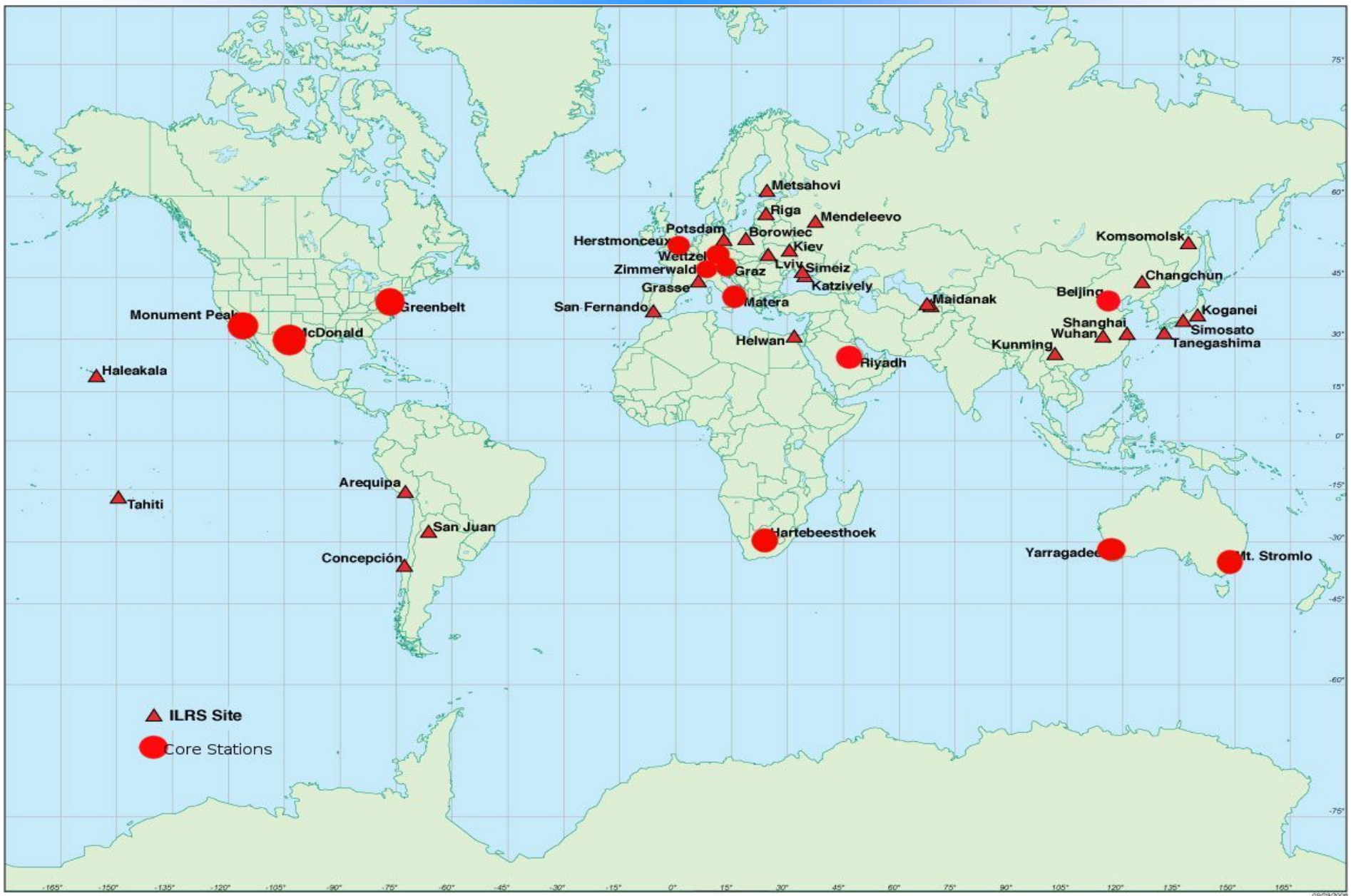
Acceptance Tests for SLR Stations

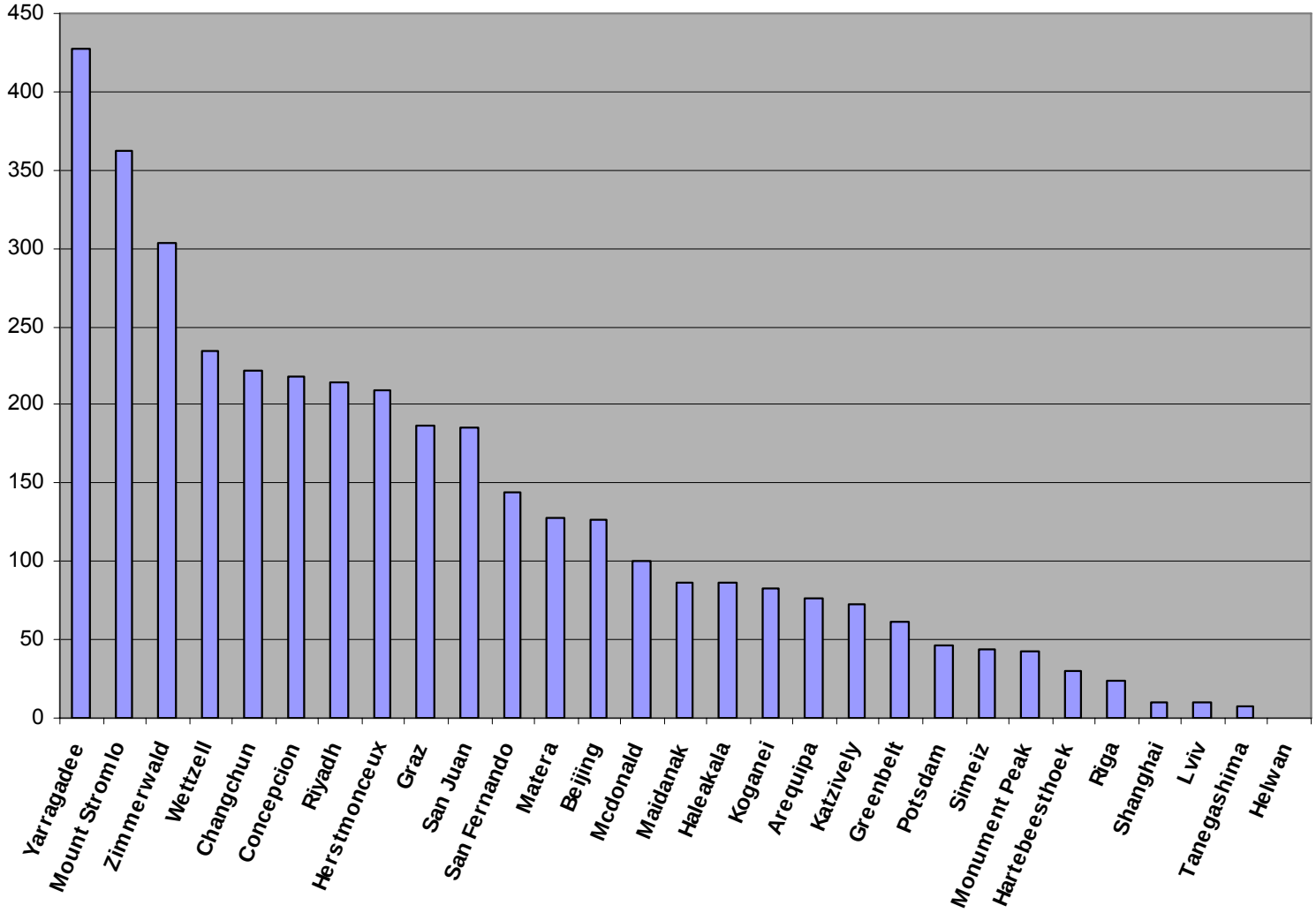
Horst Müller

Deutsches Geodätisches Forschungsinstitut, München
E-Mail: mueller@dgfi.badw.de

Current SLR Network



Lageos Passes Sept. to Nov. 2007



Stable and reliable network
- Orbit computation
- Stability of EOP's
- time series (coordinates, low degree harmonics,…)

Core Network
- Definition of SLR datum
- Higher weights in orbit computation (some centres)
- orbit reference

Procedure of Station Acceptance

- New station
  - reports to ILRS
  - a specific analysis centre cooperates with the station
    - no problems show up -> non core station to AWG processing
    - local survey desirable
- Core Station qualification
  - fulfil ILRS station qualification
  - proofs to be stable
  - AWG decision on status after some time

ILRS Core Station Criteria

Yearly data quantity guidelines are:

- 1000 Low Earth Satellite (LEO) Passes
- 400 LAGEOS 1,2 Passes
- 100 High Satellite Passes

Data quality guidelines are:

- 1 cm LAGEOS NP precision
- 2 cm short term bias stability
- 1 cm long term bias stability

Operational compliance guidelines are:

- Data delivery within 12 hours (data latency)
- Specified ILRS NP data format
- Current site and system information form (i.e. site log)

AWG Criteria

- Core station should not have
  - biases (resp. known biases)
  - sufficient data
- No clustering of station

Core network changes with time

- Stations close down
- New stations come up

Quality Monitoring

8 independent Analysis centres
- various software packages
- different processing strategy

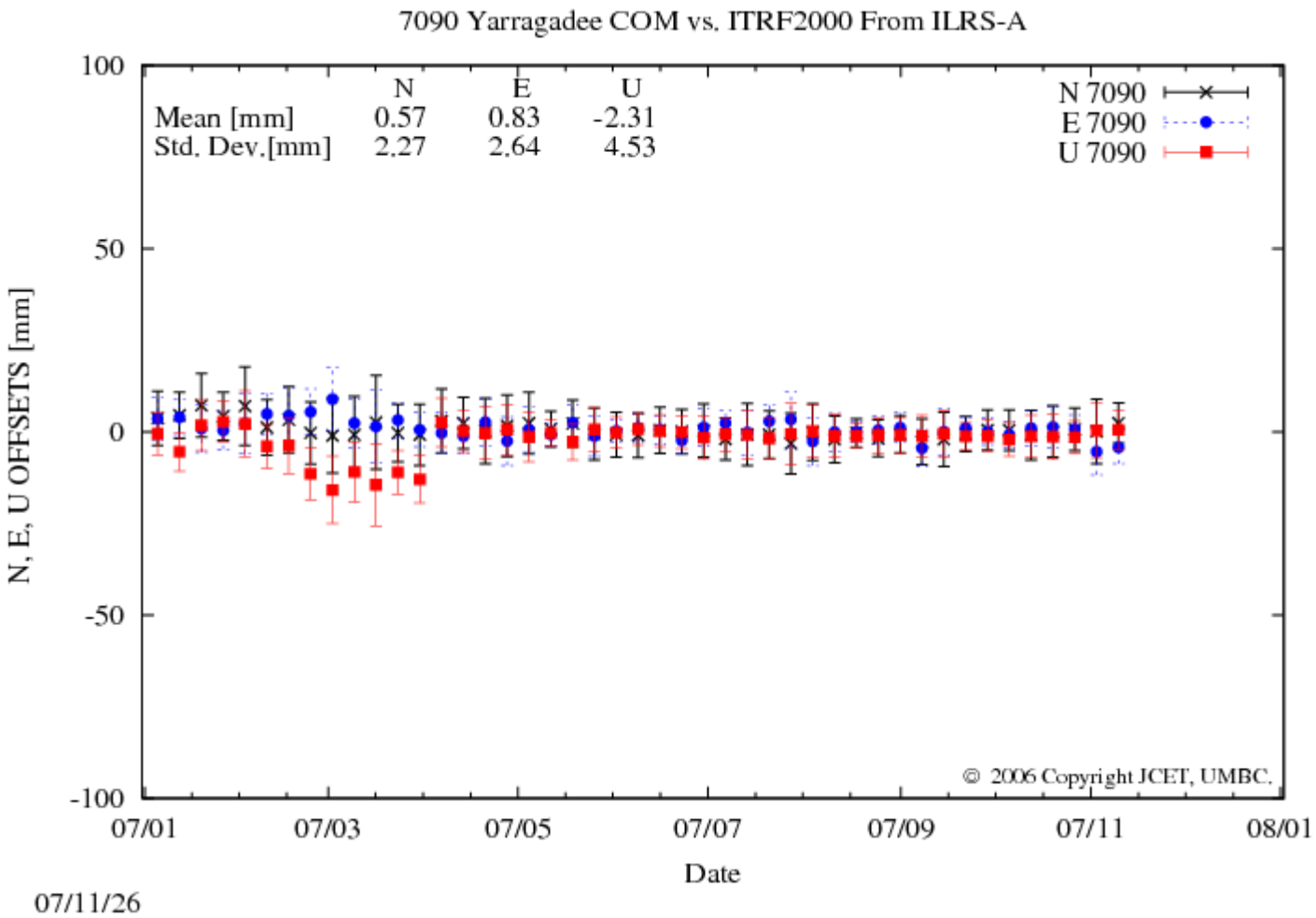
2 Combination Centres
- different Software
- different strategy (loose constraint, minimal constraint solution)

1 Web portal to monitor analysis results

5 Bias processing Centres

1 Centre combing biases

http://geodesy.jcet.umbc.edu/ILRS_QCQA/



http://aiuli3.unibe.ch:8000/slr/summary_report.txt

			DGFI		MCC		HIT-U		SAO		JCET	
1831	Average	532	-188	25			-176	49				
1864	Average	532	-47	20	48	30	0	24	7	21		
1873	Average	532	-110	12	84	82	160	96	-13	25	122	5
1893	Average	532	32	11	31	8	54	10	48	9	-64	7
7080	Average	532	28	5	-10	4	13	3	2	4	-12	4
7090	Average	532	-5	3	0	2	5	2	-3	2	8	4
7105	Average	532	-36	0								
7110	Average	532	-7	6	-8	6	-2	4	-19	5		
7119	Average	532	-24	2	-9	3	3	1	17	3	12	4
7237	Average	532	50	7	-6	6	22	7	8	6	9	7
7249	Average	532	106	7	90	9	-34	5	101	8	17	8
7308	Average	532	-6	5	1	5	-2	4	-16	5	16	5
7358	Average	532	0	1			0	1	-96	2	34	7
7403	Average	532	2	1	0	3	43	4	-5	2	-31	18
7405	Average	847	1	2	-4	1	-2	1	-1	1	-4	3
7406	Average	532	797	6	1409	6	783	5	895	4		
7810	Average	846	6	4	-13	3	-1	3	-12	3	20	5
7810	Average	423	11	3	0	3	11	3	0	2	31	5
7824	Average	532	41	2	16	5	12	2	46	4	23	4
7825	Average	532	-2	3	-11	4	-9	3	-9	3	14	5
7832	Average	532	20	3	-9	2	-1	2	-52	2	25	5
7839	Average	532	28	1			-8	0				
7840	Average	532	19	2	9	2	9	1	2	1	26	4
7841	Average	532	18	4	-9	4	-26	3			-4	8
8834	Average	532	-12	2	-1	2	-23	2	-20	1	1	4

Daily submission of earth orientation parameters

- Requirements
  - Short time spans between tracking and data delivery
  - Quick response on detected tracking problems
  - Closer contact between analysts and stations
- Advantage
  - stations get a quicker feedback
  - analysts get better results