
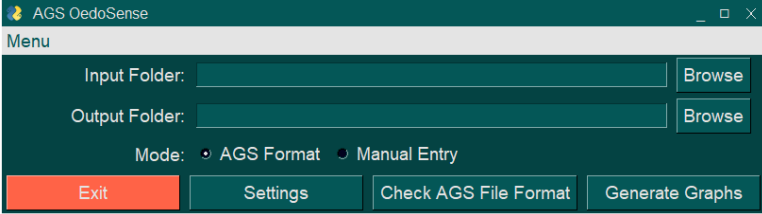
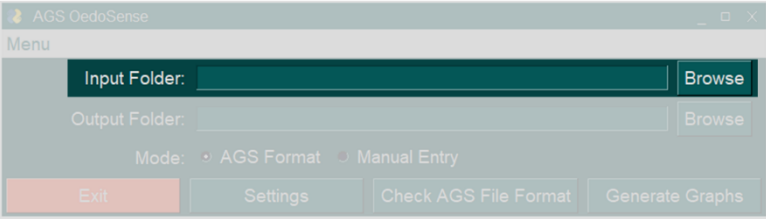
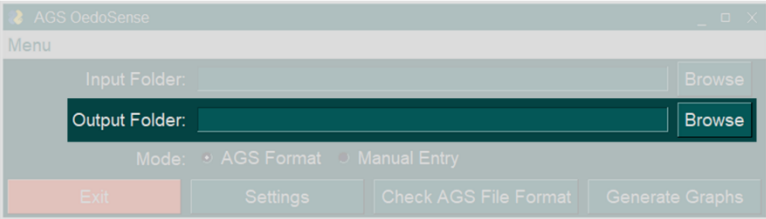

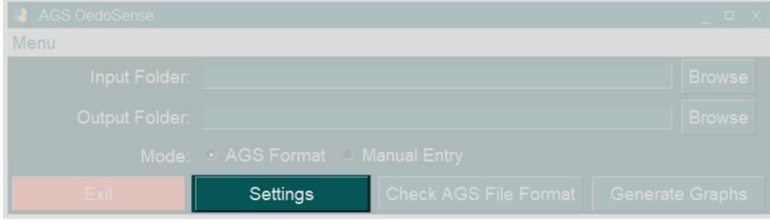
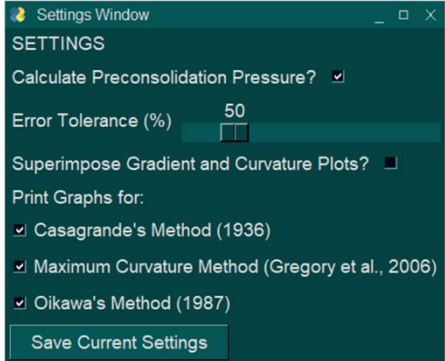
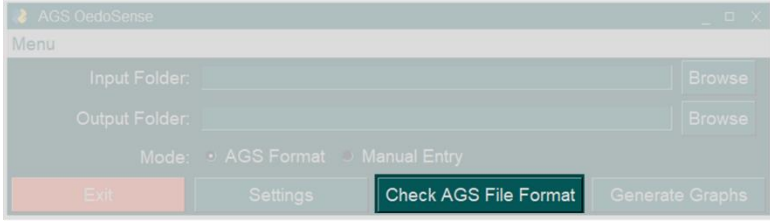


## APPENDIX: STEP-BY-STEP USER MANUAL

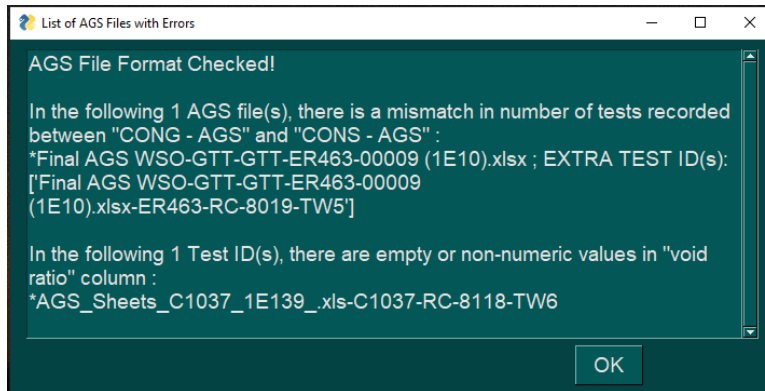
Getting Started with the *AGS OedoSense* application:

- Part A: Check preconsolidation pressure ( $p_c'$ ) for MS Excel files (in AGS format)
- Part B: Check preconsolidation pressure ( $p_c'$ ) for MS Excel files (with oedometer data manually entered)
- Part C: Prepare MS Excel file for manual entry of oedometer test data

Part A: Check preconsolidation pressure ( $p_c'$ ) for MS Excel files (in AGS format)	
Step	Details
A1	<p>Double-click on the icon to launch the application. You should see a loading screen immediately.</p> 
A2	<p>Once ready, a window will appear as such.</p> 
A3	<p>Click on “Browse” to select the input folder containing the MS Excel files (in AGS Format). All the MS Excel files within the folder will be read.</p> 
A4	<p>Click on “Browse” to select the output folder to store the results generated by the application.</p> 

<p><b>A5</b></p>	<p>Select the “AGS Format” mode.</p> 
<p><b>A6</b></p>	<p>Click on “Settings” to configure the settings.</p> 
<p><b>A7</b></p>	<p>A new “Settings” window will appear.</p> <ol style="list-style-type: none"> <li>Tick the box for “Calculate Preconsolidation Pressure?” if you wish to calculate <math>p_c'</math>. Else, leave it unticked and skip ahead to Step <b>A7(v)</b>.</li> <li>Adjust the slider for “Error Tolerance”. If the average percentage error between the <math>p_c'</math> in the MS Excel file and the calculated <math>p_c'</math> for the same oedometer test exceeds this error threshold, that specific oedometer test will be flagged up. It is recommended to use the default value of 50%.</li> <li>Tick the box for “Superimpose Gradient and Curvature Plots?” if you wish to plot the first derivative, the second derivative and the curvature of the fitted compressibility curve. This allows better understanding of how <math>p_c'</math> is calculated and will prove useful in troubleshooting unexpected results generated by the application.</li> <li>Tick the boxes for the interpretation methods you wish to generate the graph for.</li> <li>Once done, click on “Save Current Settings” to return to the main window.</li> </ol> 
<p><b>A8</b></p>	<p>Click on “Check AGS File Format” to check the AGS file format.</p> 

- A9** A list of MS Excel files with formatting error would be highlighted as such. Amend these MS Excel files with formatting errors.



Note: For illustration purposes, the values in the MS Excel file have been modified to the wrong format to generate the window above.

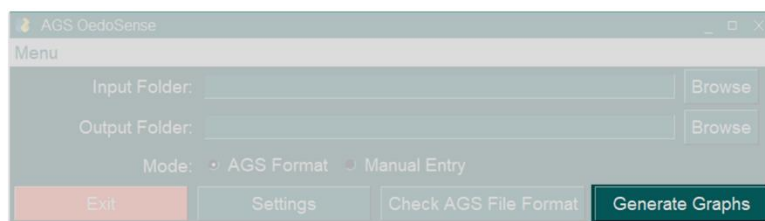
- A10** Click on “Check AGS File Format” to re-check the AGS file format.



- A11** Only proceed to Step **A12** when there are no further formatting errors highlighted. Else, repeat Step **A8-A10**.



- A12** Click on “Generate Graphs” to run the application and generate the results.



A13

A list of oedometer tests exceeding the error tolerance set would be highlighted as such.

Critical List of Tests which Exceeded Error Tolerance

Graphs Generated!

The following 1 test(s) exceeded the error threshold of 50.0%:  
\*3\_C1067\_00014 (1W77).xlsx-C1067-RC-20128-TW1

OK

Note: For illustration purposes,  $p_c$  in the MS Excel file has been updated to an erroneous value to generate the window above.

A14


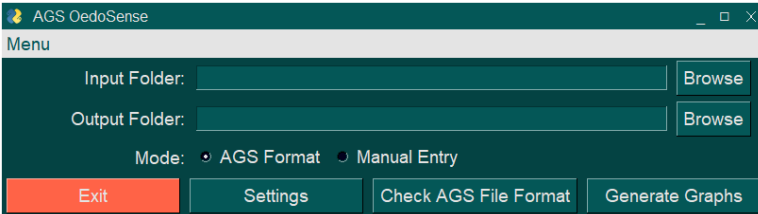
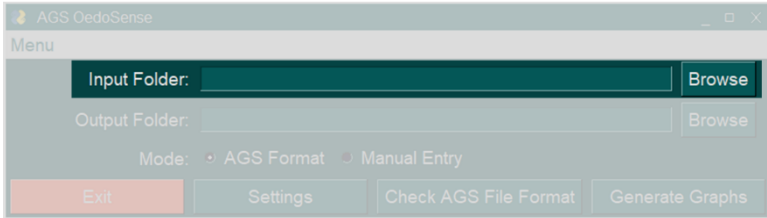
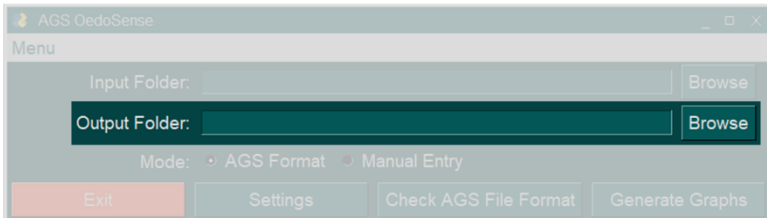
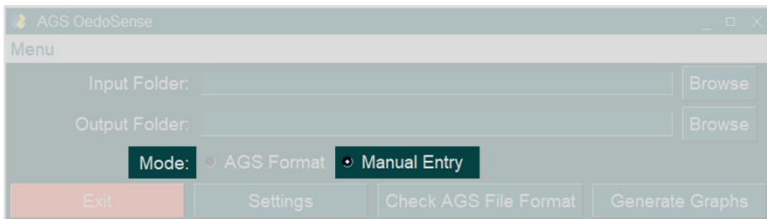
Navigate to the output folder to access the full results generated. This will include the graphs for each set of oedometer test data, as well as a MS Excel file that summarises the results.

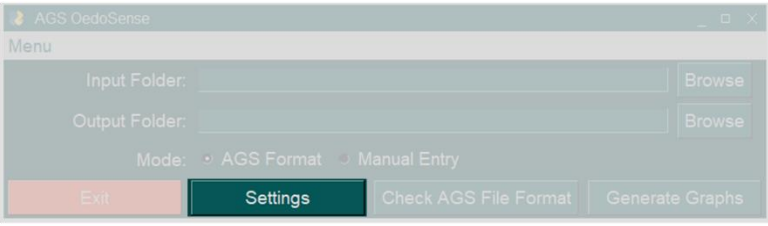
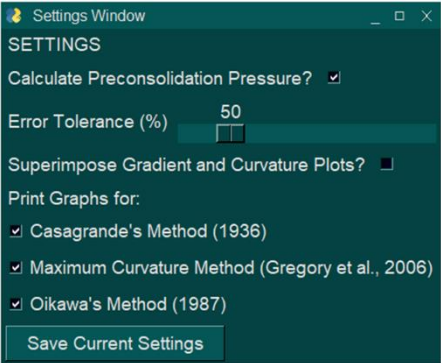
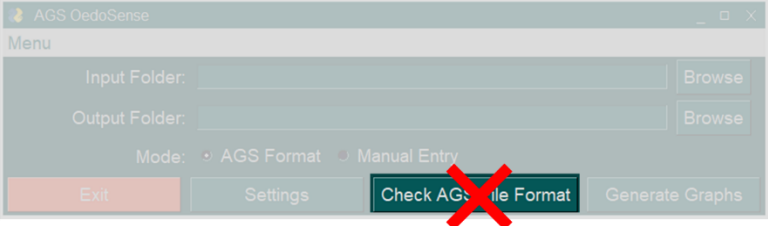

	14_C1067_00014 (1W77).xlsx-C1067-RC-20135-MZ5 Casagrande Method	01/03/2024 4:53 pm	Adobe Acrobat Document	27 KB
	14_C1067_00014 (1W77).xlsx-C1067-RC-20135-MZ5 Maximum Curvature Method	01/03/2024 4:53 pm	Adobe Acrobat Document	24 KB
	14_C1067_00014 (1W77).xlsx-C1067-RC-20135-MZ5 Oikawa Method	01/03/2024 4:53 pm	Adobe Acrobat Document	25 KB
	14_C1067_00014 (1W77).xlsx-C1067-RC-20135-MZ5 plot	01/03/2024 4:53 pm	Adobe Acrobat Document	21 KB
	15_C1067_00014 (1W77).xlsx-C1067-RC-20137-MZ8 Casagrande Method	01/03/2024 4:53 pm	Adobe Acrobat Document	24 KB
	15_C1067_00014 (1W77).xlsx-C1067-RC-20137-MZ8 Maximum Curvature Method	01/03/2024 4:53 pm	Adobe Acrobat Document	24 KB
	15_C1067_00014 (1W77).xlsx-C1067-RC-20137-MZ8 Oikawa Method	01/03/2024 4:53 pm	Adobe Acrobat Document	25 KB
	15_C1067_00014 (1W77).xlsx-C1067-RC-20137-MZ8 plot	01/03/2024 4:53 pm	Adobe Acrobat Document	21 KB
	16_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ4 Casagrande Method	01/03/2024 4:53 pm	Adobe Acrobat Document	26 KB
	16_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ4 Maximum Curvature Method	01/03/2024 4:53 pm	Adobe Acrobat Document	24 KB
	16_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ4 Oikawa Method	01/03/2024 4:53 pm	Adobe Acrobat Document	25 KB
	16_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ4 plot	01/03/2024 4:53 pm	Adobe Acrobat Document	21 KB
	17_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ7 Casagrande Method	01/03/2024 4:53 pm	Adobe Acrobat Document	26 KB
	17_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ7 Maximum Curvature Method	01/03/2024 4:53 pm	Adobe Acrobat Document	23 KB
	17_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ7 Oikawa Method	01/03/2024 4:53 pm	Adobe Acrobat Document	25 KB
	17_C1067_00014 (1W77).xlsx-C1067-RC-20138-MZ7 plot	01/03/2024 4:53 pm	Adobe Acrobat Document	21 KB
	cleaned_data_ags_mode	01/03/2024 4:53 pm	Microsoft Excel Worksheet	22 KB

A15

Repeat Step A3-A14 to generate results for another set of MS Excel files.

**Part B: Check preconsolidation pressure ( $p_c'$ ) for MS Excel files (with oedometer data manually entered)**

Step	Details
<b>B1</b>	<p>Double-click on the icon to launch the application. You should see a loading screen immediately.</p> 
<b>B2</b>	<p>Once ready, a window will appear as such.</p> 
<b>B3</b>	<p>Click on “Browse” to select the input folder containing the MS Excel file (with oedometer data manually entered). Refer to instructions given in <b>Part C</b> to prepare the MS Excel file in the correct data format. All the MS Excel files within the folder will be read.</p> 
<b>B4</b>	<p>Click on “Browse” to select the output folder to store the results generated by the application.</p> 
<b>B5</b>	<p>Select the “Manual Entry” mode.</p> 

<p><b>B6</b></p>	<p>Click on “Settings” to configure the settings.</p> 
<p><b>B7</b></p>	<p>A new “Settings” window will appear.</p> <ol style="list-style-type: none"> <li>Tick the box for “Calculate Preconsolidation Pressure?” if you wish to calculate <math>p_c'</math> value. Else, leave it unticked and skip ahead to Step <b>B7(v)</b>.</li> <li>Adjust the slider for “Error Tolerance”. If the average percentage error between the <math>p_c'</math> in the MS Excel file and the calculated <math>p_c'</math> for the same oedometer test exceeds this error threshold, that specific oedometer test will be flagged up. It is recommended to use the default value of 50%.</li> <li>Tick the box for “Superimpose Gradient and Curvature Plots?” if you wish to plot the first derivative, the second derivative and the curvature of the fitted compressibility curve. This allows better understanding of how <math>p_c'</math> is calculated and will prove useful in troubleshooting unexpected results generated by the application.</li> <li>Tick the boxes for the interpretation methods you wish to generate the graph for.</li> <li>Once done, click on “Save Current Settings” to return to the main window.</li> </ol> 
<p><b>B8</b></p>	<p>Do <u>NOT</u> Click on “Check AGS File Format”. If the MS Excel file has been filled up as per the instructions given in <b>Part C</b>, there should be no issues with the data format.</p> 
<p><b>B9</b></p>	<p>Click on “Generate Graphs” to run the application and generate the results.</p> 

B10	<p>A list of oedometer tests exceeding the error tolerance set would be highlighted as such.</p> <div><div>Critical List of Tests which Exceeded Error Tolerance</div><div><div>Graphs Generated!</div><div>The following 1 test(s) exceeded the error threshold of 50.0%: *0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1</div><div>OK</div></div></div> <p>Note: For illustration purposes, <math>p_c</math> in the MS Excel file has been updated to an erroneous value to generate the window above.</p>																																								
B11	<p>Navigate to the output folder to access the full results generated. This will include the graphs for each set of oedometer test data, as well as a MS Excel file that summarises the results.</p> <table><thead><tr><th>Name</th><th>Date modified</th><th>Type</th><th>Size</th></tr></thead><tbody><tr><td> 0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Casagrande Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>24 KB</td></tr><tr><td> 0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Maximum Curvature Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>24 KB</td></tr><tr><td> 0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Oikawa Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>25 KB</td></tr><tr><td> 0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 plot</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>21 KB</td></tr><tr><td> 1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Casagrande Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>26 KB</td></tr><tr><td> 1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Maximum Curvature Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>23 KB</td></tr><tr><td> 1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Oikawa Method</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>25 KB</td></tr><tr><td> 1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 plot</td><td>01/03/2024 6:10 pm</td><td>Adobe Acrobat Document</td><td>21 KB</td></tr><tr><td> cleaned_data_manual_mode</td><td>01/03/2024 6:10 pm</td><td>Microsoft Excel Worksheet</td><td>7 KB</td></tr></tbody></table>	Name	Date modified	Type	Size	0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Casagrande Method	01/03/2024 6:10 pm	Adobe Acrobat Document	24 KB	0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Maximum Curvature Method	01/03/2024 6:10 pm	Adobe Acrobat Document	24 KB	0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 Oikawa Method	01/03/2024 6:10 pm	Adobe Acrobat Document	25 KB	0_Manual_Mode_Template.xlsx-C1067-RC-20127-TW1 plot	01/03/2024 6:10 pm	Adobe Acrobat Document	21 KB	1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Casagrande Method	01/03/2024 6:10 pm	Adobe Acrobat Document	26 KB	1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Maximum Curvature Method	01/03/2024 6:10 pm	Adobe Acrobat Document	23 KB	1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 Oikawa Method	01/03/2024 6:10 pm	Adobe Acrobat Document	25 KB	1_Manual_Mode_Template.xlsx-C1067-RC-20127-PS1 plot	01/03/2024 6:10 pm	Adobe Acrobat Document	21 KB	cleaned_data_manual_mode	01/03/2024 6:10 pm	Microsoft Excel Worksheet	7 KB
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cleaned_data_manual_mode	01/03/2024 6:10 pm	Microsoft Excel Worksheet	7 KB																																						
B12	<p>Repeat Step <b>B3-B11</b> to generate results for another set of MS Excel files.</p>																																								

## Part C: Prepare MS Excel file for manual entry of oedometer test data

Step	Details
C1	Download the MS Excel file named “Manual_Mode_Template.xlsx” from <a href="#">GitHub</a> . You may rename the MS Excel file if you wish.
C2	<p>Navigate to the MS Excel sheet named “main (to be updated)”. Do <b>NOT</b> change this sheetname. Fill up column A to column D with all the oedometer test data of interest – for this, you may refer to the format given in the MS Excel sheet named “template (for reference)”.</p> 