

Minutes of the 5th COL Working Group Meeting

3 May 2013 – DGFI/Munich

Agenda

- 09:00 welcome, M. Seitz
09:15 reminder of actions decided at the last meeting, R. Biancale
09:30 Status on software and activities in the COL Analysis Centres (15 mn each)
1. *AIUB / BKG, D. Thaller*
 2. *DGFI, M. Seitz*
 3. *ESOC, T. Springer*
 4. *GFZ, R. Koenig*
 5. *GRGS, R. Biancale*
 6. *ASI, C. Sciaretta*
 7. *GSFC, F. Lemoine*
 8. *TUW, H. Krasna*
 9. *DIFA/UB, S. Bruni*
- 11:30 activities in the COL Combination Centres
1. *DGFI, M. Seitz*
 2. *GRGS, D. Gambis, J.-Y. Richard*
- 12:30 *lunch*
13:30 discussion on activities
14:00 discussion on roadmap (tasks and sequence)
15:00 discussion on combination procedure
16:00 summarizing actions and schedule
16:30 *end of meeting*

Chair

Manuela Seitz, Richard Biancale

List of participants

Manuela Seitz, Detlef Angermann, Mathis Blossfeld, Nataclia Panafidina, Michael Gerstl, Horst Müller (DGFI); Rolf Koenig (GFZ), Hana Krasna (TUW), Daniel Gambis, Jean-Yves Richard (Obs Paris/GRGS), Laurent Soudarin (CLS), Richard Biancale (CNES/GRGS)

Minutes

- 1) Introduction and reminder of actions decided at the last meeting (R. Biancale)**

As defined in the COL-charter, the COL-WG major tasks are studying methods and advantages of combining techniques at the observation level, searching for an optimal strategy to solve for geodetic parameters.

Both CONT08 and 11 periods serve first as test period for achieving these tasks. Each AC should adopt the defined standards and process multi techniques with the various software packages available.

2) Status on software and activities in the COL Analysis Centres

- ✓ GRGS/CLS (J.-M. Lemoine, L. Soudarin)
 - Report on SLR and DORIS processing with GINS
 - DORIS: a new antenna phase law has to be applied. It allows keeping the marked phase center reference on the ground antennas.
- ✓ DGFI (M. Blossfeld)
 - Report on SLR processing with homogenized DOGS (ETA1/2, LAG1/2, STA, STE, AJI, LTS, and BTS).
- ✓ GFZ (R. Koenig)
 - General report on GPS processing with EPOS
 - GFZ provided a GNSS-only solution for comparisons
- ✓ ASI (C. Sciarretta)
 - Report on SLR processing with GEODYN-II/SOLVE
- ✓ TUW (Hana Krasna)
 - Report on VLBI processing with VieVS
- ✓ UB (Sara Bruni)
 - Project on SLR-GNSS processing with BERNese

For details please see the presentations provided in the COL forum.

3) Activities at the COL Combination Centres

- ✓ DGFI/SLR (M. Blossfeld)
 - Differences between DGFI and AIUB (presentation by M. Blossfeld)
- ✓ DGFI-CC (M. Seitz) → please find comments on the input data at the end of the minutes
 - For combination results please find the presentation in the forum
- ✓ GRGS/OP (J.-Y. Richard)

Presentations (in pdf) from ACs and CCs are available in the COL forum

<http://grgs.obspm.fr/forum/> or available on the ftp

ftp://hpiers.obspm.fr/iers/eop/grgs/Meetings/Munich_May_2013/

4) Discussion

- ✓ Test period
 - ACs should process technique data with the defined standards over both test periods CONT08 (10-30 August 2008) and CONT11 (11 September-1 October 2011).
- ✓ Data sets
 - MAO will not provide further contributions
- ✓ A priori models
 - all groups should apply the COL standards
- ✓ Parameterization
 - EOP parameterization: 3h offsets and drifts (epochs 0h, 3h, 6h, ...) can be provided (instead of 3h piece-wise linear). This parameterization is more flexible and allows transforming correctly into other representations.
Transforming from a sub-daily piece-wise linear representation to a daily piece-wise linear one, the constraining of all the parameters to a linear drift (applied by GRGS for DORIS) might lead to quite similar results than a parameter transformation starting from a sub-daily offset + drift representation does. However, the strategies are not identical to 100%, because the distribution of observations is not considered in case of applying constraints, and thus the parameter transformation based on sub-daily offset + drift representation is preferred.
 - SLR range biases: range biases should be handled according to the ILRS list. M. Blossfeld put the list to the COL forum (<http://grgs.obspm.fr/forum/>) chapter METHODS – Stations- IERS COL-WG SLR data handling file.
 - for problems with the individual parameterizations please see the table at the end of the minutes (and the presentations by Blossfeld and Seitz).
- ✓ SINEX file compatibility
 - for problems with the individual SINEX files please see the table at the end of the minutes (and the presentations by Blossfeld and Seitz)
- ✓ Weighting
 - procedure used at DGFI can be found in
Seitz M., Angermann D., Bloßfeld M., Drewes H., Gerstl M.: *The 2008 DGFI Realization of the ITRS: DTRF2008*. Journal of Geodesy, Volume 86, Issue 12, pp 1097-1123, DOI: 10.1007/s00190-012-0567-2, 2012
- ✓ Comparison strategy
 - Intra-technique comparisons for GPS (D. Thaller), VLBI (H. Krasna), SLR (M. Blossfeld)
 - Combination by the two CC in contact with the colleagues above + L. Soudarin (DORIS)

5) Time schedule

- New SINEX files in September 2013
- Combination until end of 2013

6) Next meeting

- Between March and May 2014

Remarks on parameterizations and SINEX compatibility

Institution	Tec.	Parameterization	SINEX
GRGS	GPS	- Epochs of all tropospheric parameters have to be corrected to 2h, 4h, 6h, ... for zenith delay and 0h,24h for gradients - Nutation parameters: offsets at noon? → pwl 0h,24h	Orientation seems still to be constrained w.r.t. individual components
GFZ	GPS	- Other parameters than station coordinates possible? - GPS stations do not agree with the COL station list -Offsets w.r.t. other GPS solutions of decimeter for some stations	
AIUB	GPS	- New nutation model required	-SINEX for CONT11?
SLR	ESOC	- LOD only. UT1 and LOD at noon possible? - Range biases for all stations not for list of stations provided by ILRS only	-Constraints are included in the NEQ and have to be removed? It seems that a mixture of the old and the new SINEX format is used -Currently NEQ cannot be solved -SINEX for CONT11?
SLR	GRGS	- Nutation 12h pwl PsiEps→ 24h pwl XY, a priori values should be zero - 1. UT1 value missed	-RBIAS: related station names are missing -STA epochs wrong in grg08237Lw01.n4.snx
SLR	AIUB	- UT1 CONT08: offsets and rates at different epochs	
SLR	ASI	- Leap second in UT1	Square sum of o-c very small: cause problems in case of parameter transformations
SLR	ALL	-Range biases in SINEX	
VLBI	OPA	- LOD and nutation offsets only. UT1+LOD and nutation offsets+rates possible? - Tropospheric parameters possible?	Squared sum of o-c too large

VLBI	DGFI	- Source coordinates and XY-nutation, troposphere	
VLBI	GRGS	-Troposphere: 1h pwl → 2h pwl	Station names related to tropospheric parameters are not correct
VLBI	TUW		Orientation components in 3 SINEX files seems to be constrained
DORIS	GRGS	-Nutation 12h pwl → 24h pwl XY -Troposphere: 1h pwl → 2h pwl -Troposphere gradients	
GPS+SLR+DORIS, GPS+SLR, SLR+DORIS	ESOC	-LOD only. UT1 and LOD at noon possible? -nututation offsets+rates possible?	-SINEX for CONT11? -Constraints are included in the NEQ and have to be removed? It seems that a mixture of the old and the new SINEX format is used.
SLR-GPS	GFZ		-SINEX for CONT11?