July 30, 2003

MODIS sensor Working Group (MsWG) Summary

Attendance: Bob Barnes, Stuart Biggar, Vincent Chiang, Roger Drake, Wayne Esaias, Gene Feldman, Timothy Gubbels, Gerhard Meister, Chris Moeller, Junqiang Sun, Gary Toller, Jack Xiong, Zhengming Wan, Liam Gumley

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Scheduled Items

Item 1 : Terra new SWIR 003 test results sent to Chris

Item 2 : MODIS TIR destriping (Liam Gumley)

LG) We have been looking at TEB destriping for some time, using various approaches. We took a look at the algorithm of Weinreb et. al. (1989). This algorithm handles both mirror side differences and detector striping. The median value of the scene radiance is restored. One detector must be picked as reference. The algorithm operates on L1B scaled integers and is implemented in IDL. Each granule is treated on its own. It takes 60 to 90 seconds to create a lut for each band. We have been using it for 2 months on our direct broadcast data. Here we see examples from both Terra and Aqua. we use a 700 by 700 pixel sub-scene centered on nadir. Now we do a band-by-band review. Some noisy detectors are substituted with the nearest neighbor. The results are good. The correction looks consistent for different granules. Now review Aqua bands. All Bands work fine, except for B31 and B32. The L1B B31 and B32 are good enough already. The destriping introduces noise.

JX) We have looked at this before. The decision included:
• Put in L1B or higher-level products
• Computing resource demand
• Radiometric accuracy
We will leave it open. I will pass this on to Vince and we will send you our noisy detector list. MCST had a similar destriping algorithm before, but we stopped because higher level products use 5x5 km applications.

LG) It takes about 90 seconds and the 1 km correction is better.

RD) What kind of consistency do you see from one granule to the next? Does the coefficient look stable granule to granule? B31, 32 have big issues. Noise in the two bands is independent of radiance.

ZW) What about older data (side A)?

LG) We have not yet tested the older data, especially over polar regions.

LG) We will continue to follow up. We are not saying this algorithm approach is the best.

Item 3: Solar diffuser calibration

WE) The solar diffuser issues are next. I have new information in the package I distributed. The first chart is the MCST-provided calibration. We need to identify inflection points.

RD) The calibration starts near the terminator at 26°. The onset varies with season, high latitude clouds. Look at the angular variance. We have Tim Youngs memo dated Nov. 1993.

WE) I need copies of the calibration papers.

RD) I'll fax the memo to Jack. I will work on the geometry. We don't yet agree as to the cause of the seasonal variations in the SD m1s.

Around the Table

SB) I will present a paper at SPIE

JX) No meeting next week