AFGROW Workshop 2023

New Features in Spectrum Manager v 1.3

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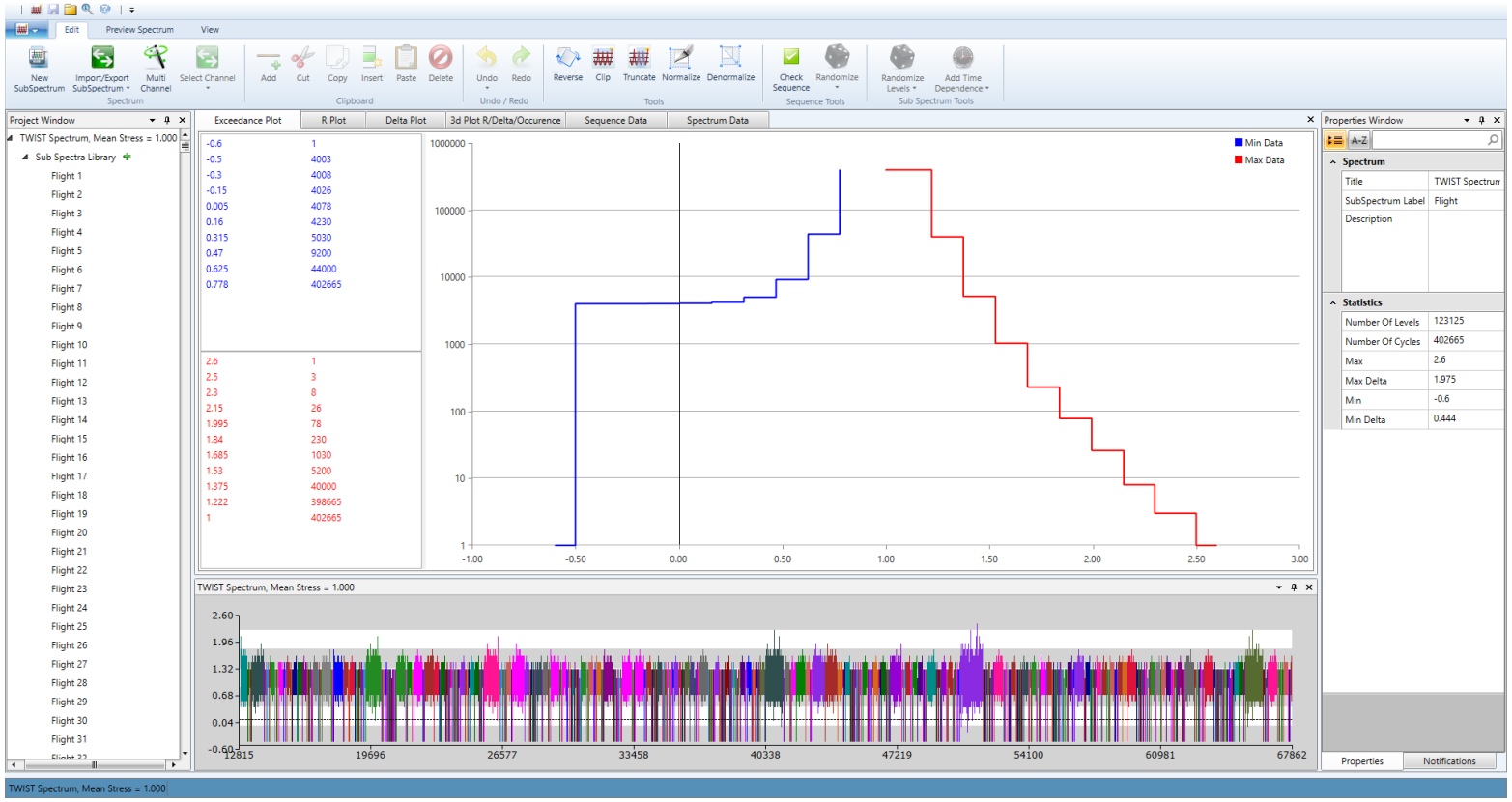
What is Spectrum Manager

AFGROW.NET

- Next evolution in AFGROW Spectrum generation using XML capabilities.
- Used to Generate Spectrum files for use in AFGROW.
- Create, Edit, and View Spectra Data through multiple detailed windows.
- Spectrum files must be cycle counted before being used in AFGROW



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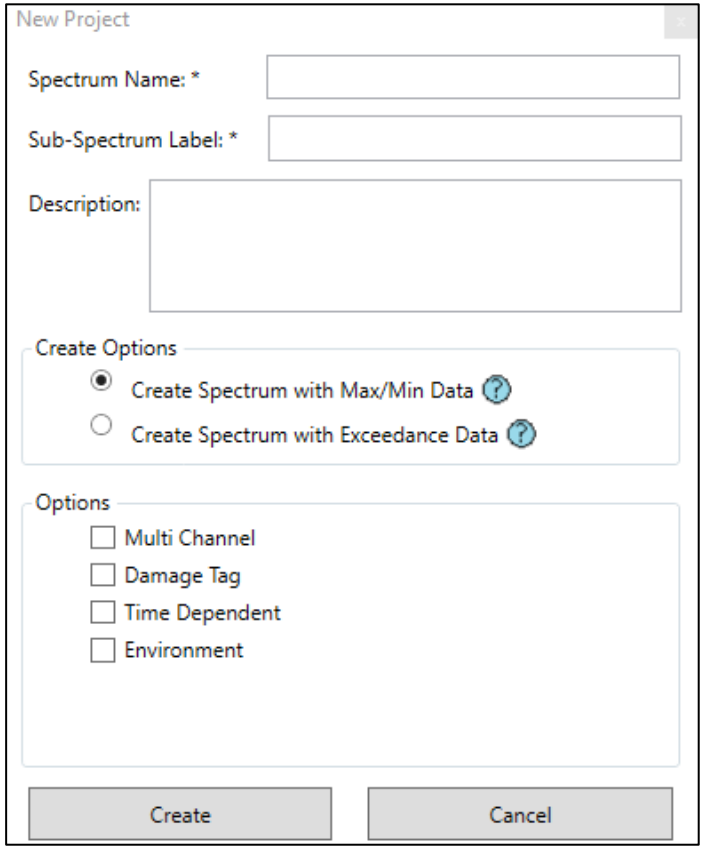
Creating a new Spectrum Project with Spectrum Manager

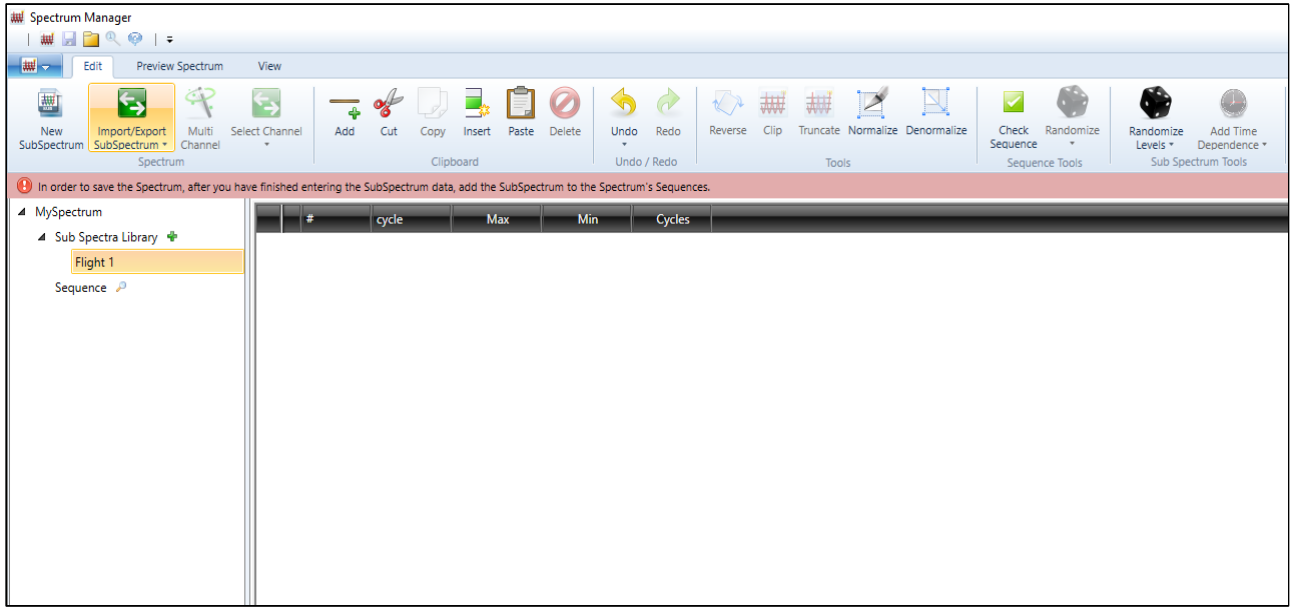
Spectrum Generation from Max/Min Data

- Select “New Project” in the Application Menu
- Enter a Spectrum Name and Sub-Spectrum Label, optional description
- Select the “Create Spectrum with Max/Min Data” option in the New project dialogue (default)
- Select any additional options to enable in the spectrum
- Click Create to begin adding data



Spectrum Generation from Max/Min Data

- Start with an empty project
- Create new sub-spectra or import previously exported sub-spectra
- Formatted as cycle counted Max/Min/Cycles data
- Use the GUI to edit level data
- Create a sequence from project's sub-spectra library
- Once a valid sequence is created, saving the spectrum becomes available



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New Spectrum Manager Views

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Updated Styles

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- Updated application style to Windows 11 theme

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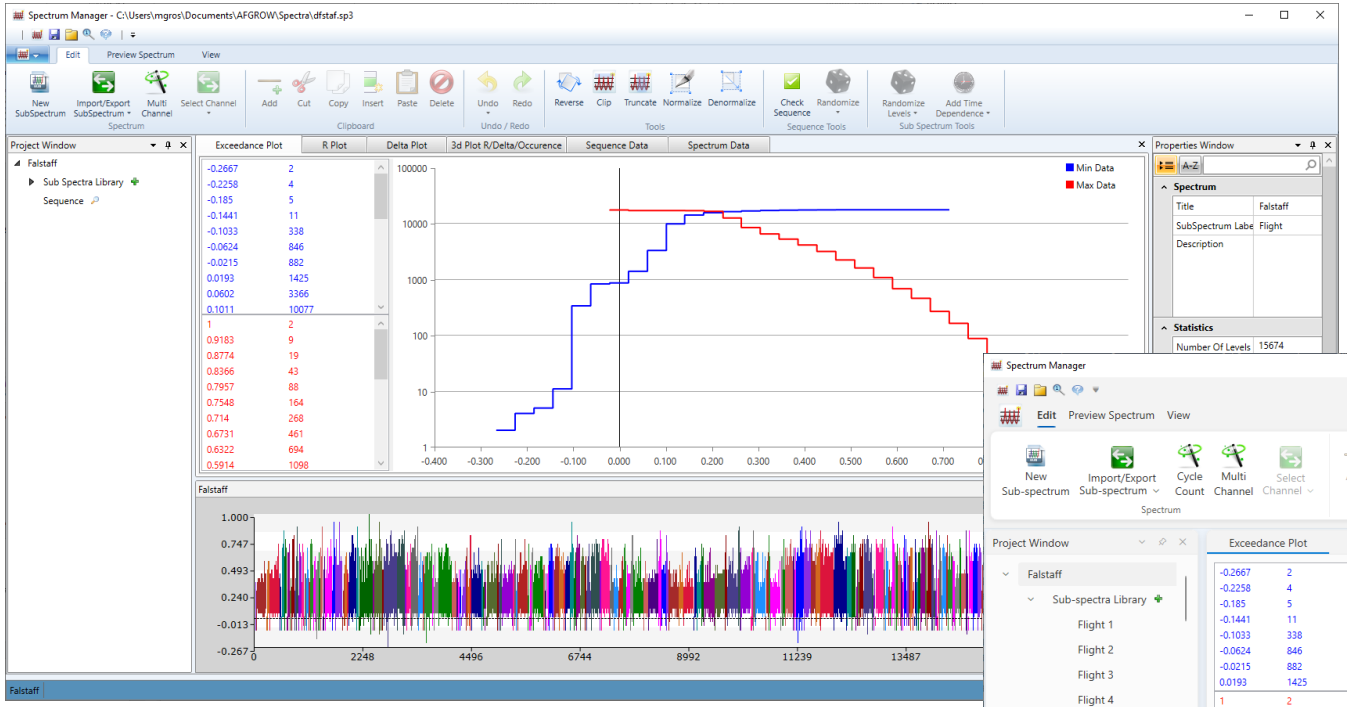
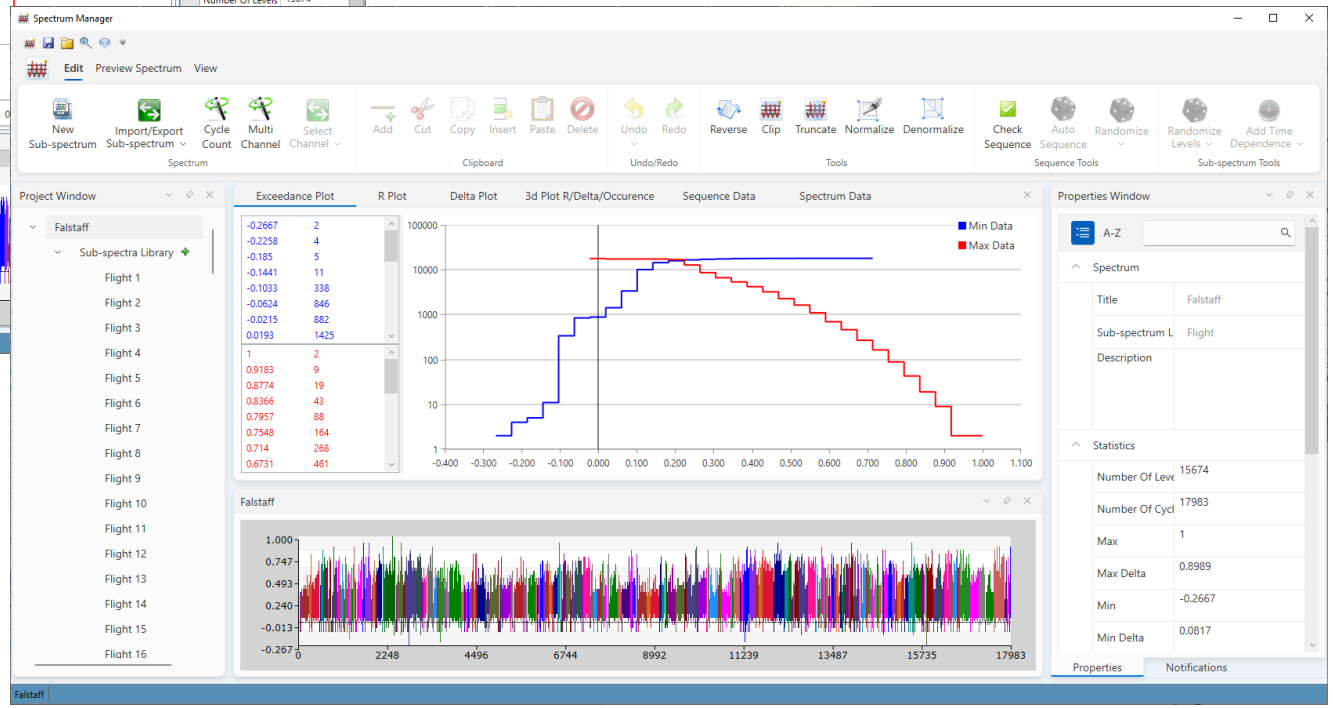
Old vs New Style





Damage Tag Filter on Exceedance Plot

- Filter the Exceedance Plot by damage tags in the Spectrum
- Can Filter by “Entire Spectrum (Default View), All Damage Tags (All levels with damage tags), No Damage Tag (only levels without any damage tag), and each individual damage tag
- Can also select multiple damage tags to view at once
- Only visible if you have Damage tags enabled in the Spectrum Options

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Damage Tag Filter on Exceedance Plot

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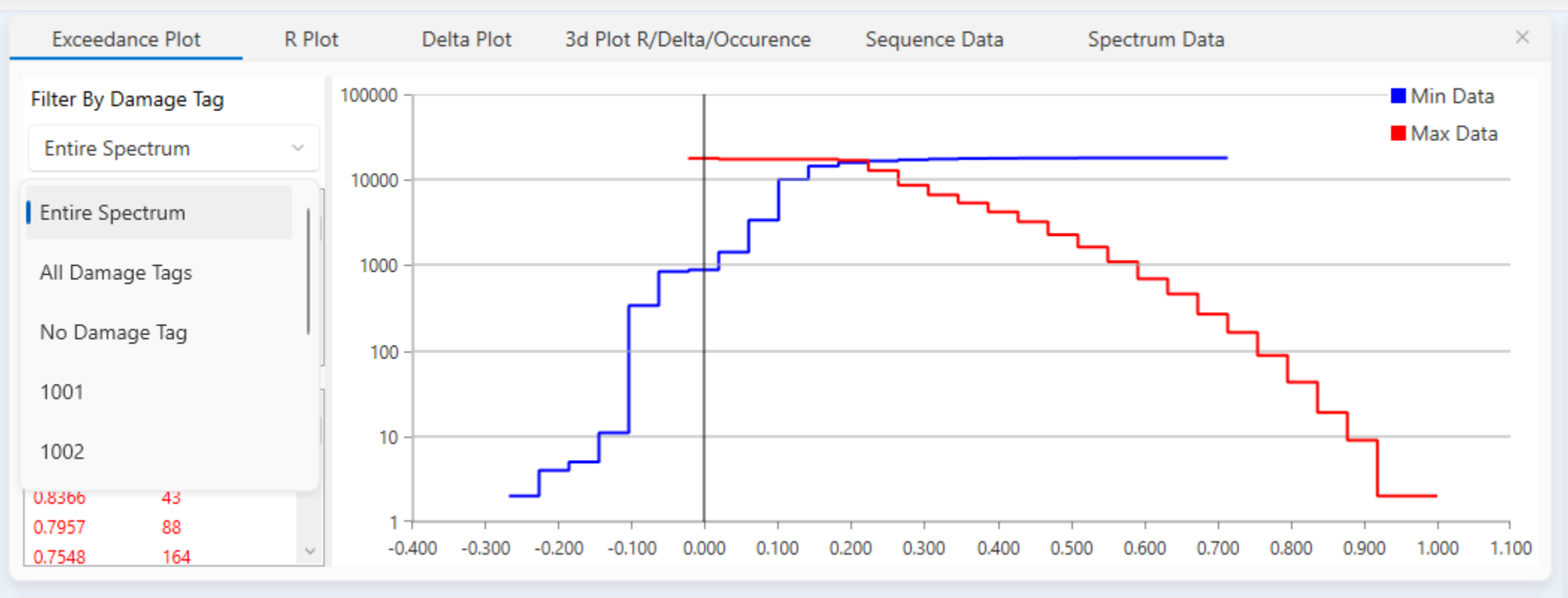

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Damage Tag Filter on Exceedance Plot

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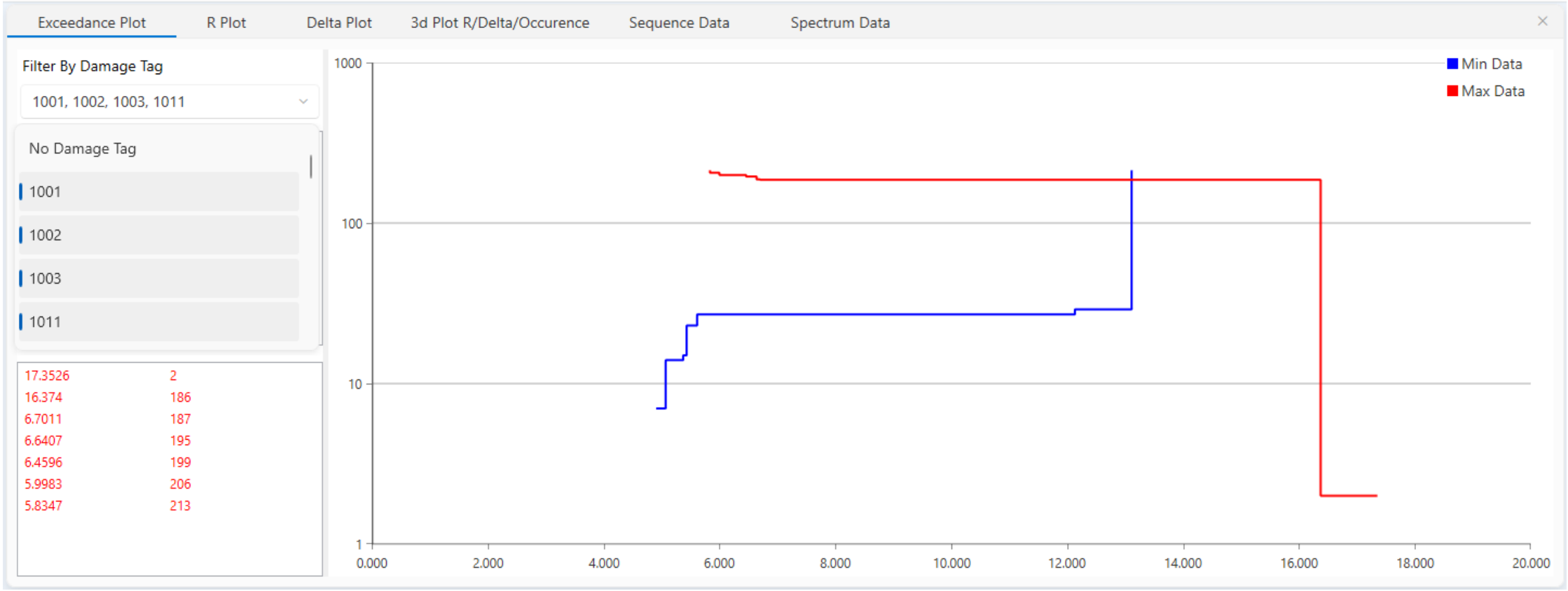

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New Spectrum Manager Options

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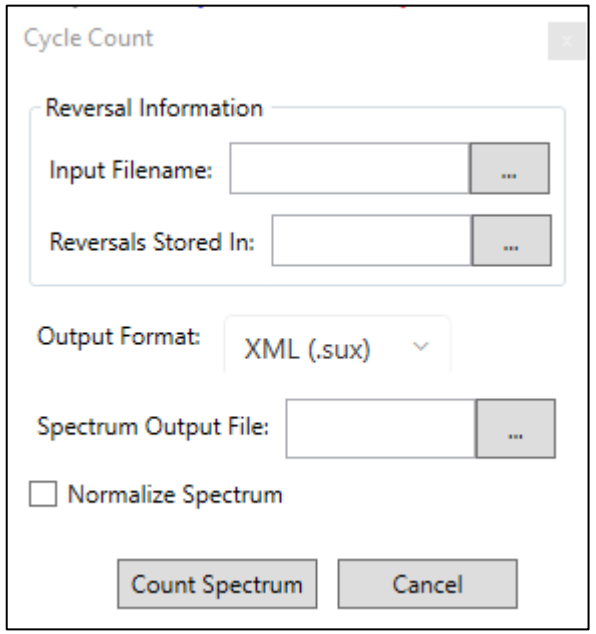
Cycle Count

- Create a cycle counted sub-spectrum from time sampled or peak-valley uncounted input data
- Save data in a .inp file (values separated by spaces)
- Choose a file location to store reversal data
- Choose what format to output the sub-spectrum in (Older .sub format or XML)
- Select if you wish the resulting sub spectrum to be normalized



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Cycle Count

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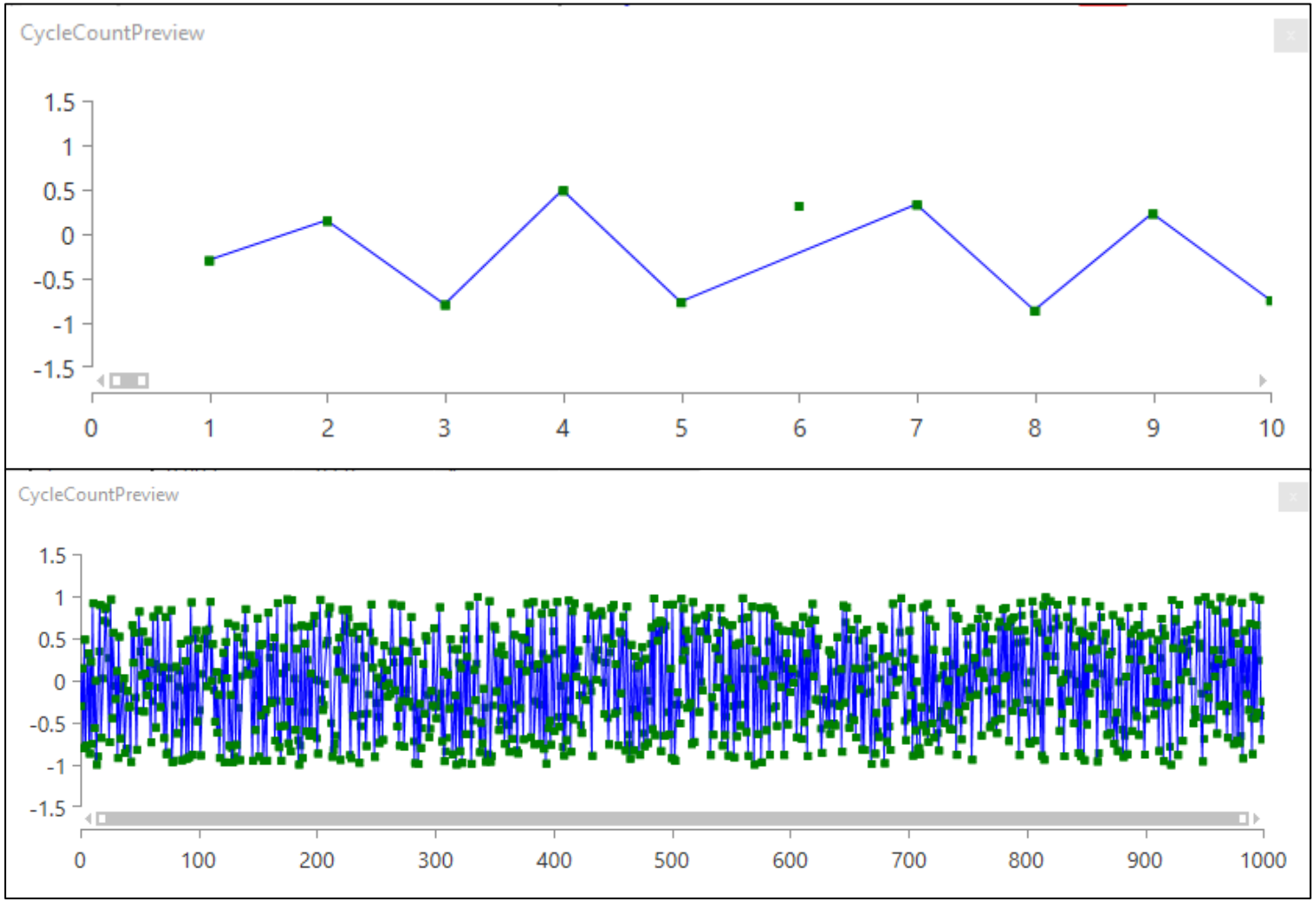
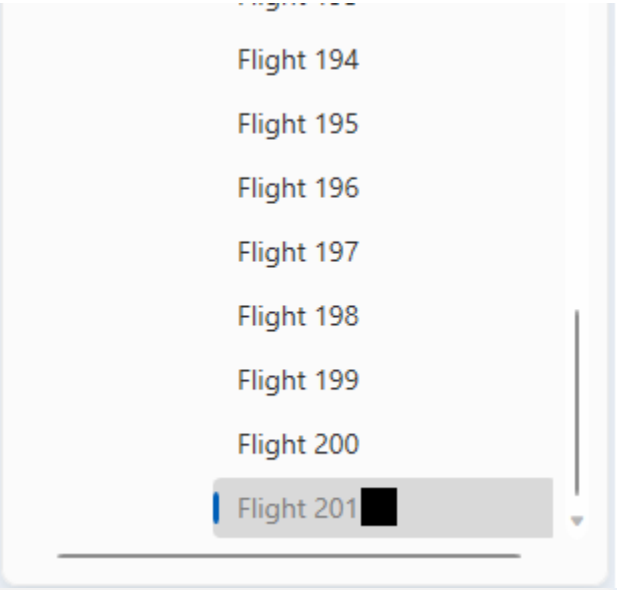
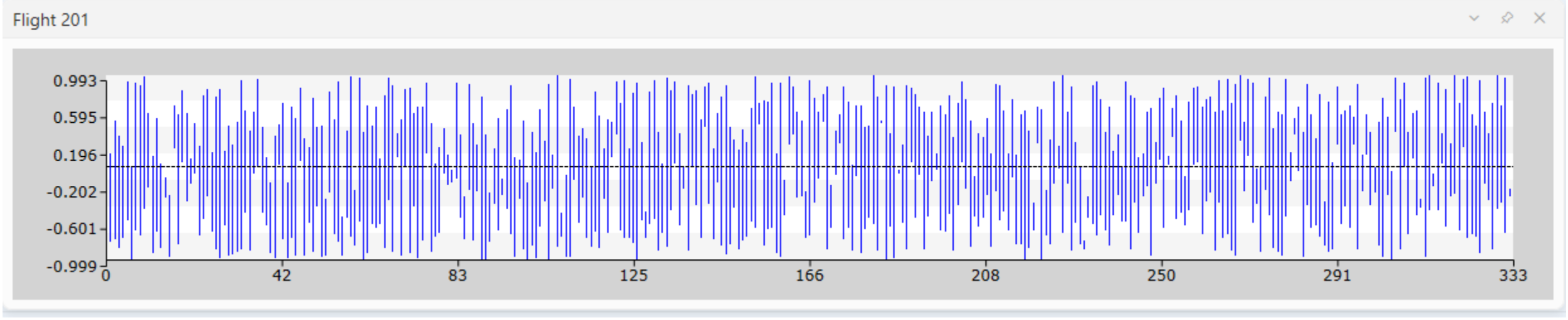
- A preview will be displayed of all points from input file, displayed as green squares
- Blue line connects the points used as reversals
- Graph is zoomable and scrollable for better visualization of data



Cycle Count

- New counted Sub Spectrum will be added to the end of the Sub Spectra Library
- Symbol will appear next to the name in library to indicate that the Sub Spectrum is from uncounted data





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Concatenate Spectra

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- Combine two spectra together
- Prompt will appear to use the current spectrum's Label to auto-generate names
- Damage Tag, Environment Tag, and Time Dependence data will be lost when concatenating the spectra

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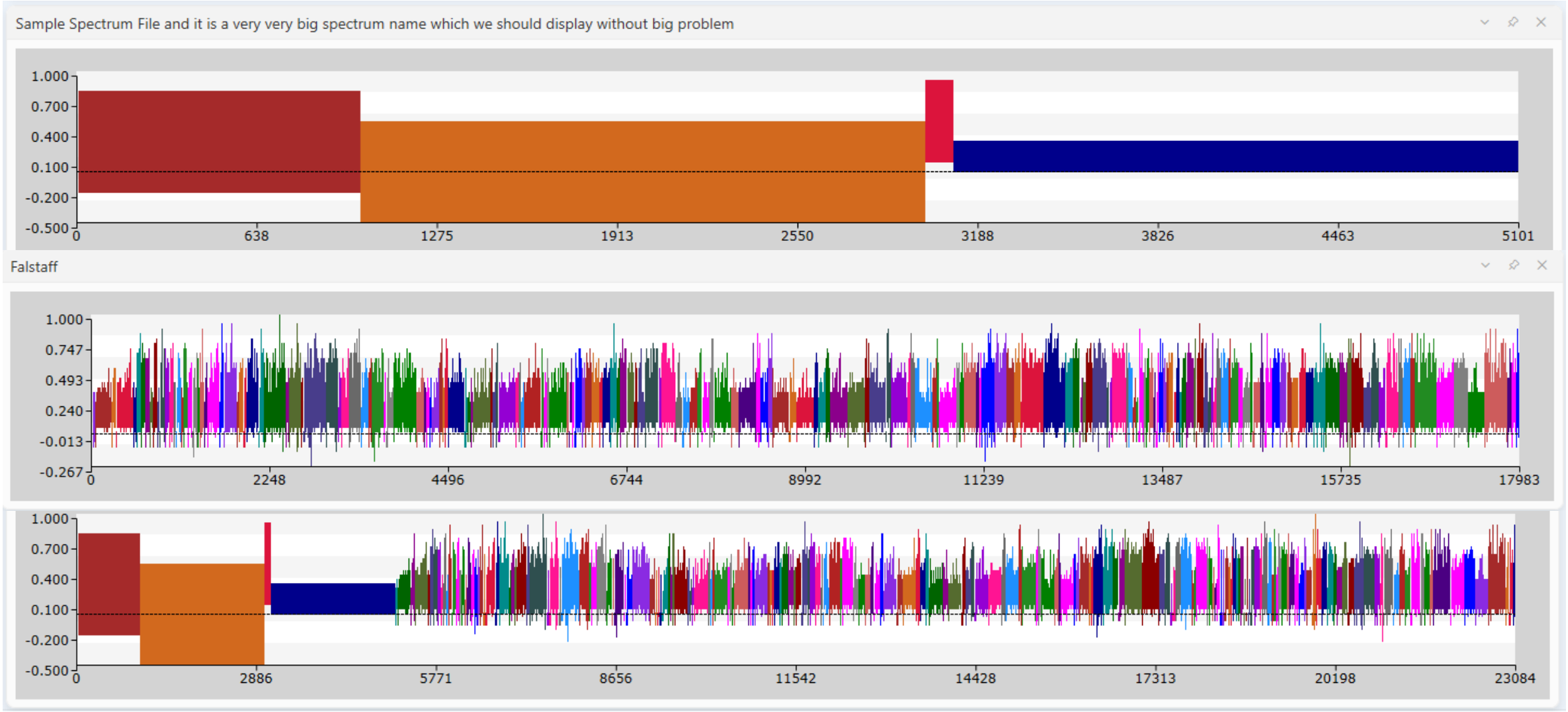
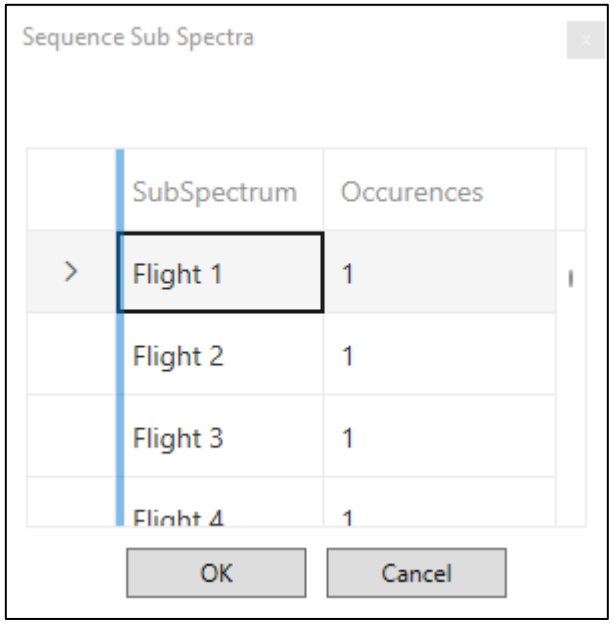
Concatenate Spectra



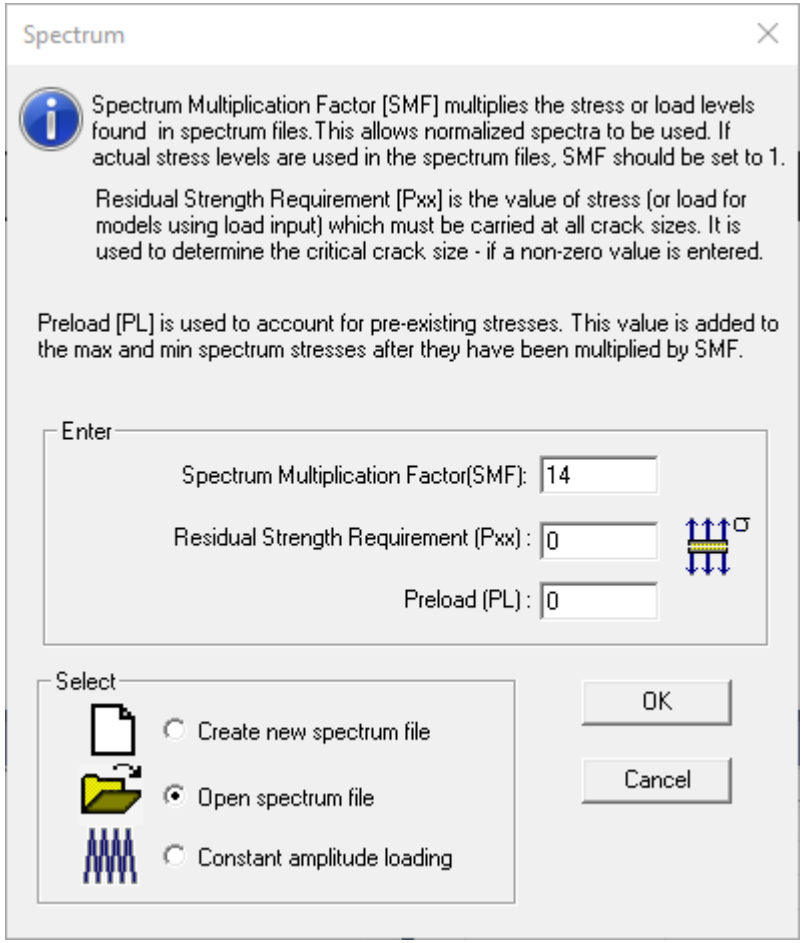
Auto Sequence

- Automatically add the Sub Spectra in the Sub Spectra Library to the Sequence
- Can modify the number of times a Sub Spectra appears in the sequence by changing the Occurrences value next to the Sub Spectrum name.
- These additional occurrences will be sequential.



Using Spectrum In AFGROW

- Open the Spectrum Dialogue
- Select “Open spectrum file”
- Navigate to your saved spectrum file, select it and click “open”



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Questions/Comments?