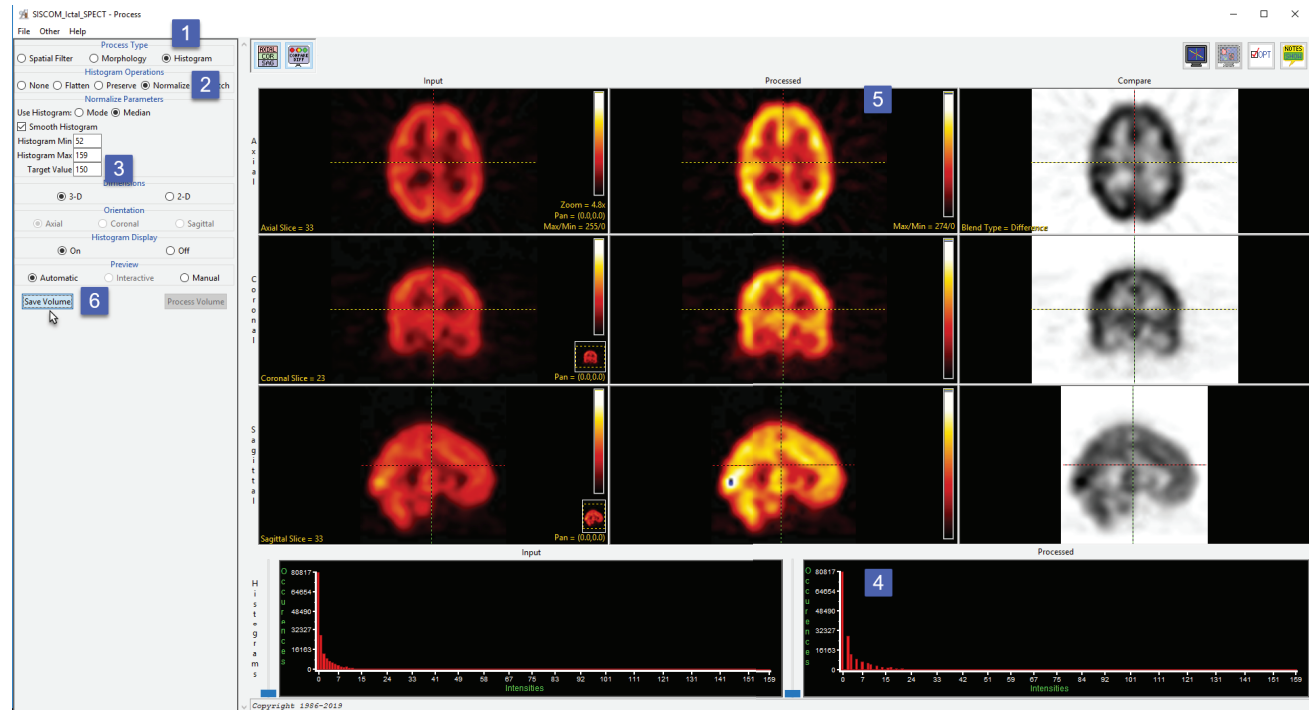# Histogram Normalization

Histogram Normalization forces the Gaussian parameters of the image histogram (mean or mode) to specified values.

This exercise will show how to normalize the histogram of two functional data sets to the same median value so that they can be compared to each other.

Download the two data sets SISCOM_Ictal_SPECT.avw and SISCOM_Interictal_SPECT.avw from http://analyzedirect.com/data and load both datasets into the Analyze workspace using Input/Output.

Select the SISCOM_Ictal_SPECT.avw data set from the workspace and open Process.

Set the process type to Histogram [1] and choose Normalize [2] as the histogram operation.

Set the parameters to use the histogram median and a target value of 150 [3]. Note the update to the processed histogram [4] and processed data set [5]. Setting the target value of each data set to the same value will allow comparison between the two.

Click Save Volume [6].

Histogram Normalization (continued)

In the Save Volume window, choose to replace the input volume with the process volume [17] or create a new workspace volume [7].

Name the file, if creating a new workspace volume [8].

If you want to process the volume further, choose to replace the input volume with the process volume [9].

Click Save Volume to apply the changes [10].

Repeat these steps for the second data set, SISCOM_Interictal_SPECT.avw.

The two new volumes you have created have been normalized to the same value, so equivalent numbers in the images now indicate levels of metabolic activity. The data sets can be subtracted to create a difference map or otherwise quantitatively compared.