



MODIS Geolocation Validation and Operational QA Plans



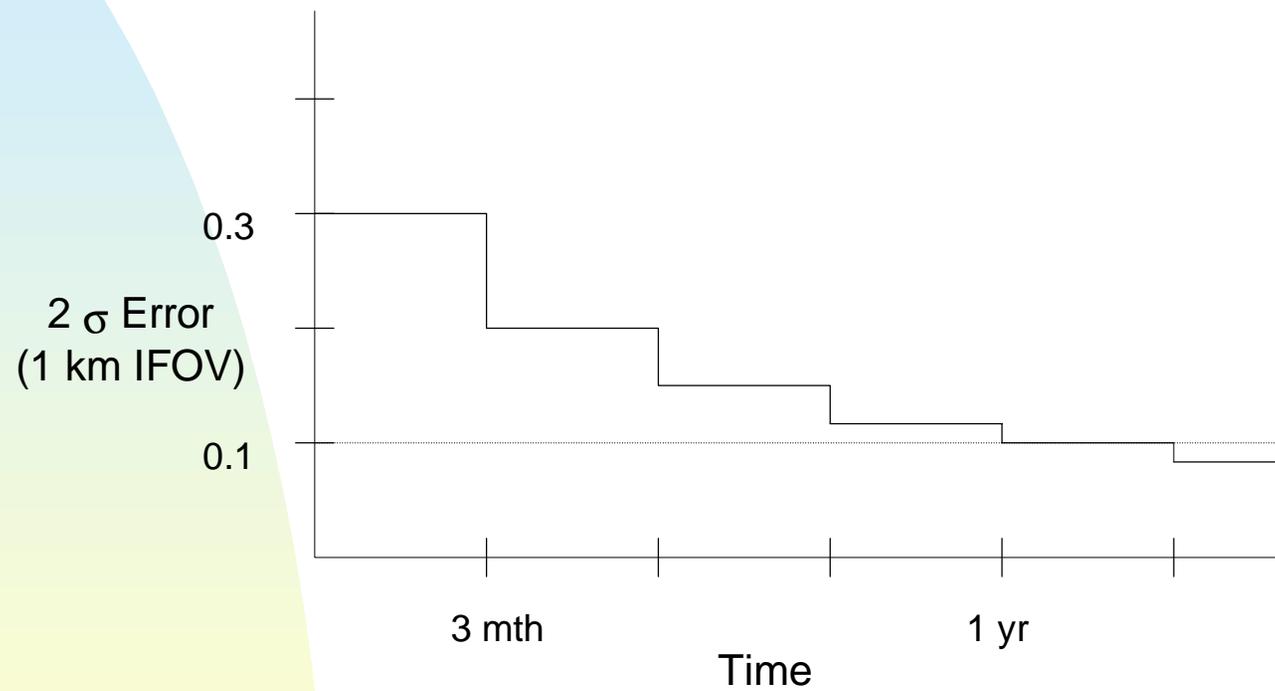
MODIS Science Team Meeting

May 1, 1999

Robert Wolfe, Al Fleig,
Mash Nishihama,
James Kuyper, Jeff Blanchette

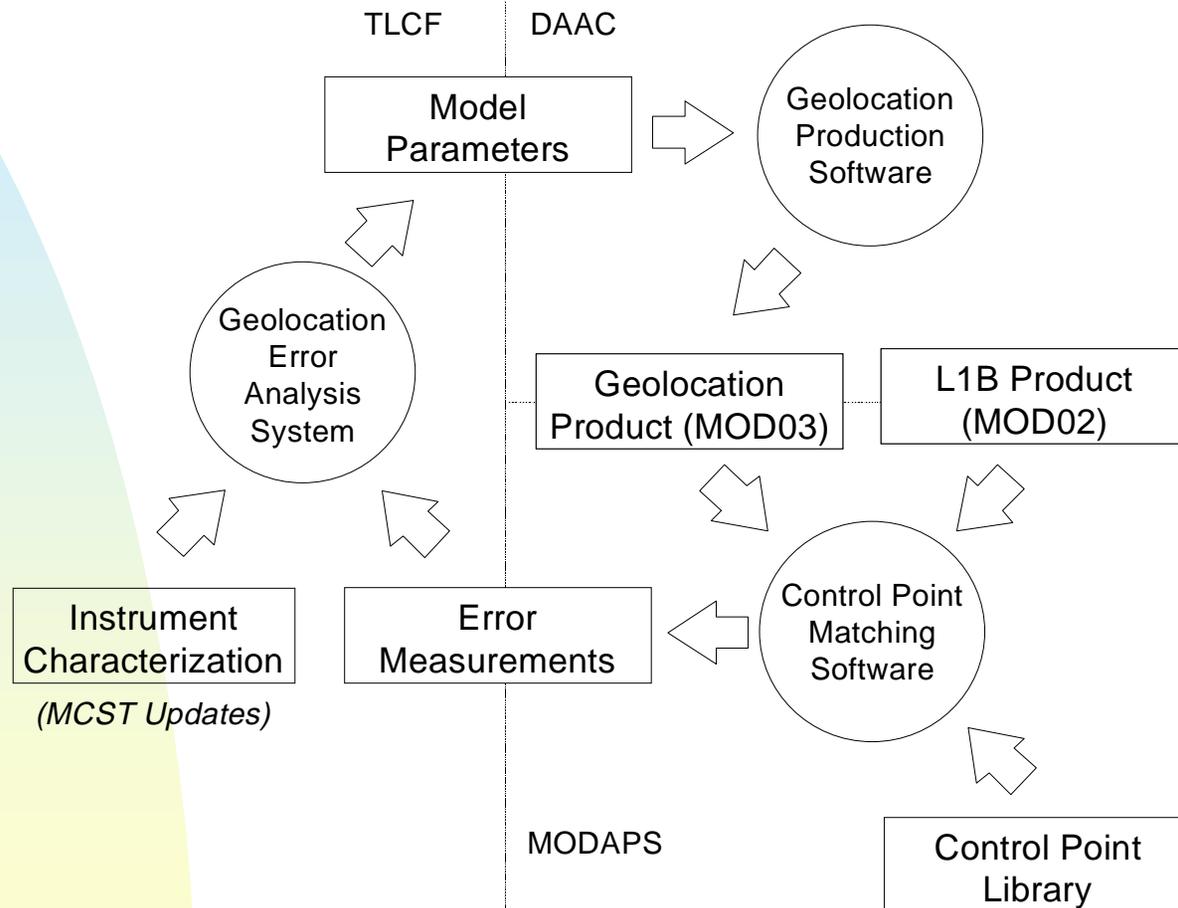


Possible Post-launch Error Trend





Geolocation Process





Error Analysis Feedback



- Error analysis produces 2 possible results
 - ◆ Bias - possibly:
 - ◇ measurement errors
 - ◇ post launch shifts
 - ◆ Trend - correlated with external influences, like:
 - ◇ time in orbit
 - ◇ temperature
 - ◇ time since launch
- Error analysis feedback
 - ◆ Bias \Rightarrow update model parameters (static biases)
 - ◆ Trend \Rightarrow update production software
 - ◆ Always compute RMS error and write to geolocation product metadata
 - ◆ Set science QA flag and inform LDOPE and science team



Post-flight Schedule



Time Frame

Activity

Short-Term
(first three
months)

- Verify Earth location algorithm performance as soon as operational data becomes available.
- Look for constant bias terms in control point matching results to assess accuracy of instrument alignment knowledge.

Medium-Term
(first year)

- Estimate refinements to instrument alignment knowledge using control point matching data.
- Analyze ancillary digital terrain data accuracy using orbit-to-orbit tie points.
- Analyze control point matching results to characterize repeatable errors correlated with scan angle and/or mirror side.
- Use control point matching results to detect repeatable within-orbit trends such as thermal effects.
- Use data from multiple instruments to estimate spacecraft position and attitude accuracy performance.



Post-flight Schedule



Time Frame	Activity
Long-Term (sustaining activities)	<ul style="list-style-type: none">• Analyze control point matching data for trends to monitor stability of instrument geometric parameters.• Refine geometric models for mirror and thermal effects as appropriate based on longer data record.



Issues/Concerns



- TONS calibration (Orbit data) - L + 26 days
- Attitude control HiFi mode - L + 19 days
- Verifying high frequency jitter specifications
- Remaining Land GCPs (have 88 of 126 so far)
- Terrain data accuracy
- Note: “Ideal” band (~ band 1) is geolocated;
Band to band registration measured by MCST