

Gravity Field Tests on SPOT-5



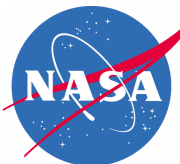
Gravity Models: (all models tested to 120x120)

- => **GGM02C** (363 days of GRACE data, Apr 2002- Dec 2003)
- => **EIGEN_GL04S1** (Grace + Lageos data, released May 24 2006).
- => **ITG-GRACE03S** (GRACE data from Sept 2002 - April 2007)
- => **EGM2008** (new solution to n=2160, new SG, ALT data, built on ITG-GRACE03S at low degrees (Model released by NGA at EGU2008 in Vienna by Nikos Pavlis et al.)

Satellite(s) Tested:

Spot5: Jan - Aug 2005: ~35 (overlapping) Arcs; DORIS-only.

Background Modelling: ITRF2005s+ IGN extension; CNES macromodel; Generally 7 day arcs (except maneuvers); 6-hr cd's; OPR/day along+cross; GOT00 Tides + ocean loading; Where applicable NCEP @6hr Atmospheric Gravity (Petrov & Boy, 2003); IERS2003 Tidal Modelling; Annual GRACE-derived Time-variable gravity (20x20; Luthcke et al., 2006) GEODYN0712.



SPOT-5 Results



RMS of fit (avg. for 35 arcs)

GGM02C:	0.469 mm/s
GGM02C (no ATGRAV):	0.470 mm/s
EIGEN-GL04S1:	0.468 mm/s
ITG-GRACE03S:	0.468 mm/s
EGM2008	0.468 mm/s

Orbit Overlap Statistics (avg for 25 arcs)

(radial, cross-track, along-track; cms; Overlap about 12 hrs)

GGM02C:	0.85 / 3.29 / 3.35
GGM02C (no ATGRAV):	0.95 / 3.08 / 3.37
EIGEN-GL04S1:	0.74 / 3.17 / 2.26
ITG-GRACE03S:	0.72 / 3.21 / 2.25
EGM2008	0.55 / 3.26 / 1.81



Results



Orbit Overlap Statistics for Arcs in 2005

(Avg radial, cross-track, along-track RMS
; cm; Overlap 7 day arcs)

GGM02C (ATGRAV vs no ATGRAV):	0.43 / 0.59 / 1.32
GGM02C vs EIGEN-GL04S1	0.49 / 1.02 / 2.26
GGM02C vs ITG-GRACE03S:	0.51 / 1.04 / 2.47
GGM02C vs EGM2008	0.52 / 0.97 / 2.43
EIGEN-GL04S1 vs ITG-GRACE03S:	0.18 / 0.26 / 0.69

