SLRF2008: The ILRS Reference Frame for SLR POD
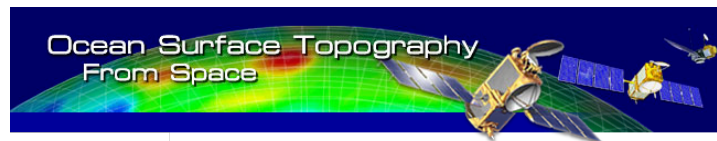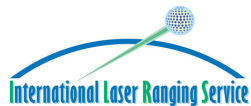
Contributed to ITRF2008

E. C. Pavlis

ILRS Analysis Coordinator

JCET/UMBC and NASA Goddard, Maryland, USA
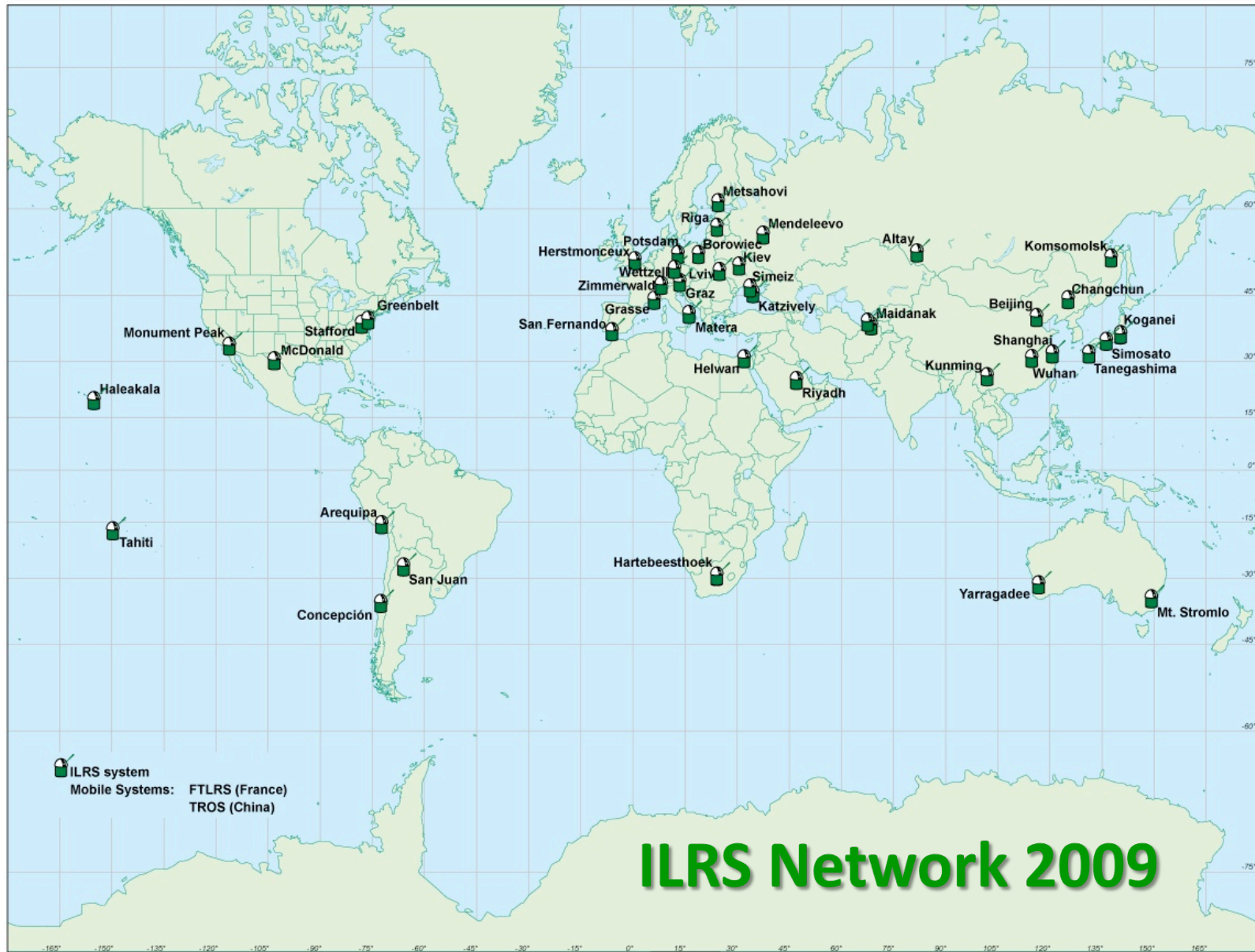
epavlis@umbc.edu

Contributing ILRS AC & CC

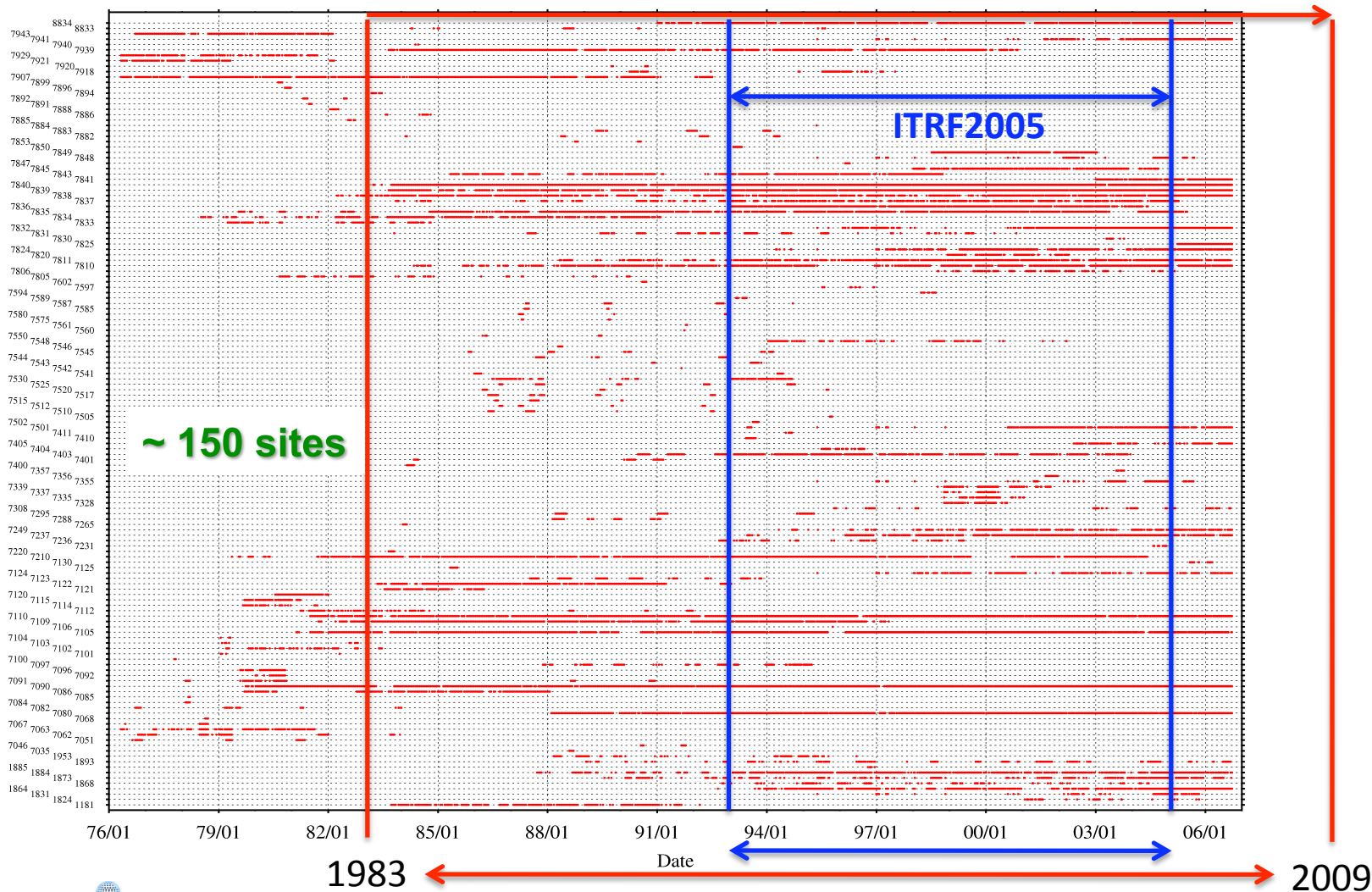**Contributing ILRS AC & CC:**

- *1983 – 1993:*
  - ASI, DGFI, GA, GFZ, JCET and NSGF

- *1993 – 2009:*
  - ASI, DGFI, GA, GFZ, GRGS,JCET and NSGF
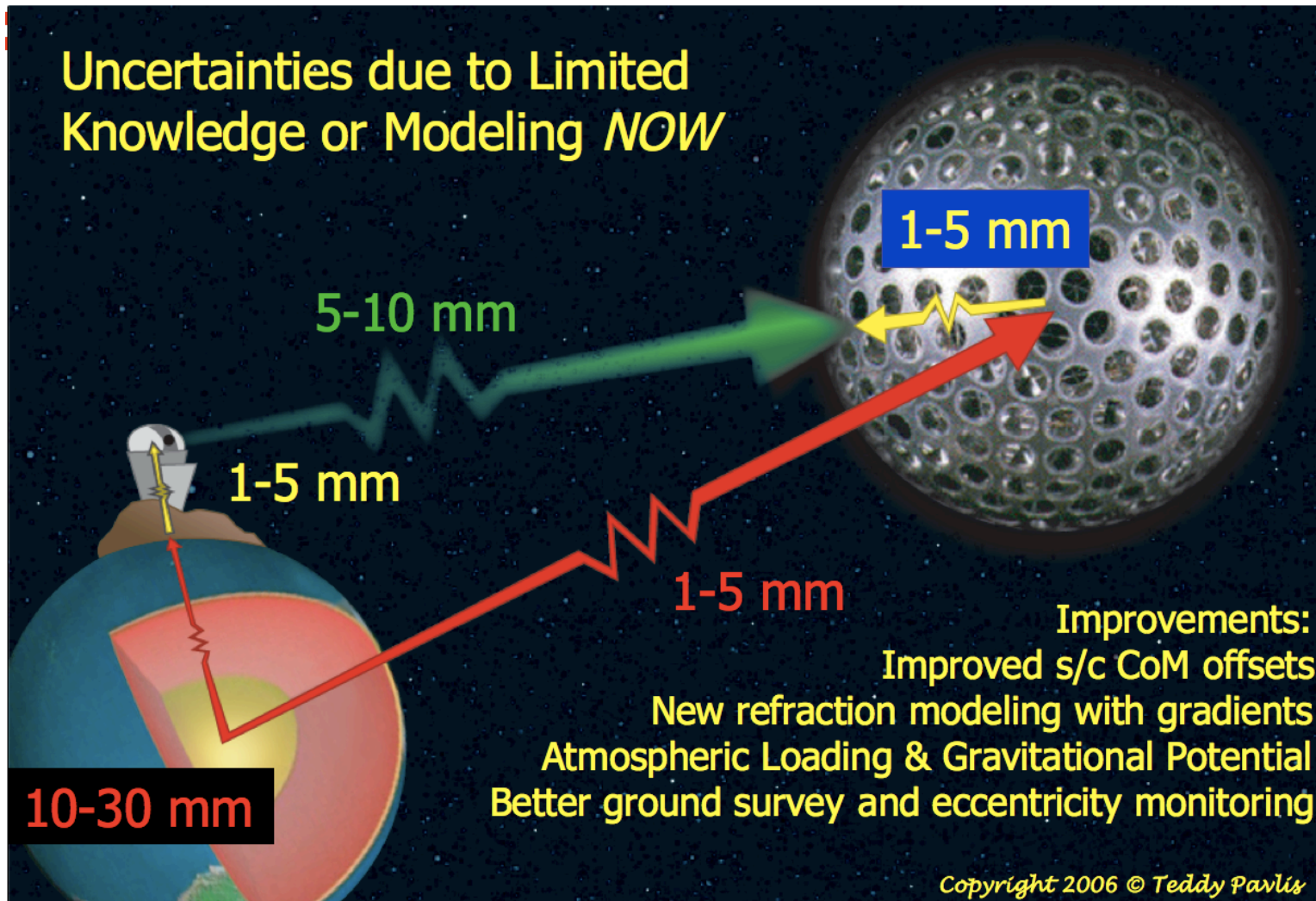
- COMBINATIONS (INDEPENDENT) BY:
  - ASI & DGFI

Schedule: To be released ~1 month after ITRF2008

ILRS Network 2009

Analyzed Tracking Data from LAGEOS & LAGEOS 2
Site Occupancy per Week

# SLR Modeling Limitations & Improvements

LAGEOS CoG Dependence on Tracking System and Mode of Operation at Site

| Stn pad ID	Name	Pulse length (ps)	Detector	Regime (single, few, multi)	Editing Level (×σ)	Calib. St. error (mm)	LAGEOS St. error (mm)	LAGEOS CoM range (mm)	LAGEOS CoM ADOPTED (mm)
1873	Simeiz	350	PMT	No CNTL	2.0	60	70	248-244	246
1884	Riga	130	PMT	CNTLD s->m	2.0	10	15	252-248	250
7080	McDonald	200	MCP	CNTLD s->m	3.0	8.5	13	250-248	249
7090	Yaragadee	200	MCP	CNTLD f->m	3.0	4.5	10	250-248	249
7105	Greenbelt	200	MCP	CNTLD f->m	3.0	5	10	250-248	249
7110	Mon. Peak	200	MCP	CNTLD f->m	3.0	5	10	250-248	249
7124	Tahiti	200	MCP	CNTLD f->m	3.0	6	10	250-248	249
7237	Changchung	200	CSPAD	CNTLD s->m	2.5	10	15	250-245	248
7249	Beijing	200	CSPAD	No CNTL, m	2.5	8	15	255-247	251
7355	Urumqui	30	CSPAD	No CNTL	2.5	15	30	255-247	251
7405	Conception	200	CSPAD	CNTLD s	2.5	15	20	246-245	246
7501	Harteb.	200	PMT	CNTLD f->m	3.0	5	10	250-244	247
7806	Metsahovi	50	PMT	?	2.5	15	17	254-248	251
7810	Zimmerwald	300	CSPAD	CNTLD s->f	2.5	20	23	246-244	245
7811	Borowiec	40	PMT	No CNTL f	2.5	16	23	256-250	253
7824	San Fernando	100	CSPAD	No CNTL s->m	2.5	30	25	252-246	249
7825	Stromlo	10	CSPAD	CNTLD s->m	2.5	4	10	257-247	252
7832	Riyadh	100	CSPAD	CNTLD s->m	2.5	10	15	252-246	249
7835	Grasse	50	CSPAD	CNTLD s->m	2.5	6	15	255-246	250
7836	Potsdam	35	PMT	CNTLD s->m	2.5	10	20	256-252	254
7838	Simosato	100	MCP	CNTLD s->m	3.0	20	40	252-248	250
7839	Graz	35	CSPAD	No CNTL m	2.2	3	9	255-250	252
7839	Graz kHz	10	CSPAD	No CNTL s->f	2.2	3	9	255-250?	252
7840	Herstmonceux	100	CSPAD	CNTLD s	3.0	6	15	246-244	245
7840	Hx kHz	10	CSPAD	CNTLD s	-1.5,+2.5	3	9	245	245
7841	Potsdam 3	50	PMT	CNTLD s->f	2.5	10	18	254-248	251
7941	Matera	40	MCP	No CNTL m	3.0	1	5	252-248	250
8834	Wettzell	80	MCP	No CNTL f->m	2.5	10	20	252-248	250

10 mm

WRMS wrt *a priori* (SLRF2005)

Core Sites - Residuals WRMS wrt SLRF2005
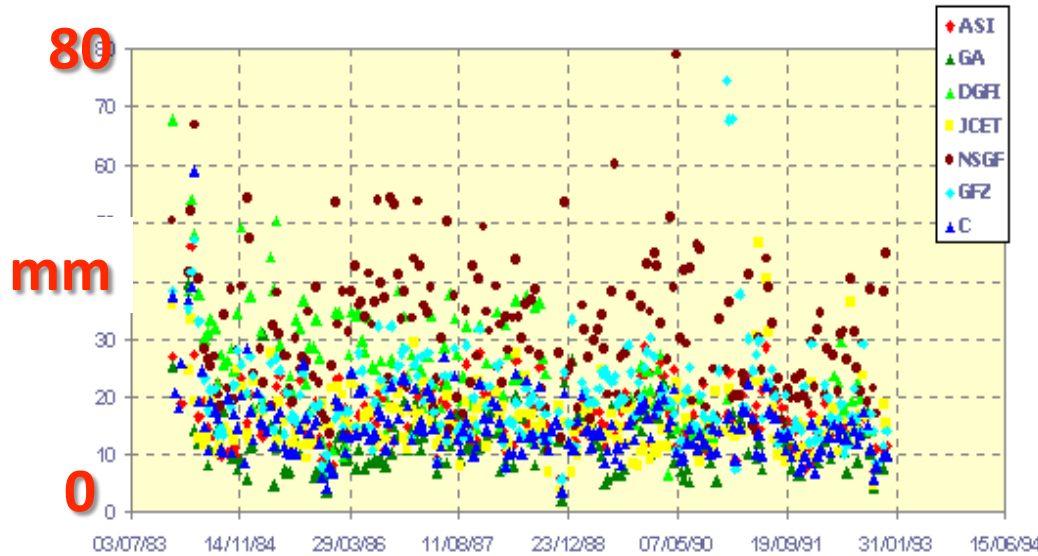
1983 - 1993

Combination: 15 mm

Core Sites - Residuals WRMS wrt SLRF2005
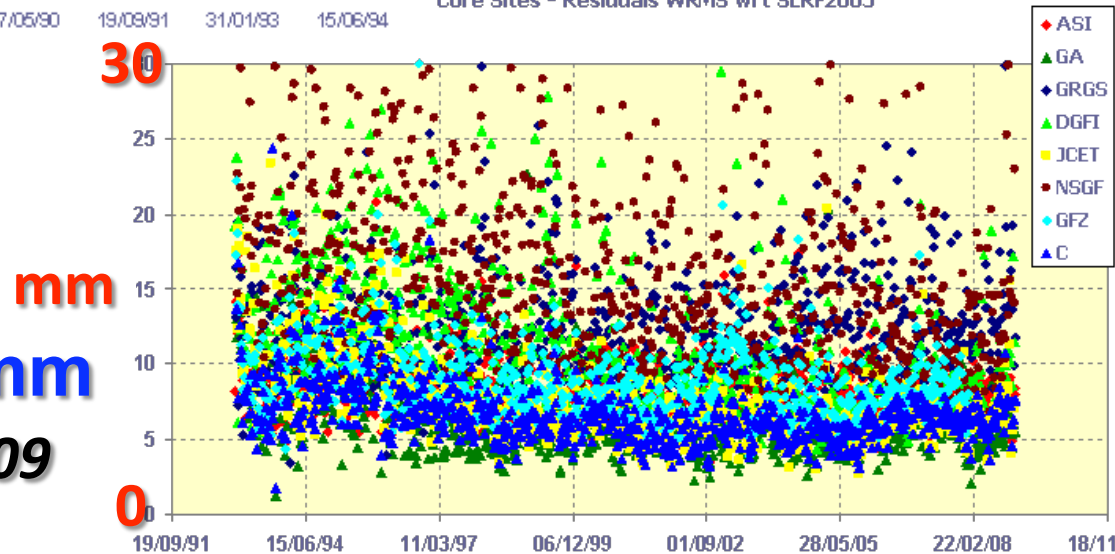
Combination: 7 mm

1993 - 2009

Summary

- **SLRF2008** comprises of all SLR sites tracking during the period 1983 to end of 2008, all data reduced with the same models and in a consistent way

- Sites that span both periods (before and after 1993) benefit significantly, especially in the determination of velocity

- For best TRF restitution users must make use adopted bias models for all sites as used in the development of **SLRF2008**

- For even higher accuracy, users must adopt target signature models that are specific to their satellite target array and account for the mode of operation of each tracking system i.e. **check SCI flag (col. 128 FR or 47 NP) !!!**

- **Move to CRD format before the end of this year 2009 !!!**
  - **http://ilrs.gsfc.nasa.gov/products_formats_procedures/crd.html**