nrsc

RS2A:AWIFS Data Products Radiometric response & Accuracy with the New update (RAD Processing) at DP on 21st April 2017

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Summary

- RAD Data Products were collected from DP covering IMGEOS CAL Site, CEOS Sites and Various other Indian radiometric Targets with the New software patch.

- Multi spectral data response observed for different targets like desert sand, lake, vegetation and snow.

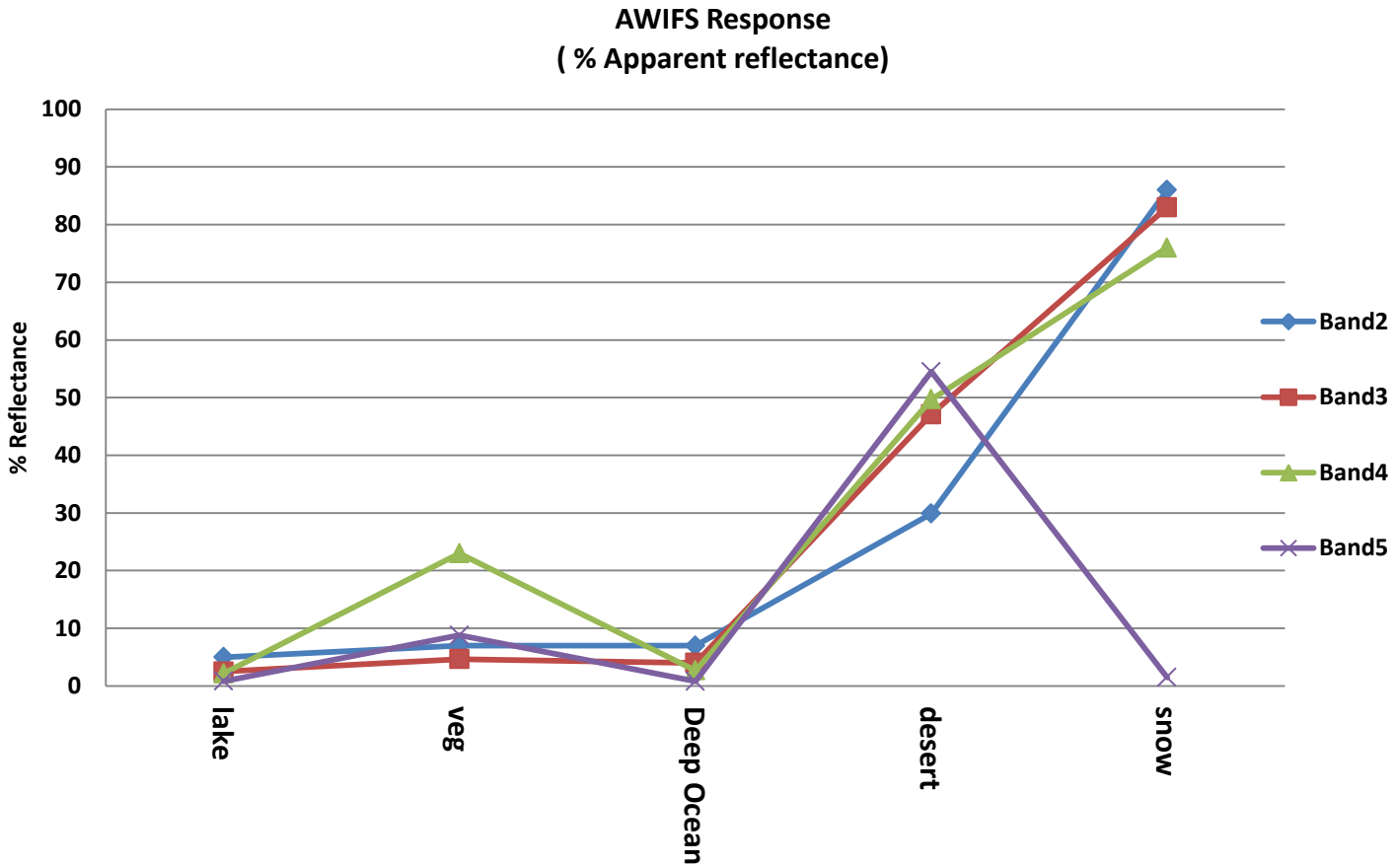
- Absolute Radiometric accuracies were computed with the data acquired over Rajasthan desert Site on 27th Jan 2017.
- Multi spectral data response is as expected for different range of reflectance targets
- AWIFS –A (Onboard B) Spectral response is in agreement with Ground reflectance

(observed through Rajasthan Desert) after compensating atmosphere within 85% to 82% for Band3, Band4 and Band5. 77% agreement is observed in case of Band2 at medium reflectance range of targets.

- Relative radiometry is within 2% for Band2,Band3 and Band4 (deep sea, Flat field analysis).

- For Band5, Both A & B few zones/detectors are showing more than 5%- needs fine tuning otherwise which may appear as banding in uniform low reflectance targets.(slide 10&14)
- Data break in Geo products/Roping effect due to restoration

RS2A,Radiometric response



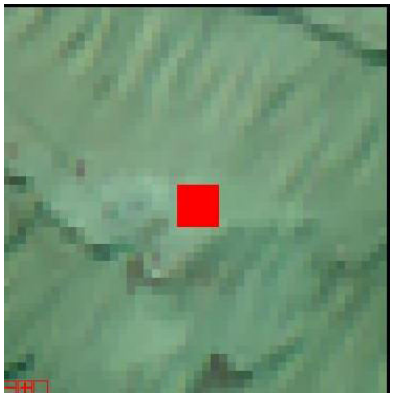
Multispectral response (trend) over different targets is as expected.

Absolute Radiometric Calibration

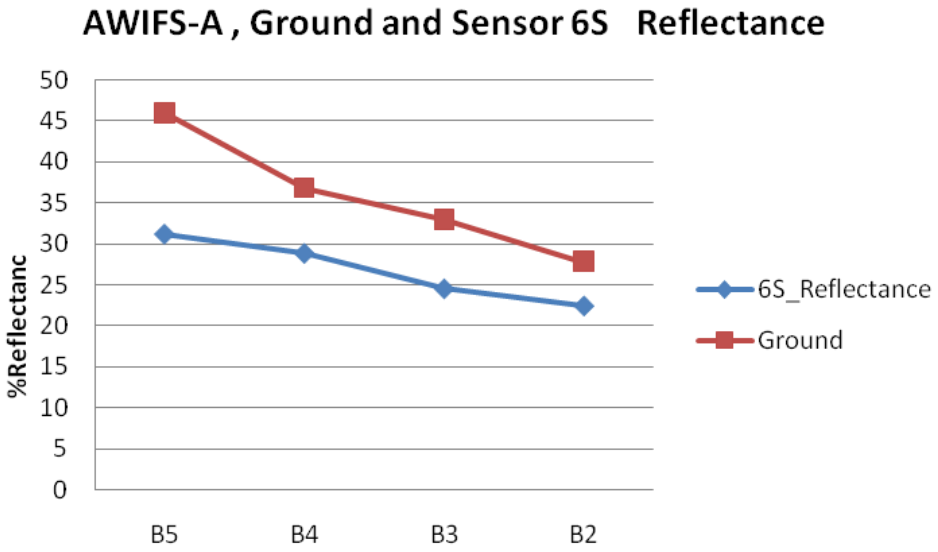
Open source image

Sand feature captured by camera

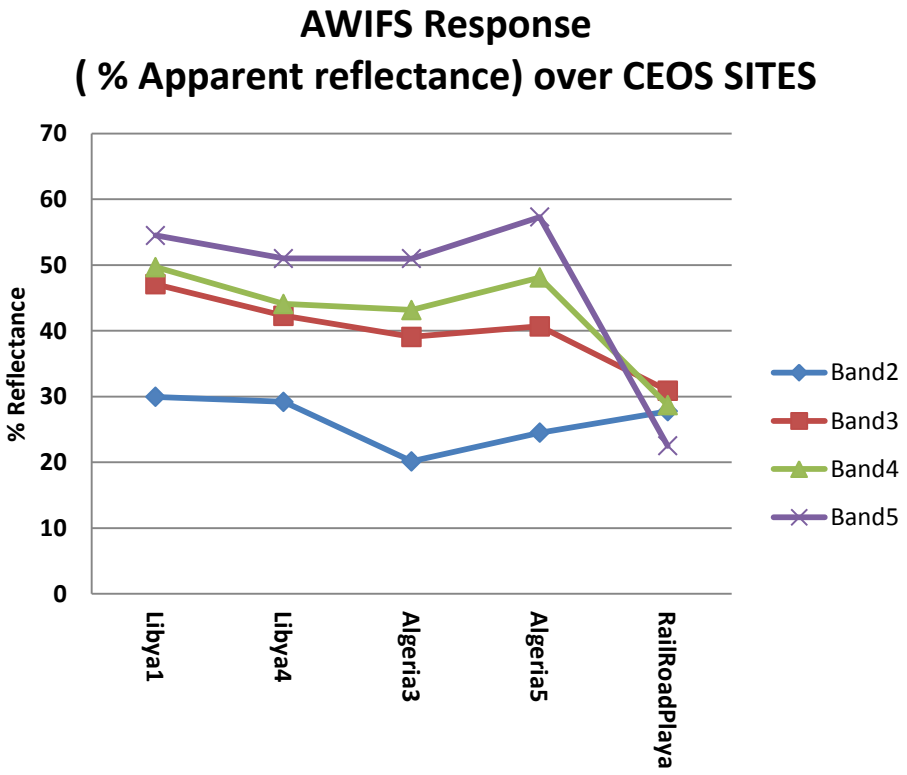
Target acquired by AWIFS



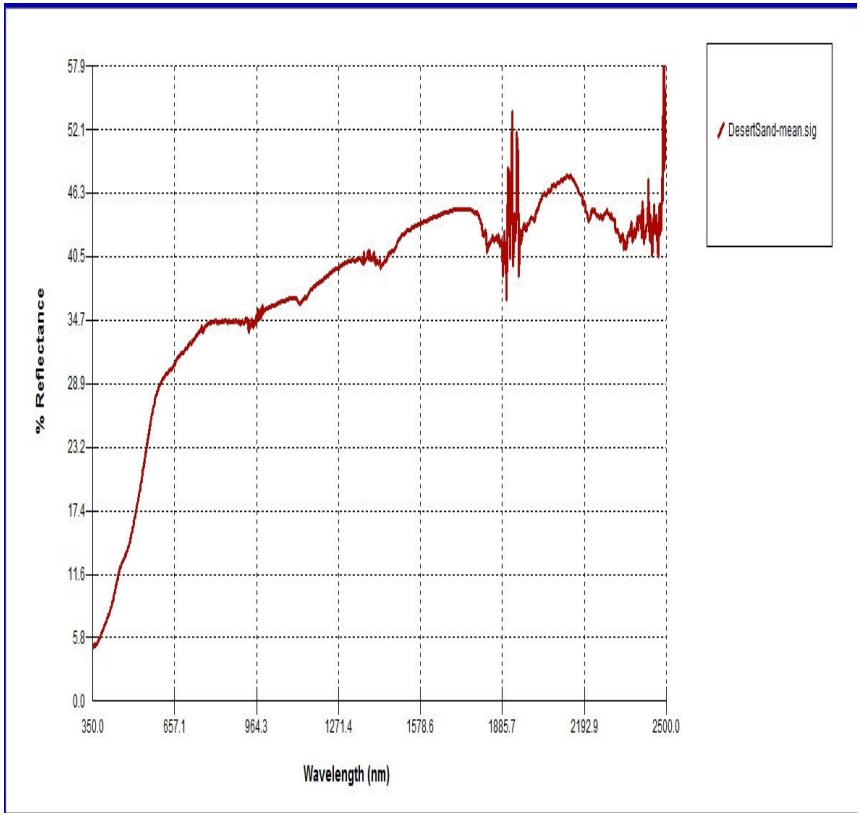
With software update- improved response of B5



Radiometric response over CEOS Sites

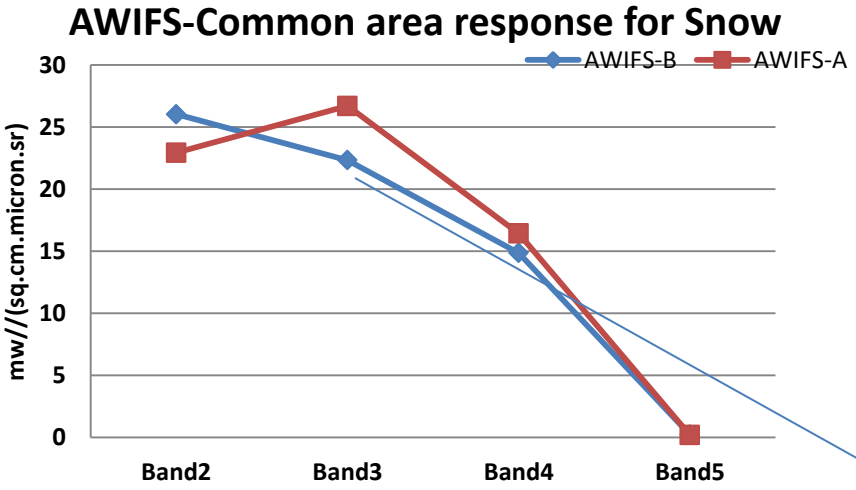


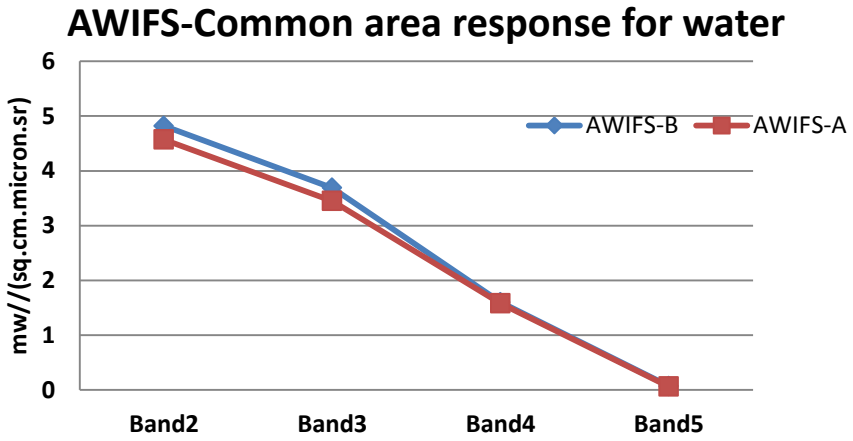
Reference Spectra for sand

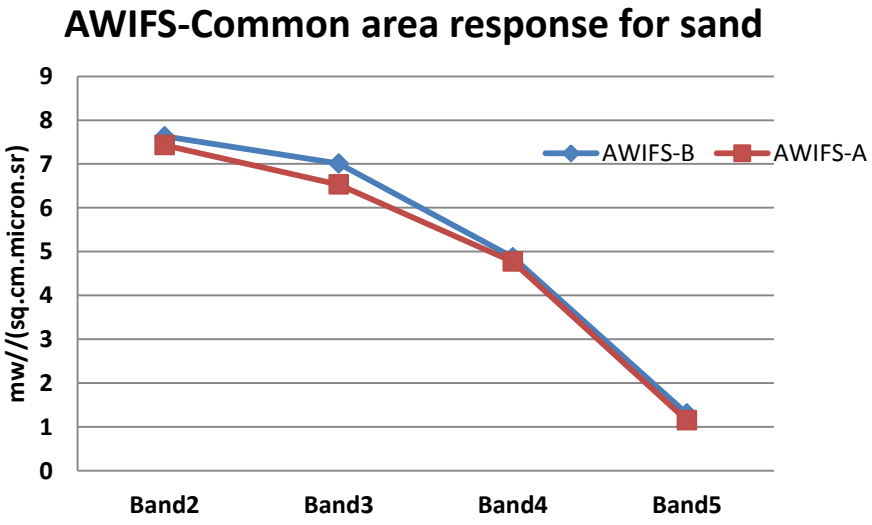


Multispectral response(trend) over standard Desert sand is as expected

AWIFS-Radiometric Response

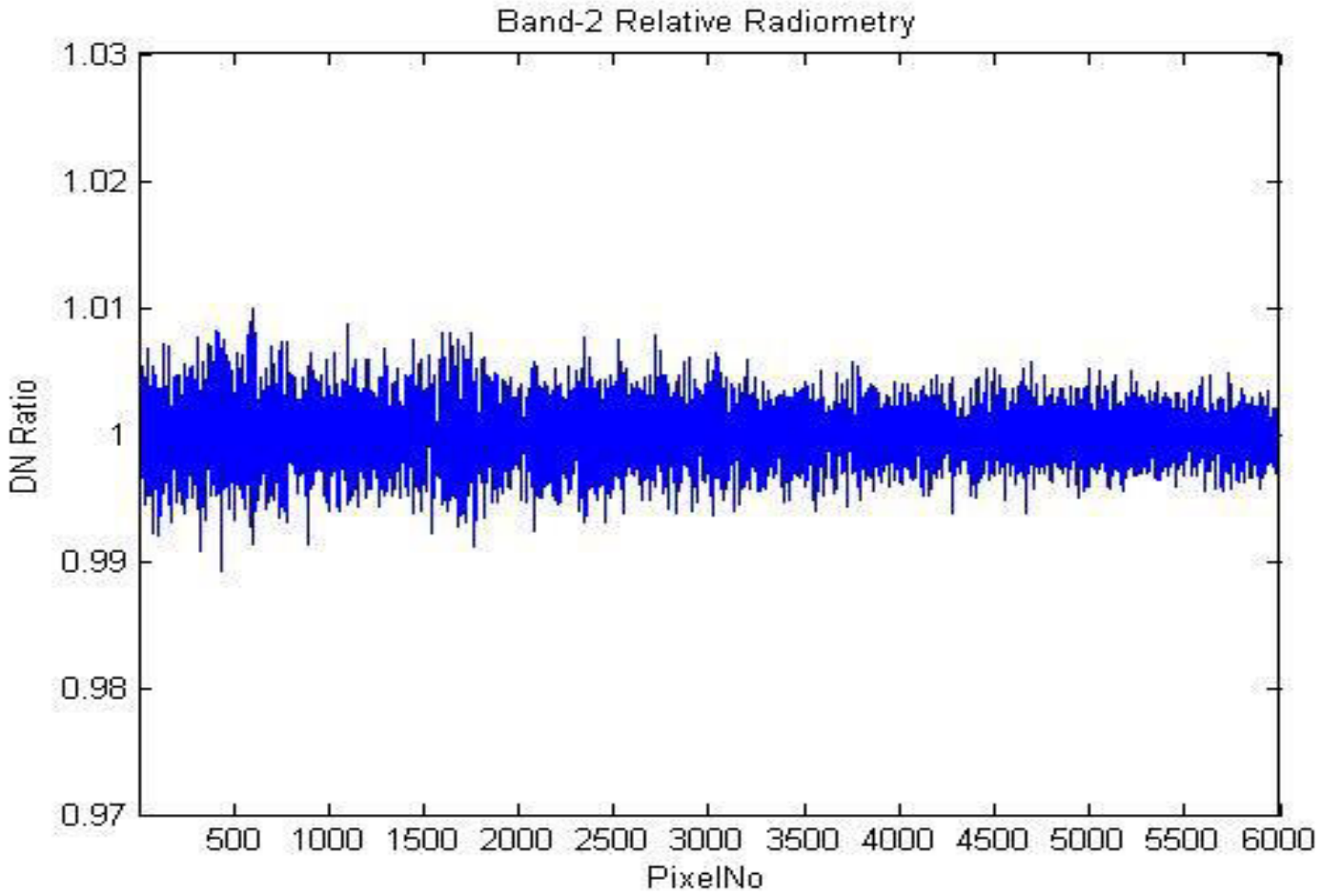




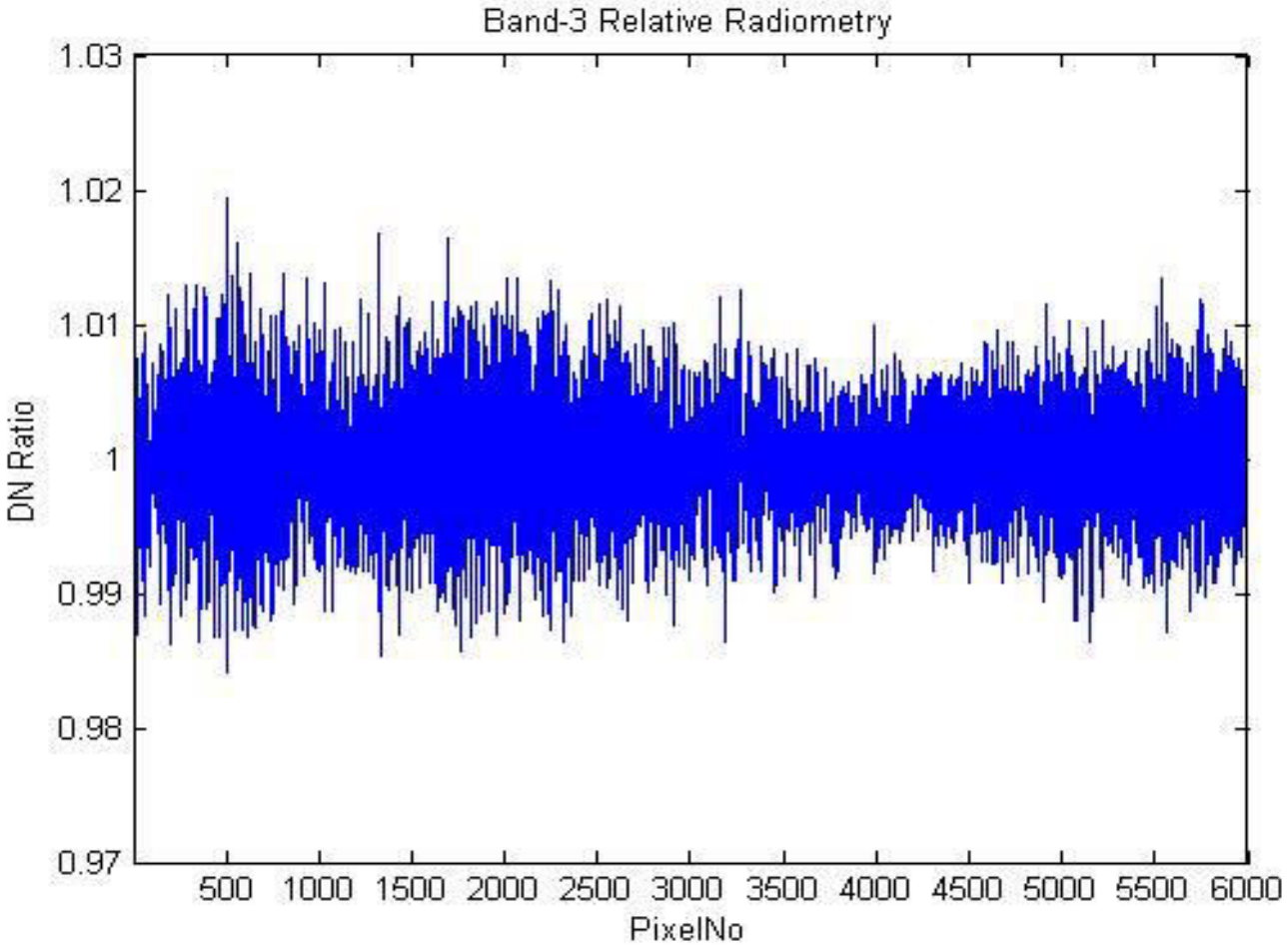


For highest reflectance Snow feature Band2 and Band3 have a significant difference between AWIFS A & AWIFS B. This may lead to classification inaccuracies. For medium and low reflectance both A and B response are in close agreement.

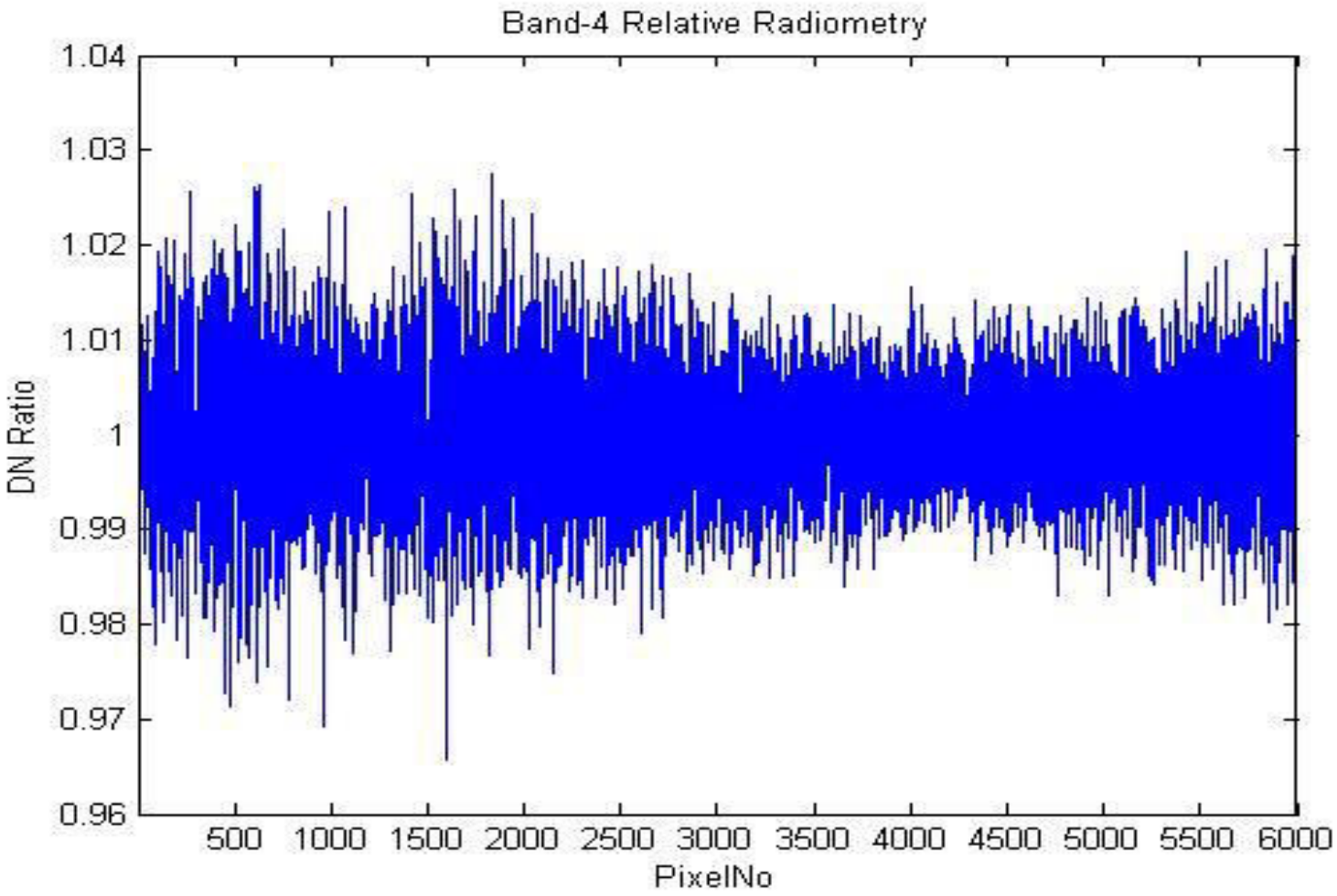
Relative Radiometry-AWIFS-A Band2



Relative Radiometry-AWIFS-A Band3

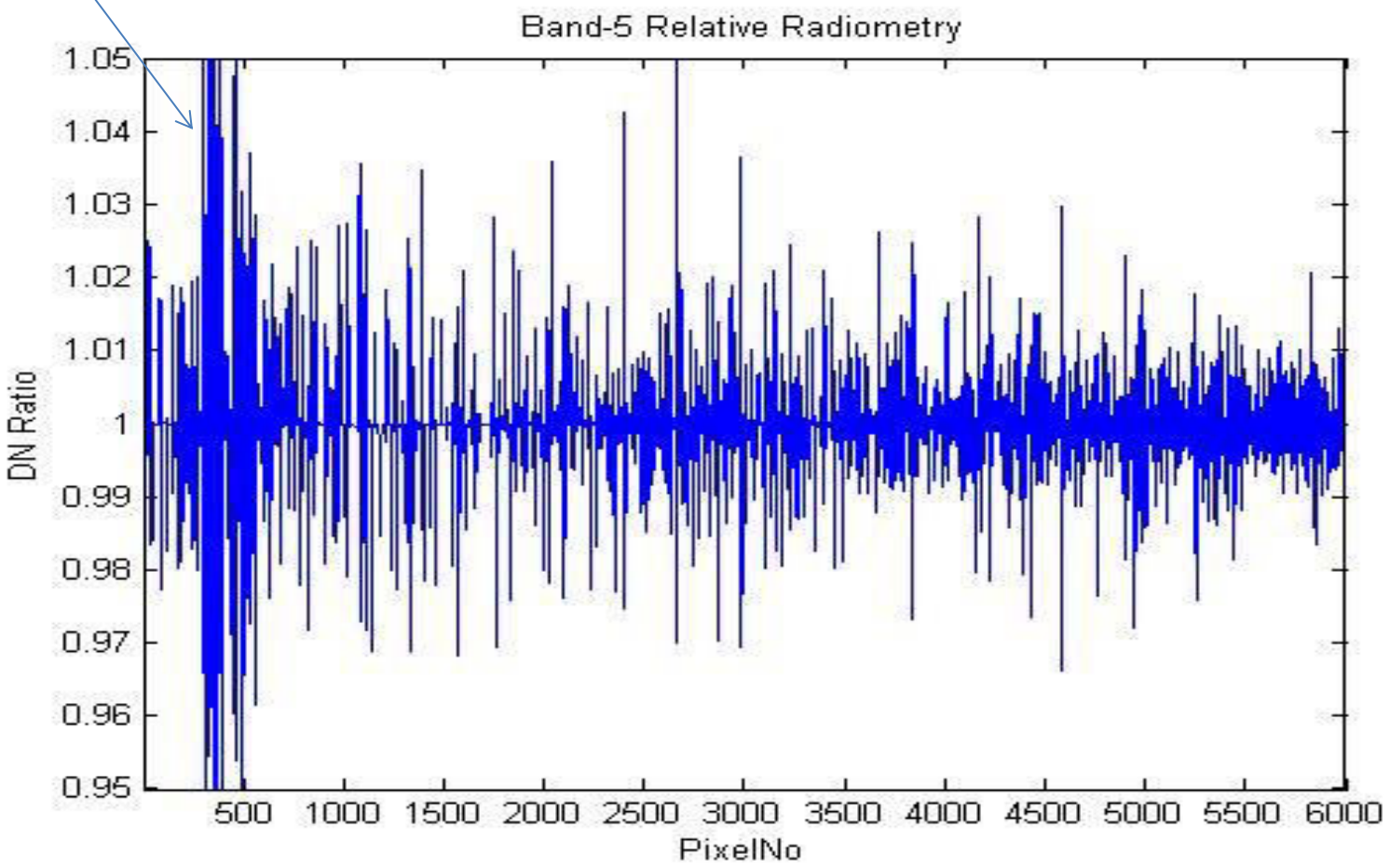


Relative Radiometry-AWIFS-A Band4

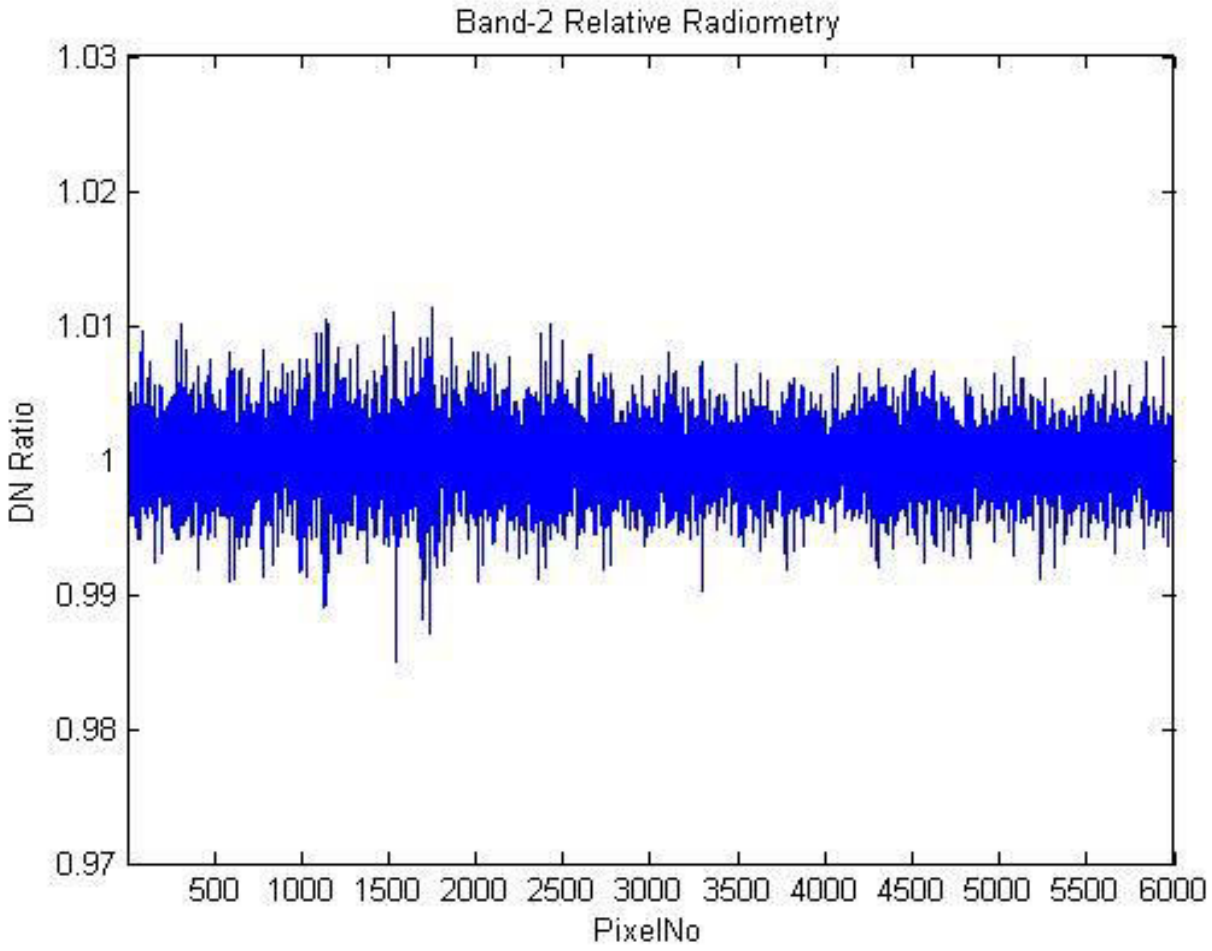


Relative Radiometry-AWIFS-A Band5

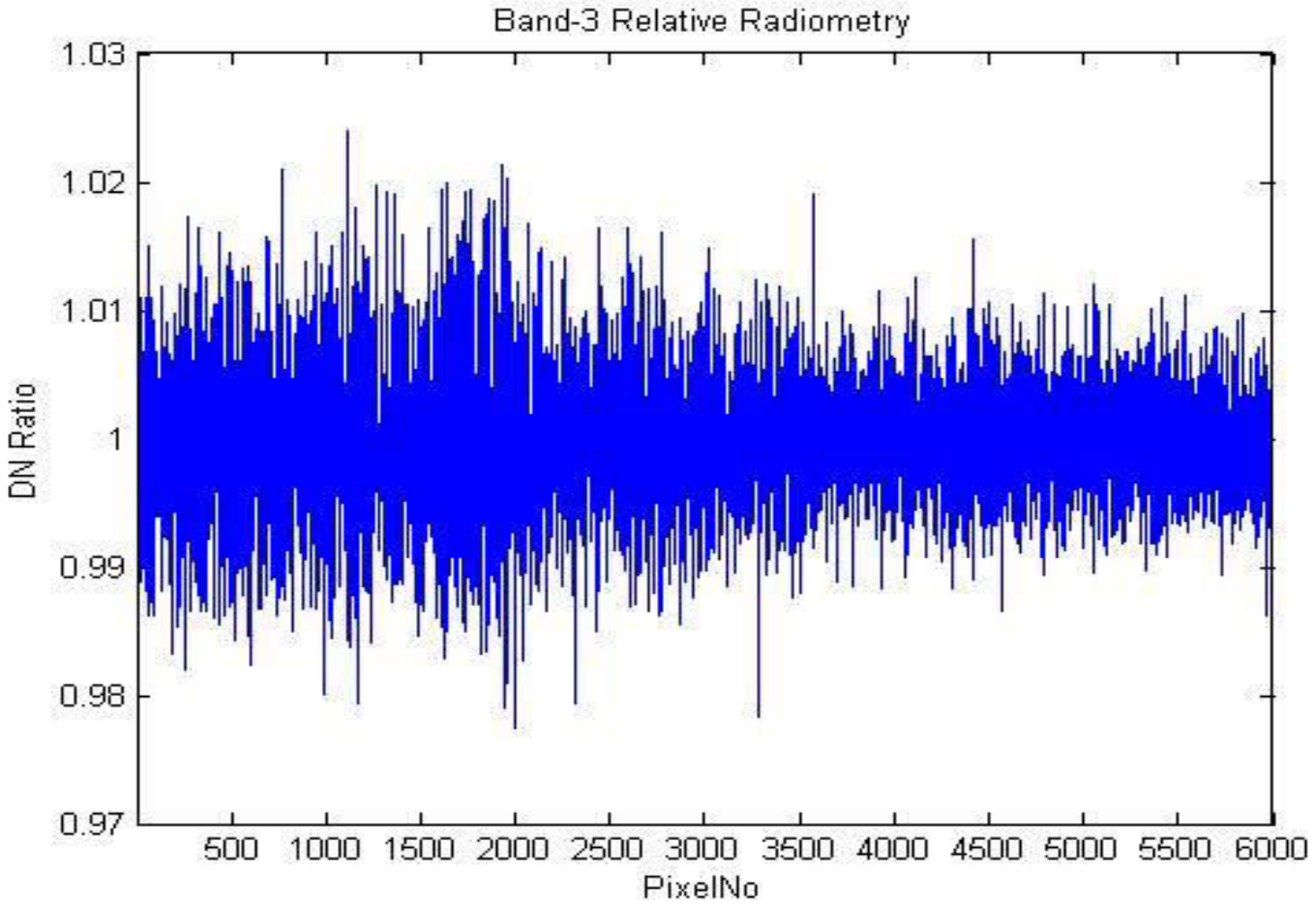
May cause Banding/Striping



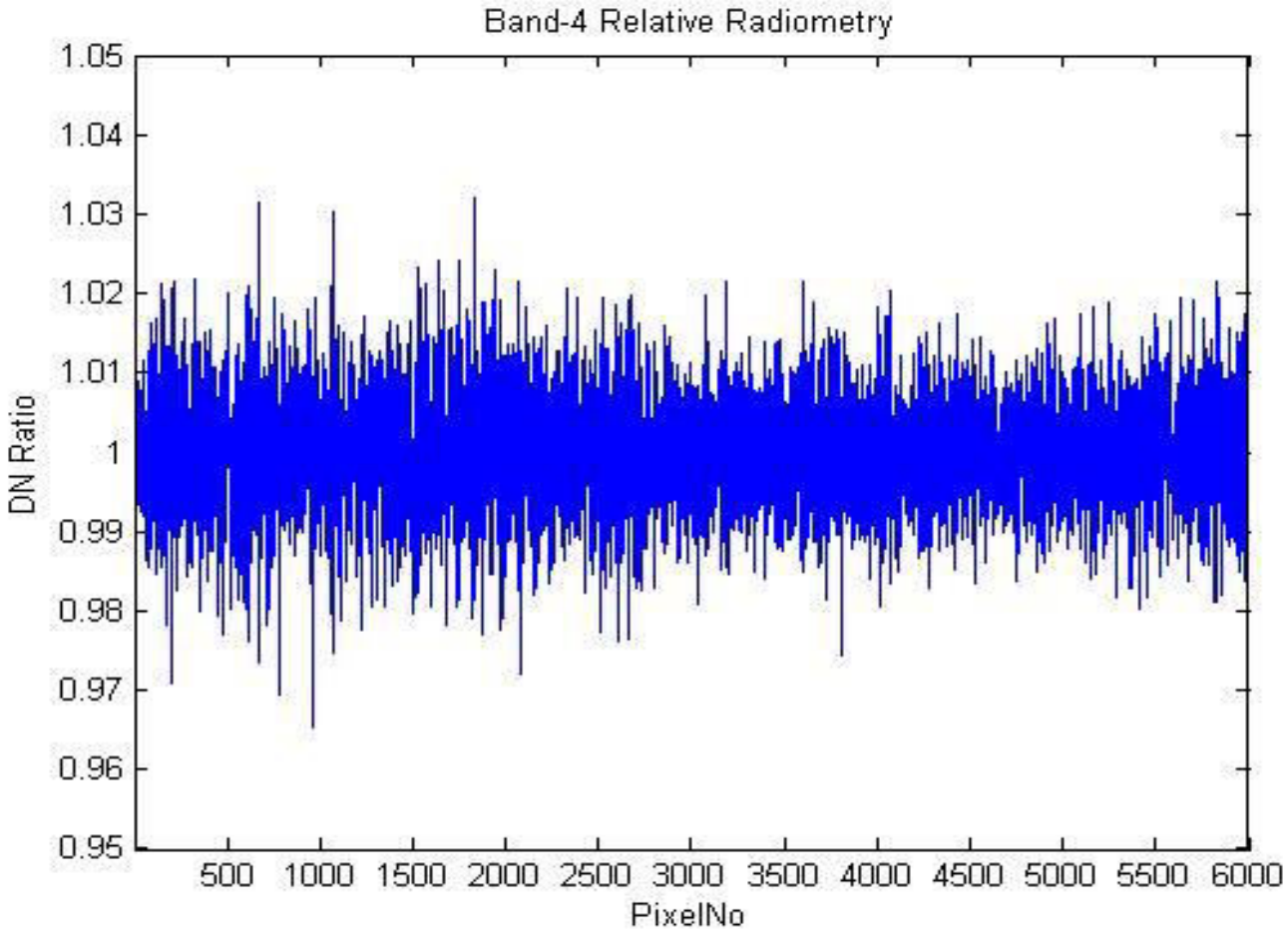
Relative Radiometry-AWIFS-B Band2



Relative Radiometry-AWIFS-B Band3

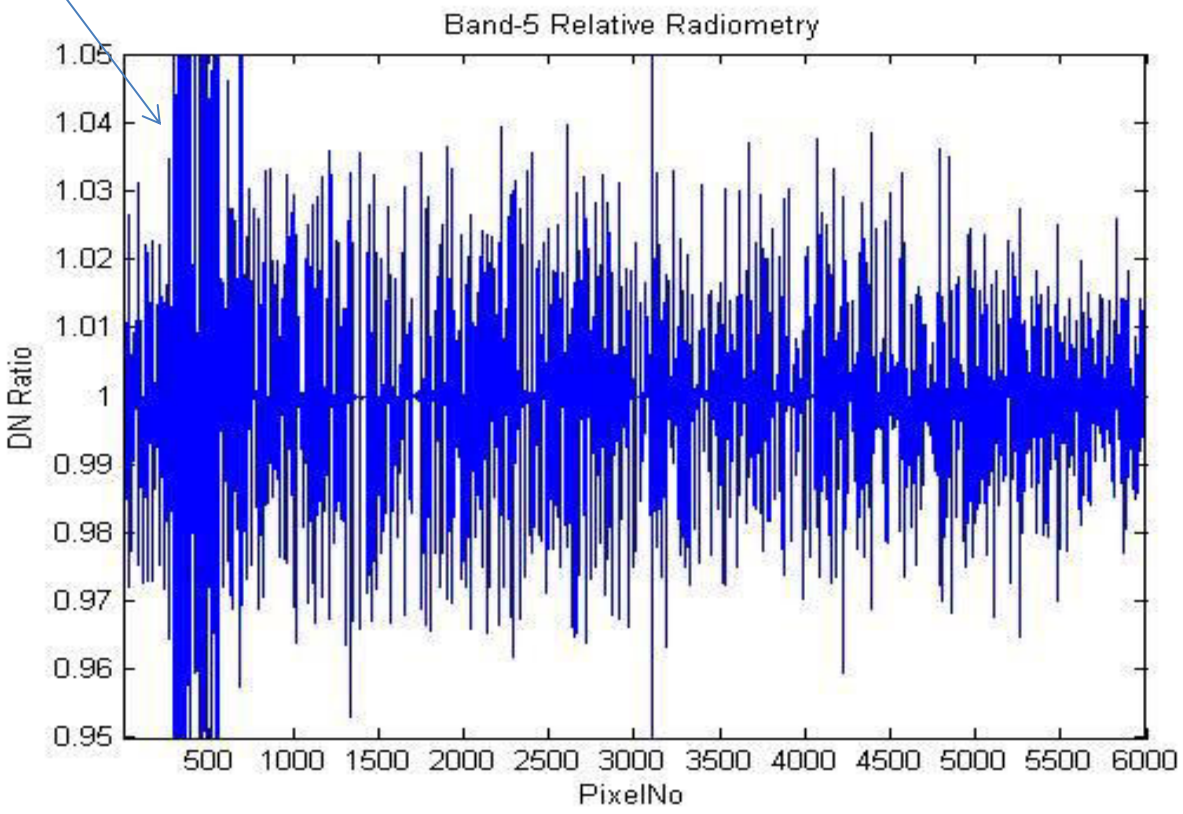


Relative Radiometry-AWIFS-B Band4



Relative Radiometry-AWIFS-B Band5

May cause Banding/Striping



RS2A: AWIFS standard quadrant Scene based Data Products can be cleared for operations with the current version of DP software.

[All bands need fine tuning to improve the radiometric accuracy. Roping effect with MTF restoration and Data Break in terrain corrected Geo Products need to be addressed.]