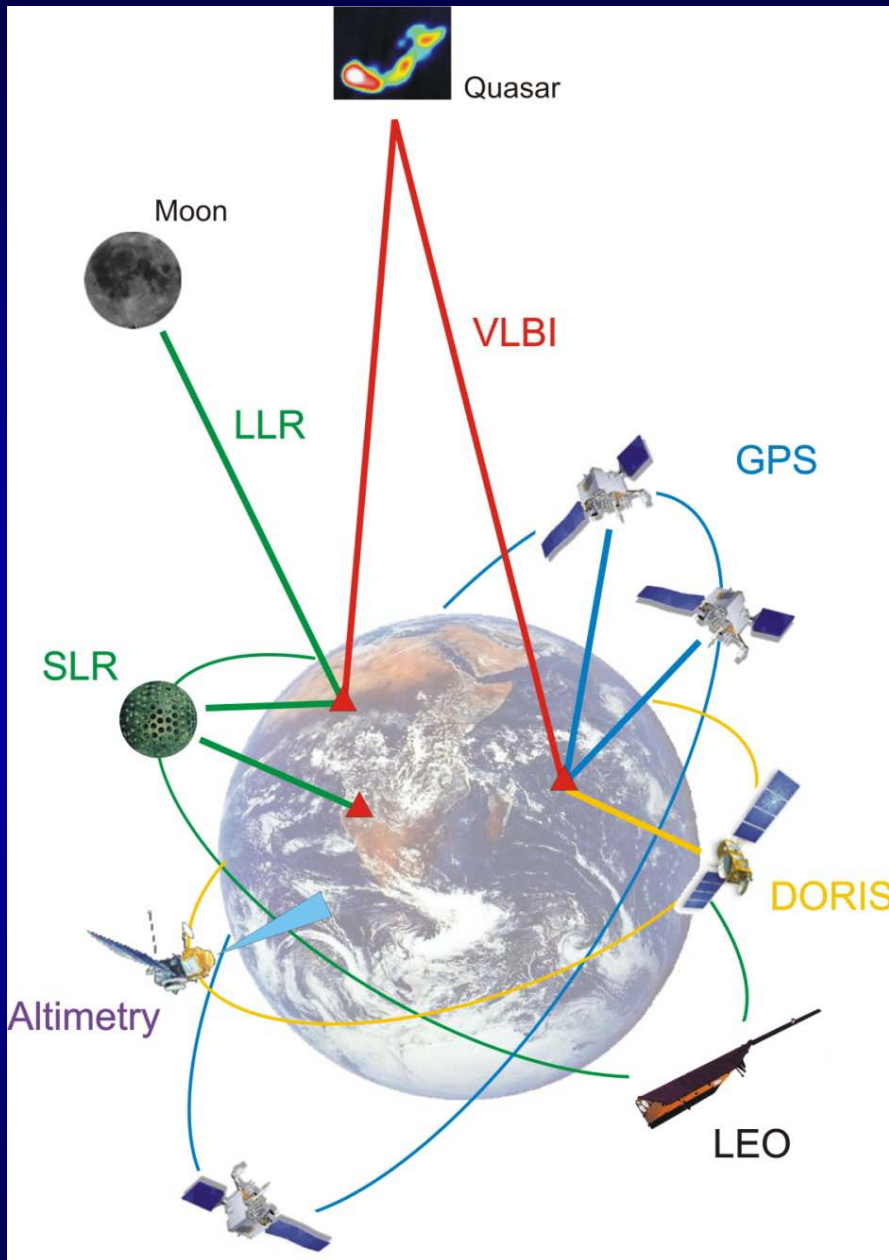




Unified Analysis Workshop 2009

Update of SINEX Format

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Overview of Update Requests for SINEX 2.02

- Recommendation by the IGS (Miami Workshop 2008)
- Latitude / longitude / height coordinate format
- Include metadata block in SINEX
- Add new parameterizations (troposphere, piece-wise linear) according to proposal 1
- Smaller modifications / additions
- General suggestions

IGS Recommendations for SINEX Update

- **Reference Frame Block or Field (mandatory):** EUREF, NAD83, SNARF, SIRGAS, ... Added to avoid any ambiguity when used for regional reference frames; distinguish between various global reference frames such as ITRF's, SGS-85 , GTRF, etc.
- **Satellite Antenna PCV:** Include parameters for satellite antenna phase center variations (might be complicated, see ATX-Files; some ideas exist by Ralf Schmid and Rolf Dach)
- **GLONASS Receiver Phase Center Corrections:** Include GLONASS receiver antenna phase center corrections (e.g., additional SITE/GLO_PHASE_CENTER Block).
- **Documentation of Models and Procedures:** SINEX files should contain all details on applied models and procedure. A SINEX block could be defined specifically to include this information. (Already done to a certain extent by SLR).
- **Troposphere Parameters:** Include troposphere parameters in SINEX (already possible; dealt with by extended parameterization)

Latitude/Longitude/Height Coordinate Format

- **Representation of coordinates in geodetic latitude, longitude and ellipsoidal height : STAP, STAL, STAH for ϕ , λ , h .**
- **Corresponding velocities: VELP, VELL, VELH**
- **Units:**
 - **STAP and STAL: degree, minutes, seconds**
 - **STAH: meters**
 - **VELP, VELL, VELH: all in m/y as NEU**
- **Additional block for reference ellipsoid parameters (e.g. SOLUTION/REF_ELLIPSOID; with SEMI-MAJOR-AXIS, FLATTENING ...)**
- **Alternatively: Name of known reference ellipsoid (GRS80, WGS85, ...)**

SINEX Metadata Block

- **SINEX is the most important format for combination results for GGOS**
- **SINEX can serve as a prototype to test metadata generation, flow and application (GGOS portal)**
- **SINEX metadata block has been defined**
- **Description and example are ready and available**
- **SINEX metadata block was used within the GGOS-D project for test purposes**

Example: SINEX Metadata Block

+FILE/METADATA

FILENAME	DGF07063L7_b03.snx.gz	
TITLE	GGOS-D DGFI SLR solution 2nd iteration version b03	
ALTERNATETITLE	GGOS-D DGFI SLR solution	
ABSTRACT	Weekly SINEX file of DGFI SLR solution for GGOS-D (single technique solution). Standards, models and parameterization are choosen with ...	
IDENTIFIER	DGF07063L7_b03	
STATUS	completed	
LANGUAGE	en	
CHARSET	8859part2	
DATE	2007-11-13 13:46:18	
DATETYPE	creation	
FORMATNAME	SINEX FORMATVERSION	2.00
MEDIUMNAME	onLine	
LINKAGE	<u>ftp://ftp.ggosd.de/data/test/GFZ07063L7_b03.snx.gz</u>	

... ..

... ..

- FILE/METADATA

SINEX Extension for Piece-Wise Linear Representation

Parameter Type	Offset	Rate	Offset piece-wise
X-Pole	XPO [mas]	XPOR [mas/d]	XPOP [mas]
Y-Pole	YPO [mas]	YPOR [mas/d]	YPOP [mas]
UT1-UTC	UT [ms]	LOD [ms]	UTP [ms]
Nutation in obliquity	NUT_OB [mas]	NUTROB [mas/d]	NUTPOB [mas]
Nutation in longitude	NUT_LN [mas]	NUTRLN [mas/d]	NUTPLN [mas]
Nutation in X	NUT_X [mas]	NUTR_X [mas/d]	NUTP_X [mas]
Nutation in Y	NUT_Y [mas]	NUTR_Y [mas/d]	NUTP_Y [mas]
Trop. ZD (total)	TROTOT [m]	TROTOD [m/d]	TROTOP [m]
Trop. Gradient NS (total)	TGNTOT [m]	TGNTOD [m/d]	TGNTOP [m]
Trop. Gradient EW (total)	TGETOT [m]	TGETOD [m/d]	TGETOP [m]
Trop. ZD (dry)	TRODRY [m]	TRODRD [m/d]	TRODRP [m]
Trop. Gradient NS (dry)	TGNDRY [m]	TGNDRD [m/d]	TGNDRP [m]
Trop. Gradient EW (dry)	TGEDRY [m]	TGEDRD [m/d]	TGEDRP [m]
Trop. ZD (wet)	TROWET [m]	TROWED [m/d]	TROWEP [m]
Trop. Gradient NS (wet)	TGNWET [m]	TGNWED [m/d]	TGNWEP [m]
Trop. Gradient EW (wet)	TGEWET [m]	TGEWED [m/d]	TGEWEP [m]

Smaller Modifications/Additions



- **Header Line (Solution Content):** Allow for and document the use of „X“ (station coordinates only), „X V“ (station coordinates and velocities), „V“ (velocities only) as solution content



General Suggestions (not format changes)

- 1) **Form of Publication: Use other file type like HTML, PDF, etc (with links between sections) for the description of the format**
- 2) **SINEX Working Group: Setup of a WG within the IERS to maintain the SINEX format**

or

SINEX and Combination WG in IERS (original proposal by IGS) for

- **investigate technique-specific systematic errors**
- **develop new methods & approaches (e.g., D. Lavallee presentation)**
- **maintain SINEX format**

Some modifications are already available in a draft version SINEX 2.10