

Processing improvements: AIUB

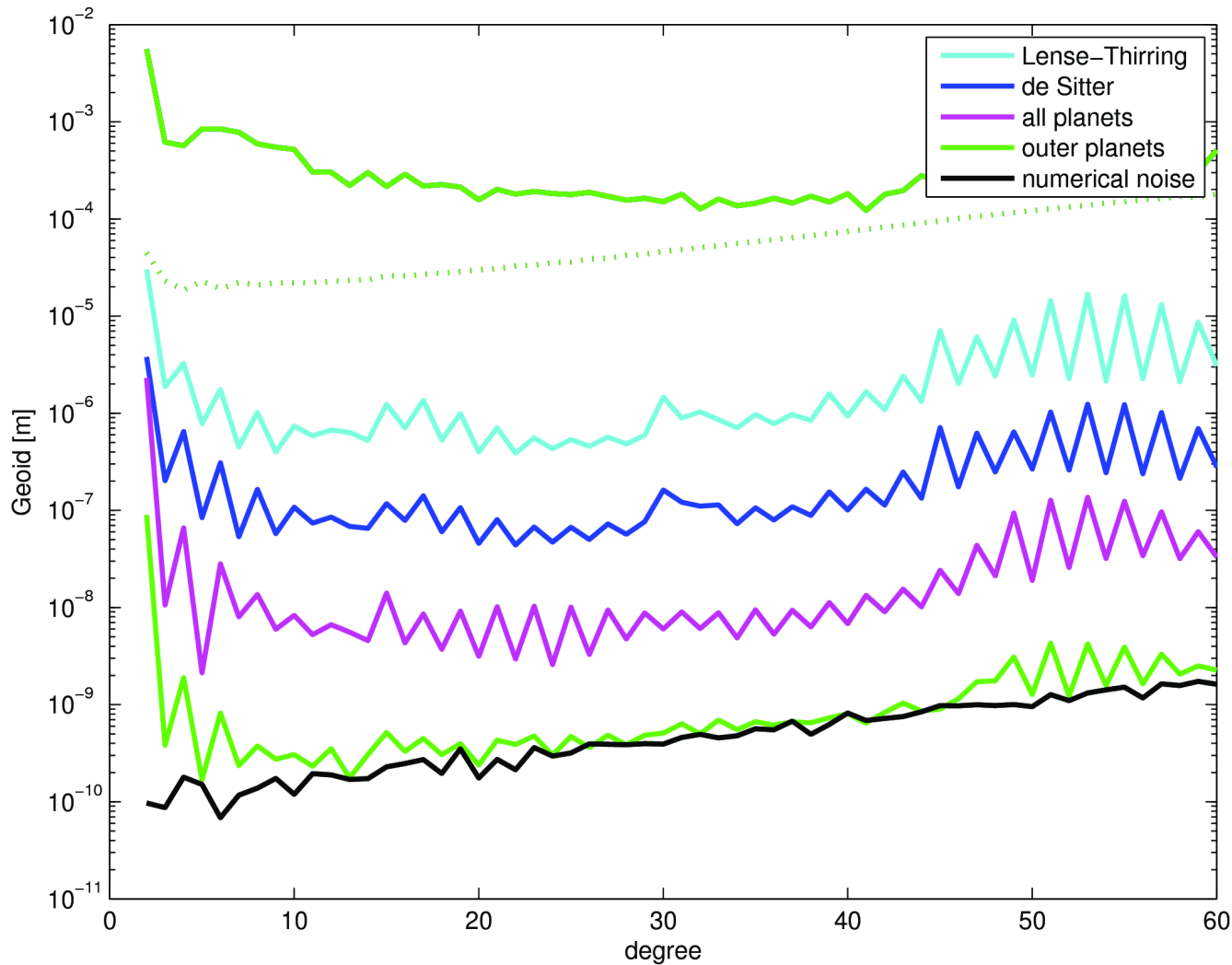
Ulrich Meyer

EGSIEM Progress Meeting # 2

University of Luxembourg

January 18 – 19, 2016

Adaption of Standards: Relativity and third bodies



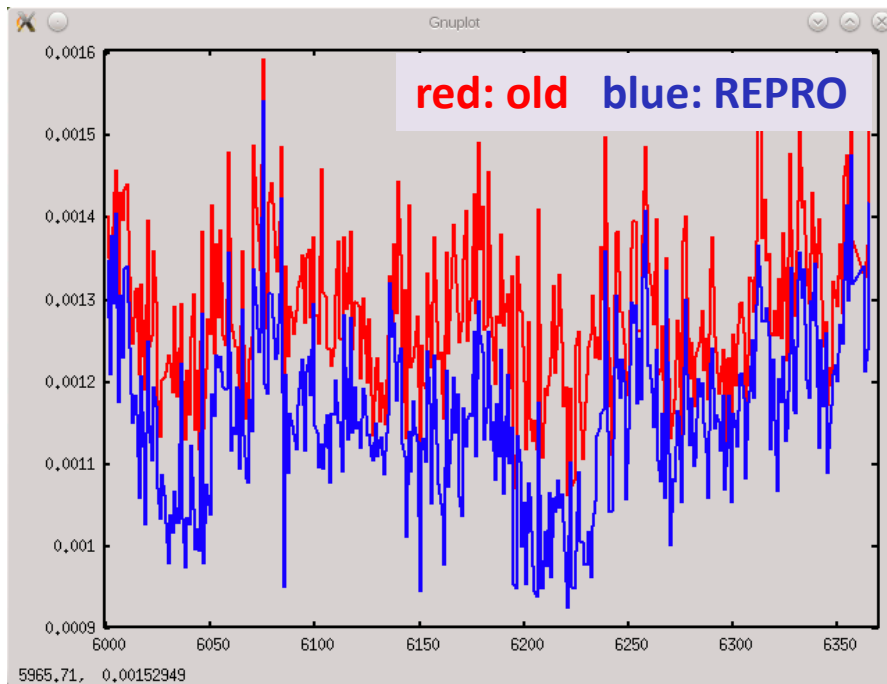
All effects well below formal errors.

Largest effect: Lense-Thirring (may be visible in degree 2).

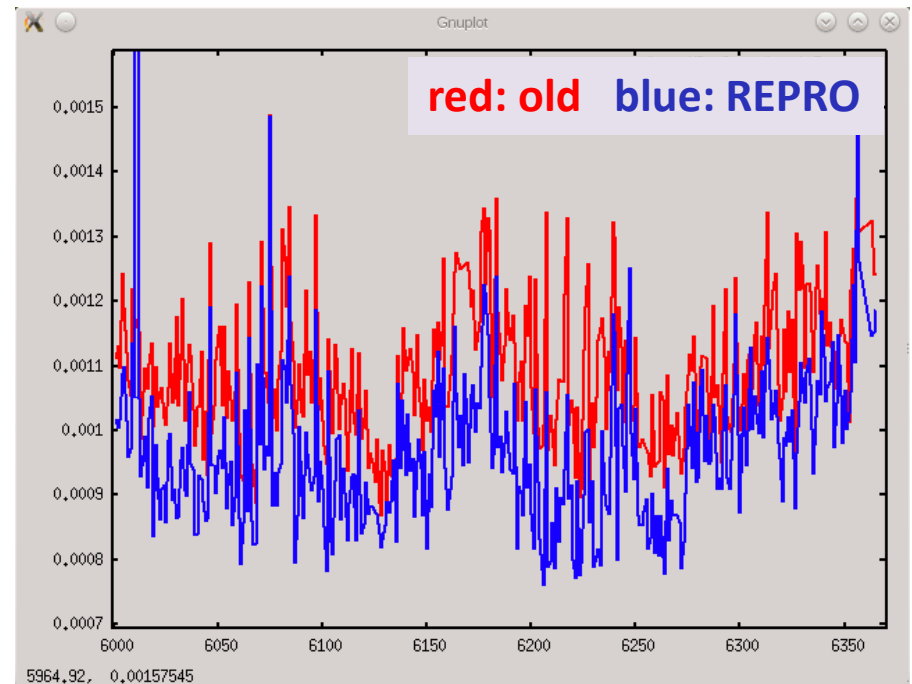
REPRO: GPS orbits and clock corrections (1/3)

Daily RMS of reduced-dynamic orbit fit to kinematic orbits (position fit transformed to phase fit): gain in consistency of 10-20%

GRACE A: 2006



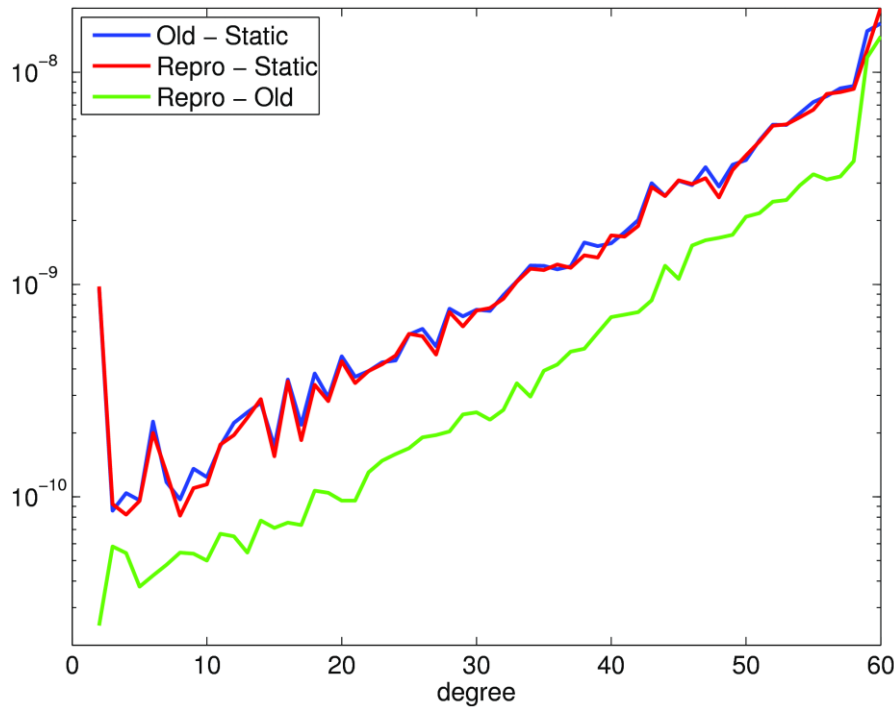
GRACE B: 2006



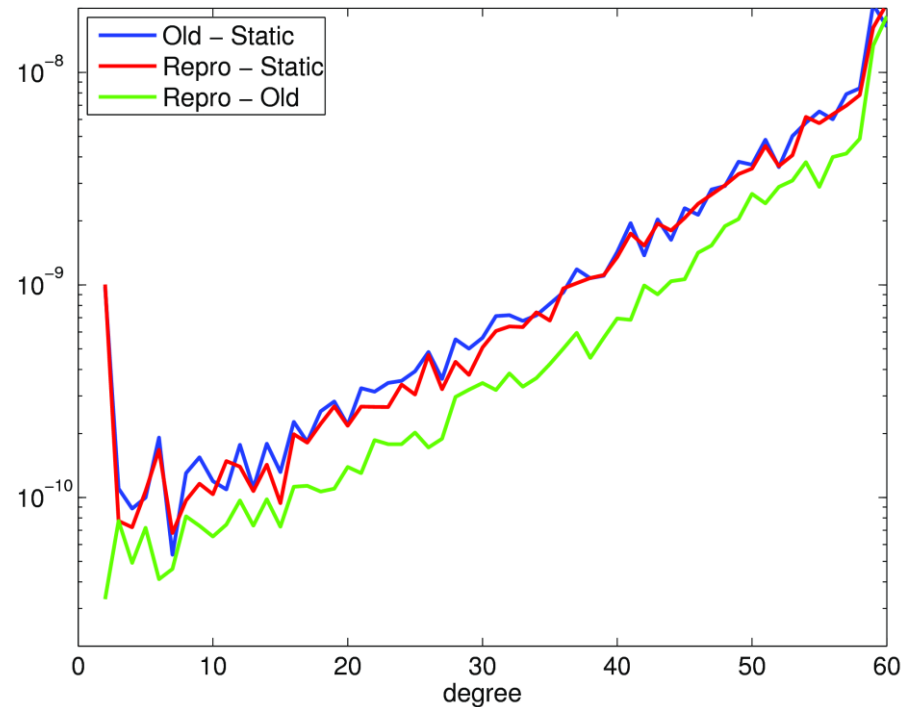
REPRO: GPS orbits and clock corrections (2/3)

Quality gain in 1-year GRACE GPS-only gravity fields (relative to static GPS + K-Band gravity field).

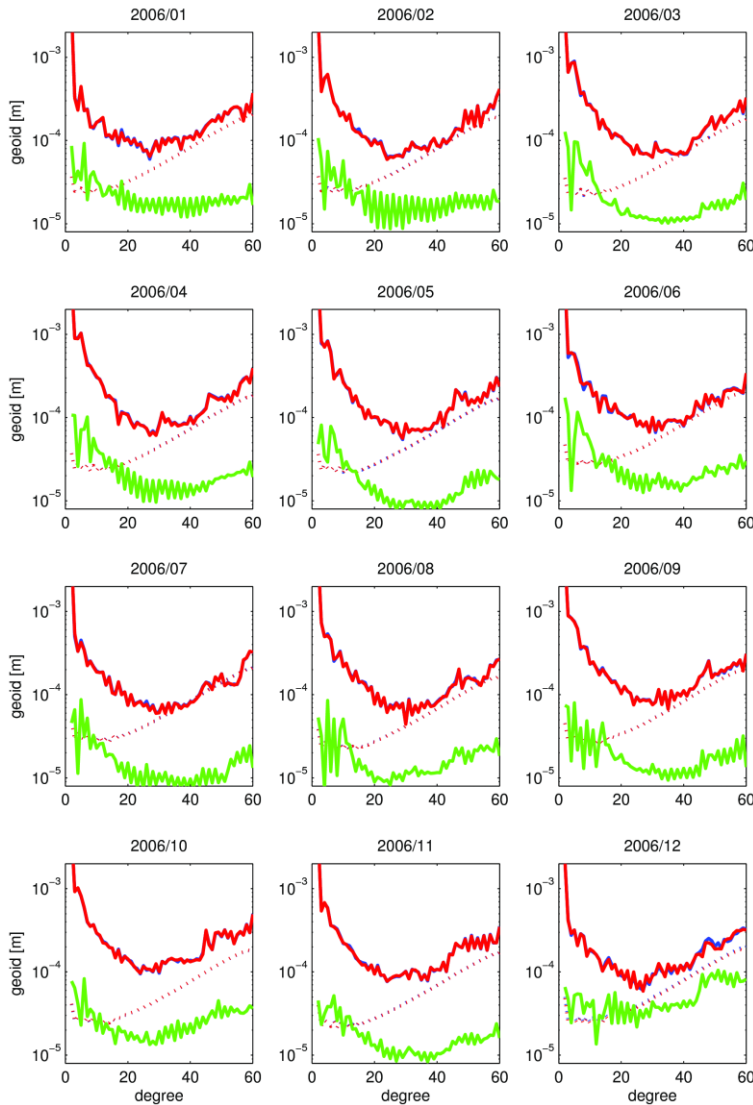
GRACE A: GPS



GRACE B: GPS



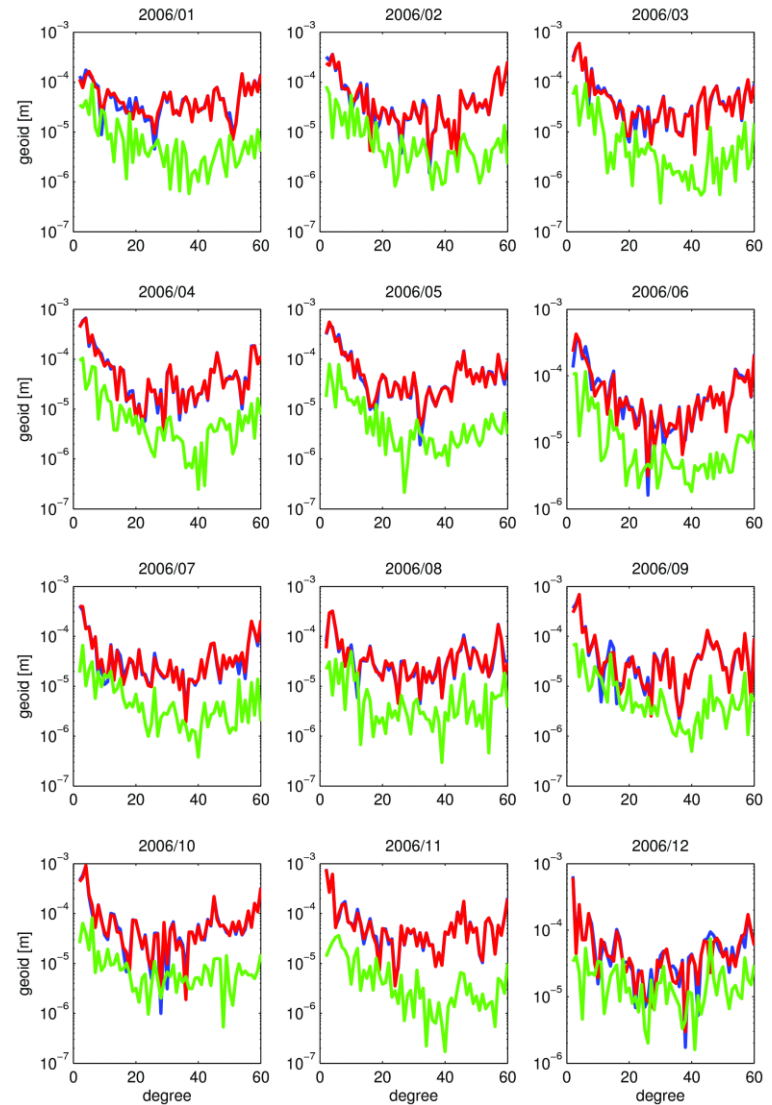
REPRO: GPS orbits and clock corrections (3/3)



Effect on
monthly
GRACE GPS +
K-Band
gravity fields.

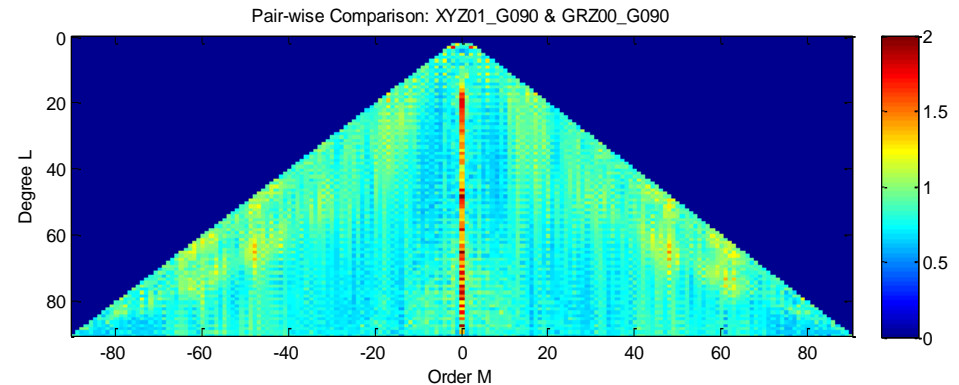
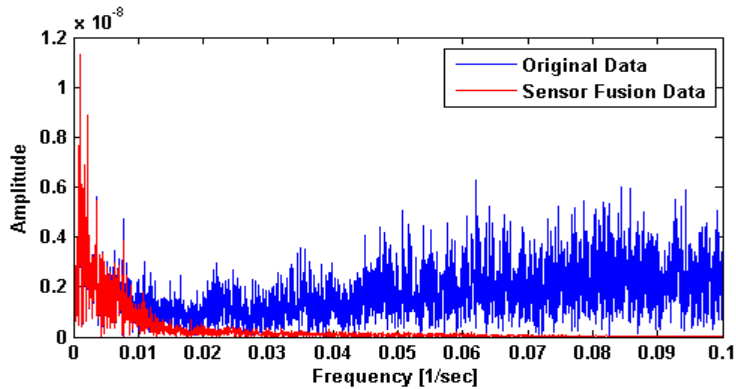
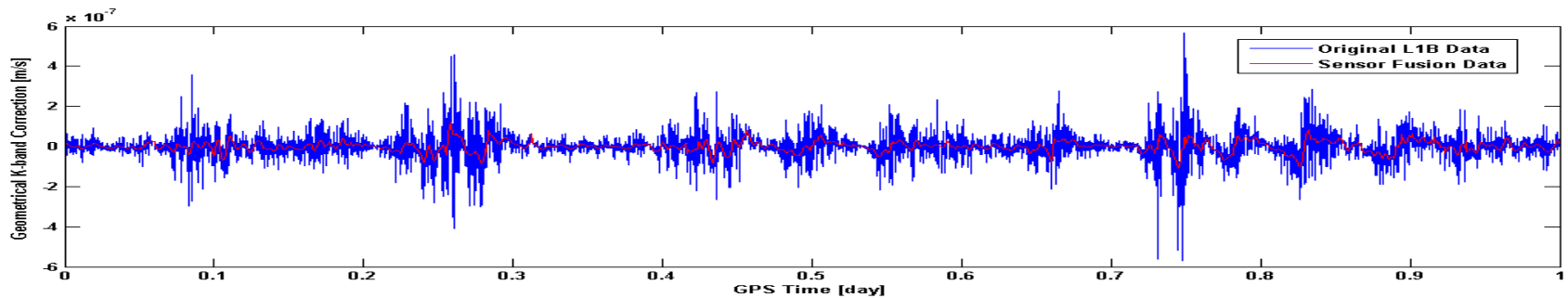
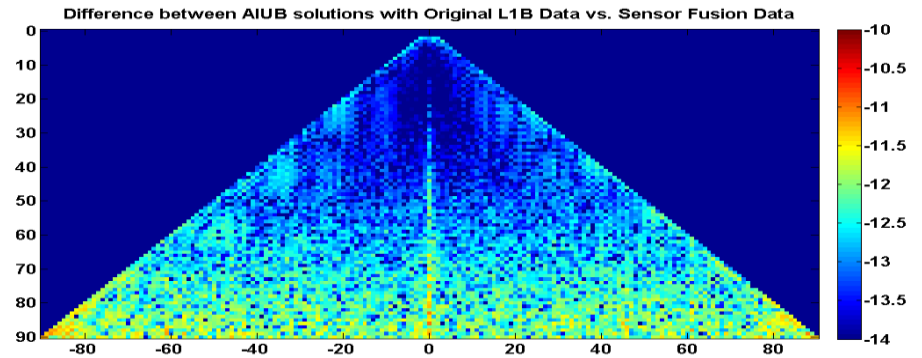
Left:
difference
degree
amplitudes

Right:
sectorial
terms only

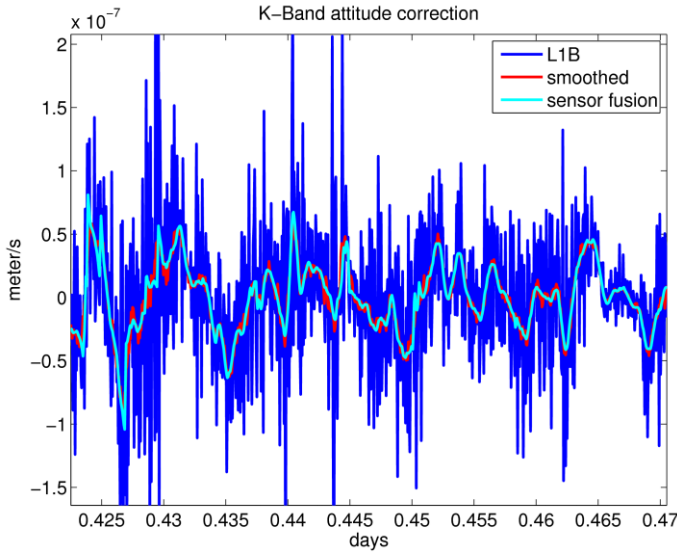
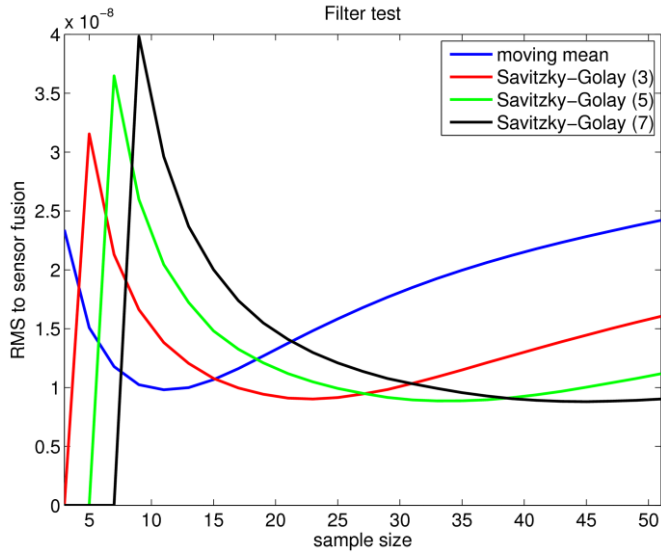


Sensor Fusion Data (1/2)

- Test period: January 2007
- processing method: CMA (AIUB)
 - Case 1: original L1B
 - Case 2: ITSG sensor fusion



Sensor Fusion Data (2/2)



Main effect of sensor fusion data: K-Band attitude correction.

May be replaced by smoothed L1B attitude correction.

