

Landsat 8: Comparison of Radiance with SP3

Preprocessing Step: Mask for DN=0 on ANY band for all scenes.

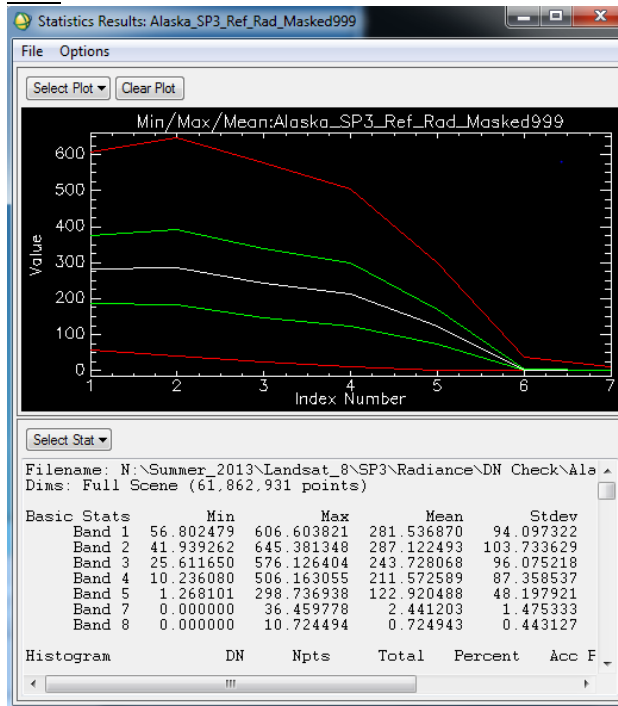
Note:

- Still negative values in the Bands 5, 6, and 7. These are truncated to zeros.
- As long as the same mask is applied to both SP3 and manual radiance files, one will get exactly the same statistical results except for the occasional negative minimum values.
- Depending on whether the mask was created from the SP3 DN data file or the manually stacked layer, the differences in the mean values can be as great as 0.02. Despite this discrepancy, the statistical results for the difference layers for both masks are exactly the same.
- Otherwise, the differences between SP3 calibrated values and manually calculated values are negligible.

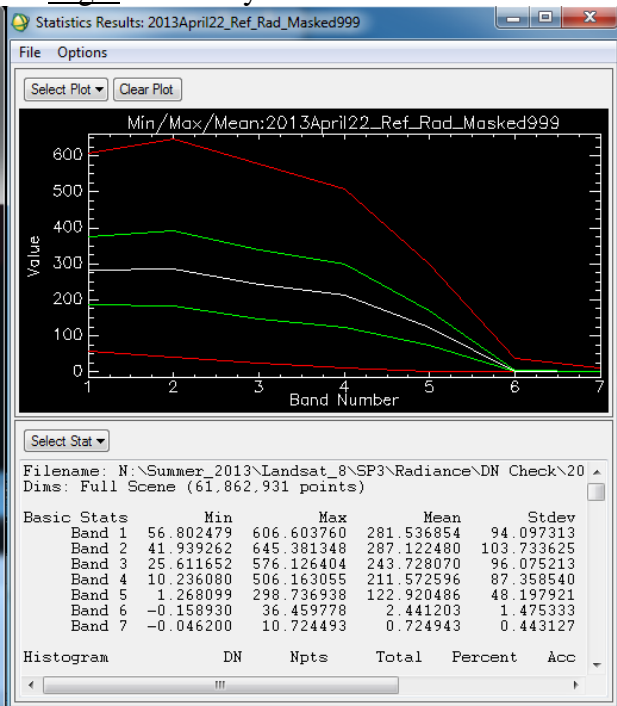
❖ *Alaska*

Mask created from Manually Stacked Layer

Left: SP3 Calibrated Radiance

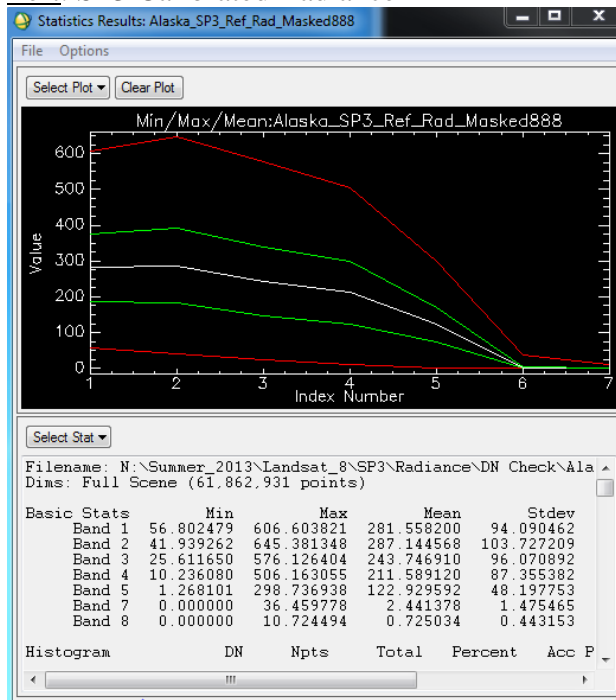


Right: Manually Calculated Radiance

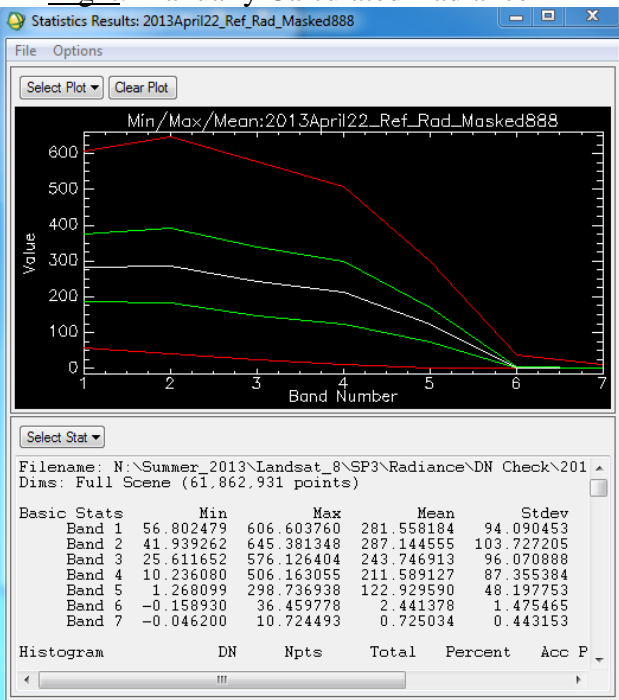


Mask created from SP3 data file

Left: SP3 Calibrated Radiance

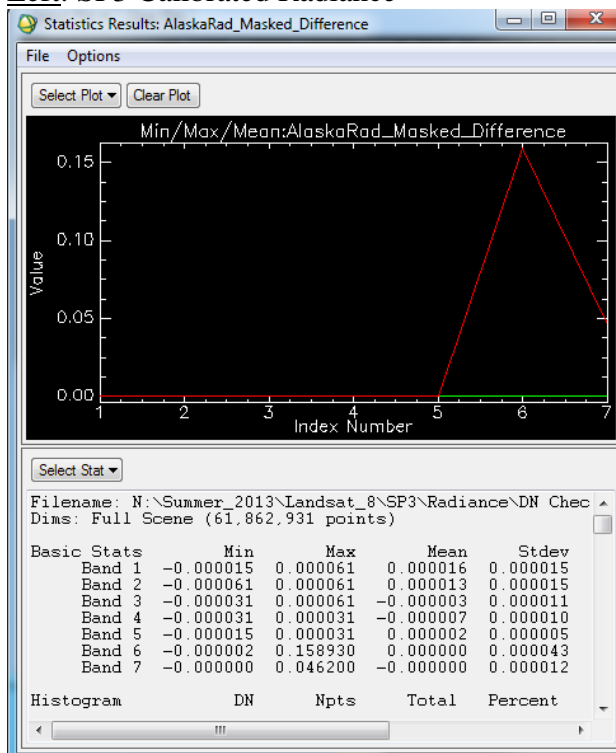


Right: Manually Calculated Radiance

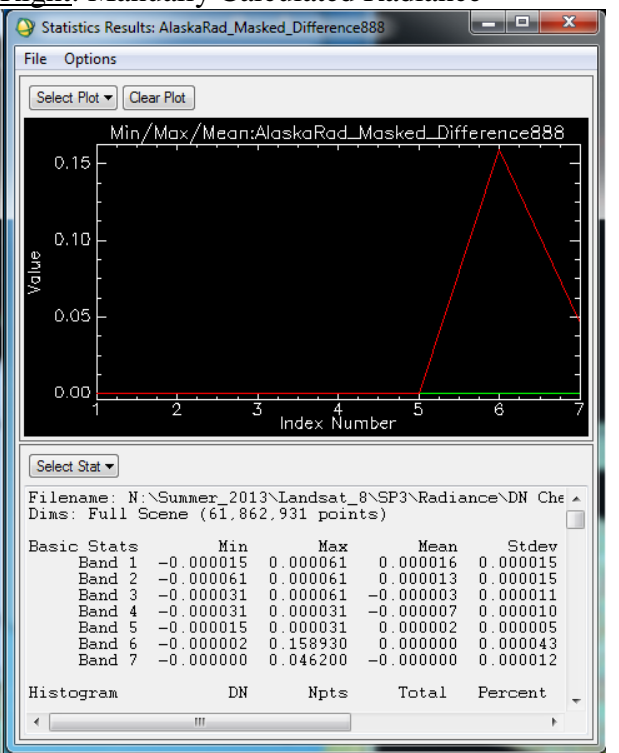


Difference Layer: Band Math: B1-B2 = SP3 – Manual

Left: SP3 Calibrated Radiance



Right: Manually Calculated Radiance

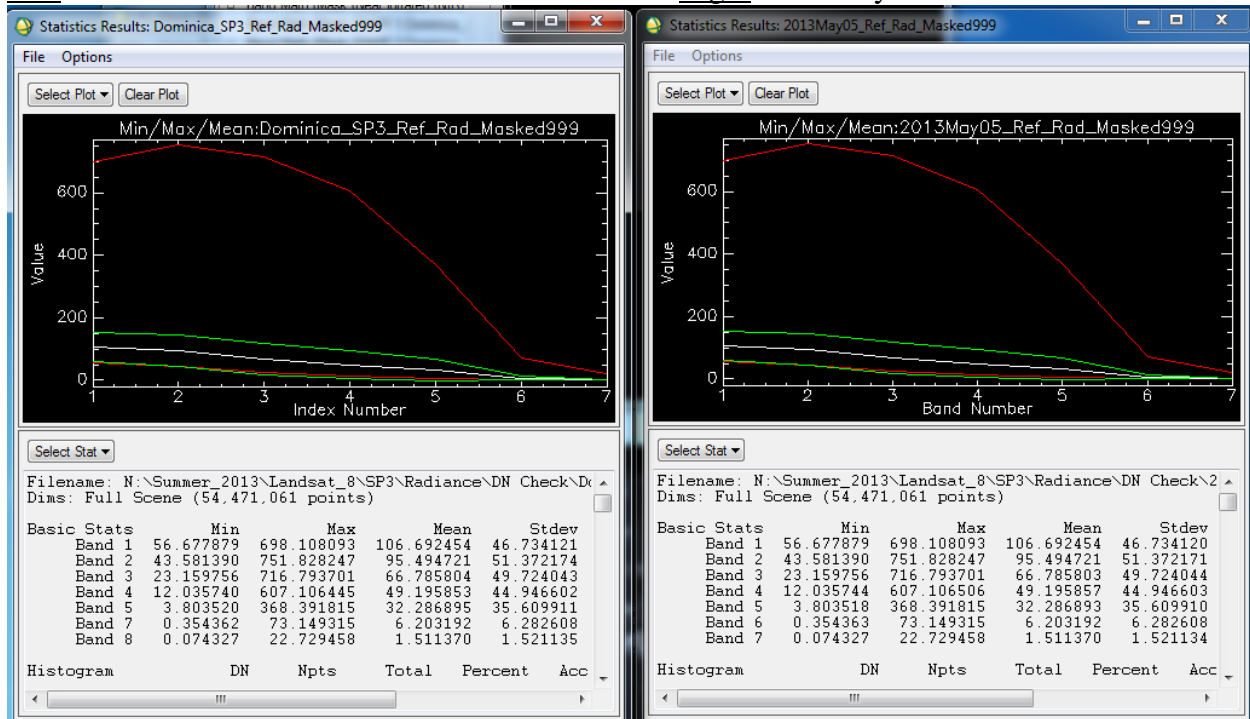


❖ Dominica

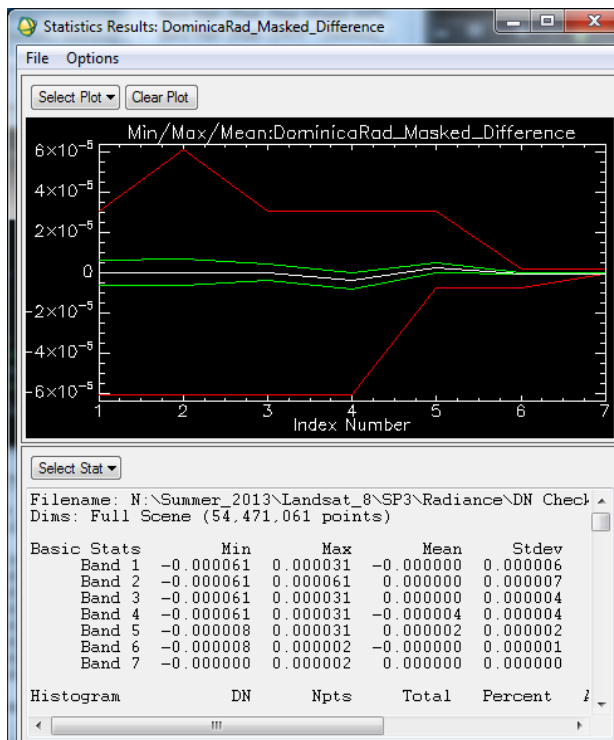
Mask created from Manually Stacked Layer

Left: SP3 Calibrated Radiance

Right: Manually Calculated Radiance



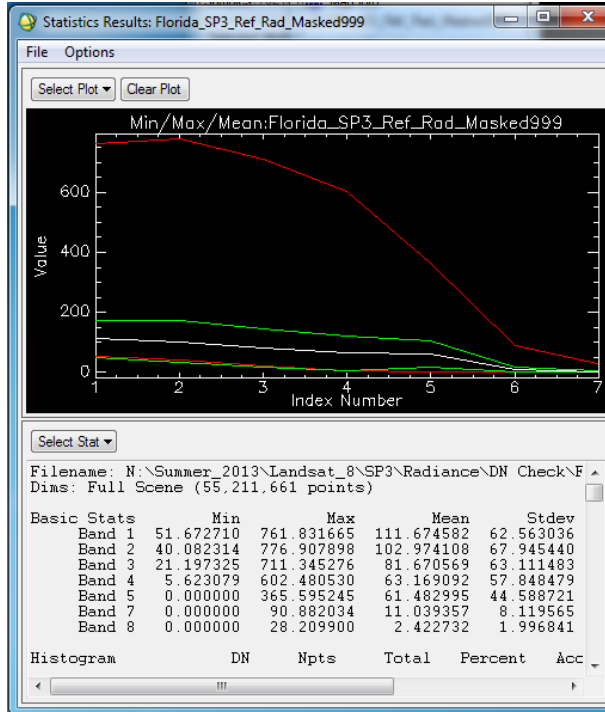
Difference Layer: Band Math: B1-B2 = SP3 – Manual



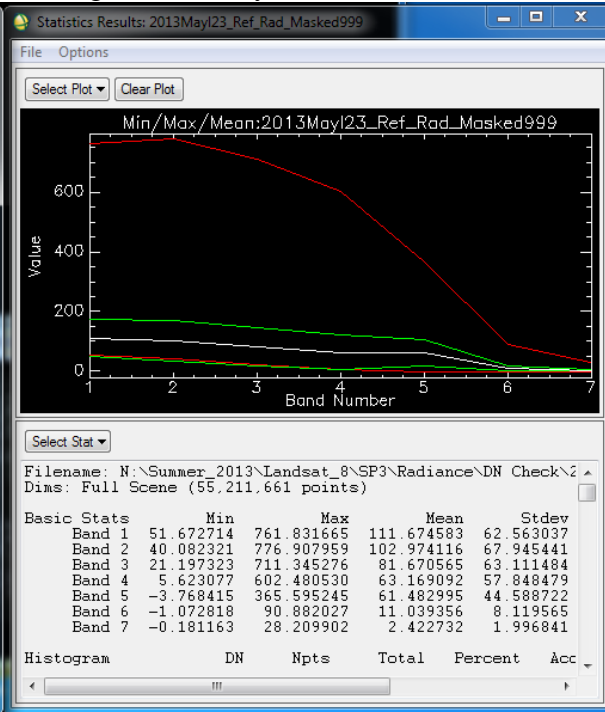
❖ *Florida*

Mask created from Manually Stacked Layer

Left: SP3 Calibrated Radiance

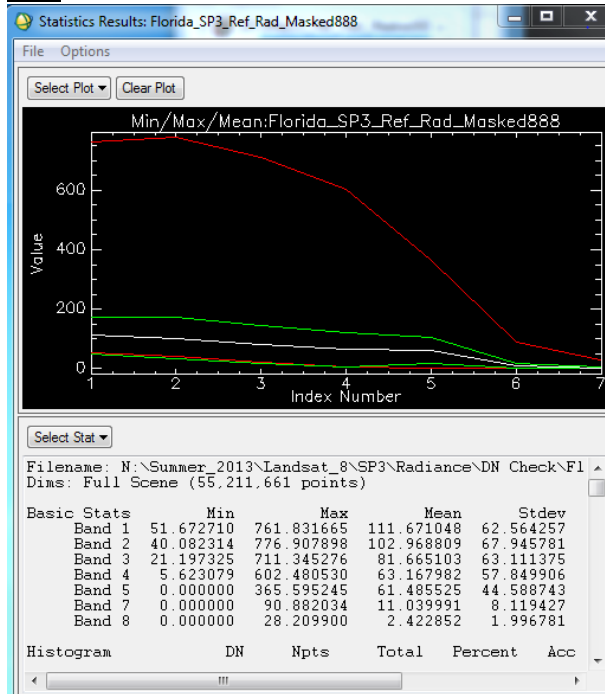


Right: Manually Calculated Radiance

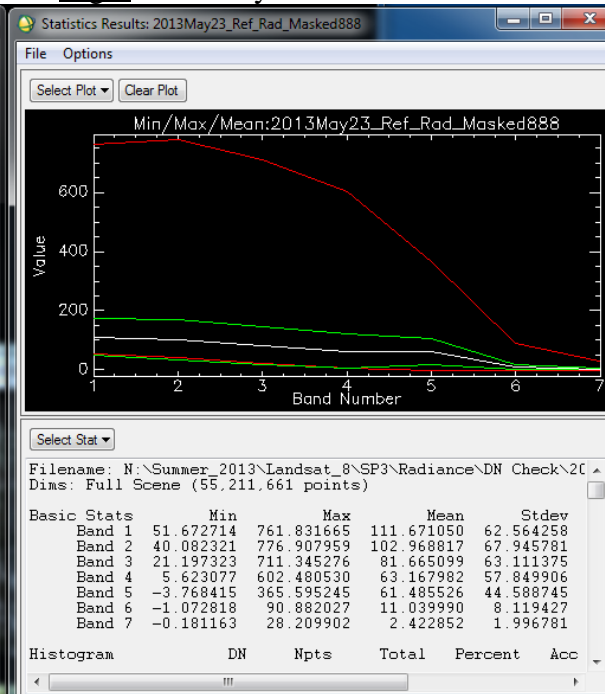


Mask created from SP3 data file

Left: SP3 Calibrated Radiance

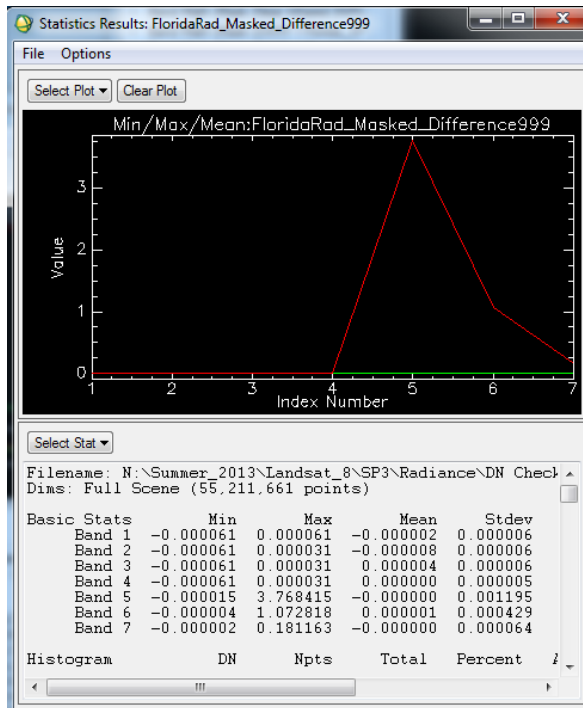


Right: Manually Calculated Radiance

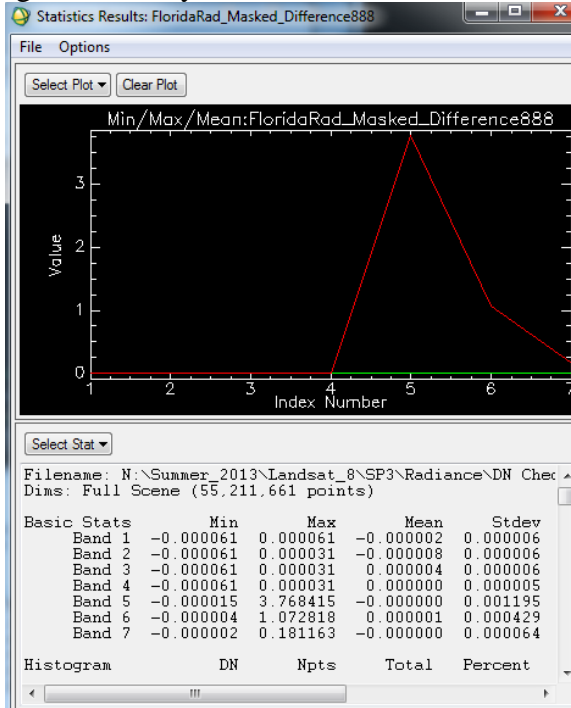


Difference Layer: Band Math: B1-B2 = SP3 – Manual

Left: SP3 Calibrated Radiance



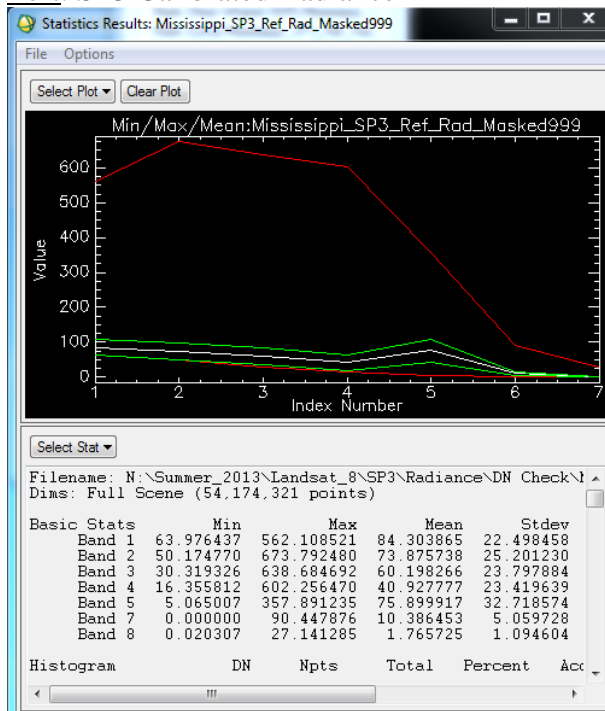
Right: Manually Calculated Radiance



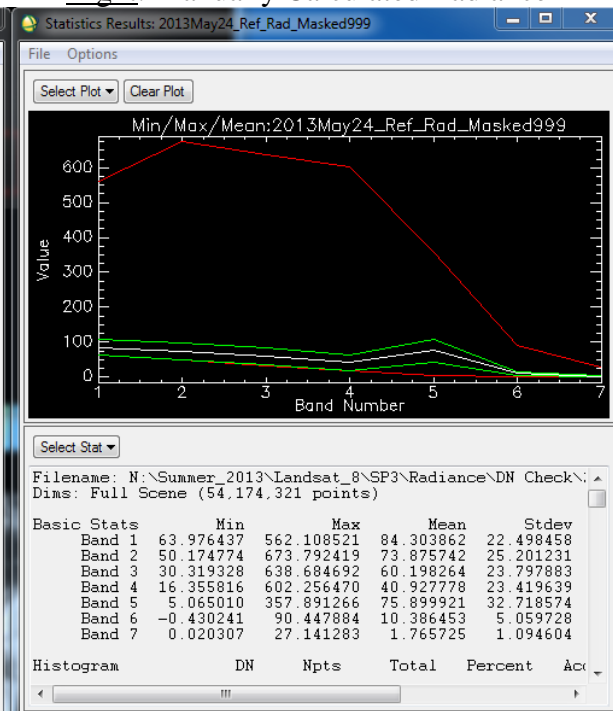
❖ Mississippi

Mask created from Manually Stacked Layer

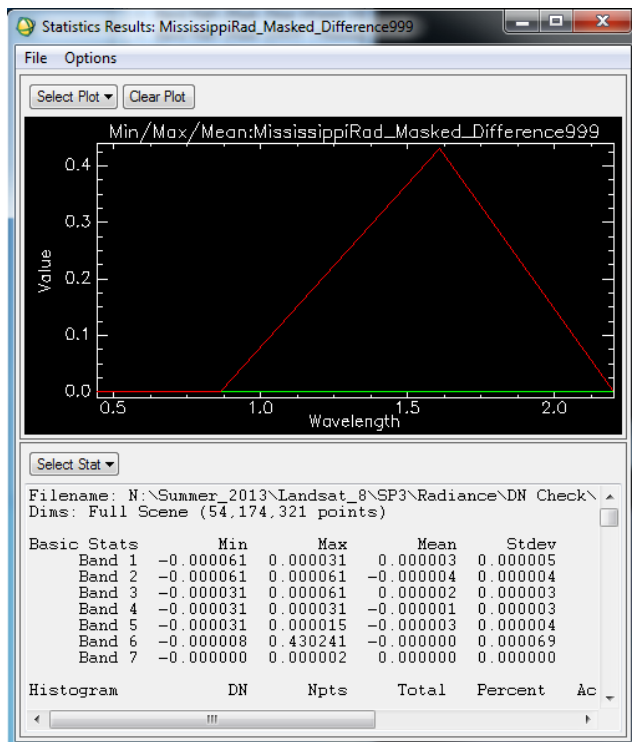
Left: SP3 Calibrated Radiance



Right: Manually Calculated Radiance



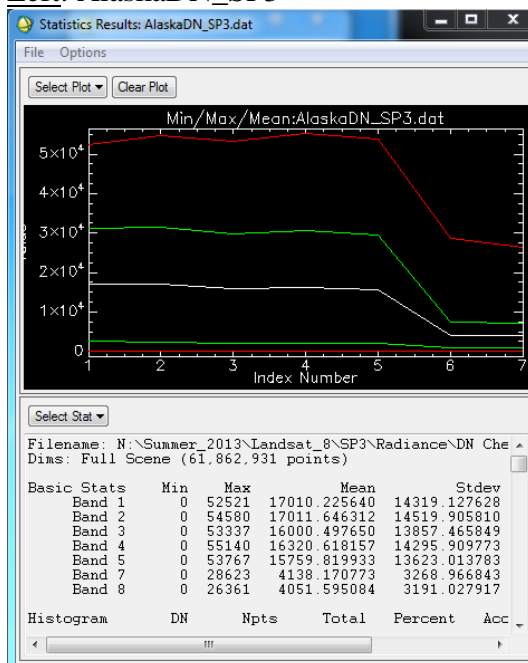
Difference Layer: Band Math: B1-B2 = SP3 – Manual



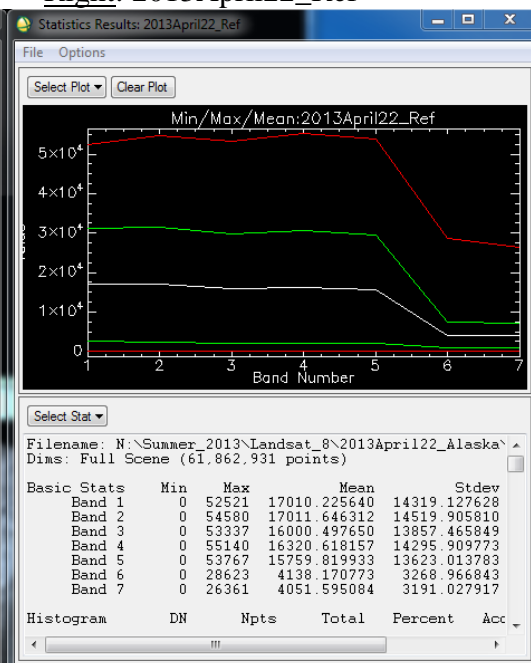
This slight difference in the output due to the choice of masking is curious since the SP3 data file and manually layer stacked file are exactly the same.

Ex. Alaska (both files in DN)

Left: AlaskaDN_SP3



Right: 2013April22_Ref



Difference Layer: $B1-B2 = SP3 - \text{Manual}$

