

Station Coordinates and Earth Orientation

Operational Solution DGFI Munich

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Deliveries

Weekly solutions based on 4-weekly arcs since June 30, 2003

Corrected Solution since September 29, 2003

Weekly solutions based on weekly arcs since November 9, 2003

Delivered Parameters in Sinex Files

- Station coordinates
- X- and Y-pole
- Length of day



Satellite Tracking Data Used

- From the Beginning
 - Lageos 1
 - Lageos 2

- Since March 7, 2004
additionally
 - Etalon 1
 - Etalon 2

Reference Frame used

- Precession: IAU 1976
- Nutation: IAU 1980
- EOP's: IERS C04
- Station coordinates: ITRF2000
- Station velocities: ITRF2000
- Tidal uplift: Wahr
- Ocean Loading: Scherneck GOT99b2

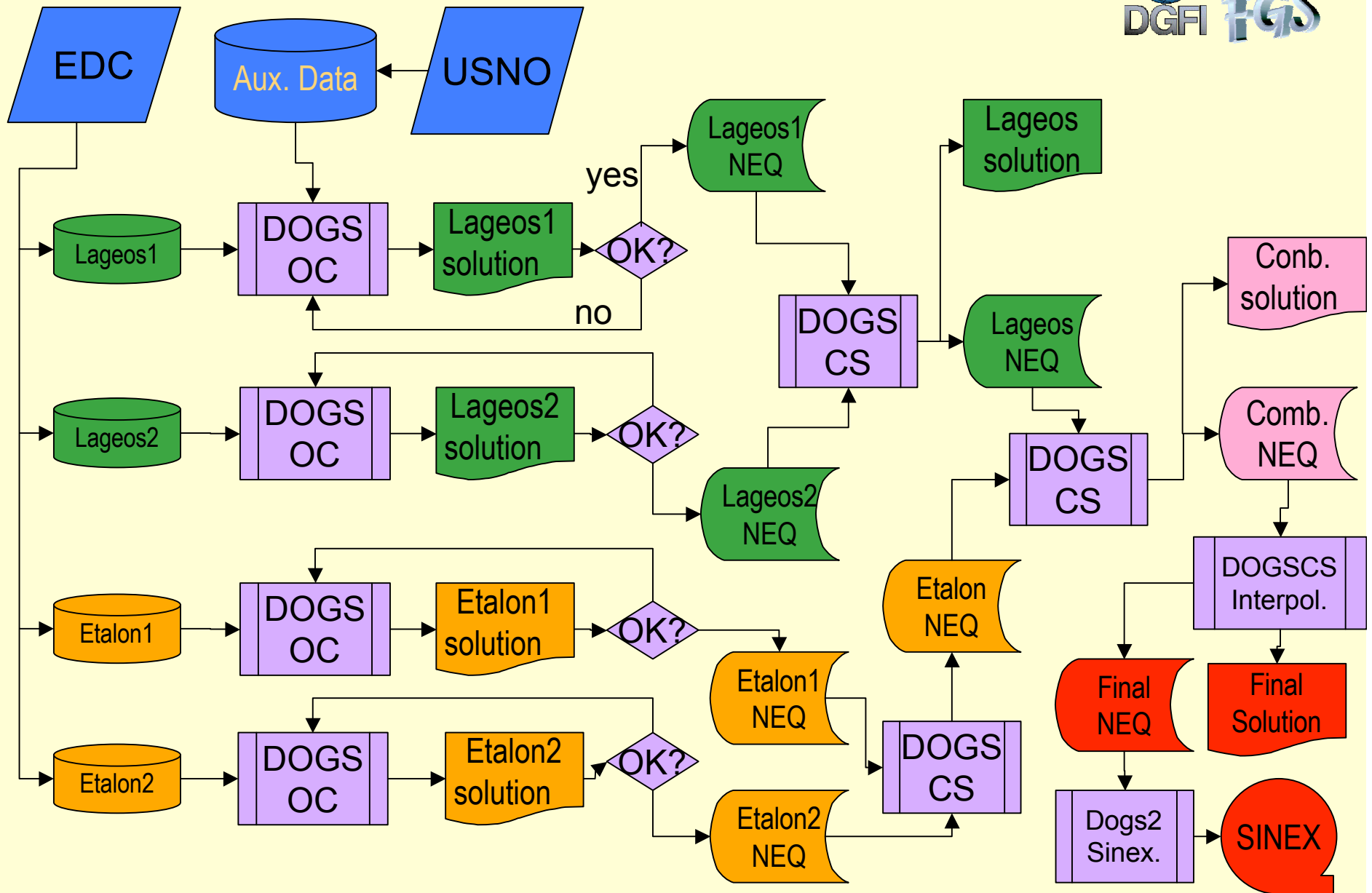
Dynamic Models used

- Gravity Field: EGM96 (to 20x20)
- Ephemerids: JPL DE405
- Ocean tides: GOT 99b2
- Earth tides: Wahr model
- Solar radiation & albedo: applied
- Dynamic polar motion: applied
- Relativistic effects: applied

Measurement Models used

- Trop. Corr.: Marini-Murray
- Tidal uplift: Love model
- Geocenter: not adjusted
- Polar tide: applied
- Relativistic effects: applied
- Biases: not adjusted
- Weighting: 1m (obs.,coor.,pole)

DOGS Processing Scheme



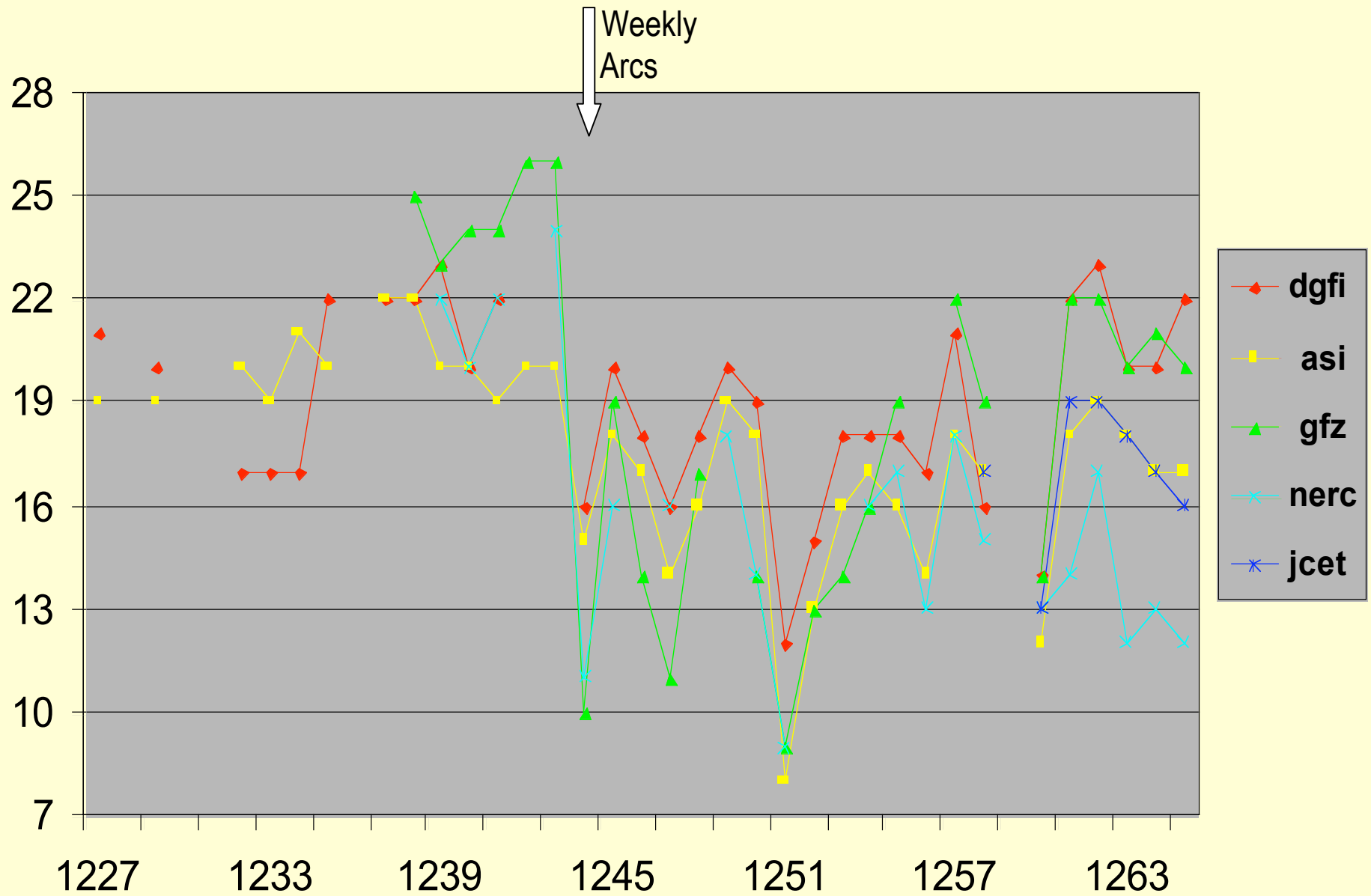
Processing Environment

- Cluster of Linux PC's
 - Pentium4 2.4/2.8 GHz
 - AMD Athlon XP 2400+
 - 600 Gbyte disc space
 - 1 Gbyte memory each
- Processing for one weekly solution
 - Automated Process
 - Presently: manual check of results and quality control
 - Processing time
 - ~ 15 min. on single PC
 - < 10 min. running parallel on 2 – 4 PC's

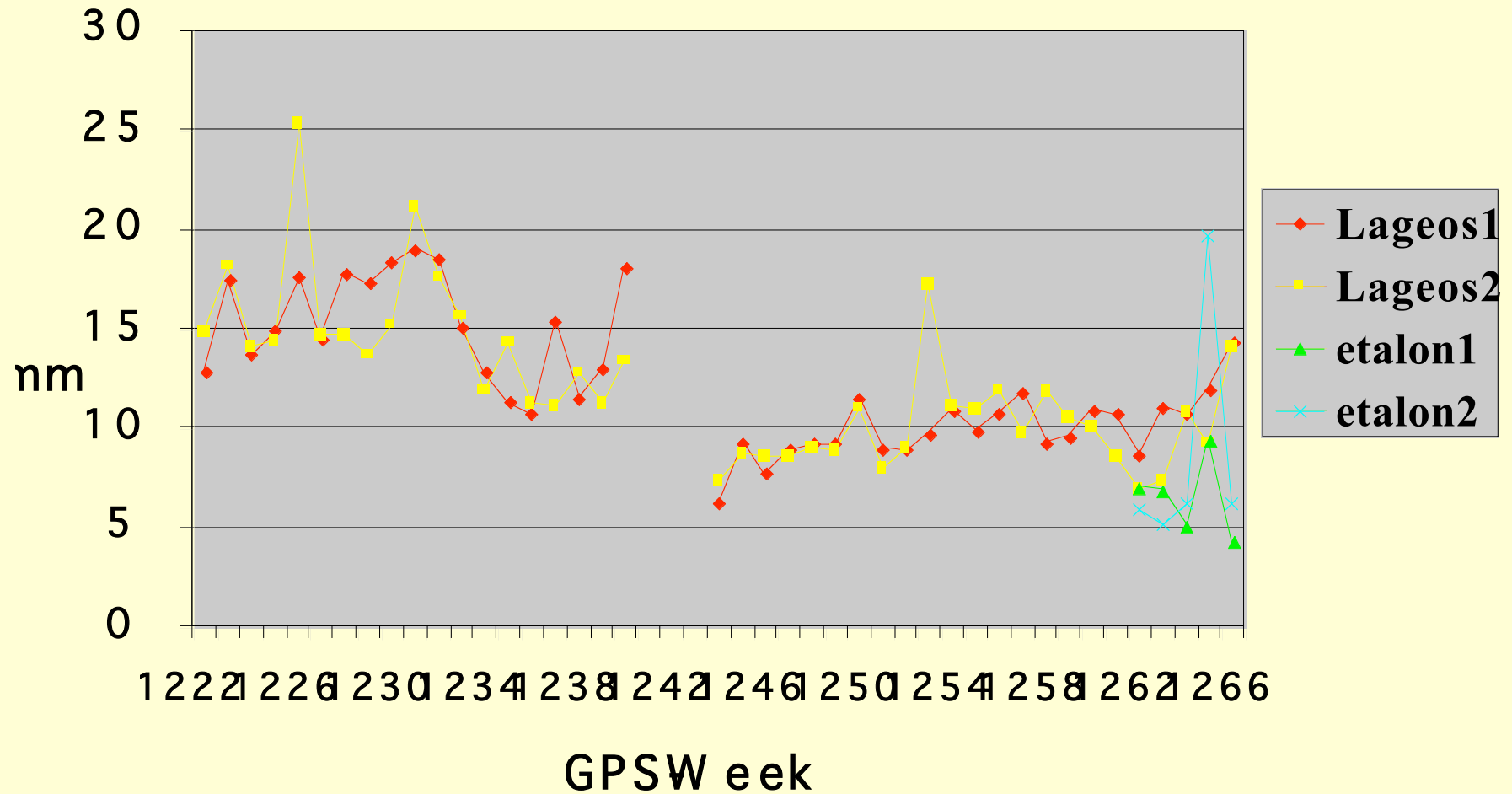
Quality Control

- Orbital fit
- Comparison Lageos1 to Lageos2 solution
- Comparison Lageos only to combined solution
- Similarity transformation to ITRF
- Similarity transformation to previous week
- Comparison with Bulletin A EOP-values

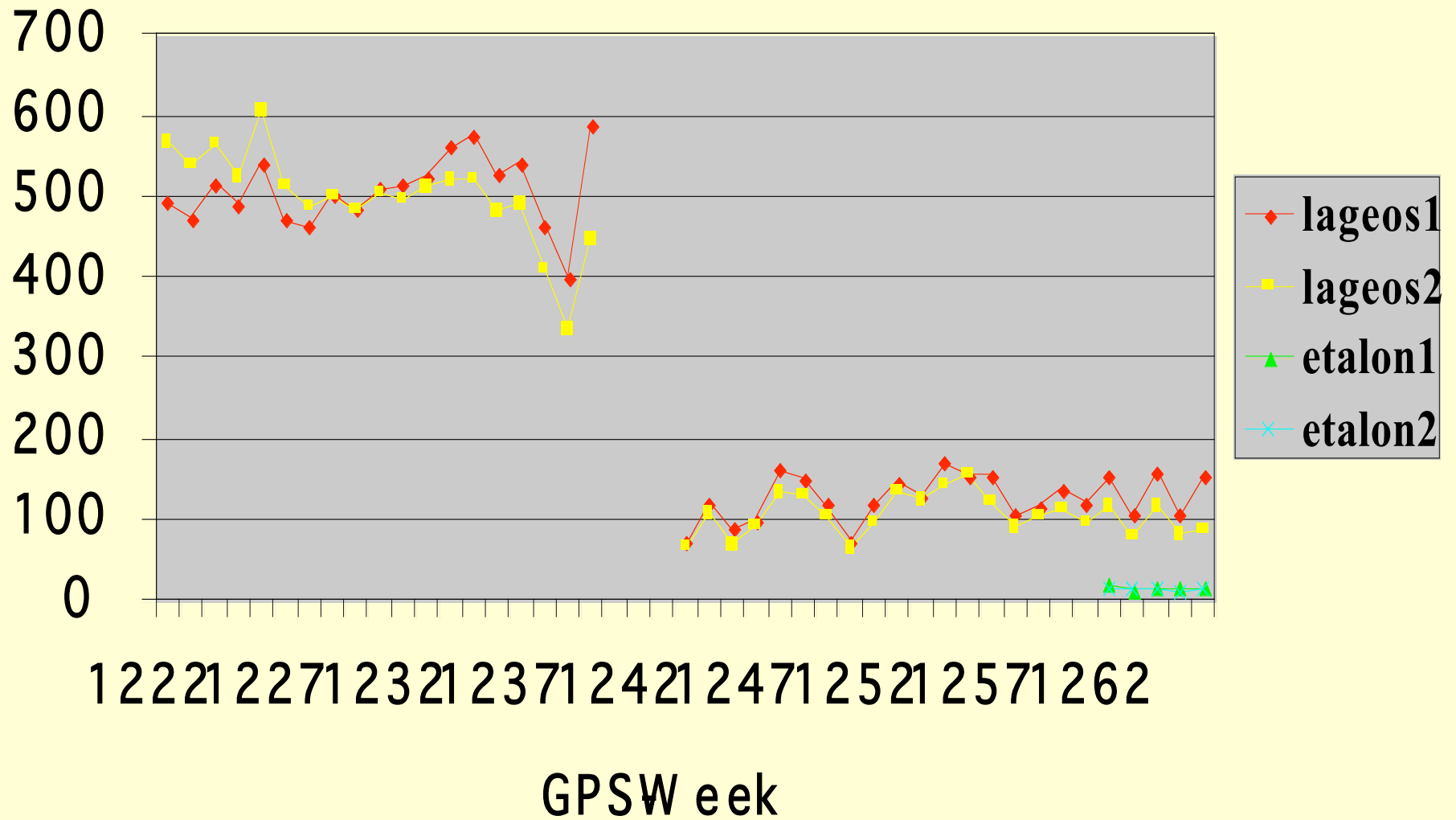
Number of Stations used



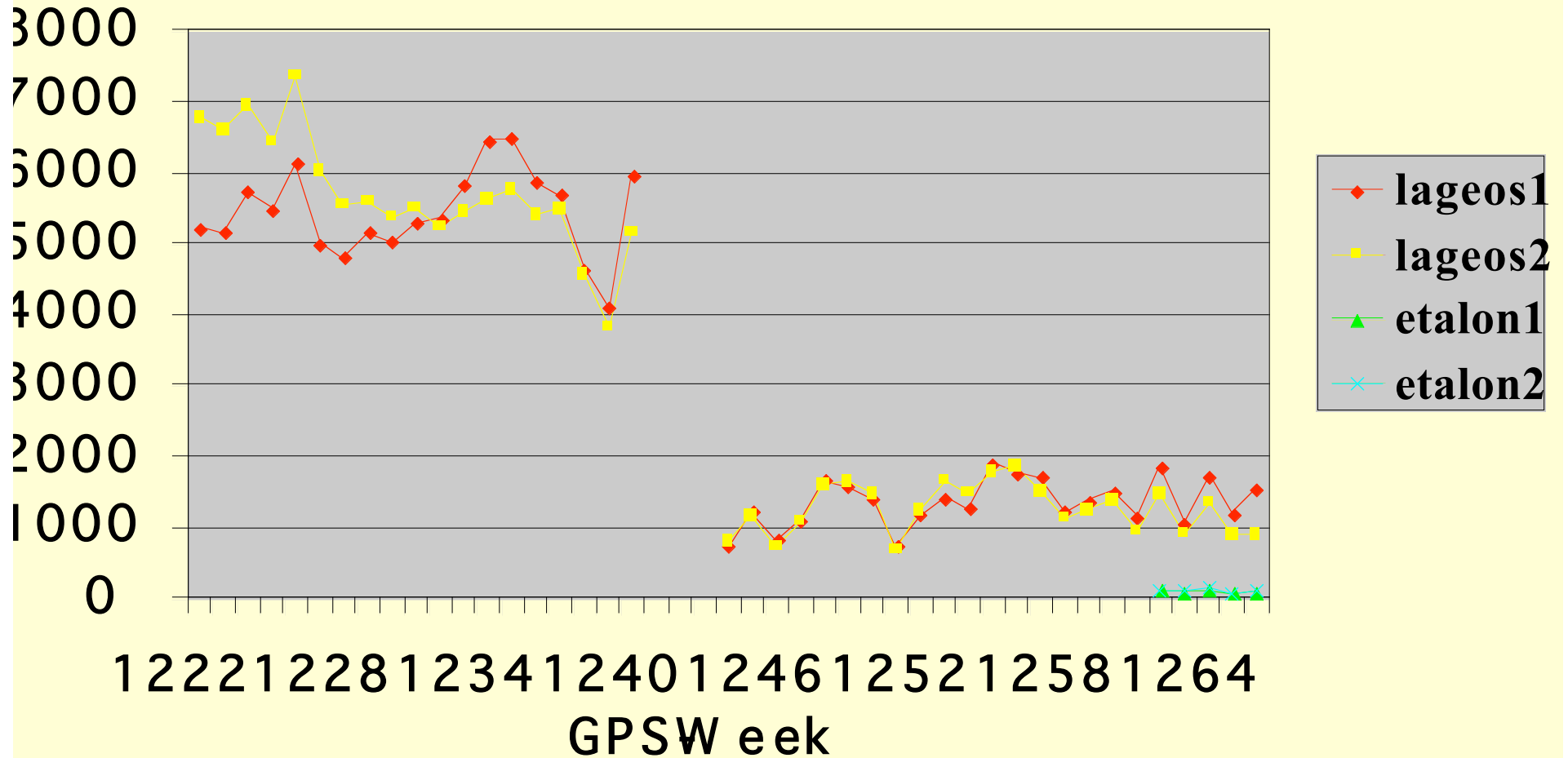
Internal Orbital Fit (RMS-value [mm])



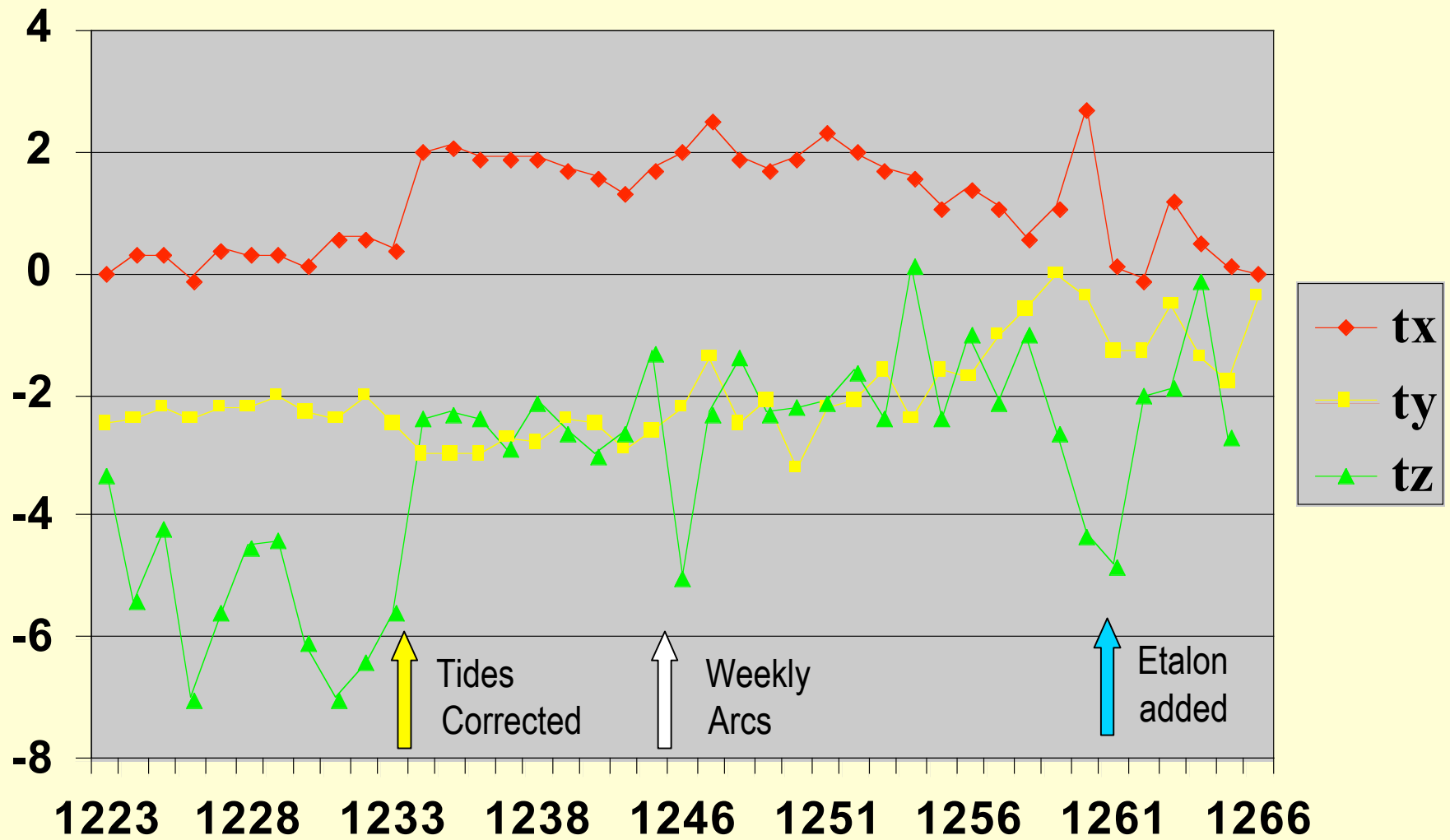
Number of Passes per Arc



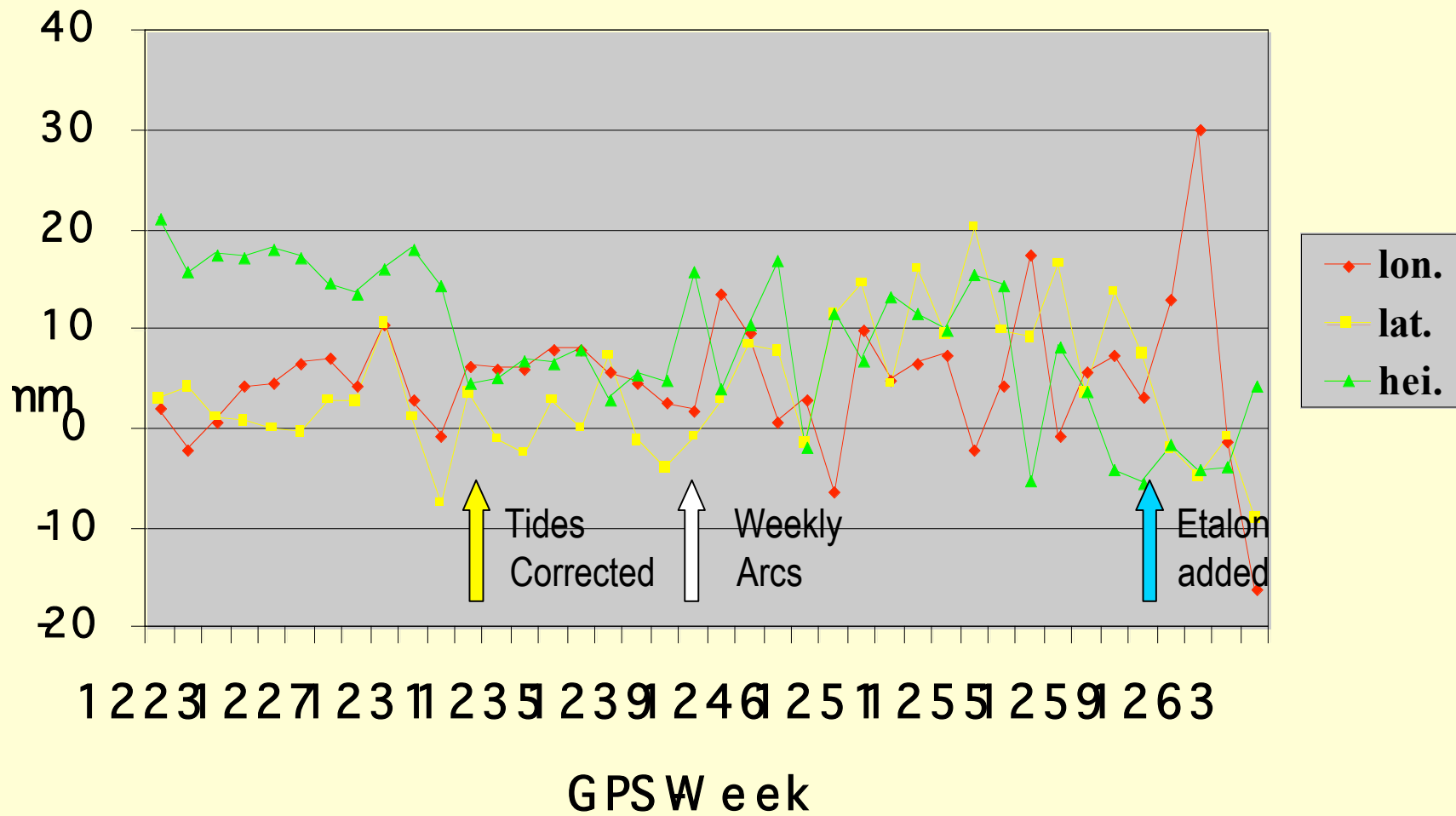
Number of Normal Points per Arc



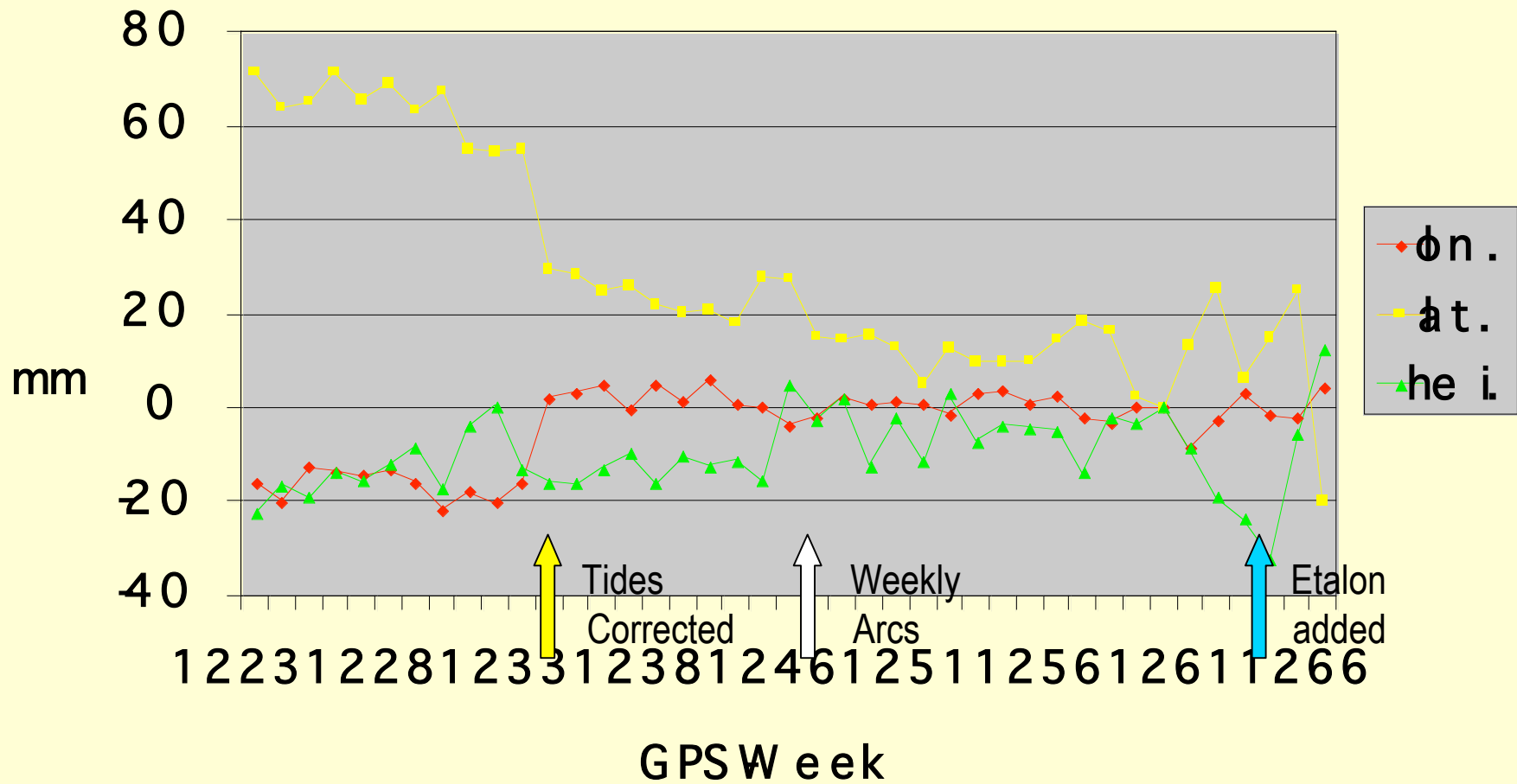
Similarity Transformation Parameters



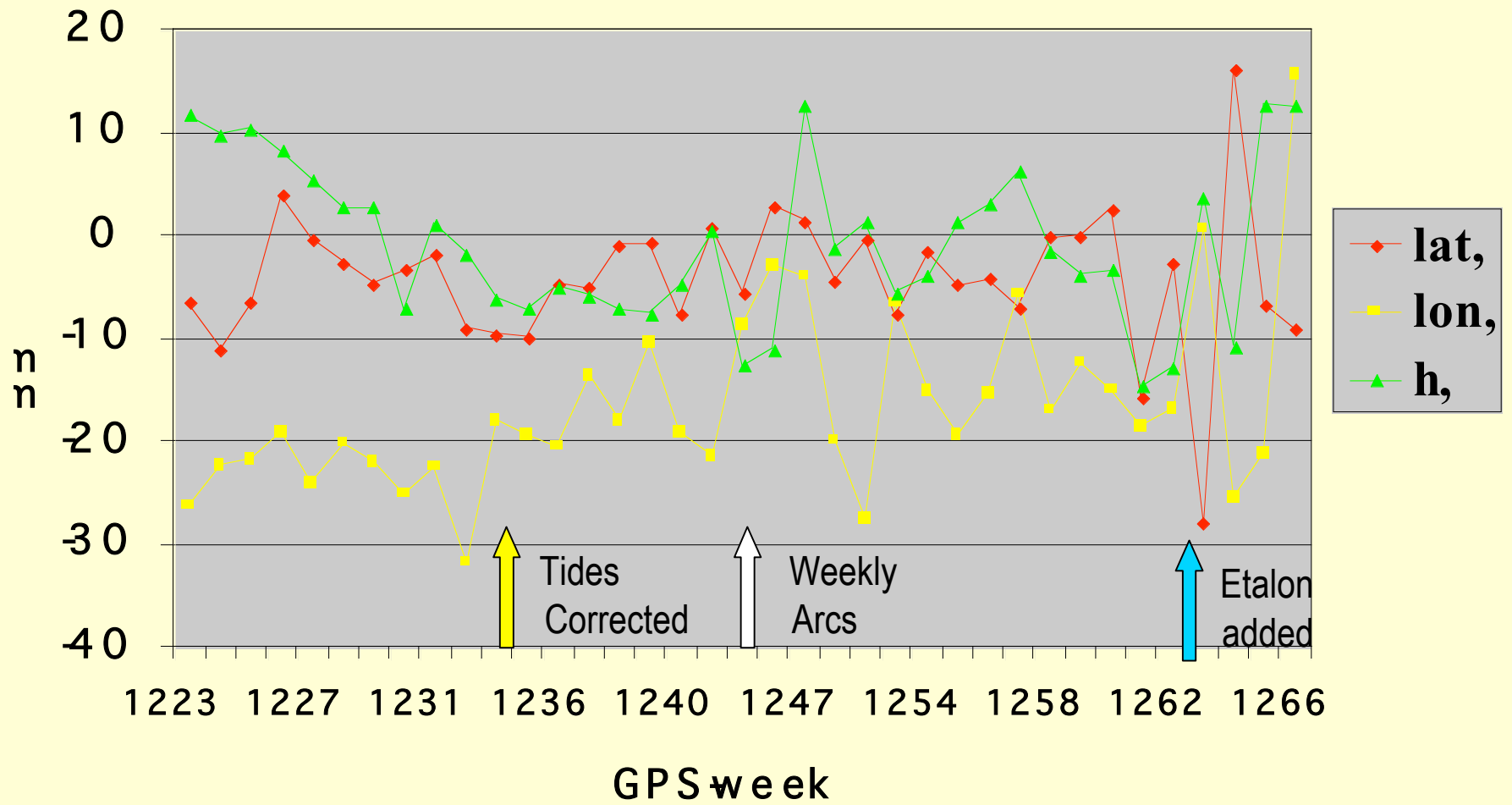
Herstmonceux Weekly Coordinate Differences



Yarragadee Weekly Coordinate Differences

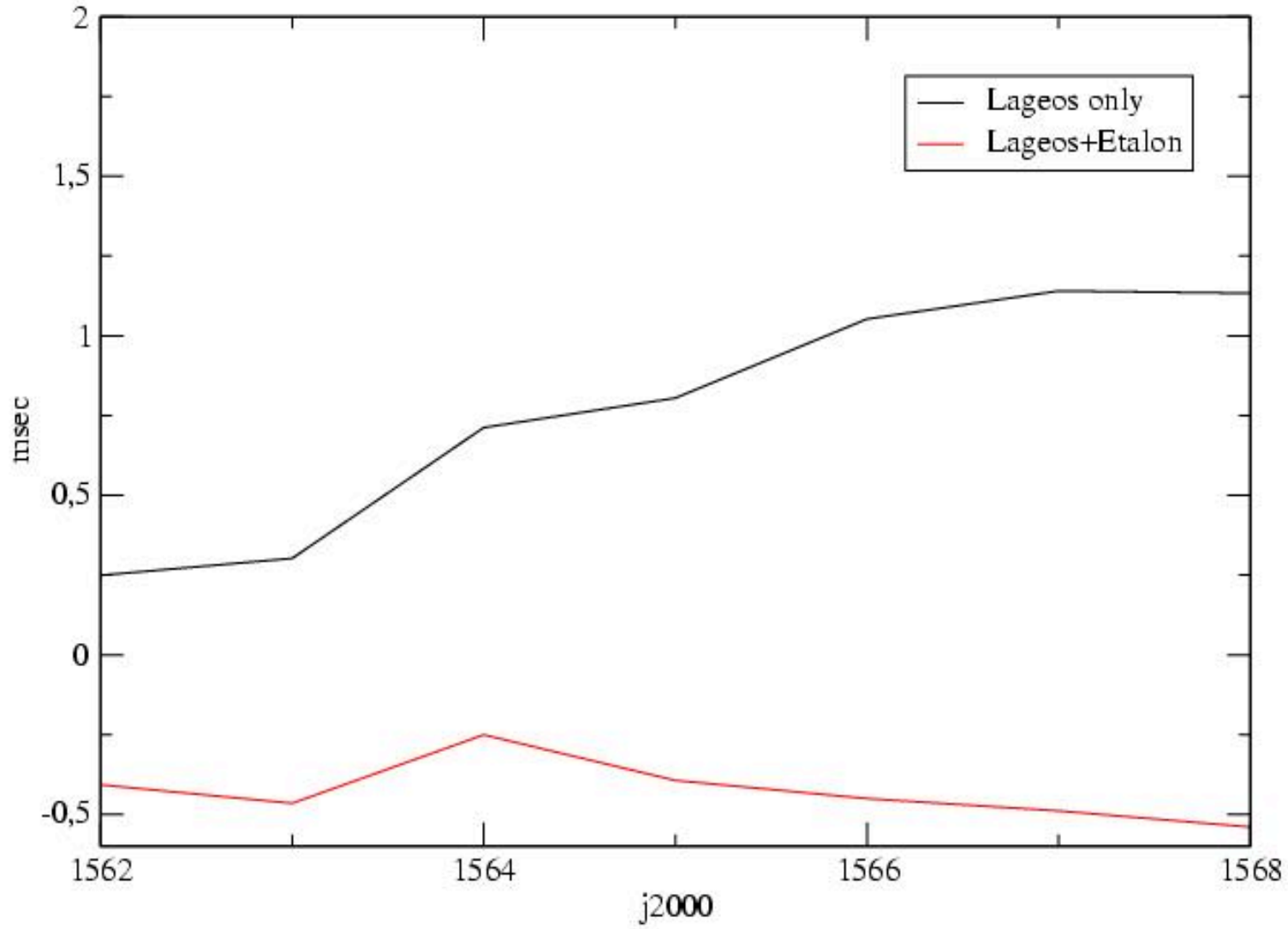


Wetzell Weekly Coordinate Differences

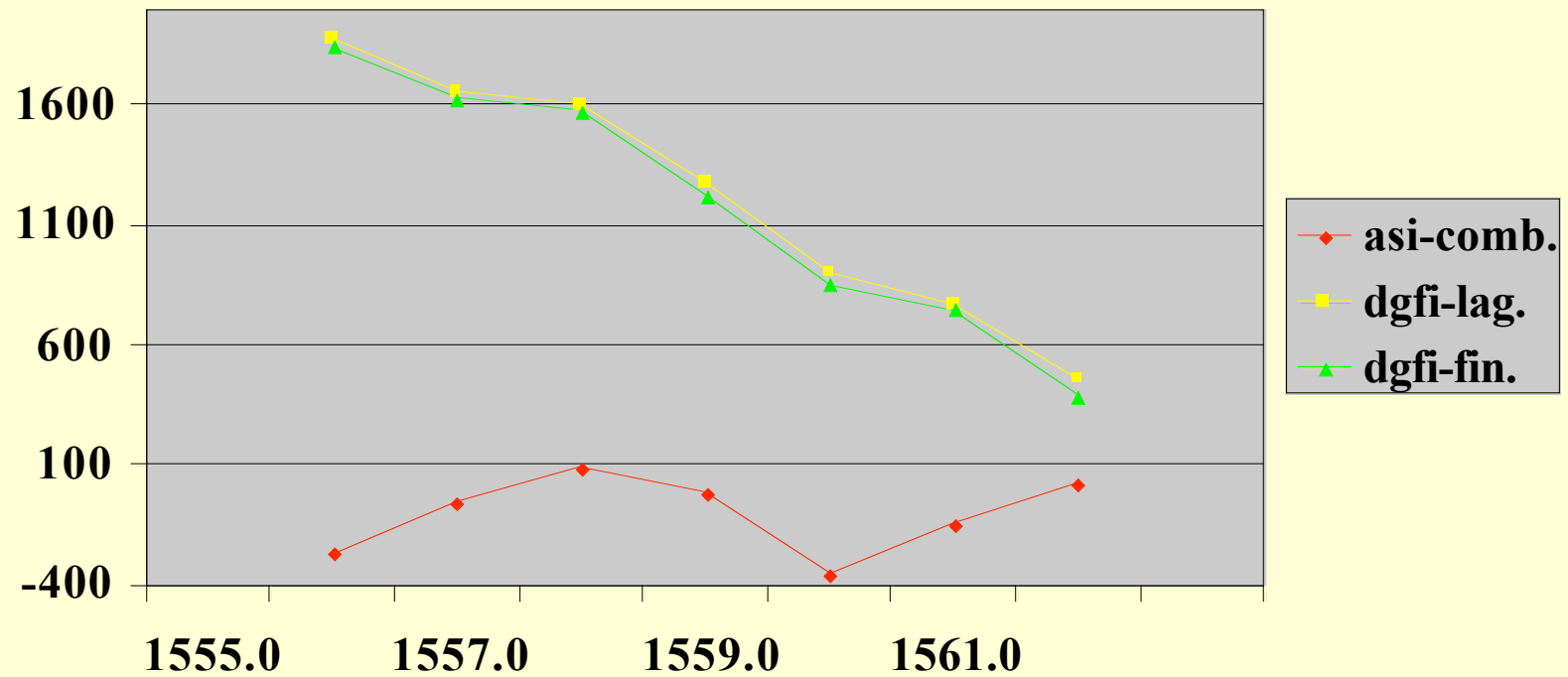


LOD Difference

GPS Week 1266



LOD Values [μsec] GPS-Week 1665



Problems

- Solutions until September 22, 2003 computed with wrong tidal correction
- Not enough zero eigenvalues (only 2) in the solutions
- Sometimes bad data quality > problems with automatic processing