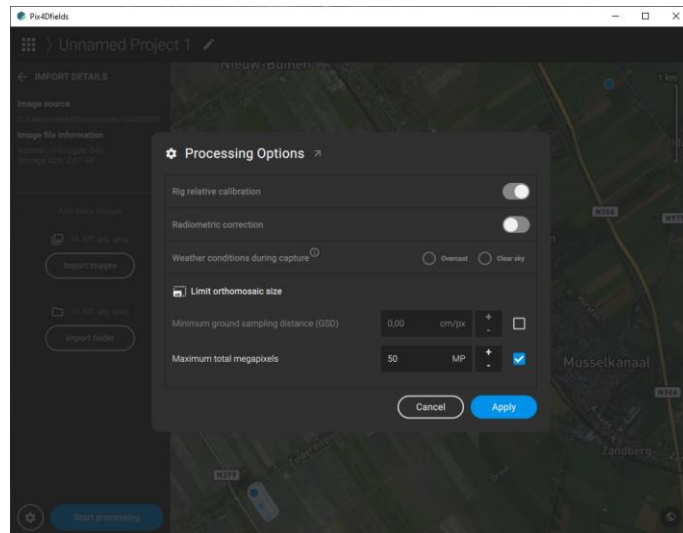


Figure 20

At that moment all gps locations are loaded and shown in figure 21. Now that everything is loaded press “start processing “. The processing will start and can take up to 20 minutes.

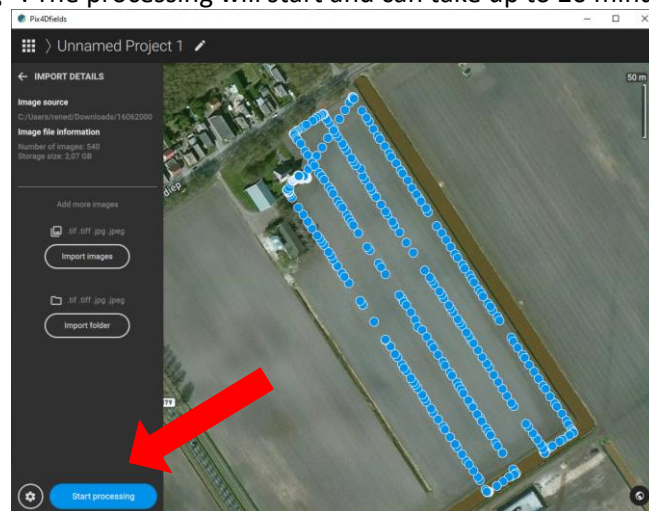


Figure 21

The content of the XML file (17-june-2020) is:

```
<cameraModelDB>
  <version>19</version>
  <rigs/>
  <cameras>
    <camera name="LaQuinta8mm1.06_8.0_1344x759" serialNumber="19004316">
      <imageWidth>1344</imageWidth>
      <imageHeight>759</imageHeight>
      <pixelSize>4.04486</pixelSize>
      <principalPointXmm>2.71629</principalPointXmm>
      <principalPointYmm>1.5339789614</principalPointYmm>
      <lensType>perspective</lensType>
      <focalLengthmm>8</focalLengthmm>
      <distortion>5</distortion>
      <radialK1>0</radialK1>
      <radialK2>0</radialK2>
      <radialK3>0</radialK3>
      <tangentialT1>0</tangentialT1>
      <tangentialT2>0</tangentialT2>
      <cameraModelSource>user</cameraModelSource>
      <bandConfig>
        <band name="Red" centralWaveLength="660" width="40" />
        <band name="Green" centralWaveLength="570" width="30" />
      </bandConfig>
    </camera>
  </cameras>
</cameraModelDB>
```

```
        <band name="Blue" centralWaveLength="430" width="30" />
        <band name="NIR" centralWaveLength="860" width="20" />
    </bandConfig>
</camera>
</cameras>
<mappings/>
</cameraModelDB>
```

Listing 1: content XML file

Note this document is only meant as guidance. This document is subject to change without notification.