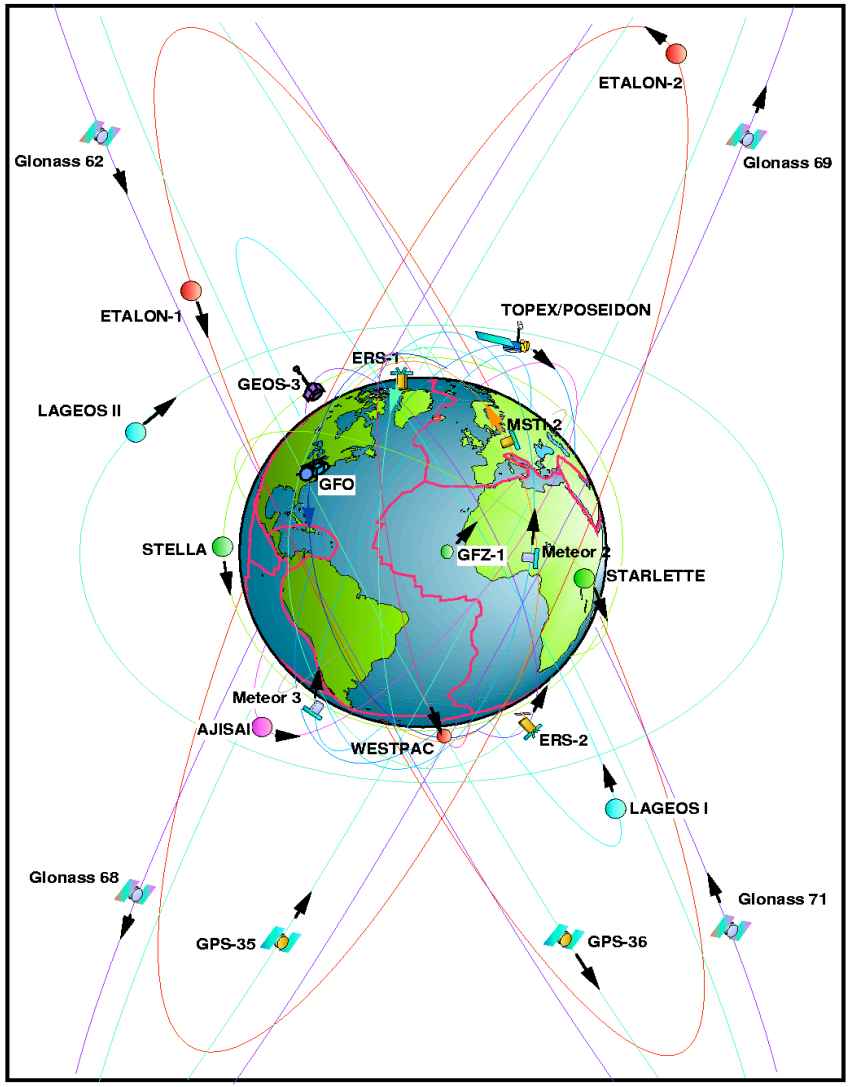
SLR Center of Mass Offset for Starlette & Stella

Effect of Range Biases on Geocenter Estimation



GGOS Working Group on Ground Networks and Communications Working Group Meeting

16 April 2008
Vienna, Austria

ITRF2005 Performance for Starlette

SLR residual RMS for 2000-2005 using 6-day arcs, GGM02C, full network, Mendes/Pavlis refraction model

	ITRF2000 (75 mm CoM)	ITF2005 (75 mm CoM)	ITRF2005 (scaled -1.2 ppb, 75 mm CoM)	ITRF2005 (scaled -1.2 ppb, 80 mm CoM)
SLR RMS (mm)	**19.7**	**18.8**	**19.1**	**18.7**
SLR Mean (mm)	**-3.9**	**-0.1**	**-3.7**	**0.1**

Starlette fits under 2 cm are attainable
Stella, with higher drag, fits a bit worse (~2.5 cm)

Using Starlette and Stella to evaluate 'SPOD2005' for use in Topex/Poseidon and Jason-1/2 orbit computations

T/P is a poor target for evaluating coordinates

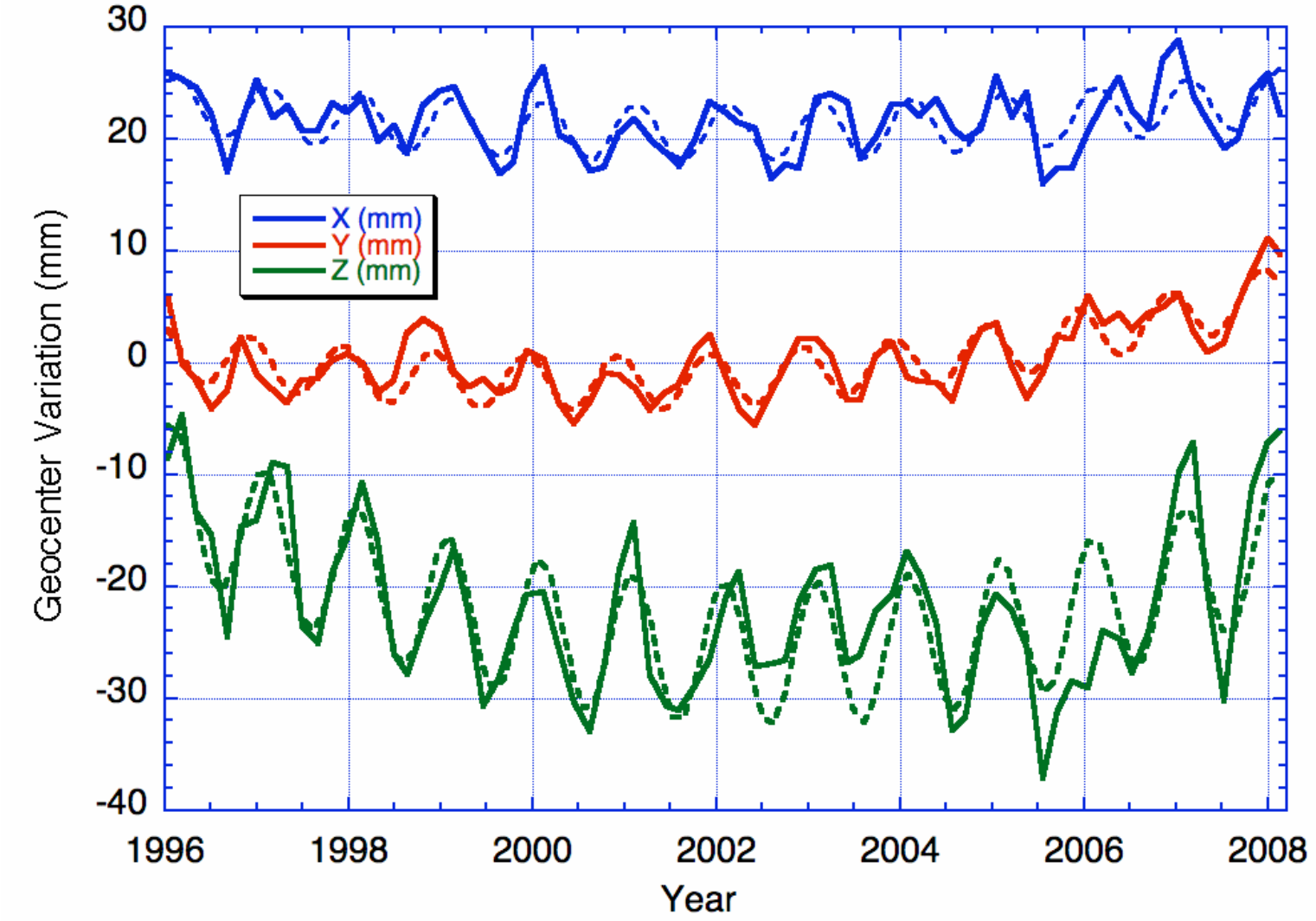
C S R

Starlette/Stella CoM

- Current CoM for Starlette & Stella is 75 mm for all sites
  - Early CoM analysis was very coarse
  - Later analysis indicates CoM closer to 80 mm
- Using 78 mm for CoM…
  - Starlette mean bias : 0 mm for 1993-1999, -1 mm for 2000-2008
  - Stella mean bias : 0 mm for 1993-1999, -2 mm for 2000-2008
- Suggests 78-79 mm as CoM for Starlette/Stella

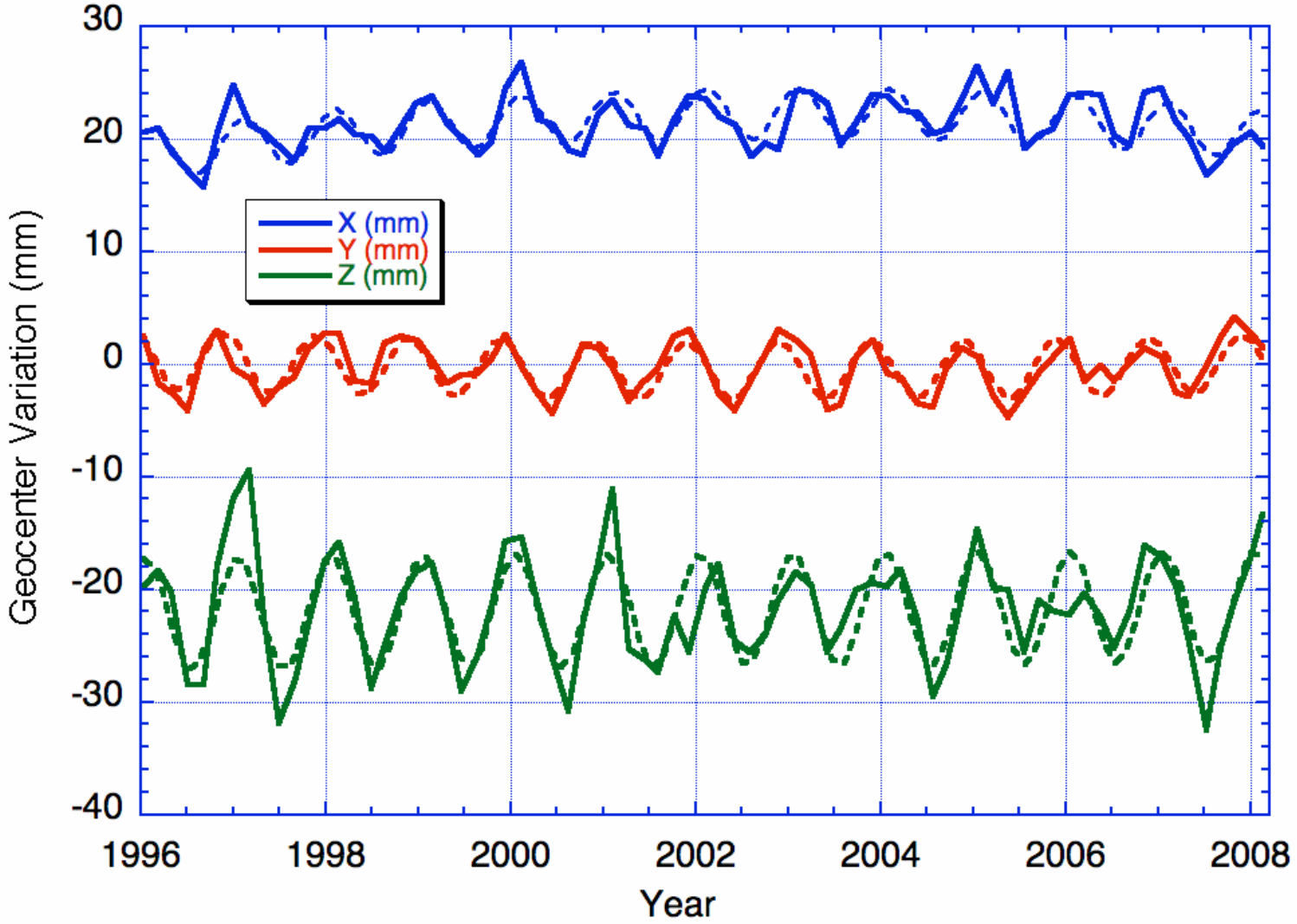
Geocenter Estimation and Range Biases

60-day geocenter estimating translation only; ITRF2005, no biases



Geocenter Estimation and Range Biases

60-day geocenter estimating translation only; ITRF2005, est. biases



Geocenter Estimation and Range Biases

60-day geocenter estimating translation only; ITRF2005, est. biases