

The ILRS Standard Products: a quality assessment

G. Bianco

Agenzia Spaziale Italiana, CGS - Matera

V. Luceri

e-GEOS S.p.A., CGS - Matera

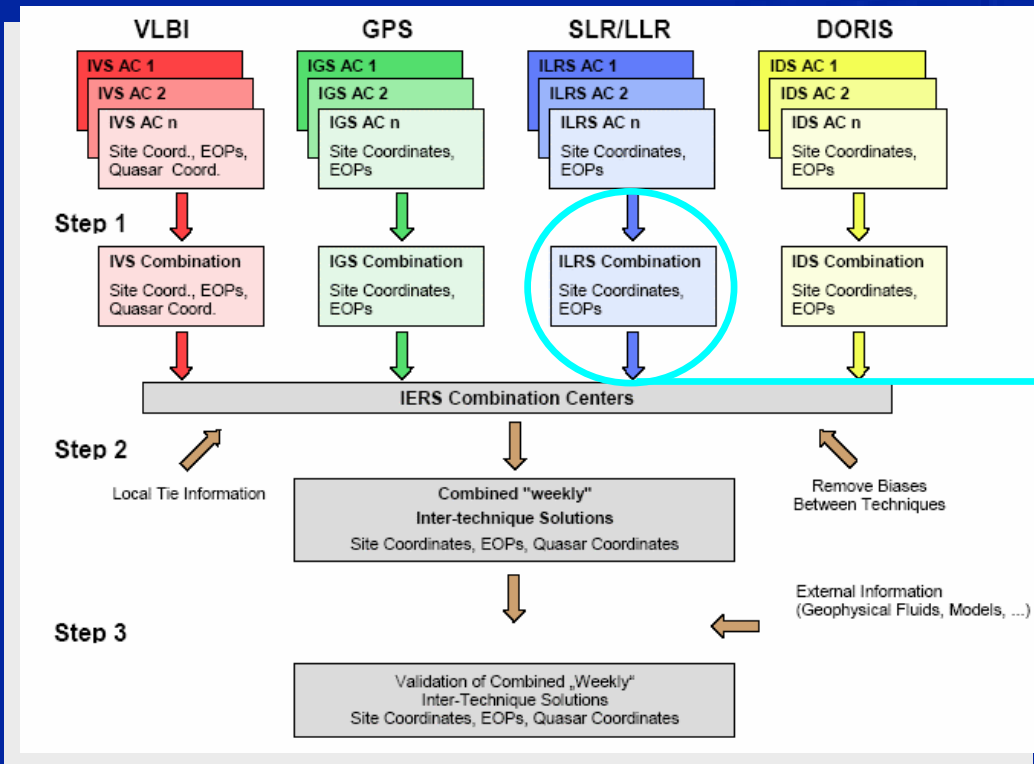
C. Sciarretta

Telespazio S.p.A., Rome

ILRS analysis milestones

- 1999** - two Pilot Projects for the estimation of site coordinates and EOP, separately, from different AC solutions
- 2000** – the two PP joined and first results discussed
- 2001** – Etalon added in the routine analysis
- 2003** – formal Call for Participation for the generation of ILRS products
- 2004** – ILRS AC structure finalized and official delivery of standard products started
- 2005** – ILRS contribution to ITRF2005 with its time series

The ILRS Standard Products



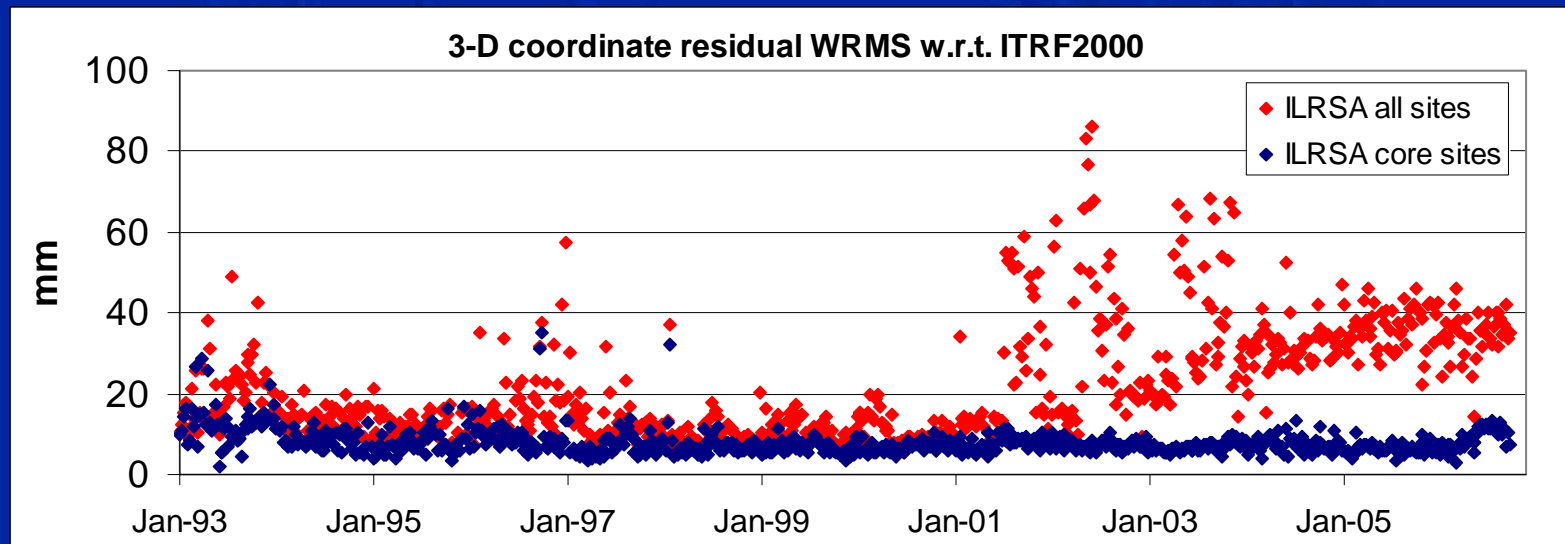
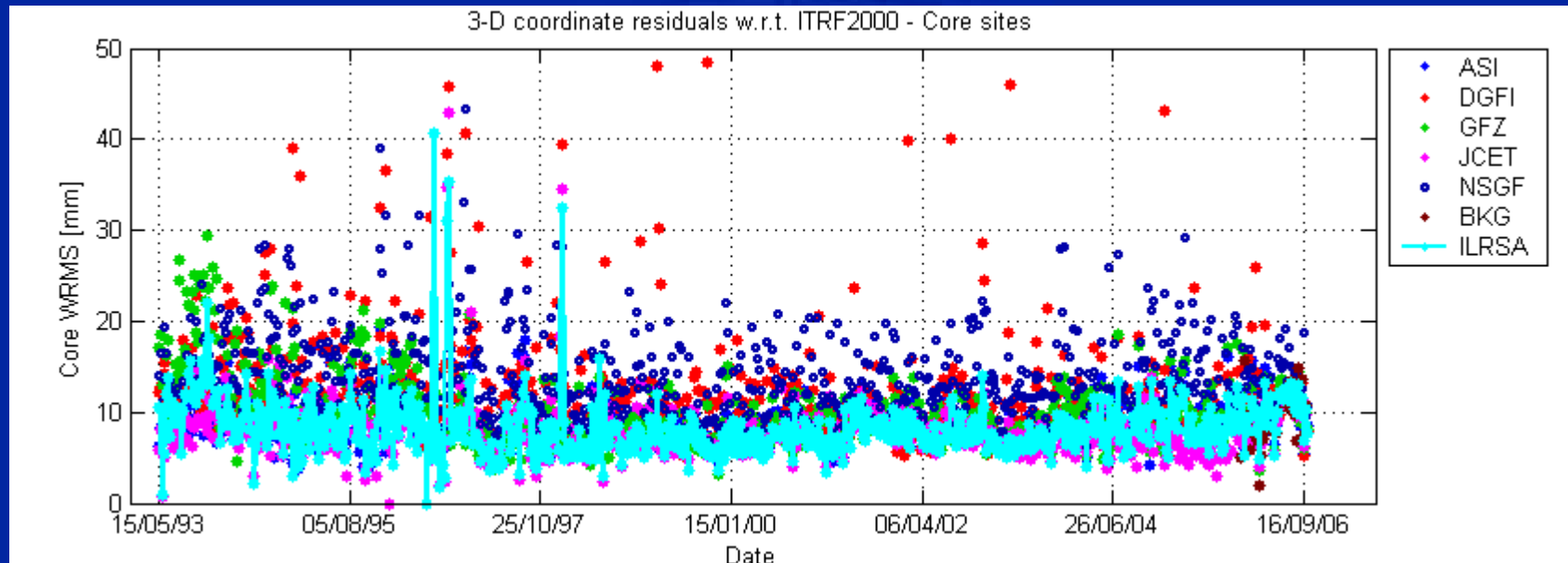
Primary ILRS combination center
ASI

Backup ILRS combination center
DGFI

Contributing ILRS analysis centers
ASI
BKG (time series from 2006)
DGFI
GFZ
JCET
NSGF

- Weekly ILRS combined solutions available each Wednesday at CDDIS and EDC, together with the contributing AC solutions
- The complete time series, starting from 1993, available at CDDIS and EDC
- Extension of the time series, back to 1983, now under construction

ILRS site coordinates w.r.t. ITRF2000



Core stations

overview of stations to be used for referencing EOPs and position/velocity source:

7080: use ITRF2000 coordinates and velocity
7090: use ITRF2000 coordinates and velocity
7105: use ITRF2000 coordinates and velocity
7110: use ITRF2000 coordinates and velocity
7210: use ITRF2000 coordinates and velocity
7501: use coordinates and velocity according to solution JCET (see below)
7810: use ITRF2000 coordinates and velocity
7811: use ITRF2000 coordinates and velocity
7836: use ITRF2000 coordinates and velocity
7837: use ITRF2000 coordinates and velocity
7838: use coordinates and velocity according to solution JCET (see below)
7839: use ITRF2000 coordinates and velocity
7840: use ITRF2000 coordinates and velocity
7845: use ITRF2000 coordinates and velocity
7941: use coordinates and velocity according to solution JCET (see below)
8834: use ITRF2000 coordinates and velocity

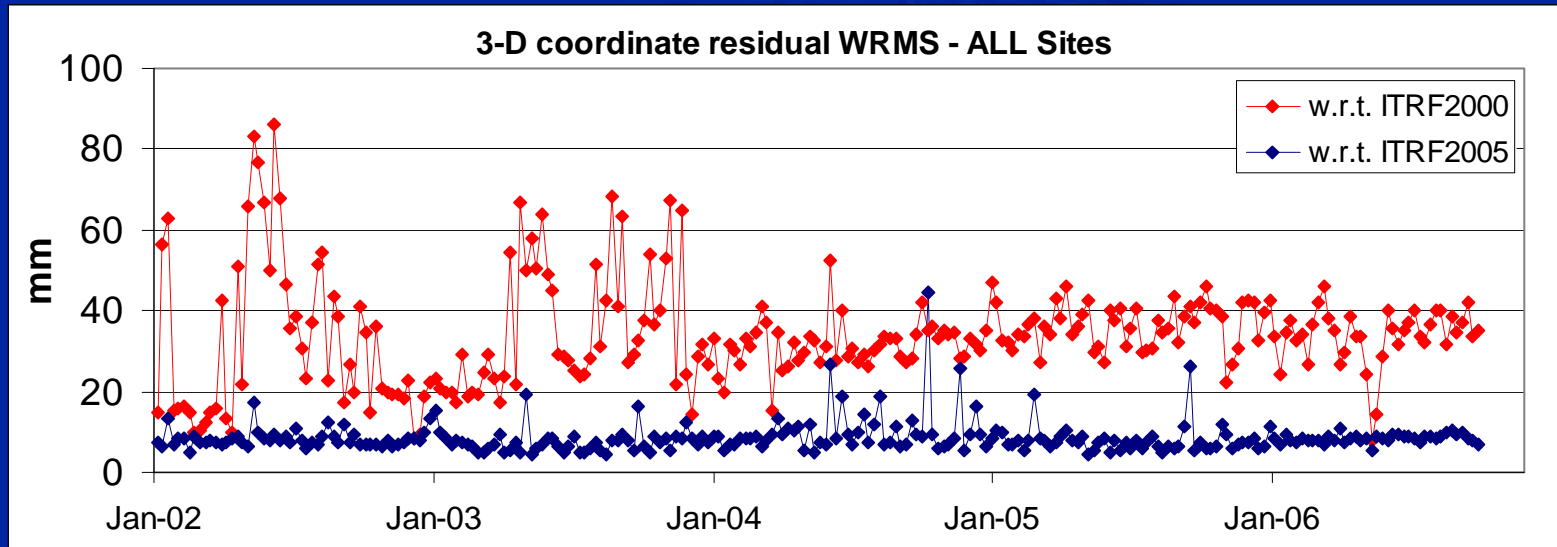
coordinates JCET (valid for 1997.0; w.r.t. ITRF2000; in meters):

7501	5085401.108	2668330.085	-2768688.863
7838	-3822388.335	3699363.541	3507573.116
7941	4641978.894	1393067.474	4133249.446

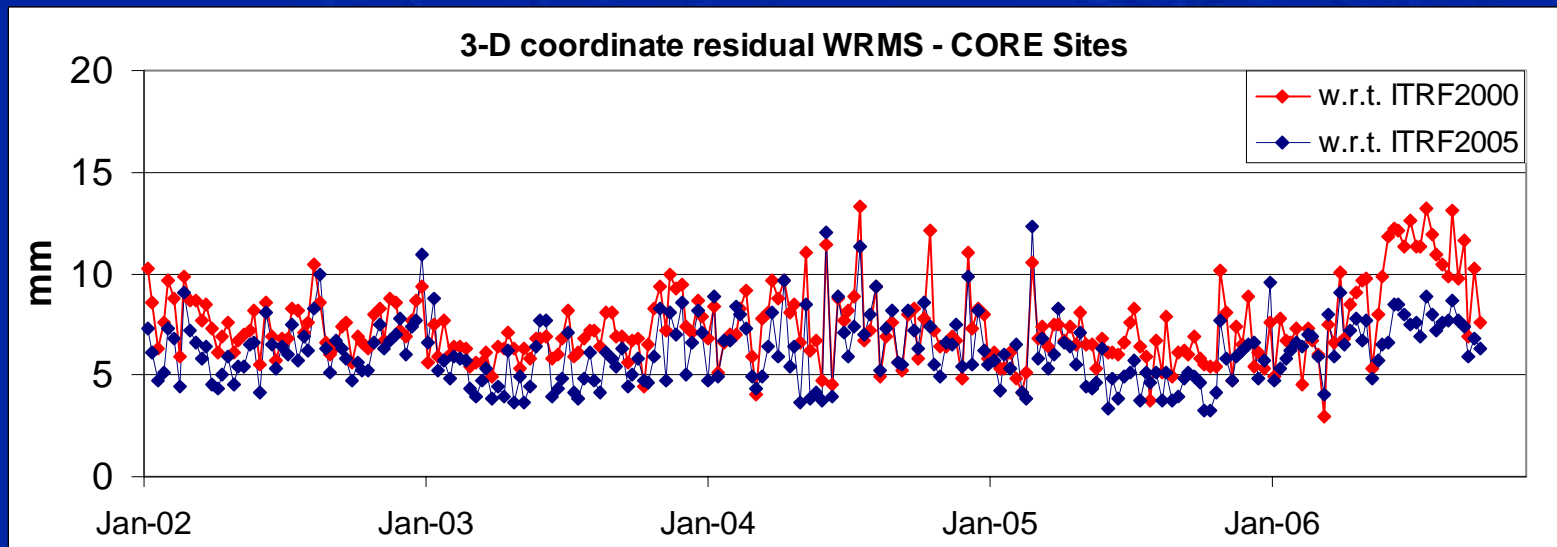
velocity components JCET (w.r.t. ITRF2000; in kilometers/yr):

7501 Xdot	-8.626039881970747E-07
7501 Ydot	1.923989298351990E-05
7501 Zdot	1.492518276640380E-05
7838 Xdot	1.372812056009936E-06
7838 Ydot	8.459729640482048E-06
7838 Zdot	-2.110935963764848E-06
7941 Xdot	-2.448626792653256E-05
7941 Ydot	1.972132999359206E-05
7941 Zdot	1.066553904193070E-05

ILRS site coordinates w.r.t. ITRF2005

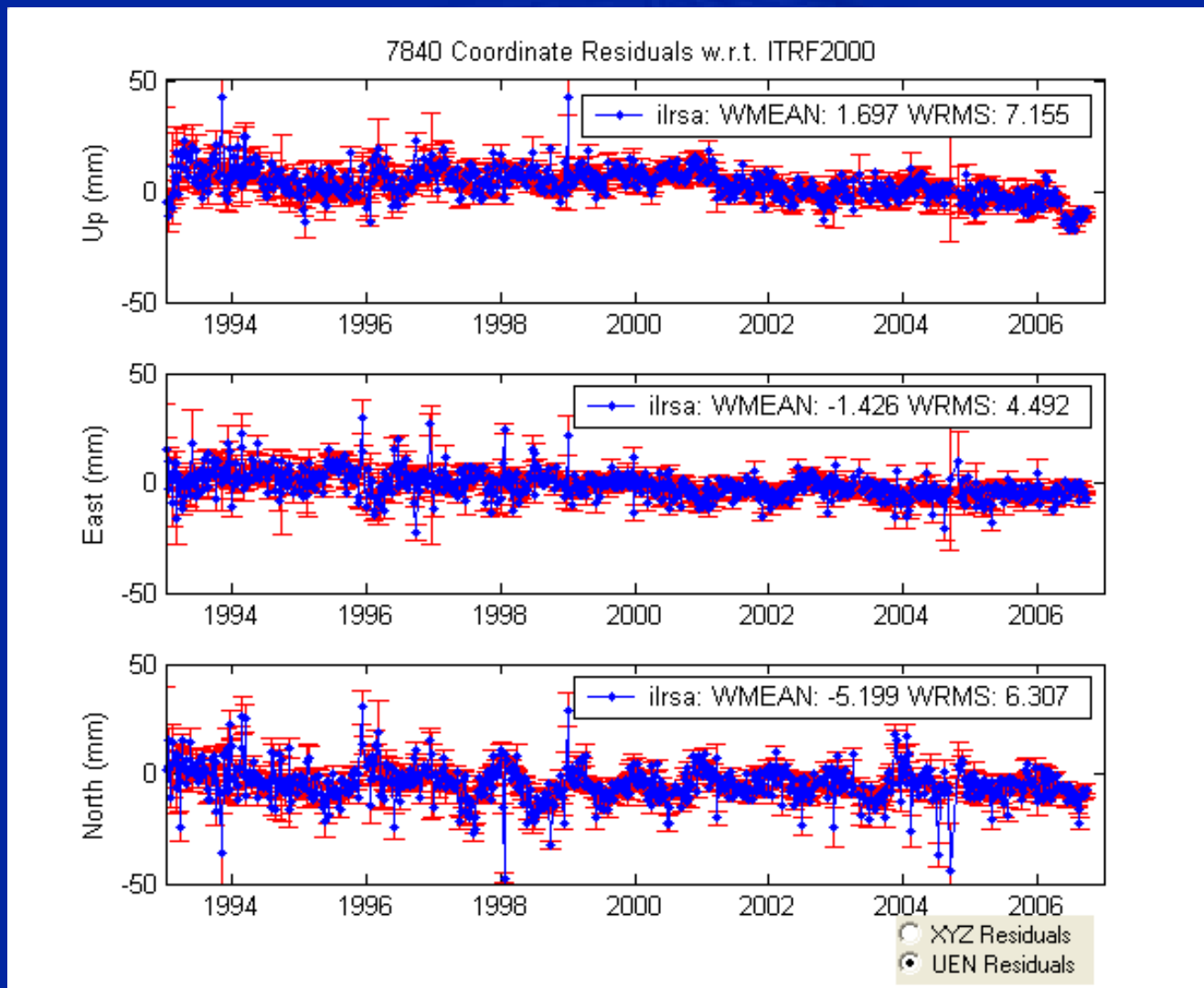


ALL

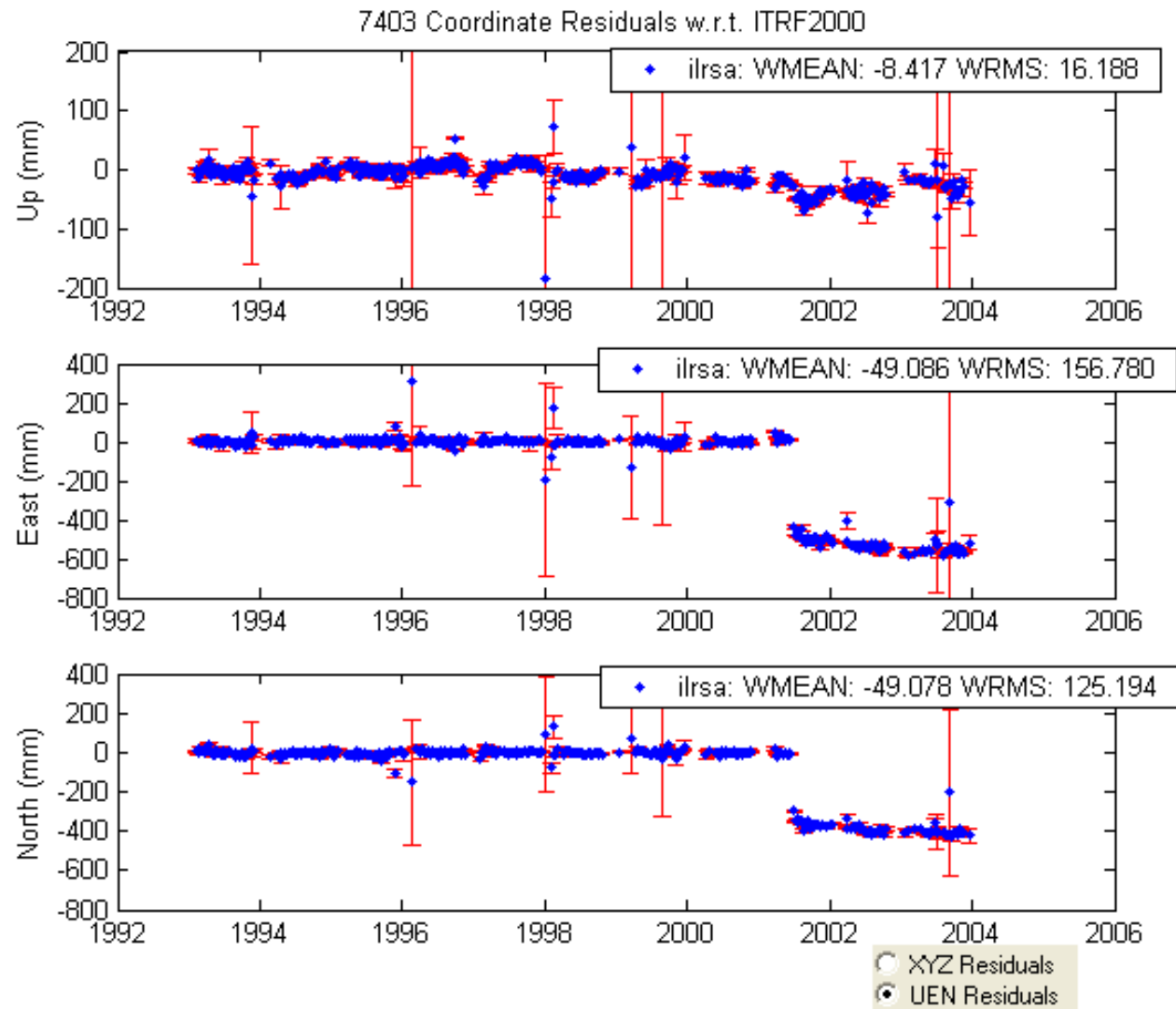


CORE

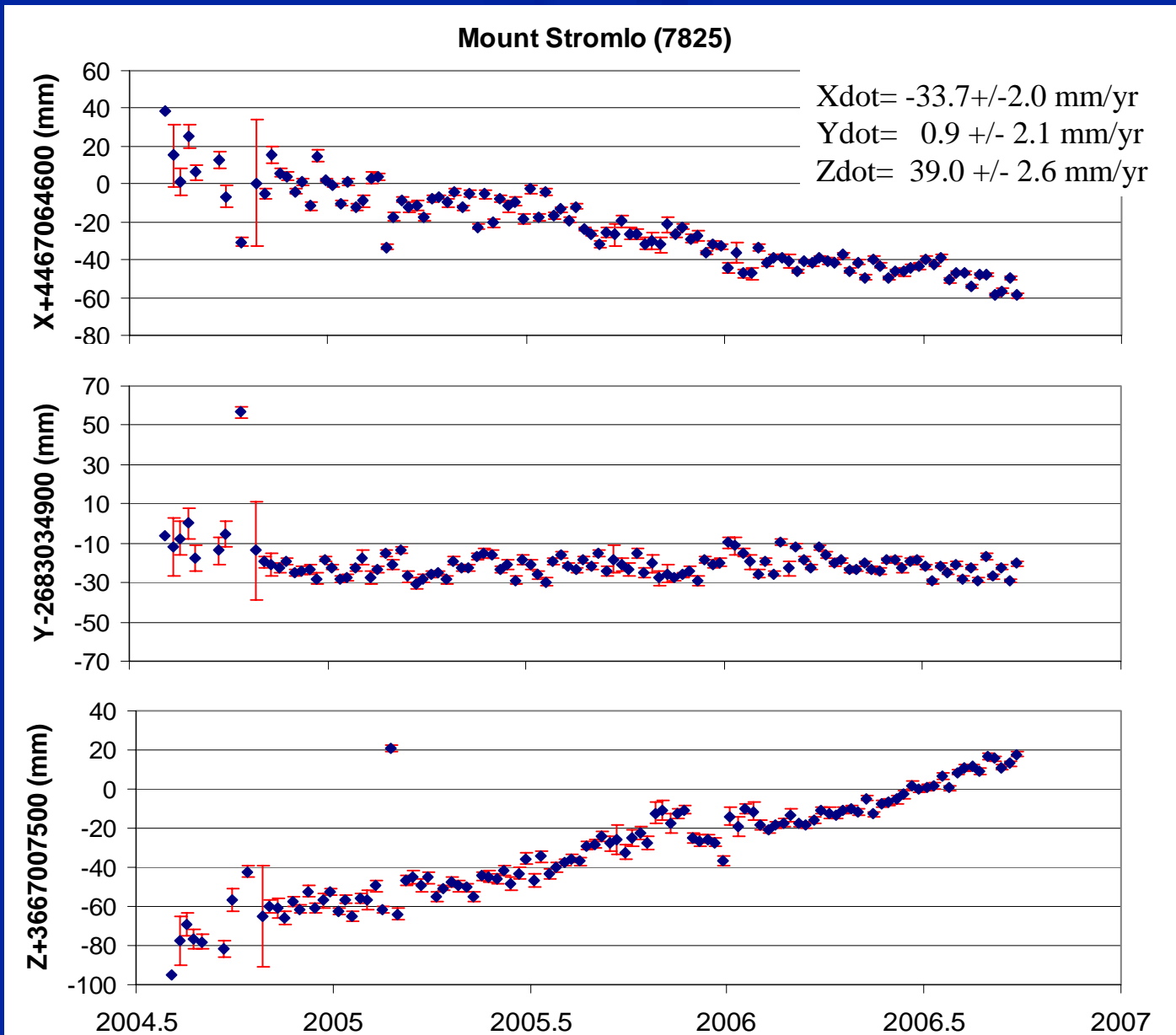
ILRS site coordinates: Herstmonceux



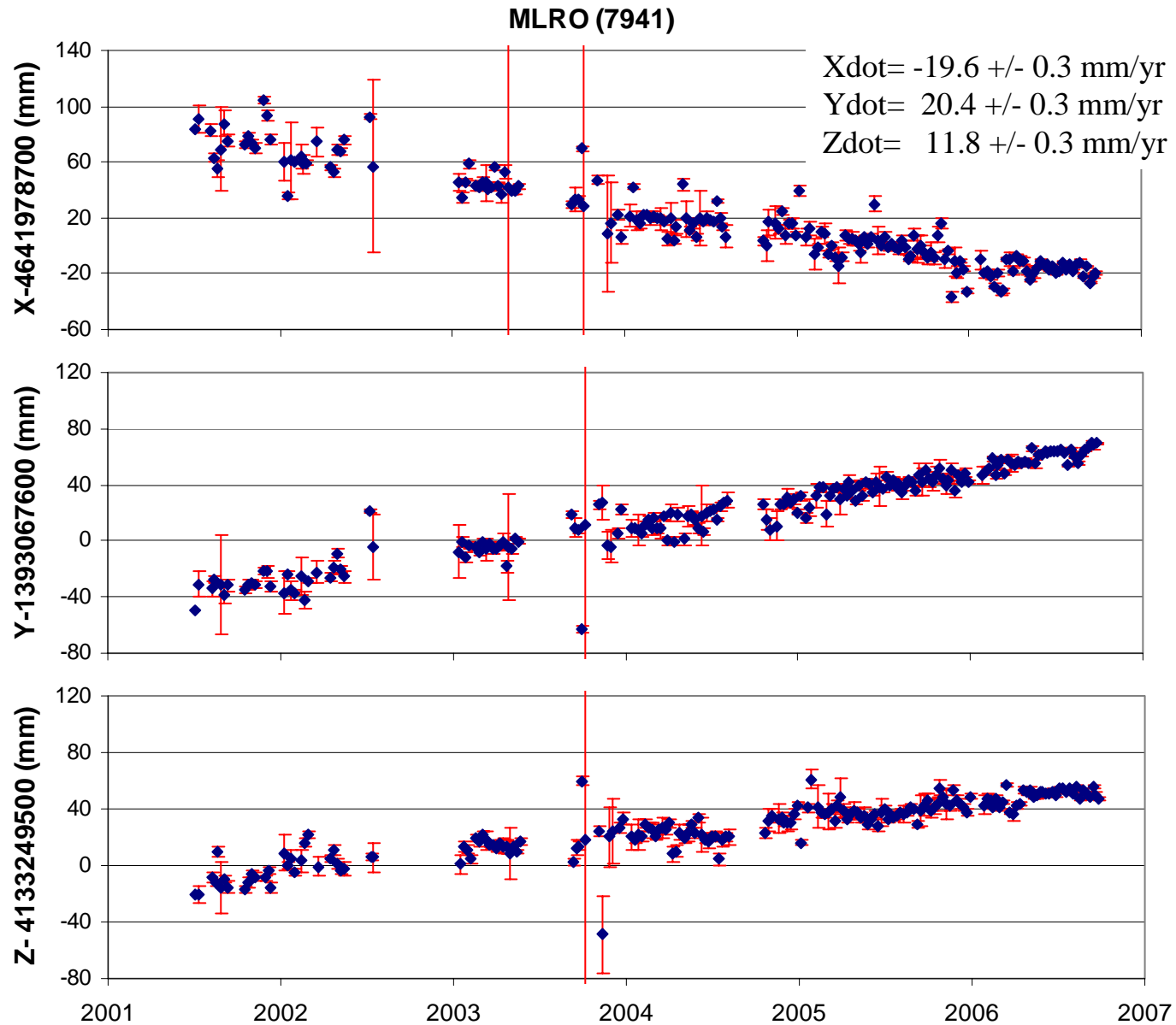
ILRS site coordinates: Arequipa



ILRS site coordinates: Mt. Stromlo

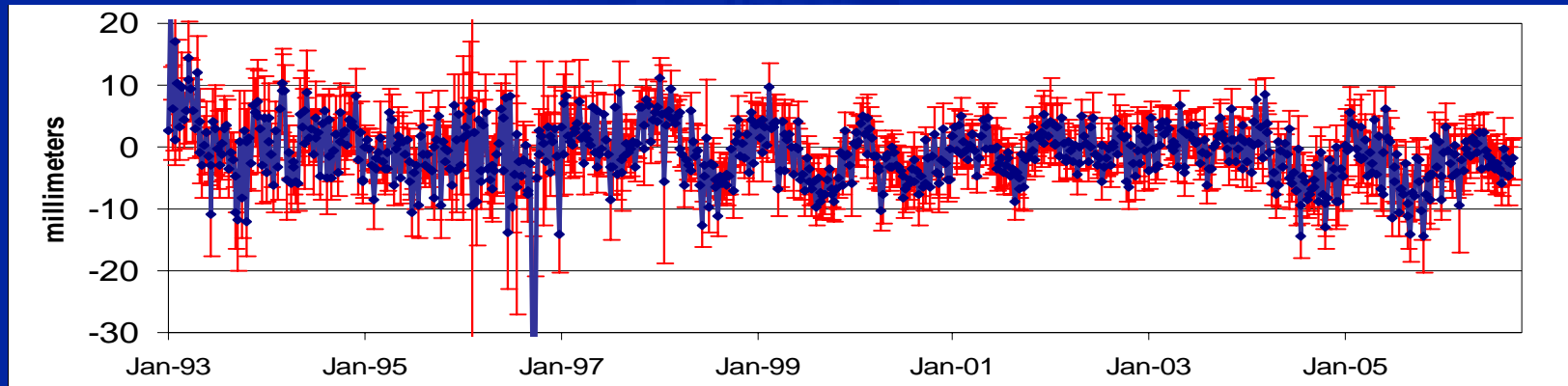


ILRS site coordinates: MLRO

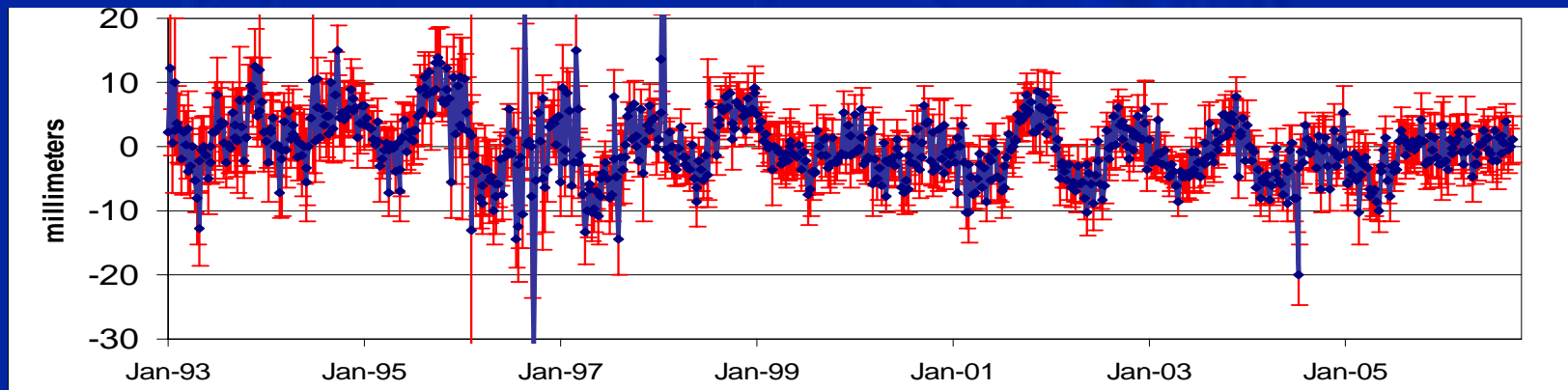


ILRS TRF origin w.r.t. ITRF2000

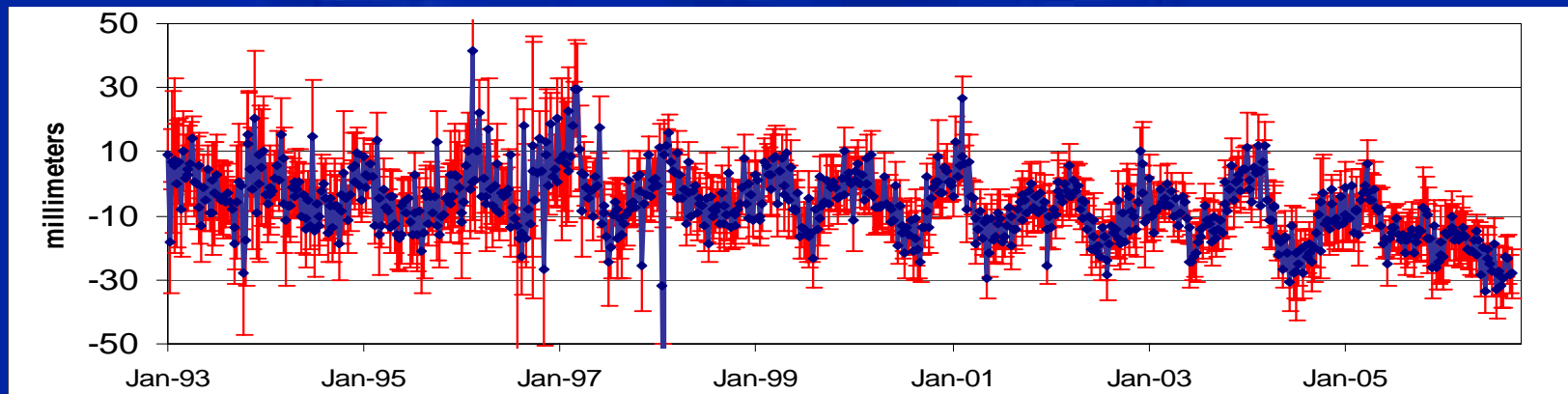
TX



TY

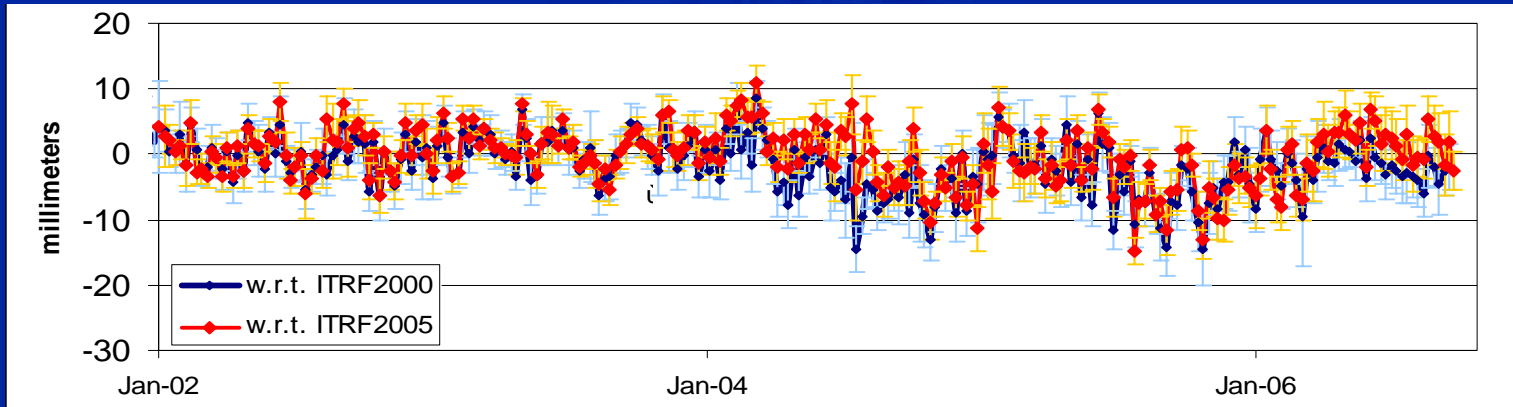


TZ

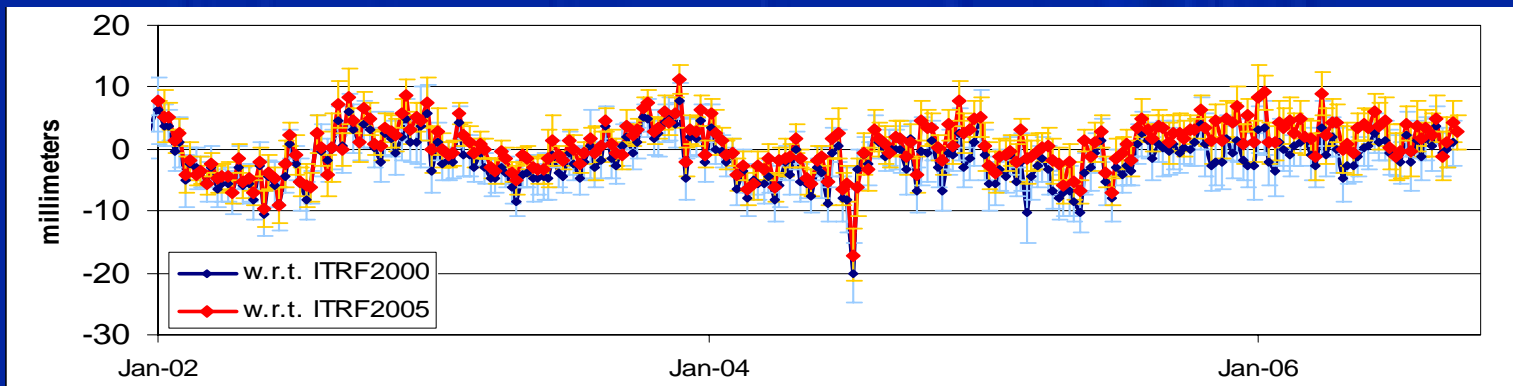


ILRS TRF origin w.r.t. ITRF2005

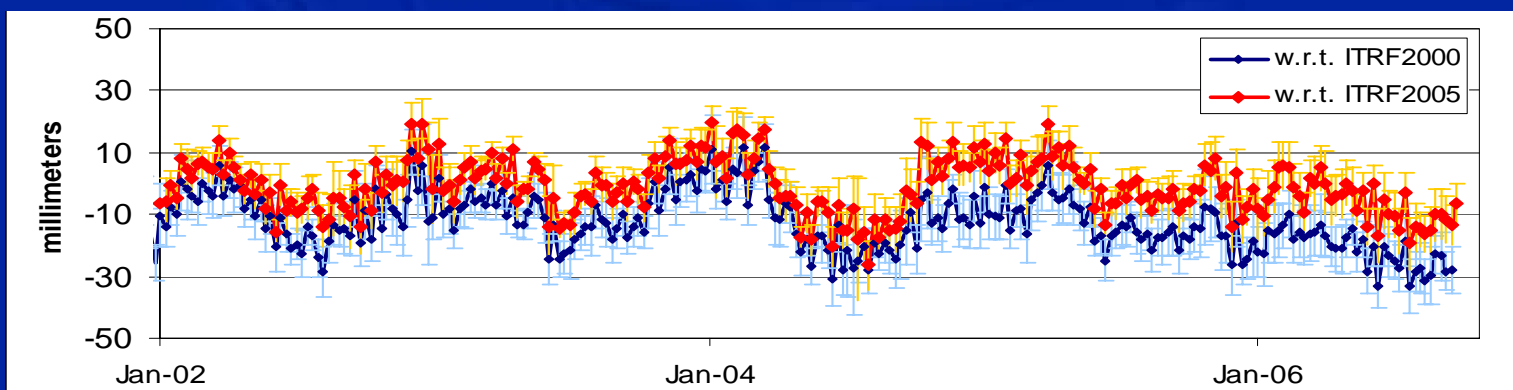
TX



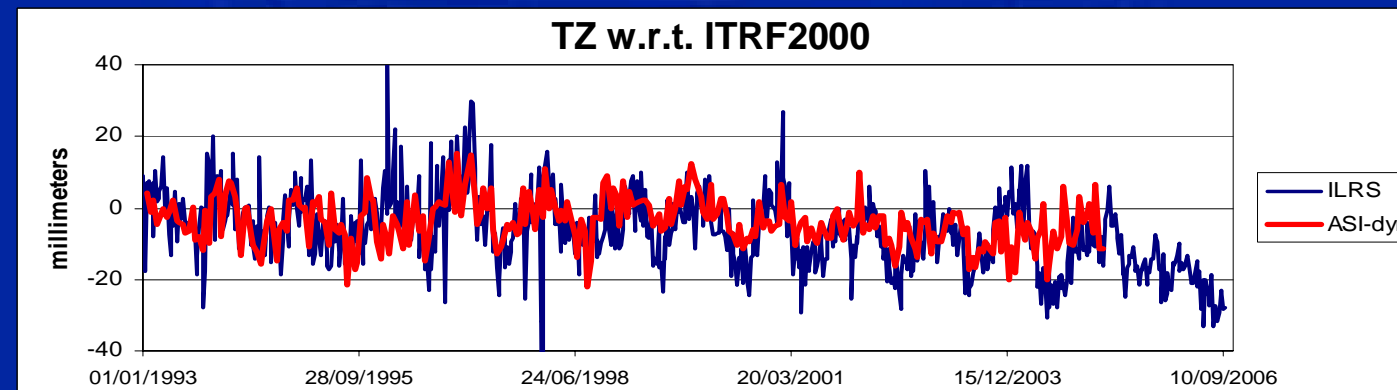
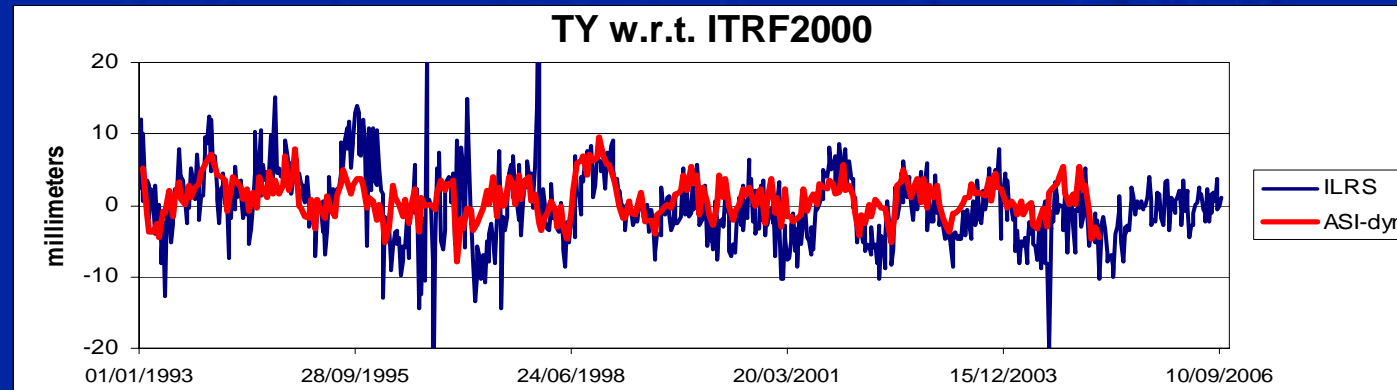
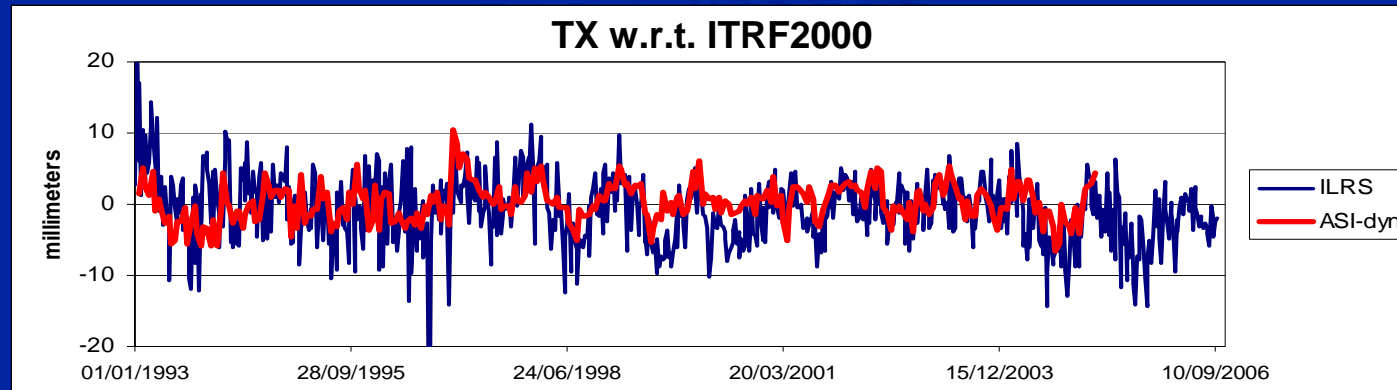
TY



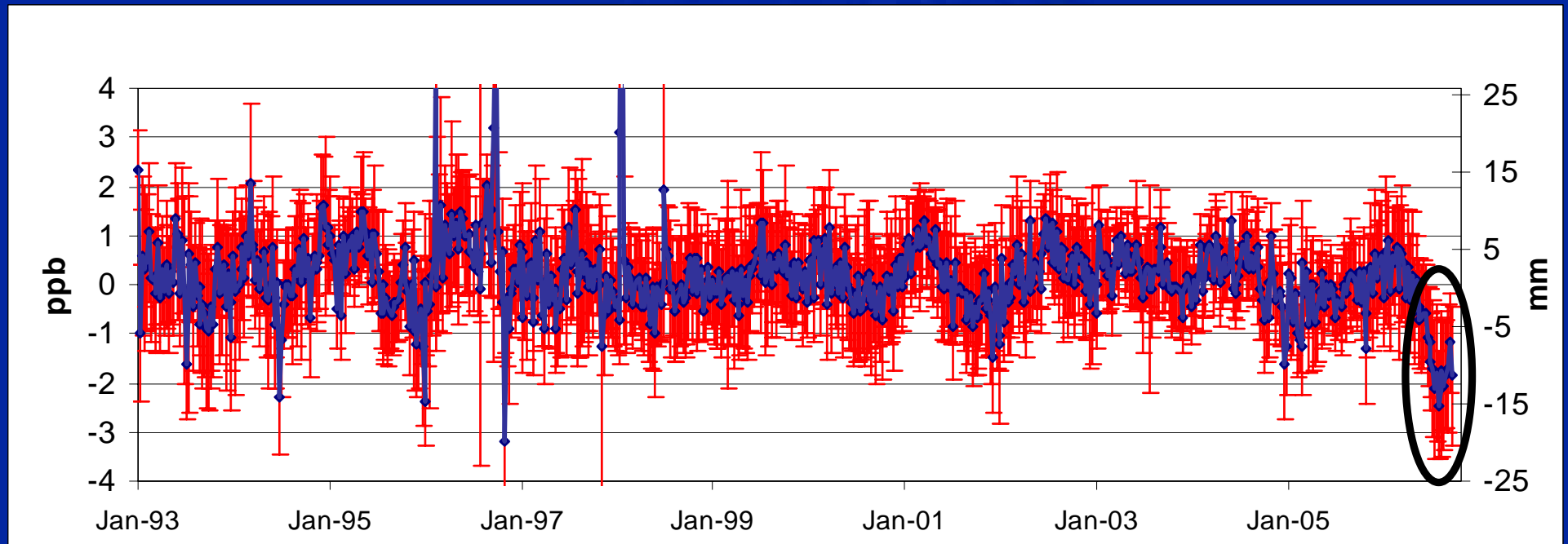
TZ



The Geocenter from ILRS and Dynamic Analysis

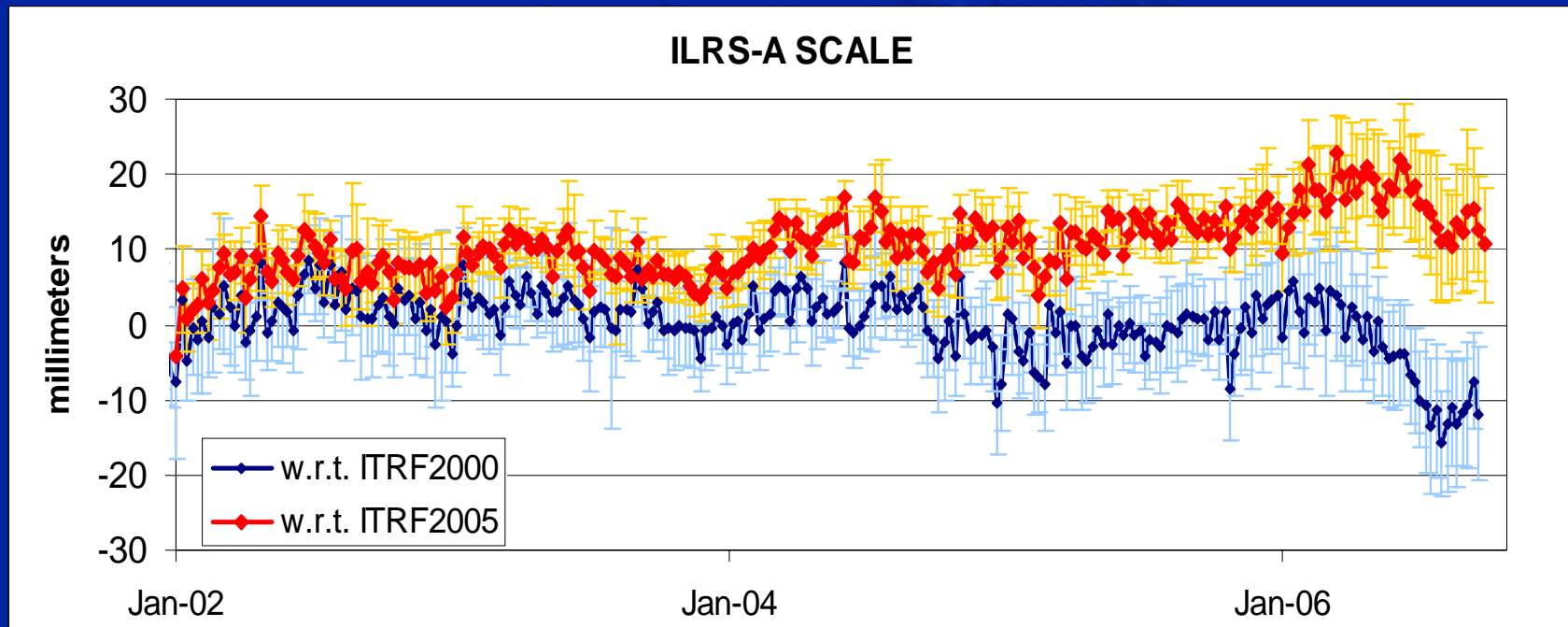


ILRS TRF scale w.r.t. ITRF2000

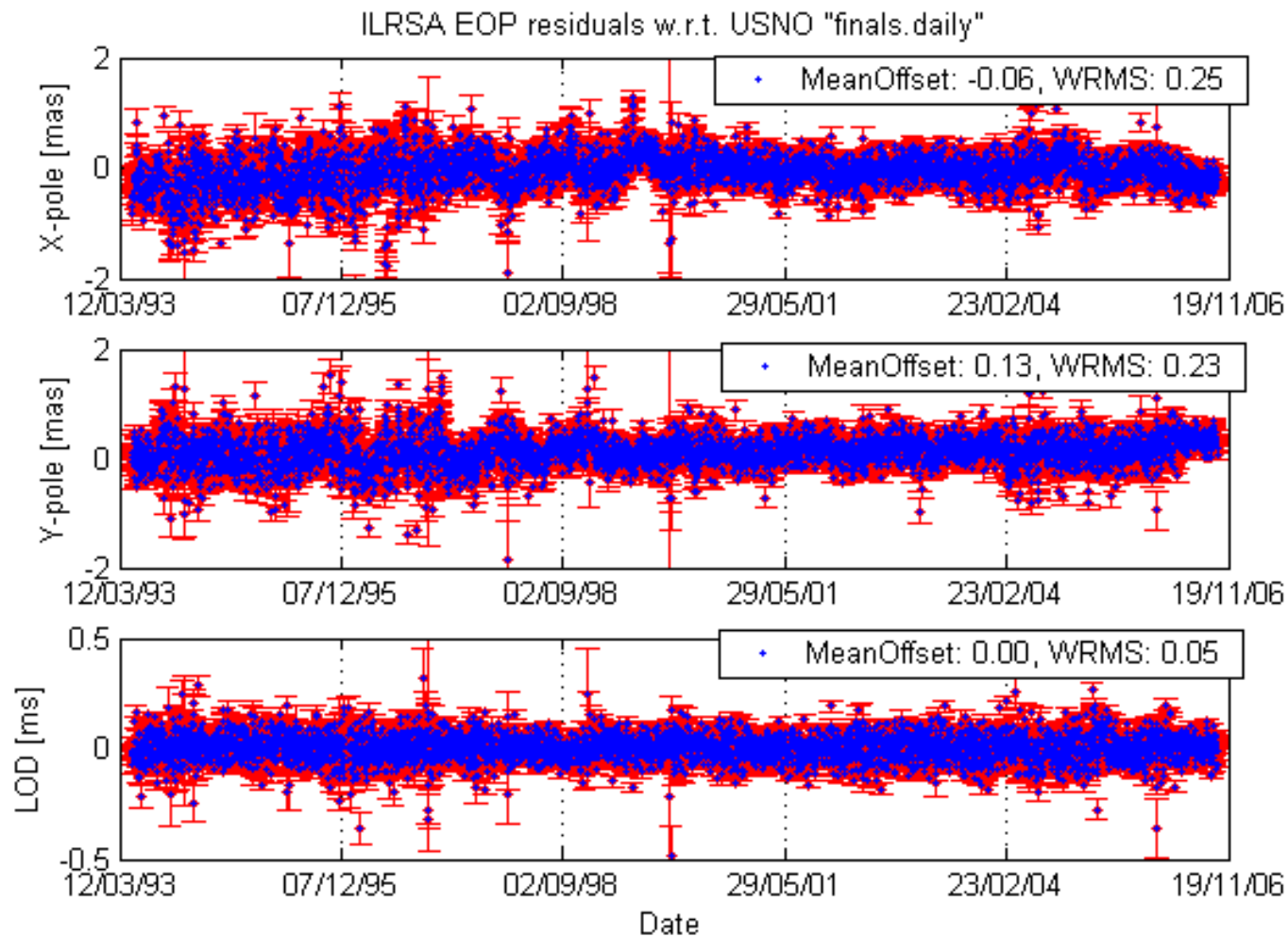


- “anomaly” from July 2006, under investigation
- no evidence of drift

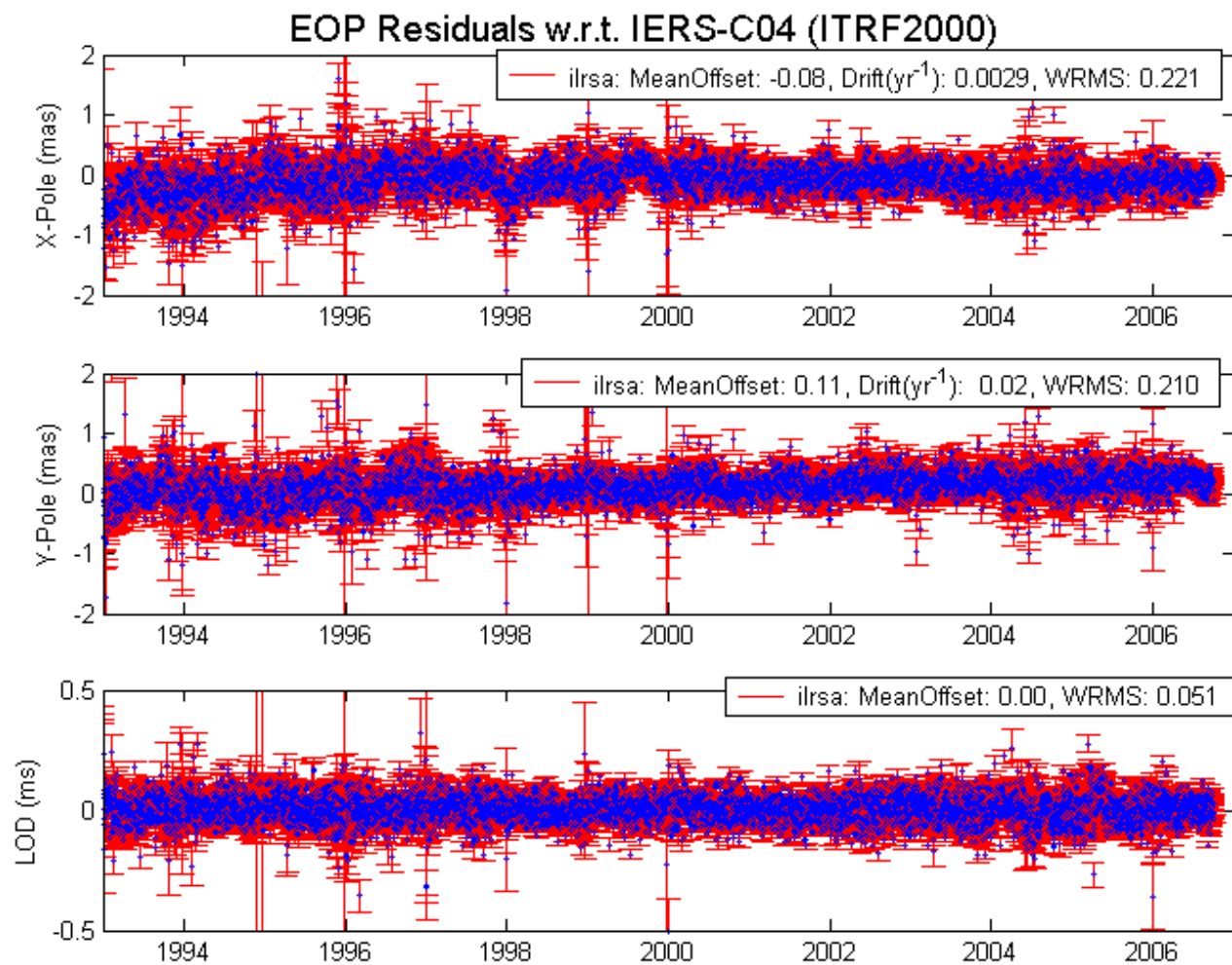
ILRS TRF scale w.r.t. ITRF2005



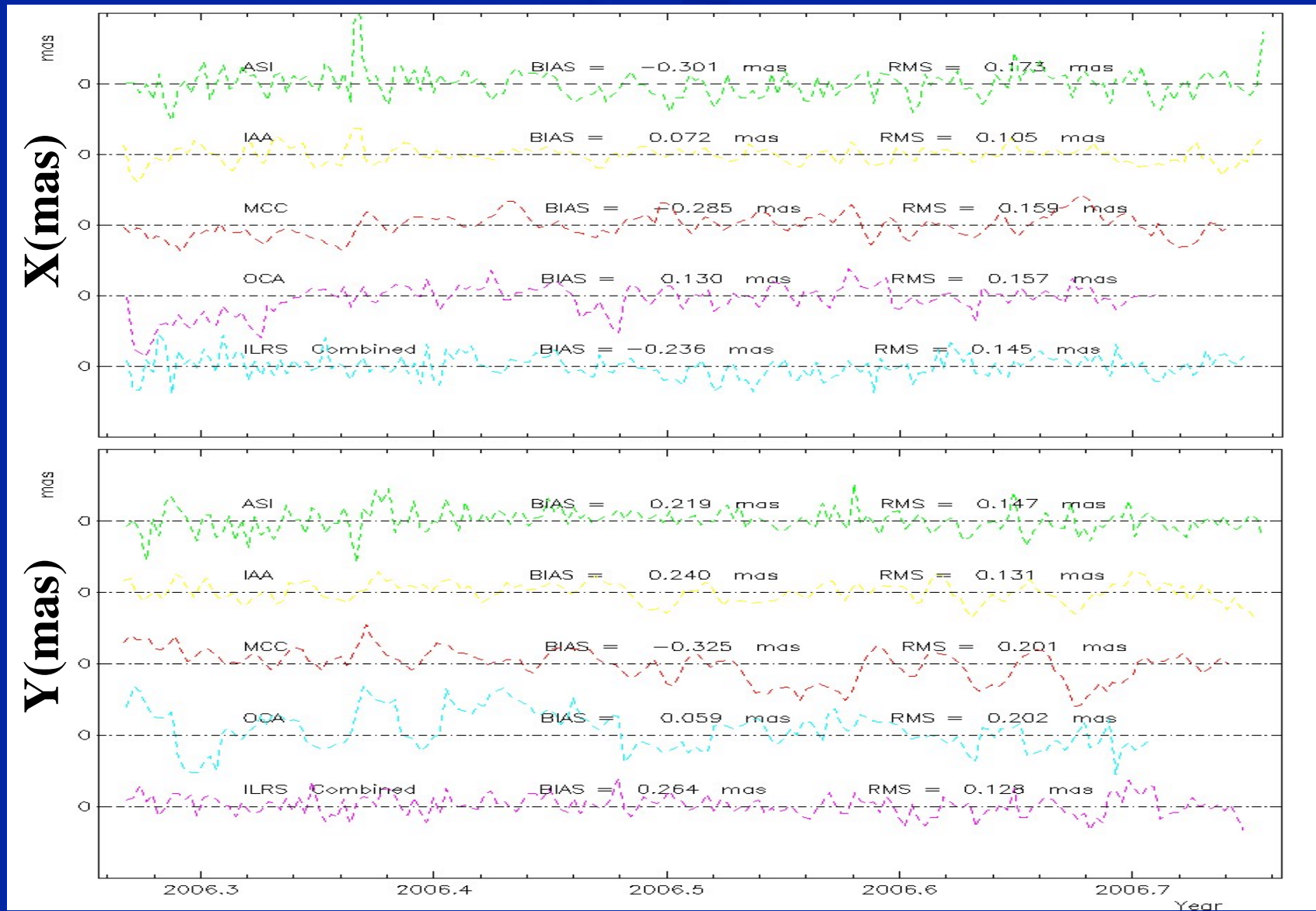
ILRS EOP: weekly comparison with USNO values



ILRS EOP: comparison with EOPC04



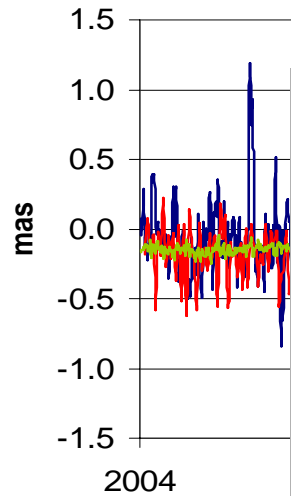
ILRS EOP on IERS web page



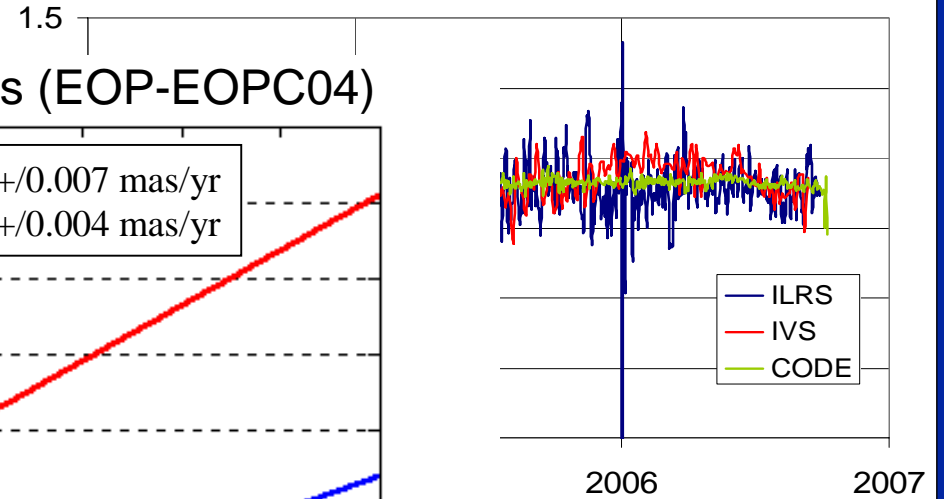
LOD plots not available

GPS, SLR and VLBI EOP

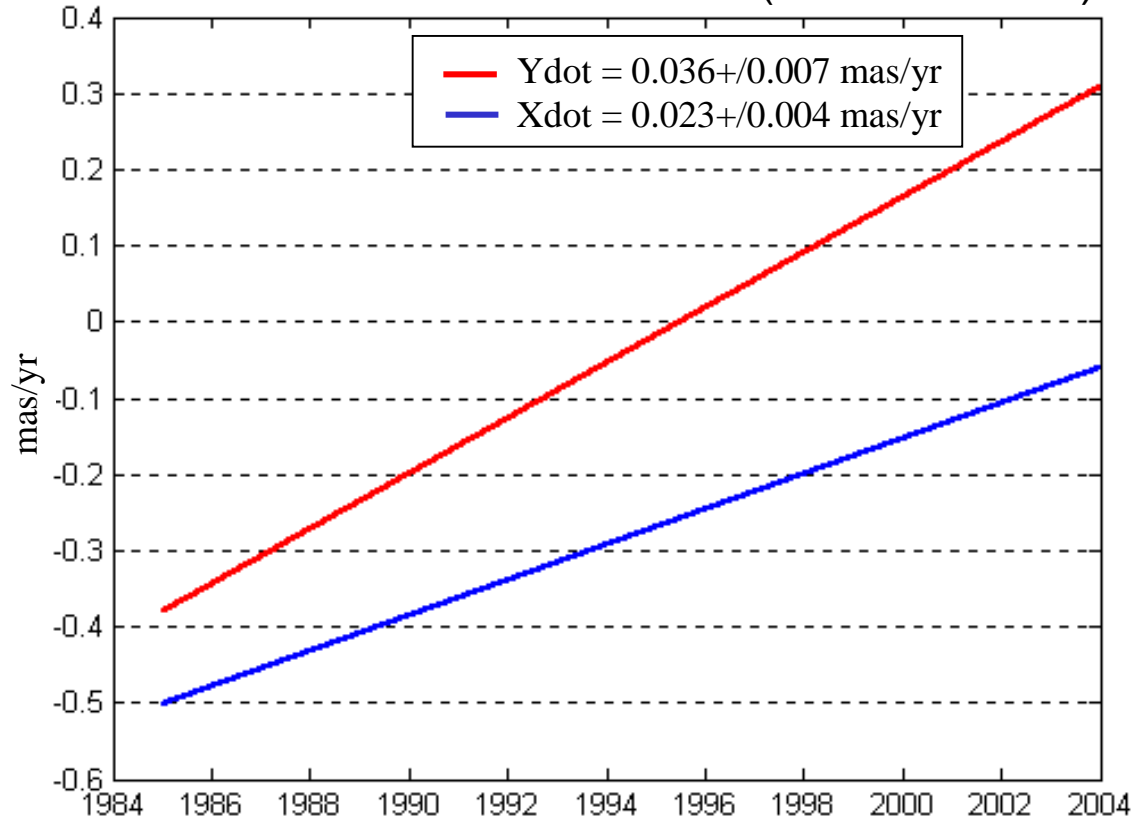
EOP X DIFFERENCES w.r.t. C04



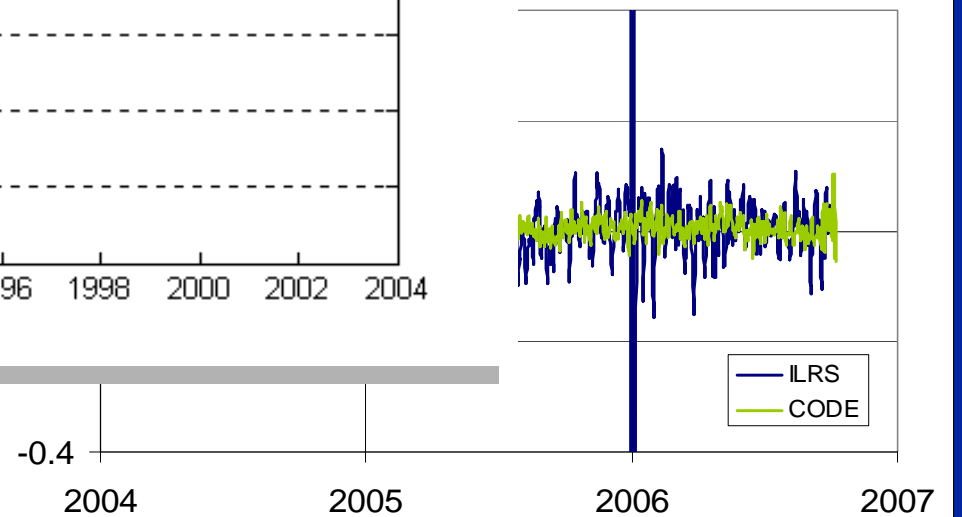
EOP Y DIFFERENCES w.r.t. C04



Linear trend of the residuals (EOP-EOPC04)



EOP Z DIFFERENCES w.r.t. C04



Values taken from the
web PAGE
(<http://hpiers.obspm.fr/eop-pc/>)

Conclusions

- **the routine production process is stable and reliable**
- **the ILRS standard products give a valuable monitoring of site coordinates and EOPs**
- **the geocenter motion, geometrically derived from the weekly solutions, could be included among the future ILRS standard products**

THANK YOU!

