QuickBird
Radiometric Calibration Update

DIGITALGLOBE™

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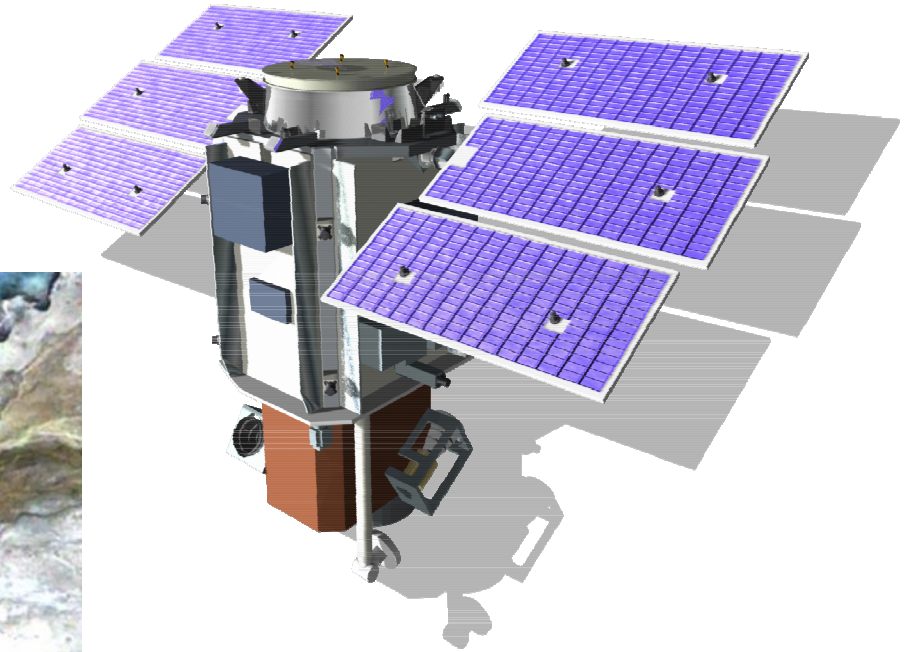
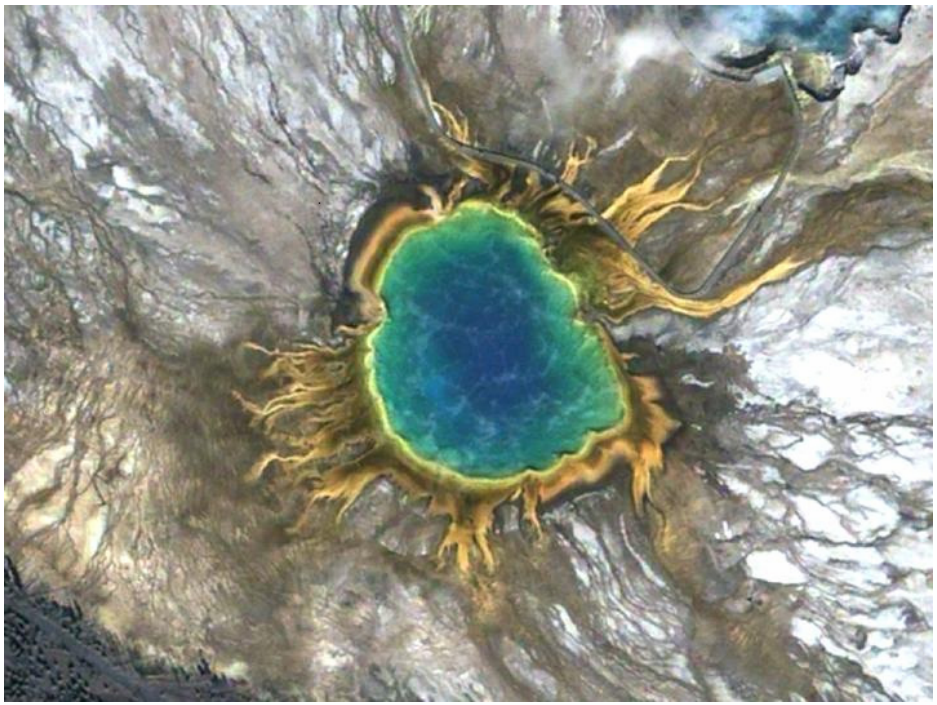
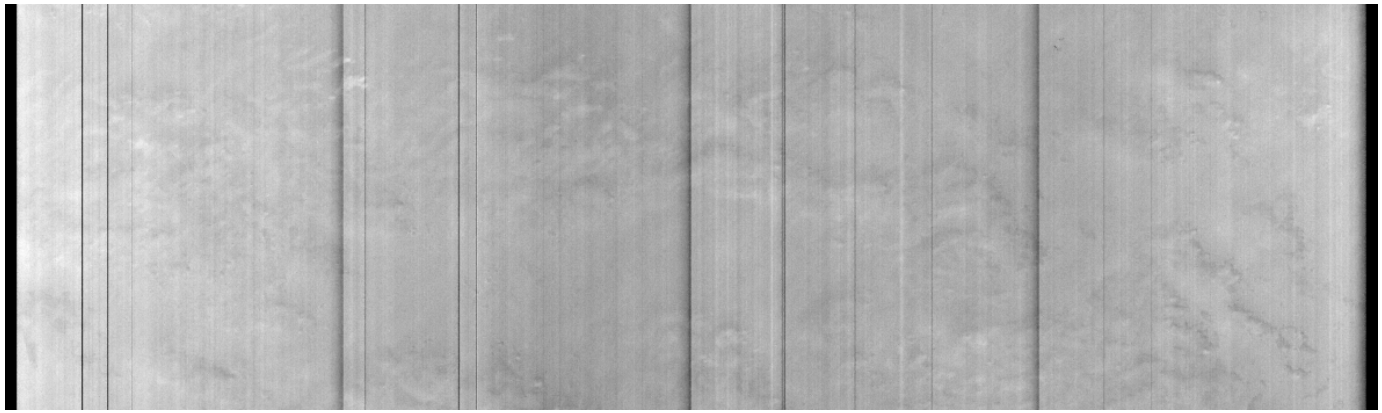




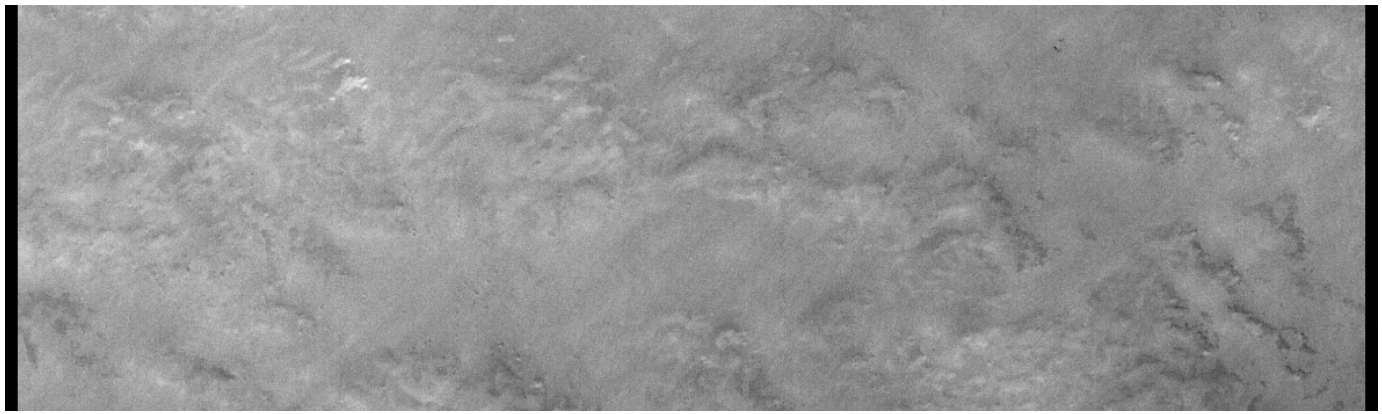
Grand Prismatic, Yellowstone National Park

Why Perform Relative Radiometric Correction?

- A uniform scene does not create a uniform raw image



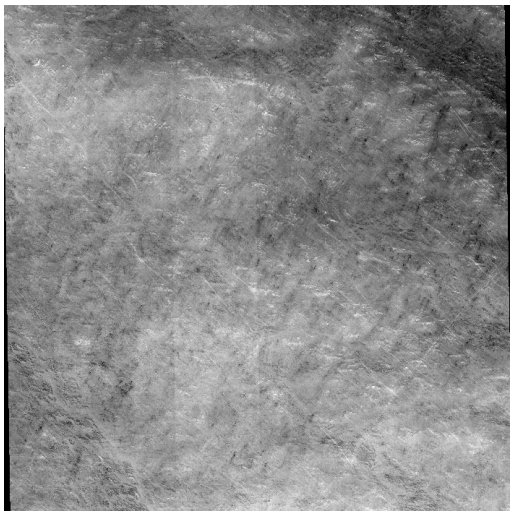
- Major causes of non-uniformity include variability in detector response, variability in electronic gain and offset, lens falloff, and particulate contamination
- All of these can be removed from imagery through radiometric correction as seen below:



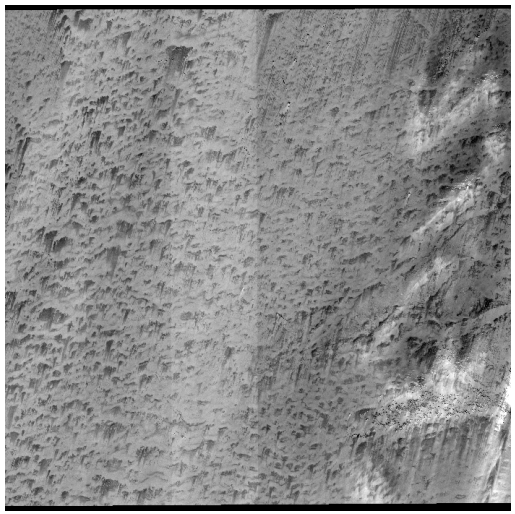
Targets

- Sahara Desert (CNES test sites used)
  - Sudan
  - Algeria
  - Mauritania
  - Egypt
  - Libya
  - Mali
- Oceans, large lakes

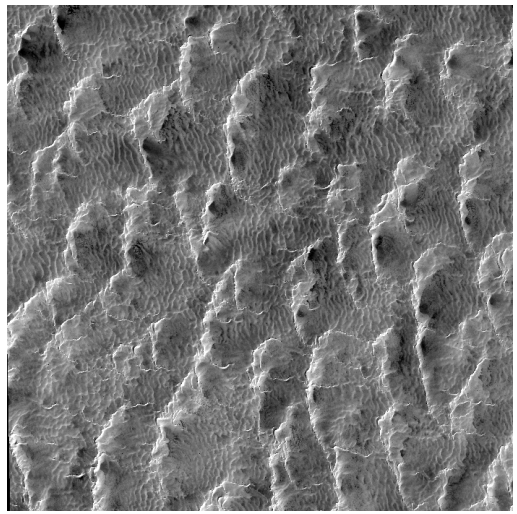
Target Examples



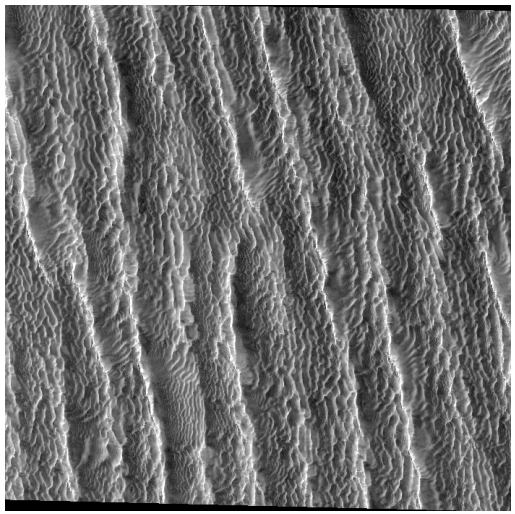
Algeria 1



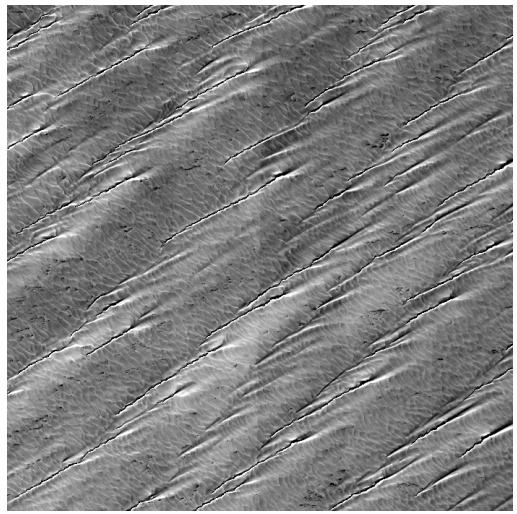
Sudan 1



Libya 4

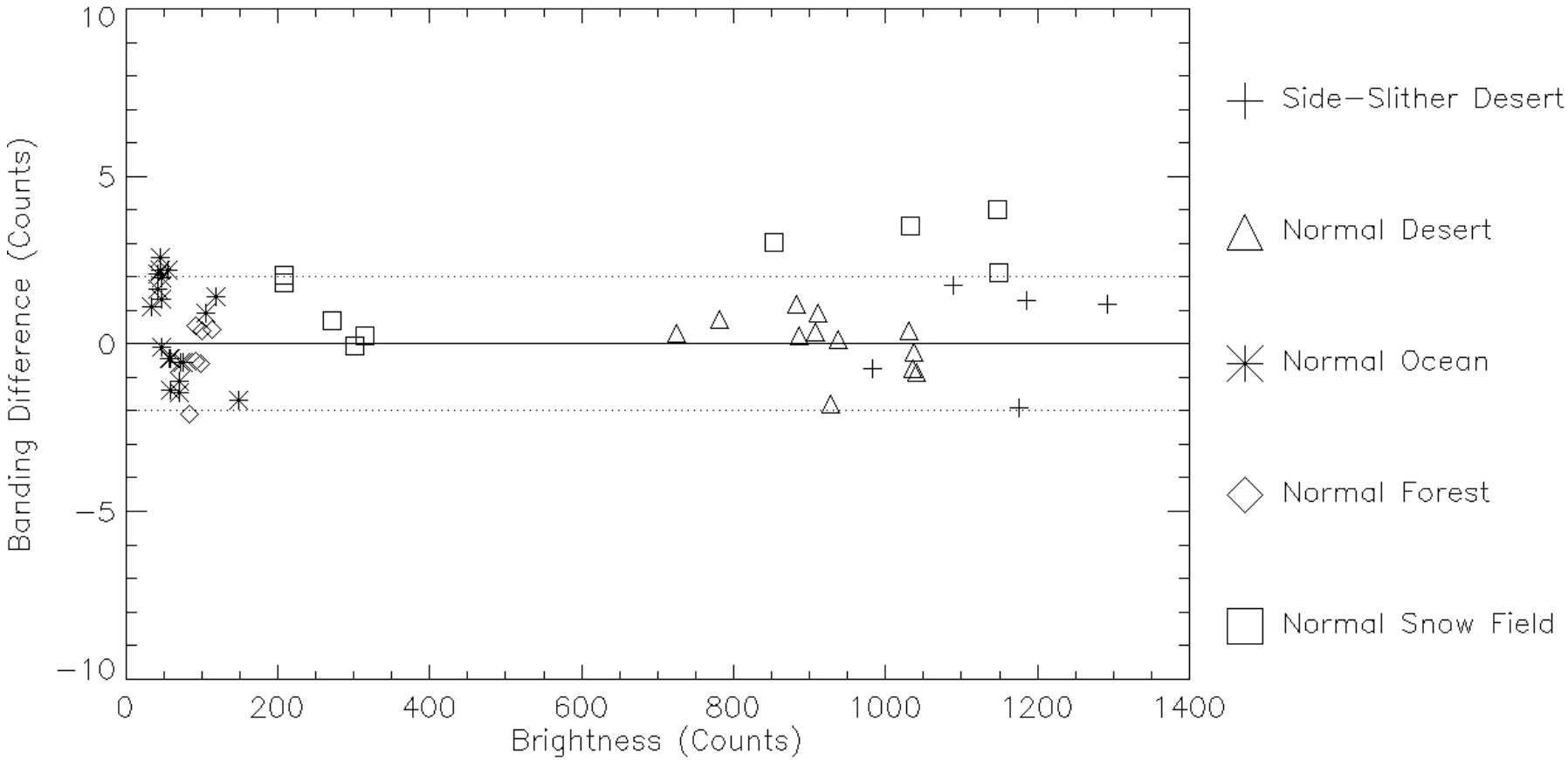


Egypt 1



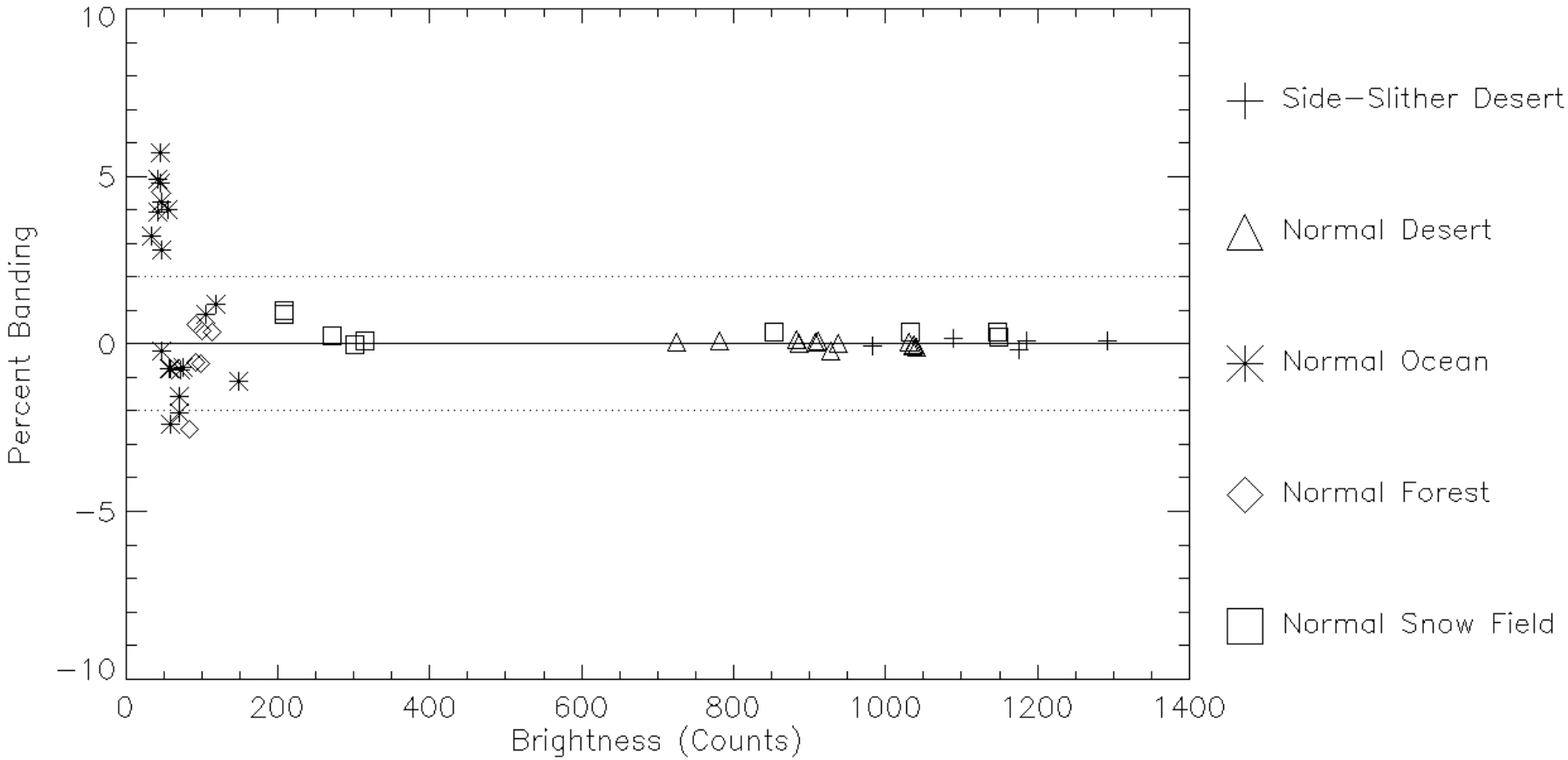
Libya 1

Spring 2004 Banding Results - Red Band DCA 5-4 Difference



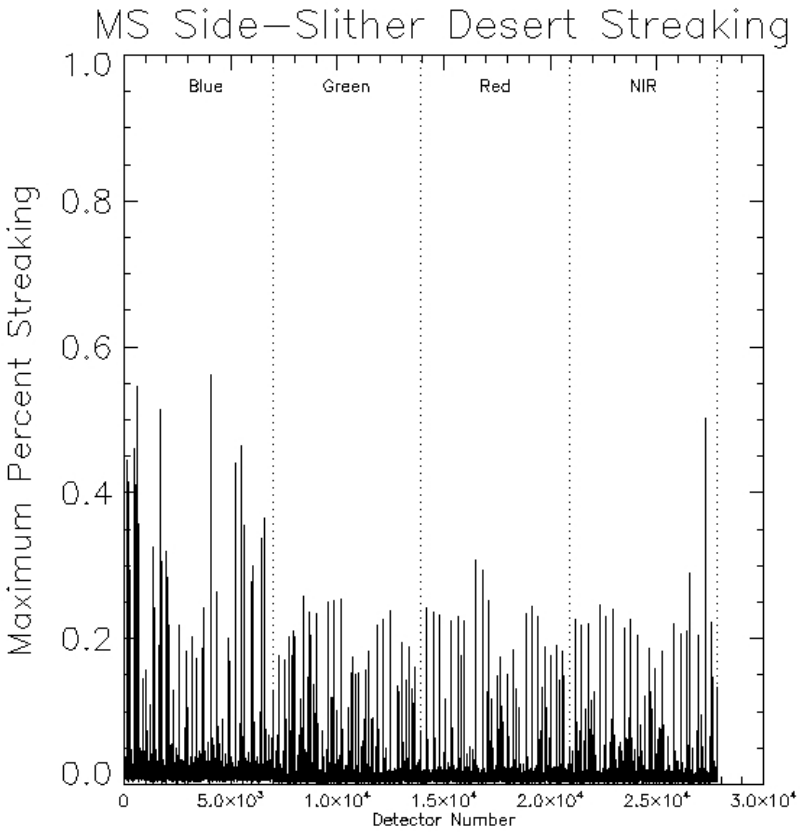
All scenes have banding < 4 counts, most scenes have banding less than 2 counts
The higher brightness snow scenes may have a bias due to spectral banding

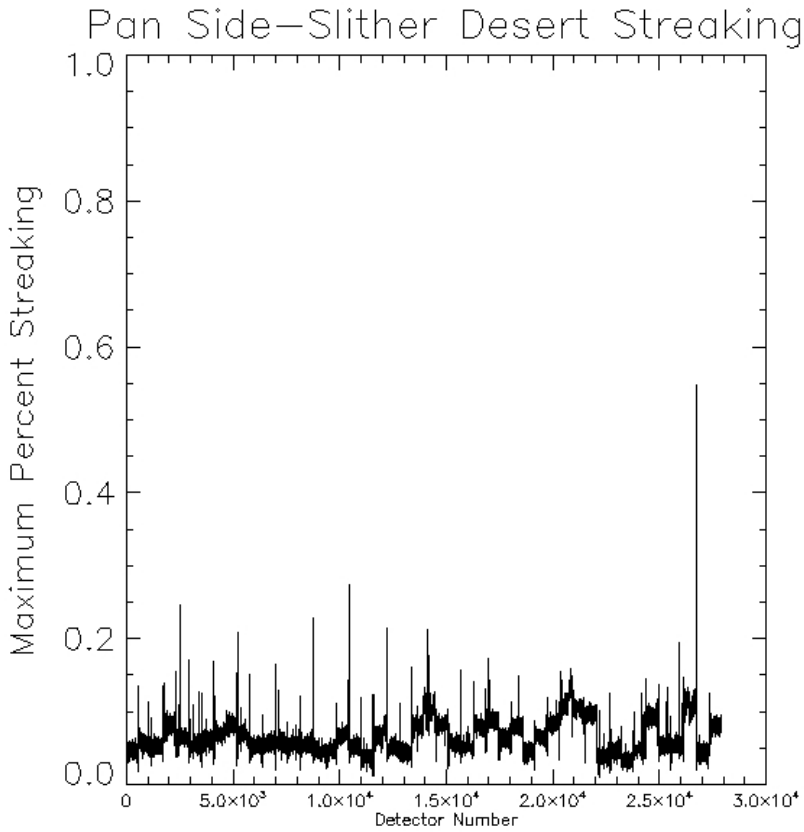
Spring 2004 Banding Results - Red Band DCA 5-4 Percent Banding



All desert images have banding of < 0.7%
Some ocean and forest scenes have banding > 2% due to their low radiances

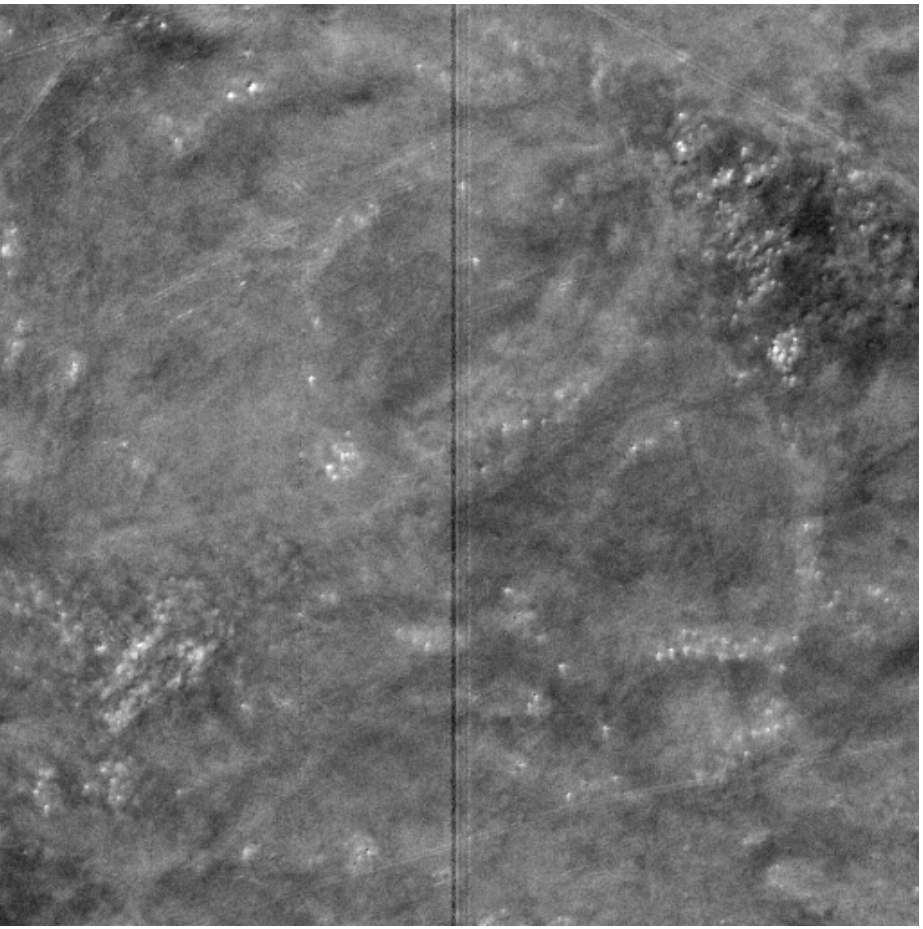
Spring 2004 Streaking Results



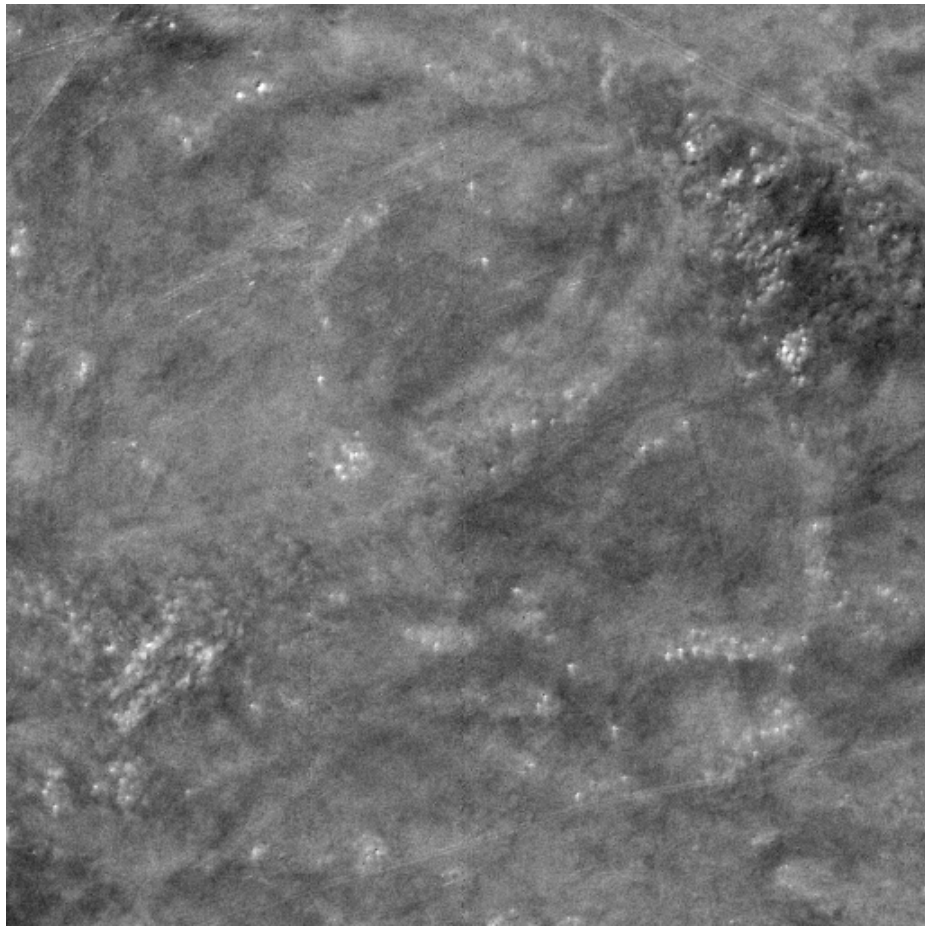


The streaking parameter was calculated for each desert side-slither data set individually
Next, the maximum percent streaking of all of the data sets was calculated for each detector
Streaking is less than 0.6% for all detectors of all bands for desert scenes

Streaking Example: Pan Band



Before



After

Radiometric Summary

- Relative radiometric correction is excellent
- Banding can be seen in low dynamic range imagery
- Banding is less than 4 counts and also less than 2% for typical scenes
- Desert scenes have banding less than 0.7%
- Streaking is less than 0.6% for all detectors of all bands for desert scenes
- No recent analysis has been performed regarding the absolute radiometric calibration