CERES/GERB Shortwave and Longwave/Day Comparisons

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CERES Scan Plane Rotates to Contain GERB, Thus Observe Same Radiance
Criteria for SW Matches

- Use GERB L1.5 NANRGs for time
- Use RMIB’s unfiltered SW radiances, angles, and geolocations for GERB
- Use CERES Edition 2 Revision 1 ES8s
- View zenith and relative azimuth angles within 5°
- Near GERB subsatellite point, accept matches within 10° angle between GERB & CERES rays
- Comparison is based on each GERB detector
GERB/CERES
Special Operations

• December 2003/January 2004 15 days
• June/July 2004 27 days
• December 2004/January 2005 26 days
• June 2005 21 days
CERES Matches for June 11, 2004
Latitude Coverage

December 2003 / January 2004

June / July 2004

4th CERES-II Meeting
November 1-3, 2005
Number of Matches for Each Detector
Winter Campaigns

4th CERES-II Meeting
November 1-3, 2005
Number of Matches for Each Detector
Summer Campaigns
GERB SW Mean/CERES SW Mean
Summer Campaigns

4th CERES-II Meeting
November 1-3, 2005
GERB SW Mean/CERES SW Mean
June/July 2004 – Both GERB Versions
Criteria for LW Matches

- Use GERB L2.0 ARGs for LW radiances & time
- Use RMIB’s geolocations for GERB
- Use CERES Edition 2 ES8s
- View zenith angles within 5°
- Now comparison is based on the row in the ARG array, not GERB detector number
Number of Matches for Each ARG Row
Conclusions

• CERES has been operated in 4 campaigns to measure radiances which are co-aligned with GERB during 2 NH winters & 2 NH summers.

• CERES serves as a transfer radiometer in comparing the 256 GERB detectors.

• These conclusions apply to detectors 49-174. For detectors 1-48 and 175-256, the sampling and results are not as good.

• GERB detectors vary by ±2% among themselves.
Conclusions (cont.)

• Between adjacent detectors for SW, there is a random uncorrelated change of $\sim _{-}\%$ and a long range structure (over a score or more) of $\pm 2\%$ superimposed.

• For SW radiances, GERB/CERES is in range of 0.93 to 0.97.

• Comparisons are reproducible within $\pm 1\%$ among campaigns.

• For LW radiances, GERB/CERES is in range of 1.00 $\pm 0.01$. 