GSICS VIS/NIR May 9, 2024 Monthly Web Meeting

Scott Hu (CMA), The use of pseudo-invariant pixels (PIPs) for sensor calibration

He discussed the PIPS method, (1) to monitor sensor degradation, (2) inter-calibration between sensor on the same satellite, (3) and inter-calibration between sensors in the same orbit. The PIPs methodology locates pixel features between two images that did change. The pixel reflectance ratio is the radiance ratio between the two images. Only spatially homogeneous locations are identified to avoid clouds. The change in the ratio over time is the degradation. The methodology locates many pixel pairs, in 5 day intervals? Sensor intercalibration on the same satellite was demonstrated using MERSI and VIRR on same FY3 satellite. The spectral difference are from SCIAMACHY.

Fred and Fangfang had questions concerning the methodology. Dave remarked that the methodology can be validated by obtaining the degradation over multiple Earth locations. It was suggested that Scott discuss the each of the PIPS methodology, with attention to details of the methodology

Rajendra Bhatt (NASA), DCC SWIR band BRDFs and GSICS DCC calibration paper

He briefly described the DCC invariant target methodology for wavelength < 1μm. He updated the N20-VIIRS DCC reflectance response for each of the GEO domains. He mentioned that the Africa GEO domain had the greatest DCC reflectance, whereas the TWP had the lowest. Scott mentioned that the Indian Ocean region had the greatest standard deviation of all the domains. The second part of the presentation was DCC algorithm into the SWIR bands. Here each wavelength needs its own empirical DCC BRDF that is a function of local time, season, and spatial domain. He showed that using DCC BRDF reduced the noise of the N20 VIIRS monthly DCC mean stability

The members were in favor of two papers to pubish the GSICS DCC method, an algorithm paper, and the DCC algorithm application amongst the agency paper.

Hanbyul Lee (KMA), Current Status of KMA VIS/NIR & Lunar calibration

She presented the GSICS annual meeting presentation. There was not enough time to discuss at the annual meeting. She presented the Terra-MODIS/GK2A, NPP/GK2A, N20/GK2A, N21/GK2A ray matching results along with lunar stability monitoring. All the methods had a distinct seasonal cycle. Some had greater seasonal cycles than others. It looks like a Earth sun distance was not taken into account.

To best resolve the problem, Hanbyul will work with the GSICS lunar members by sharing the lunar data results. She will acquire agency permission.