Evaluation of Backscatter Values, AMM1, MAMM Ascending & Descending Comparison

Introduction:

The purpose of this document is to evaluate in a single location the difference in local and global statistics across RAMP sigma naught (sig0) data products, including AMM1 & MAMM Ascending and Descending. Differences in sig0 valuesdue to beam direction (anisotropy) and beam mode (incidence angle) can be seen particularly in the local statistical differences. Also, due to a difference in processing, the descending data has fewer looks, and thus retains a wider variation in values.

In Figure 1 are the three histograms representing the total variation in sig0 in the three mosaics. For the purposes of this analysis, sea ice values were discarded for the purpose of analyzing only the Antarctic continent and ice shelves, as were values south of 80-degrees South, in order to make the AMM1 mosaic compatible with the other two RAMP mosaics.

Figure 2 contains comparisons of histograms in a "bright" area, or area with relatively high sig0 values (mean approximately 0 dB) in all three mosaics, as well as a "dark" area (mean approximately -20 dB). Because of the difference in beam types between mosaics, the beam type is specified at the top of each sub-figure.

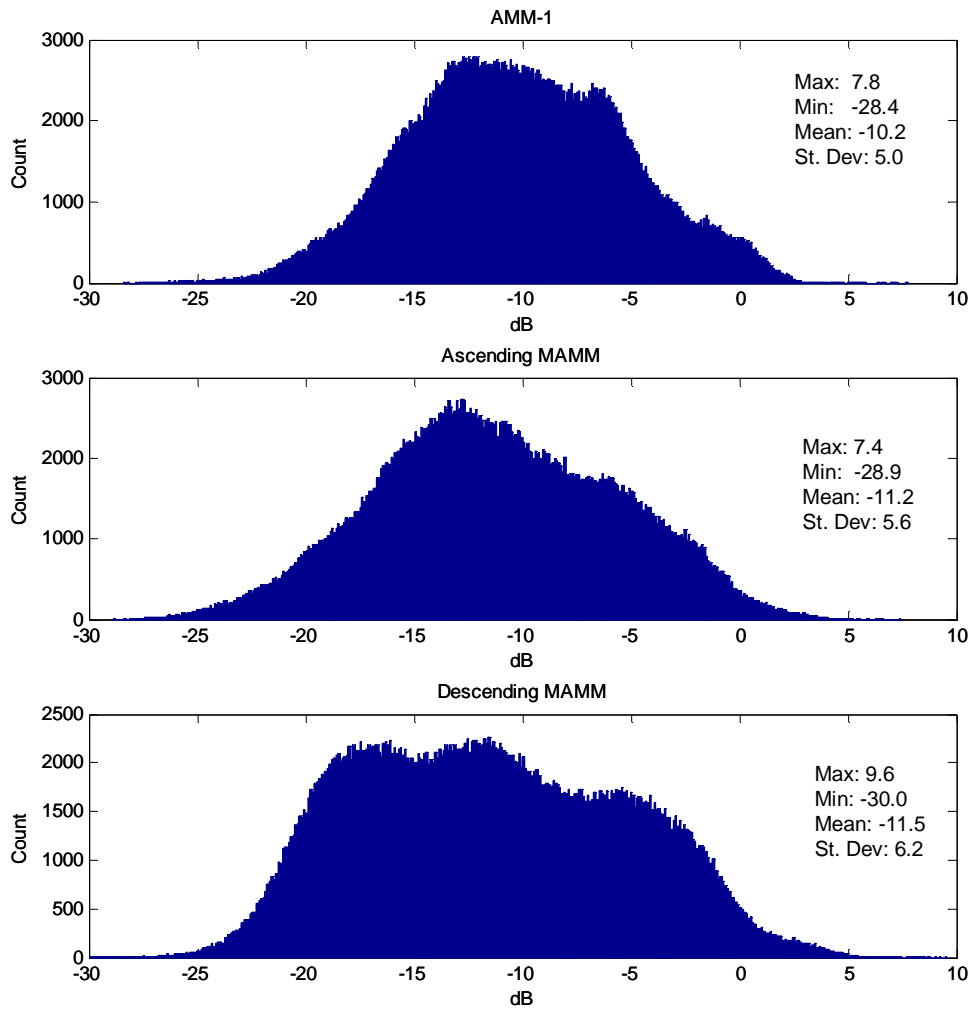Figure 3 is similar to figure 2, but displays the linear form of sig0.

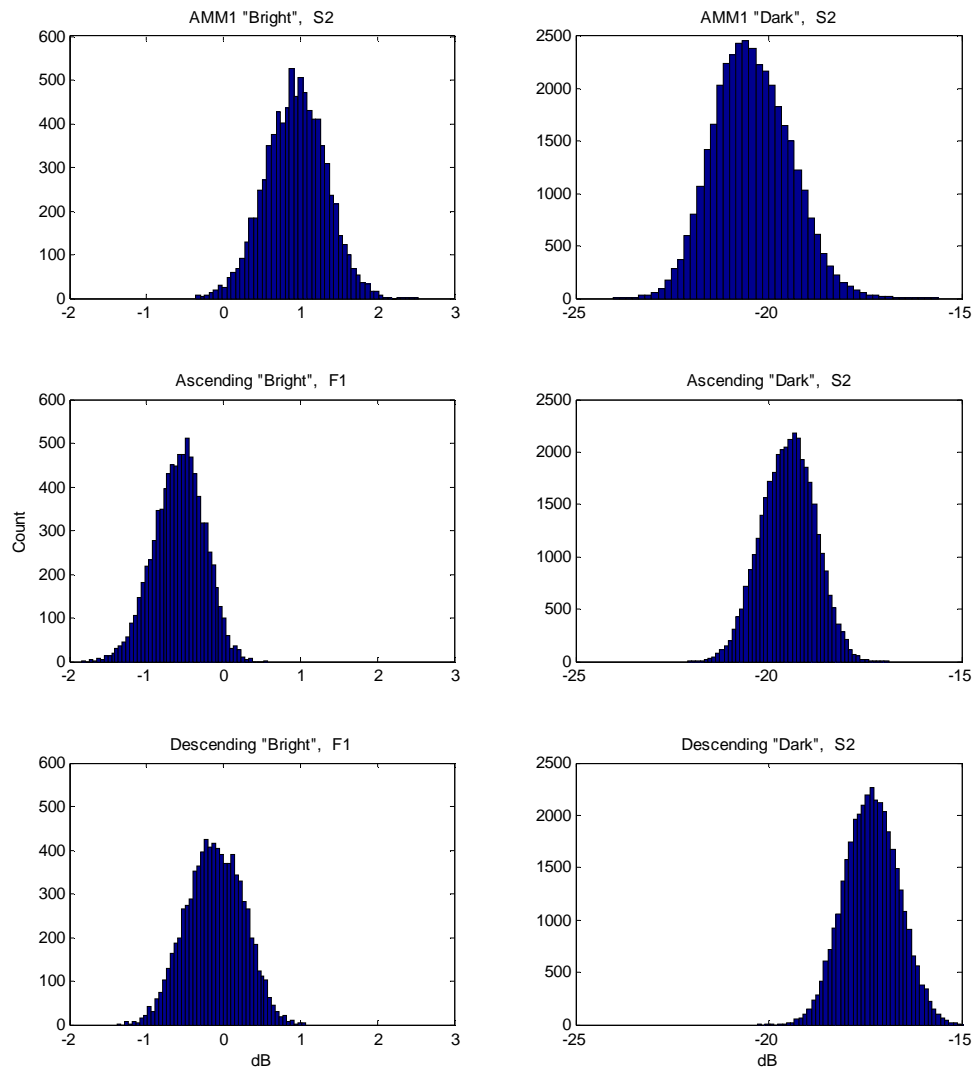Figure 1. Global Histograms of AMM1, MAMM Ascending & MAMM Descending sig0

Figure 2. Local "Bright" & "Dark" region evaluations of AMM1, MAMM Ascending & MAMM Descending sig0
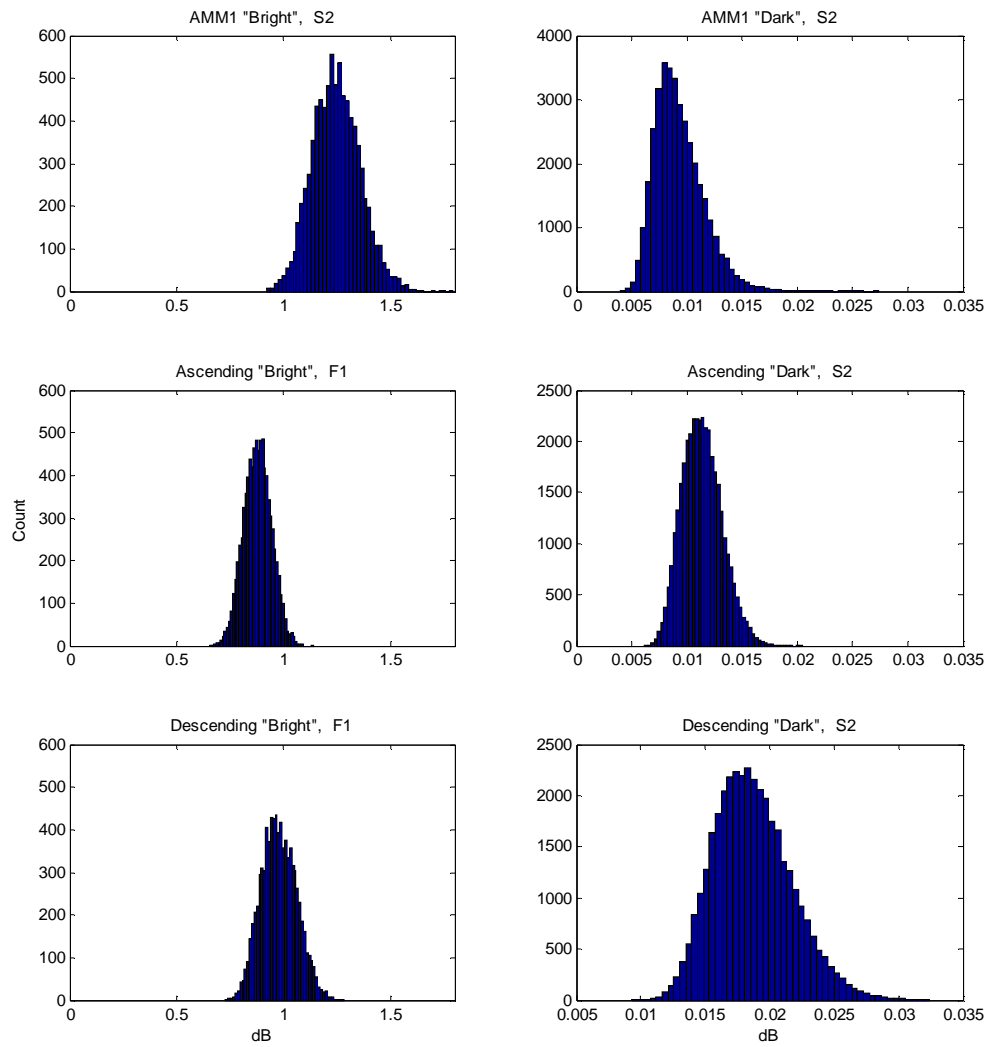
Figure 3. Local "Bright" & "Dark" region evaluations of AMM1, MAMM Ascending & MAMM Descending sig0, linear form of sig0