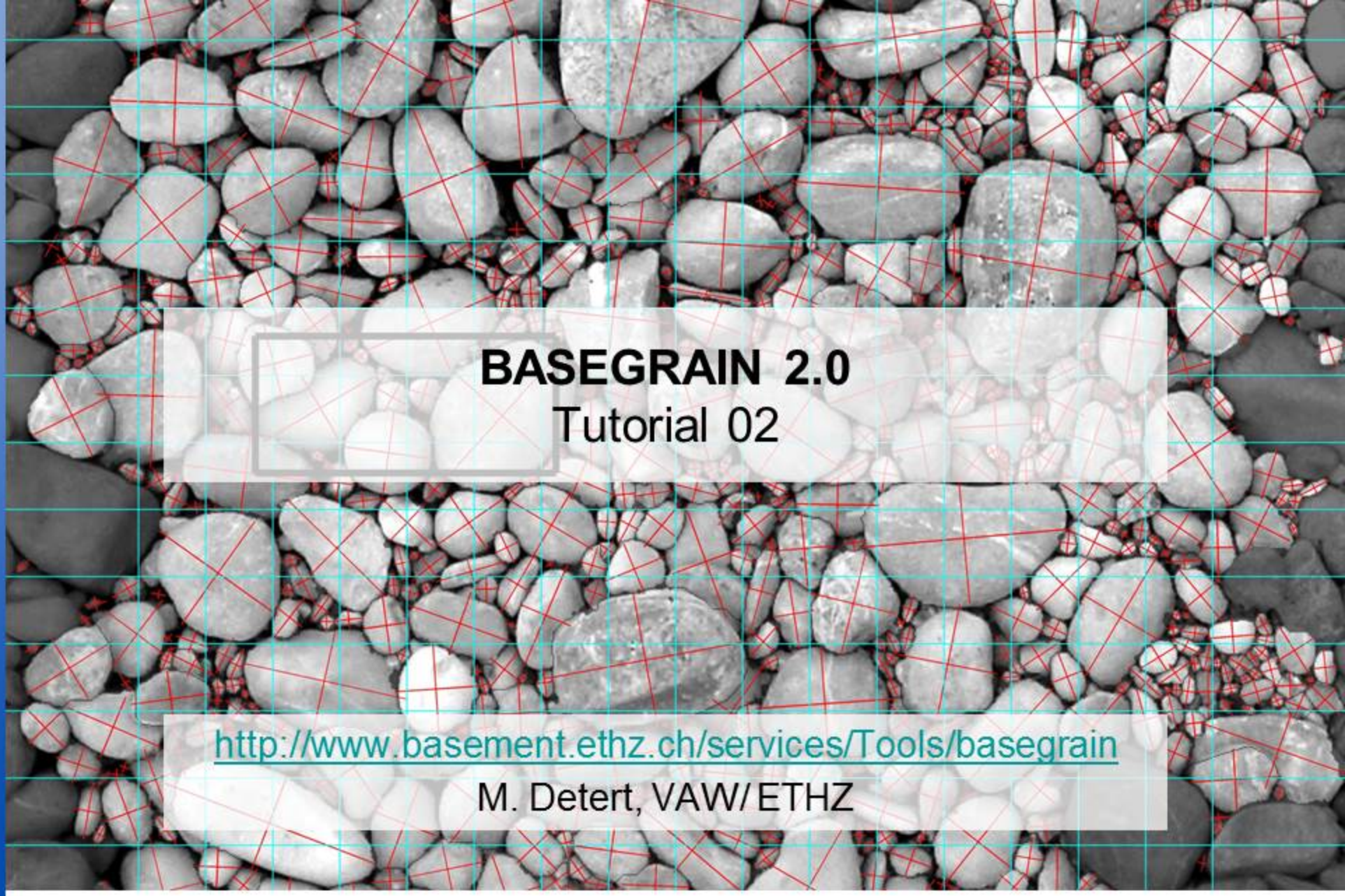

BASEGRAIN 2.0

Tutorial 02

http://www.basement.ethz.ch/services/Tools/basegrain

M. Detert, VAW/ETHZ

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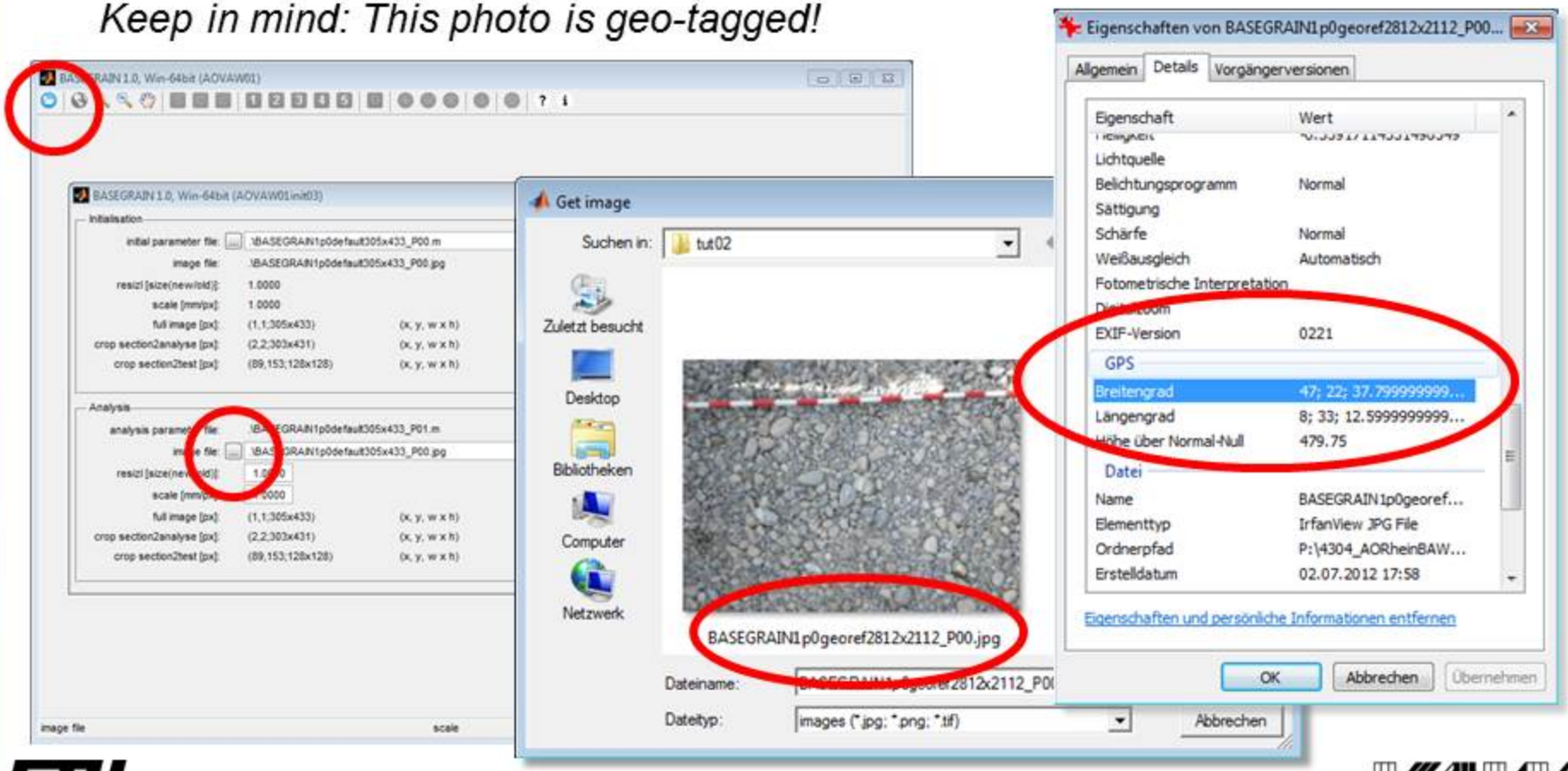
Start BASEGRAIN 2.0

- Start BASEGRAIN2.0.exe, or, in case you are within a BASEGRAIN-session already, press *ESC* in the main-menu mode.
- Import BASEGRAIN1p0georef2812x2112_P00.jpg (or similar)
  Keep in mind: This photo is geo-tagged!



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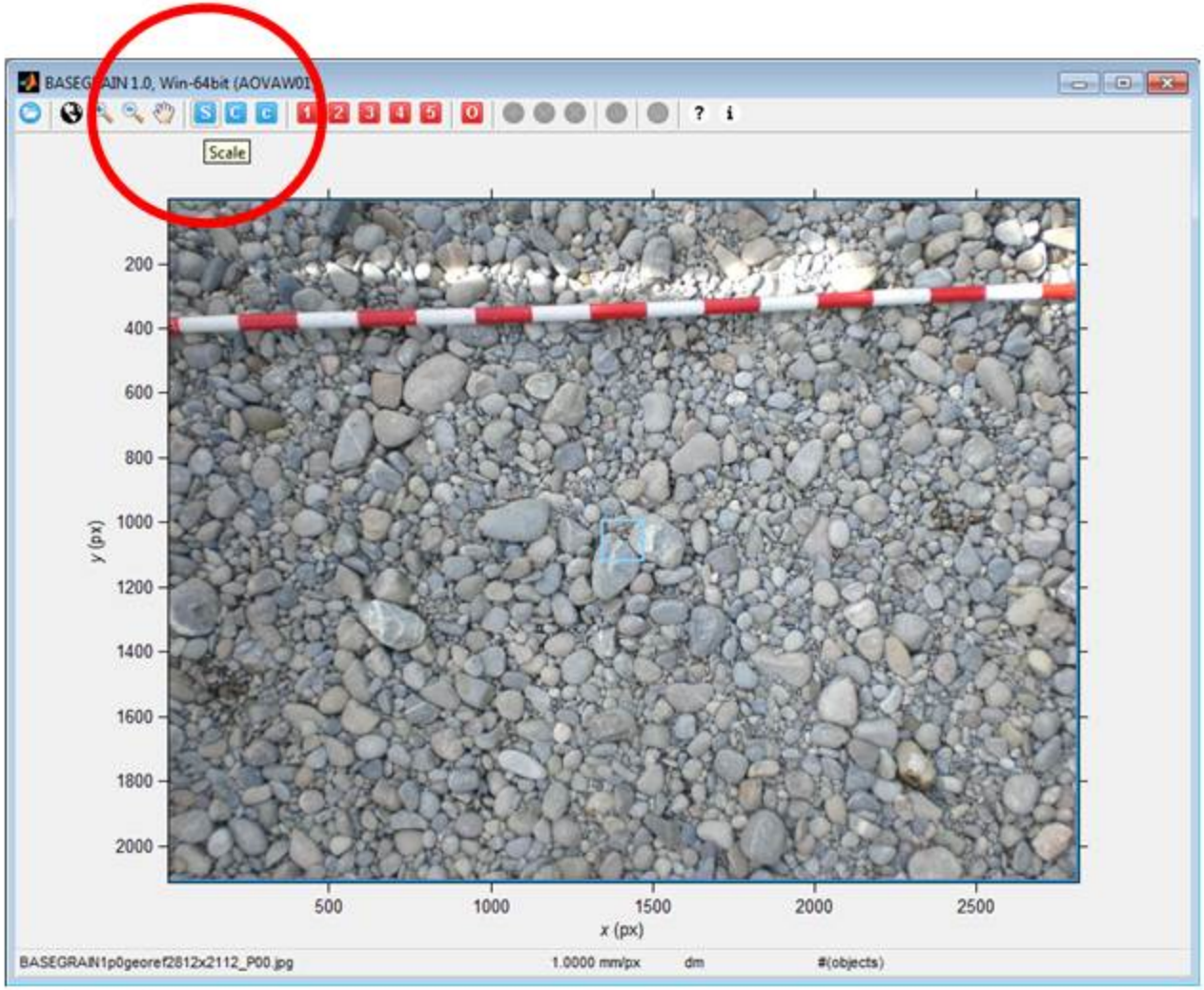
Scaling

- Click the *Scale* button.



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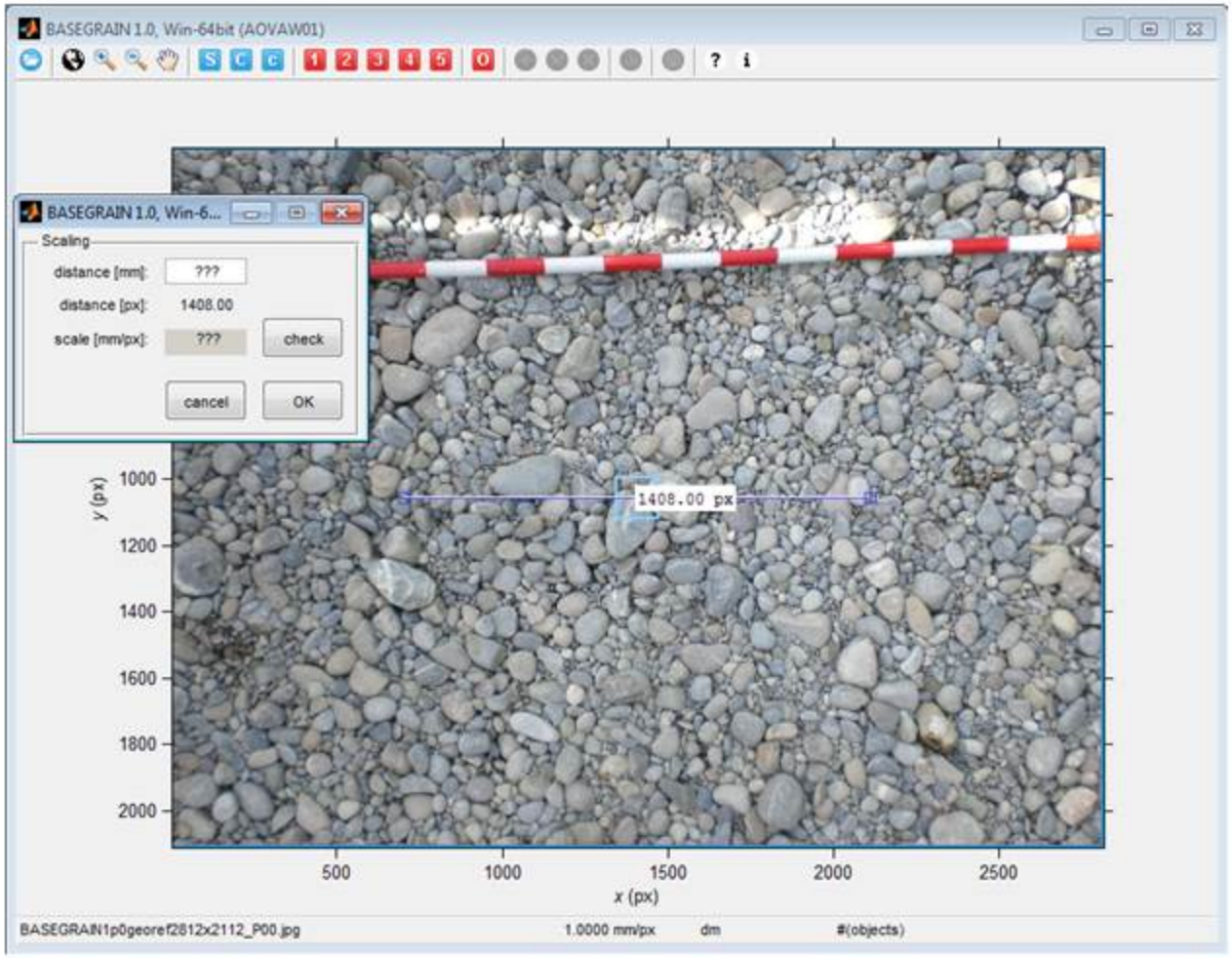
Scaling

- The *scaling-box* and the *interactive scaling device* (*ISD*) are popping up.



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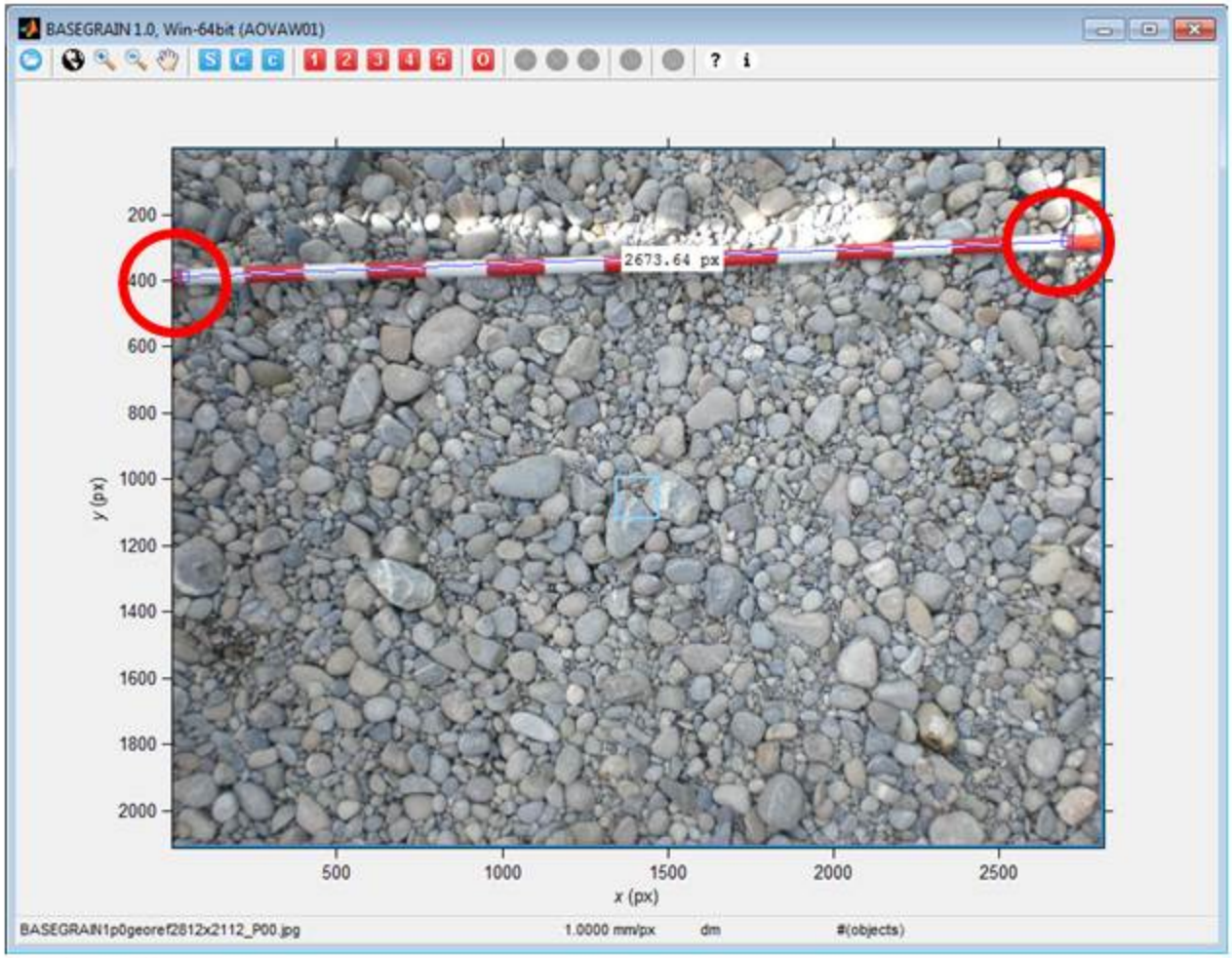
Scaling

- Shift the endpoints of the *ISD* to known distance points on the photo.
  Hint: You may use the zoom buttons, but you should switch them off afterwards.



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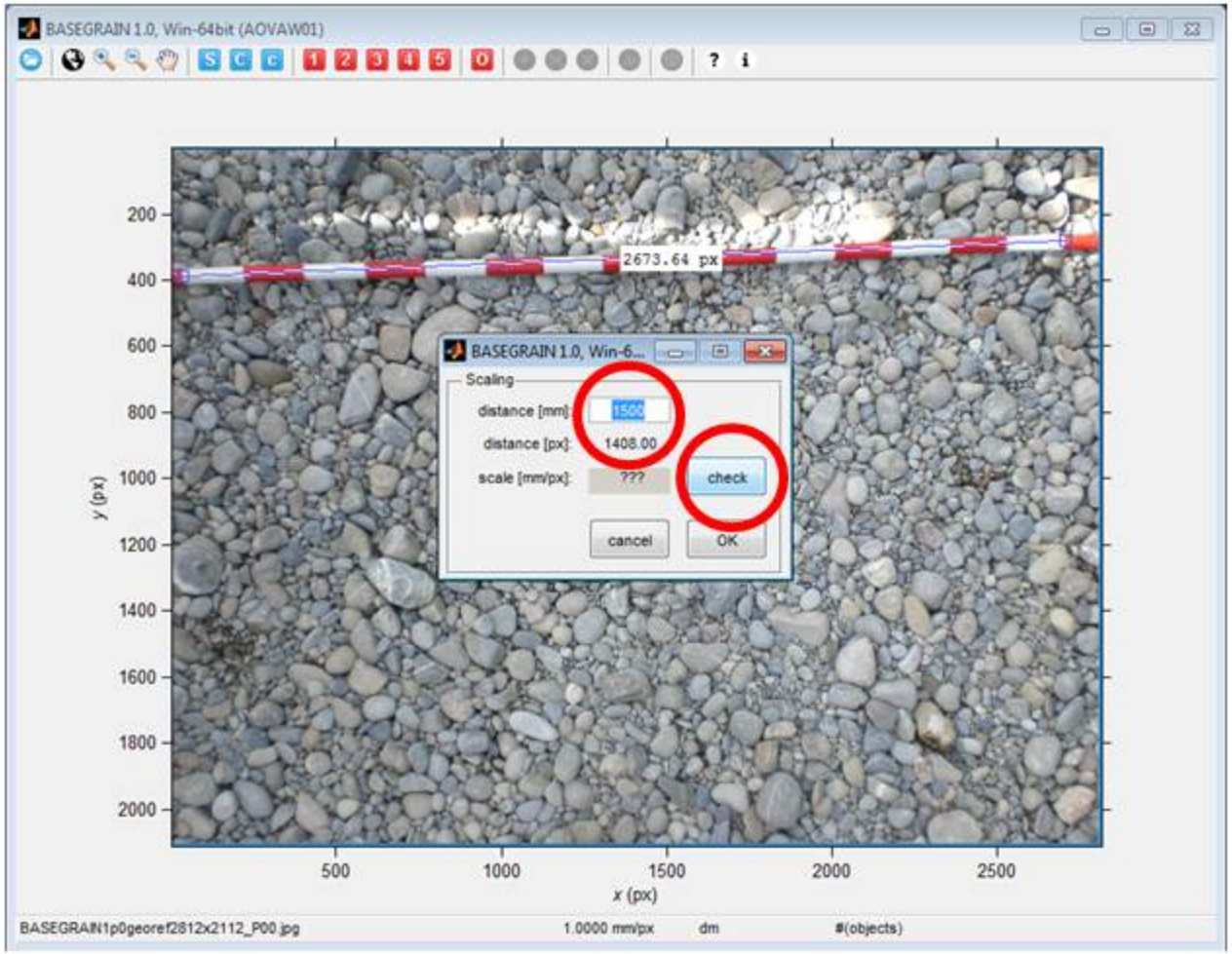
Scaling

- Bring the *scaling-box* to front.
- Type in the distance in units of [mm] (here: '1500') and click the *check* button.



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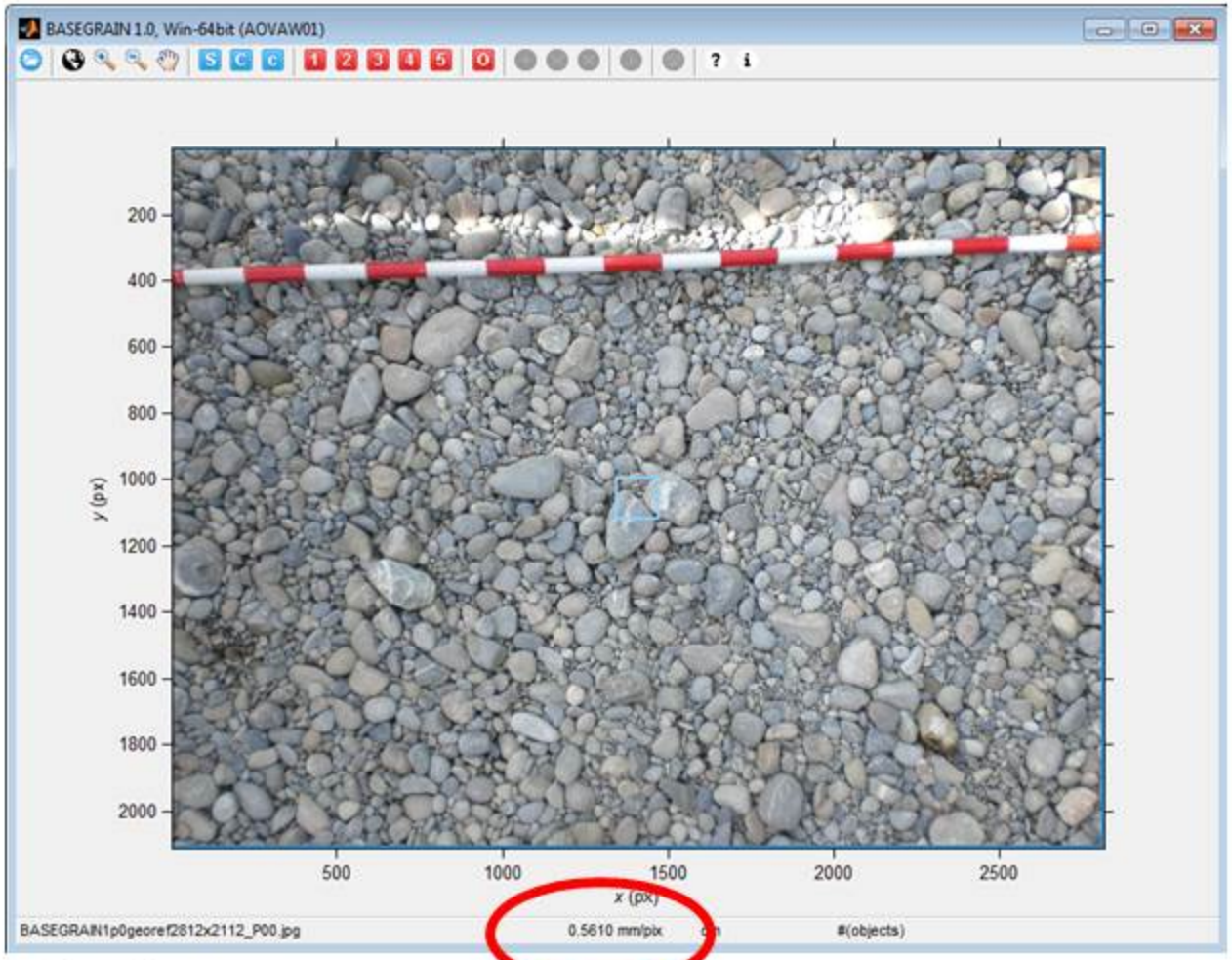
Scaling

- After you have clicked the *OK* botton, the photo is scaled (here: 0.561 mm/px).



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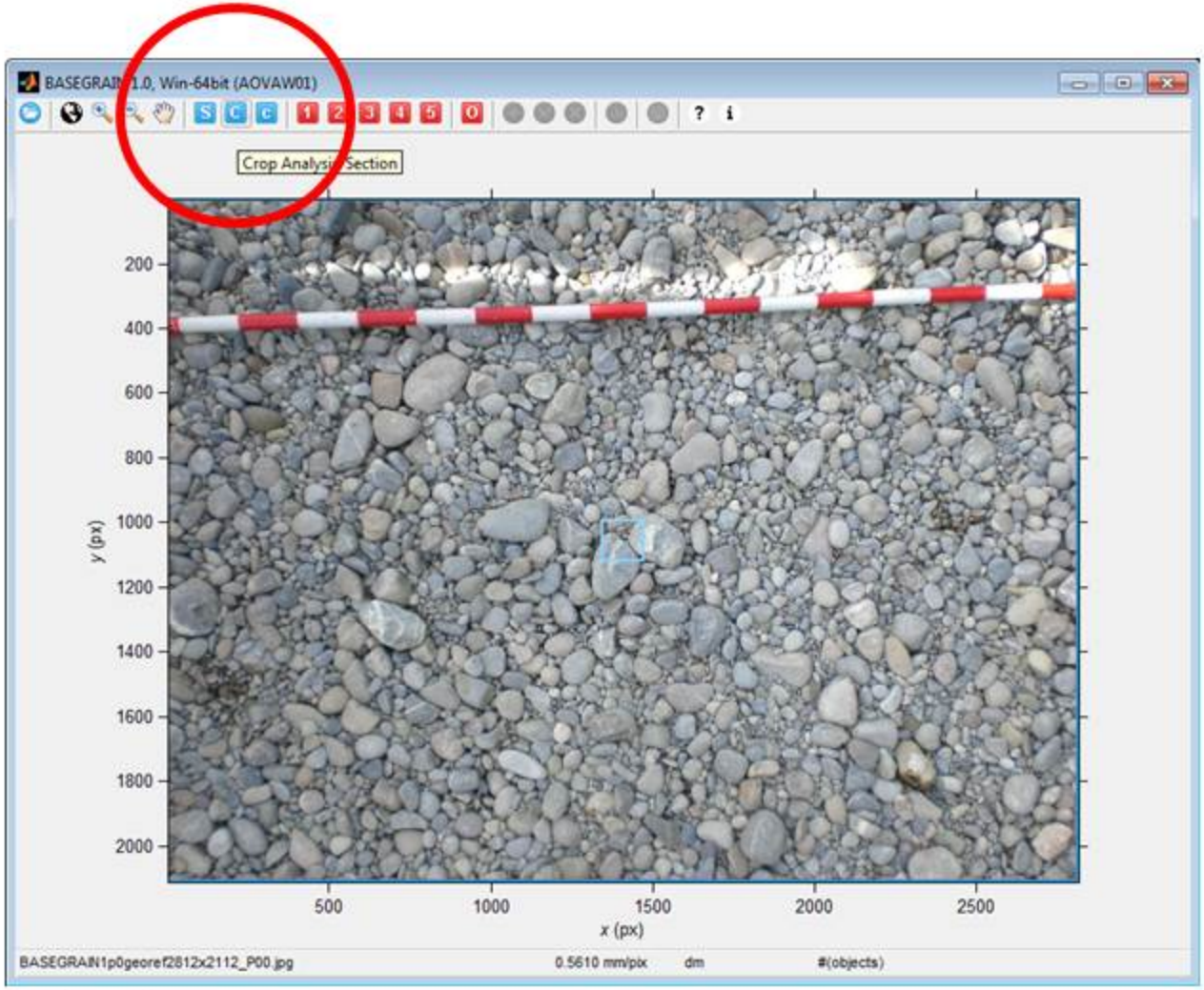
Crop image

- Click the *Crop Analysis-Section* button.



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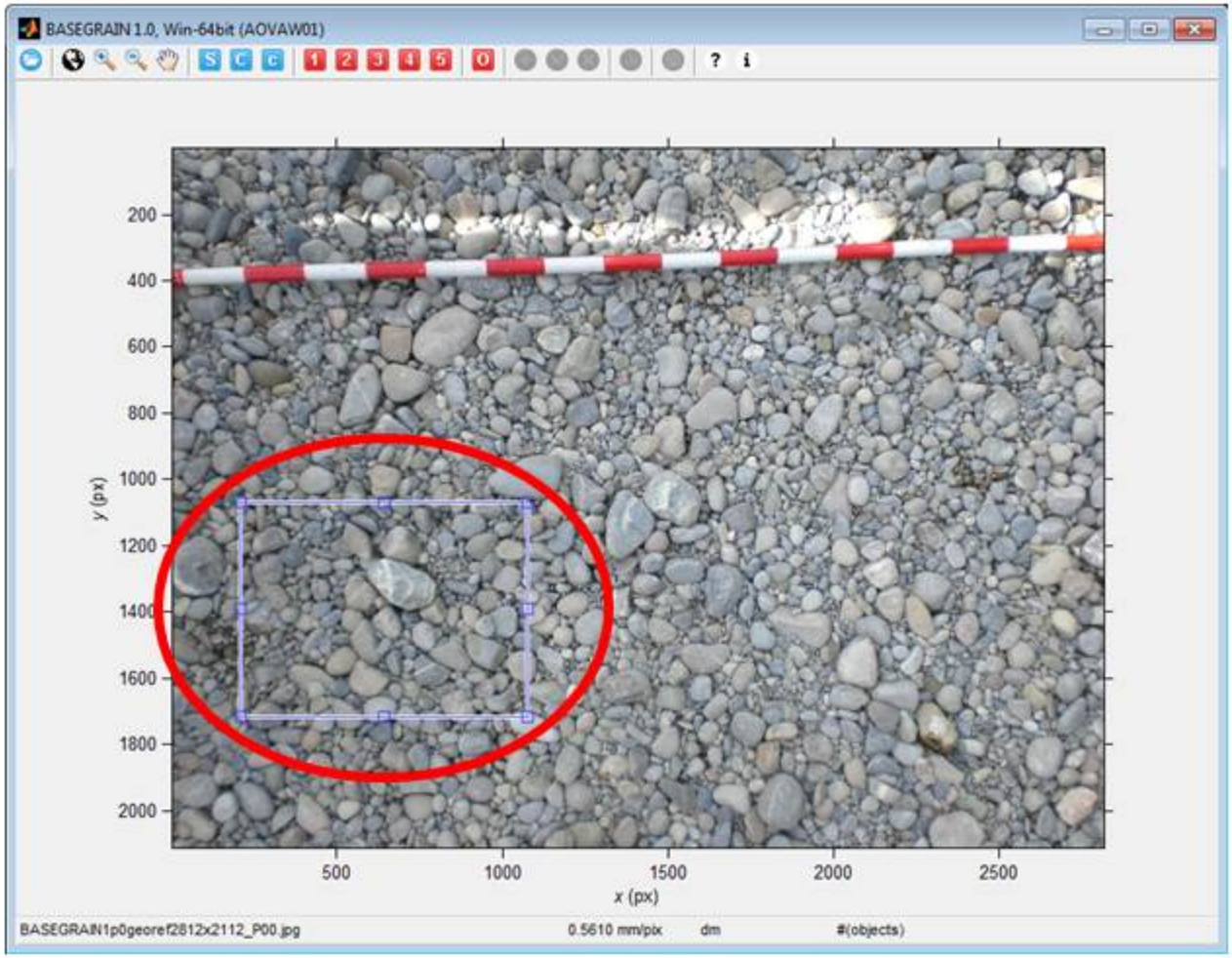
Crop image

- Define the area-to-analyse by using sensible left and right mouse-clicks.
  Hint: In BASEGRAIN 2.0, the area should be <~2500² px.



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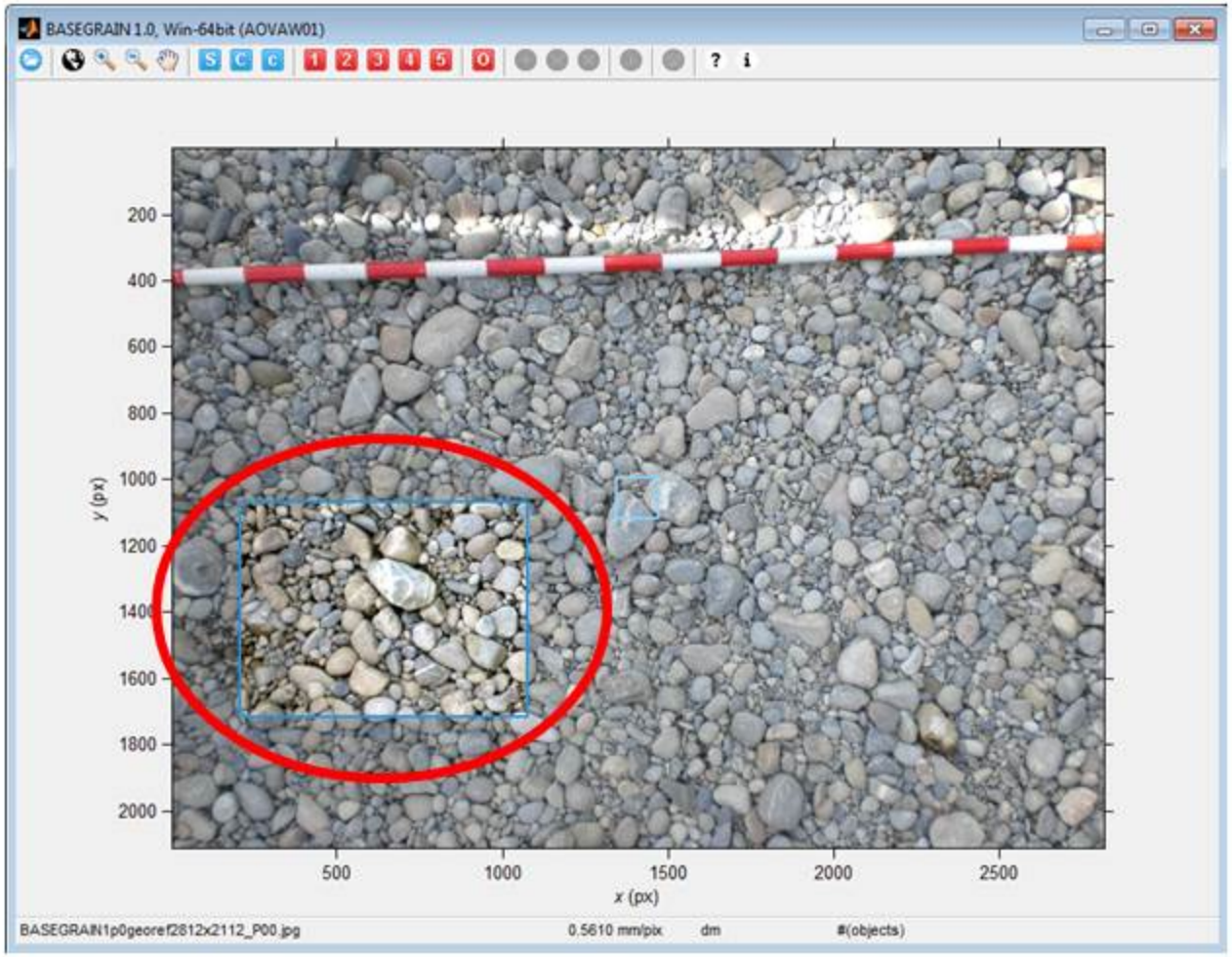
Crop image

- After a final double left mouse-click the area has been cropped successfully.



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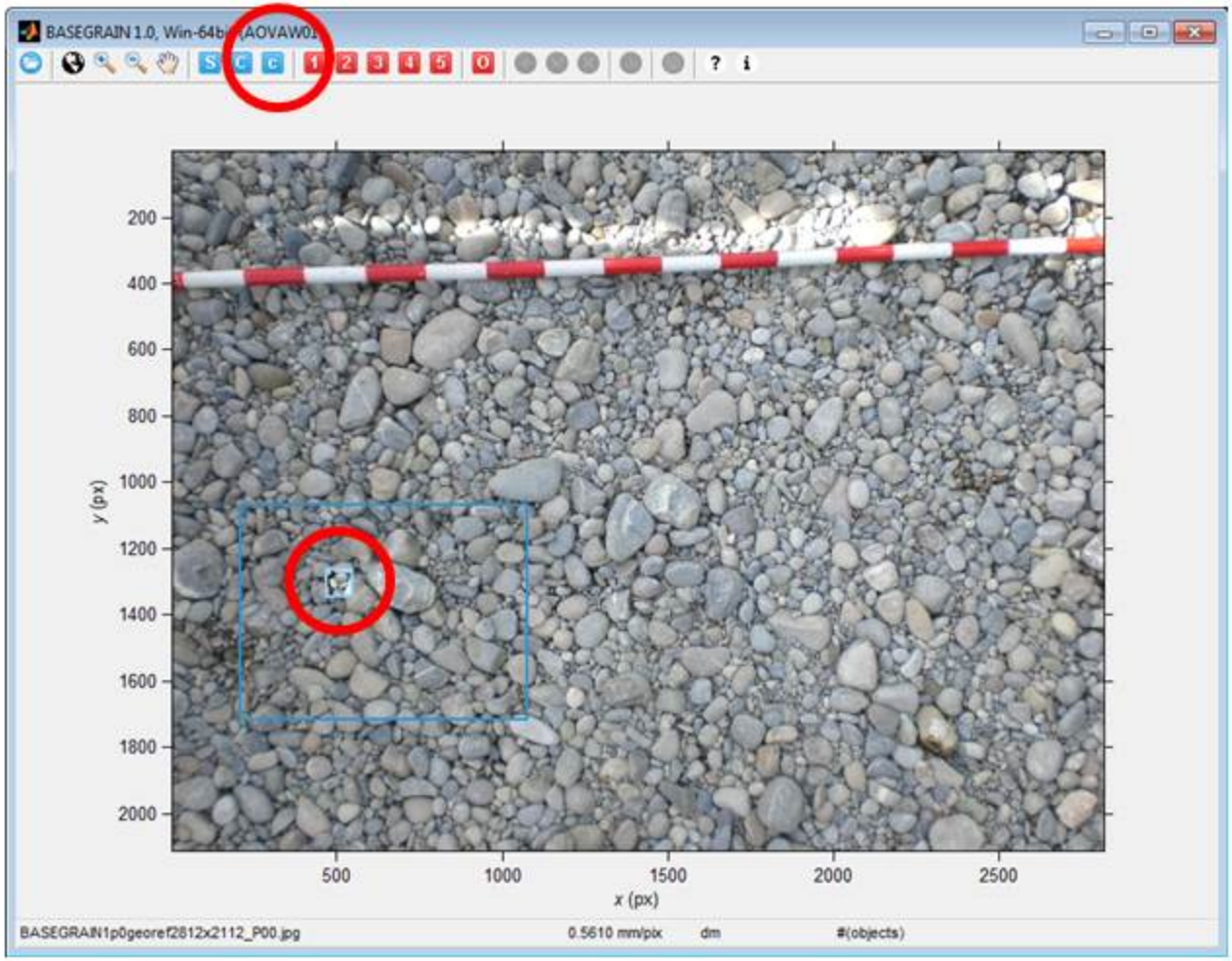
Crop image

- Click the *Crop Test-Section* button and repeat the previous procedure, where you now define a smaller test-area for tuning the object detection parameters.



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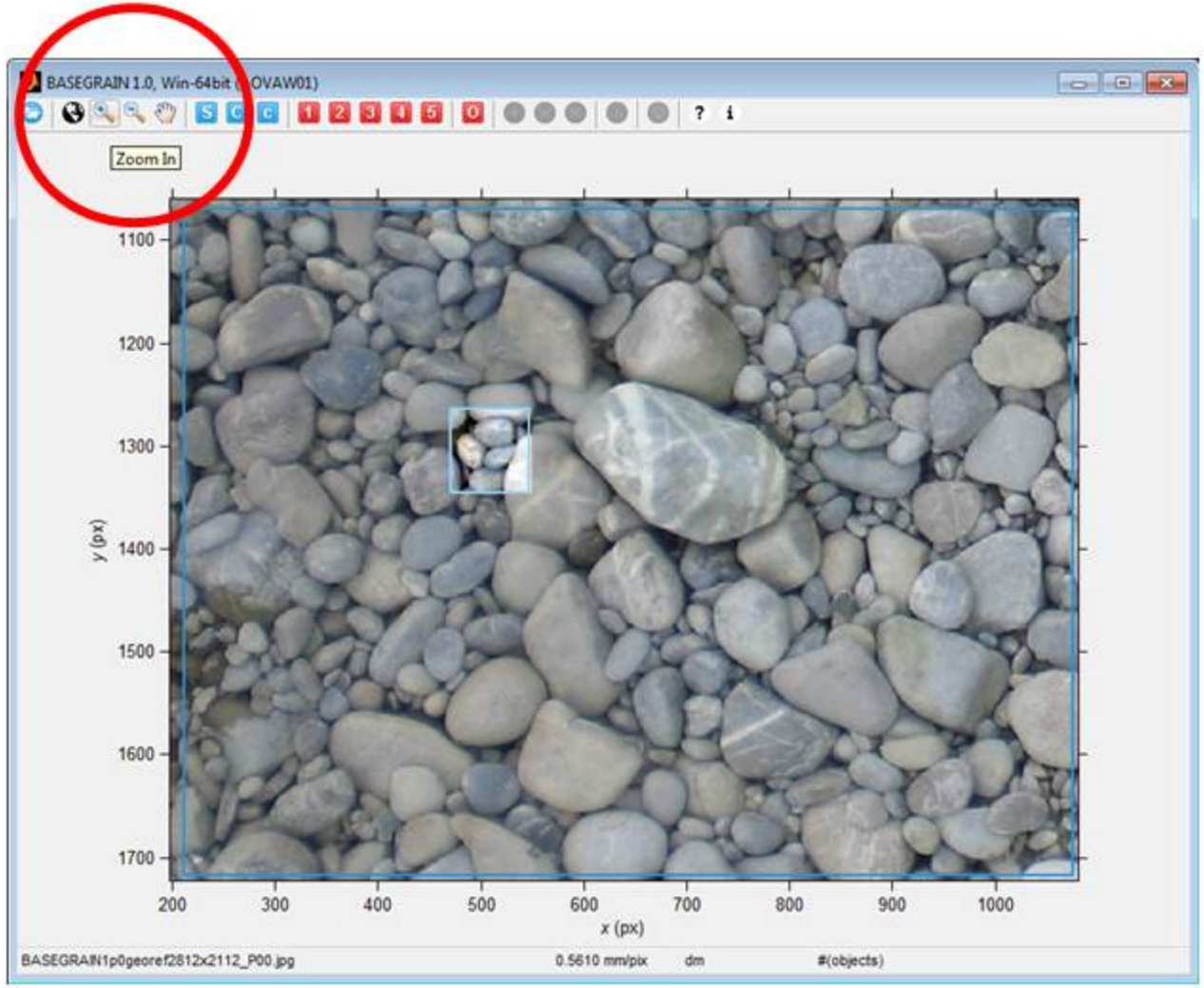
Crop image

- Use the *Zoom In* button, but don't forget to switch it off afterwards (function end).



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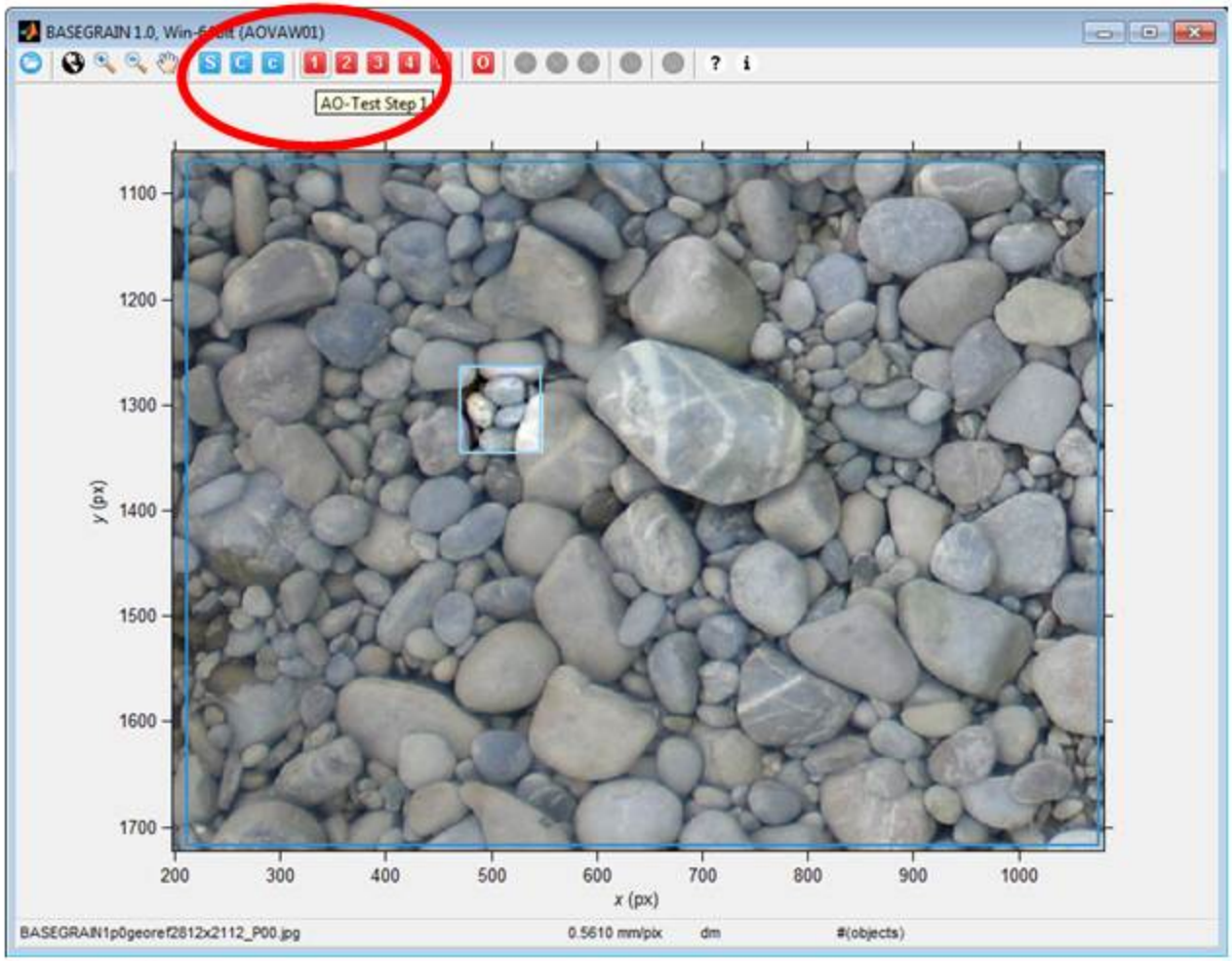
Parameter tuning

- Click the *AO-Test Step 1* button for tuning the parameters of Step 1 'Interstice detection by double grayscale threshold' (see: Detert & Weitbrecht, 2012).



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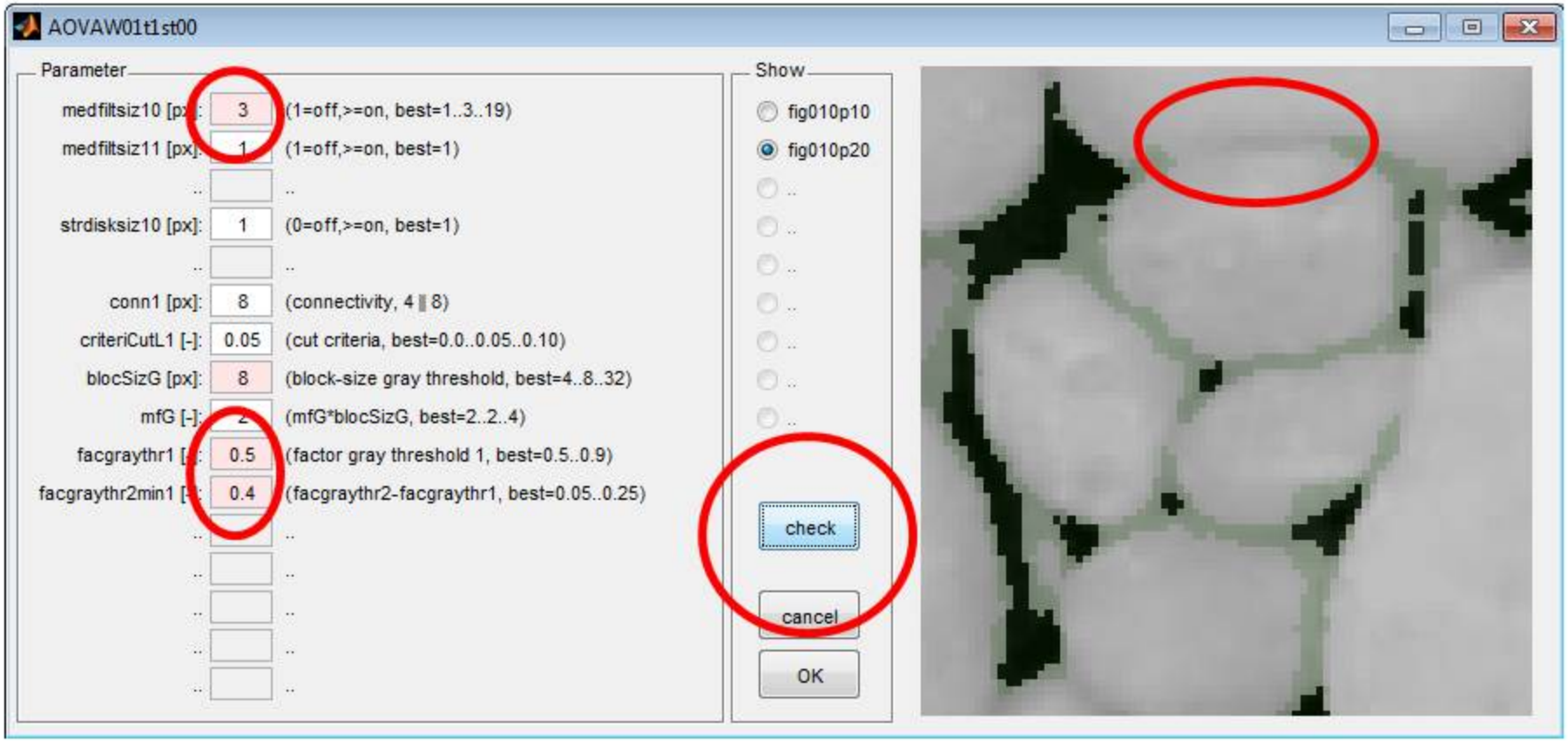
Parameter tuning

- Click the *check* button to test the results for the actual parameter set.
- Optionally, change single parameters and click the *check* button again.
  Hint: Suppress intra-granular noise, but pronounce interstices.



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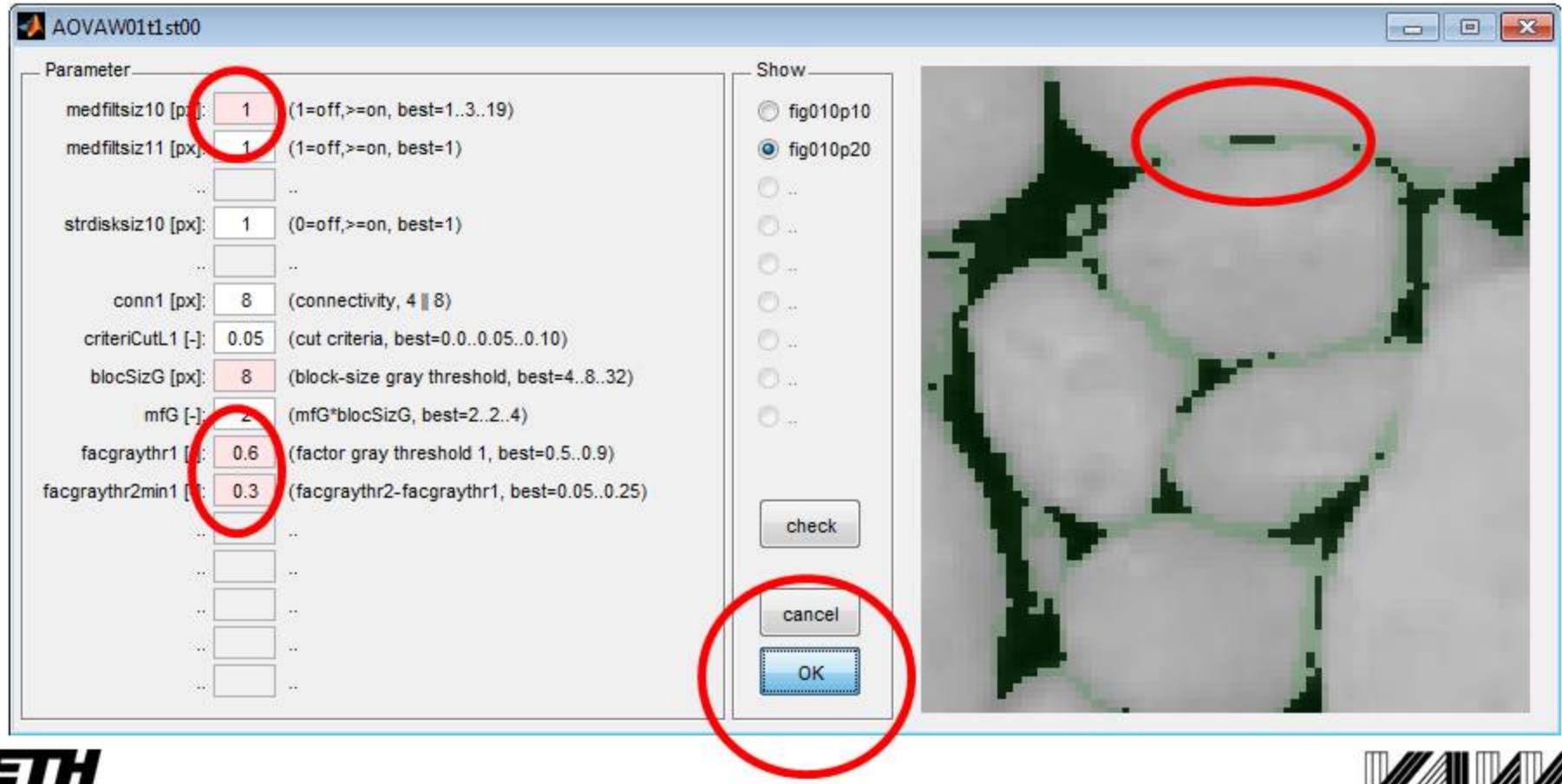
Parameter tuning

- Once you have found the optimal parameter set, click the *OK* button.
- Repeat similar procedures to find optimal parameter sets at *AO-Test Step 2-5*.



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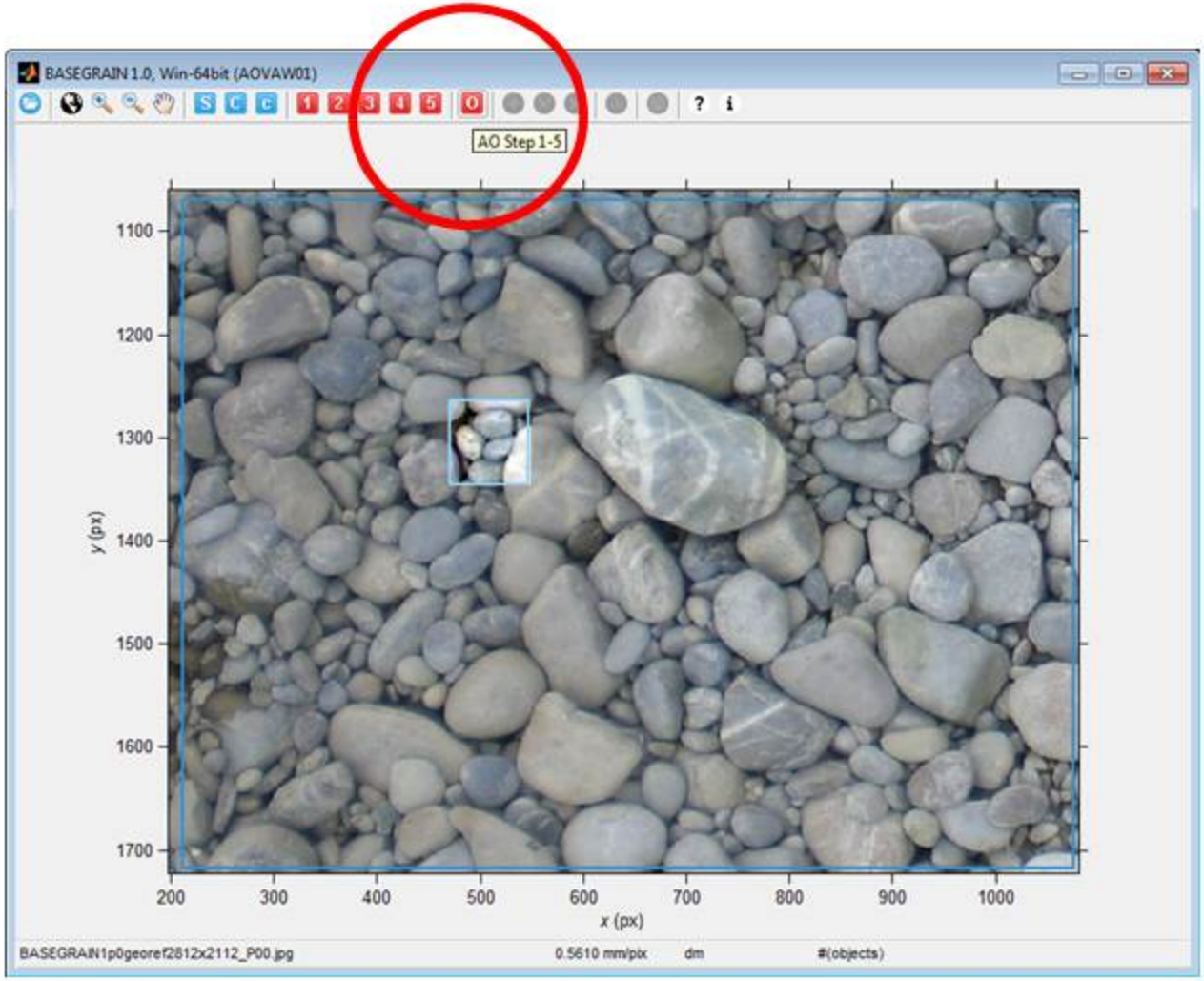
Automatic object detection

- Click the *AO Step 1-5* button.



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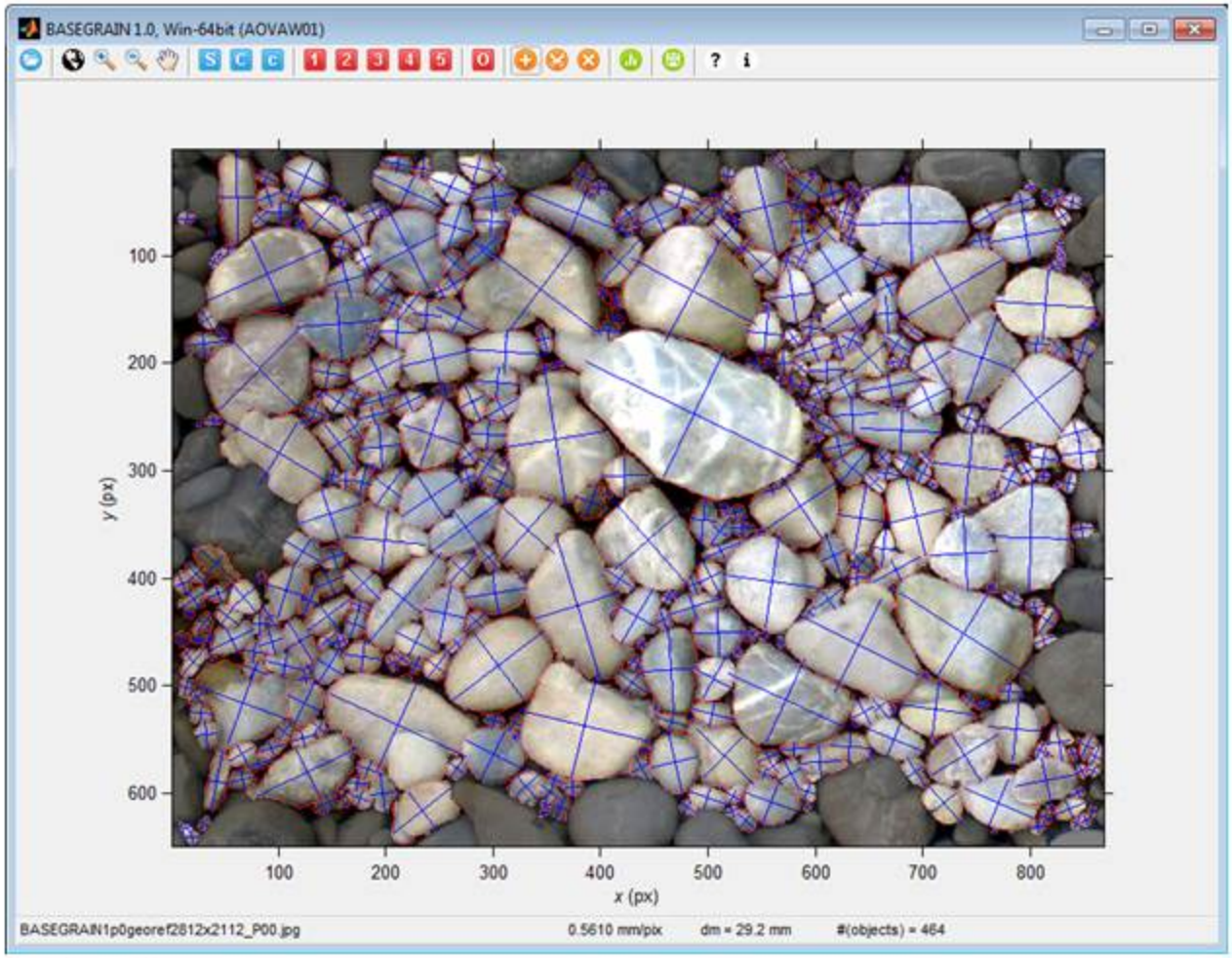
Automatic object detection

- Tataa!
- Use Merge, depart and blank out to tune some misleading objects…



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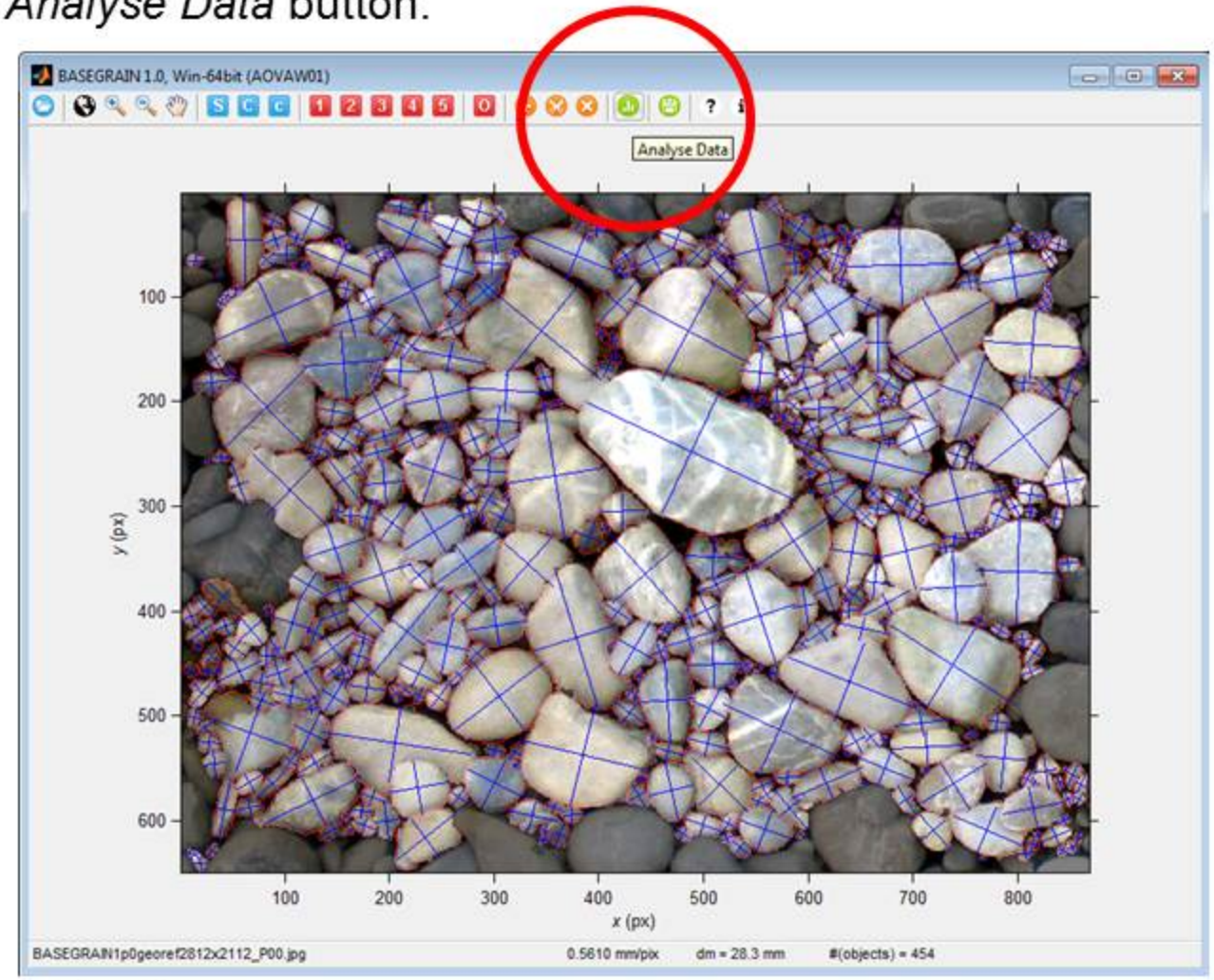
Analyse data

- Tataa!
- Click the *Analyse Data* button.



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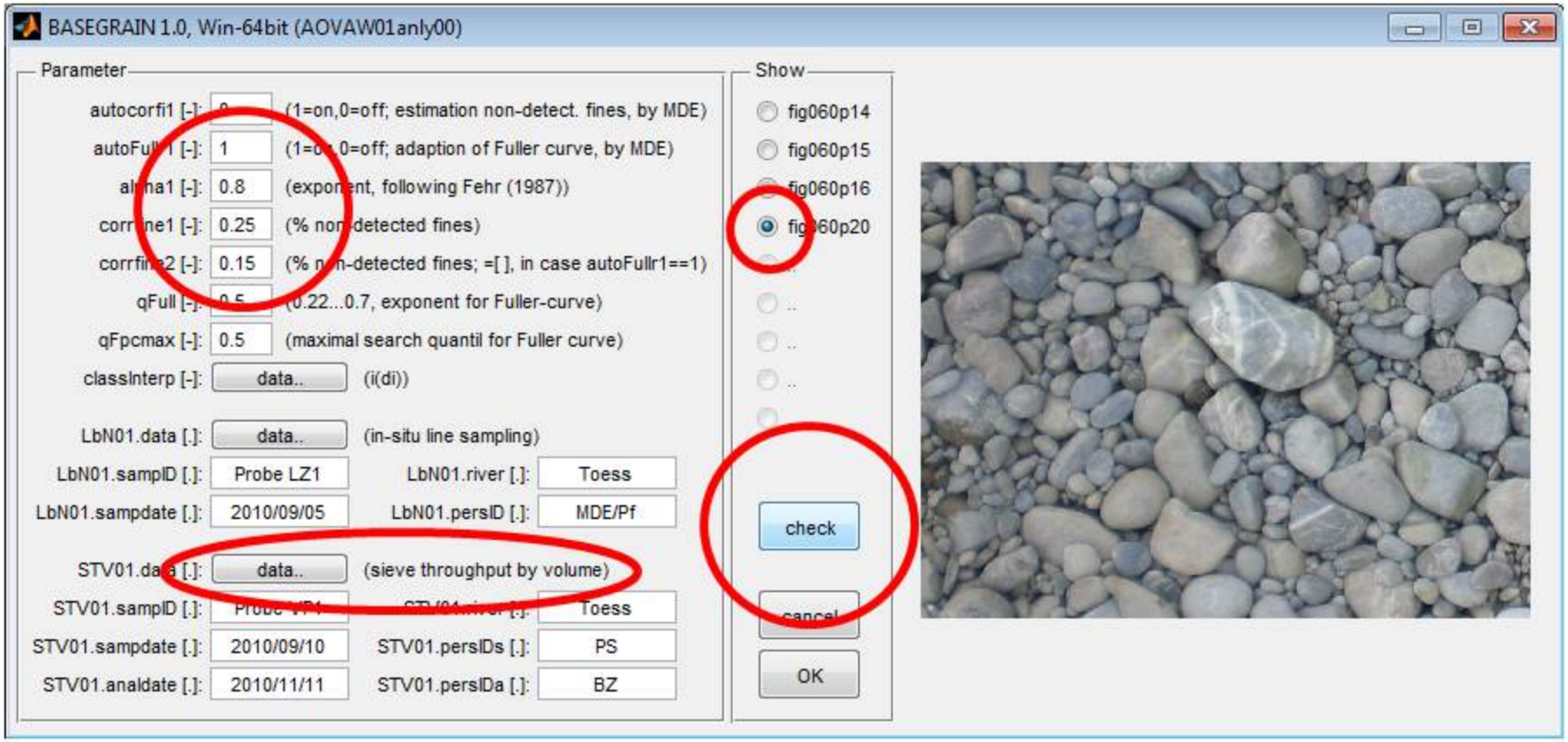
Analyse data

- Press the *check* button to estimate the grain size distribution (GSD) of the subsurface layer following the methodology of Fehr (1987).
  Note: You may add data from laboratory sieving (or in-situ line sampling).



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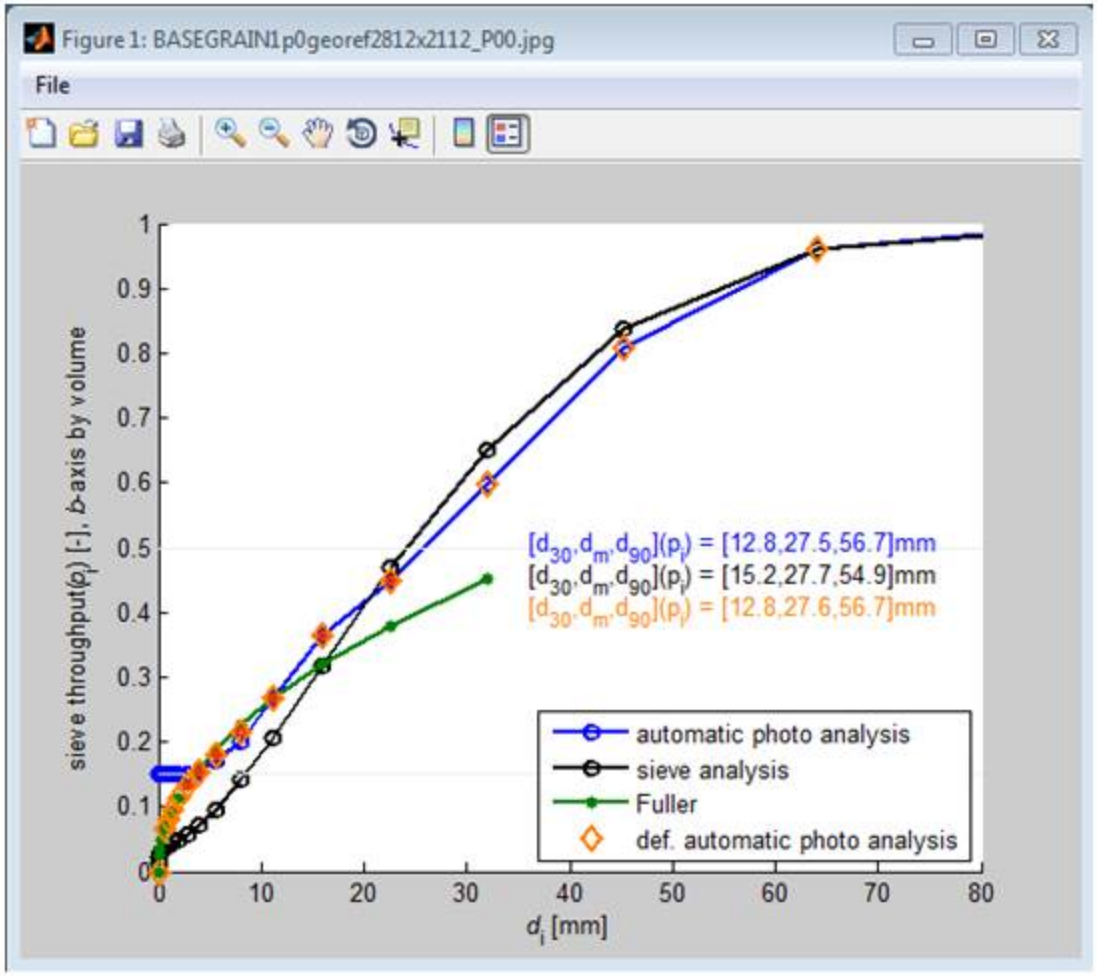
Analyse data

- The GSD of the subsurface layer estimated via the *b*-axis of detected grains' areas is shown in comparison to a GSD gained by laboratory sieving.



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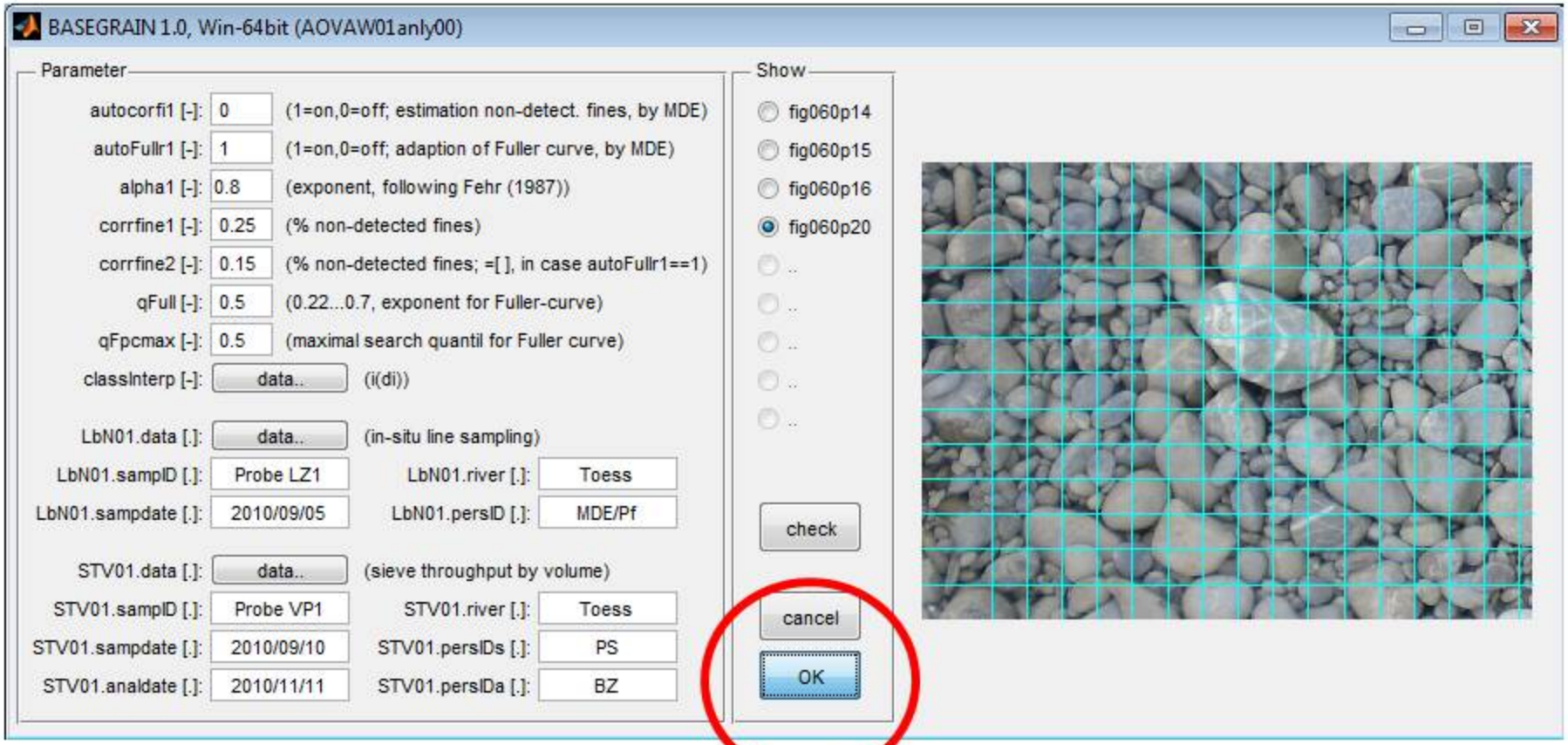
Analyse data

- To finish the analysis, press the OK button.
  Note: BASEGRAIN 2.0 applies quasi line-sampling (Fehr) or quasi area-sampling using the whole (a, b, area) information of the separated grains.



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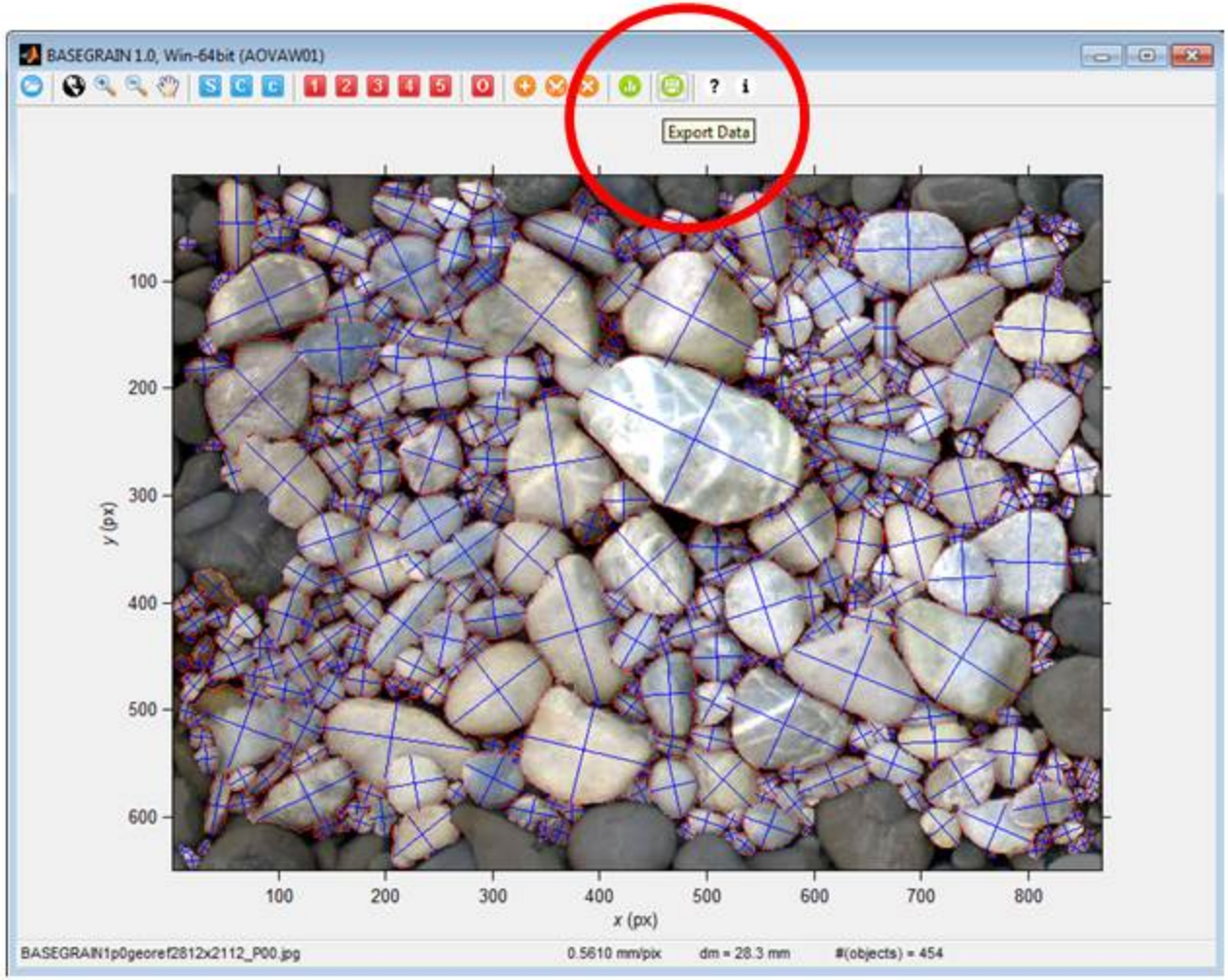
Export

- Click the *Export Data* button.



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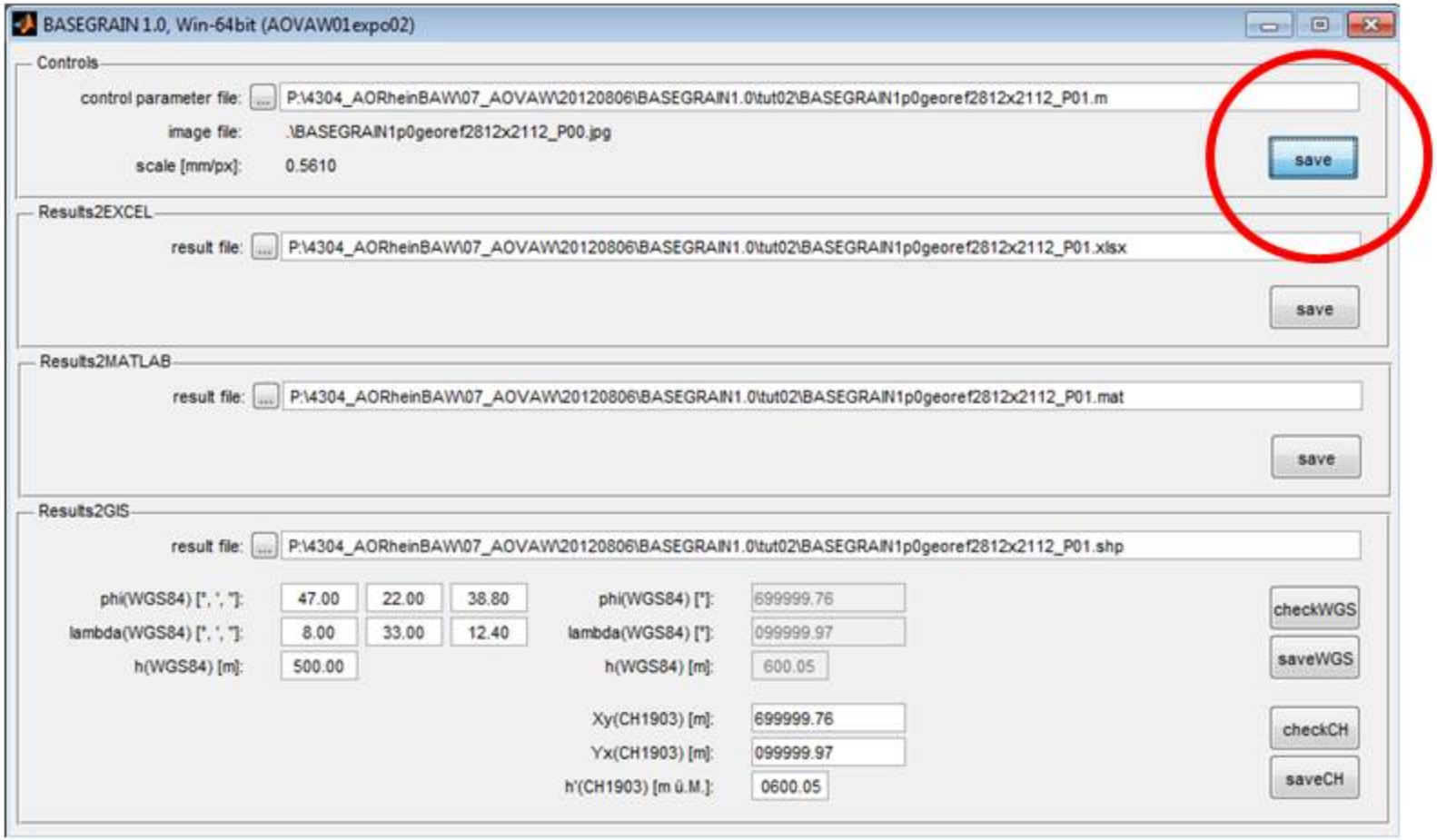
Export data to a control parameter file

- Save the control parameter as text file *.m.
- Open the file with a text editor.



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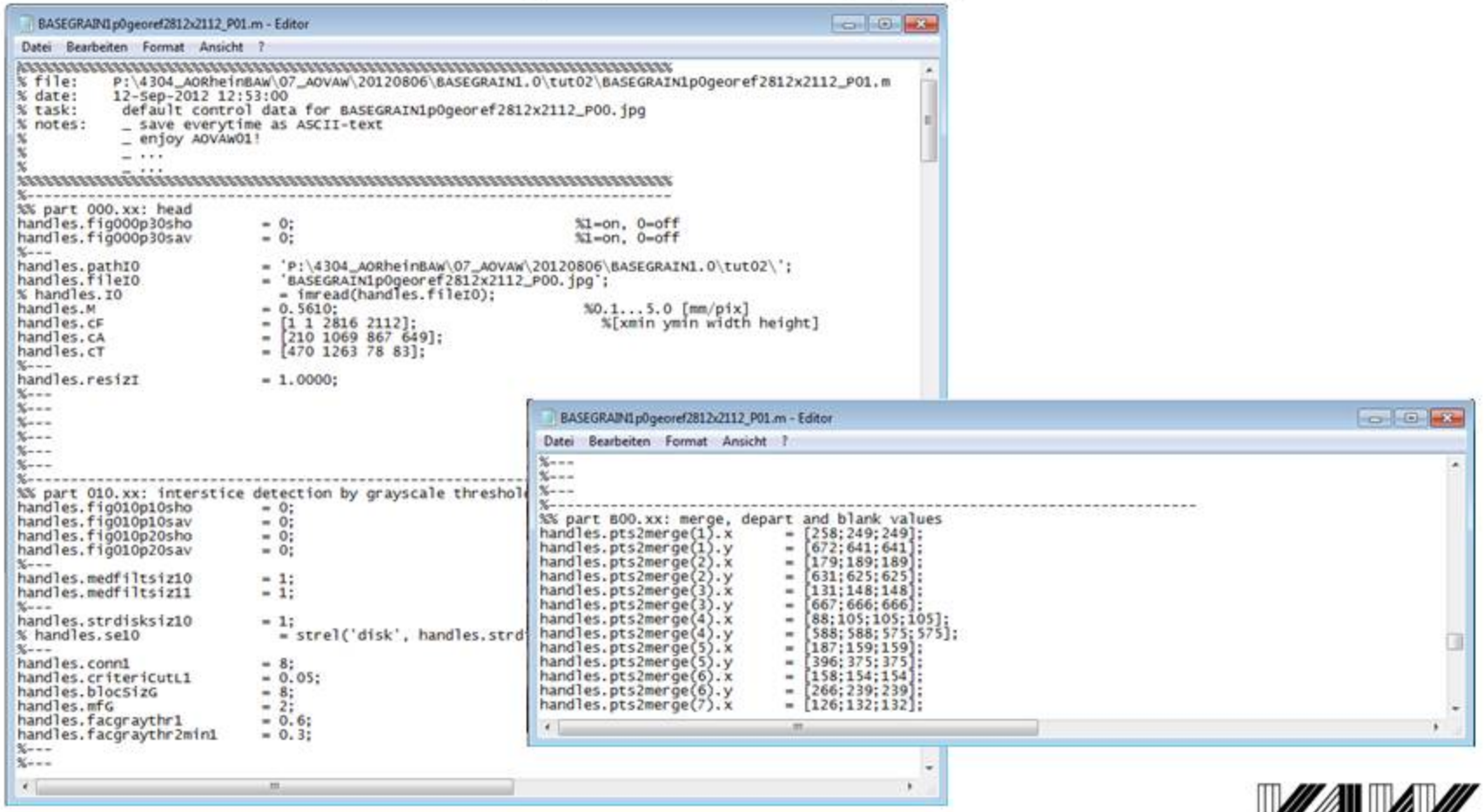
Export data to a control parameter file

- Explore the control parameter file.
  Note: To use the file for further analysis of images, you may change parameters or delete the lines behind '%% part B00.xx: merge, depart and blank values'.



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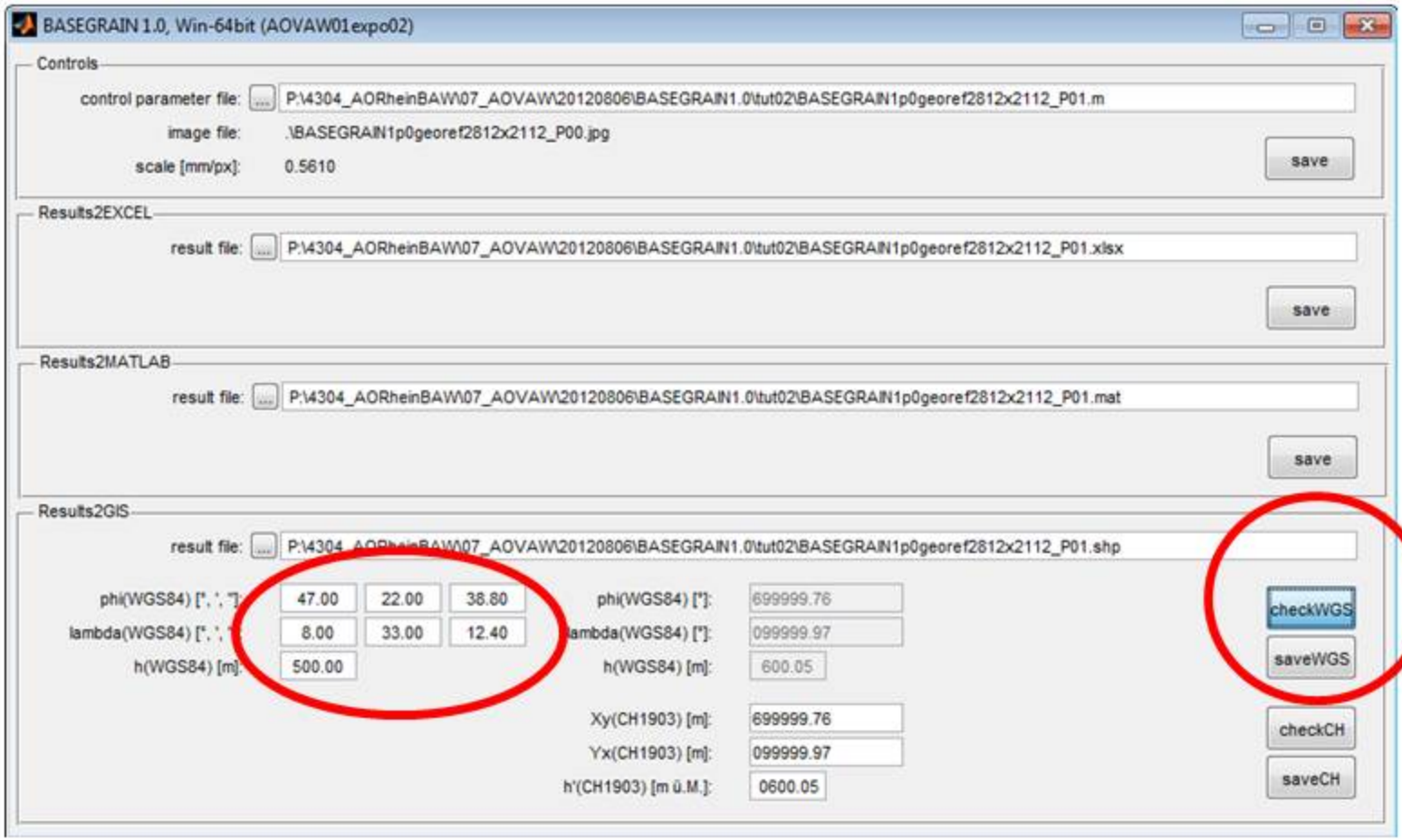
Export georeferenced results

- Click the *checkWGS* button to convert WGS84-coordinates from [°,',"] to [°].
  Note: You may change [°,',"]-data, especially in case of non geo-tagged photos.



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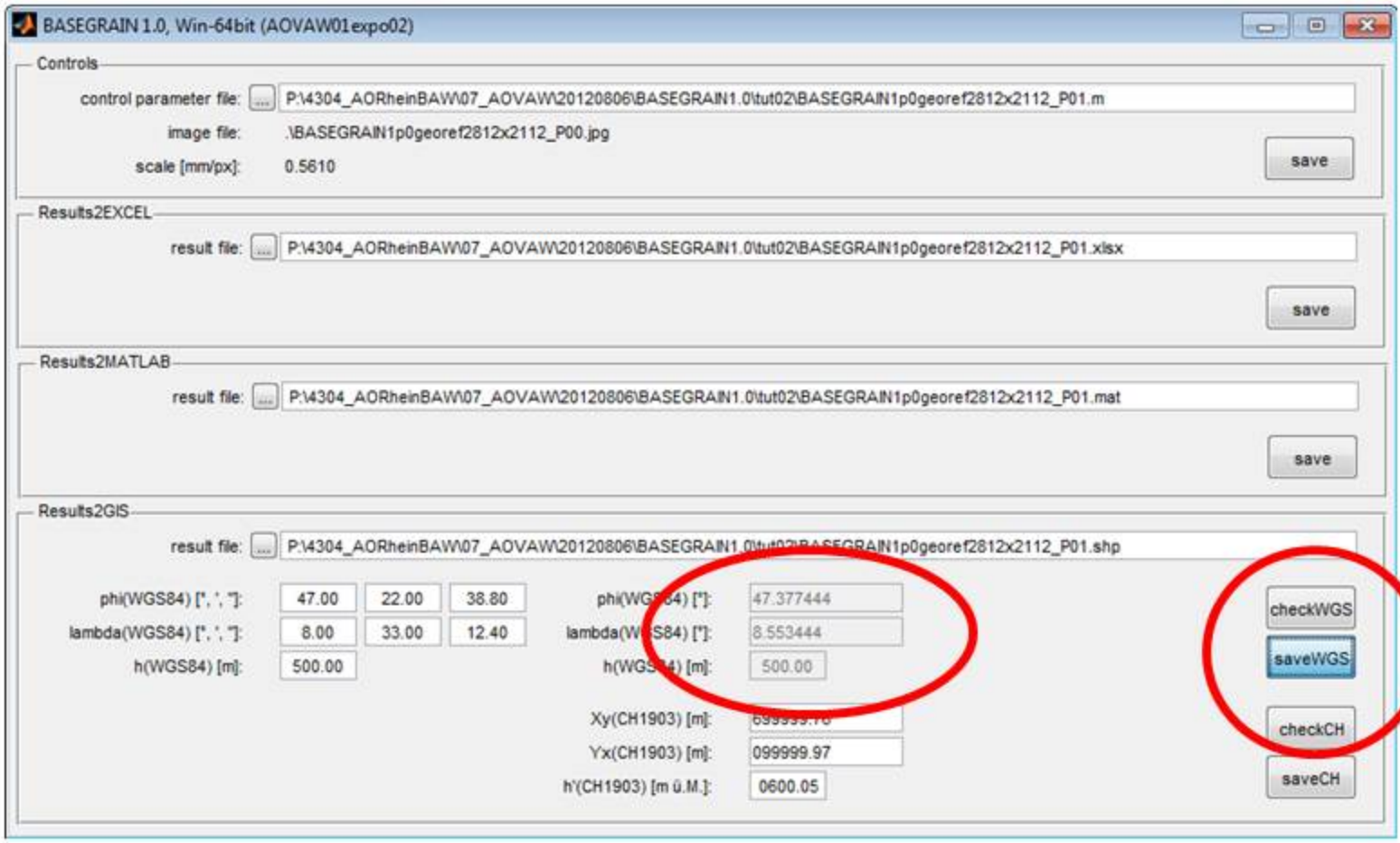
Export Data

- Click the *saveWGS* button to save the results to point *.shp and *.kml.
  *Note: You may save results to point *.shp in Swiss coordinate system as well.*



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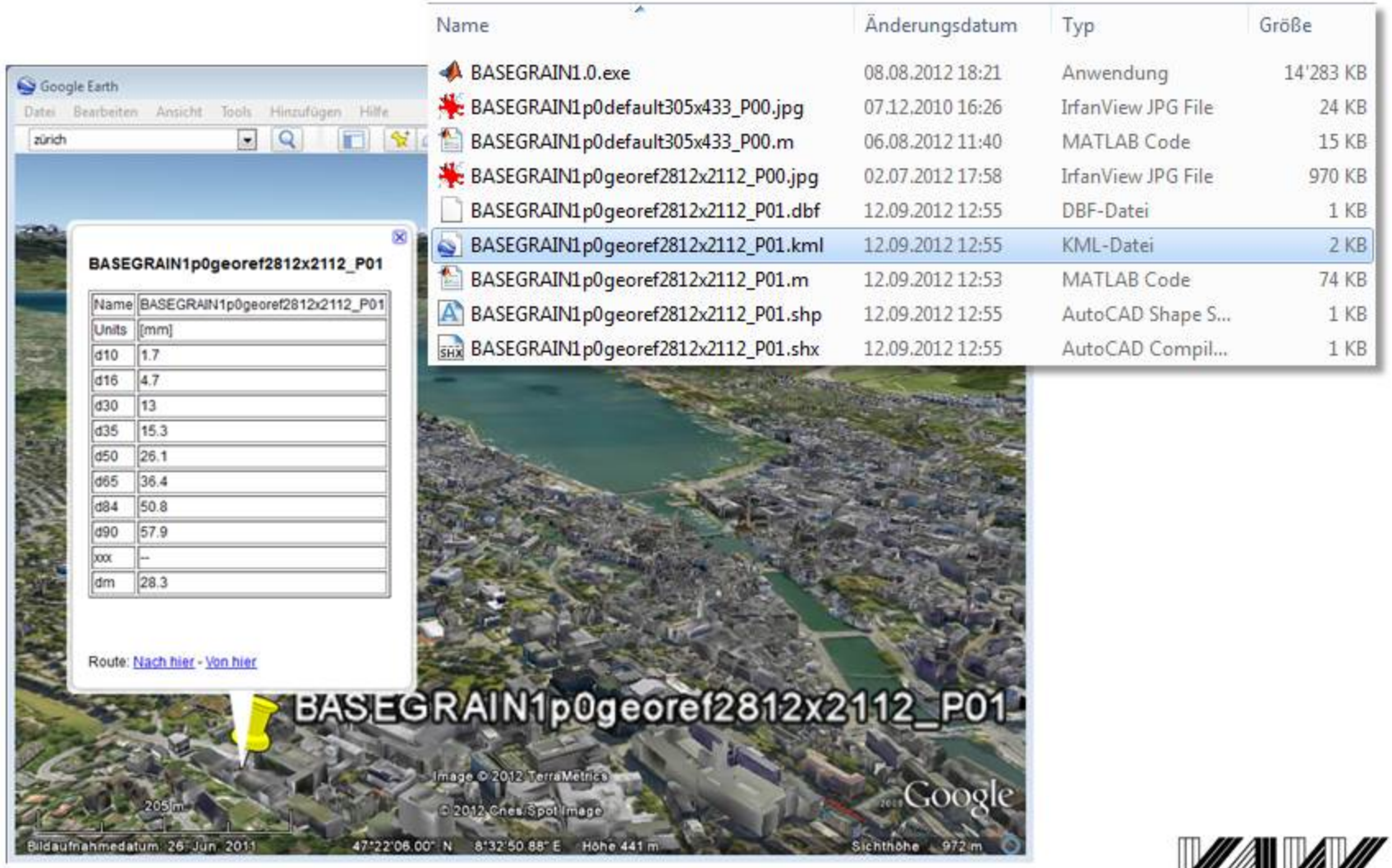
View Results

- Open the *.kml file, explore and enjoy the results.



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In Tutorial 02 you should have learned how to…
• Import a georeferenced image
• Scale and crop
• Tune analysis parameters
• Export data to a control parameter file
• Export georeferenced results
http://www.basement.ethz.ch/services/Tools/basegrain
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