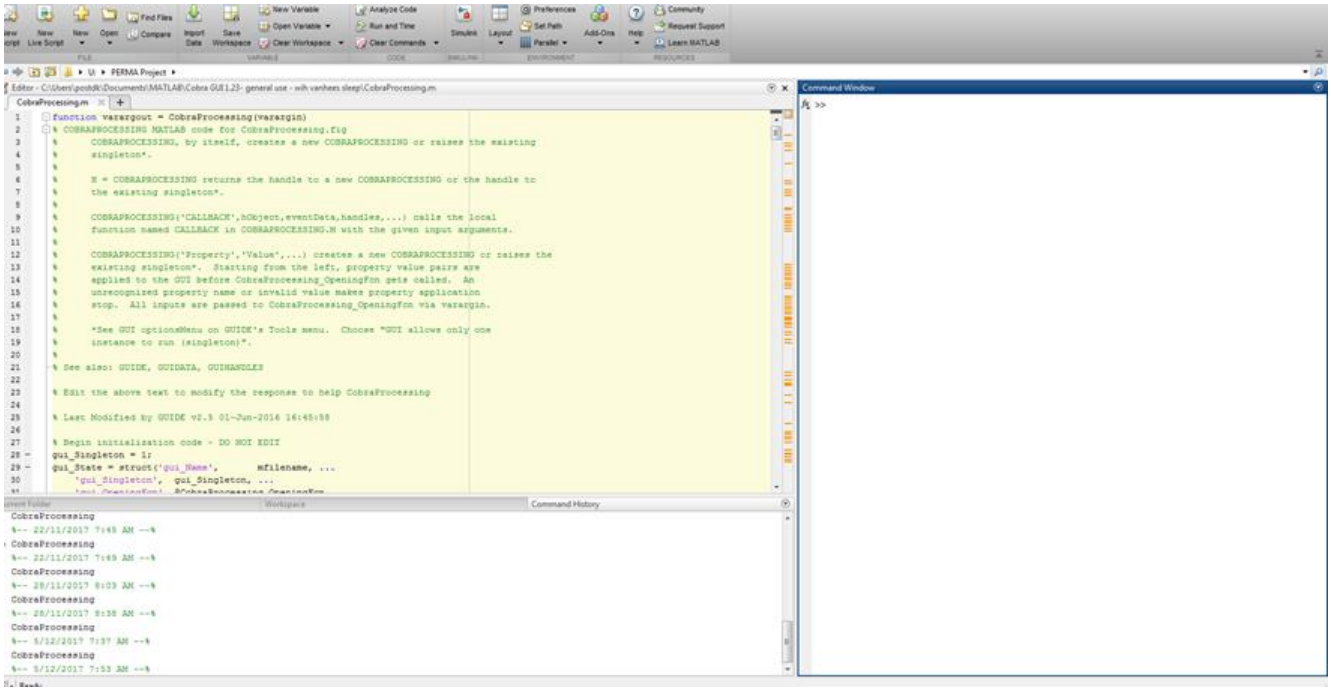
MATLAB GENEActiv Analysis Standard Operating Procedure

Prior to running analyses:

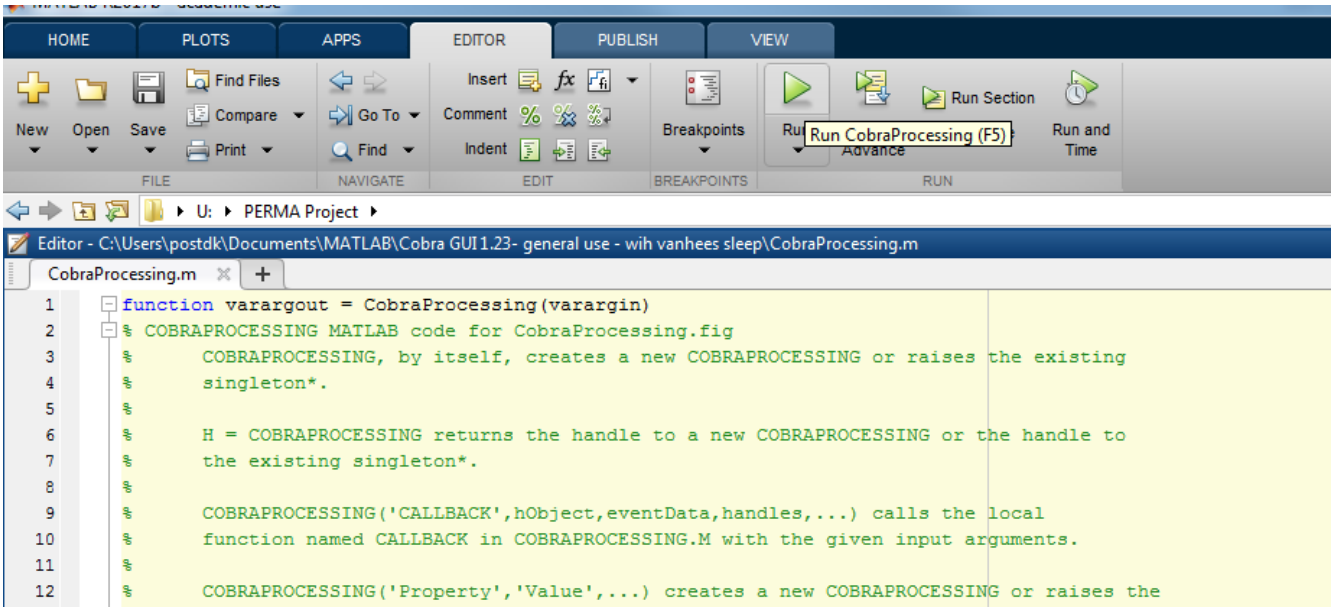
All converted GENEActiv csv. files should be in the same folder.

All sleep logs should be entered into the separate sleep log excel file. The file name of each entry in the sleep log should be exactly the same as the file name that is to be analysed. The only difference is the '.csv'; this should not be included in the file names in the sleep log file.

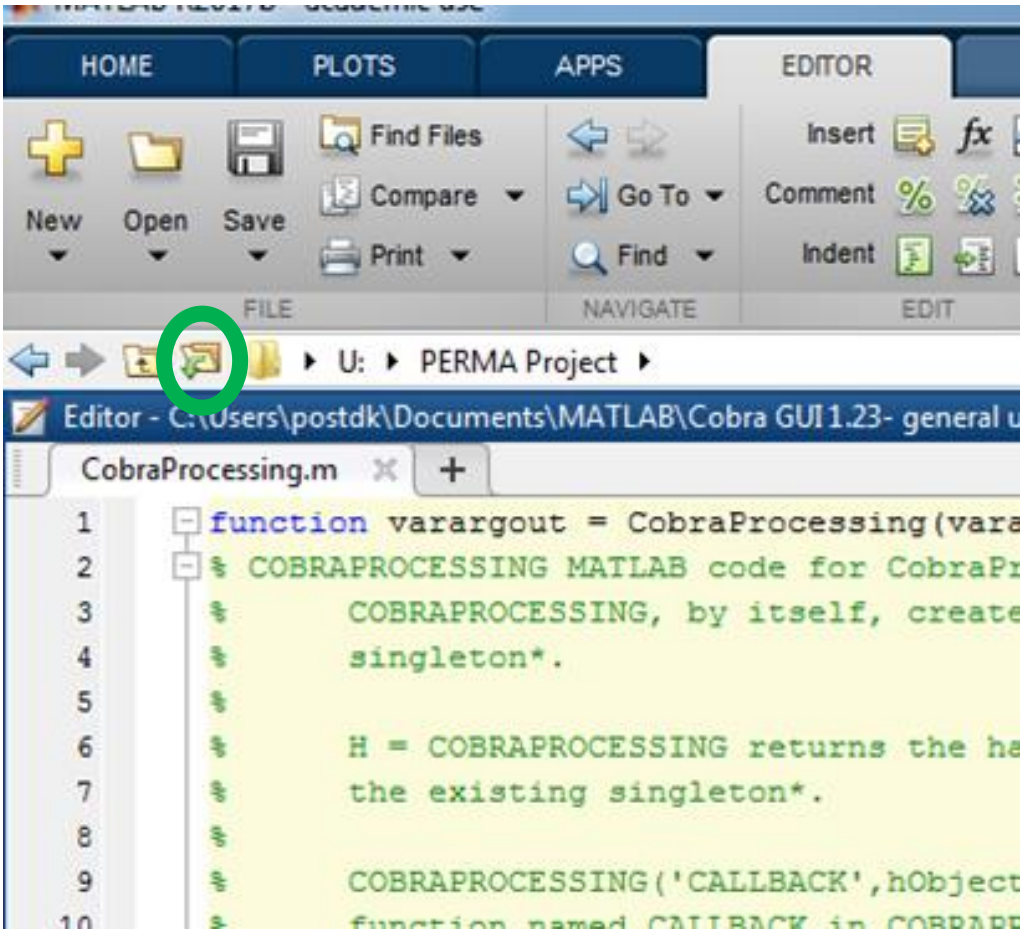
Open the MATLAB program. On doing so, you'll see the following interface:



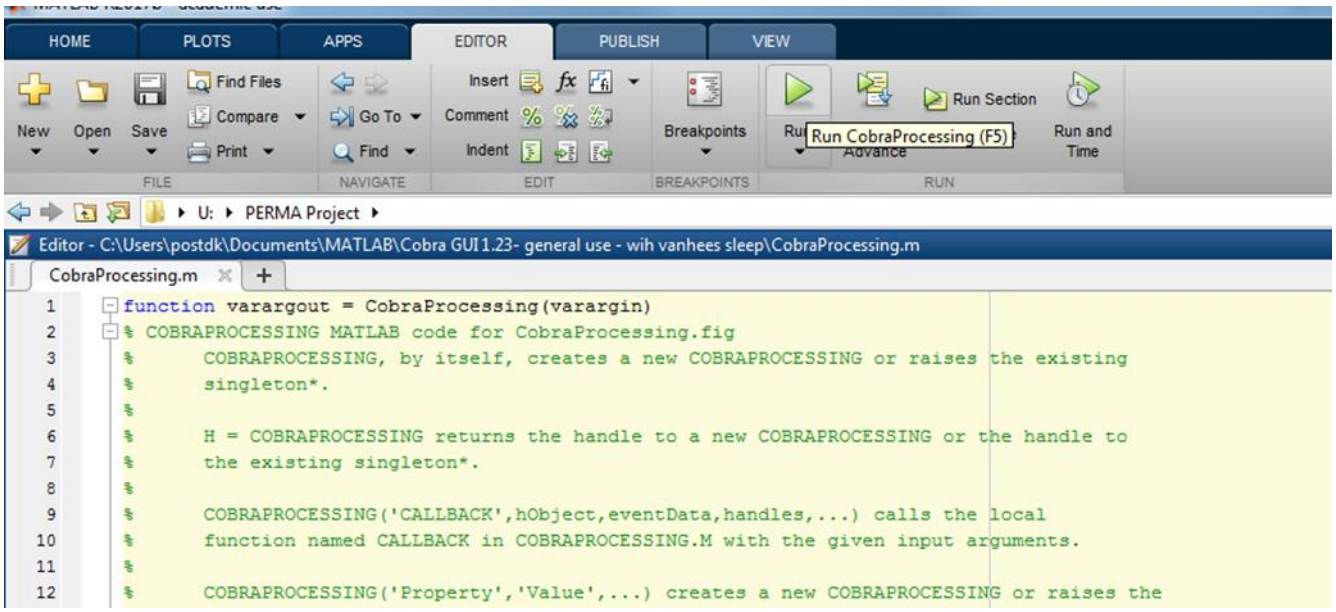
Click into the yellow screen to bring up the icons up the top that include 'Run'.

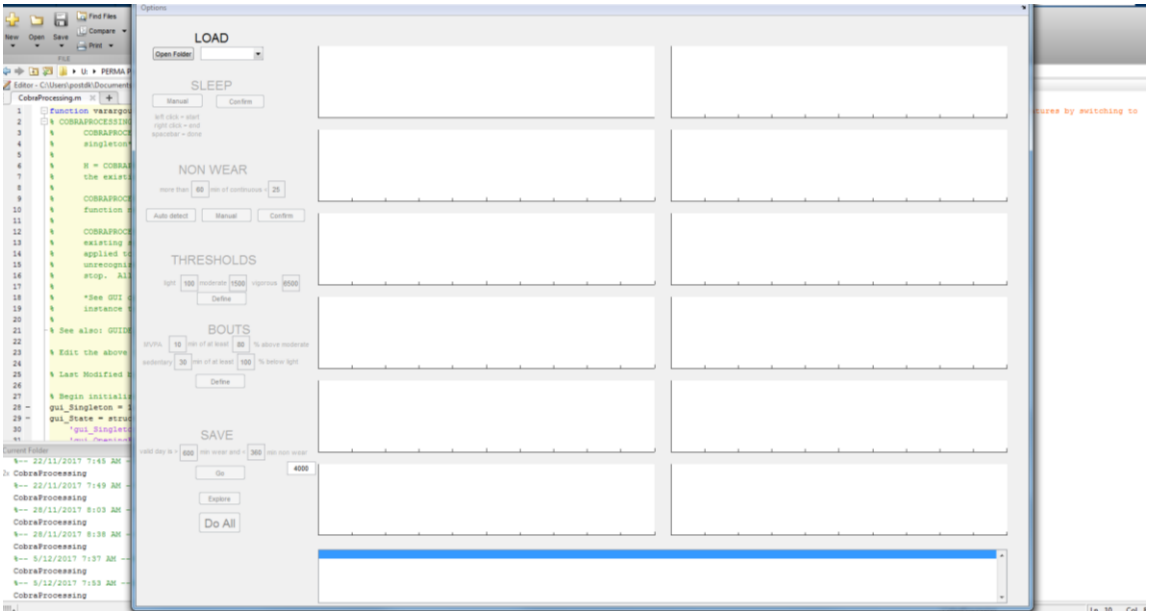


On the MATLAB interface, you can click the **Browse for folder** icon to change the path such that the program automatically links to the folder that the files are stored in.

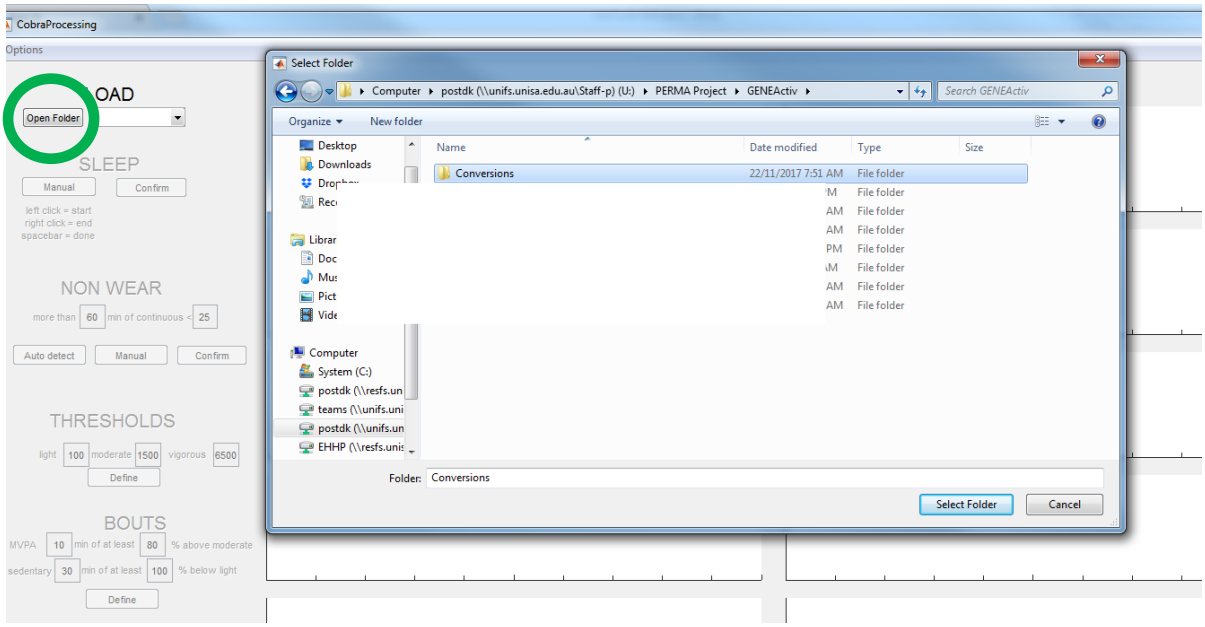


Click on **Run** to open the analysis interface.

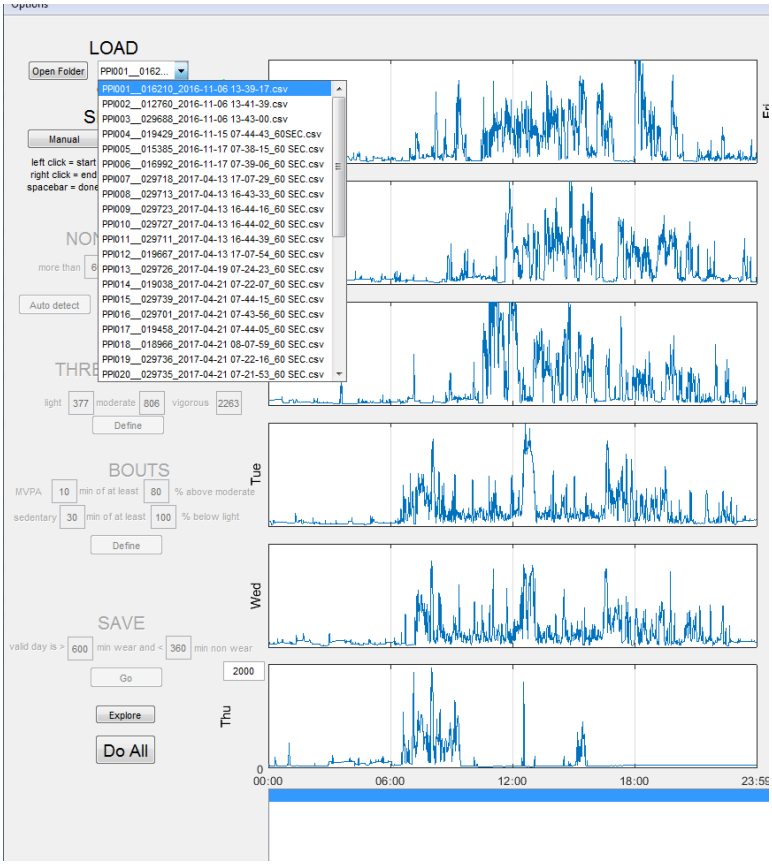




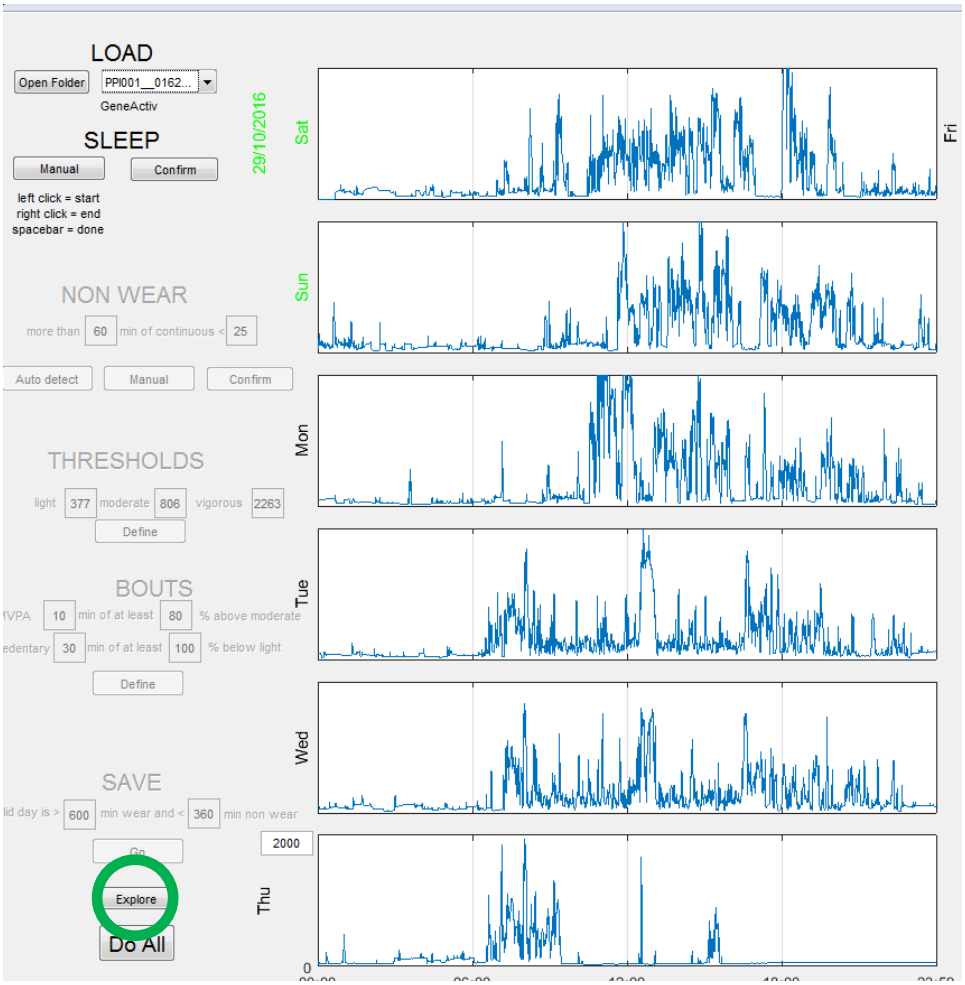
Once this appears, click on '**Open folder'**, find the folder that contains the converted GENEA files, and enter this.



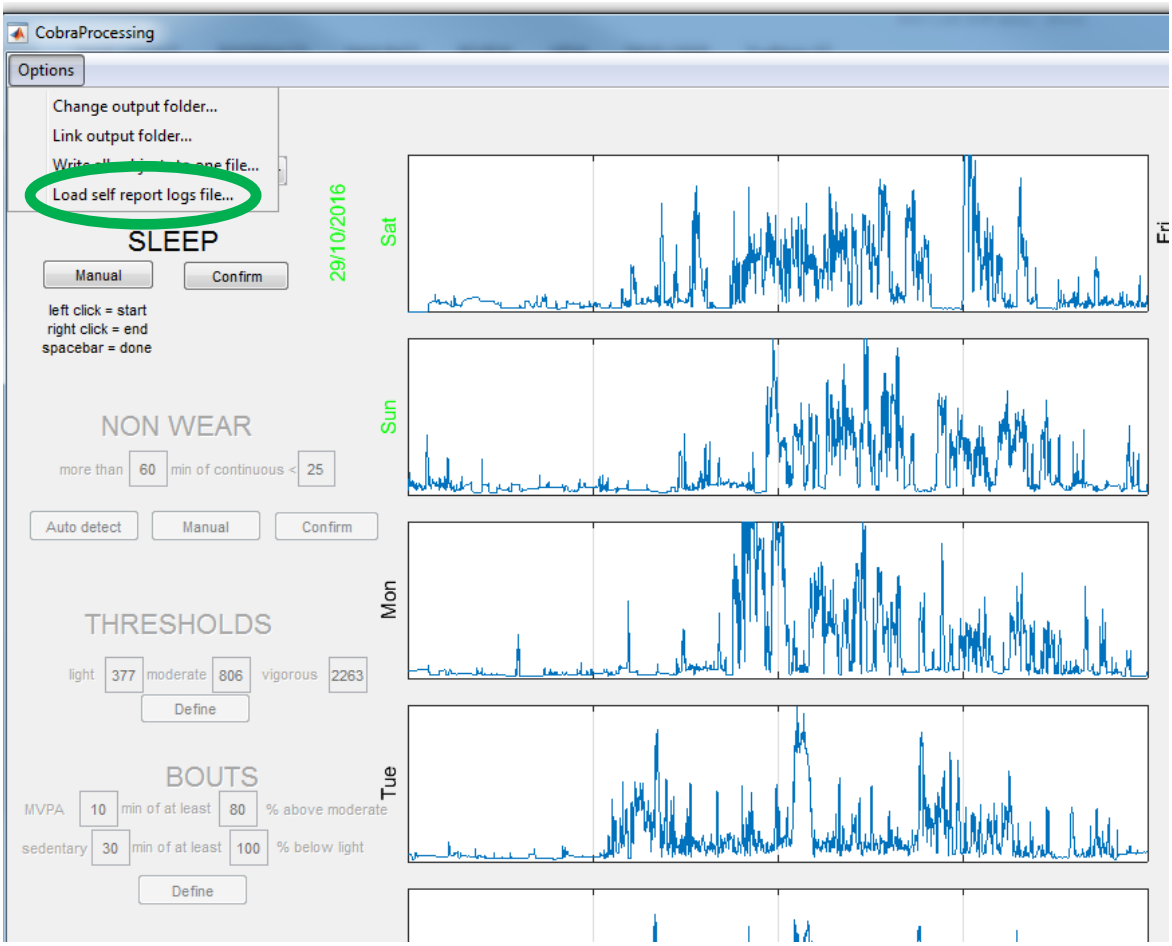
The files will now appear one at a time, in the drop-down box. Select the file you wish to analyse.

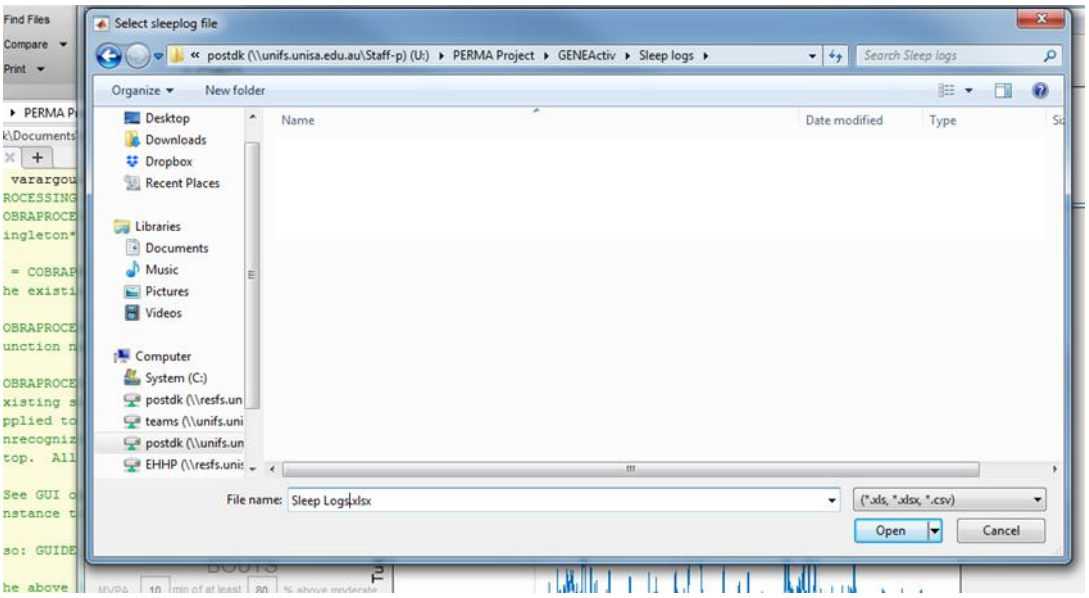


Clicking **Explore**, towards the base of the screen, will allow you to view the time of day at each point as the mouse hovers over it.

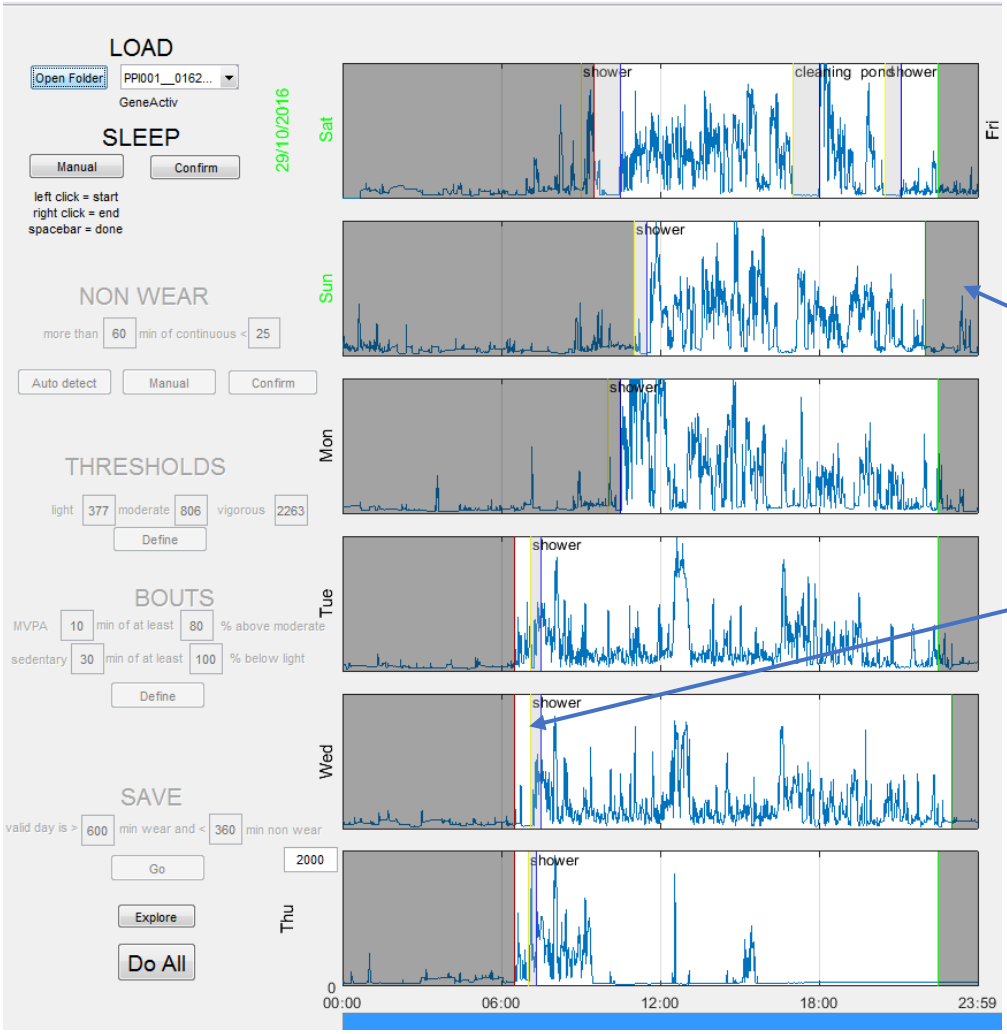


In the top left-hand corner, click on **Options**, and click on **Load self-report log file**. This will enable you to select and open the relevant sleep logs.





At this point, if the file has a corresponding sleep log, the sleep and non-wear times will automatically be entered in the analysis. If a reason for non-wear has been included in the sleep log, it will appear on the analysis (see next figure). If the times provided in the sleep-log do not appear to correspond to the actual times of sleep and non-wear, these can be amended manually.

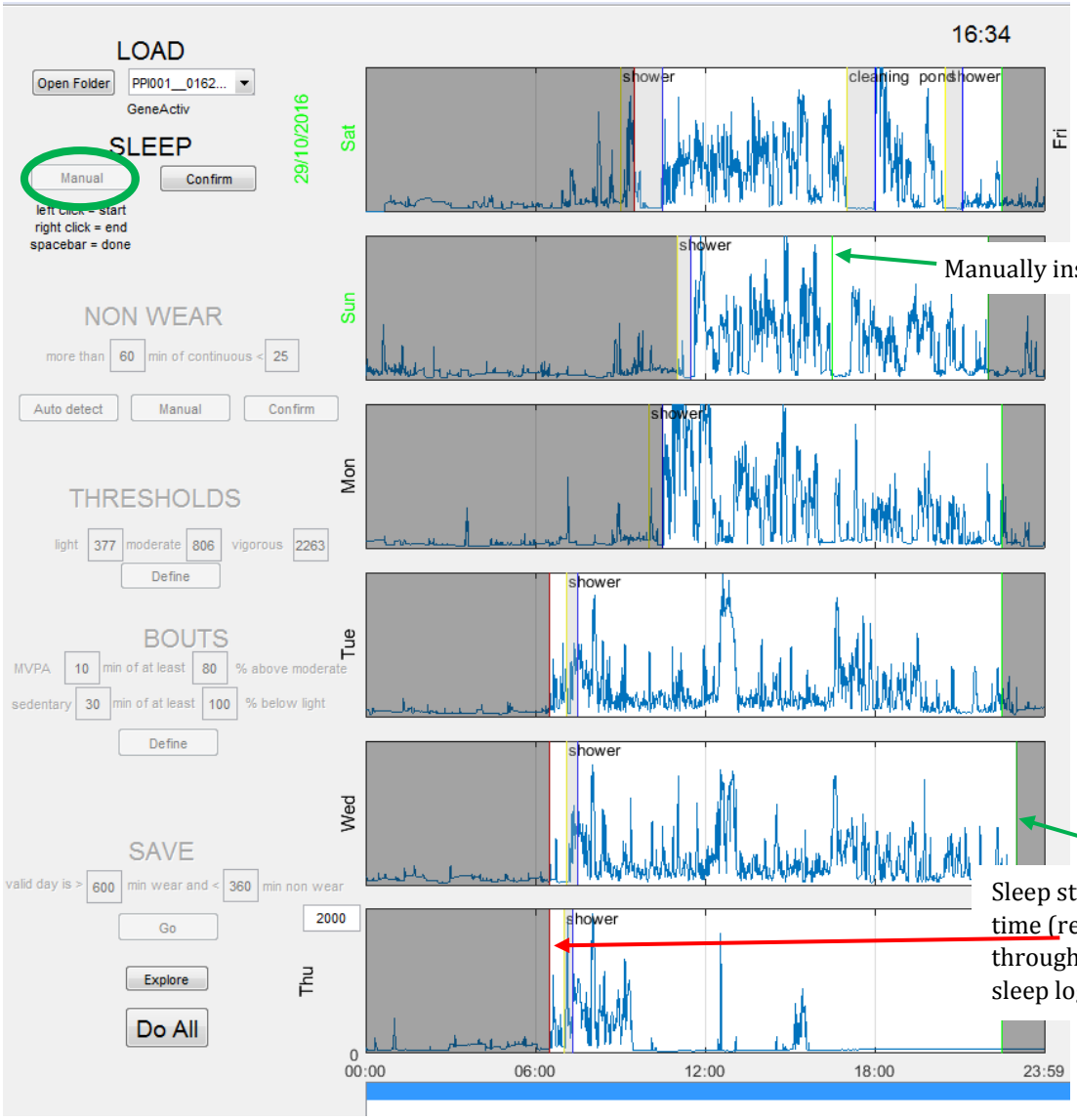


Automatically inserted sleep and non-wear times, including reason for non-wear.

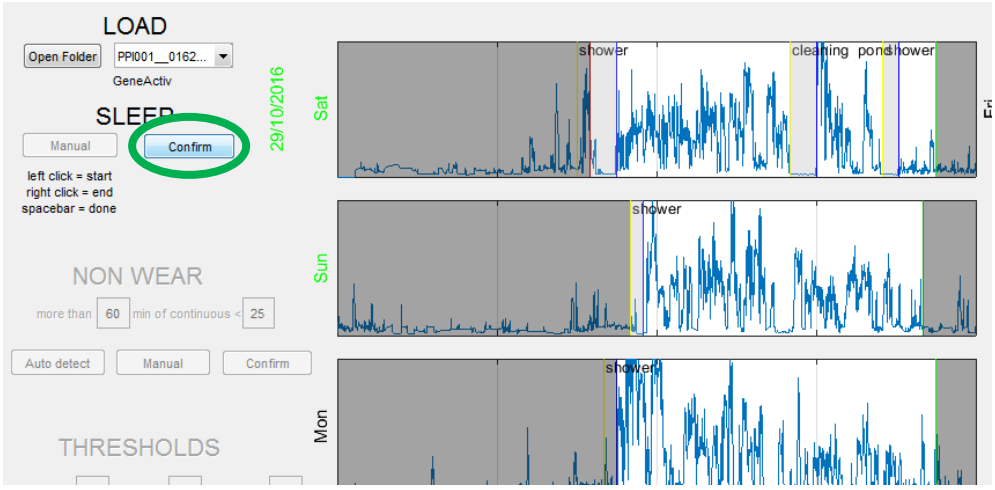
Sleep:

Click on **Manual**. You may need to alter the time that has been automatically input from the sleep log if it is incorrect when visualising the data. To delete the incorrect existing time, hover the crosshair over the green line, and press delete. Repeat this for the red line. If you only want to move the line slightly, click near it to move it over to the required location.

To input a block of sleep, move the mouse to place the crosshair at the appropriate start time, then left click the mouse; this will insert a green line, indicating the start of the sleep period. To end the sleep period, hover the crosshair over the appropriate end time, then right click the mouse; this will insert a red line; indicating the end of the sleep period.

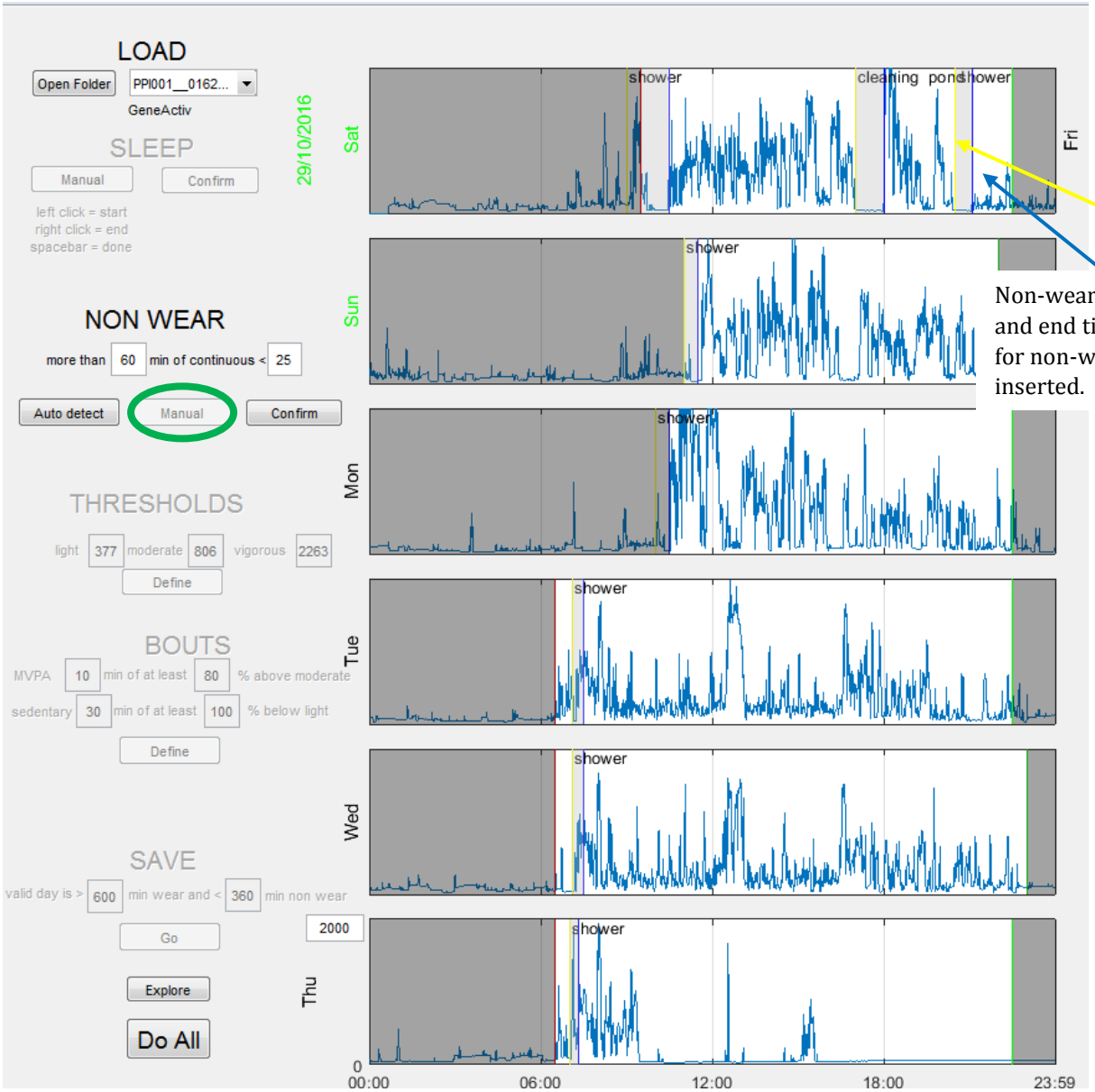


Once you are happy with the sleep times, press the **space bar**; this will fill in each of the sleep periods. Then click **Confirm** to complete the sleep analyses and move to the next phase.



Non-wear:

If non-wear periods that have been entered from the sleep log are correct, there is no need to manually adjust them; just click **Confirm**. If the non-wear periods are incorrect, or require the inclusion of additional non-wear periods, click **Manual** to activate. To delete incorrectly identified non-wear periods, repeat the process applied to sleep (i.e. hover over timepoint and delete). To commence a non-wear period, hover over the appropriate timepoint and left click the mouse, to insert a yellow line; this indicates the start of the non-wear period. To indicate the end of a non-wear period, hover over the appropriate timepoint and right click the mouse; this will insert a blue line.



Non-wear start time (yellow) and end times (blue), and reason for non-wear automatically inserted.

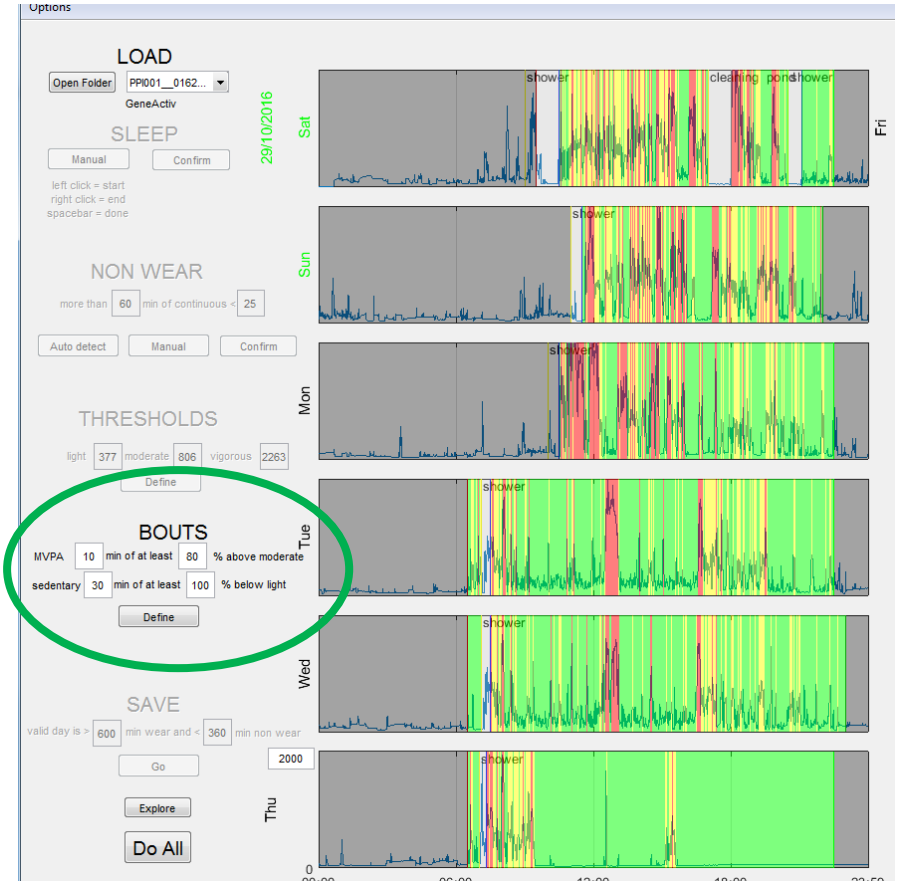
Once you are happy with the non-wear times, press the **space bar**; this will fill in each of the non-wear periods. Then click **Confirm**.

<u>It is advisable not to select the automatic option for non-wear.</u>

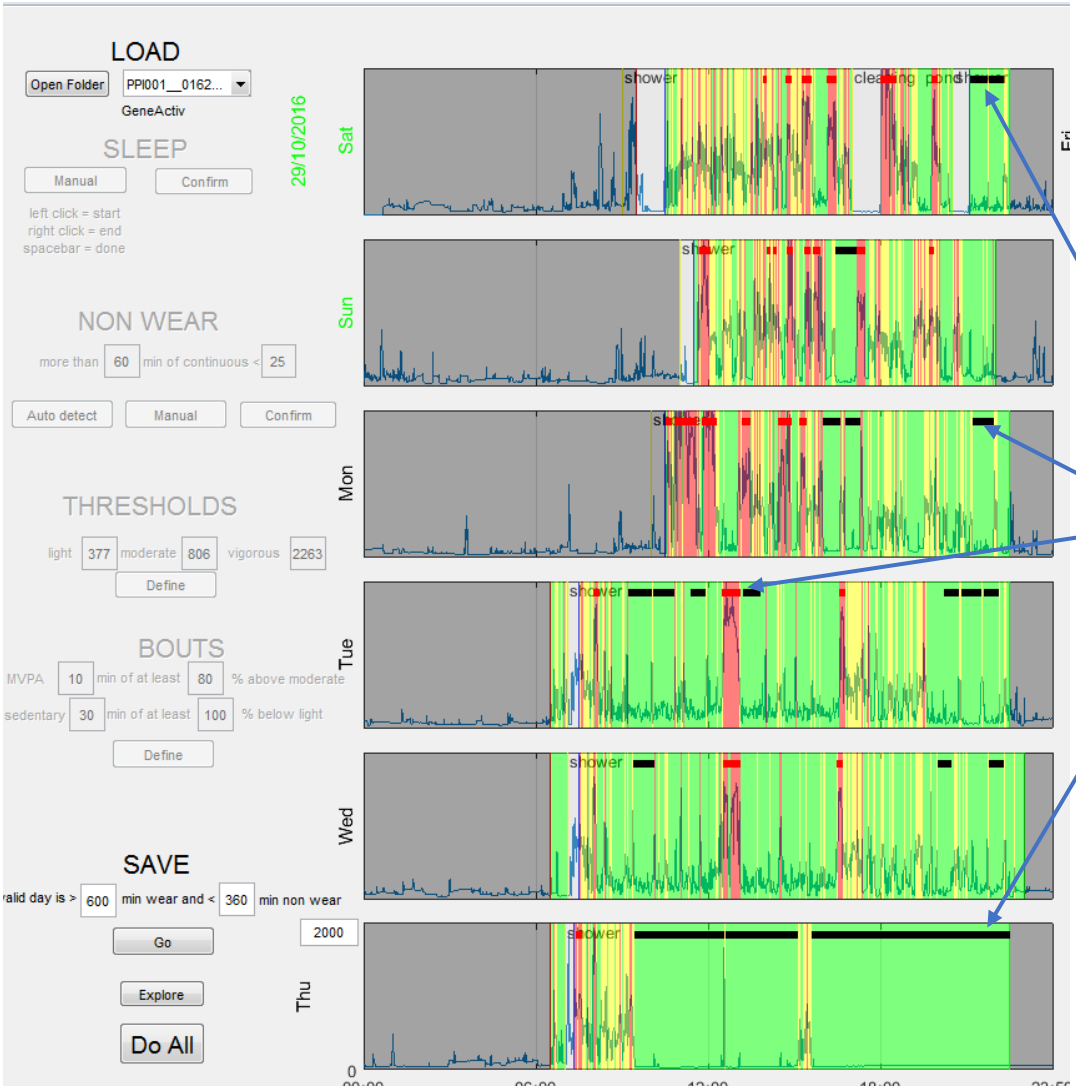
Thresholds:

The thresholds to assess and indicate sedentary, MVPA, vigorous activity can be entered here. These thresholds are available from Francois, in a separate excel file. When the appropriate thresholds have been entered, click **Define**.

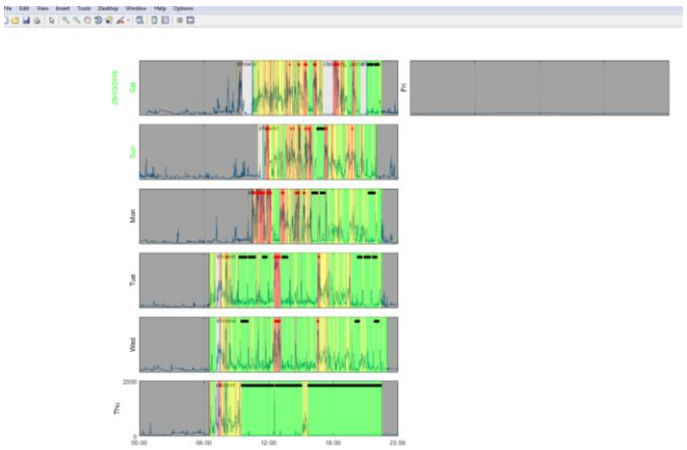
Levels of activity then appear on the analysis; green for sedentary, yellow for MVPA, and red for vigorous physical activity. **Bouts** are then selected, based on periods of time spent sedentary, in MVPA, or in vigorous activity. These can be adjusted to suit your requirements.



Once Bout values are entered, click **Define**; bouts are then indicated on the analysis.

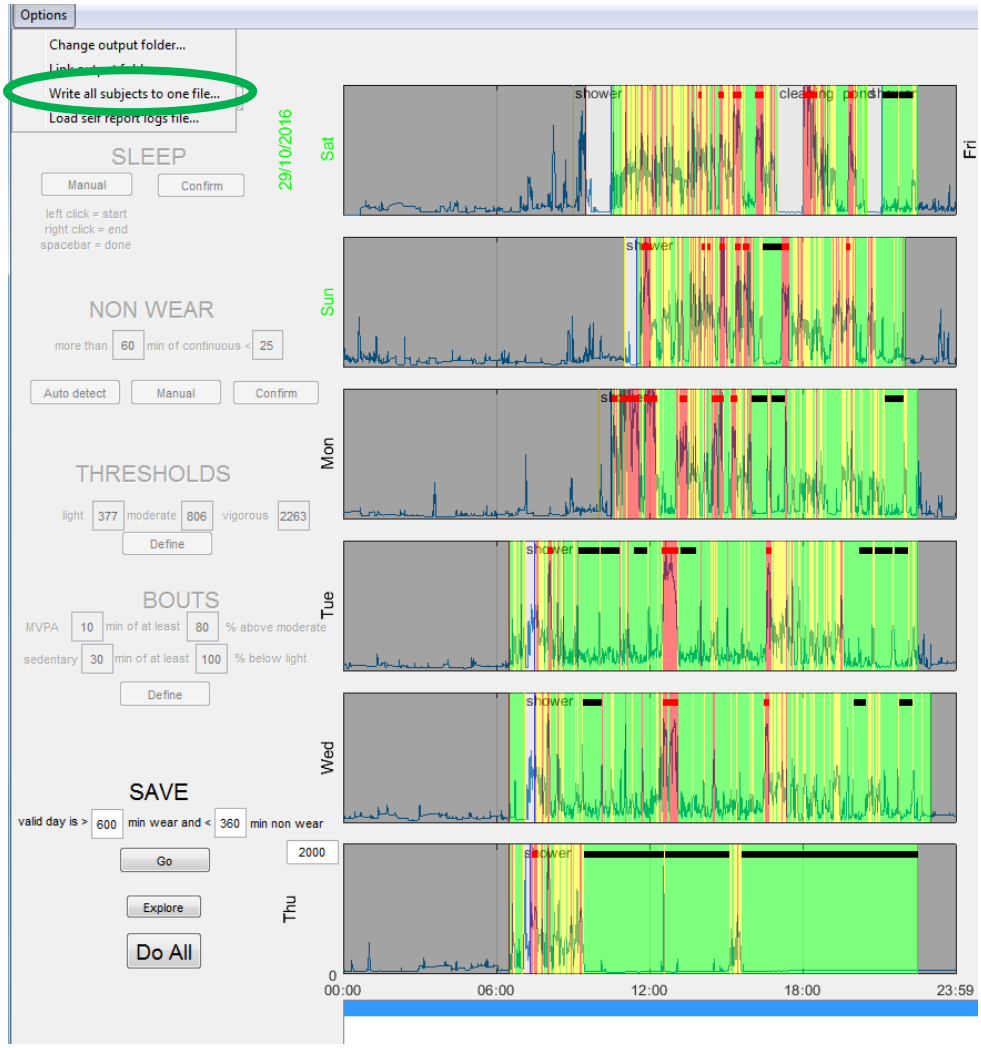


The **Save** option enables selection of what constitutes a valid day, based on the minimum periods of wear and non-wear. Once selected, click **Go**, at which point an individual figure/image of the analysis is generated. When this disappears, the next file is ready to be analysed. This file can be selected from the drop-down box at the top of the analysis interface.



When all files have been analysed, you can click on the **Options** menu to bring up the '**Write results to one file**' option. This will create a single excel spreadsheet that contains all of the data files.

Individual files, and the 'all results' file are contained in a Results folder. This folder should be suitably named. It can be re-accessed to view the analyses.



End of SOP.