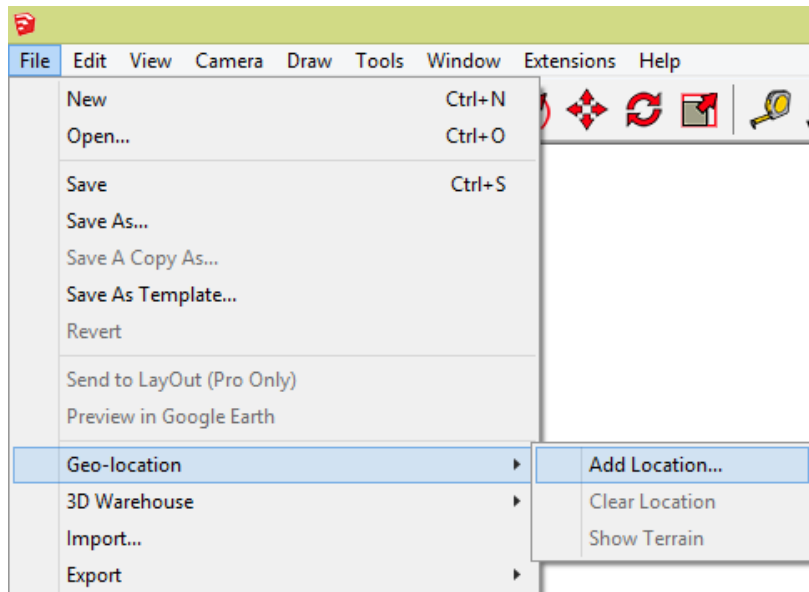


SketchUp-Terrain-models and IDA ICE

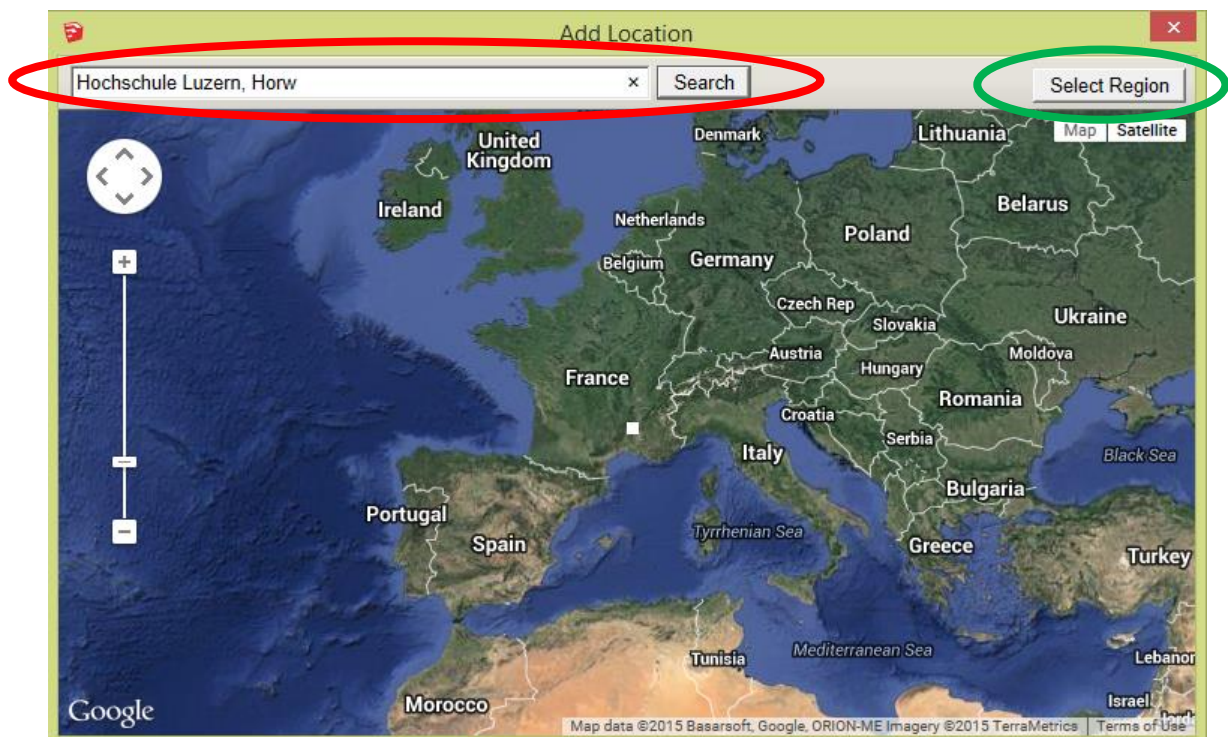
How can Terrain models be built in SketchUp and imported to IDA ICE?

The screenshots in this document are made in Version 2015. SketchUp look can differ to other versions, but it should work aswell!

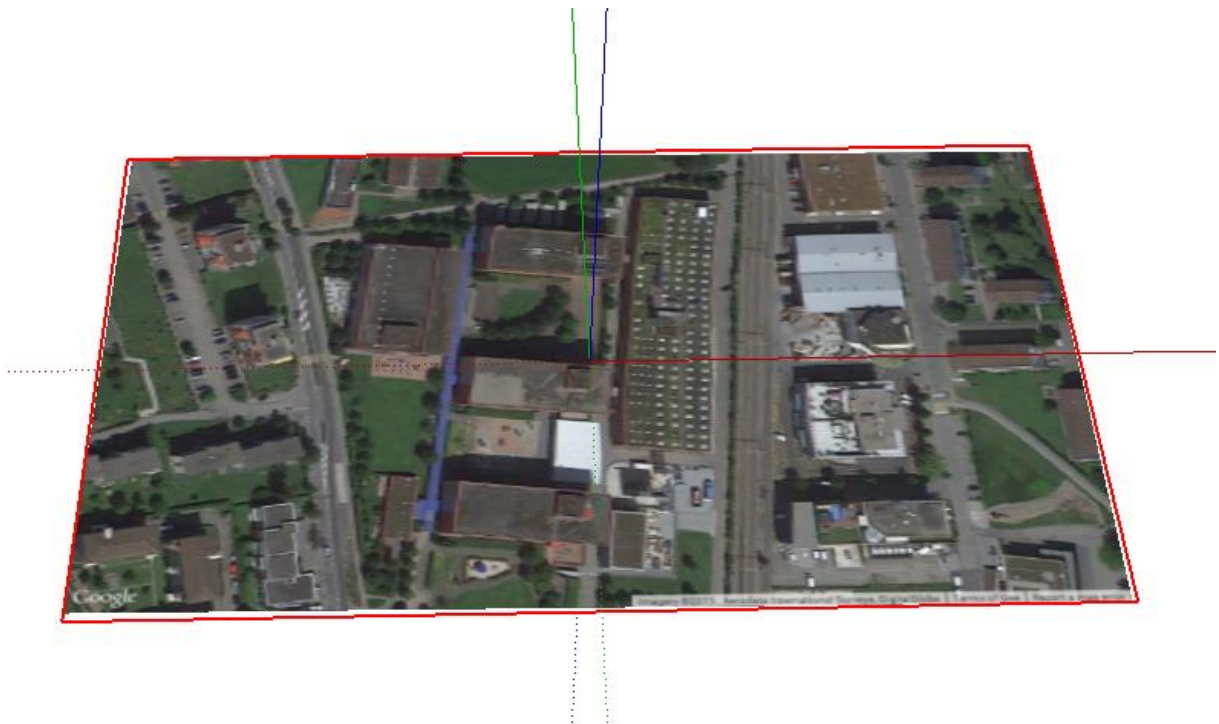
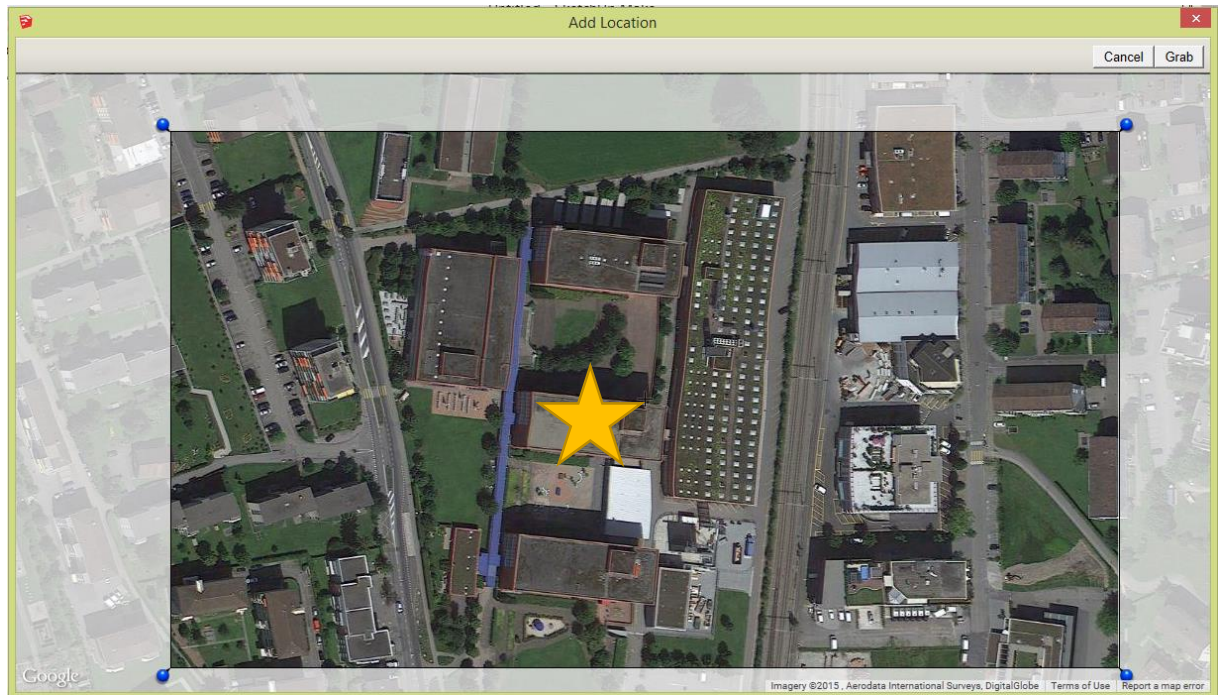
- 1.) Start a new Sketchup File. Add Geo-location via „File -> Geo-location -> Add location“



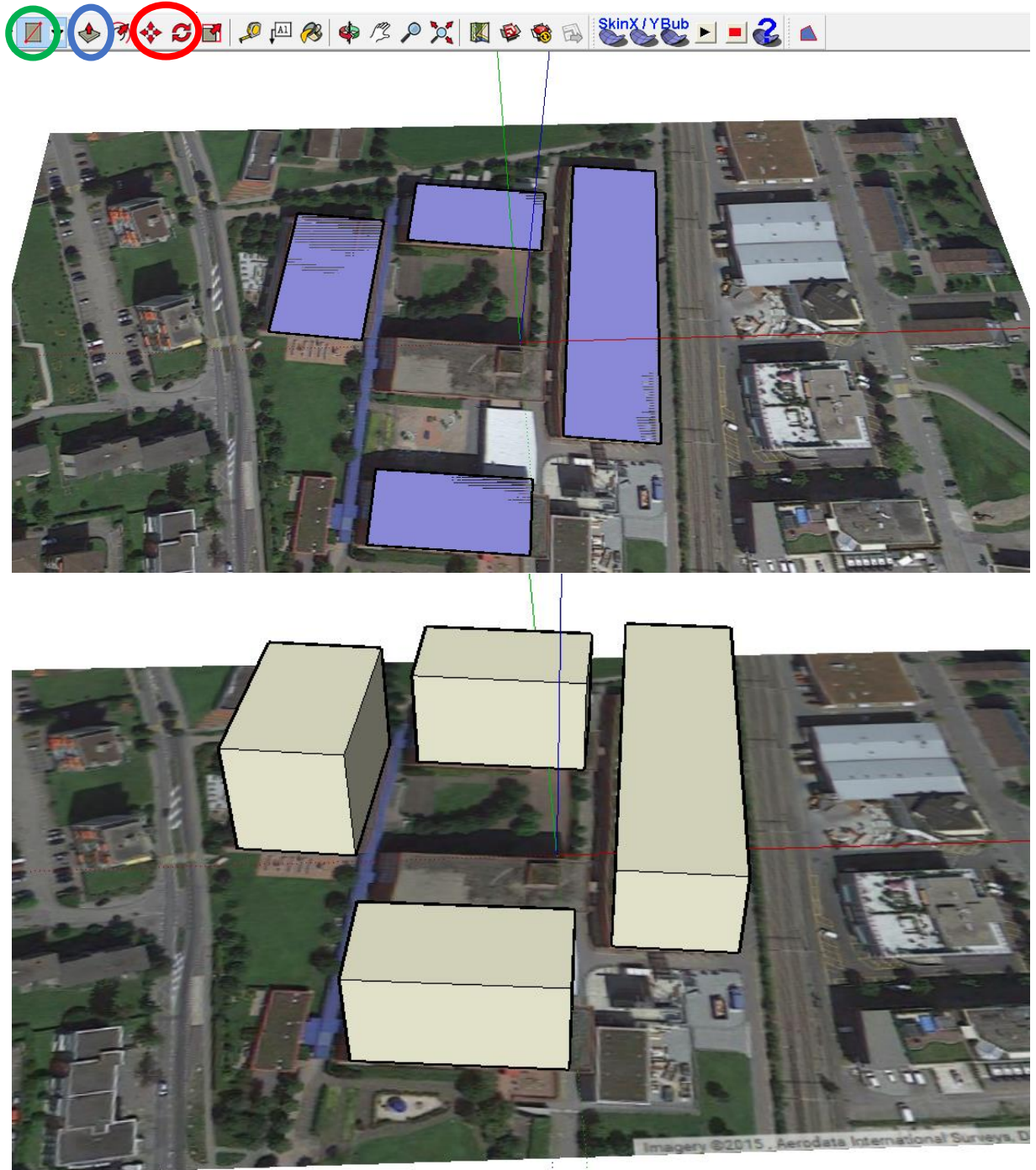
- 2.) In the new opened window, type in the address or Geoposition of the site and click „Search“. Move the cross to your building, Zoom out until you see all the relevant buildings and other shading objects close to your project, then click „Select Region“ at the Top Right.



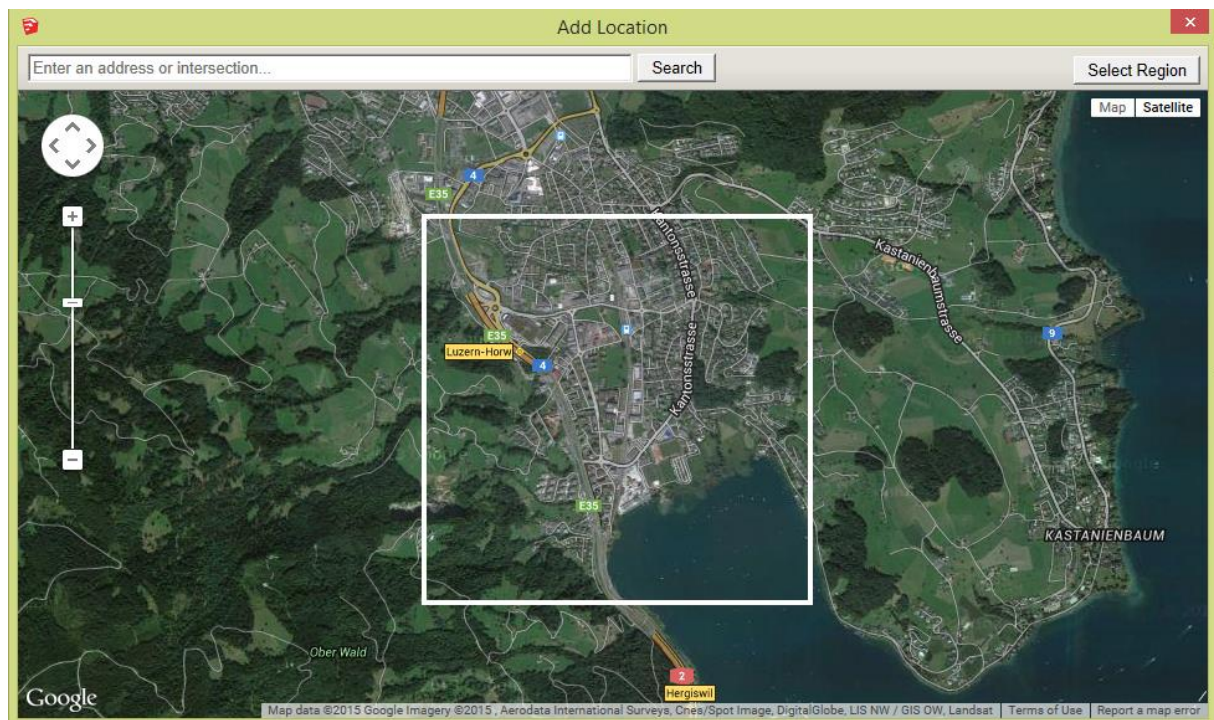
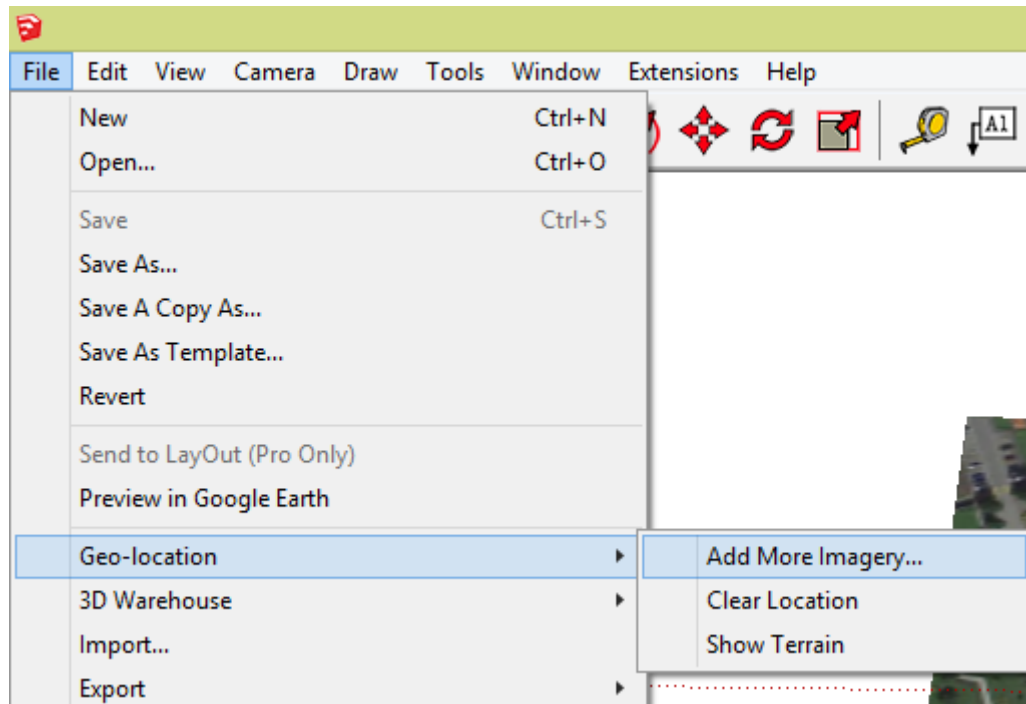
- 3.) You can now adjust the shown area by moving the Corner-Pins. After you are finished, click „Grab“ and the the location is added to the SketchUp project.



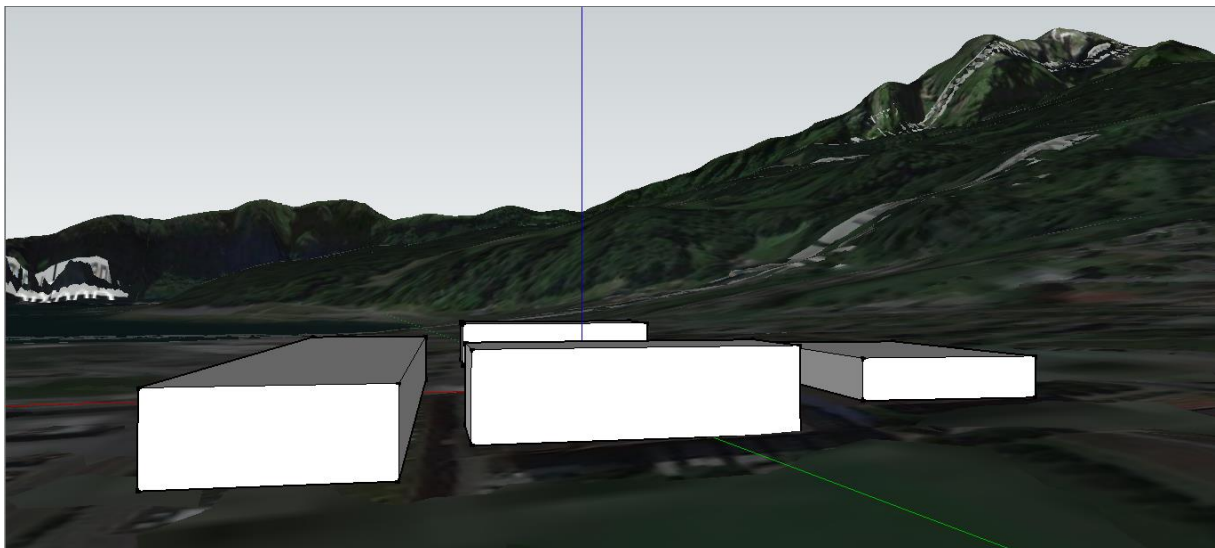
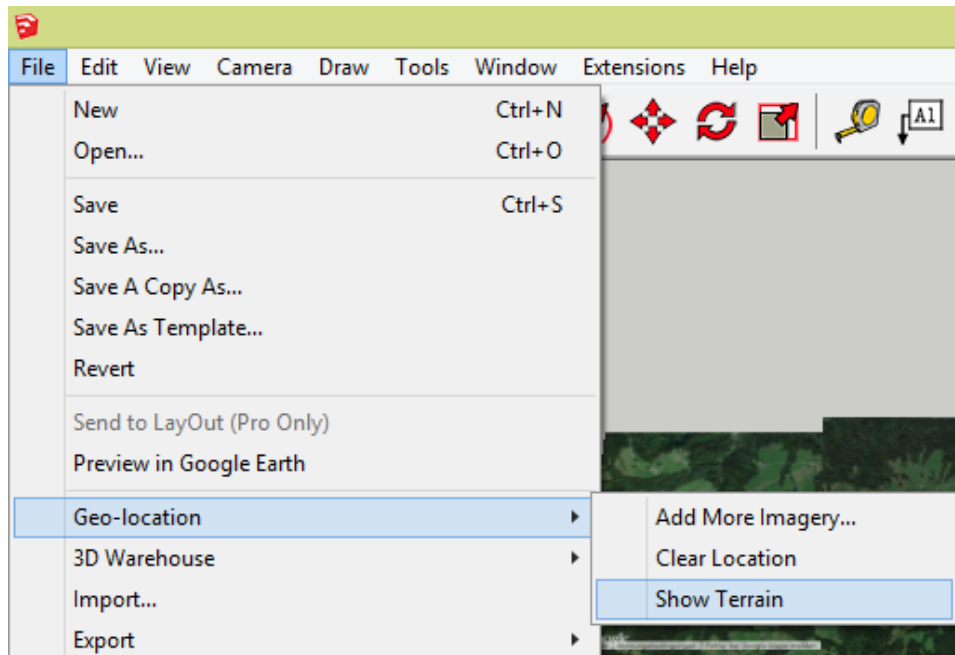
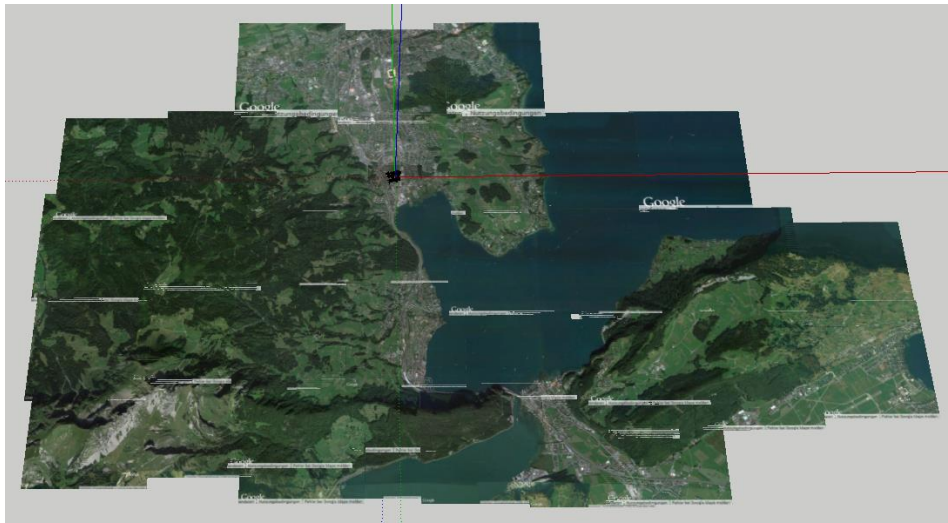
- 4.) Model the shading objects around your project as Shapes (circled green), you can move and turn the shapes with the elements marked red (**Watch out:** Before you are able to use the „Rotate“ function, you need to select it with the „Mouse arrow“ (). After positioning, extrude your shapes to the real object height (blue circled element). Make sure you model all surrounding buildings and other shading object before you go ahead to step 5.



- 5.) Shading close to building site is done after this step, next is topography. Go to „File -> Geo-location -> Add More imagery“. The „Add Location“ window opens again. Zoom out until you see the thick white rectangle. This marks the next picture being inserted. Start with the picture centering your location, click „Select region“ and after that „Grab“, confirm any message with „Yes“.



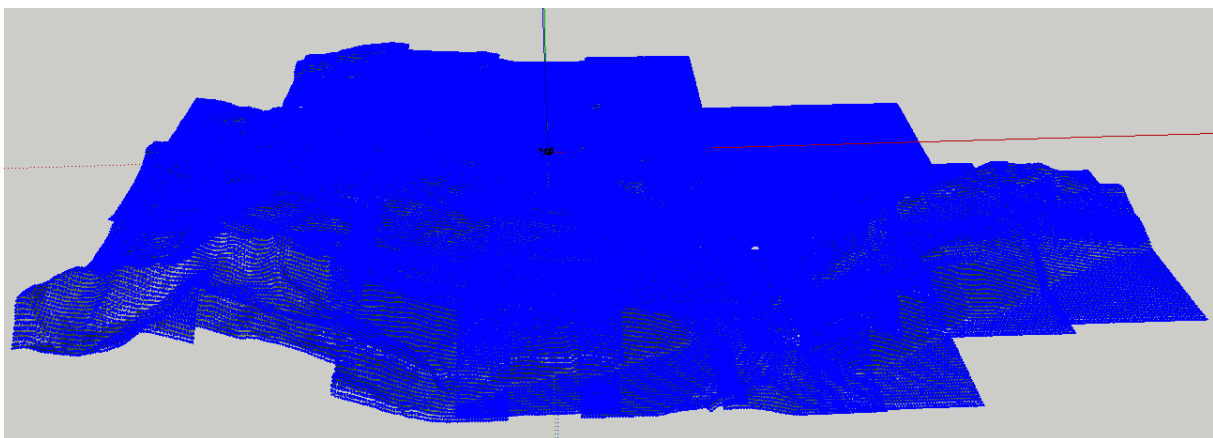
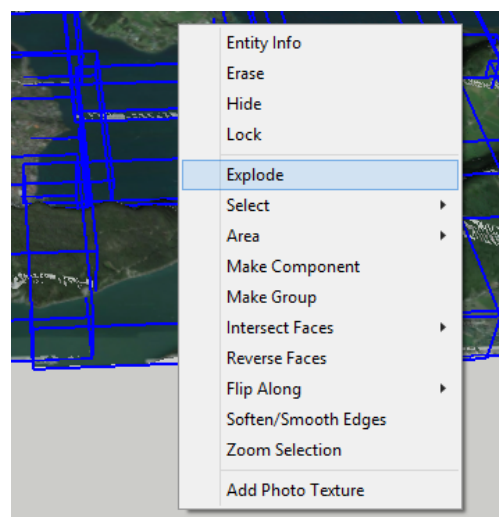
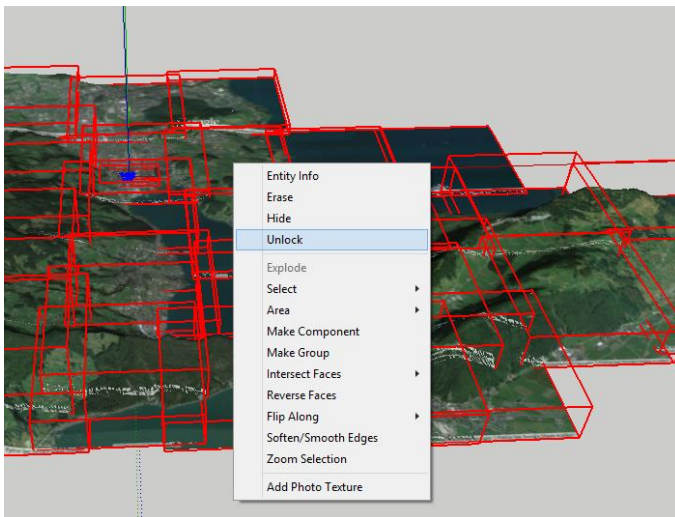
- 6.) Repeat step 5 until you have the whole region and all the relevant Mountains around your object is shown in SketchUp! After that go to File -> Geo-location -> Show terrain and the topography is shown in 3D



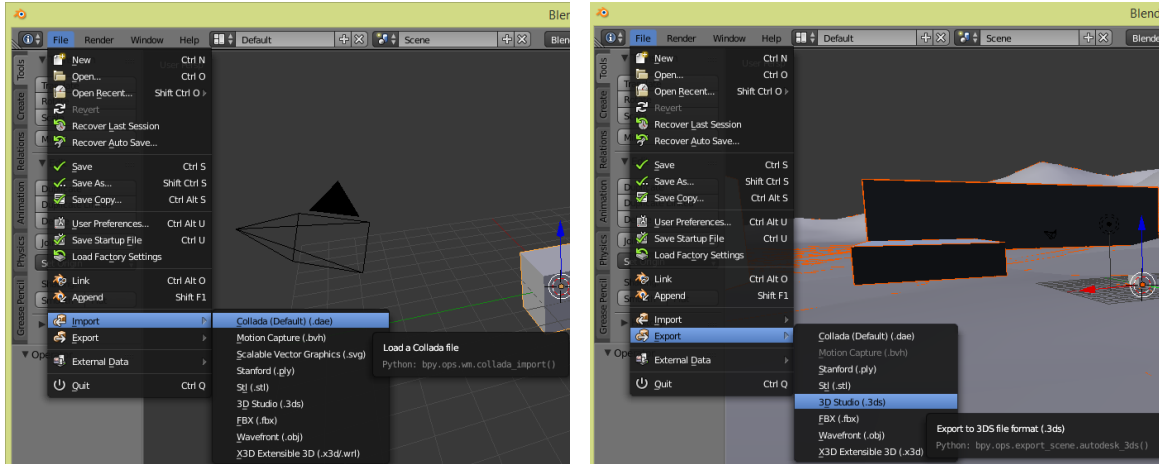
7.) If you have a SketchUp-Pro License, go to „File -> Export -> 3D model...” and choose format „3ds“. Choose folder an name and then go directly to Step 10!

Direct export in 3ds is only available in Pro version, Users with SketchUp-Make need to do a workaround. Go ahead with step 8!)

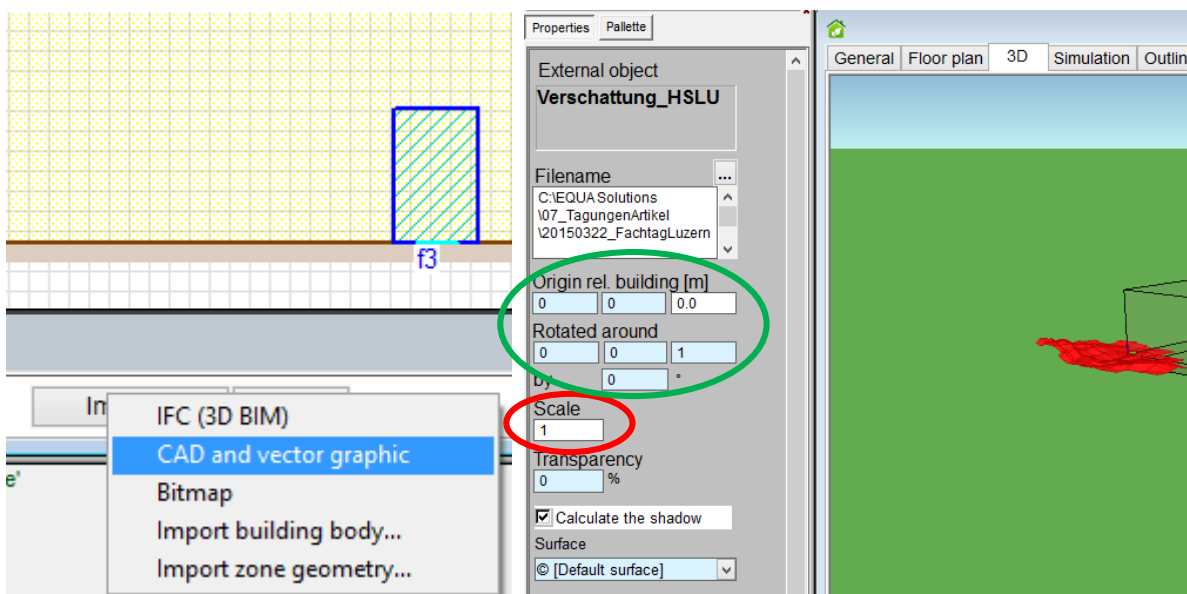
- 8.) All inserted pictures are locked objects, so we have to unlock it and Explode to triangles.
- Press „CTRL+A“ (select all)
 - Make sure, the „Mouse arrow“ is selected! => 
 - Right-click somewhere in the objects and select „Unlock“. All Objects turn from red to blue.
 - Right click again and select „Explode“ => **Watch out! This process takes a while)**
 - The objects are transformed to triangles and can now be exported via „File -> Export -> 3D Model“ as „COLLADA File (*.dae)“ => **Might take a while!**



- 9.) Start the Open-Source program „Blender“ (www.blender.org)
 - a. Choose „File -> Import -> Collada (.dae)“, choose your SketchUp-Export and select „Import Collada“ at the Top-right. Your file is being imported.
 - b. After successful import, go to „File -> Export -> 3D Studio (.3ds)“, choose the folder and the name and select „Export 3DS“ at the Top right.



- 10.) Go to IDA ICE floor plan, click „Import -> CAD and vector graphic“ and choose your .3ds file. Import might take some seconds! After successful import, switch to 3D-view and select the imported object. If it is a very big area, the Shading model ist downscaled to 0.001, then Scale it to „1“. Make sure that „Calculate shadow“ is checked true. Depending on your SketchUp model and the Site orientation you need to relocate the imported object by changing the Origin and/or by rotating it in the Properties section.



11.)After Simulation, the shading effect of the surrounded buildings and the mountains can be seen in 3D View, when animating any variable (choose „show shadows“)

