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To: Distribution

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Subject: Level 1B Requirement for Scan Overlap in MODIS Level 1 Data Processing Blocks

The MODIS is a paddle wheel scanner and utilizes both sides of the scan mirror (A and B) to gather both on-board calibrator (OBC) and Earth view data. The baseline calibration approach is to treat the two sides of the scan mirror separately. For a given scan the OBCs are viewed prior to Earth view. Because of the slow drift of the OBC signals attributed to "1/f" noise, it is planned to linearly interpolate the OBC values to the times corresponding to the Earth view signals.

Because the MODIS data must be split into finite processing blocks, either two redundant scan lines are required at the end of each processing block or abutting processing blocks are required to accommodate the aforementioned interpolation scheme. Due to these added complexities and data storage issues, alternative approaches may be considered. One such approach is to extrapolate the OBC values for the last scan line.

Modeling results for the GOES-I imager showed a 7% to 26% improvement in the signal to noise ratio (SNR) for 1 and 100 space view samples, respectively. Because MODIS uses 15 OBC samples, an improvement of about 10-15% in SNR is anticipated.