

## Unified Analysis Workshop 2007

**Date:** December 5, 2007, 08:00 – December 7, 2007, 13:00  
**Location:** Beach Resort Monterey, Room PT Cabrillo  
 2600 Sand Dunes Drive  
 Monterey, Ca 93940  
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### Action Items

AI No.	AI Description	Responsible	Deadline
1	IERS CB to put all presentation on the web	IERS CB	17-DEC-07
2	IERS CB to put all position papers online as well as the Action Items (AI) and program	IERS CB	17-DEC-07
3	Inform IERS Convention PC about need of better documentation of IERS Convention software modules (input from Tim Springer)	Tim Springer IERS CB → G. Petit	20-DEC-07
4	Discuss and redefine the role of the IERS CRCs in the combination activities	IERS DB	11-DEC-07
5 5a	SINEX Extension of Parameterization / Naming: SINEX Proposal 2 will be distributed to all interested groups. The new version of SINEX should exclusively use new names. Old names are still supported for all older SINEX versions.	IERS ACoo	10-DEC-07
5b	Feedback of groups until	All	31-JAN-08
5c	Distribution of final SINEX version description	IERS ACoo	15-FEB-08
5d	Make a distinction between SINEX files for combination purposes and other purposes in the file name → convention. Proposal by Axel Nothnagel.	Nothnagel	10-DEC-07
6 6a	Atmospheric Loading: Reference pressure for atmospheric loading: Johannes Böhm checks the deviations of GPT and ISO standard from a correct mean pressure field.	Böhm	31-JAN-08
6b	Correction of atmospheric loading on the weekly, daily or on observation level? Check IERS WS 2007 recommendation. Böhm, Tesmer, van Dam, MacMillan, Pavlis to perform tests to assess the difference between application on the obs. and SINEX level (daily/weekly).	Van Dam	31-MAR-08
7	Algorithm/formulas for computation of the reference temperature field for VLBI telescope expansion to be defined by IVS	IVS Acoo	08-MAR-08
8 8a	Generation of daily SINEX files: Generation of daily SINEX files by VLBI (intensive sessions) and by GPS (rapid solutions). ACs are encouraged to submit daily SINEX files containing site coordinates, EOPs based on their rapid solutions. 24-hour data interval for GPS. ILRS/IDS	IVS, IGS	01-MAR-08

8b	will discuss how they could contribute. Intra-technique combination of daily SINEX files as a pilot phase	Ferland, Nothnagel	01-JUL-08
8c	Combination of daily SINEX files by interested groups as a pilot phase based on individual ACs	GFZ, OP, (IGN), (IGGB)	01-JUL-08
8d	Start the reporting of the troposphere parameters in the daily SINEX files (GPS, VLBI, IGN) using GMF dry for hydrostatic a priori delay, GMF wet for estimation and GPT for the hydrostatic zenith delay or better, at 2 hour resolution, piece-wise linear, using the new SINEX standard, at least co-location sites should be included. Binning to integer hours and daily gradients represented as piece-wise linear, a priori value zero)	IERS ACoo, IVS, IGS, IGN	01-OCT-08
8e	Test SINEX file generation for the CONT'05 campaign time interval	IERS ACoo, IVS, IGS, IGN	01-JUL-08
9	Benchmarking of diverse models in the software packages, that are common to all techniques. Which models should be checked? Put together a list with priorities. Technique-specific effects should be checked by technique services, common models should be checked on the IERS/GGOS level. Use UAW exploder.	Tim Springer	15-JAN-08
10	Work towards a representation of parameters by piece-wise linear offsets (instead of offsets and rates):	Services, IERS	
10a	Generate SINEX files for the test period of CONT'05 with piece-wise linear ERPs (using the new SINEX format version) and, if possible, with the old representation (offsets and drifts)	ACs: CODE, ESA, DGFI, IGGB, ...	01-JUL-08
10b	ITRF CCs and other combination groups test the combination based on the new representation	ITRF CC, others	01-OCT-08
10c	A priori representation of the ERPs: ACs should converge to a unique representation (interpolation) of the a priori ERP values as a linear function (linear interpolation) between the vertices. Further discussion by e-mail (UAW).	IERS ACoo, ACs	01-OCT-08
11	Parameterization for ITRF20xx generation:		
11a	1) Add quasar coordinates to the SINEX files	IVS	For the next generation of SINEX time series for ITRF (ca. end 2008)
11b	2) All techniques should include polar motion rates in the SINEX files	All Services	
11c	3) Low-degree harmonics of the gravity field from SLR (degree/order 2)	ILRS	
12	Modeling standards for next ITRF generation:	Services	
12a	1) Troposphere Mapping Functions: at least GMF wet and dry (or more complex functions from numerical weather models) should be used (GMF dry for the a priori dry delay; GMF wet for the troposphere zenith delay estimation).	IVS, IGS, IDS	See AI 11
12b	2) A priori dry troposphere delay: at least GPT is recommended together with the Davis model (1985).	IVS, IGS, IDS	
12c	3) FES2004 or GOT4.7b are recommended as ocean tide model for site displacements	All Services	

12d	(Note: new values should be downloaded because of a model update of FES2004) 4) Atmospheric loading should be reconsidered after the tests by van Dam et al.		
12e	5) Consistency with gravity (FES2004 etc.) should be considered as well.	IGS ACoo	
12f	Check consistency of the above options with the IGS reprocessing options.	IGS ACoo	
13	Documentation of AC modeling and parameterization standards:		
13a	Technique-specific forms (a template) are provided by IVS, IGS, ILRS, IDS. (ask Hermann Drewes about his activity here as GGOS WG Chair !!)	IVS, IGS, ILRS, IDS, CBs	20-DEC-07
13b	Generation of a unified form, if not already done by H. Drewes (check also standards sheet by GGOS-D for completeness) and distribution to all ACs	IERS CB	15-JAN-08
13c	Forms filled and returned by all ACs	All ACs	15-FEB-08
14a	Recommendation to the IGS/IERS and the fundamental stations: at least 2 (better 3 GNSS receivers) with 2 resp. 3 antennas should be operated in parallel at least at all fundamental sites (co-location sites of more than one technique) to be able to monitor any discontinuities due to antenna and receiver changes. IGS and IERS to promote this recommendation. One master station (of the three) should be analyzed by the IGS. The 2 (or 3) antennas may never be changed at the same time. It is not yet clear who will process the local "network"	IGS, IERS	09-DEC-07 11-DEC-07
14b	Letter of the IGS/IERS to the fundamental sites (?)	IGS/IERS	20-JAN-08
15	Need for a WG for the combination activities on the observation level. Options: 1) Renew the membership and scope of the IERS Combination WG, to include the most important groups working on rigorous combination. 2) Establish a new WG. 3) Organize this topic in the GGOS WG on Conventions, Modeling and Analysis. To be discussed by the IERS DB and GGOS SC.	IERS CB / GGOS SC	11-DEC-07 12-DEC-07
16	Make available quaternions for TOPEX and JASON-1 to IDS data centers	IDS	01-JUN-08
17	IDS to request CNES supply of SPOT satellite CoM histories due to fuel consumption	IDS CB	01-JUN-08
18	Select/define a unique format for the exchange of the Earth gravity field spherical harmonics coefficients (e.g. = standard for GOCE???) and gridded values	Kusche, IGFS Advisory Board	30-JUN-08
19	ICGEM gets the task to convert various gravity field formats to the unique standard format (spherical harmonics and grids) approval by IGFS AB.	IGFS Advisory Board	30-JUN-08
20	Meta data exchange (two alternatives to be looked into):		

20a	Definition of a meta data XML file to be generated together with each SINEX file. The proposal is distributed to all Services and ACs.	IERS CB, CDDIS	31-JAN-08
20b	Generation of a SINEX meta data block (considering at the same time the SP3, RINEX, ...) to be the basis for meta data extraction into a XML meta data file by the data centers.	IERS CB, CDDIS	31-JAN-08
21	Meteo data equipment/instrumentation coordinator, technique-independent → to be discuss a the next meeting of the GGOS Infrastructure WG	Pearlman	12-DEC-07
22	Ensure consistency between recommendation and action items from UAW with the IERS WS on Conventions	IERS ACoo and G. Petit	11-DEC-07
23	Organizational topics: Should such workshops be continued ? At what intervals (e.g. every two years) ? 2 years. Consider Splinter meetings at EGU, AGU ... Form a group consisting of the Analysis coordinators and, depending on issues, the IERS PCs → telecons, splinter meetings. UAW exploder to be made more broad ? ACoo's to decide who to put on the list.		
<b>Recommendations</b>			
24	A clear distinction should be made between a solution (SINEX) as input for combination and an optimum solution of a specific technique: for the combination work the parameterization and time resolution of the most sensitive technique has to be used by ALL ACs. Therefore, it might be necessary to generate two types of solutions.	All Services	
25a	Investigate the reason for cut-off angle dependent effects and elevation-dependent weighting.	IVS, IGS, IDS, ILRS	
25b	ACs should freeze their selection of processing options and models between two reprocessing activities	IVS, IGS, IDS, ILRS	
26	Continuous monitoring of the range biases by ILRS	ILRS	
27	IDS to investigate the addition of Jason-1 SAA corrected data to routine IDS combination	IDS	
28	Antenna models should not be changed between two reprocessing activities	IGS, IDS	
29	IDS should investigate the application of antenna correction models	IDS	
30	Further studies are required to understand the bias between SLR and microwave GPS orbits	IGS, ILRS	
31	IDS and IGS to investigate improved radiation pressure models and parameterizations to reduce impact on the geocenter estimates, especially the new satellite box- and wing-models from UCL	IDS, IGS	
32	Study the influence of the arc length and orbit constraints on geocenter estimates	IGS, IDS, ILRS	
33	IGS should consider to apply the ionospheric corrections of higher order to be more consistent	IGS, IDS (?)	

	with the other Services' products		
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