Start Window

In the start window (Figure 1) you have various options, you can:

- Create a new project.
- Open existing project.
- Open the tutorial.
- Choose a recent opened project.

Also there are some options in the menu bar:

- File option (Figure 2):
  - o Open existing project.

- Edit option (Figure 3):
  - o Set the system language:
    - ▪ Spanish
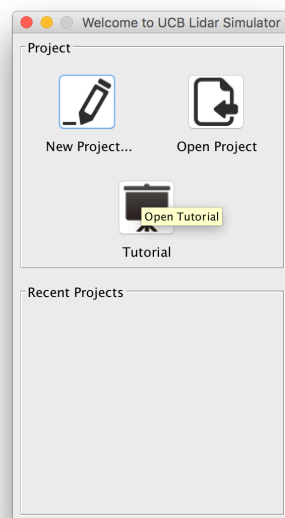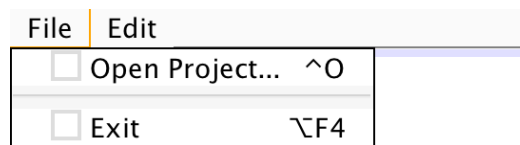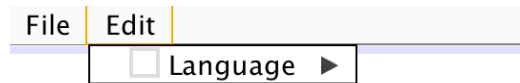   - ▪ English

Figure 1: Start Window

Figure 2: File Option

File	Edit
☐ Open Project...	^O
☐ Exit	⌥F4

Figure 3: Edit Option

File	Edit
☐ Language	▶

Create new project

To create a new project, you need to click in the pencil button located in the main window. After you press the button, this window will close and a project creation dialog (Figure 4) will appear for set project data.

Figure 4: Project Configuration Dialog
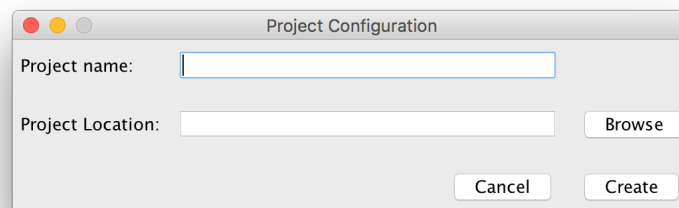
In this dialog, you can set:

- Project name.
- Project location.

You can write the project name and the project location in the text fields.
Also you can click in the browse button near the project location text field so you can open a dialog (Figure 5) to select a folder where the system will store a configuration file with the project basic data.

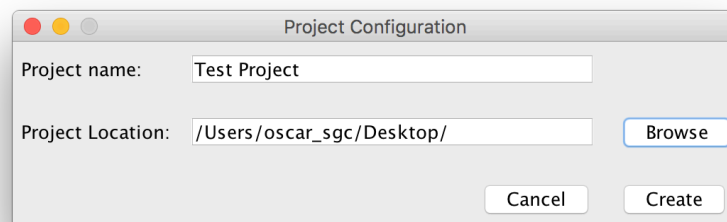Figure 5: Select directory dialog
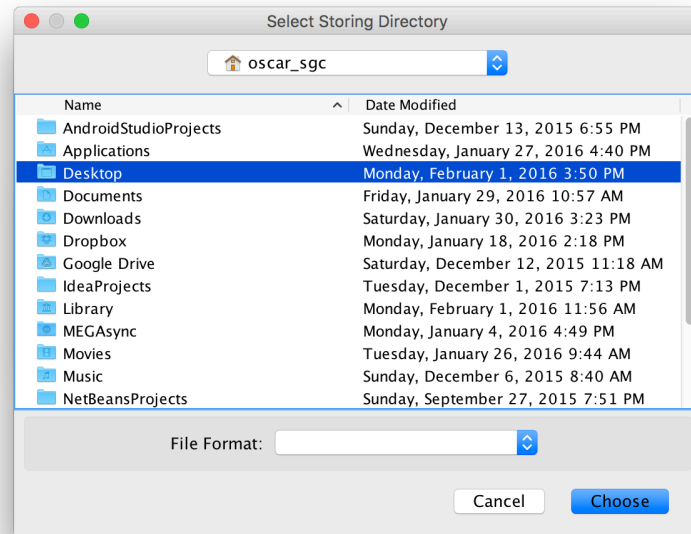
In this dialog you can:

- Double click on the selected directory.
- Click on the selected directory and then click the "Choose" button.
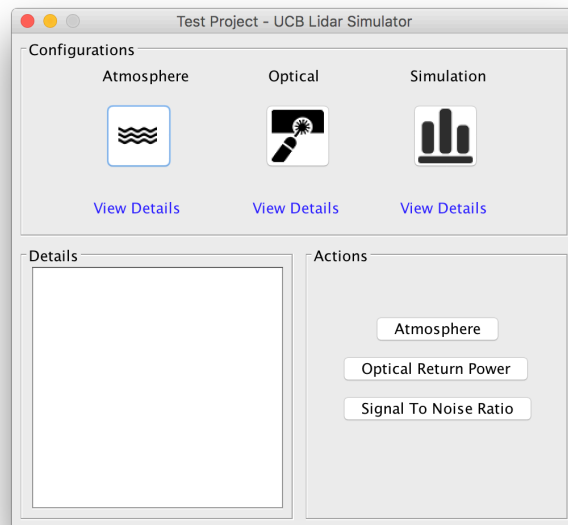
Once both text fields are filled with data (Figure 6), you can proceed clicking on the "Create" button in the project configuration dialog.

Figure 6: Established Values in project configuration dialog

After you click the button, this dialog will close and the project settings window (Figure 7) will appear.

Figure 7: Project Settings window

Set Project Settings

In the project settings window (Figure 7), you have various options, you can:

- Set atmosphere configurations.
- Set optical configurations.
- View simulation results.
- View atmosphere graphics.
- Save current project settings.

Also there are some options in the menu bar:

- File option (Figure 8):
    - Save project.
    - Save project as…
    - Exit

- Edit option (Figure 9):
    - Set the system language:
        - Spanish
        - English

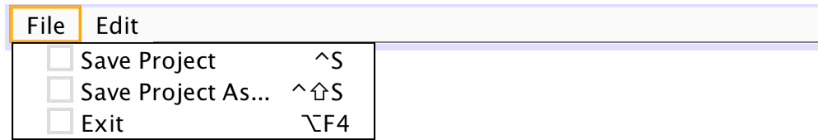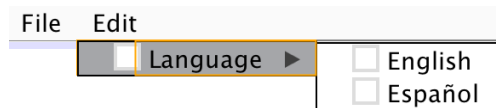Figure 8: File options Project settings window

Figure 9: Edit options Project settings window

Set Atmosphere Configurations

To set atmosphere configurations, you should click the atmosphere configuration button (the one with waves), in the project settings window. After the click, current window will close and the atmosphere configuration dialog (Figure 10) will appear for set values.

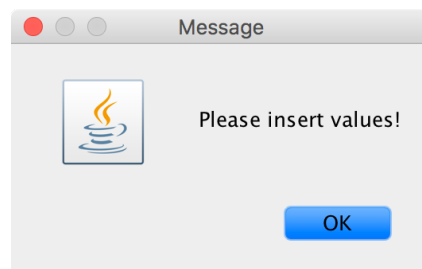Figure 10: Atmosphere configuration dialog
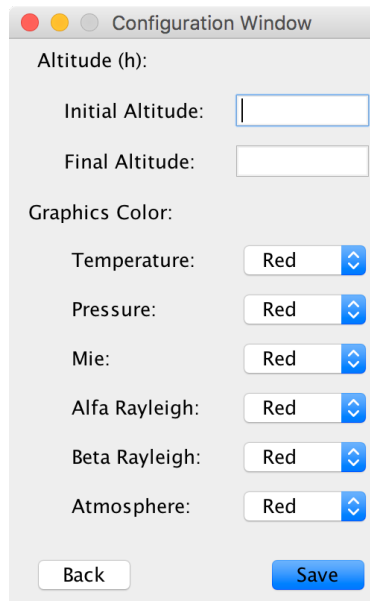
In the configuration dialog, you can set the initial altitude and the final altitude for graphics plot, also you can select the color that each graphic will have during the simulation.

You can choose from each select box between four colors:
- Red
- Blue
- Black
- Green

Remember to put altitudes values in Km. If you don't enter values in one or both of the text fields, the system will display an error dialog (Figure 11).

Figure 11: Atmosphere settings error dialog

After the values have been entered and the colors selected, you can press the *"Save"* button in the dialog. There will be a confirmation dialog (Figure 12), and the system will redirect you to the project settings window.

Figure 12: Atmosphere values correctly established
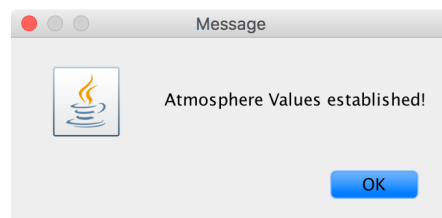
The project settings will be refreshed and the atmosphere configuration will be saved to the project file.

View Atmosphere graphics

If you want to see the atmosphere graphics, you need to click on the *"View graphics"* button located in the project settings window. Current window will disappear and the Graphics visualizer window (Figure 13) will appear, displaying temperature plot.
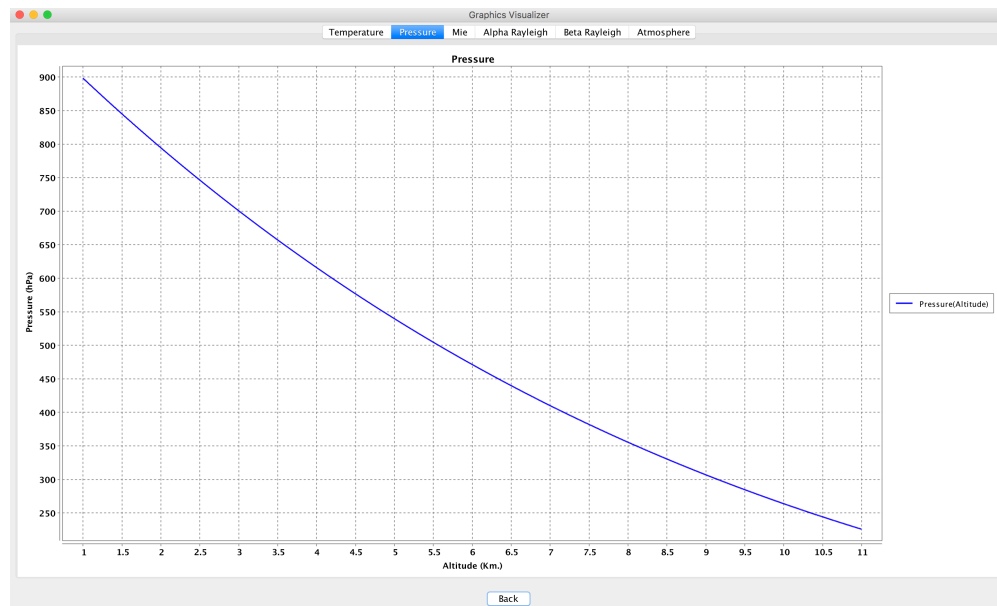
Figure 13: Graphics visualizer window / Temperature Plot
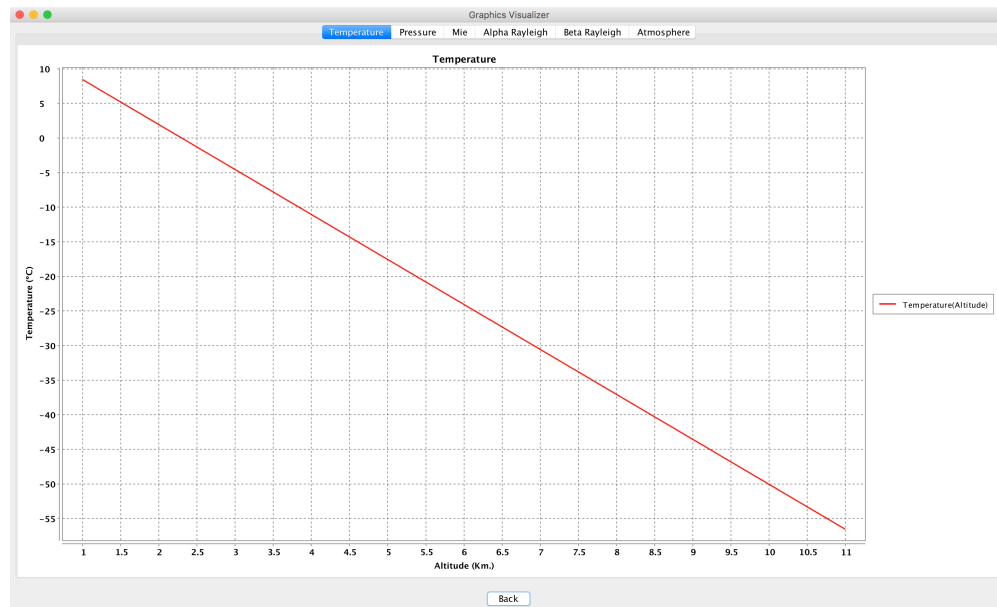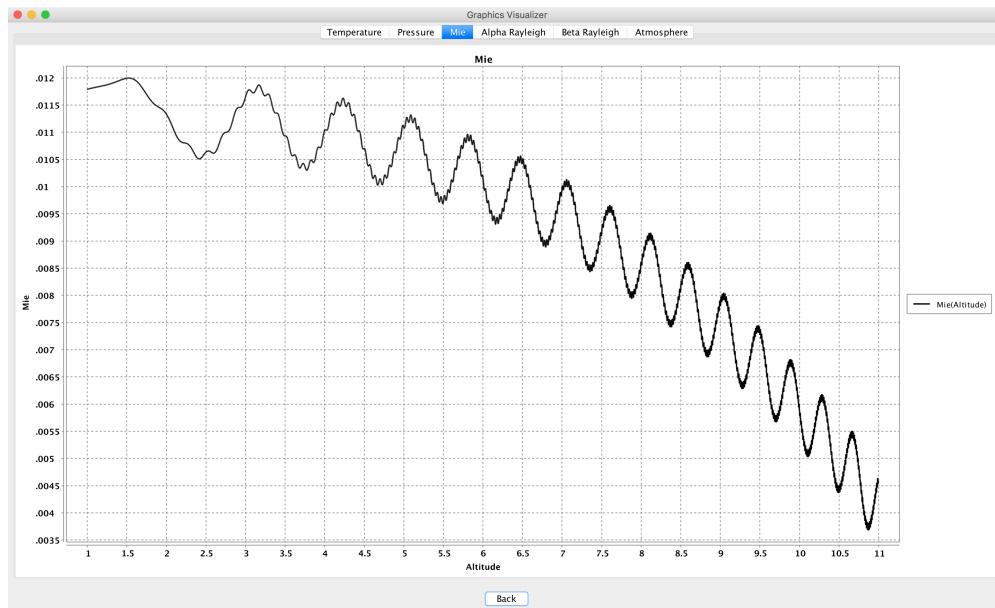

In this window you can:

- See Temperature plot (Figure 13).
- See Pressure plot (Figure 14).
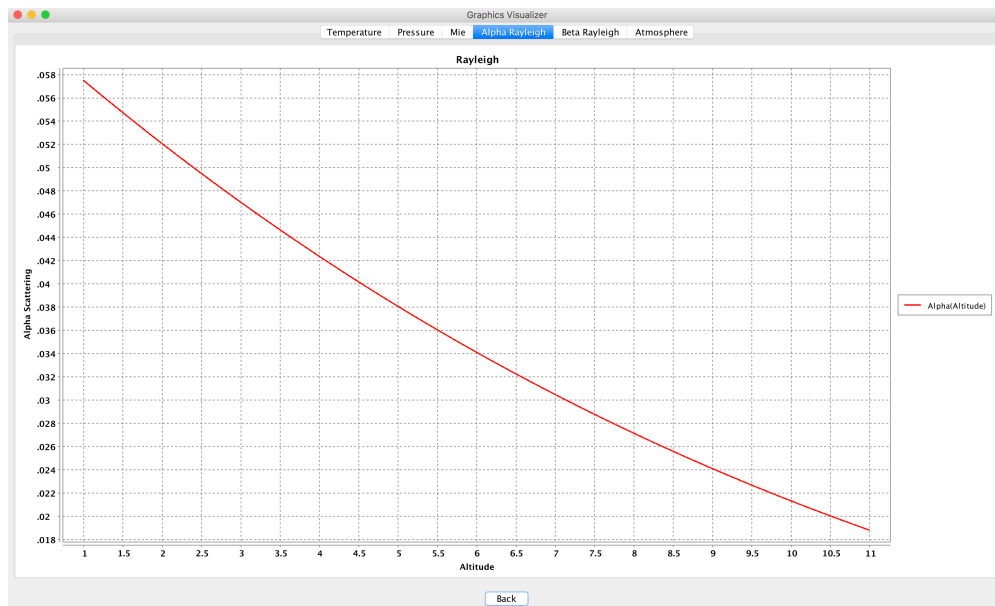
Figure 14: Pressure Plot

- See Mie plot (Figure 15).

Figure 15: Mie Plot

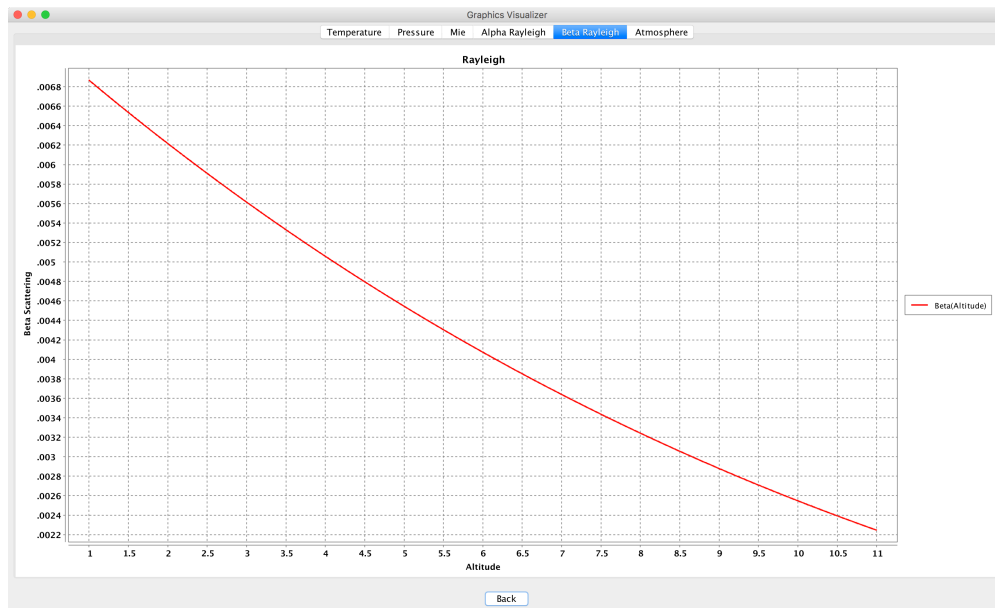
- See Alpha Rayleigh plot (Figure 16).
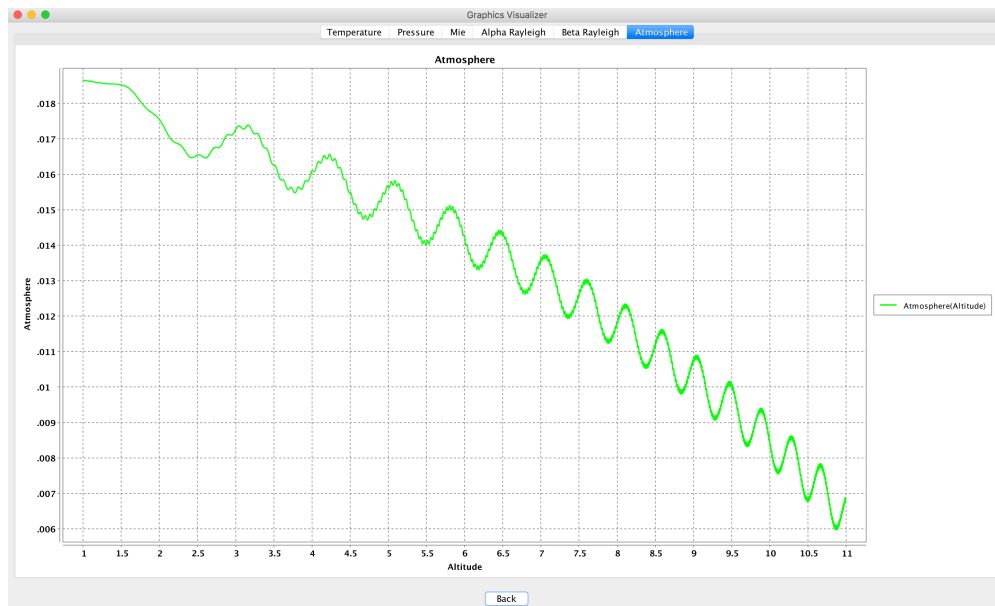
Figure 16: Alpha Rayleigh Plot

- See Beta Rayleigh plot (Figure 17).

Figure 17: Beta Rayleigh Plot


- See Atmosphere plot (Figure 18).

Figure 18: Atmosphere Plot

You can change between plots clicking on the plot name in the upper tab bar with all the graphics names.

You can double click in each plot and a *"Save as"* option will appear. If you click on it, a dialog (Figure 19) will appear, letting you choose the file name, the file location and the image file type.

Figure 19: Save image as... dialog
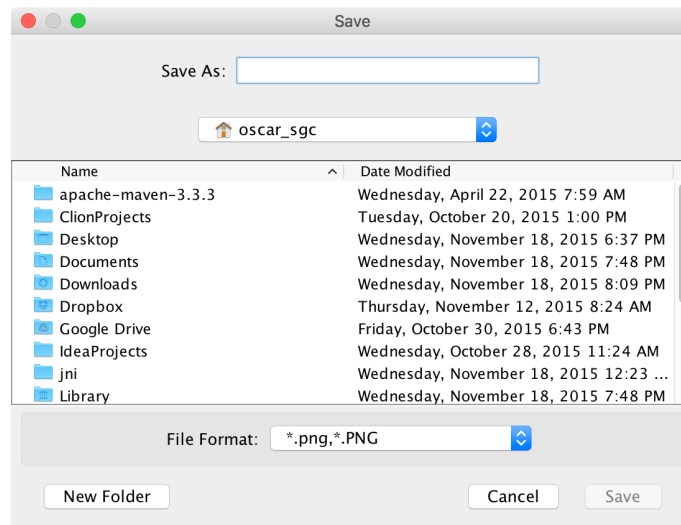
Also there are some options in the menu bar:

- File option (Figure 20):
  - Save project.
  - Save project as…
  - Exit

- Edit option (Figure 21):
  - Set the system language:
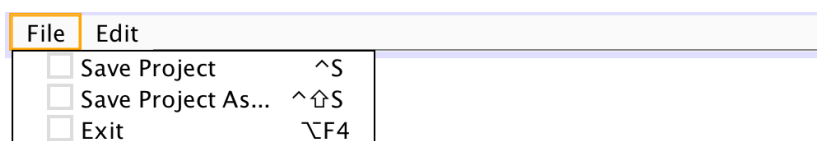   - Spanish
    - English

Figure 20: File options menu

Figure 21: Edit options menu

Set Optical Configurations

To set optical configurations, you should click the optical configuration button (the one with a laser), in the project settings window. After the click, current window will close and the optical configuration dialog (Figure *22*) will appear for set values.

Figure 22: Optical configuration dialog

In the configuration dialog, you can select the Laser Wave Length from a select box and set the beam divergence.

Up next, you can choose between four different APD's. Each one has its own configuration values that will be displayed in the text fields below the APD select box. Also you can choose the custom APD, where you're able to set APD parameters.

After the values have been established and the APD selected, you can press the *"Save"* button in the dialog.
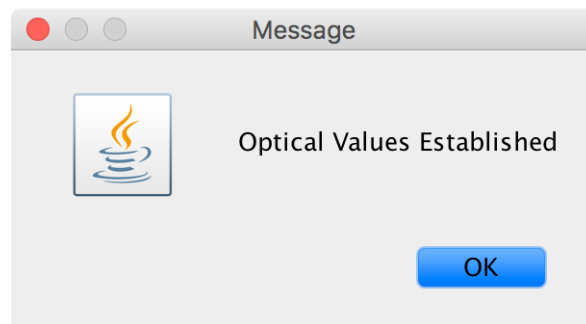
If there´s no beam divergence established, the system will not let you save and an error dialog (*Figure 23*) will be displayed.

Figure 23: Beam Divergence Error Dialog

If everything is okay, there will be a confirmation dialog (Figure *24*), and the system will redirect you to the project settings window.
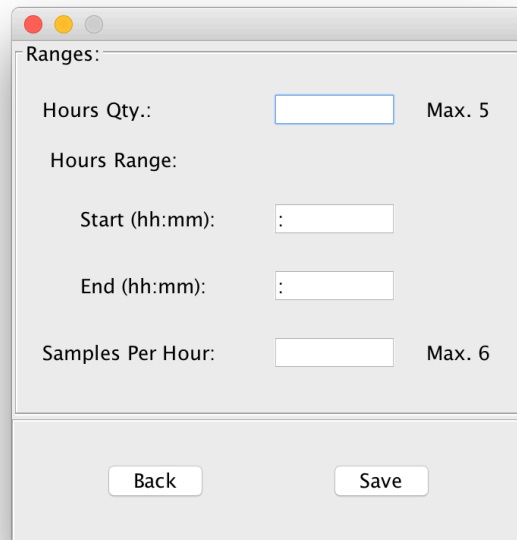
Figure 24: Optical values correctly established

The project settings will be refreshed and the optical configurations will be saved to the project file.

Set Simulation Configurations

To set simulation configurations, you should click the simulation configuration button (the one with a three vertical bars), in the project settings window. After click, current window will close and the optical configuration dialog (*Figure 25*) will appear for set values.

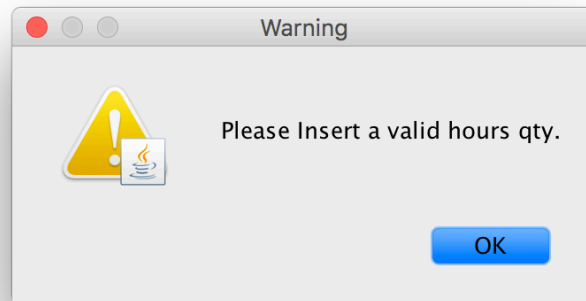Figure 25: Simulation configuration dialog

In the configuration dialog, you can fill the quantity of hours that the system will simulate (maximum five), set the start and end range, and set the quantity of samples per hour that the system will generate (maximum six).

After the values have been established and the APD selected, you can press the *"Save"* button in the dialog.
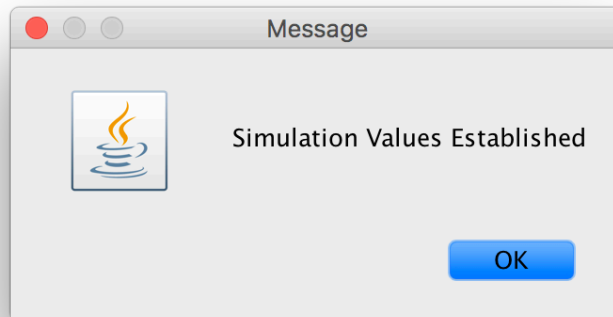
If there´s no data established, the system will not let you save and an error dialog (*Figure 26*) will be displayed.

Figure 26: Simulation Error Dialog

If everything is okay, there will be a confirmation dialog (*Figure 27*), and the system will redirect you to the project settings window.

Figure 27: Simulation correctly established

The project settings will be refreshed and the optical configurations will be saved to the project file.

View Optical Return Power graphic

If you want to see the optical return power graphic, you need to click on the *"Optical return Power"* button located in the project settings window. Current window will disappear and the Optical return Power visualizer window (F*igure 28*) will appear, displaying Optical return Power Graphic.

Figure 28: Graphics visualizer window / Optical Return Power Graphic
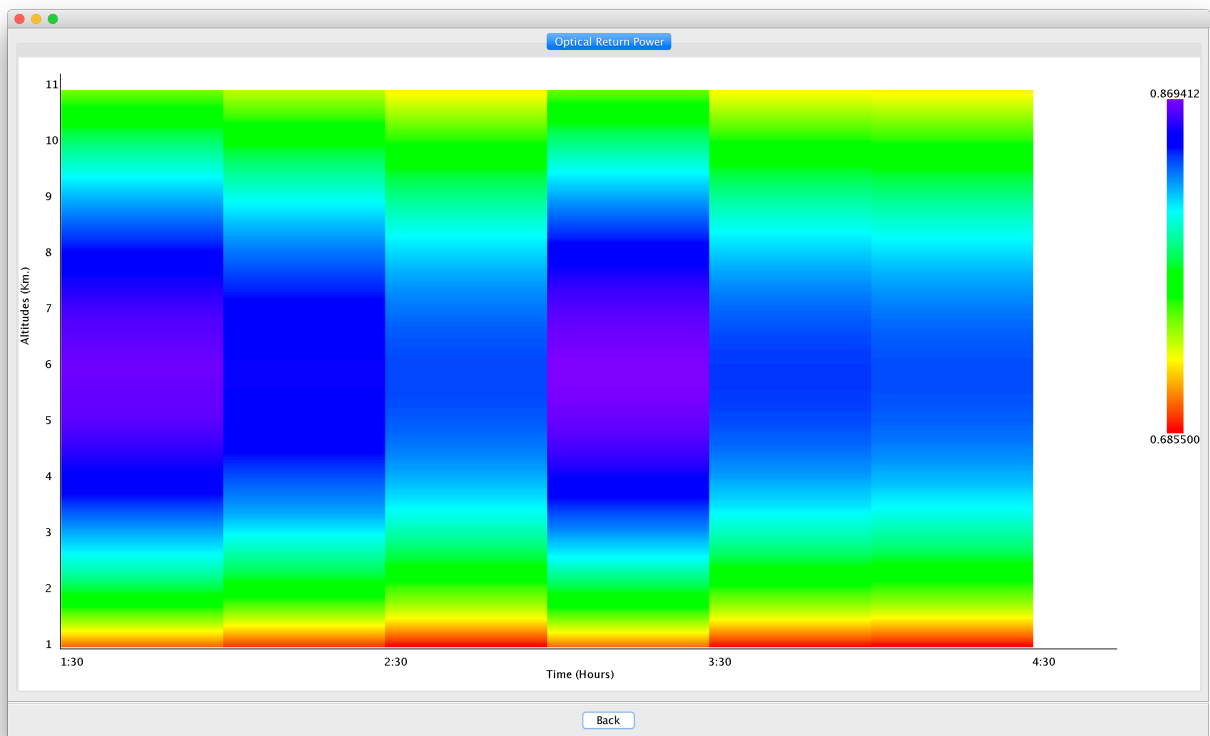
View Signal To Noise Ratio graphic

If you want to see the signal to noise ratio graphic, you need to click on the *"Signal To Noise Ratio"* button located in the project settings window. Current window will disappear and the Signal to Noise visualizer window (F*igure 29*) will appear, displaying Signal To Noise Ratio Graphic.

Figure 29: Graphics visualizer window / Signal To Noise Ratio