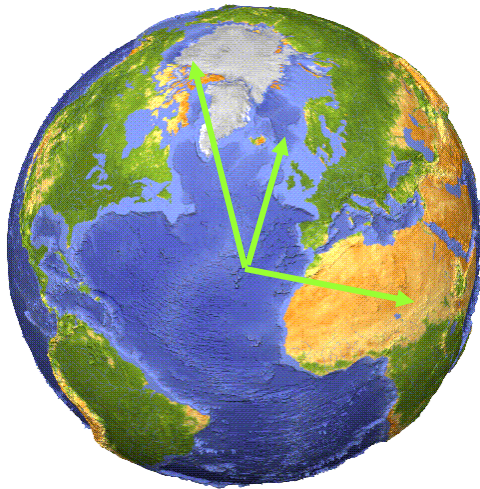


# IVS contribution to ITRF2008

## Preliminary Analysis



X Collilieux  
Z Altamimi

IGN/LAREG

Acknowledgement:

Sarah Böckmann, Dan MacMillan, Tonie van Dam  
IVS, IGS

## Questions:

- i) What will be major changes between ITRF2005 and ITRF2008?
- ii) Will ITRF2008 represent an improvement for VLBI users?

## Outline :

- ITRF2008 status (data/products)
- IVS contribution. Effect of the Atmospheric Loading corrections
- GPS / VLBI position time series comparison
- Long-term agreement GPS/VLBI
- Conclusion

# ITRF2008 status

## ITRF2008 data : input from technique services

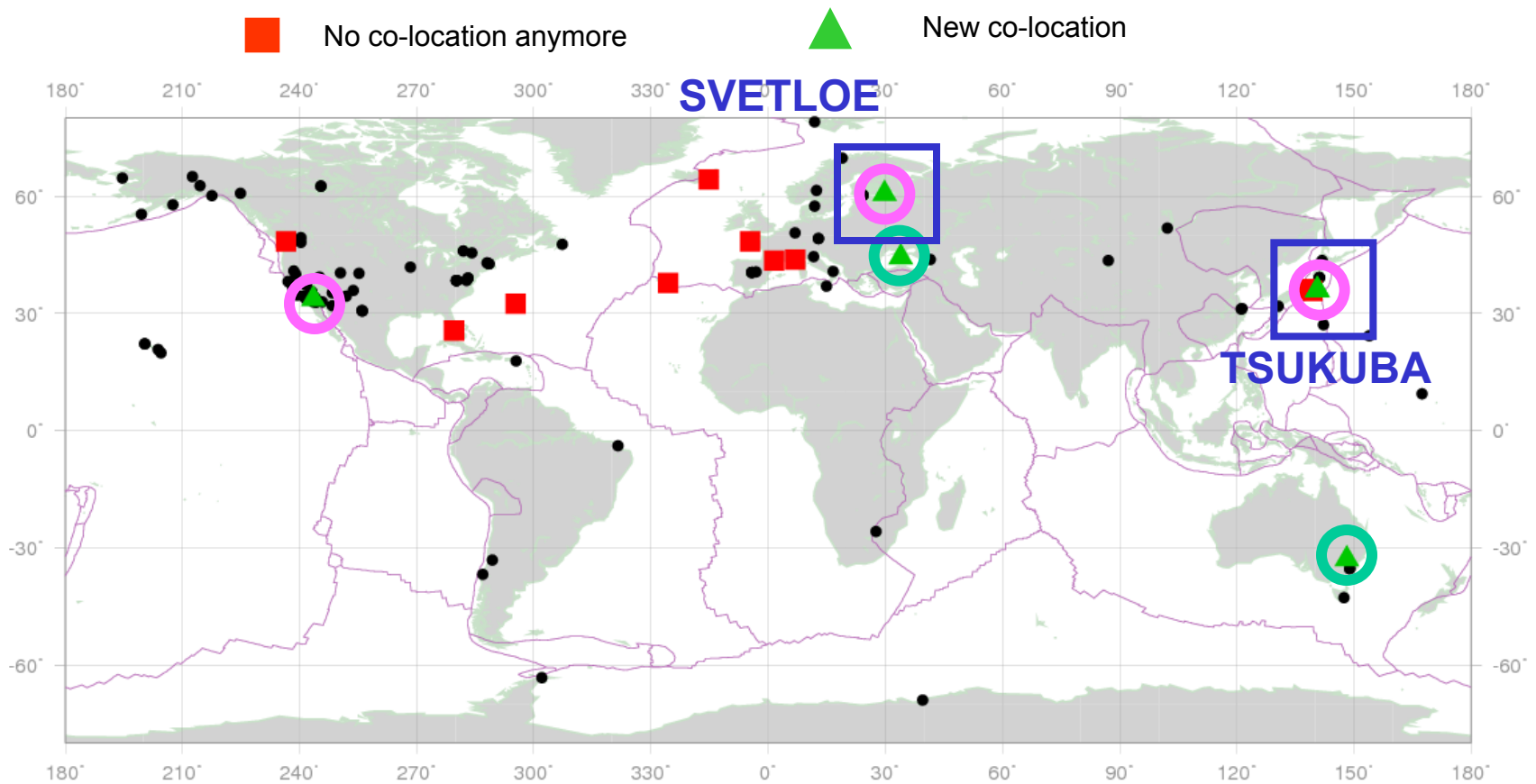
<i>ITRF2008</i> <i>ITRF2005</i>	<i>Tstart</i>	<i>Tend</i>	<i>Solution</i>	<i>Nb of ACs</i>
VLBI	1980.0	2009.0 <i>2006.0</i>	Preliminary Combined IVS	4 (7/8 to come) <i>5</i>
GPS	2000.0 <i>1996.0</i>	2009.0 <i>2006.0</i>	Combined IGS	8
SLR	? <i>1993.0</i>	2009.0 <i>2006.0</i>	Combined ILRS (to come)	8 <i>5</i>
DORIS	1993.0	2009.0 <i>2006.0</i>	Preliminary Combined IDS <i>Individual solutions</i>	8 <i>2</i>

## ITRF2008 products

Station positions and velocities, EOPs

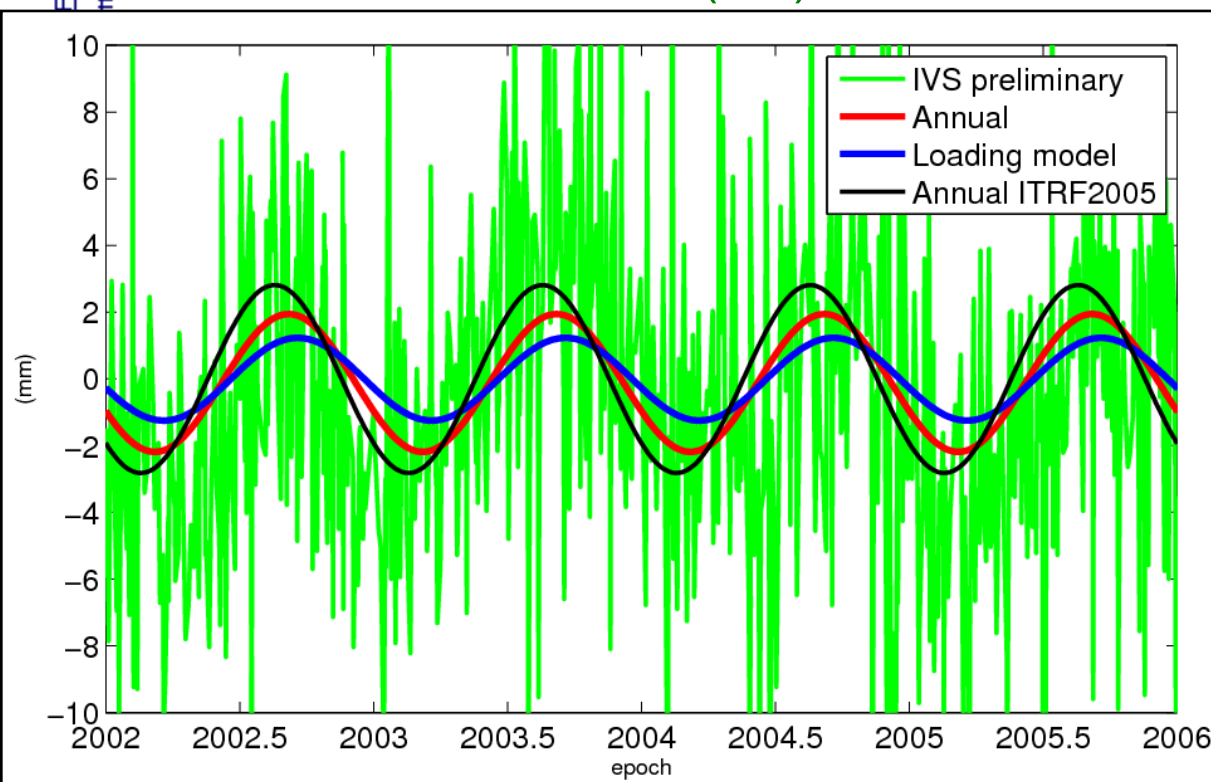
## VLBI and GPS co-location sites

### Evolution of the co-location sites between ITRF2005 and ITRF2008



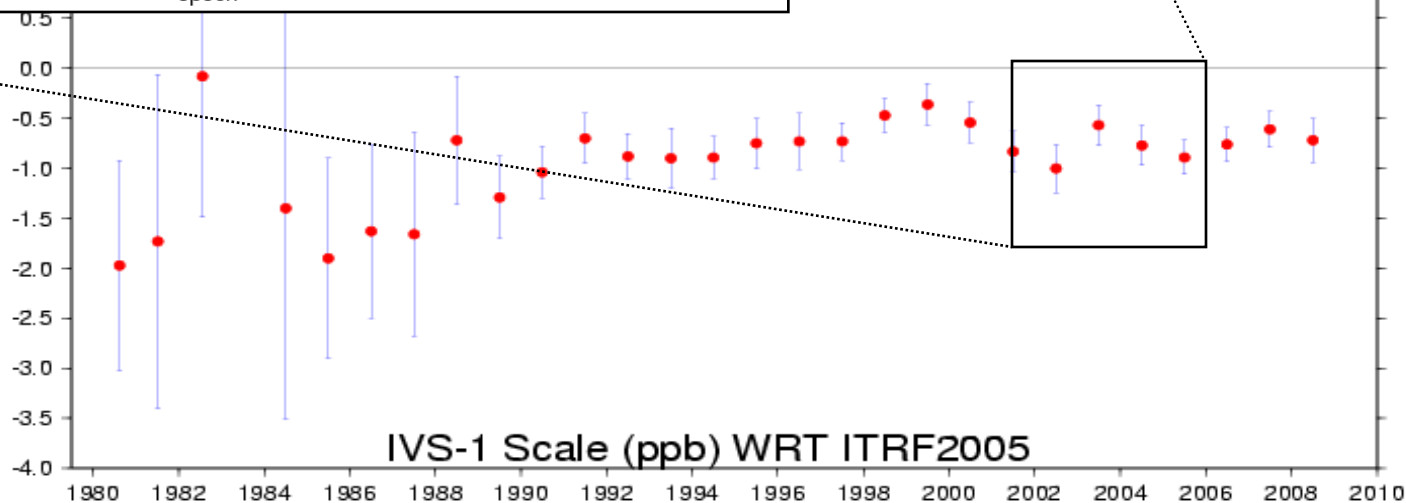
New GPS sites    New VLBI observations    New local tie information

## IVS contribution (1/3)

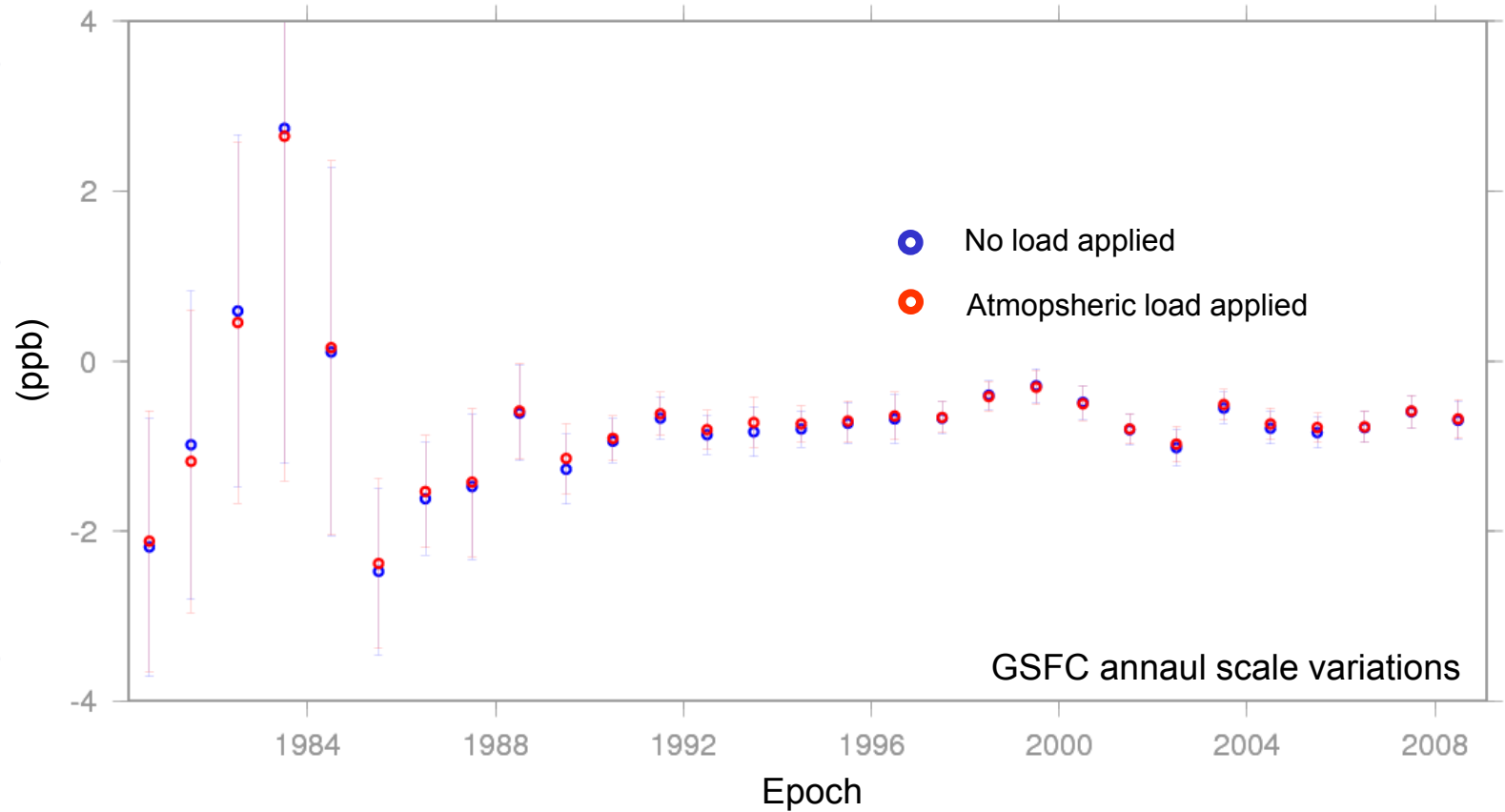


VLBI Scale factor

Annual Scale wrt ITRF2005



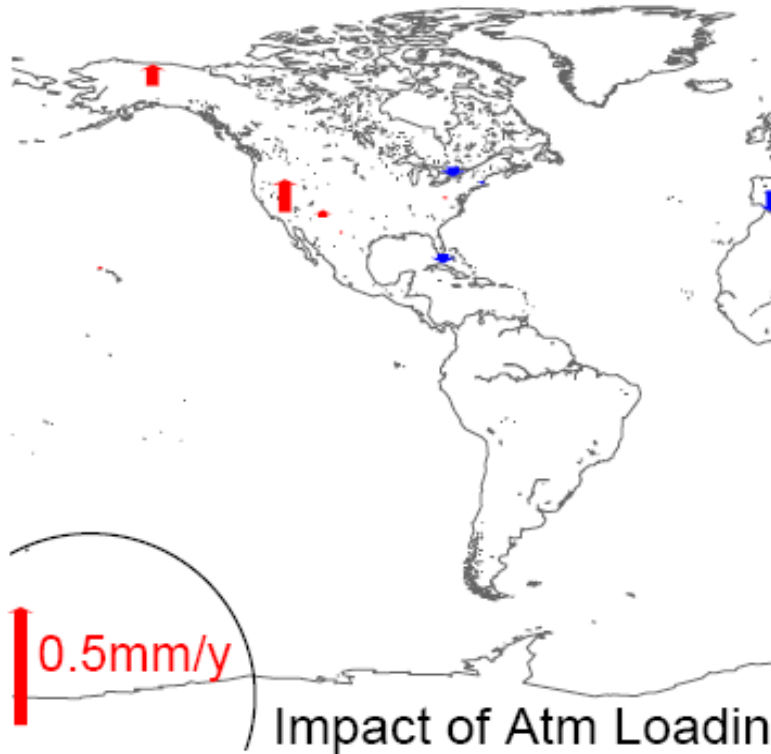
### ATM loading and VLBI Scale factor



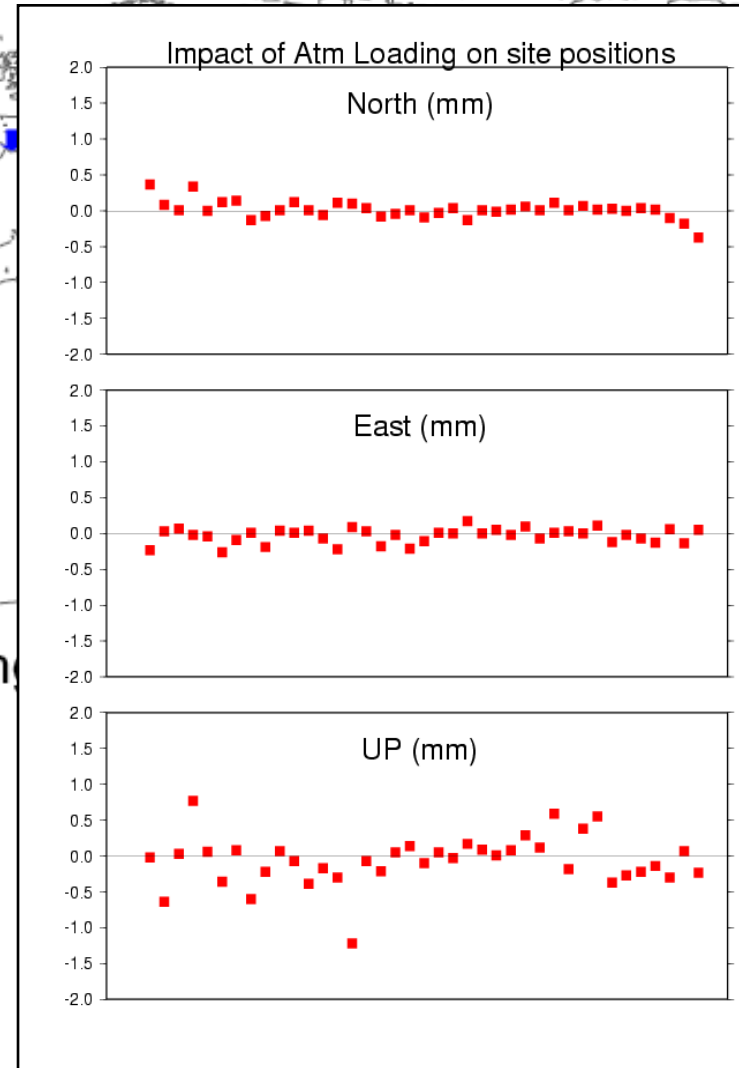
# IVS contribution (3/3). Effect of the Atmospheric Loading corrections

## GSFC VLBI solution

Zuheir Altamimi

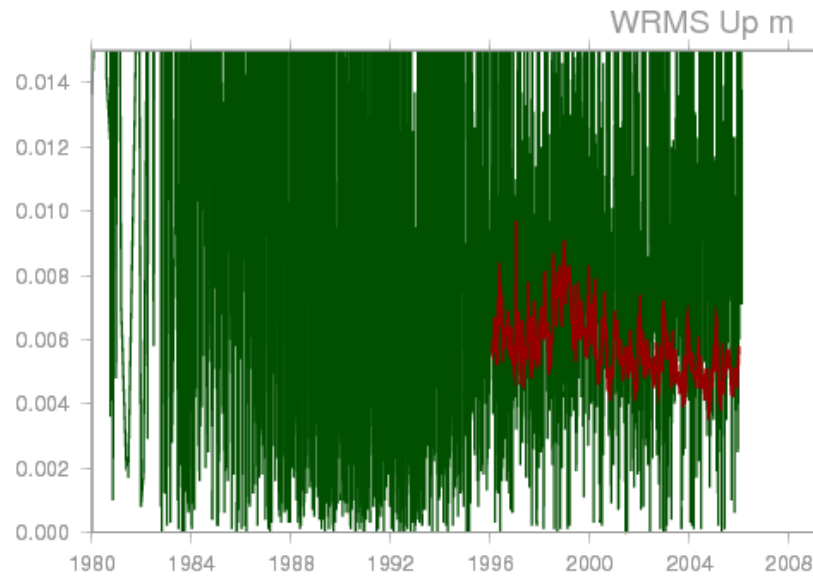


ATM loading and  
Estimated positions &  
velocites

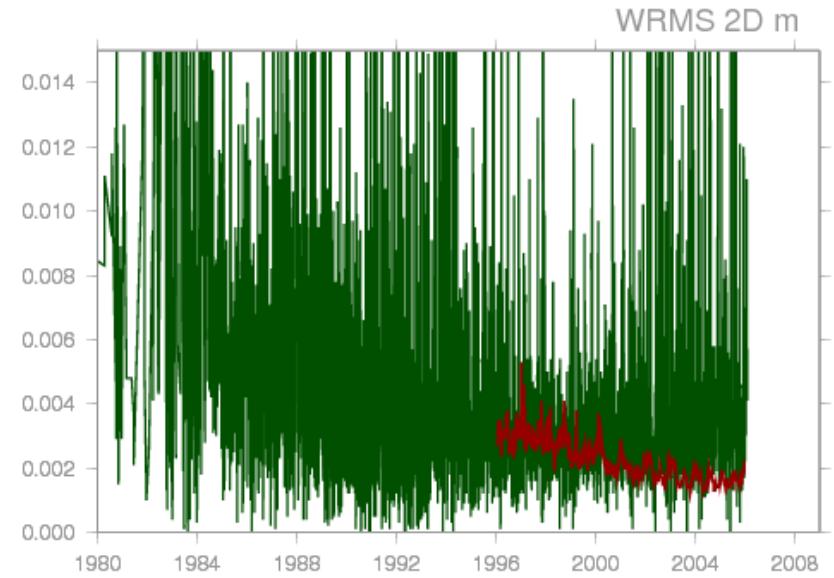


# GPS / VLBI position time series comparison (1/4)

Repeatability : Height and 2D Results from ITRF2005 analysis



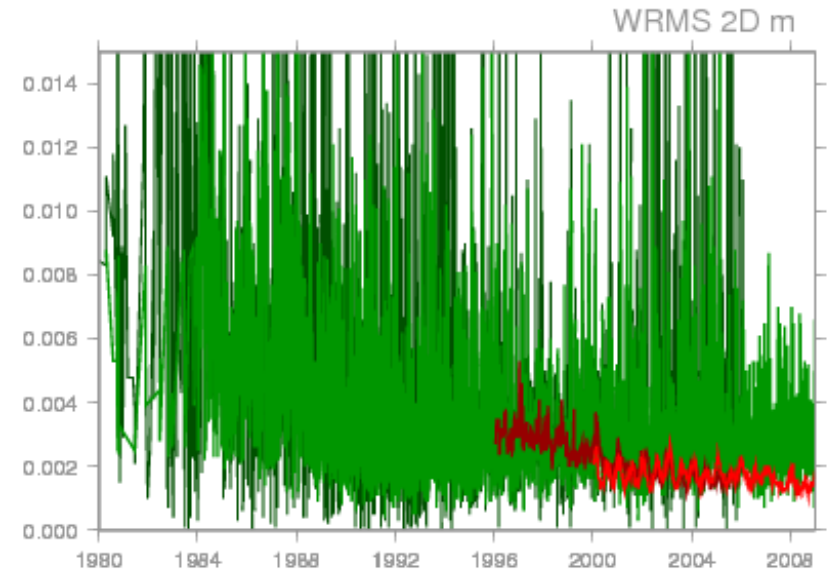
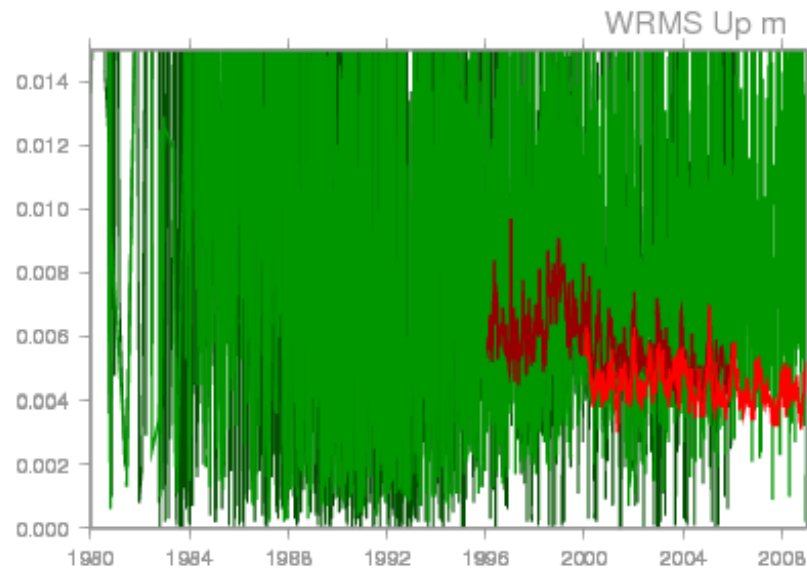
— VLBI ITRF2005



— GPS ITRF2005

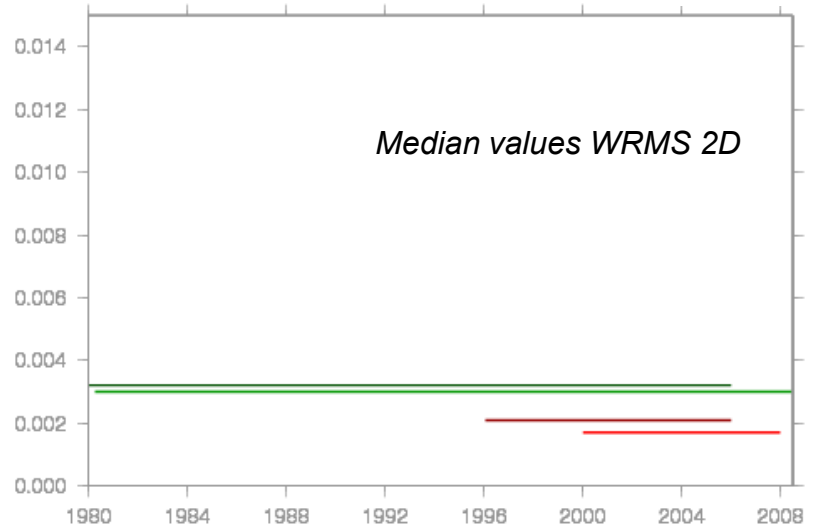
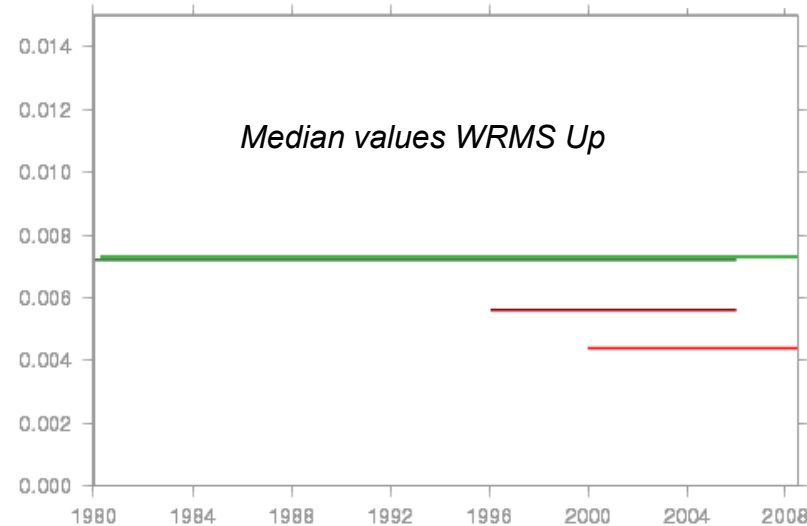
# GPS / VLBI position time series comparison (2/4)

Repeatability : Height and 2D Results from ITRF2008 preliminary analysis

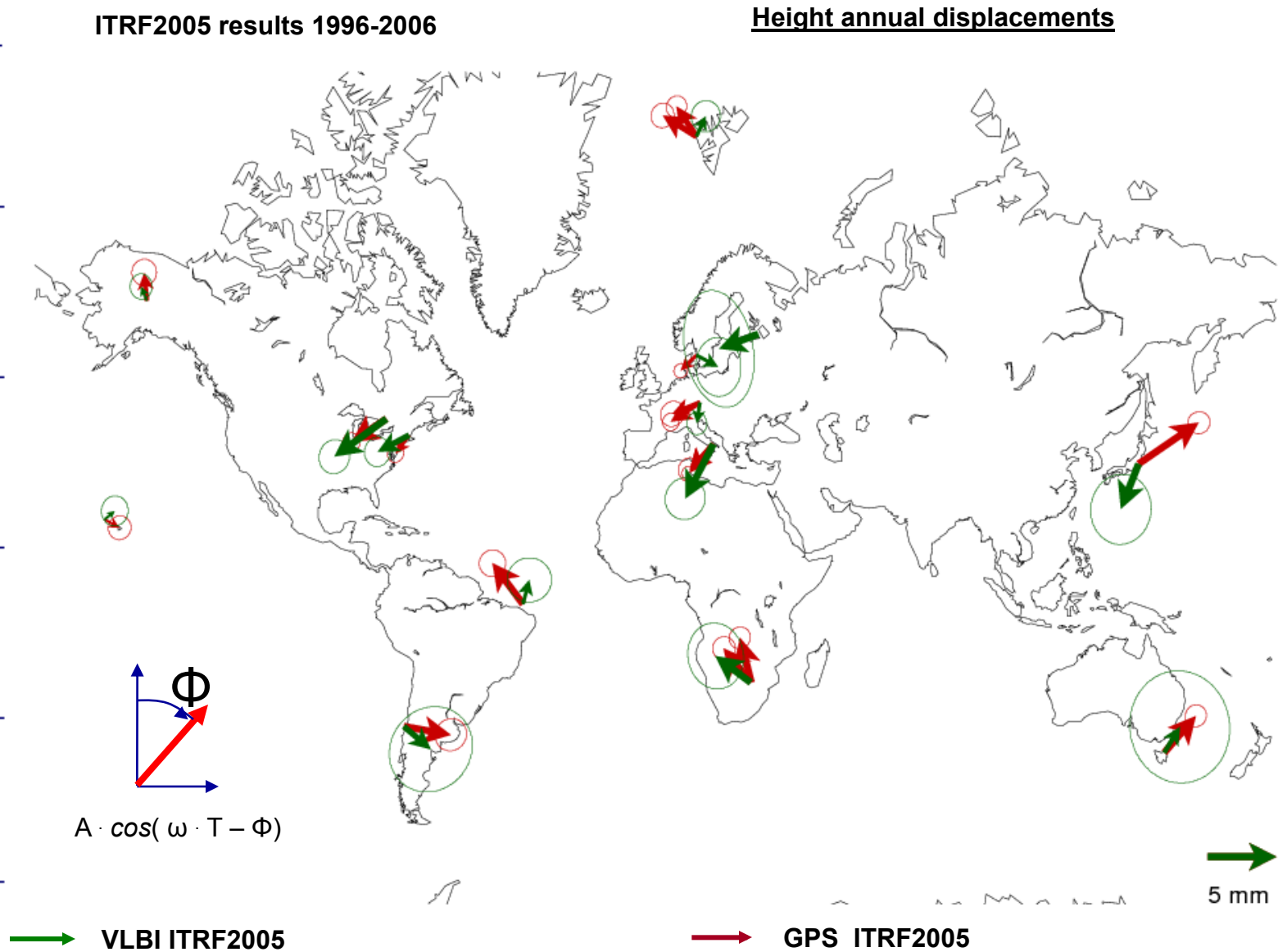


— VLBI ITRF2005 — VLBI ITRF2008

— GPS ITRF2005 — GPS ITRF2008



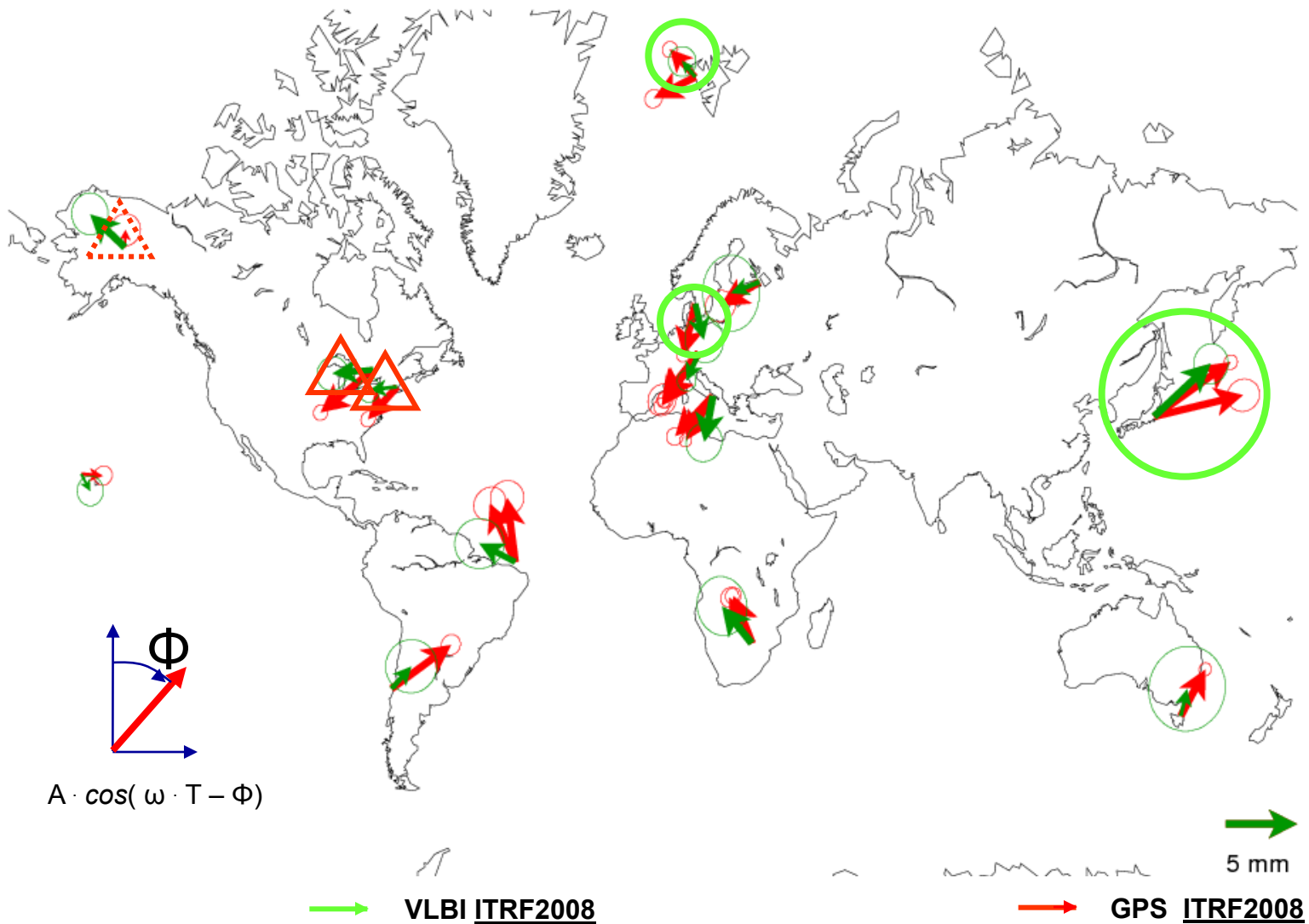
# GPS / VLBI position time series comparison (3/4)



# GPS / VLBI position time series comparison (3/4)

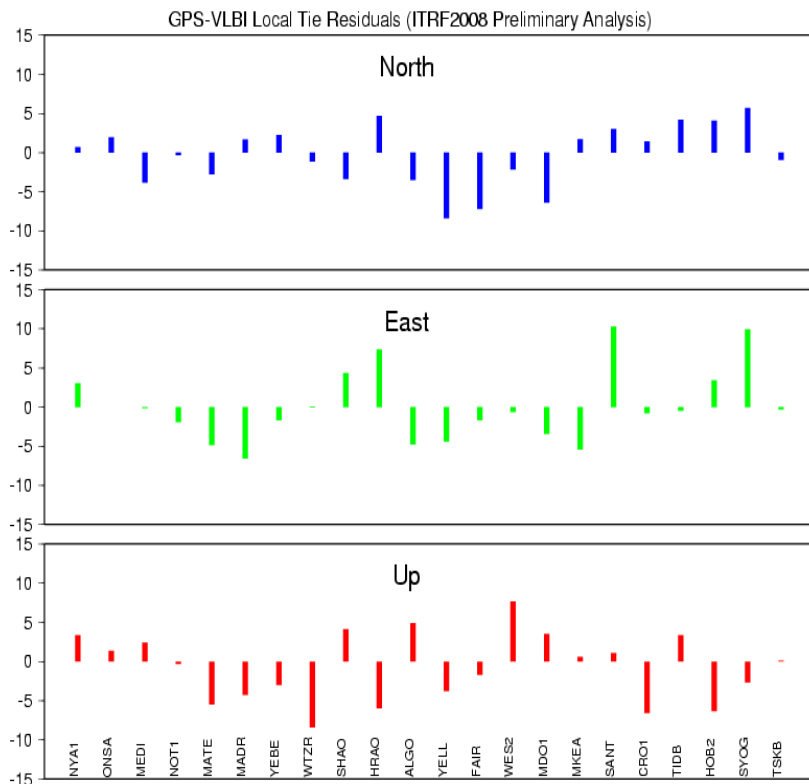
ITRF2008 preliminary results 2000-2008

Height annual displacement

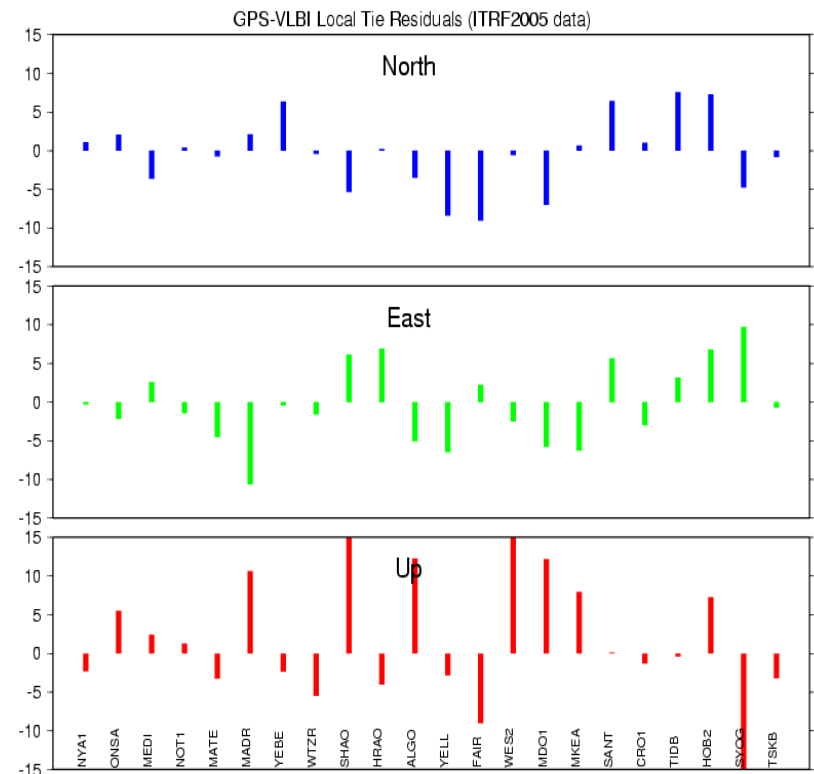


## Local tie residuals of GPS-VLBI (only) Preliminary Combination

### ITRF2008 data

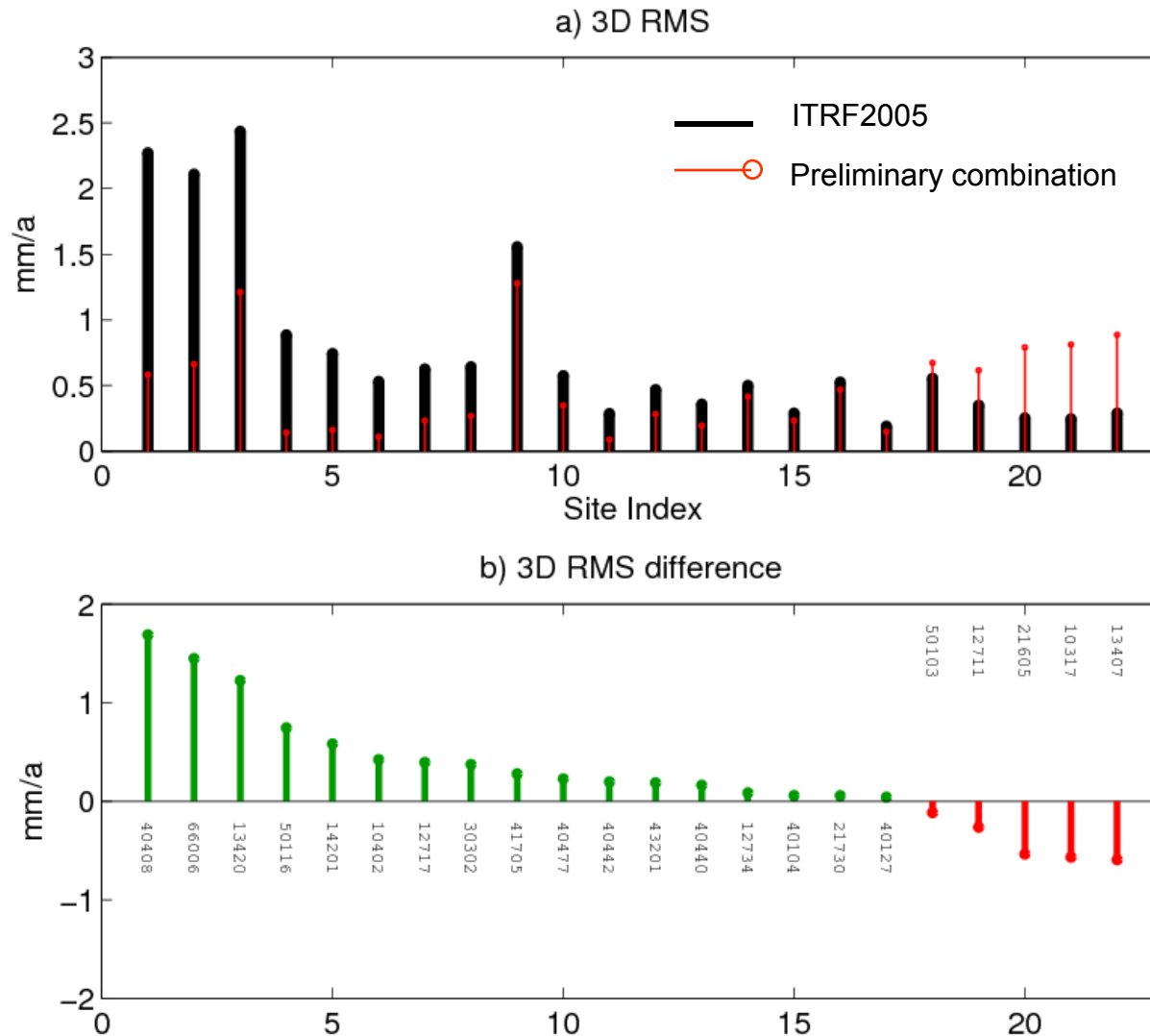


### ITRF2005 data



Preliminary IGS-IVS combination.

Velocity agreement compared to ITRF2005-like results



## Questions:

i) What will be major changes between ITRF2005 and ITRF2008?

- Probable scale offset of about 0.5 ppb between ITRF2008 and ITRF2005

ii) Will ITRF2008 represent an improvement for VLBI users?

**YES**

- Better understanding of VLBI scale annual variations
- Better consistency of the annual variations of GPS and VLBI co-located height coordinates
- Better agreement of velocities at co-location sites (as a result of a preliminary combination)

# Thank you

