



CENTRO DE INVESTIGACIONES DEL PATRIMONIO COSTERO - CIPAC

CENTRO UNIVERSITARIO DE LA REGIÓN ESTE – CURE

UNIVERSIDAD DE LA REPÚBLICA URUGUAY - UDELAR

TUTORIAL: COMPARING POINT CLOUDS FROM PHOTOSCAN PROJECTS INTO
CLOUD COMPARE

Team:

Dra. Samila Pereira Ferreira – CIPAC

Dr. Rodrigo de Oliveira Torres – CIPAC

<http://cipac.cure.edu.uy>

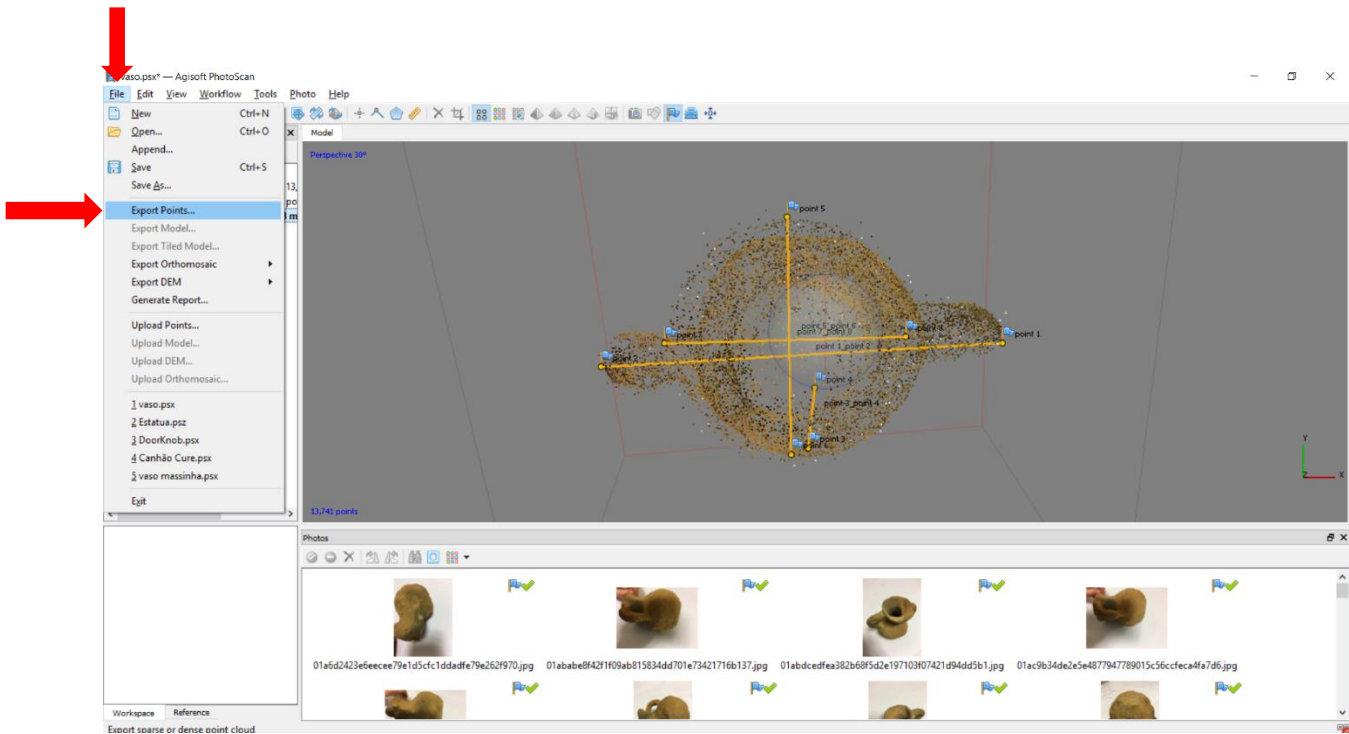


To refer this tutorial:

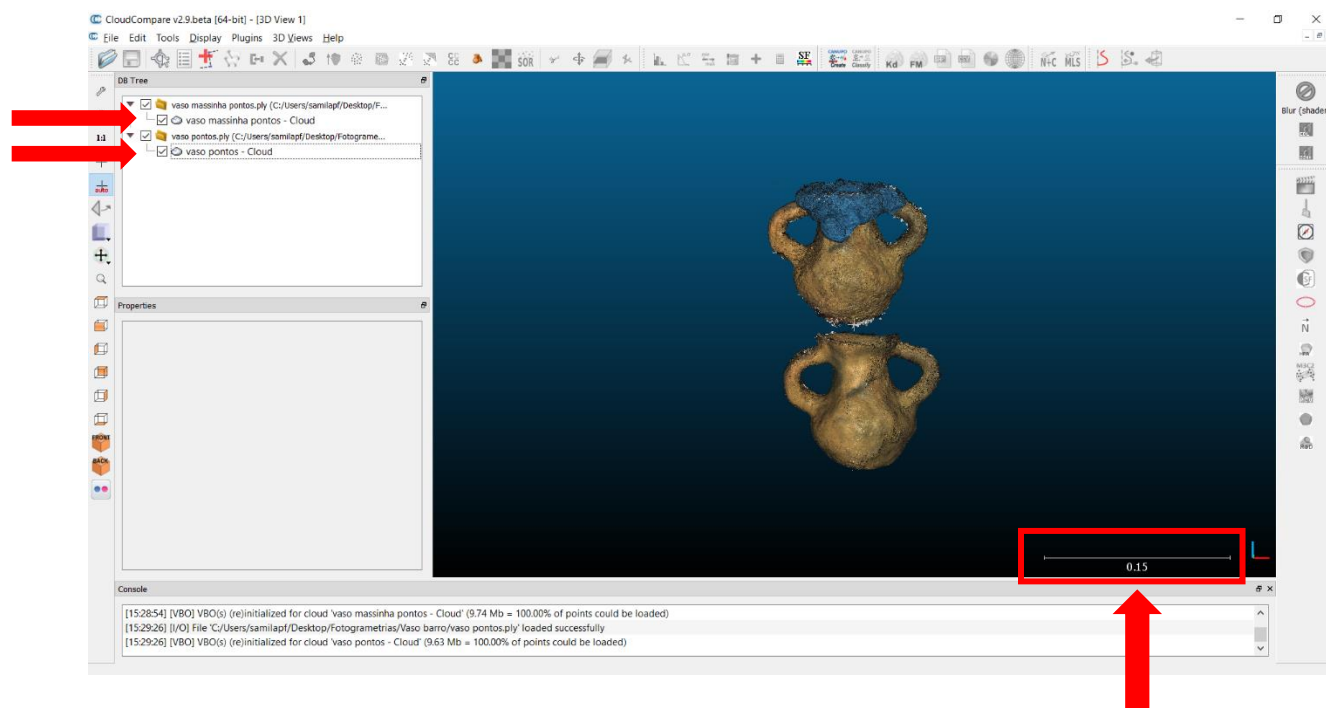
FERREIRA, Samila & TORRES, Rodrigo. Centro de Investigaciones del Patrimonio Costero. Tutorial: Comparing Point Clouds from Photoscan Projects into Cloud Compare. Centro Universitario de la Región Este (CURE). Maldonado, 2017.

COMPARING POINT CLOUDS FROM PHOTOSCAN PROJECTS INTO CLOUD COMPARE

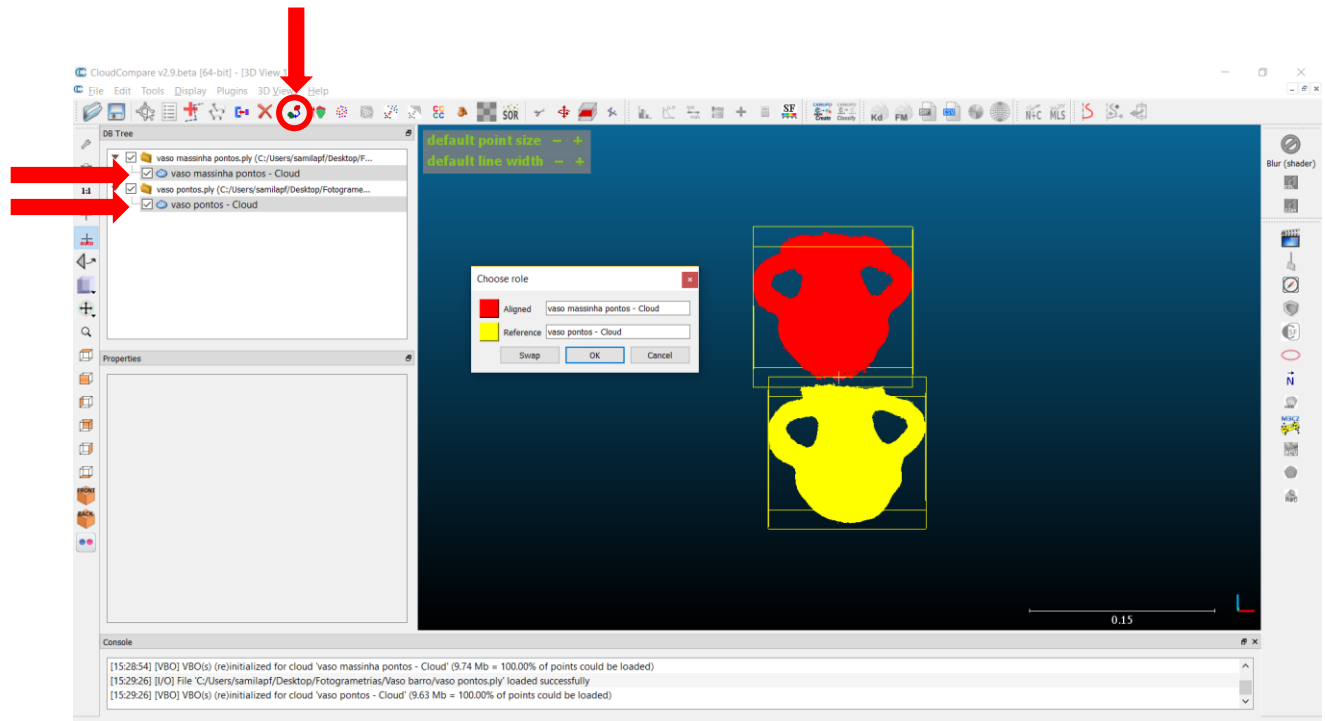
1. After getting the point clouds from a model in the Photoscan software it is necessary to orient and scale the object (check the procedure at: Basic Tutorial of Agisoft Photoscan). After that go to **File > Export Points > Save in a PLY format**.



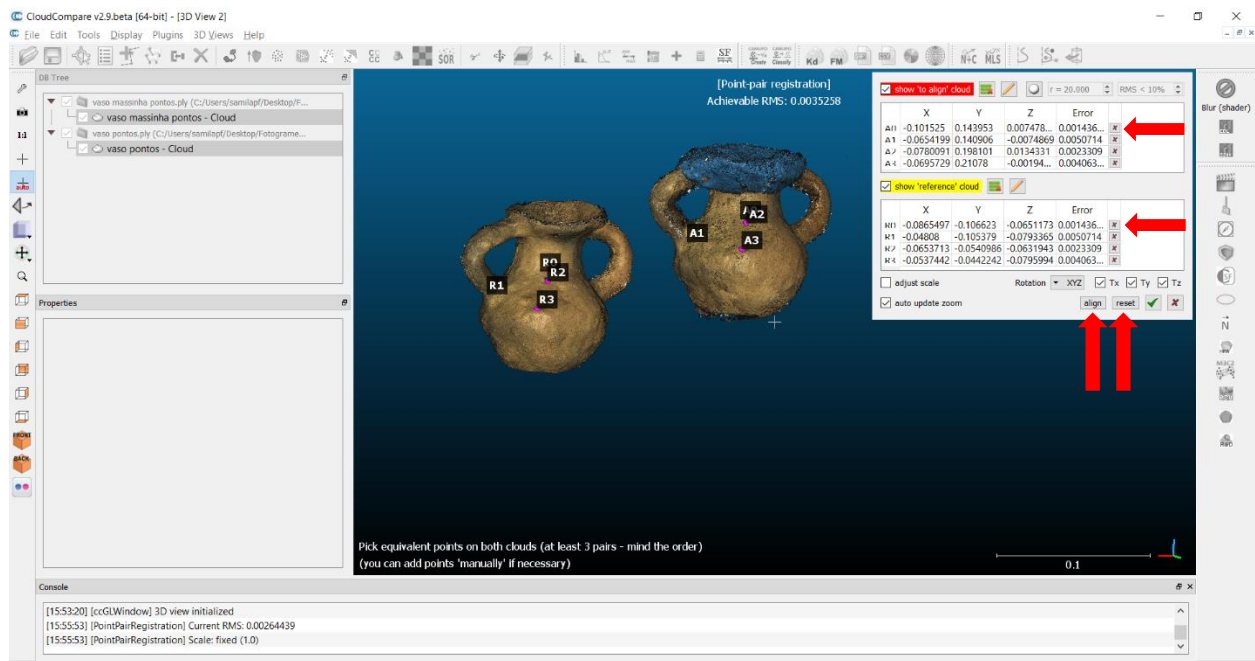
2. Open the PLY file in Cloud Compare. Check if the scale from CC corresponds to Photoscan.



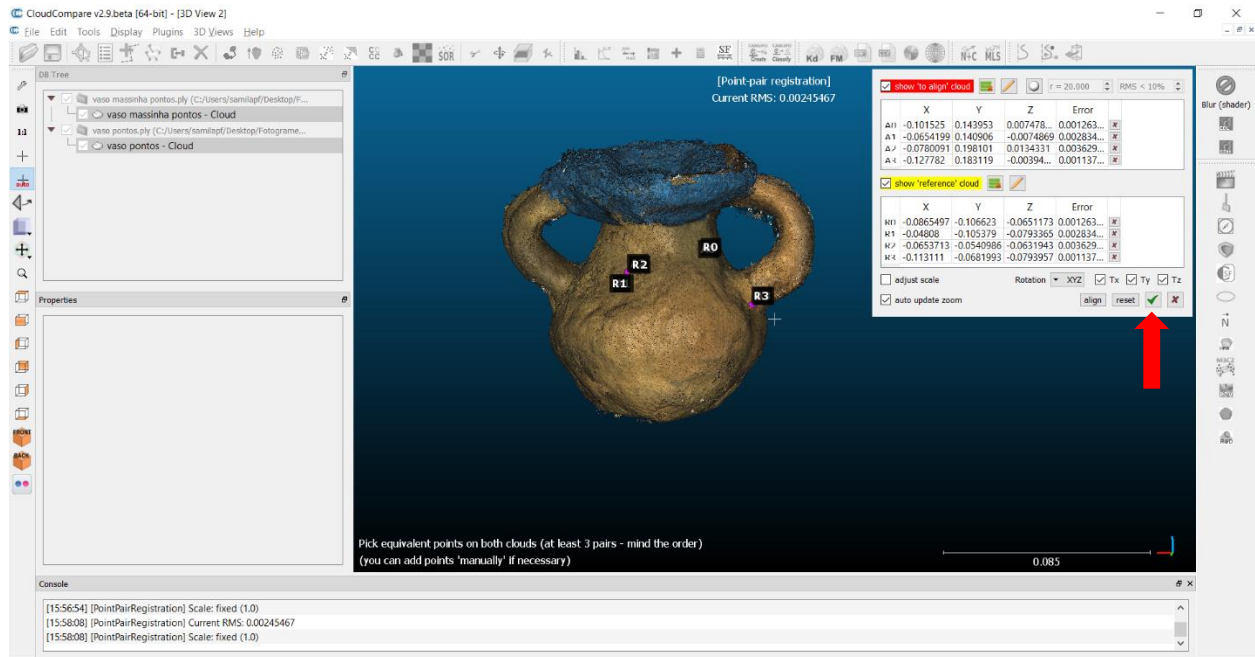
3. Pressing Ctrl, select the point clouds in the left sidebar. After that select the icon **“Aligns two clouds”** at the superior bar and choose which model will be the reference designated by the yellow color.



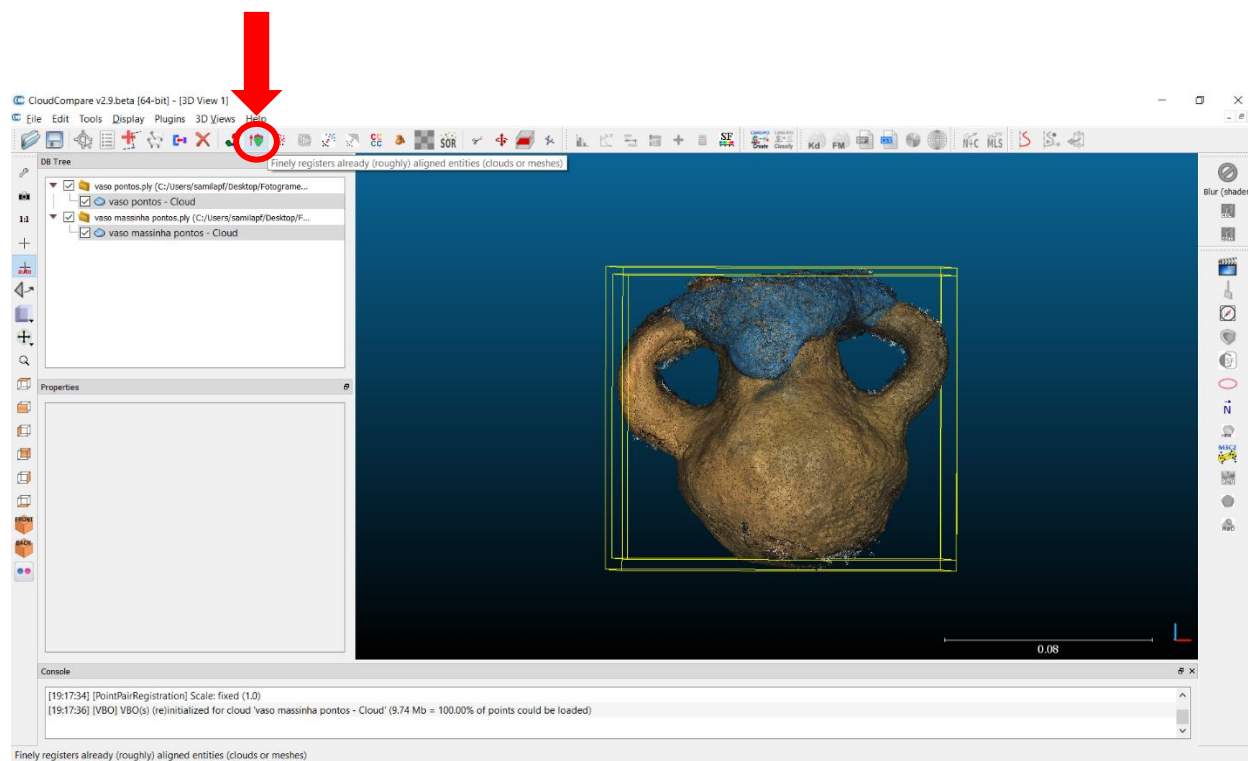
4. Select the correspondent points in both objects. After four points it allows the alignment by clicking in **Align** in the points tab. If the result does not come satisfactory reset the overlapping and add new corresponding points. To delete points just click on the red **X** on the points tab by the end of each point.



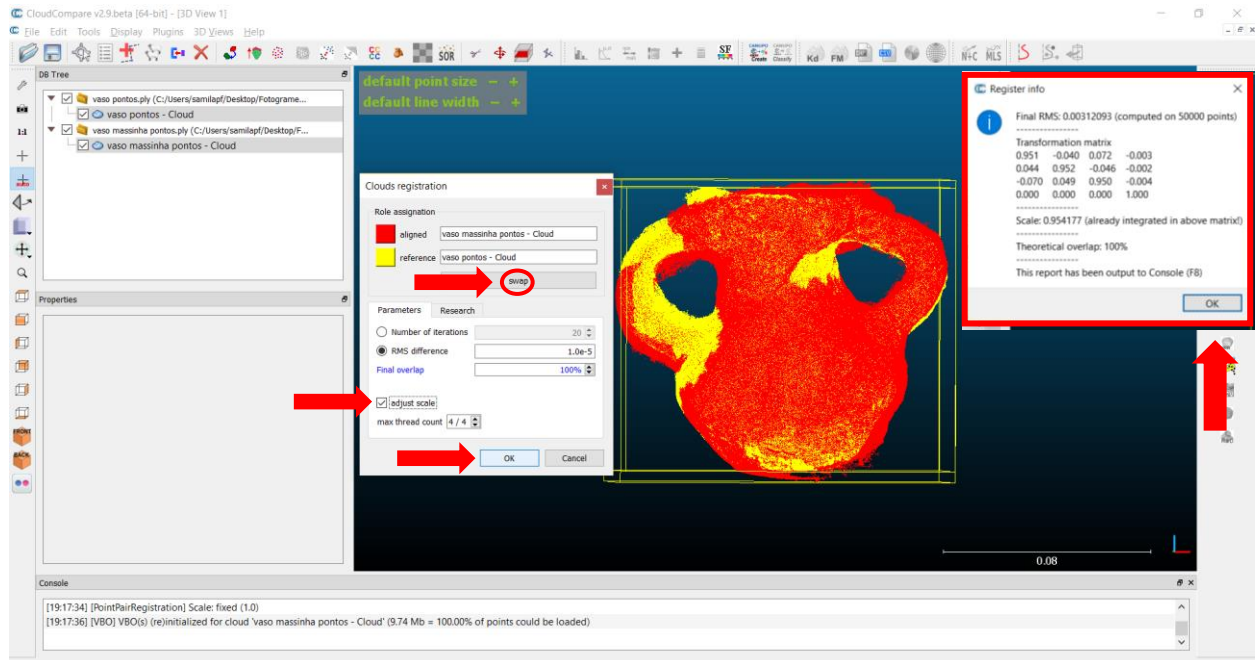
5. Whenever the result comes satisfactory click on the check icon (✓) on the tab of points.



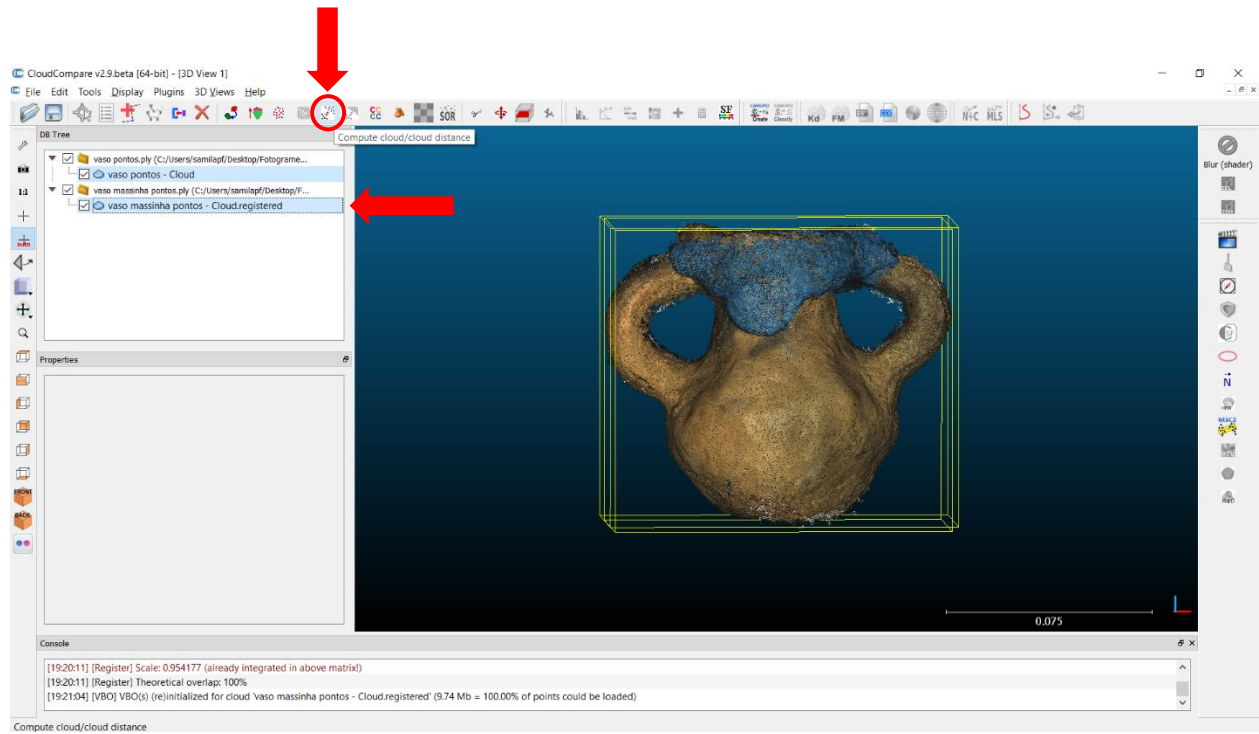
6. To refine the overlapping go to the icon “**Finely registers**” to obtain a better result.



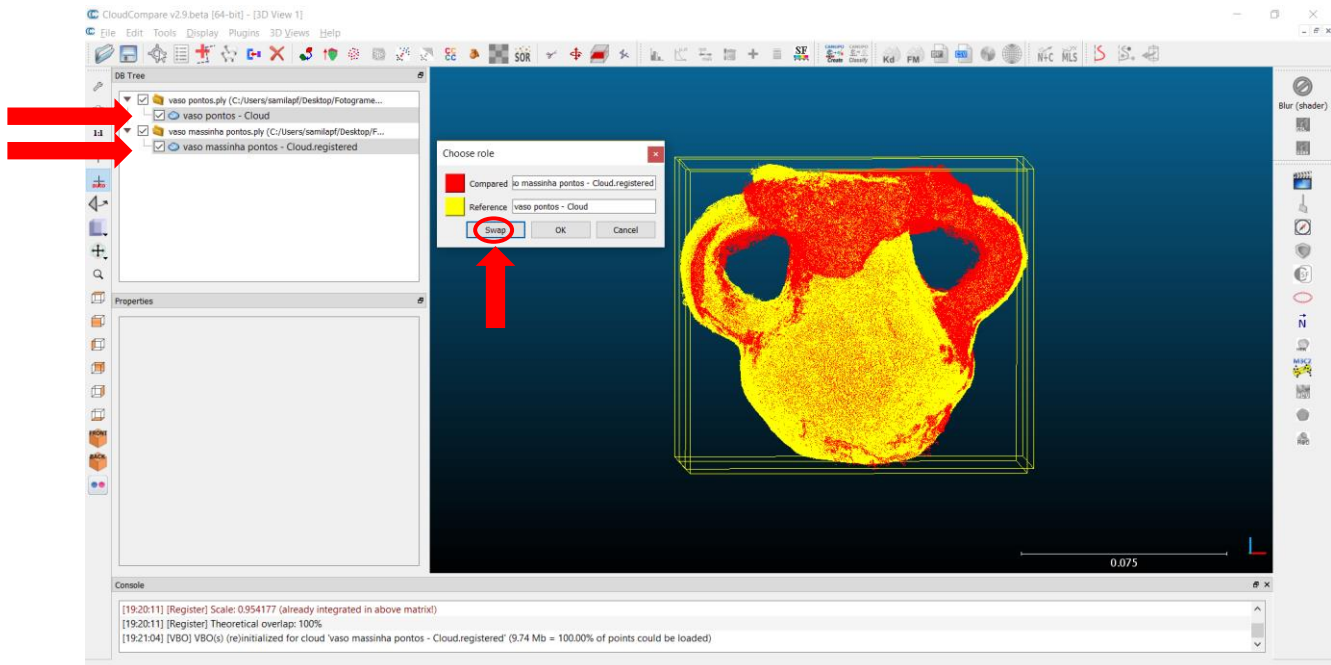
7. Define the reference point cloud model. If needed to invert click on “**swap**”. Click OK and the fine register report will pop out.



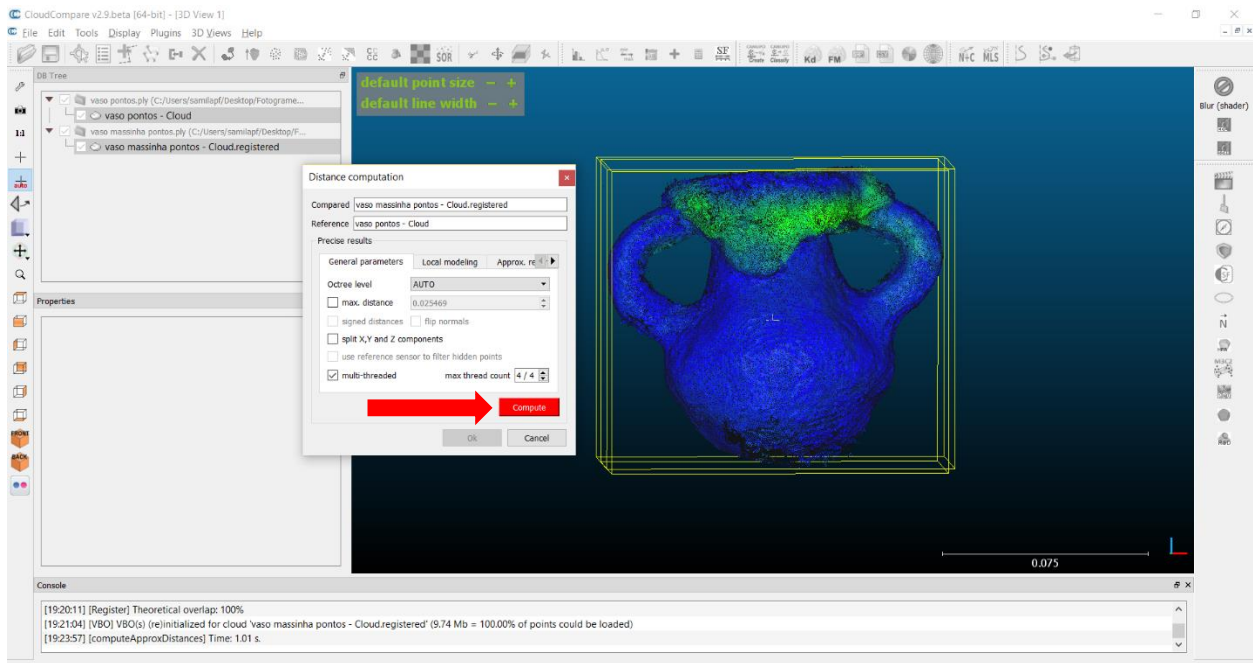
8. The model shall generate a **“Cloud Registered”** on the left sidebar. After that, click on the icon **“Compute cloud”** to start the compute process between the point clouds.



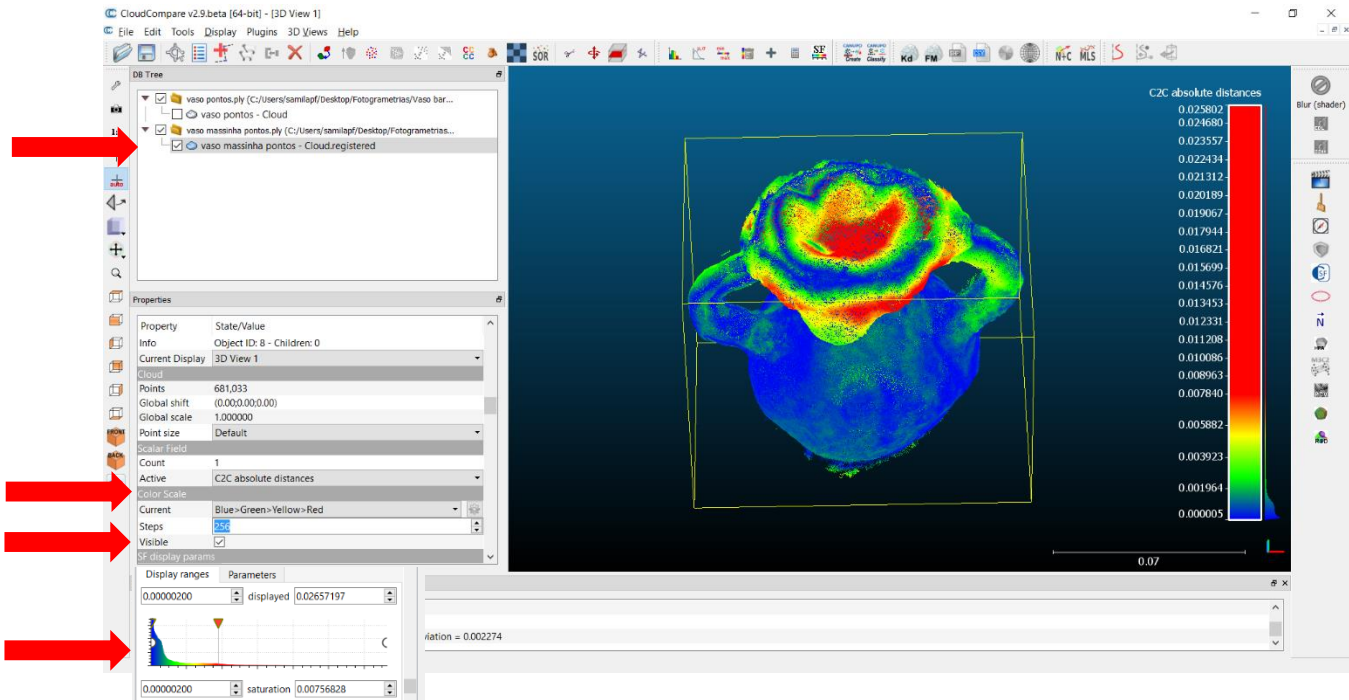
9. Select both point clouds pressing Ctrl over the cloud icon on the left sidebar. Select the reference point cloud. If needed to invert the order click **swap** and OK.

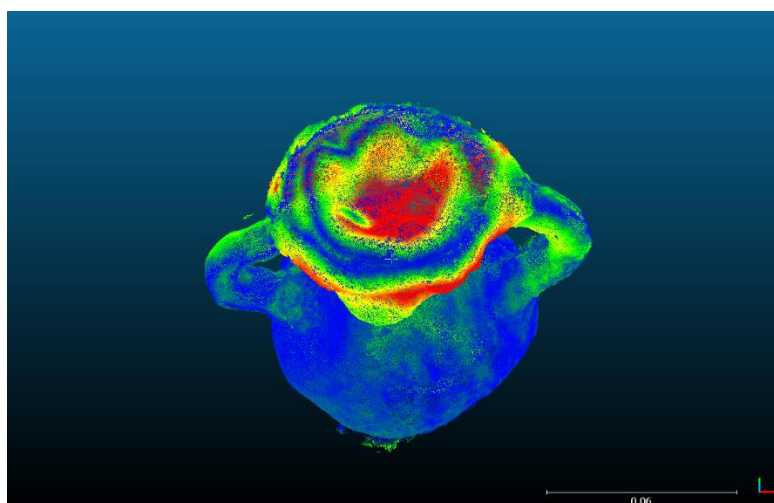
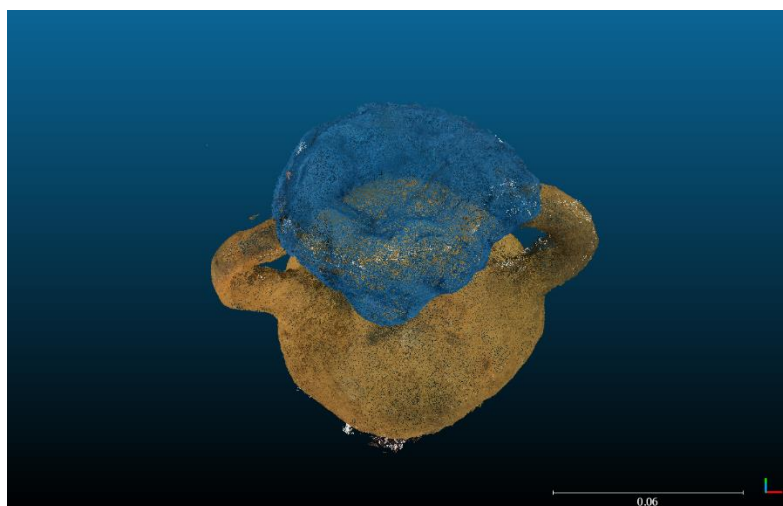
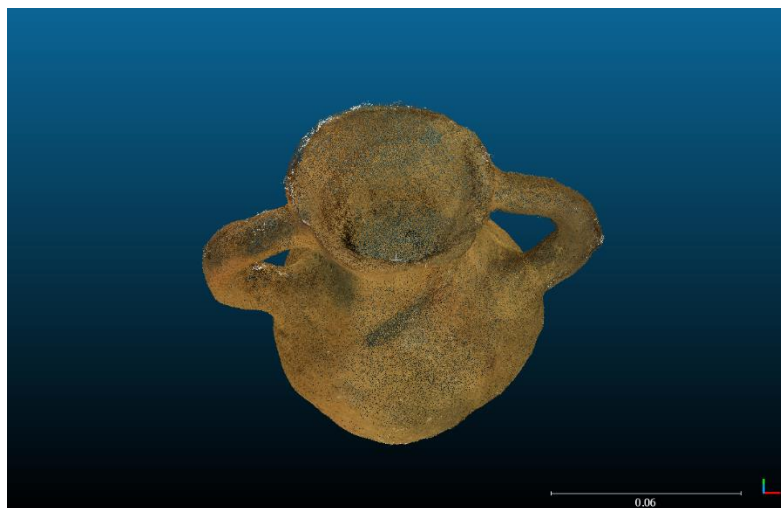


10. The result shall appear along with the tab **“Distance computation”**. After that click on compute and OK.

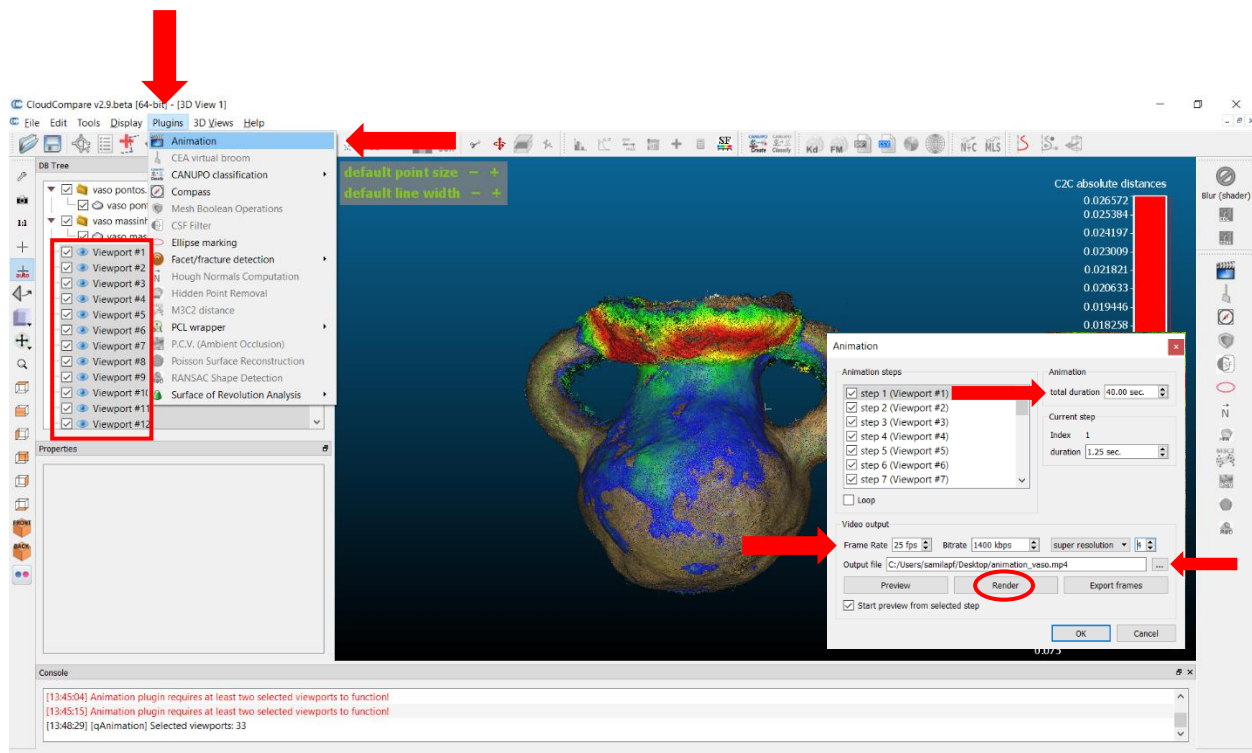


11. Select the point cloud designed as “**Cloud registered**” by clicking on the cloud icon on the left sidebar. On the properties tab select **Color scale** and mark **visible**. Select the absolute distances on the **SF display params** graphic.

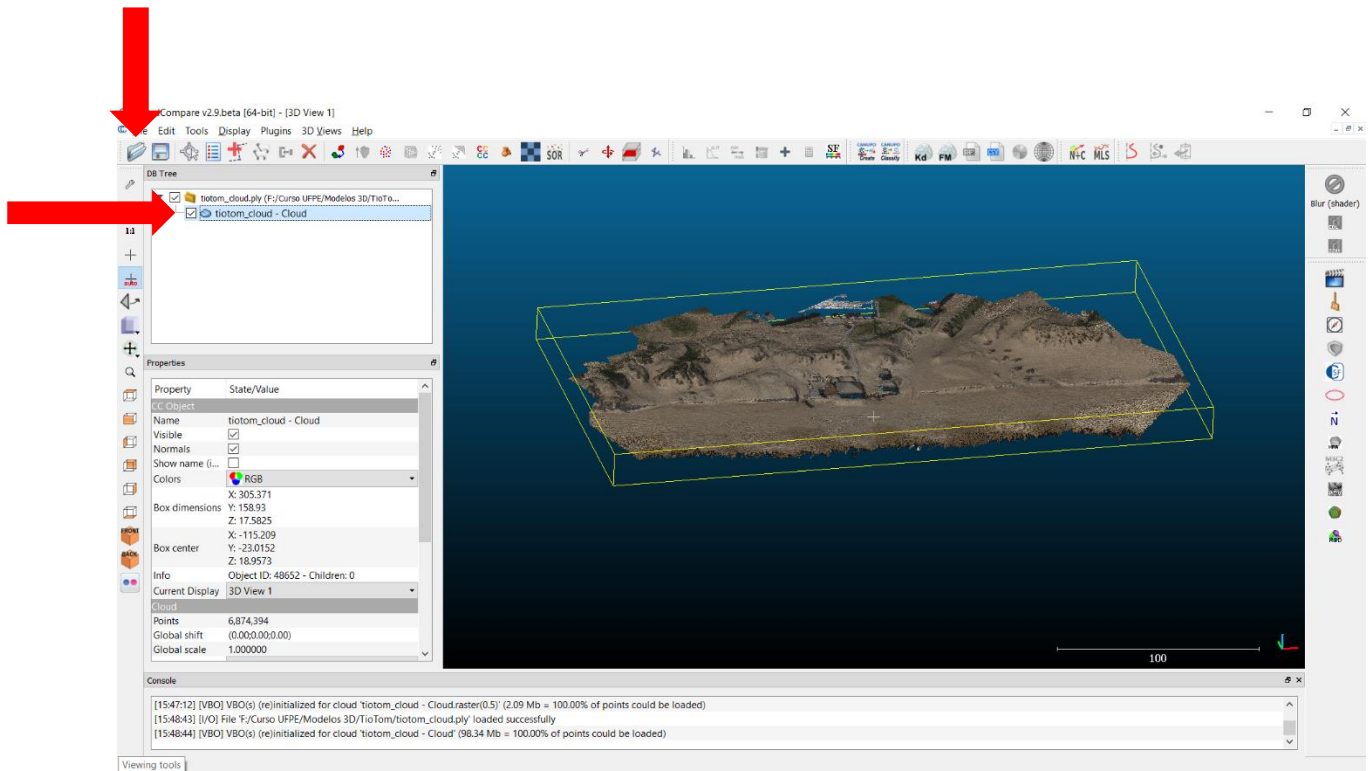




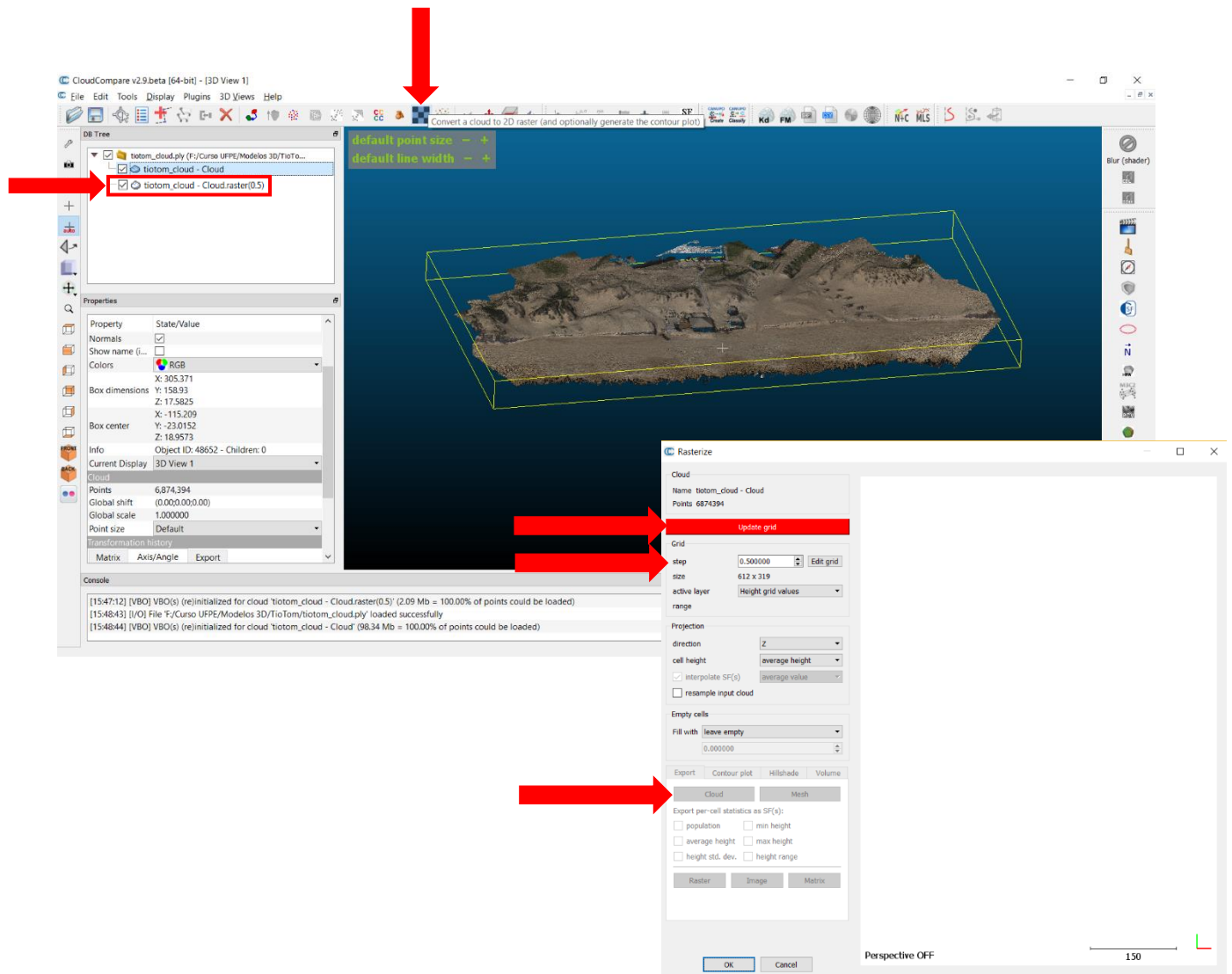
12. To convert the project in a video, move the object using the mouse and to each desired position click on **Ctrl+V**. **Viewport** layers shall be created on the left sidebar under an **Eye icon**. After finish the process of creating desired positions, select the first viewport layer, press **Shift** and scroll down to the last viewport. All viewport layers shall be selected. After that click on **Plugins** on the superior bar followed by **Animation**. On the animation tab adjust the video duration, quality, etc. Click on Preview to visualize the video and if the result is satisfactory select the folder to be saved and click on **Render**.



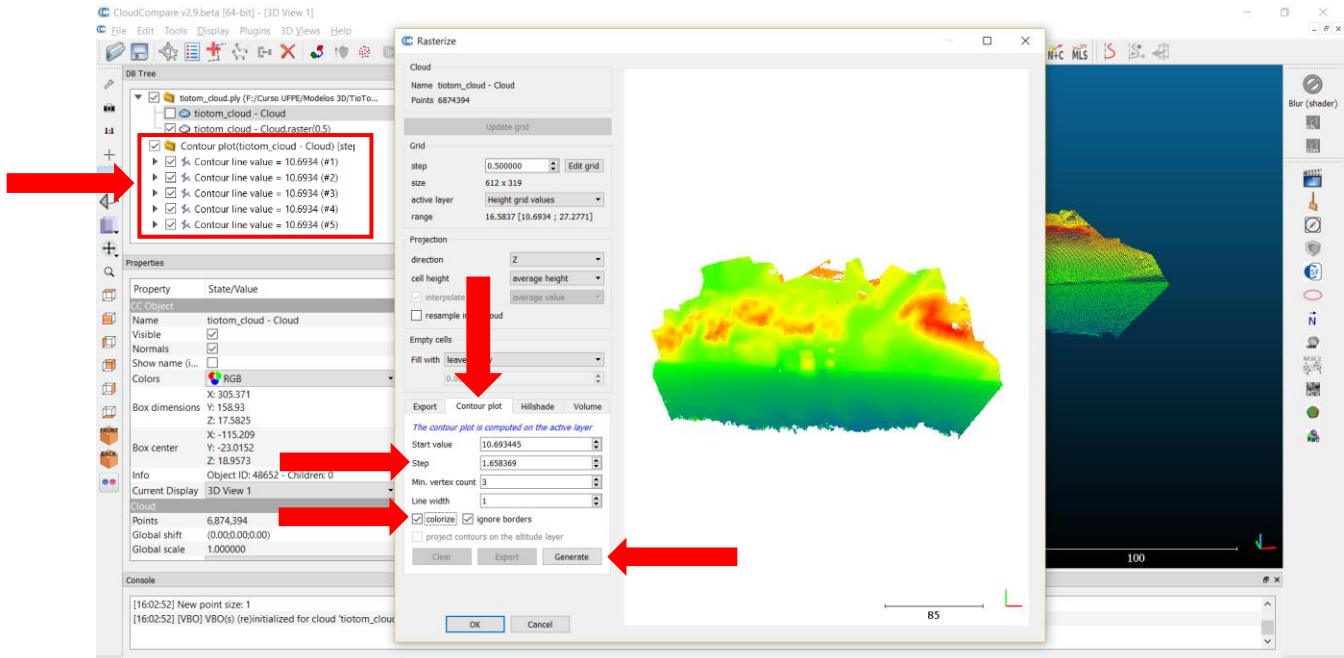
13. To create interpolation and level contours for topography/bathymetry. Open the point cloud in the .ply or .txt format. On the left sidebar check the cloud icon and click over it (the selection shall appear in a blue background).



14. With the cloud icon selected go in the chess icon on the superior bar which means **convert a cloud to 2D raster**. On the rasterize tab fill the model's resolution according with its real scale in **step** (in meters) and click on **update grid**. In the same tab rasterize, click on **cloud**. On the left sidebar (first plan) shall appear a new file in a .raster format.



15. After this step and still on the rasterize tab, it will be needed to define in meters the gap between the level contours in **step**, select the option **colorize**, and **generate** followed by **export** and OK. The **contour line value** shall appear on the left sidebar (first plan).



16. To show all the files on the workplace (point cloud, raster and contour) all files must be selected (✓). After that it is necessary to select each format at a time and click on the icon **translate/rotate** on the superior bar. Holding the right click on the mouse, position the model in a desired place. When the positioning is done click on the green check mark (✓) on the tab that will show up on the right side of the screen. If it is necessary to redo the positioning click on the (X) icon to correct it.

