Figure 1. Surface slopes derived using ARC GIS applied to the ICESat 500 m DEM (NSIDC). Surface slopes are calculated pixel to pixel and so might be exaggerated. Cryosat-2 orbit tracks are overlaid.
Figure 2. Surface aspect angle computed using ERDAS Imagine. 3x3 averaging filter was used to reduce noise. Grid north corresponds to 0 degrees. Cryosat-2 orbit tracks are overlaid.
Figure 3. Two evaluation orbit segments. Segments selected based on terrain variation and proximity to key glaciers (Pine Island and Thwaites).
Figure 4. Evaluation orbits superimposed on the RAMP radar mosaic showing location of orbits relative to glaciological regimes. Bright areas near the coast experience some summer melt. Dark areas in the interior rarely experience melt.
Figure 5. Surface elevation along the Pine Island orbit.
Figure 6. ERDAS derived surface slopes. Data are still noisy but the general trend is evident. Maximum surface slopes near 0 distances are smaller than those computed using ARC because of the 3x3 averaging employed by ERDAS. It does raise an issue about the right spatial differencing scale to be used in estimating Cryosat slope-bias offsets.
Figure 7. Pine Island aspect angles (0 degrees is north). Data are noise especially at the 2 pi folding point but the trends are evident.
Figure 8. Thwaites Glacier orbit surface elevation.
Figure 9  Thwaites Glacier surface slopes
Figure 10. Thwaites Glacier aspect.