The contribution by AIUB / BKG:

1. GNSS and SLR solution

2. ERP parameterization of SLR solution

GNSS contribution

→ GPS + GLONASS

→ **Daily** SINEX files: codYYYDDDpd01.n1.Z

→ Parameters:

- Station coordinates
- Polar motion (offset + drift): daily
- UT / LOD: daily
- Nutation: daily
- Troposphere zenith delays: 2-hourly
- Troposphere gradients: daily
- Geocenter coordinates

→ Parameterization of EOPs: **piece-wise linear polygon**

SLR contribution

→ Lageos 1+2

→ **Weekly** SINEX files: codYYDDDlw01.**n2**.Z

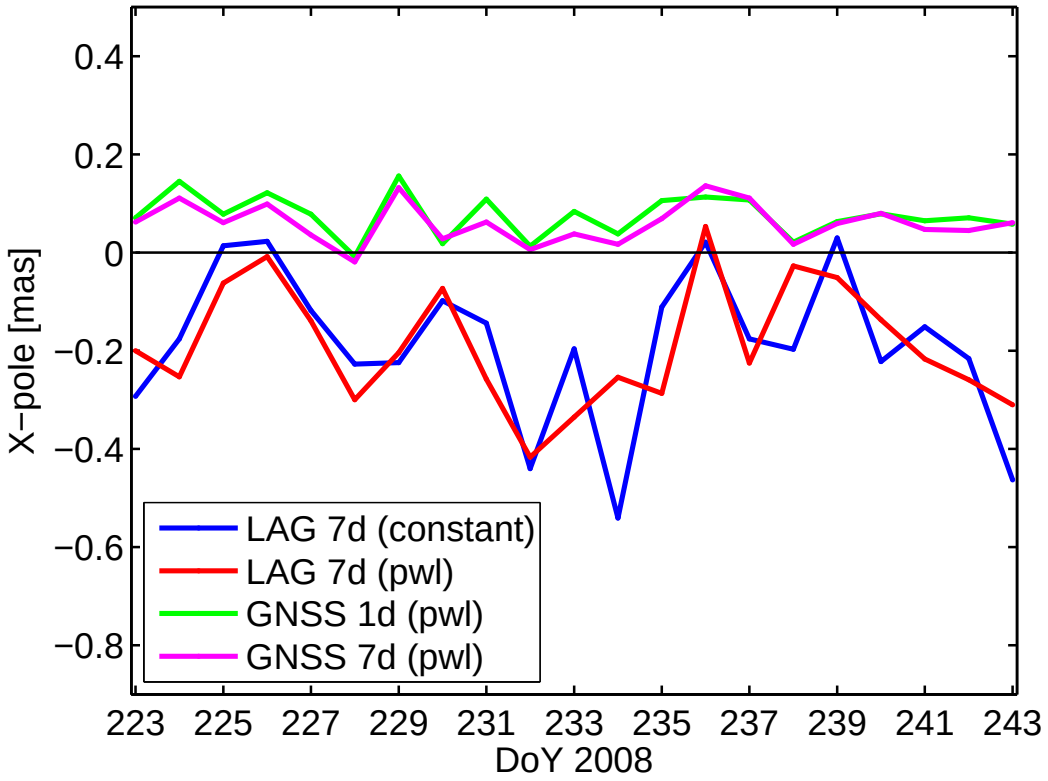
→ Parameters:

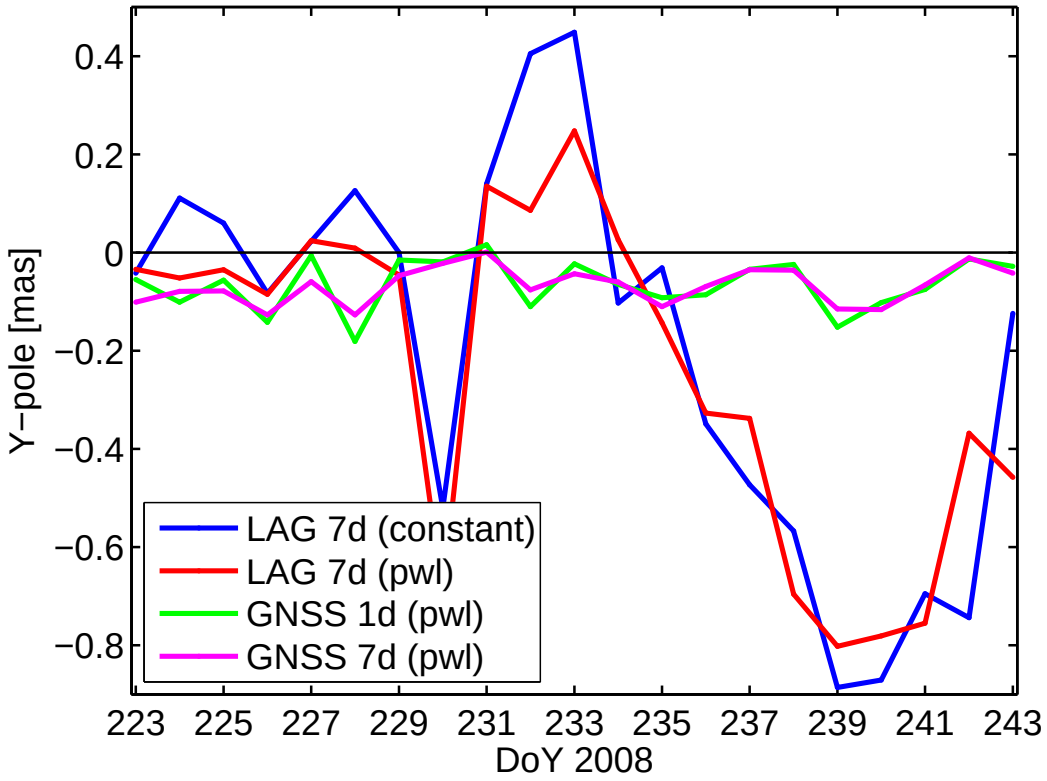
- Station coordinates
- Polar motion (**constant offset**): daily
- LOD: daily
- Range biases for selected sites (combined Lageos1+2)

ERP parameterization for SLR: Pole

→ Daily constant (offset-only)

→ Daily piece-wise-linear (offset + drift + continuity at day boundaries)



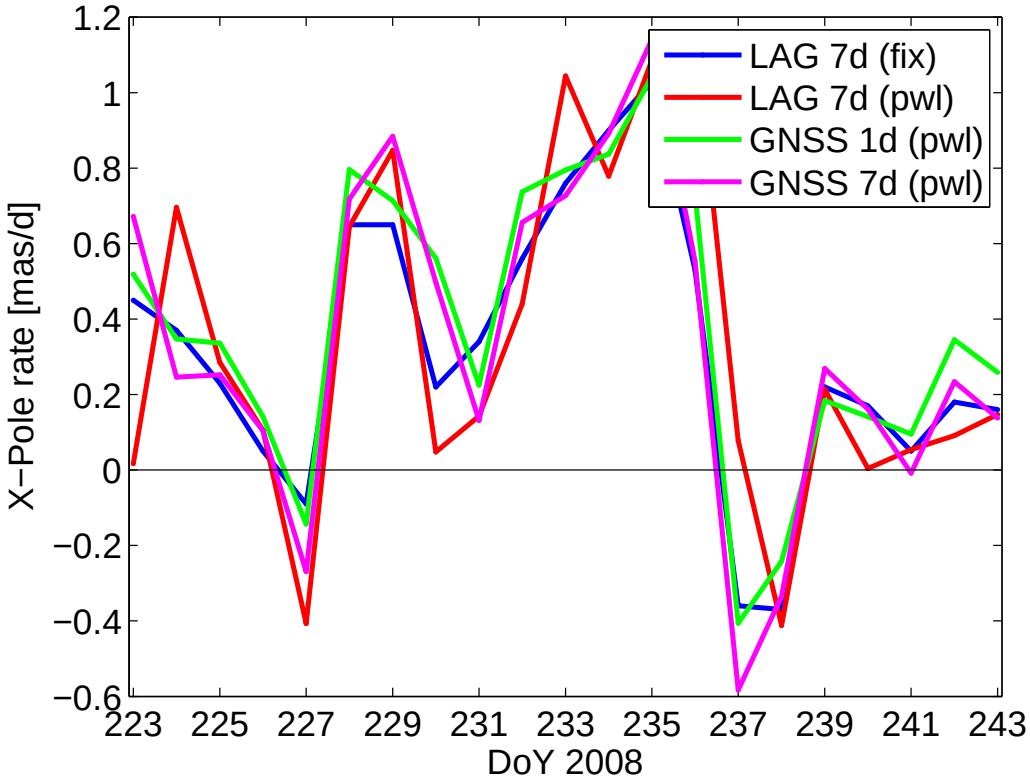


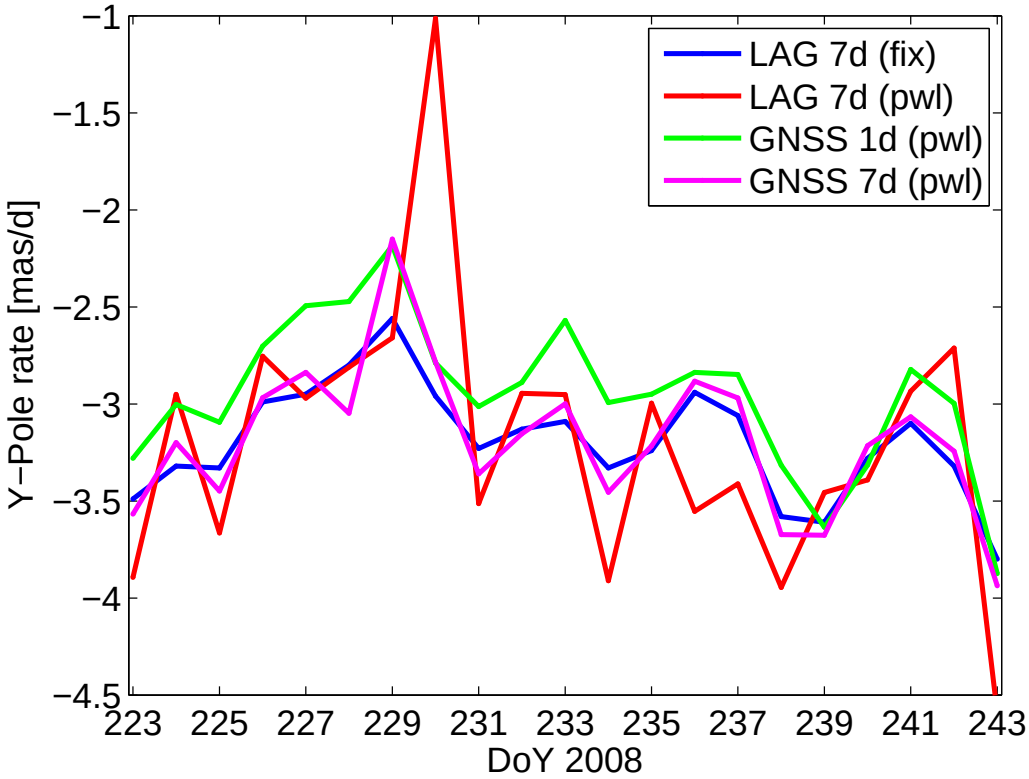
	WRMS x-pole	WRMS y-pole
LAGEOS 7d, constant	148.4 µas	289.9 µas
LAGEOS 7d, pwl	119.6 µas	250.0 µas
GNSS 7d, pwl	39.9 µas	35.8 µas
GNSS 1d, pwl	41.3 µas	51.5 µas

ERP parameterization for SLR: Pole rates

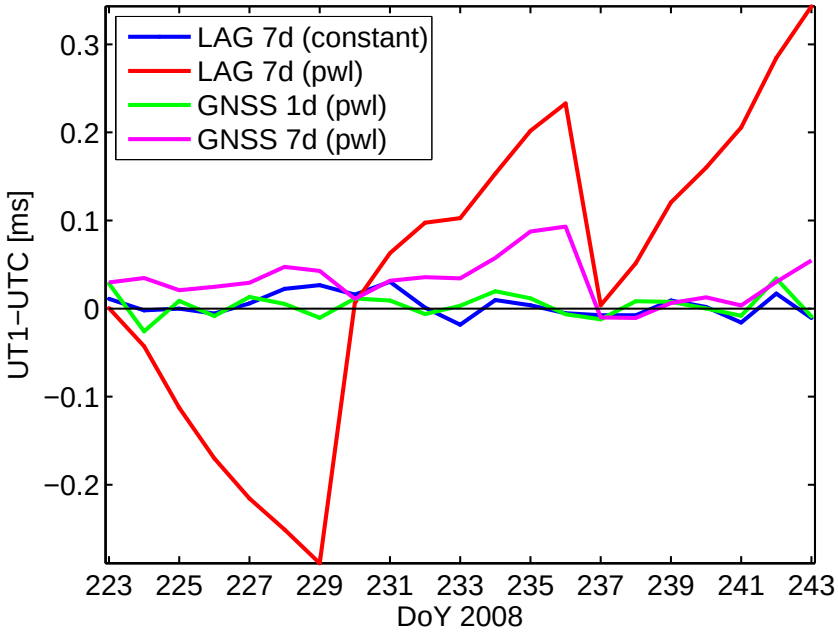
→ No polar motion rates (fixed to IERS-C04)

→ Daily piece-wise-linear (offset + drift + continuity at day boundaries)



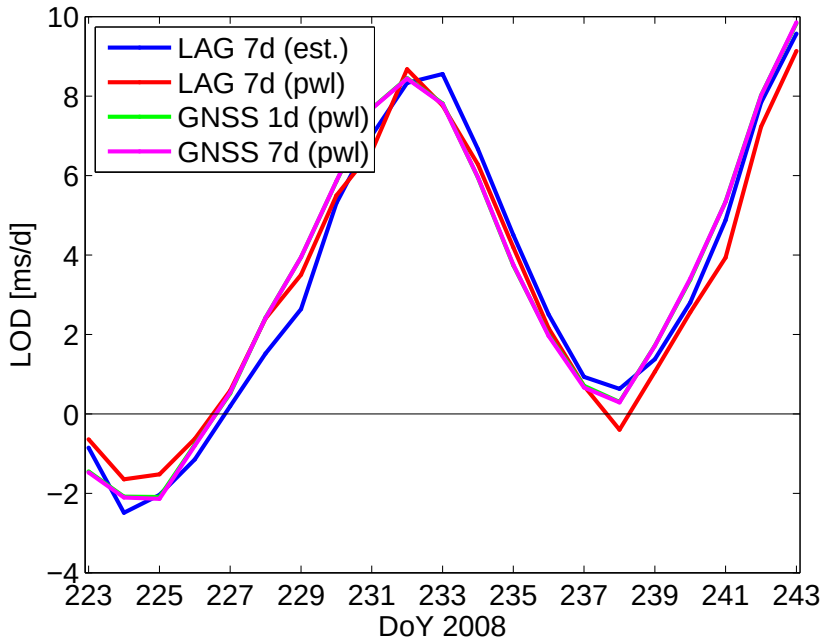


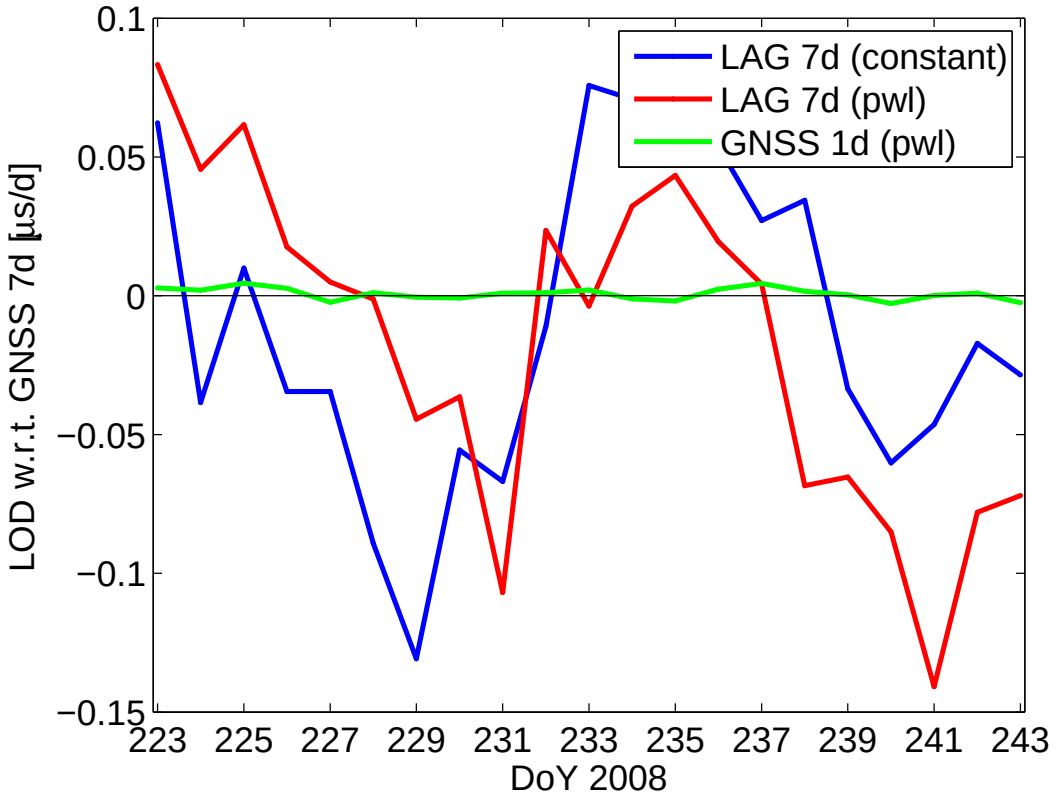
ERP parameterization for SLR: LOD



→ Only LOD estimated

→ Daily piece-wise-linear (UT + LOD + continuity at day boundaries)





ERP parameterization for SLR: Helmert

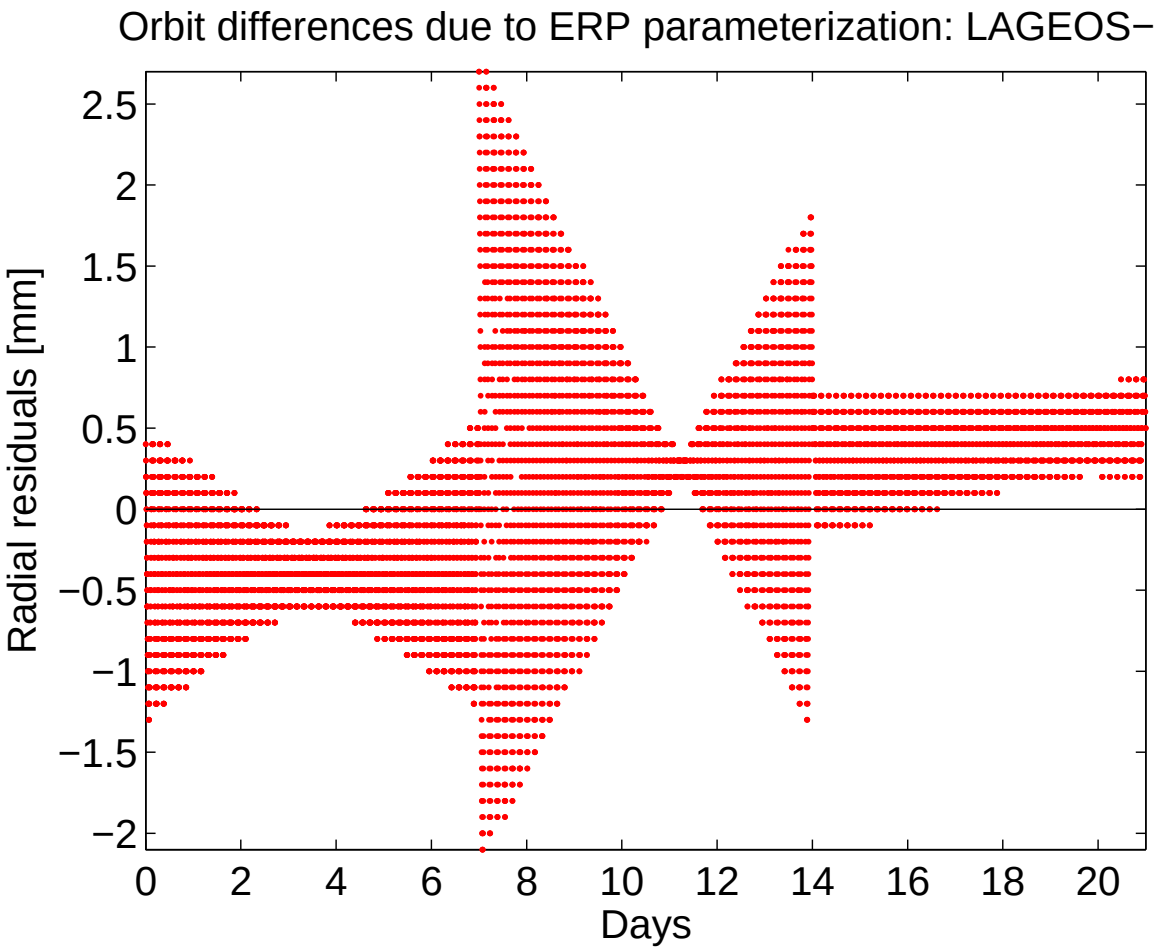
→ Helmert transformation between **ORBITS** (using LAGEOS-1 and –2)

	Translation parameters			
	X	***Y***	***Z***	
Week 1	0.16	-0.18	-0.39	[mm]
Week 2	0.17	-0.26	-0.99	[mm]
Week 3	0.05	0.46	-0.52	[mm]

	Scale	
Week 1	0.008	[ppb]
Week 2	-0.003	[ppb]
Week 3	-0.010	[ppb]

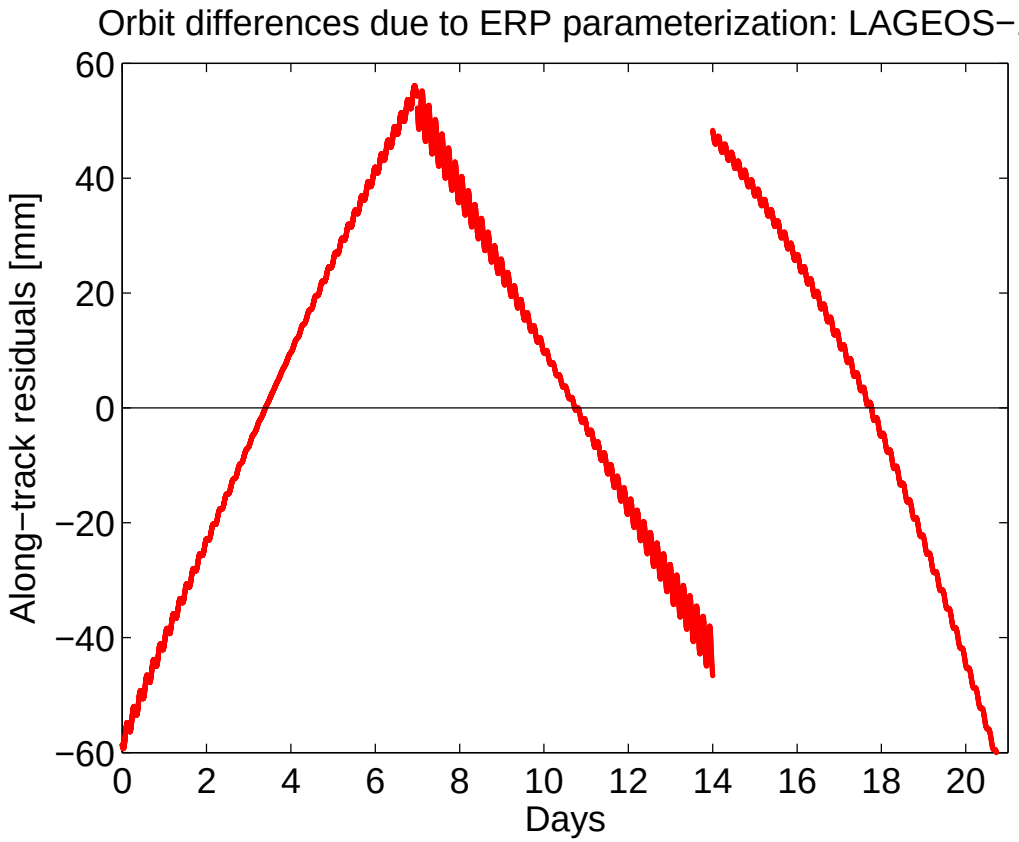
⇒ Differences are negligible

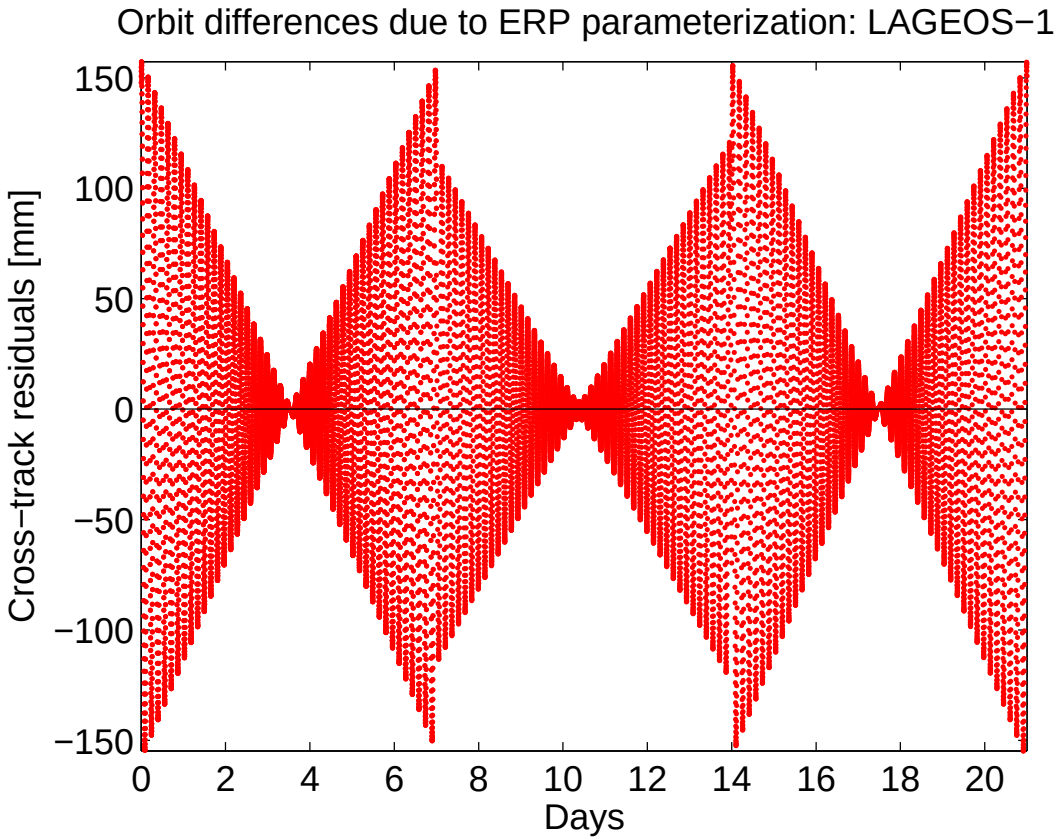
ERP parameterization for SLR: Orbit



⇒ Nearly no impact on radial direction

ERP parameterization for SLR: Orbit





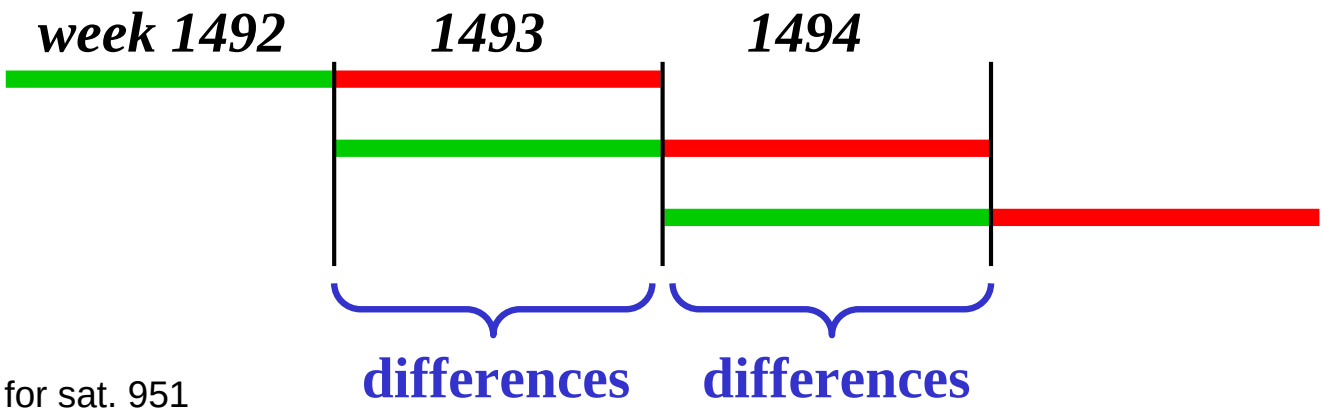
⇒ Impact of different UT values is visible

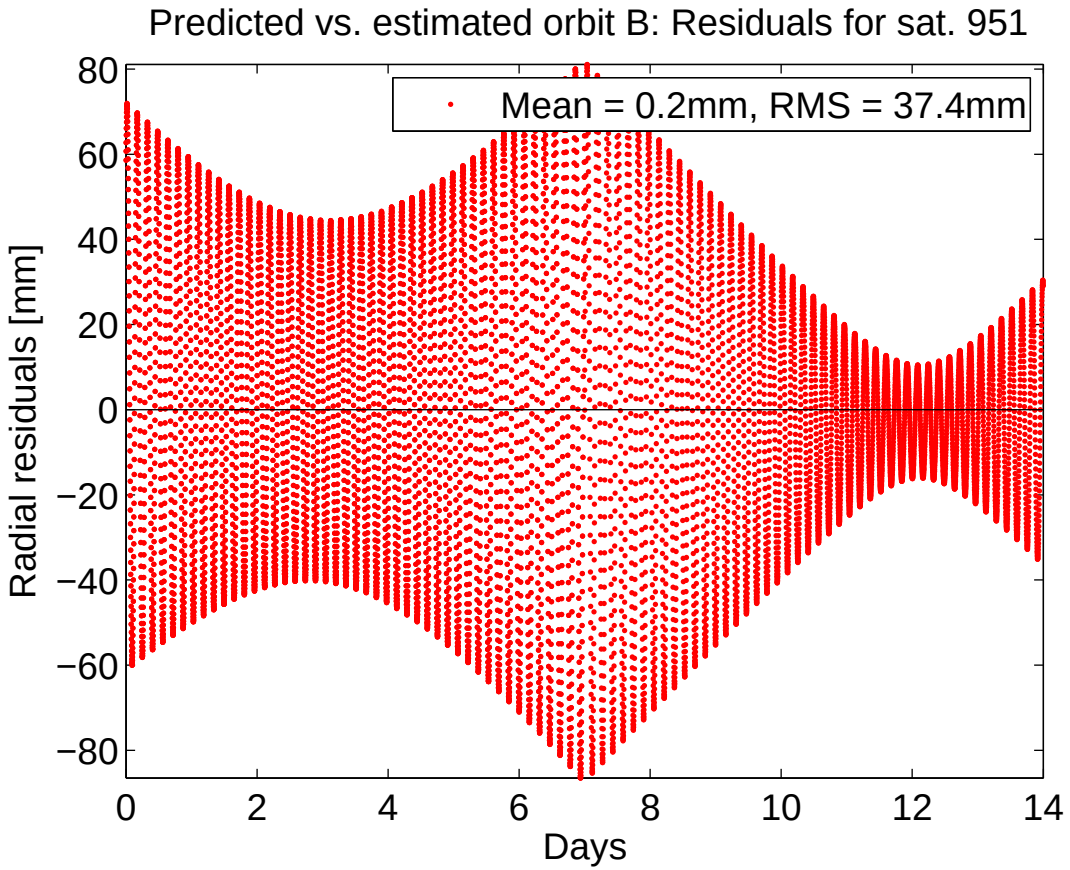
ERP parameterization for SLR: Orbit prediction

Orbit overlaps over 1 week:

Estimated orbit vs.

Prediction from previous week





RMS of residuals (2 minutes)

	radial	*along*	*cross*	
Constant:	37.9	368.8	324.3	[mm]
PWL:	37.4	360.8	328.3	[mm]

Summary

→ Up to now ***„standard“ solutions*** contributed for GNSS and SLR:
- Parameterization
- Satellites included

→ Test of extended ***ERP parameterization*** for SLR solutions:
- Inclusion of polar motion rates should be okay
- Handling of UT: GNSS approach might not be adequate for SLR

→ Solutions using SLR data to GNSS satellites are computed and tested internally and will be submitted to WG COL

→ New submissions:
- „standard“ GNSS solution (≈ IGS contribution): ***new models***
- „standard“ SLR-only solution (≈ ILRS contribution): ***+ETALON***
- ***GNSS (microwave) + SLR data to GNSS satellites***
- ***GNSS (microwave) + SLR data to GNSS satellites + LAGEOS***