Minutes of the EGU 2019 ILRS ASC Meeting

Saturday, April 6, 2019, TU Wien, Vienna, Austria, 9:00 – 17:00

Operational products: status reports and future plans

All ACs & CCs with brief reports on key issues

ASI:

- Standard products are running smoothly both as single AC submission and CC submission. Some remarks on the combination products:
    - The daily JCET solutions still show a much lower 3D WRMS of the coordinate residuals with respect to the other ACs and to the JCET weekly time series. Similar issue in the scale to ITRF2014 because it is close to zero and it is smaller also in the weekly solutions. Higher values of the along track residuals RMS for LAGEOS-2.
    - GFZ has started to process Etalon data . Twenty weeks were sent to the CC for checking and they don't show issues. The weekly will be regularly submitted so that they will be routinely checked by the CC.
- Systematic error estimates
    - New CoM models check in terms of differences between the old model and the new one. A few stations missing in the new models, mostly with a small amount of data.

BKG:

- Contribution to the systematic error PP: new CoM table implemented
- Research project on geophysical loading models: GNSS/SLR reprocessing currently carried out at BKG
- Trying to derive Etalon orbits for 1993-1999
- LARES as 5th satellite: development of operational procedure ongoing.

DGFI:

- Development of DOGS libraries
- OC extended to process DORIS data: initial tests successful
- ILRS AC @ DGFI-TUM fully operational

- Daily solution contains a comment block with the satellite weights used in the combination. Daily report sent via Telegram API to operator's smartphone NP selection criteria were applied also the Etalon and they will be removed.
- Weekly orbits submission restarted
- SSEM-PP: reprocessed time series with CoM data
- Contribution to the GOOS High-Frequency EOP working group. Some model tested
- T2L2 investigation: no impact on UT1/LOD, larger impact on LARES pole coordinates.

ESA:

- None attending

GFZ:

- ETALON included in the operational procedures. Six recent months were sent to the CC as standard v71. Validation tests performed and show that a small improvement exists. Ready to start the routine processing.
- SSEM: T2L2 time biases and new CoM tables implemented
- C(2,0) time series from 6 satellites for the GRACE RL06 monthly gravity field (LAGEOS, AJISAI, STARLETTE, STELLA, LARES)

NMA (Kartverket):

- s/w WHERE for geodetic analysis written in python. With SOFA and IERS libraries and other specific libraries numpy, astropy, matplotlib. Cowell orbit integrator written in Python. The plan is to use the new s/w to become an IVS AC in 2020 and ILRS AC in 2022. The plotting tool is called THERE. Live show of s/w WHERE running on a linux machine.

NSGF:

- Gravity field estimation started at NSGF. First comparison with DGFI.
- CoM modeling correction delivered: Major changes for Etalon and Ajisai, minor changes for LARES and Starlette.
- TRF comparison: post fit analysis of the residuals in the height and comparison between ITRF2014 and DTRF2014. Contribution to the IERS TN.

IGN/ITRS:

- ITRF2020:
    - the Technique Centers are working to update the models.
    - All the techniques are waiting for the consensus of the HFEOP PP.
    - CfP disseminated and available at the ITRF website
    - In preparation of the ITRF2020, the ITRS Center may ask for test solution, e.g., ILRS range biases, HFEOP model applied, etc.
    - Schedule and timeline: February 10, 2021 is the deadline for the solution submission by the TC, April 2021 first results to be discussed with the TCs. Final ITRF2020 in September-October 2021.

JCET:

- Operational products routinely delivered and ACs solutions combined and checked
- ILRS sites supporting the Etalon campaign: list of sites, ranking with the NP collected, predicted amount of data in 2019. Some stations had a very large increase, e.g. Graz.
- Wettzell pressure offset: the corrected data were not submitted yet **(press Ulli to do ASAP!)**
- SSEM Project:
    - Test done on the DGFI time series
    - Re-analysis since 1993.
    - **CSR degree-2 series to be delivered to the ACs by end of April (AI ECP)**

Re-analysis plan

- RB in the SINEX file. A new SINEX BLOCK containing the RB and CoM relative to the specific solutions, **only for the stations included in the weekly SINEX file (AI All ACs)**
- Data Handling file: restyling of the actual DH file that will contain only the significant corrections adopted by the ASC. A legacy file will be created to contain previously adopted corrections. **ECP and CL will prepare the files to be adopted for the SSEM PP (AI)**.

Operational Products

- New CRD format: JCET, ASI, DGFI and GFZ will contribute to test it **(notify all when available, AI JCET)**
- The DH file updates will be managed by DGFI Schwatke/Bloßfeld

Planning for the development of the next ITRF

- Pilot Project: Inclusion of LARES as a 5th satellite in our operational product development and estimation of low-degree SH of the gravity field solving for a 6x6 gravity field. All ACs are requested to process 2017 with 5 satellites data set. No estimation of biases. Time series to be submitted by **September, 2019**. The SH parameters will be included in the SINEX file. **The a priori constraints for the gravity coefficient will be distributed by the end of April 2019 (AI Pavlis)**.
- **The plan is to have the re-analysis started at the end of 2019 (AI all ACs)**
- Combination will start in 2020. The CCs estimate to have 6-8 months to complete the process. Most of 2019 will be included, the year 2020 will be included last, just before submitting the official ILRS time series.

Station Systematic Error Monitoring Project—The Operational Phase

- A few corrections to the new CoM tables will be implemented and make it **available by the end of April 2019 (AI Rodriguez).**
- The data handling file will be **updated by the end of April 2019** keeping only the significant biases as stated before **(AI Pavlis/Luceri).**
- Gravity field to be **distributed by the end of April 2019 (AI Pavlis/Luceri)**, together with the constraints to be used for the LARES Pilot Project.
- ACs will submit the series v230 for 1993-2018 by **end of May 2019 (AI all ACs)**.
- The combination and the NEW RB section of the data handling file will be **available by the end of June 2019 (AI Pavlis/Luceri)** so that the operational phase can start soon after.

The Journal of Geodesy Special Issue on Laser Ranging—JOGSILR Status:

12 articles accepted, 12 additional manuscripts under review.

Next meeting, **definitive date**:

At the Paris Observatory prior to the UAW in Paris, on October 1st, 2019.

APPENDIX

I. SUMMARY of ACTION ITEMS:

AI No.	Responsible Entity	Action Item Description
1	**JCET**	Reconcile the DAILY-product scale with that of the WEEKLY series
2	**ESA**	Implement the new format for multi-wavelength bias labels (SOLN field) and revise your v220 series to improve agreement with the other ACs **(STATUS???)**
3	**ALL ACs**	If interested in contributing to the *GGOS/IERS Pilot Project to test various High Frequency EOP models*, contact epavlis@umbc.edu
4	**BKG/TUM/DGFI**	Wettzell "pressure offset"-corrected data to be resubmitted **ASAP**!!!
5	**ECP & CL**	Prepare NEW & LEGACY Data Handling files for reanalysis by **end of April 2019**
6	**ECP**	CSR degree-2 series and gravity model SH coefficients to be delivered to the ACs by **end of April 2019**
7	**ECP**	The *a priori* constraints and the gravity coefficients to be distributed to the ACs by the **end of April 2019**
8	**Rodriguez/NSGF**	Minor corrections to the new CoM tables to be implemented and made available by the **end of April 2019**
9	**ALL ACs**	A new SINEX BLOCK with the RB and CoM corrections only for the stations included in the weekly SINEX file by the **end of May 2019**.
10	**ALL ACs**	Deliver complete reanalysis series (**v230**) of the full SLR data set since 1993 using SLRF2014, the new CoM model and allowing for all-systematics adjustment including a combined bias for the two ETALONs, by the **end of May 2019**.
11	**ALL ACs**	Deliver a test series including all weekly SINEXs of 2017 reanalyzed with the inclusion of LARES data and the estimation of a 6x6 set of gravitational harmonics by **September 30, 2019**.
12	**Both CCs**	The combination and the NEW RB section of the data handling file will be available to the ACs for the operational phase, by the **end of June, 2019**.
13	**ALL ACs**	The ILRS ASC ITRF2020 re-analysis plan is to start by the **end of 2019**.
14	**ALL ACs**	Next meeting: **Oct. 1, 2019** prior to the UAW at the Paris Observatory.

II. ASC List of Attendees, EGU 2019 ASC Meeting, TU Wien, Vienna, Austria

Saturday, April 6, 2019, 09:00 – 17:00

CHECK ✓	Last name	First name	Institution	e-mail
✓	Altamimi	Zuheir	Institut Geographique National, ENSG/LAREG, France	zuheir.altamimi@ign.fr
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25	TOTAL