Report of DGFI/AC

Horst Müller

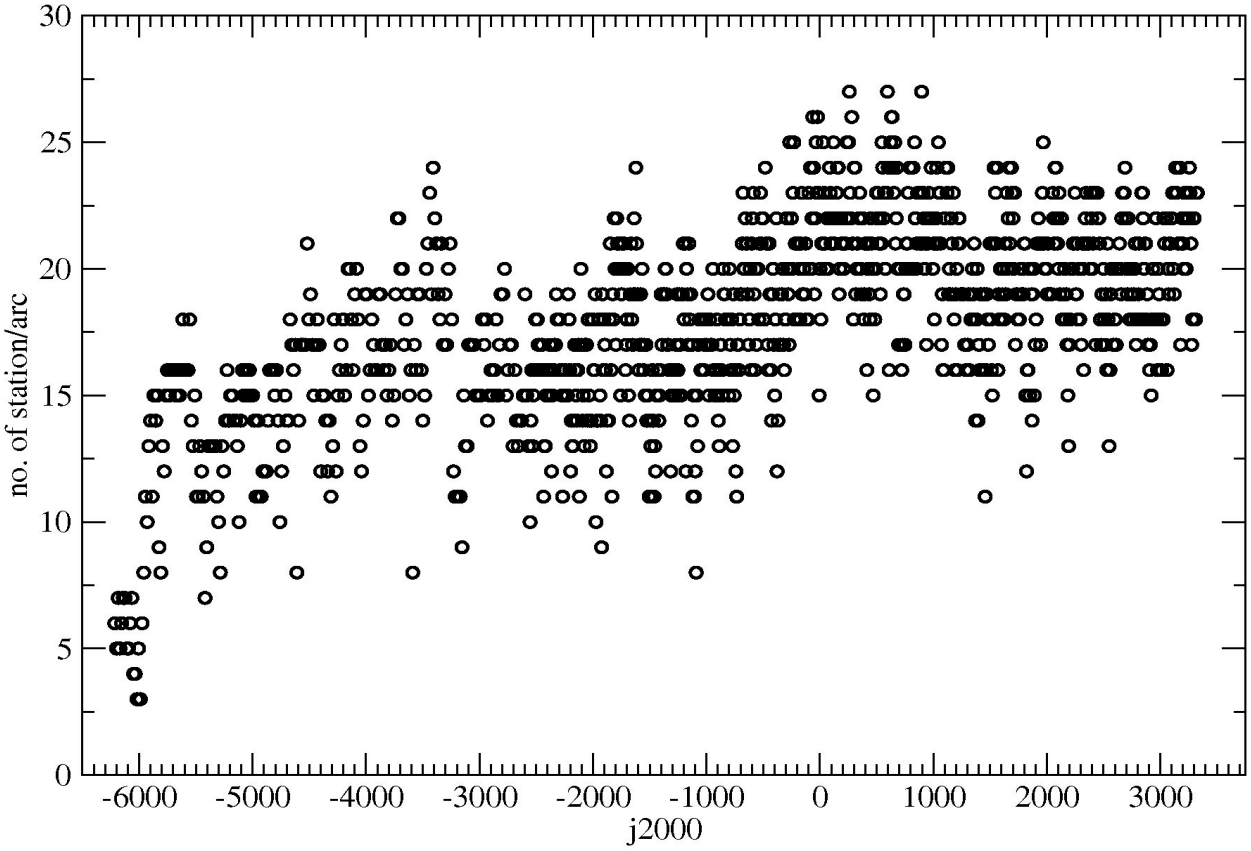
Deutsches Geodätisches Forschungsinstitut, München
E-Mail: mueller@dgfi.badw.de

Reprocessing

- Status
  - 1993 until now, series v22 delivered on March 3, because v21 had only 5 EOP-values per week, first and last cut, and sinex files were incorrect, blocks were missing.
  - 1983 – 1992 delivered v21 on Feb. 23, unclear 15 -> 7 day arcs therefore 2 arc more delivered on Feb. 26
  - 1976 – 1982 partly processed but not delivered, results are poor
  - all solution have problems with EOPs.

ILRS Analysis Working Group Meeting, Vienna, April 24, 2009

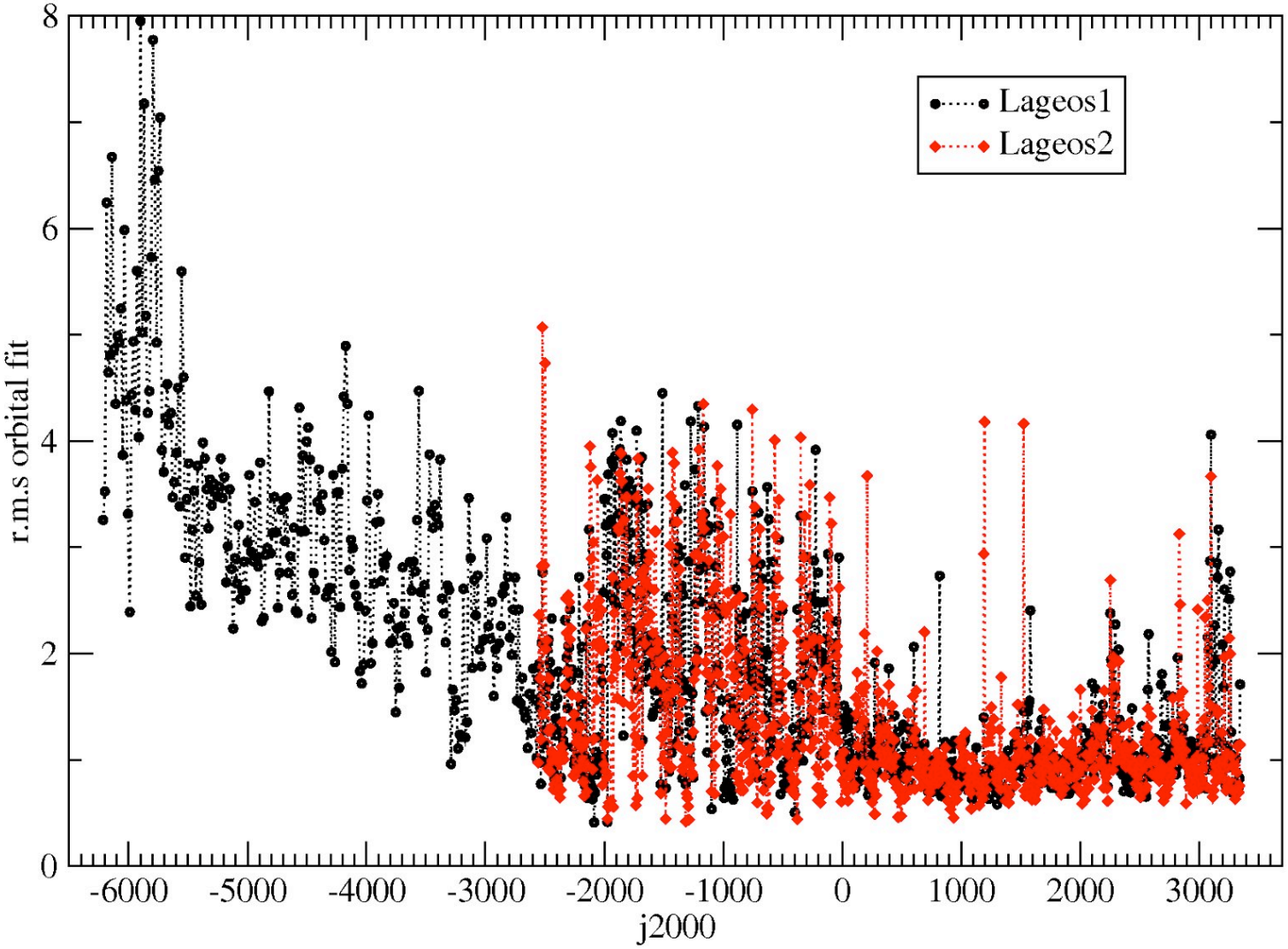
Number of station per week (resp. 15days before 1993)



DGFI

ILRS Analysis Working Group Meeting, Vienna, April 24, 2009

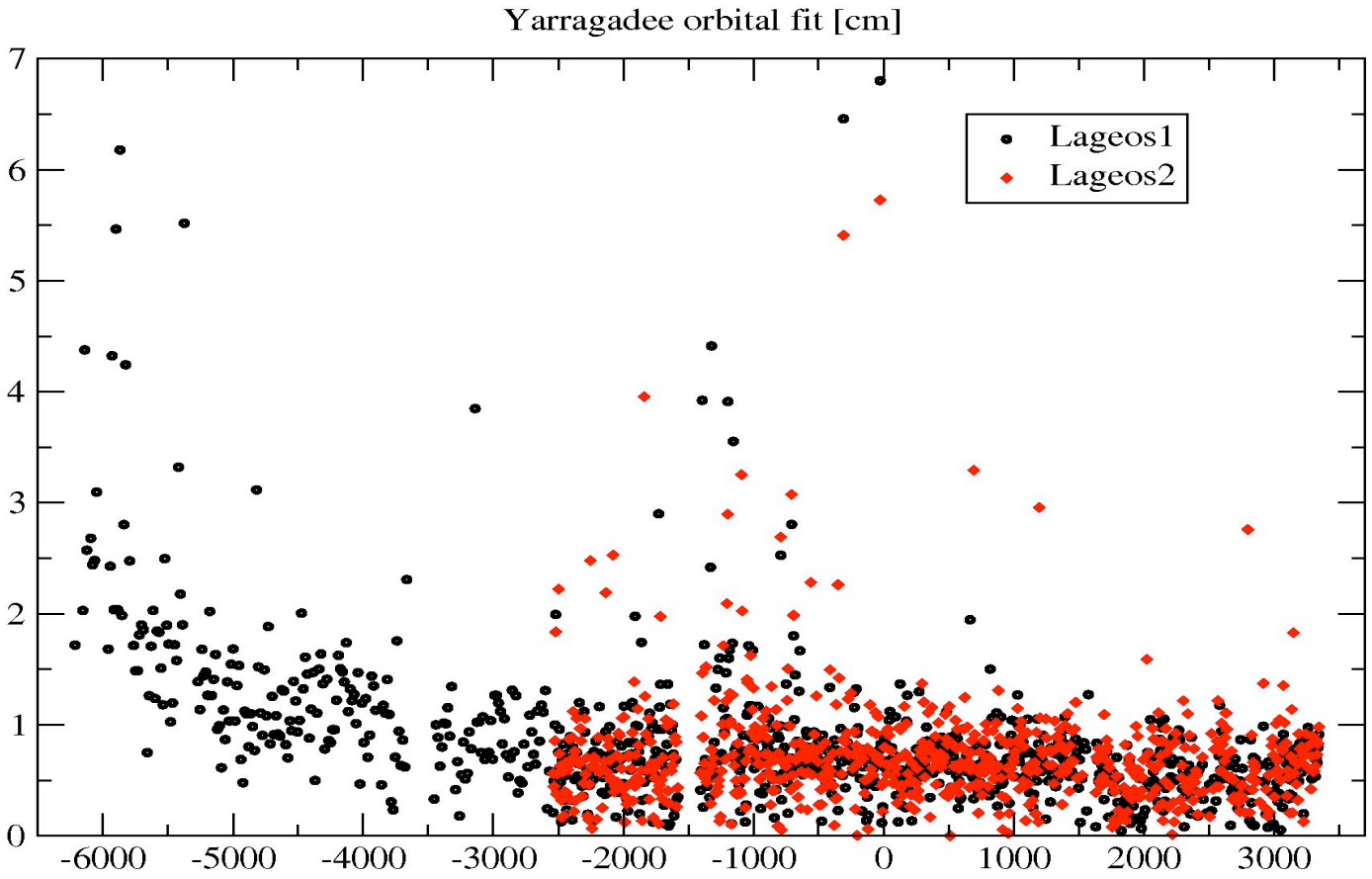
r.m.s. orbital fit per week (resp. 15days before 1993)



DGFI

ILRS Analysis Working Group Meeting, Vienna, April 24, 2009

Yarragadee r.m.s. orbital fit per week (resp. 15days before 1993)



DGFI

Routine POS+EOP Solution

- Status
  - Weekly solutions from Lageos-1/2 and Etalon-1/2 data regularly delivered to CDDIS and EDC
  - Daily solution not available, because of LOD problem
  - Only daily bias reports

(http://www.dgfi.badw.de/dgfi/ILRS-AC/quality/index.html)

- Future Plans
  - New approach for LOD and EOP interpolation to 12:00 h UTC
- Comments
  - We are working on the LOD problem, new programme version is ready, test are pending

SP3c Orbit Products

- Status
  - Weekly orbits for Lageos-1/2 and Etalon-1/2 delivered to CDDIS and EDC (ref. frame SLRF2005)
  - Orbits available from DGFI Web-pages
- Future Plans
  - Weekly orbits in DGFI loose solution frame to data centres
  - Orbits on Web-pages remain in SLRF2005 (itrf2008) frame
- Comments
  - Orbits from more centres needed

Station Qualification

• New stations
  – 1879 Altay Mountain, Russia, since Nov. 2008, needs better coord.

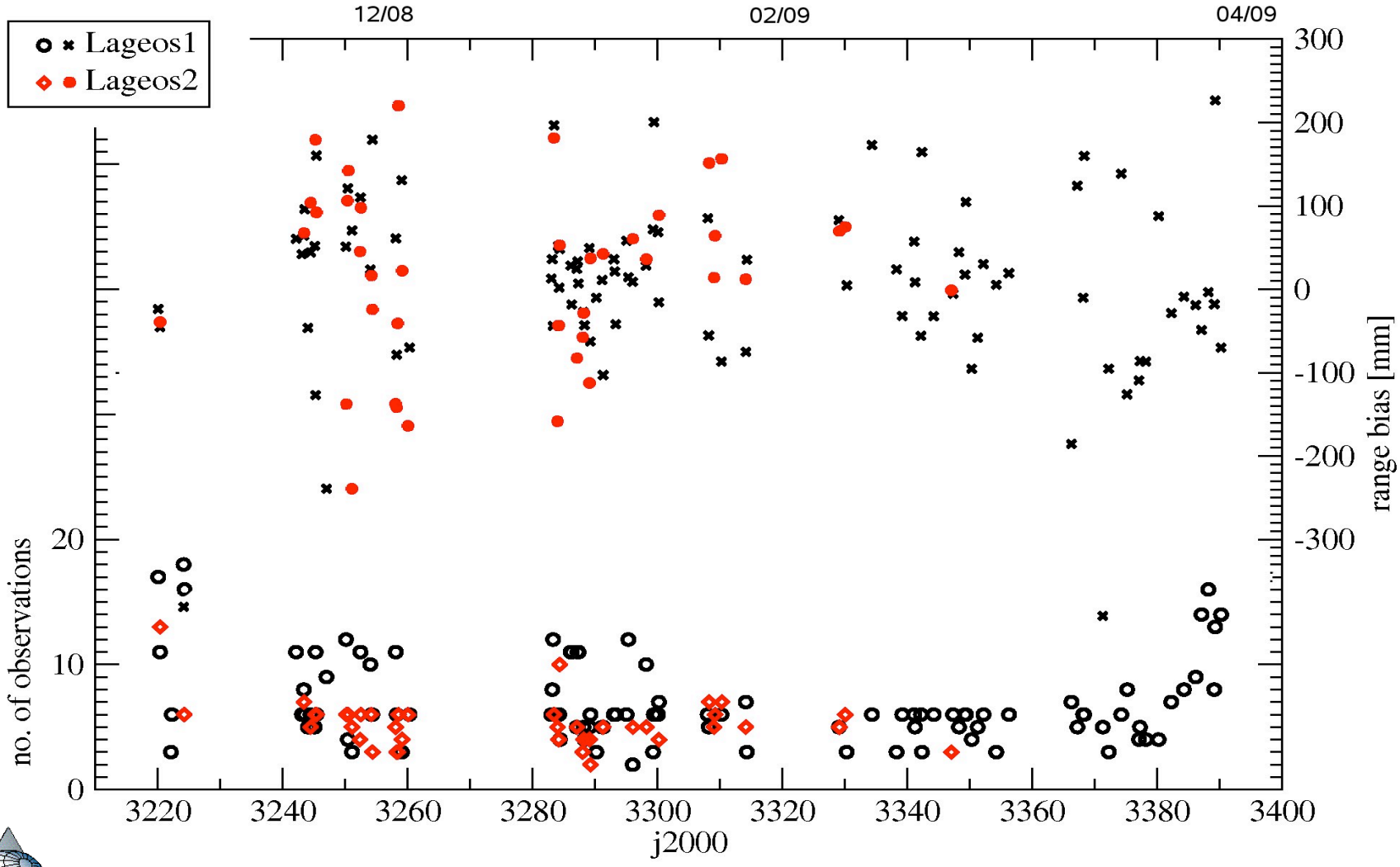
• Stations back in operation after longer period of inactivity, normally used in processing
  - 1824 Golosiiv, Kiev, Ukraine (01/01 – 10/05, 06/08 - ..),
  - 7403 Arequipa, Peru, operational since June 2008, (better coord.?)
  - 7124 Tahiti, since June 2008, oper., good coordinates
  - 1868 Komsomolsk, Russia, oper. Since Oct. 2008, coordinates are bad
  - 7845 Grasse, France, since Nov. 2008, eccentr.?, coord.?
  - 7838 Simosato, Japan, since Dec.2008, good coord.

• Stations back in operation on a different spot on site
  - 7119 Haleakala, Hawaii, since Dec 2007, 7210 closed down in May 2004, 7119 operational, good coord. and ecc.
  - *FTRLS on various sites (Burnie,Ajaccio,..)*
  - *other transportable systems (Japan, China)*

DGFI

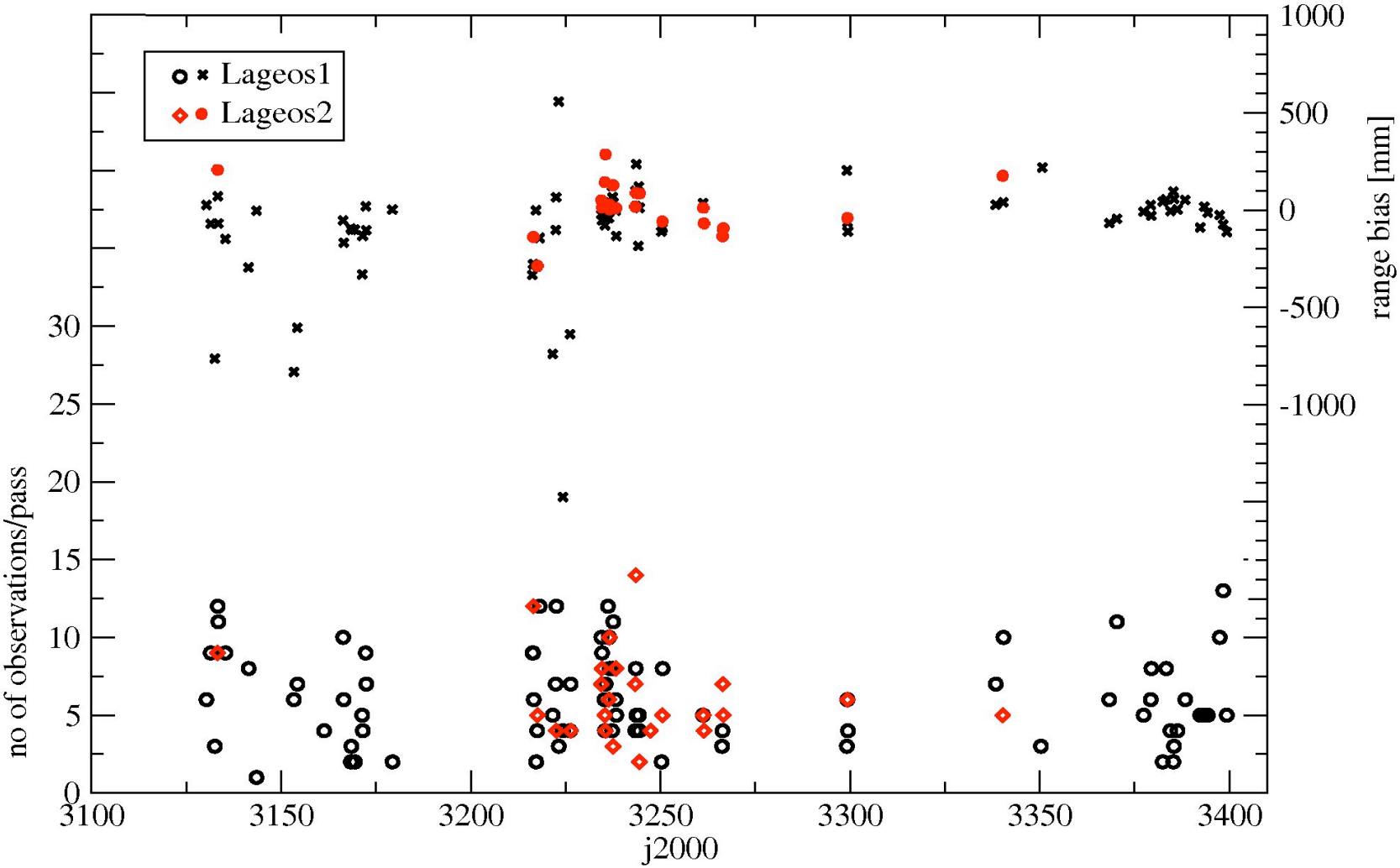
ILRS Analysis Working Group Meeting, Vienna, April 24 2009

Altay Mountain

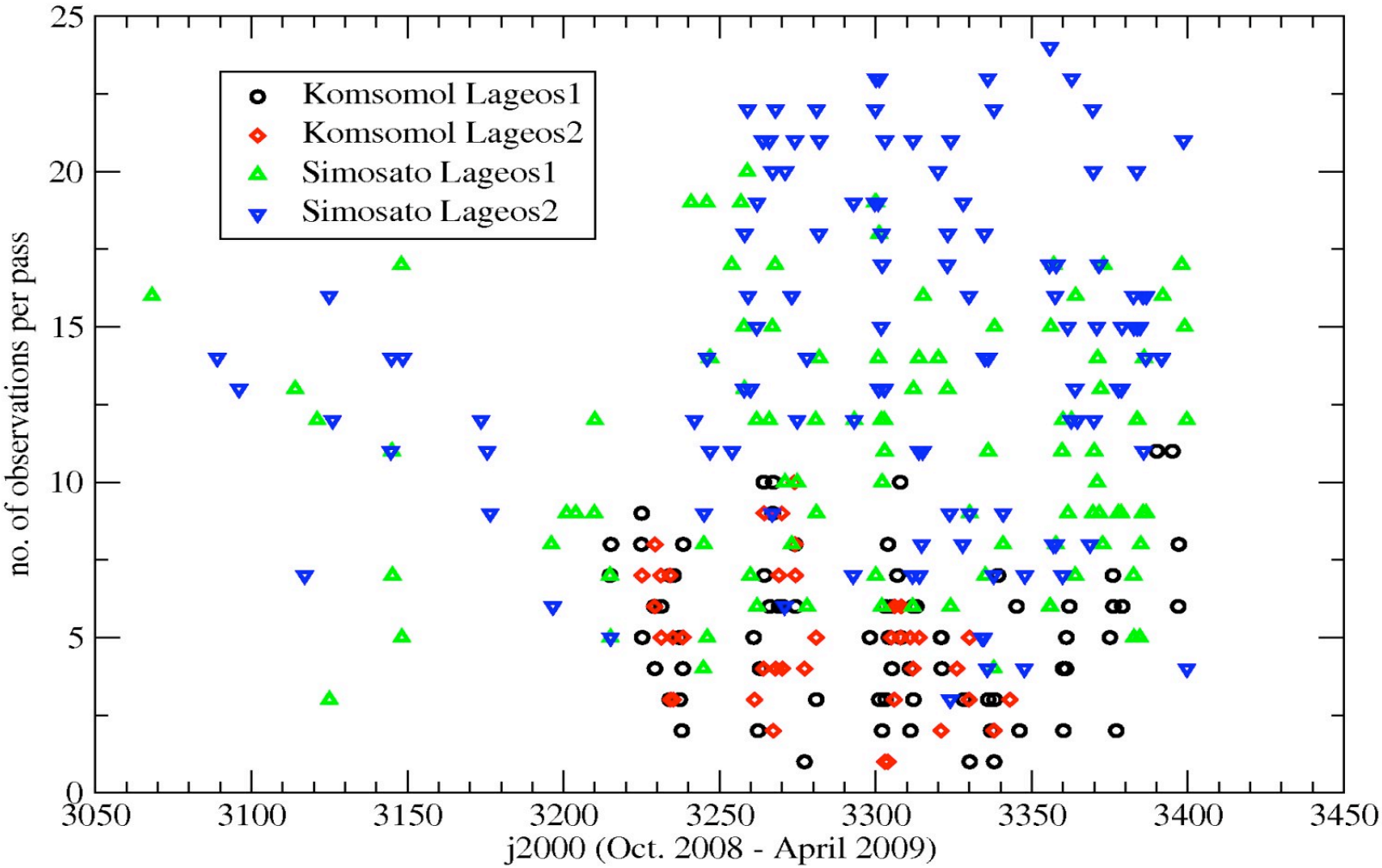


DGFI

Golosiiv



DGFI


Komsomol Lageos1
Komsomol Lageos2
Simosato Lageos1
Simosato Lageos2
no. of observations per pass
0
5
10
15
20
25
3050
3100
3150
3200
3250
3300
3350
3400
3450
j2000 (Oct. 2008 - April 2009)

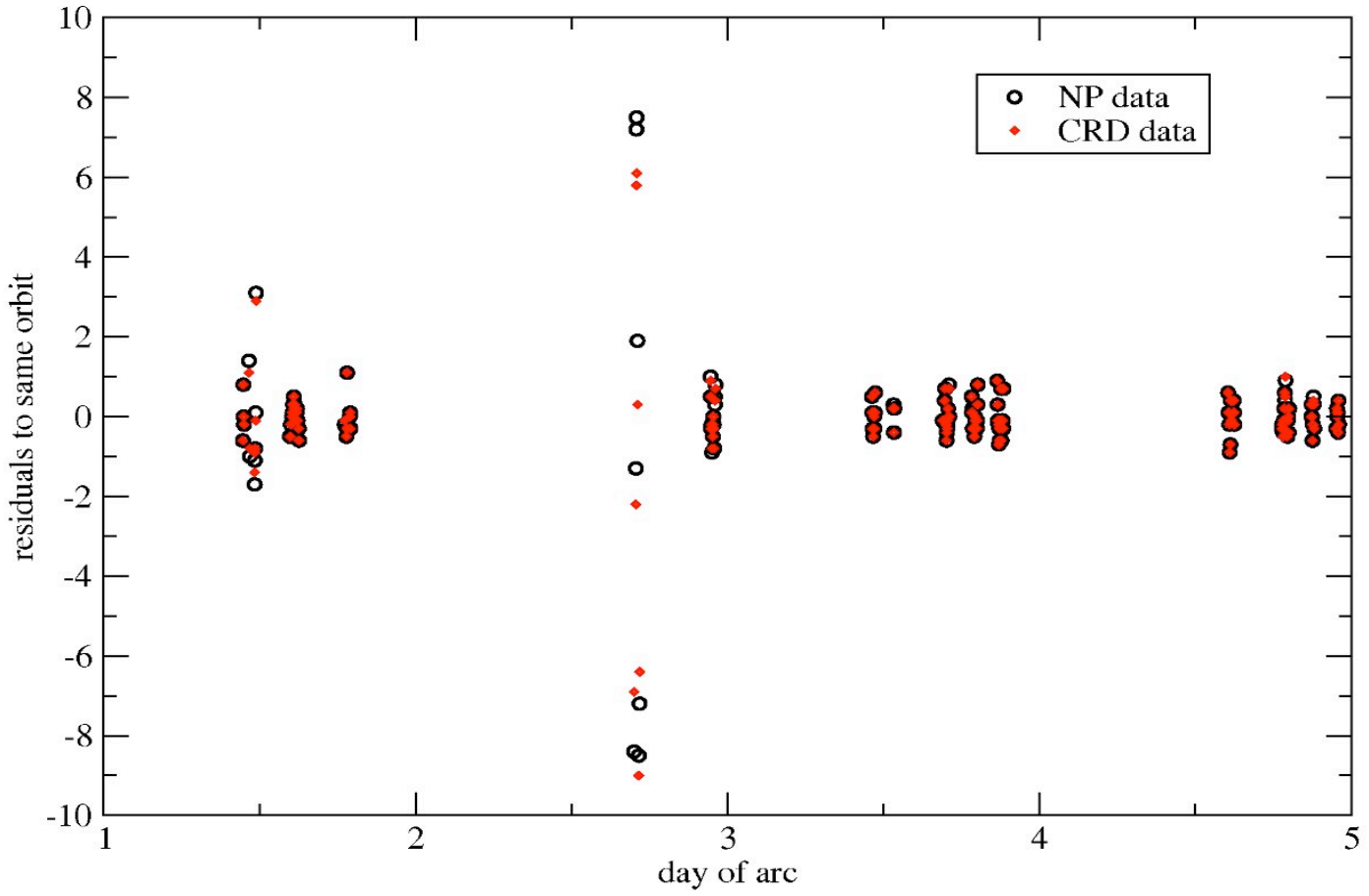
DGFI

CRD-Format

- Status
  - implemented in DOGS-OC
  - use as one line Format (MERIT III, MERIT II ext)
- Test
  - some stations show very small discrepancies
  - others, like Simeiz, can not be compared, big difference
- Comments
  - a pure XML implementation would be better, but seems not to be feasible
  - Stations or data centres need format checker programmes

ILRS Analysis Working Group Meeting, Vienna, April 24, 2009

Comparison NP data converted CRD data: Residuals to same orbit



ILRS Analysis Working Group Meeting, Vienna, April 24, 2009

SLR-Discontinuities, Data-Handling and Data-Delete File

- Status
  - Old file seperated in 3 different files, sinex format
    - SLR_Discontinuities - manage solution numbers
      - Including solution numbers from ITRF solution
    - SLR_Data_Handling – recommendations of ILRS/AWG how to handle SLR data, biases, editing periods, ..
      - Updated regularly
    - Data-Delete, list of individual passes to be edited
      - Could include passes with high bias values or outliers(wrong day number
      - All analysis groups should contribute to the data delete file to ensure that everyone use, at least, the same passes for processing (ev. Test phase)

  - Files are available from DGFI ILRS pages. *(http://www.dgfi.badw.de/dgfi/ILRS-AC/data_handling>*
    - CDDIS and EDC ?

Status of ILRSB

Rainer Kelm
Deutsches Geodätisches Forschungsinstitut

Weekly reprocessing v20

Remarks

Time series plots

Recommendations

ILRS AWG Meeting Vienna, April 24, 2009

Remarks

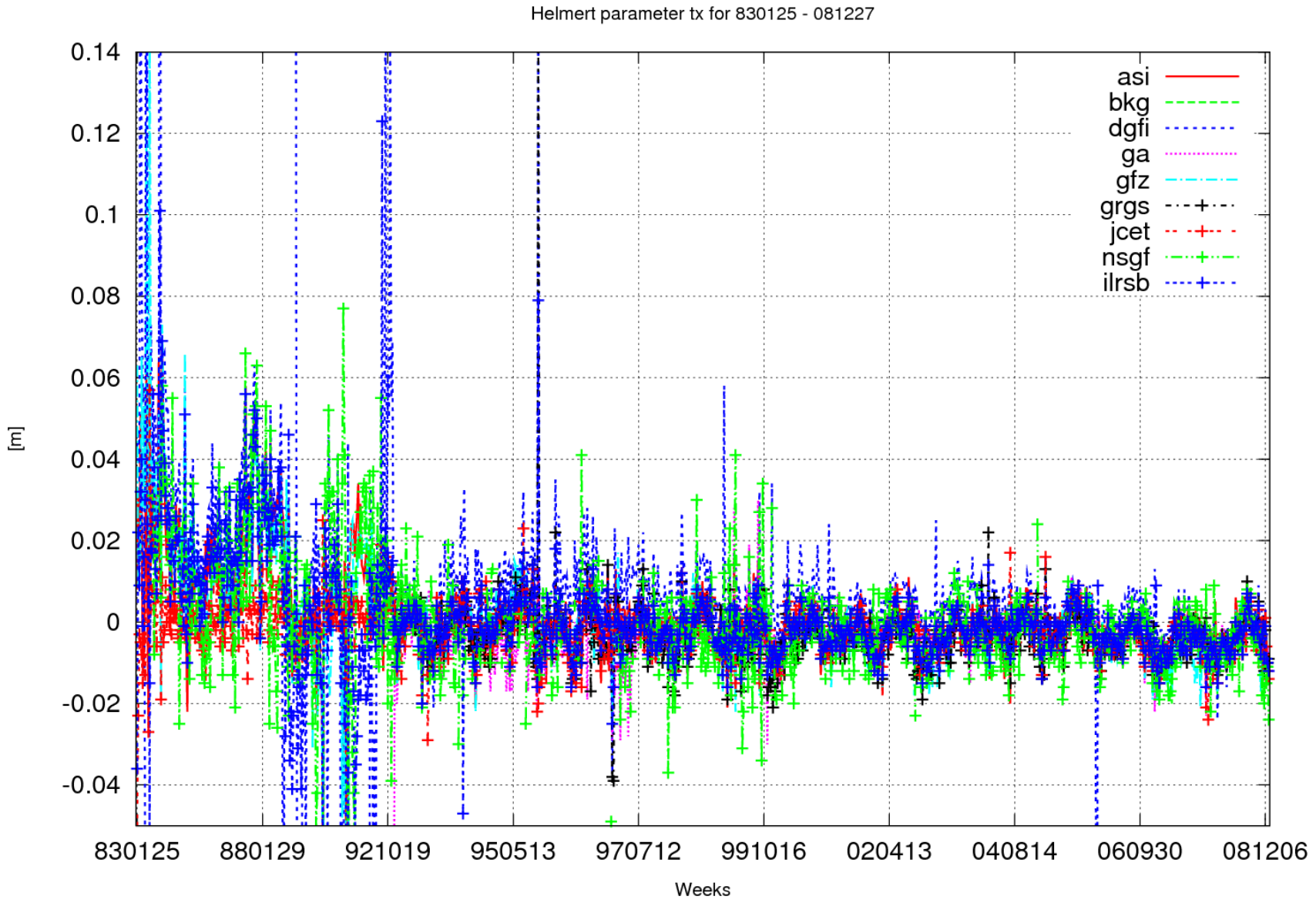
* **preliminary results only:**

  => **v20 for 1993 – 2008: multiple estimates (Z. Altamimi) eliminated trend analyis in summary files added (E. Pavlis)**

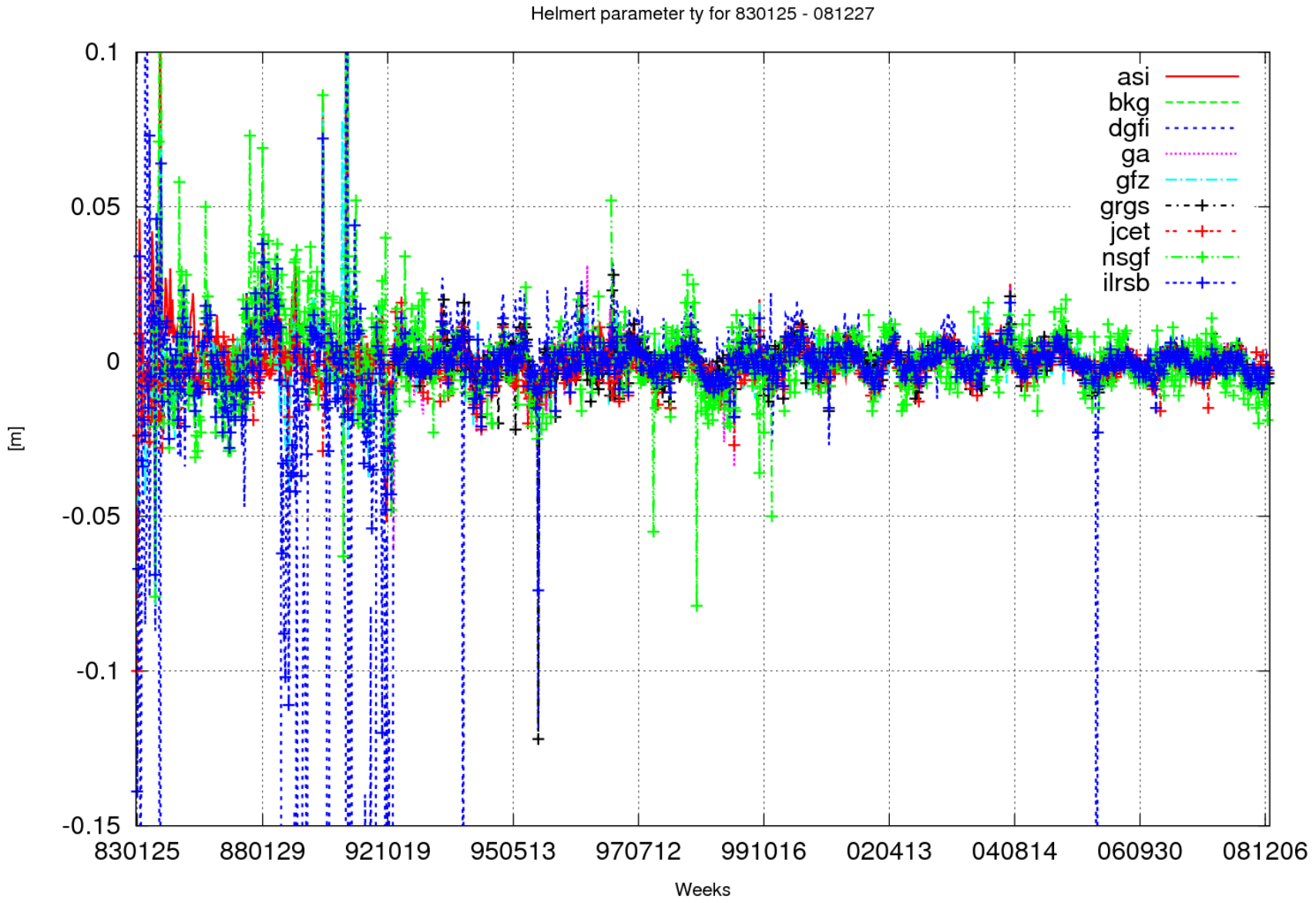
  => **v21 for 1983 – 1992: jcet.v21 included**

* **example of validation analysis by plots is presented here**

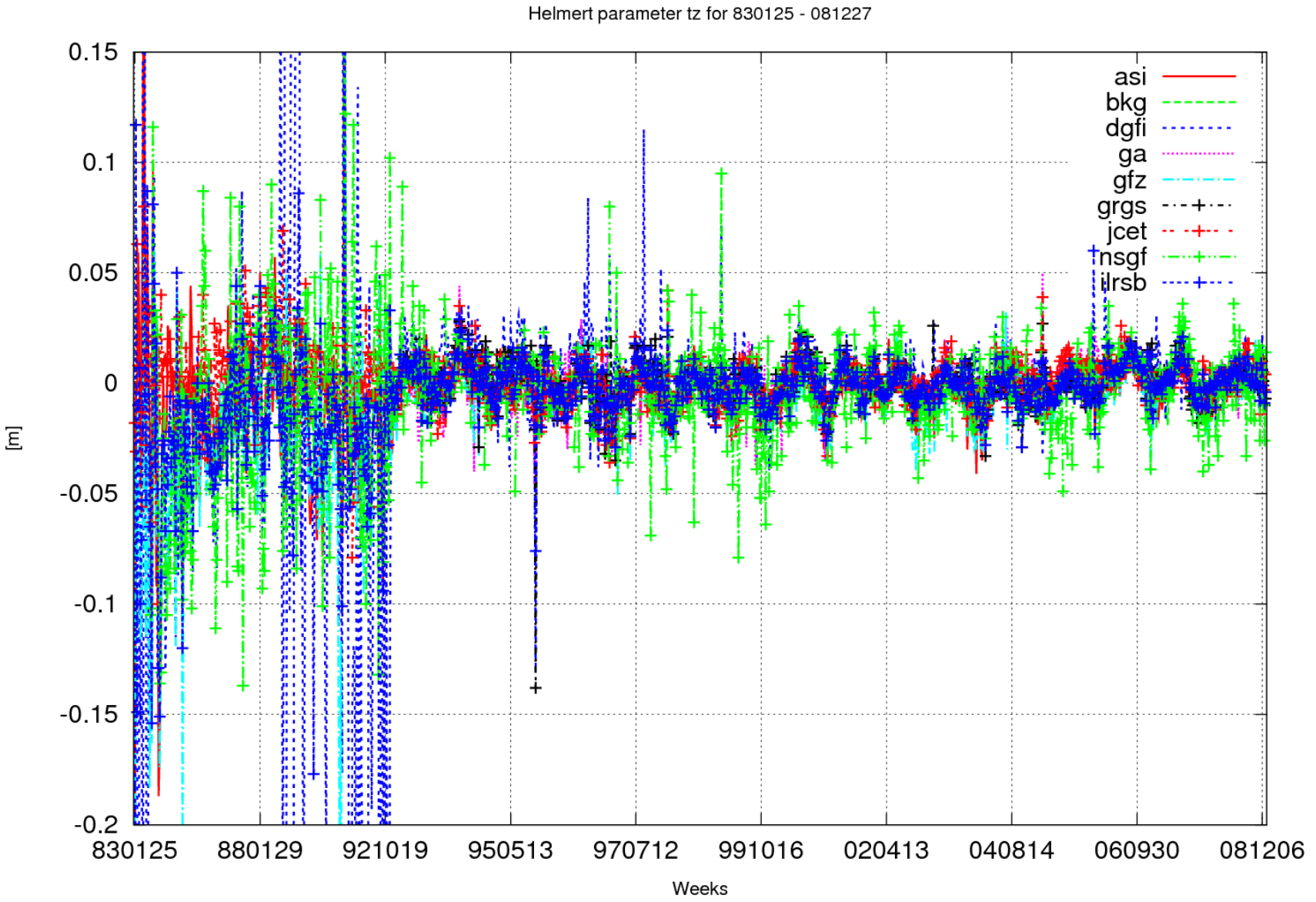
Weekly combination v20 (1)



Weekly combination v20 (2)

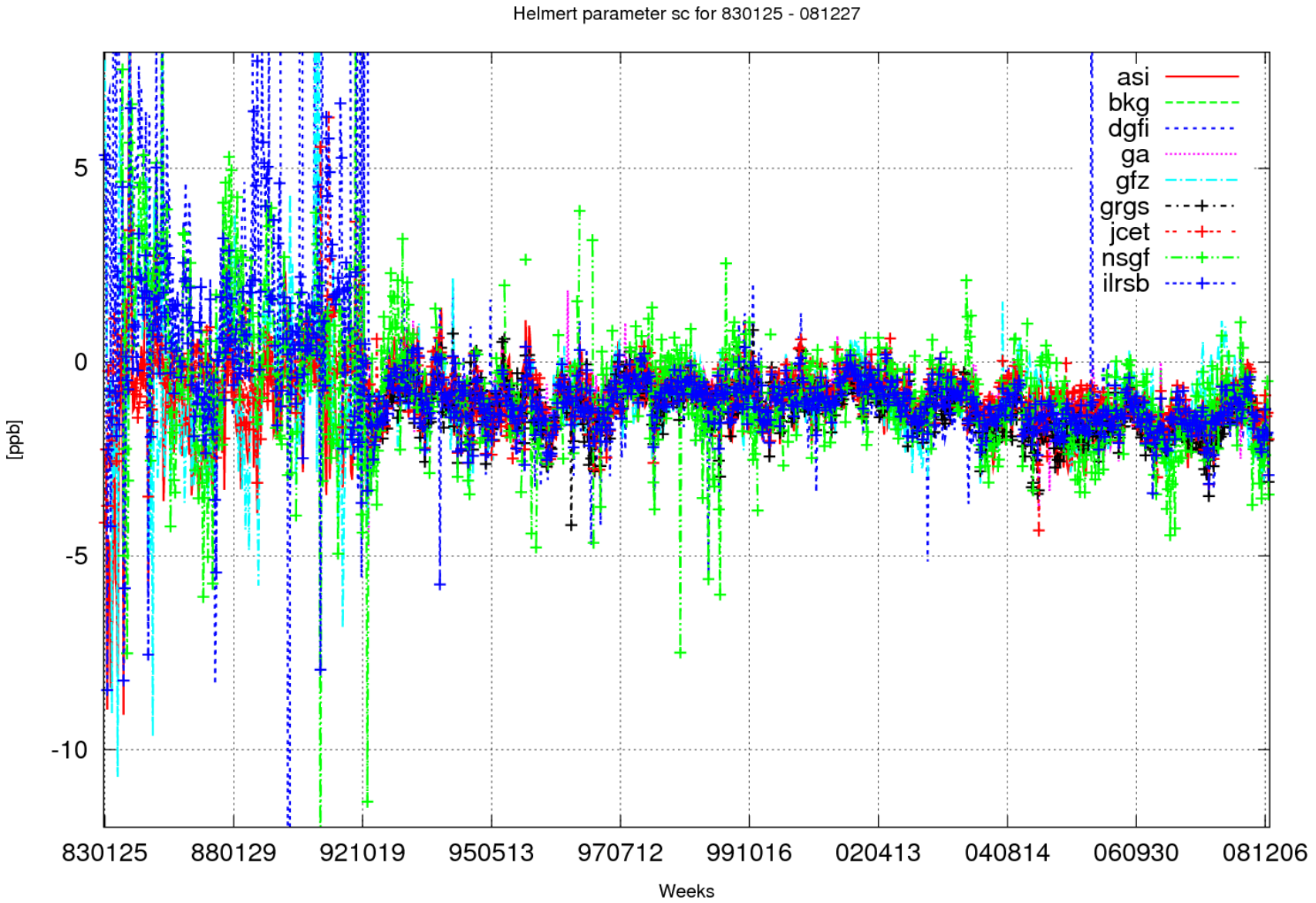


Weekly combination v20 (3)

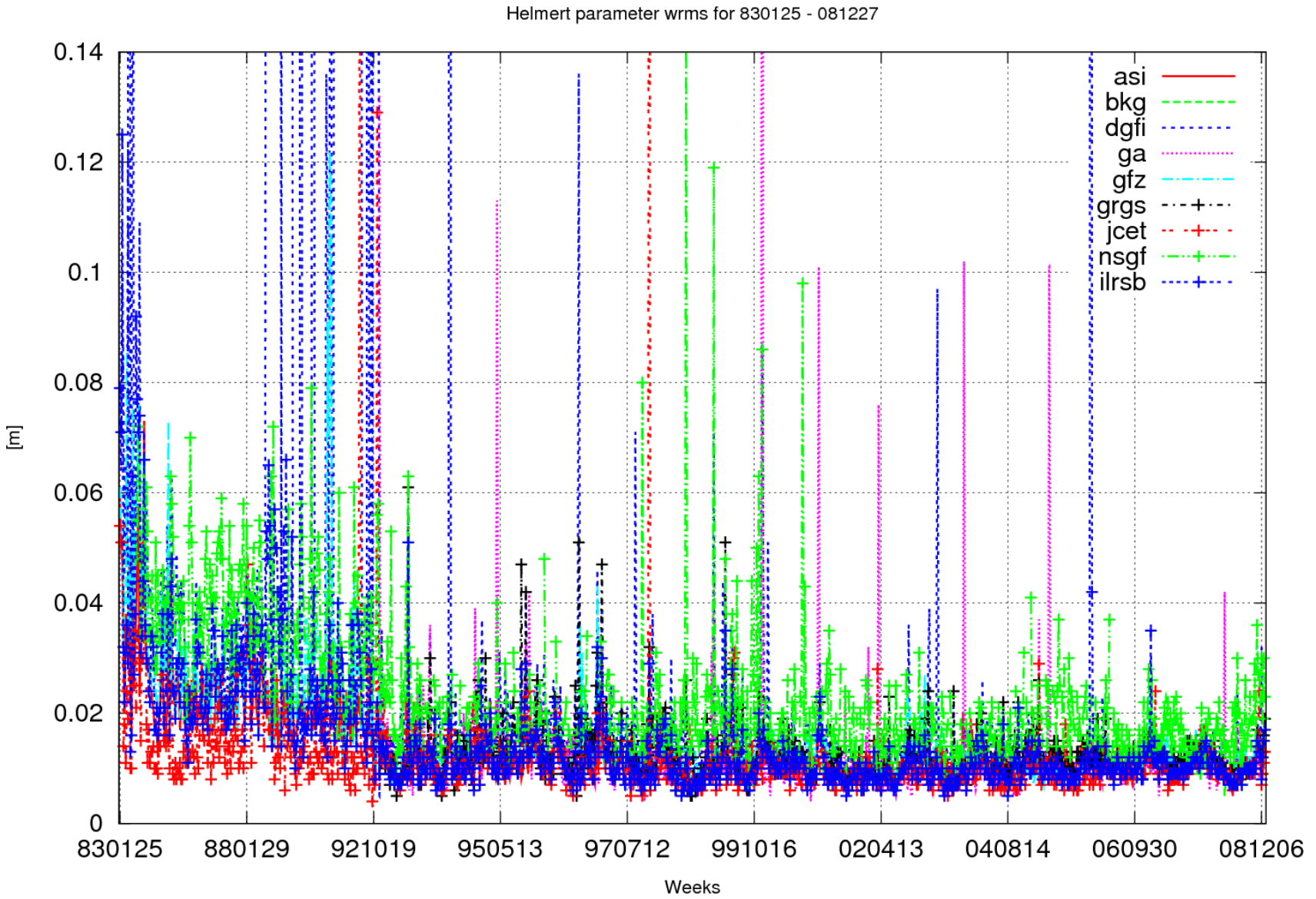


DGFI FGS Forschungsgruppe Satellitengeodäsie

Weekly combination v20 (4)

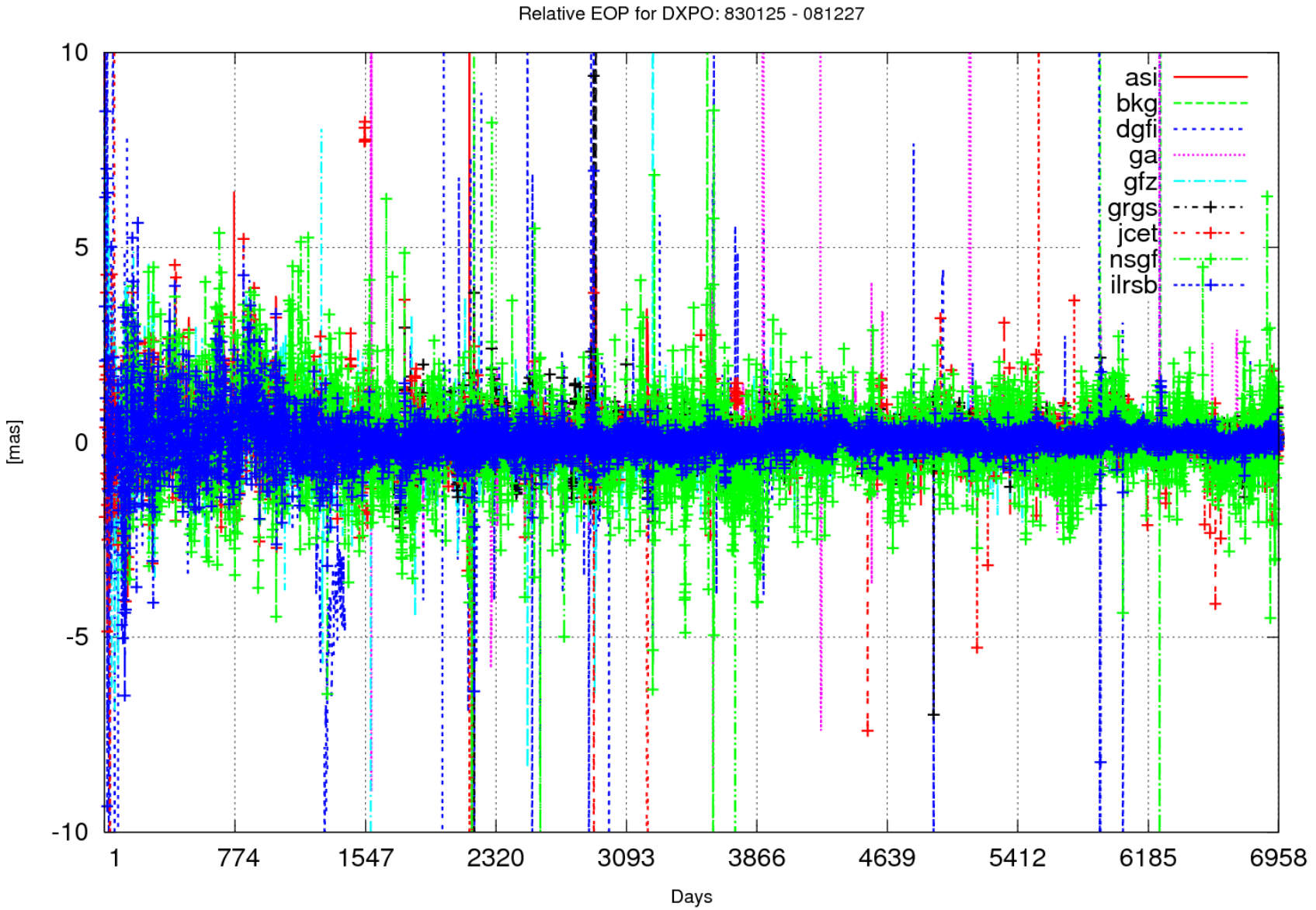


Weekly combination v20 (5)



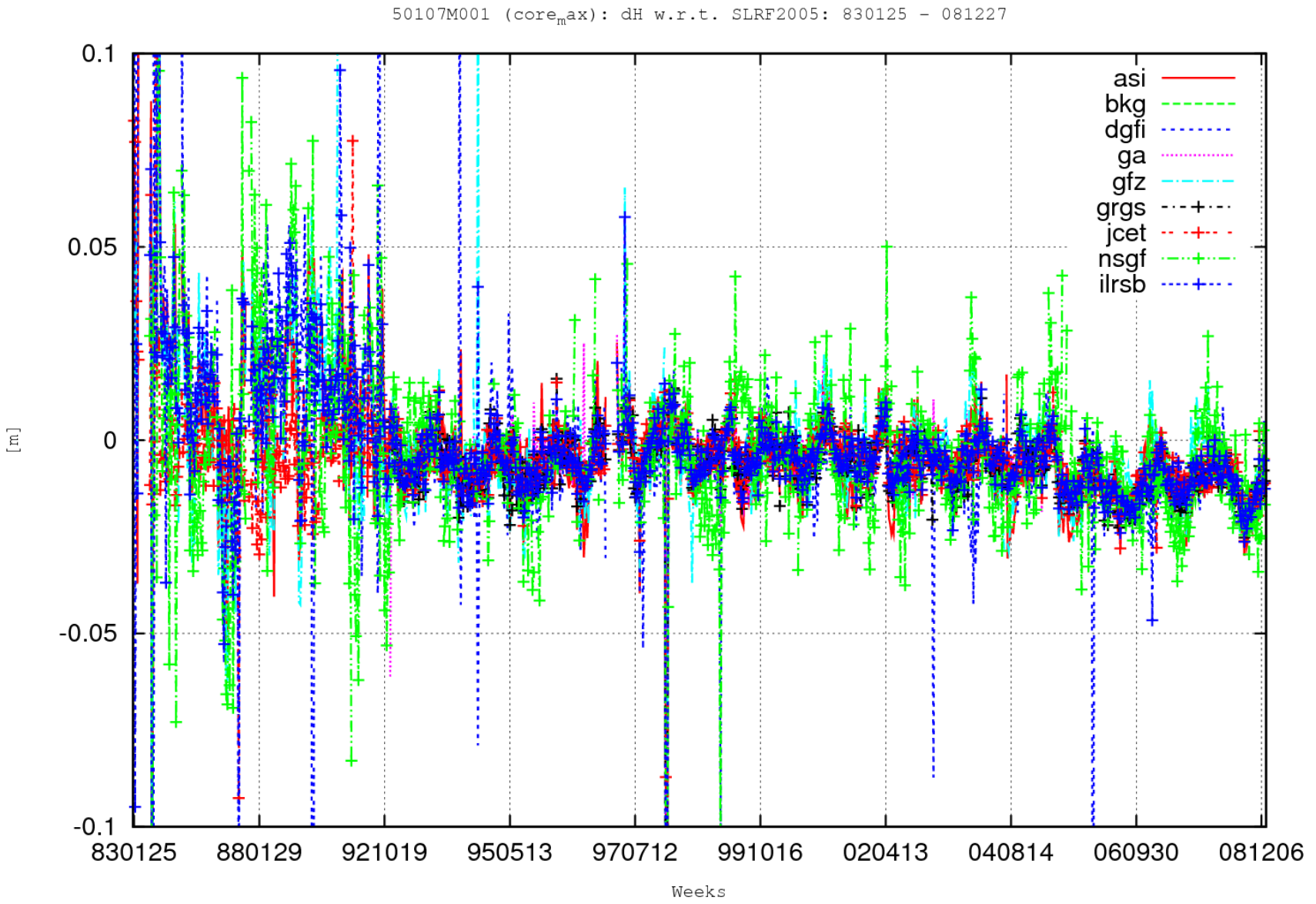
DGFI FGS Forschungsgruppe Satellitengeodäsie

Weekly combination v20 (6)

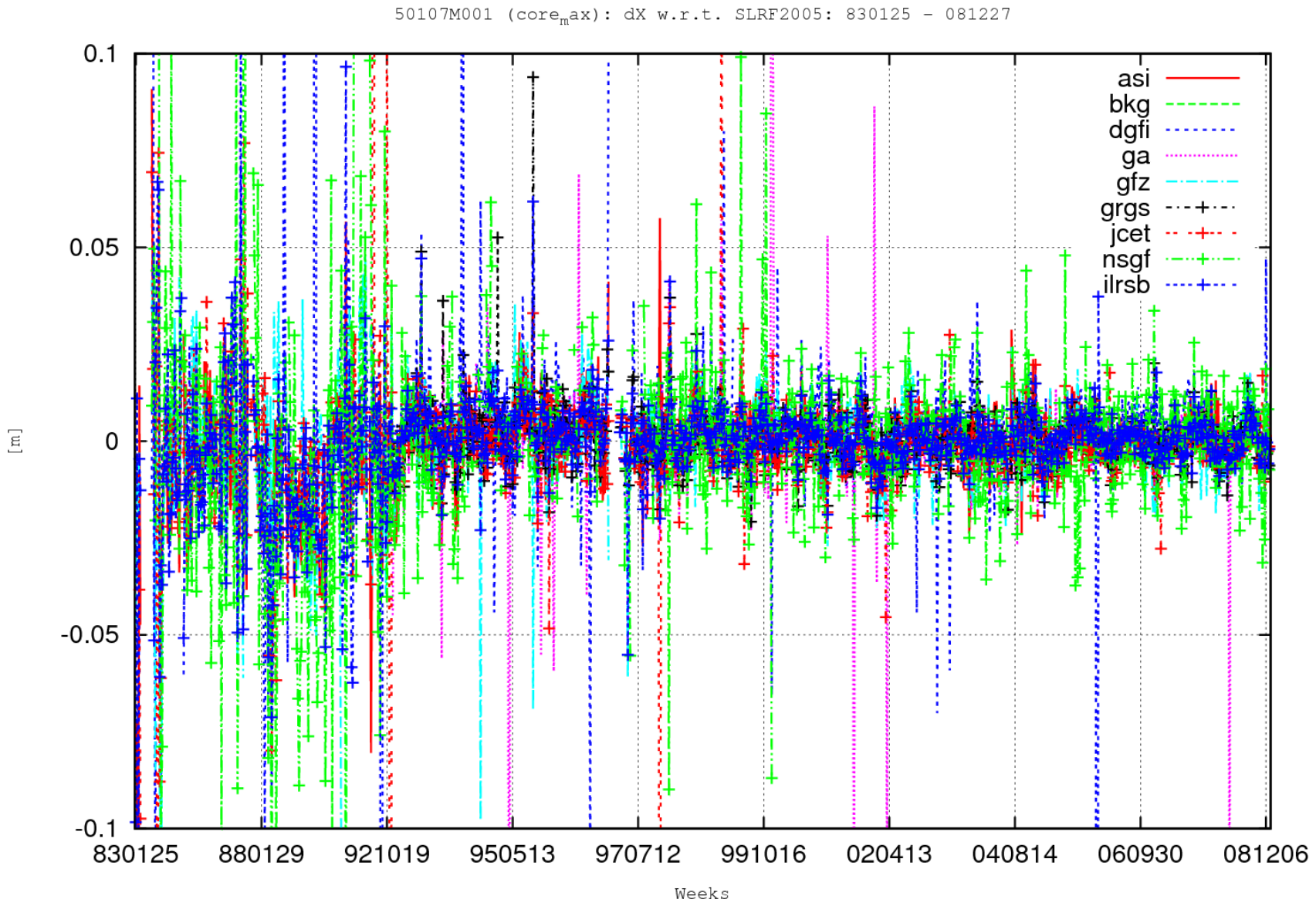


DGFI FGS Forschungsgruppe Satellitengeodäsie

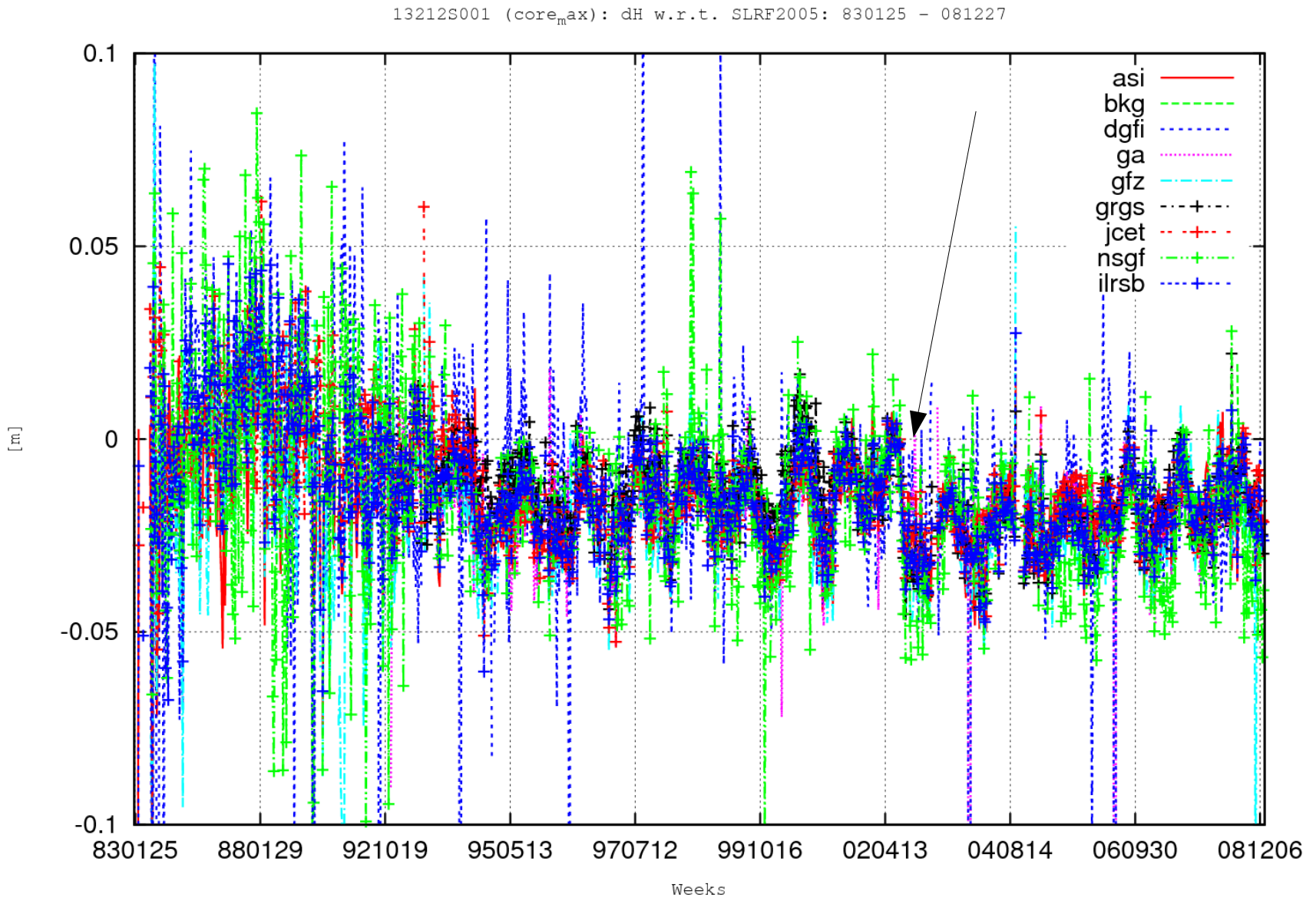
Weekly combination v20 (7) Yarragadee



Weekly combination v20 (8) Yarragadee



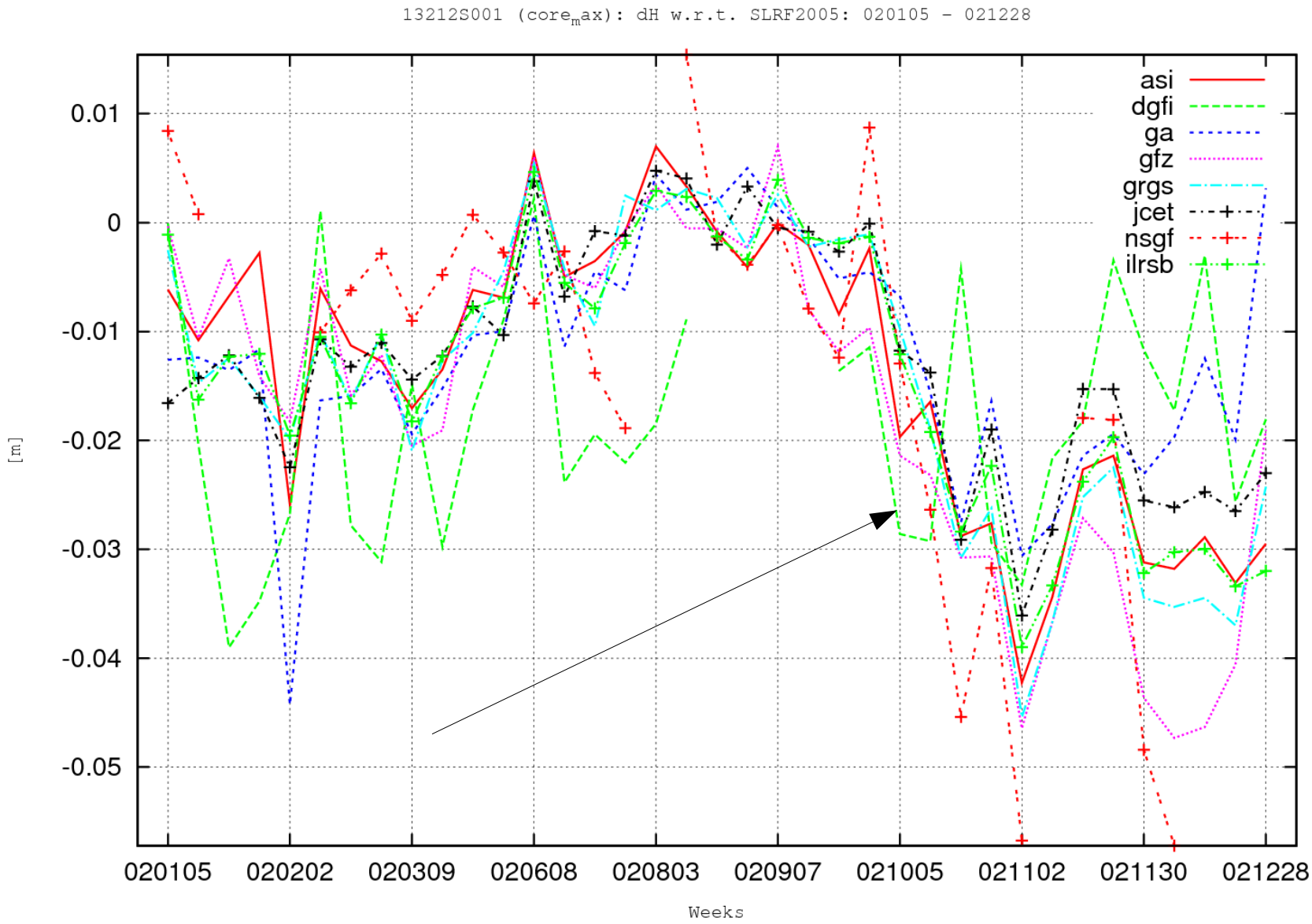
Weekly combination v20 (9) Herstmonceux



ILR

DGFI Forschungsgruppe Satellitengeodäsie

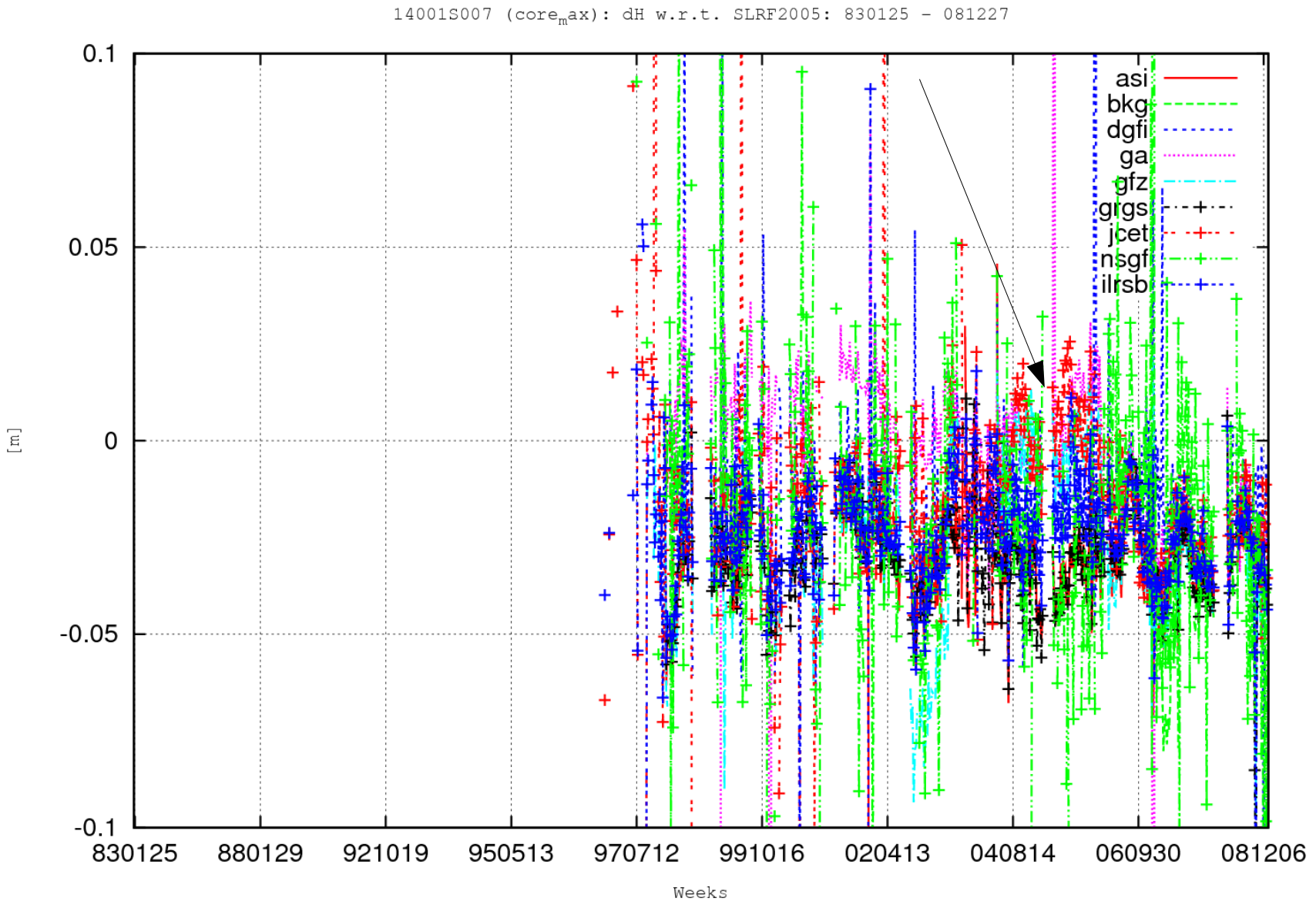
Weekly combination v20 (10) Herstmonceux



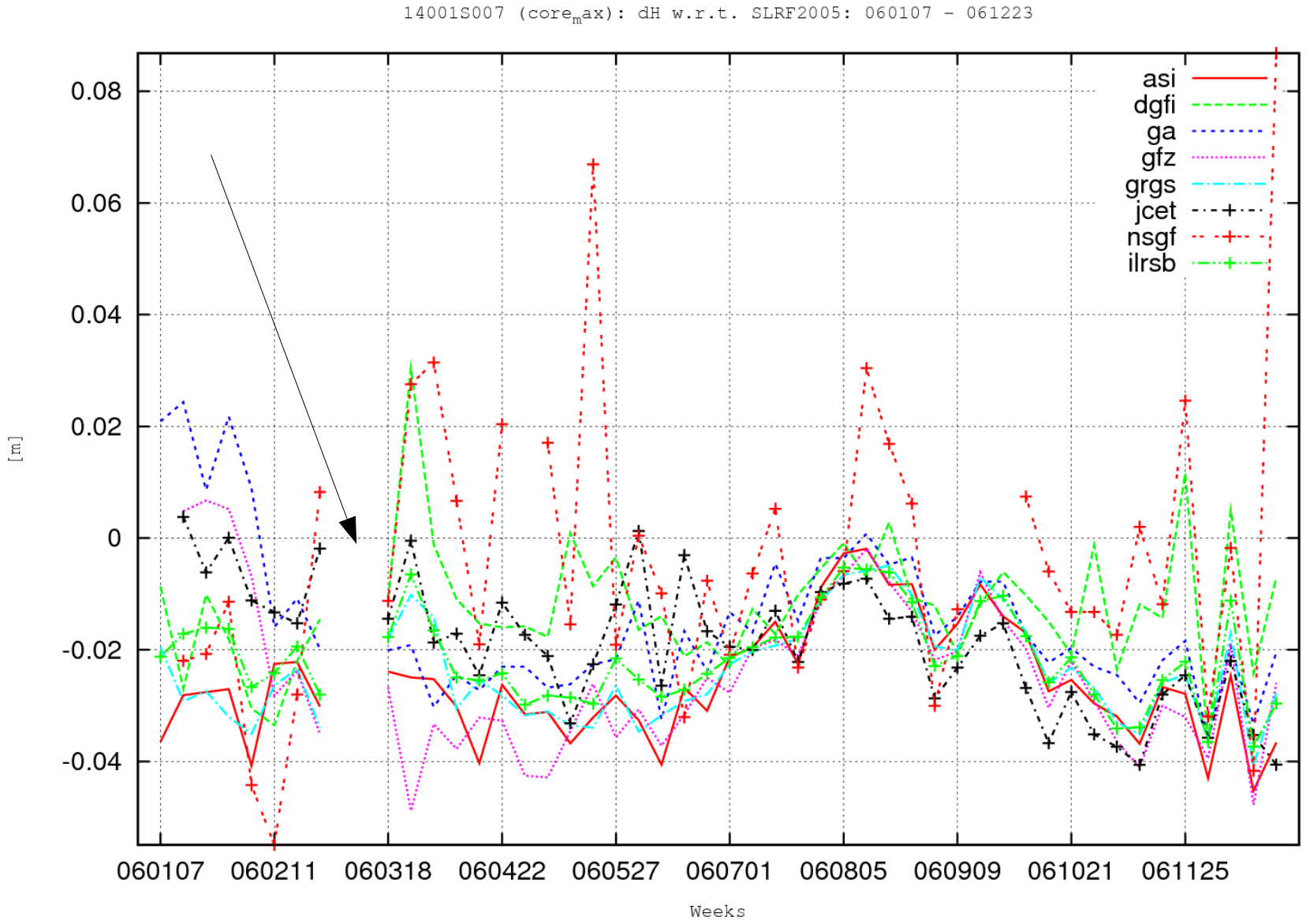
ILR

DGFI Forschungsgruppe Satellitengeodäsie

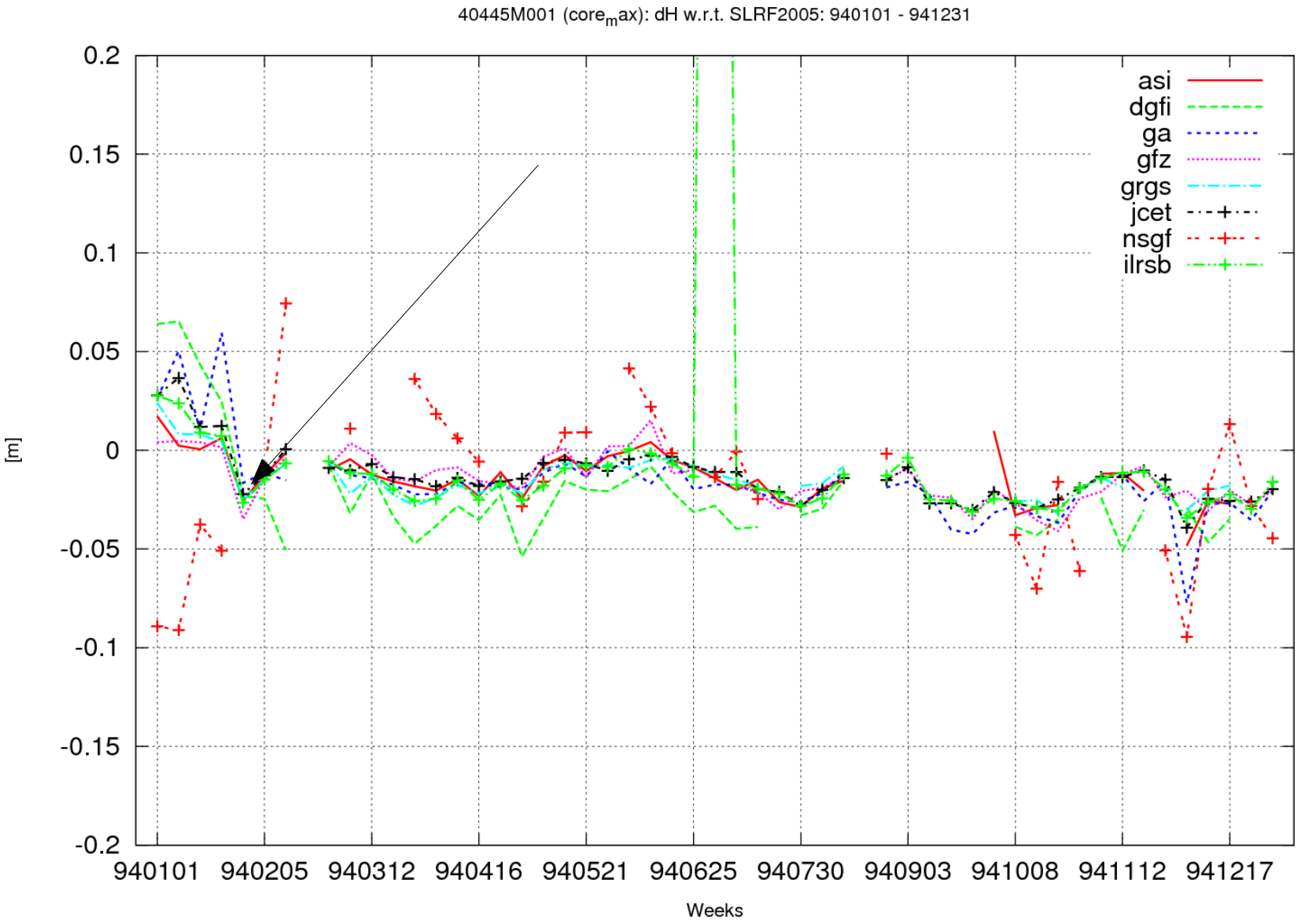
Weekly combination v20 (11) Zimmerwald



Weekly combination v20 (12) Zimmerwald



Weekly combination v20 (13) Haleakala



DGFI FGS Forschungsgruppe Satellitengeodäsie

Recommendations

* **time for combination and validation by CC's: at least one month**

* **stricter observance of AWG conventions by AC's (e.g. multiple est.)**

* **communication between all CC's and all AC's during reprocessing time**

ILRS Web-site Developments

Peter Dunn and Mark Torrence

ILRS Home → ILRS Home

- What's New
- About the ILRS
- Contact ILRS
- Data & Products
- Engineering & Technology
- Links
- Links to Plug-ins
- Publications
- Satellite Missions
- Science & Analysis
- Search
- Stations
- Website Map
- Working Groups

International Laser Ranging Service

Satellite laser ranging (brochure and animation) uses lasers to measure ranges from ground stations to satellite borne retro-reflectors to the millimeter level. The primary mission of the ILRS as stated in the organization's Terms of Reference is "*to support, through satellite and lunar laser tracking data and related products, geodetic and geophysical research activities.*"

Recent News

NOTICE: It is **important** that you **acknowledge** the ILRS in your papers and presentations that rely on SLR and results. Please **reference** the following citation:

> Pearlman, M.R., Degnan, J.J., and Bosworth, J.M., "The International Laser Ranging Service", Advances in Space Research, Vol. 30, No. 2, pp. 135-143, July 2002, DOI:10.1016/S0273-1177(02)00277-6.

Furthermore, please include SLR as a keyword in your papers. The SLR community relies on these acknowledgements and references to strengthen its requests for continued support from its funding organizations. The Central Bureau asks that you provide a link to and/or bibliographic reference of any SLR/LLR-related papers or presentations.

If you have a suggestion or complaint about our service, please send an email to the ILRS CB Secretary.

Responsible Government Official: Carey Noll
NASA's Privacy Policy and Important Notices

Send us your comments

Last modified date: Thursday, February 26, 2009
Maintained by: Carey Noll

AWG Activities and Meetings
Station Coordinates (SLRF2005)
AWG Pilot Projects
AWG Project Status
AWG Charter
AWG Members & Exploder
Call for Participation

ILRS AWG project status

click on the column heading to view the versions that have been submitted by each AC

Analysis Center	Weekly pos+eop	Daily pos+eop	SP3c Orbit	historic analysis	reanalysis
ilrsa	X	X			
ilrsb	X	X			
asi	X	X	X	X	X
bkg	X	X	X		
dgfi	X		X	X	X
ga	X		X		X
gfz	X	X	X	X	X
grgs	X	X			
jcet	X	X	X	X	X
nsgf	X	X		X	X

Responsible Government Official: Carey Noll
NASA's Privacy Policy and Important Notices

Send us your comments

Last modified date: Thursday, April 16, 2009
Author: Mark Torrence
Maintained by: Carey Noll

AWG Activities and Meetings

Station Coordinates (SLRF2005)

AWG Pilot Projects

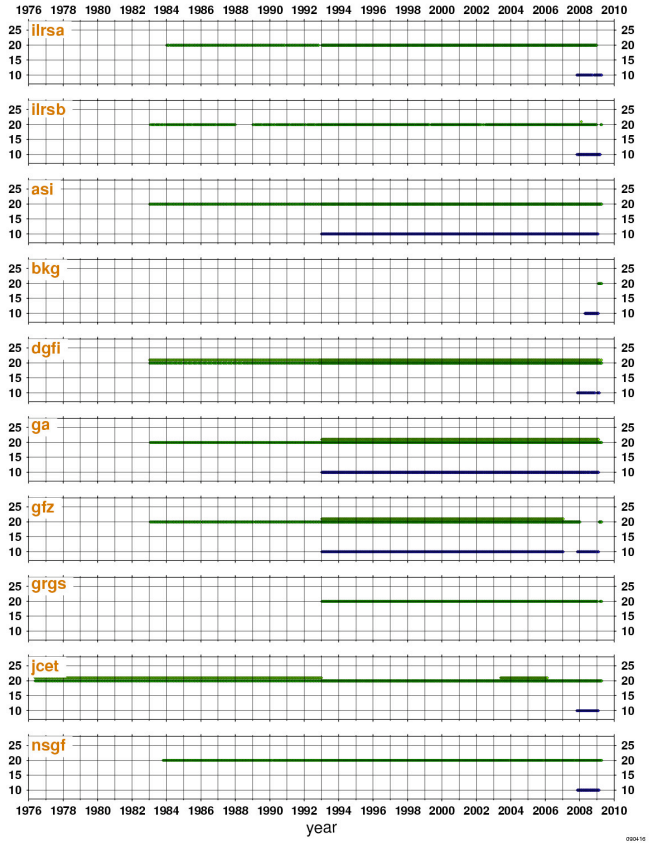
AWG Project Status

AWG Charter

AWG Members & Exploder

Call for Participation

current ILRS AC solutions: weekly reanalysis pos+eop versions



This plot shows the Resub solution version(s) that the analysis centers have put in the ILRS as a function of the solution's epoch. *Click on the plot to get a larger display.*

Responsible Government Official: Carey Noll
NASA's Privacy Policy and Important Notices

Send us your comments

table and plots updated: Thursday, April 16, 2009
Last modified date: Thursday, April 16, 2009
Author: Mark Torrence
Maintained by: Carey Noll

year	quarter
2009	1
2008	1 2 3 4
2007	1 2 3 4
2006	1 2 3 4
2005	1 2 3 4
2004	1 2 3 4
2003	1 2 3 4
2002	1 2 3 4
2001	1 2 3 4
2000	1 2 3 4
1999	1 2 3 4
1998	1 2 3 4
1998	3 4

SLR Global Performance Report Card

April 1, 2008 through March 31, 2009

The performance report card is divided into three tables for readability. Table 1 contains performance parameters based on data volume, on-site processing statistics and operational compliance issues. Table 1 L contains information about Lunar Laser Ranging during the past year. Table 2 contains performance parameters based on various Ananlysis Cente's rapid orbital analysis results.

Below are the detailed descriptions of each column in Table 1 *plots of the columns are linked in this description and in Table 1:*

- ***Column 1*** *is the station location name.*
- ***Column 2*** *is the monument marker number.*
- ***Column 3*** *is the LEO pass total during the past 12 months.*
- ***Column 4*** *is the LAGEOS pass total during the past 12 months.*
- ***Column 5*** *is the high satellite pass total during the past 12 months.*
- ***Column 6*** *is the pass total (i.e., all satellites) during the past 12 months.*
- ***Column 7*** *is the LEO NP total during the past 12 months.*
- ***Column 8*** *is the LAGEOS NP total during the past 12 months.*
- ***Column 9*** *is the high satellite NP total during the past 12 months.*
- ***Column 10*** *is the NP total (i.e., all satellites) during the past 12 months.*
- ***Column 11*** *is the total tracking minutes (i.e., all satellites) during the past 12 months. This is computed by the summation of the number of normal points multiplied by its bin size in minutes.*
- ***Column 12*** *is the average single-shot calibration RMS, in millimeters, during the last quarter.*
- ***Column 13*** *is the average single-shot Starlette RMS, in millimeters, during the last quarter.*
- ***Column 14*** *is the average single-shot LAGEOS RMS, in millimeters, during the last quarter.*

The first entry in each table is for the performance baseline goal. Note: There are no baseline goals for NP data quantities, single shot RMS's.

Additional Notes: Blanks in any columns implies either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total passes.

Table 1

Site Information		Data Volume									Data Quality		
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Location	Station Number	LEO pass Tot	LAGEOS pass Tot	High pass Tot	Total passes	LEO NP Total	LAGEOS NP Total	High NP Total	Total NP	Minutes of Data	Cal. RMS	Star RMS	LAG RMS
Baseline		1000	400	100	1500								
Yarragadee	7090	10720	2097	1554	14371	216492	25994	14013	256499	178604	4.9	8.6	9.3
San_Juan	7406	5856	1060	1367	8283	97481	12160	8898	118539	96605	9.8	10.5	14.9
Mount_Stromlo_2	7825	5999	1109	394	7502	74496	10927	3240	88663	62368	4.0	3.0	4.9
Zimmerwald_532	7810	5162	984	1011	7157	96027	13171	8653	117851	93767	6.5	9.0	11.8
Wettzell	8834	4395	957	319	5671	48183	6946	1441	56570	36944	3.7	12.4	18.6
Greenbelt	7105	4444	725	383	5552	101792	8603	2602	112997	55718	5.4	9.2	10.4
Graz	7839	4126	607	463	5196	77495	6458	3802	87755	51540	2.1	3.7	5.2
Herstmonceux	7840	3817	844	410	5071	55813	10636	1654	68103	44099	5.6	10.3	13.7
Changchun	7237	3617	595	359	4571	36560	3782	1453	41795	25233	7.1	10.7	11.3
Concepcion_847	7405	2567	923	618	4108	32171	11057	4780	48008	57332	5.7	15.5	19.3
Riyadh	7832	2339	626	268	3233	26716	5194	1446	33356	25889	8.6	11.6	15.0
Matera_MLRO	7941	2336	660	63	3059	29963	7455	520	37938	27811			
San_Fernando	7824	2547	416	64	3027	37764	3058	261	41083	19359	6.3	10.3	15.1
Potsdam_3	7841	1909	326	39	2274	37128	3766	298	41192	18475	10.7	12.6	16.7
Haleakala	7119	1765	391		2156	30159	4519		34678	17612	5.2	10.1	9.8
Monument_Peak	7110	1619	321	207	2147	28121	3630	1716	33467	23332	5.3	15.9	16.3
Katzively	1893	1189	320	227	1736	18178	2610	1432	22220	17853	36.4	44.8	39.3
Arequipa	7403	1572	137		1709	17953	753		18706	6910	6.5	7.3	4.3
Shanghai_2	7821	1447	166	29	1642	16997	1591	162	18750	9410	11.9	14.5	18.8
Beijing	7249	1264	313	59	1636	15761	2642	406	18809	12455	8.1	22.3	14.1
McDonald	7080	1026	365	218	1609	11110	3712	919	15741	15357	11.3	11.6	12.6
Hartebeesthoek	7501	1201	265	17	1483	14229	2028	93	16350	8960	5.0	10.0	11.4
Simeiz	1873	755	280	61	1096	9479	2478	594	12551	10269		47.6	56.4
Kiev	1824	821	101		922	8500	629		9129	3920	7.1	20.0	22.9
Ajaccio	7848	770	4		774	11162	27		11189	3564			
Kunming	7820	677	68		745	8528	425		8953	3848	17.2	18.9	23.0
Papeete	7124	506	144	18	668	8859	2092	100	11051	7273	4.0	10.0	9.7
Tanegashima	7358	427	89	100	616	6176	780	620	7576	6535	4.9	5.5	6.6
Simosato	7838	434	143		577	8224	1919		10143	6651	7.6	9.6	14.2
Koganei	7308	360	101	85	546	4754	893	601	6248	6421	9.6	13.1	15.2
Riga	1884	393	78	6	477	8575	1212	42	9829	4834	7.6	14.6	14.2
Grasse_LLR	7845	129	102	44	275	3085	1106	271	4462	4476	6.3	14.8	13.6
Lviv	1831	171	26		197	2658	185		2843	1231	14.3	60.4	70.0
Borowiec	7811	129	64		193	1534	641		2175	1790	17.1		
Burnie_Tafe	7370	67	2		69	992	6		998	323			
Helwan	7831	14			14	70			70	18	6.0	16.3	

Below are the detailed descriptions of each column in Table 1 L:

- ***the first column, L1****, is the station location name.*
- ***the second column, L2****, is the monument marker number.*
- ***the third column, L3****, is the number of nights during the past 12 months in which there were Lunar ranging measurements*
- ***the fourth column, L4****, is the number of Lunar Laser Ranging normal points during the past 12 months*
- ***the fifth column, L5****, is the number of Lunar Laser Ranging normal points during the past 3 months*
- ***the sixth column, L6****, is the average Lunar Laser Ranging normal points rms 3 months in mm*

Table 1 L

Site Information		Data Information			
Column L1	L2	L3	L4	L5	L6
Location	Station Number	num nights tracking last 12 mon	num npt last 12 mon	num npts last 3 mon	ave npt rms last 3 mon
McDonald	7080	45	77	25	63.8

Below are the detailed descriptions of each column in Table 2:

- ***the first column*** *is the station location name.*
- ***the second column*** *is the monument marker number.*
- *following columns are in grouped by analysis center with four columns for each*
  - ***the first AC column*** *is the average LAGEOS normal point RMS, in millimeters, during the last quarter*
  - ***the second AC column*** *is the measure of short term bias stability, in millimeters, during the last quarter. The short term stability is computed as the standard deviation about the mean of the pass-by-pass range biases (minimum number of passes in quarter is 10)*
  - ***the third AC column*** *is the measure of long term bias stability, in millimeters, during the past year. The long term stability is the standard deviation of the monthly range bias estimates. A station must have tracked LAGEOS (1,2) in at least 8 of the last 12 months in order to compute this metric.*
  - ***the fourth AC column*** *is the percentage of LAGEOS normal points that were accepted in the analysis.*

The first entry in each table is for the performance baseline goal.

Additional Notes: Blanks in any columns implies either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total data volume.

Table 2

Site Information		DGFI Orbital Analysis				Hitotsubashi Univ. Orbital Analysis				ICET Orbital Analysis				MCC Orbital Analysis				SHAO Orbital Analysis			
Station Location	Station Number	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP
Baseline		**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**
Yarragadee	7090	3.2	27.1	3.7	99.6	2.0	8.7	1.2	100.0	3.2	14.9	3.6	98.7	0.7	6.7	4.7	98.5	1.7	10.2	2.2	95.3
San_Juan	7406	5.7	33.2	7.5	99.4	3.0	23.4	8.6	99.2	4.6	18.5	3.3	95.1	0.8	11.4	5.1	97.9	3.4	24.8	10.1	95.4
Mount_Stromlo_2	7825	2.7	25.0	5.0	99.9	2.2	10.9	2.2	100.0	3.1	13.9	4.5	99.1	0.6	6.0	4.8	98.3	2.2	15.7	3.8	96.4
Zimmerwald_532	7810	3.9	18.4	11.2	99.1	1.5	9.6	8.1	100.0	3.5	14.2	8.5	99.6	0.7	3.2	12.9	98.8	1.6	9.4	3.6	96.6
Wettzell	8834	3.2	28.5	5.0	100.0	2.8	12.0	3.5	100.0	3.3	16.1	4.1	96.1	1.5	8.9	2.5	98.4	1.9	18.7	5.2	96.5
Greenbelt	7105	4.0	22.3	3.7	99.9	2.1	9.9	3.4	99.9	3.4	10.2	2.9	98.5	0.6	9.7	6.3	98.6	2.3	11.5	2.0	95.2
Graz	7839	2.3	19.0	5.3	99.8	1.2	7.2	2.4	100.0	1.6	10.4	5.0	100.0	0.4	3.3	4.7	99.2	1.0	9.4	4.4	95.3
Herstmonceux	7840	3.0	23.2	4.6	100.0	1.7	7.5	1.8	100.0	3.1	12.1	4.7	100.0	0.9	7.4	3.8	99.1	1.7	9.3	2.4	95.8
Changchun	7237	5.1	36.0	13.1	100.0	5.1	16.1	5.2	100.0	4.5	19.5	6.6	97.2	1.8	10.3	7.3	97.9	3.0	24.6	9.9	95.6
Concepcion_847	7405	3.7	31.7	6.0	100.0	1.8	17.0	4.6	100.0	4.2	13.2	8.1	99.1	3.5	22.6	3.3	100.0				
Riyadh	7832	3.6	33.5	7.9	100.0	2.6	13.1	4.4	100.0	2.8	17.9	8.6	100.0	1.5	13.1	7.6	97.2	2.7	32.4	10.4	97.3
San_Fernando	7824	4.0	30.9	11.7	100.0	4.5	17.5	8.8	100.0	4.3	27.3	6.2	93.9					4.4	25.5	13.6	96.7
Potsdam_3	7841	3.8	20.6	10.5	99.9	2.3	8.3	3.5	100.0	3.0	13.2	6.6	97.4	1.3	6.7	4.4	96.2				
Haleakala	7119	3.2	30.9	8.0	99.7	2.0	11.0	4.8	99.7	3.5	16.1	4.6	99.0	0.8	12.6	9.7	99.7	2.6	31.3	6.1	98.4
Monument_Peak	7110	2.9	30.5	7.5	99.7	2.3	8.9	4.9	99.8	3.1	19.5	7.5	98.1	1.2	11.1	4.3	97.5	2.1	9.4	5.0	96.0
Katzively	1893	8.6	41.2	26.0	100.0	8.1	20.5	14.7	100.0					1.5	28.1	16.3	95.9	5.0	28.9	17.0	95.7
Shanghai_2	7821																	6.2	16.5	11.5	91.8
Beijing	7249	9.5	37.5	14.0	96.0	7.3	22.3	17.2	94.1	5.5	18.0	14.0	76.4	5.1	14.2	27.2	92.5	7.9	25.2	11.3	91.0
McDonald	7080	4.4	25.4	5.0	99.9	2.8	9.3	3.3	100.0	3.9	16.0	5.2	99.6	1.2	6.1	5.1	96.7	2.6	12.7	4.3	94.5
Hartebeesthoek	7501	2.8	25.9	9.0	99.7	2.0	12.2	4.7	100.0	3.6	13.0	7.9	100.0	0.5	8.5	8.1	97.5	1.4	24.5	17.1	97.4
Simeiz	1873	30.3	57.2	27.8	61.5	103.9	50.1	15.5	100.0	2.8	23.4	11.9	18.7								
Papeete	7124	3.5	18.5	6.2	100.0	1.9	13.0	4.2	100.0	3.1	11.4	3.1	100.0	0.2	5.2	3.9	100.0	5.4	19.6	9.9	97.6
Tanegashima	7358	3.7	31.7	12.5	100.0	2.0	24.7	13.8	100.0	4.2	31.1	29.2	98.6								
Simosato	7838	7.7	30.0		99.7	5.1	17.1		99.3	6.1	15.9		91.5	2.3	8.9		97.8	5.7	21.3		94.9
Koganei	7308	5.4	27.4	9.4	100.0	4.0	15.2	7.4	99.8	5.4	15.9	10.5	96.3	1.4	13.3	10.2	98.3	3.5	17.5	8.8	95.3
Riga	1884	10.2	28.7	29.9	100.0	5.4	21.3	23.9	99.6	5.1	17.9	19.6	73.3	5.0	26.0	23.0	90.3	9.5	15.2	22.3	80.6
Grasse_LLR	7845	3.4	24.5		100.0	2.3	11.3		100.0	3.9	19.1		100.0	0.3	1.2		98.7	1.7	8.1		94.6

Responsible Government Official: Carey Noll
NASA's Privacy Policy and Important Notices

Send us your comments

Last modified date: Thursday, April 16, 2009
Author: Mark Torrence
Maintained by: Carey Noll

Table 1 L

Site Information		Data Information			
Column L1	L2	L3	L4	L5	L6
Location	Station Number	num nights tracking last 12 mon	num npt last 12 mon	num npts last 3 mon	ave npt rms last 3 mon
McDonald	7080	45	77	25	63.8

Below are the detailed descriptions of each column in Table 2:

- ***the first column*** *is the station location name.*
- ***the second column*** *is the monument marker number.*
- *following columns are in grouped by analysis center with four columns for each*
  - ***the first AC column*** *is the average LAGEOS normal point RMS, in millimeters, during the last quarter*
  - ***the second AC column*** *is the measure of short term bias stability, in millimeters, during the last quarter. The short term stability is computed as the standard deviation about the mean of the pass-by-pass range biases (minimum number of passes in quarter is 10)*
  - ***the third AC column*** *is the measure of long term bias stability, in millimeters, during the past year. The long term stability is the standard deviation of the monthly range bias estimates. A station must have tracked LAGEOS (1,2) in at least 8 of the last 12 months in order to compute this metric.*
  - ***the fourth AC column*** *is the percentage of LAGEOS normal points that were accepted in the analysis.*

The first entry in each table is for the performance baseline goal.

Additional Notes: Blanks in any columns implies either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total data volume.

Table 2

Site Information		DGFI Orbital Analysis				Hitotsubashi Univ. Orbital Analysis			ICET Orbital Analysis				MCC Orbital Analysis				SHAO Orbital Analysis			
Station Location	Station Number	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP	LAG NP RMS (mm)	short term (mm)	long term (mm)	% good LAG. NP
Baseline		**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**	**10.0**	**20.0**	**20.0**	**95**
Yarragadee	7090	3.2	27.1	3.7	99.6	2.0	8.7	1.2	100.0	3.2	14.9	3.6	98.7	0.7	6.7	4.7	98.5	1.7	10.2	2.2	95.3
San_Juan	7406	5.7	33.2	7.5	99.4	3.0	23.4	8.6	99.2	4.6	18.5	3.3	95.1	0.8	11.4	5.1	97.9	3.4	24.8	10.1	95.4
Mount_Stromlo_2	7825	2.7	25.0	5.0	99.9	2.2	10.9	2.2	100.0	3.1	13.9	4.5	99.1	0.6	6.0	4.8	98.3	2.2	15.7	3.8	96.4
Zimmerwald_532	7810	3.9	18.4	11.2	99.1	1.5	9.6	8.1	100.0	3.5	14.2	8.5	99.6	0.7	3.2	12.9	98.8	1.6	9.4	3.6	96.6
Wettzell	8834	3.2	28.5	5.0	100.0	2.8	12.0	3.5	100.0	3.3	16.1	4.1	96.1	1.5	8.9	2.5	98.4	1.9	18.7	5.2	96.5
Greenbelt	7105	4.0	22.3	3.7	99.9	2.1	9.9	3.4	99.9	3.4	10.2	2.9	98.5	0.6	9.7	6.3	98.6	2.3	11.5	2.0	95.2
Graz	7839	2.3	19.0	5.3	99.8	1.2	7.2	2.4	100.0	1.6	10.4	5.0	100.0	0.4	3.3	4.7	99.2	1.0	9.4	4.4	95.3
Herstmonceux	7840	3.0	23.2	4.6	100.0	1.7	7.5	1.8	100.0	3.1	12.1	4.7	100.0	0.9	7.4	3.8	99.1	1.7	9.3	2.4	95.8
Changchun	7237	5.1	36.0	13.1	100.0	5.1	16.1	5.2	100.0	4.5	19.5	6.6	97.2	1.8	10.3	7.3	97.9	3.0	24.6	9.9	95.6
Concepcion_847	7405	3.7	31.7	6.0	100.0	1.8	17.0	4.6	100.0	4.2	13.2	8.1	99.1	3.5	22.6	3.3	100.0				
Riyadh	7832	3.6	33.5	7.9	100.0	2.6	13.1	4.4	100.0	2.8	17.9	8.6	100.0	1.5	13.1	7.6	97.2	2.7	32.4	10.4	97.3
San_Fernando	7824	4.0	30.9	11.7	100.0	4.5	17.5	8.8	100.0	4.3	27.3	6.2	93.9					4.4	25.5	13.6	96.7
Potsdam_3	7841	3.8	20.6	10.5	99.9	2.3	8.3	3.5	100.0	3.0	13.2	6.6	97.4	1.3	6.7	4.4	96.2				
Haleakala	7119	3.2	30.9	8.0	99.7	2.0	11.0	4.8	99.7	3.5	16.1	4.6	99.0	0.8	12.6	9.7	99.7	2.6	31.3	6.1	98.4
Monument_Peak	7110	2.9	30.5	7.5	99.7	2.3	8.9	4.9	99.8	3.1	19.5	7.5	98.1	1.2	11.1	4.3	97.5	2.1	9.4	5.0	96.0
Katzively	1893	8.6	41.2	26.0	100.0	8.1	20.5	14.7	100.0					1.5	28.1	16.3	95.9	5.0	28.9	17.0	95.7
Shanghai_2	7821																	6.2	16.5	11.5	91.8
Beijing	7249	9.5	37.5	14.0	96.0	7.3	22.3	17.2	94.1	5.5	18.0	14.0	76.4	5.1	14.2	27.2	92.5	7.9	25.2	11.3	91.0
McDonald	7080	4.4	25.4	5.0	99.9	2.8	9.3	3.3	100.0	3.9	16.0	5.2	99.6	1.2	6.1	5.1	96.7	2.6	12.7	4.3	94.5
Hartebeesthoek	7501	2.8	25.9	9.0	99.7	2.0	12.2	4.7	100.0	3.6	13.0	7.9	100.0	0.5	8.5	8.1	97.5	1.4	24.5	17.1	97.4
Simeiz	1873	30.3	57.2	27.8	61.5	103.9	50.1	15.5	100.0	2.8	23.4	11.9	18.7								
Papeete	7124	3.5	18.5	6.2	100.0	1.9	13.0	4.2	100.0	3.1	11.4	3.1	100.0	0.2	5.2	3.9	100.0	5.4	19.6	9.9	97.6
Tanegashima	7358	3.7	31.7	12.5	100.0	2.0	24.7	13.8	100.0	4.2	31.1	29.2	98.6								
Simosato	7838	7.7	30.0		99.7	5.1	17.1		99.3	6.1	15.9		91.5	2.3	8.9		97.8	5.7	21.3		94.9
Koganei	7308	5.4	27.4	9.4	100.0	4.0	15.2	7.4	99.8	5.4	15.9	10.5	96.3	1.4	13.3	10.2	98.3	3.5	17.5	8.8	95.3
Riga	1884	10.2	28.7	29.9	100.0	5.4	21.3	23.9	99.6	5.1	17.9	19.6	73.3	5.0	26.0	23.0	90.3	9.5	15.2	22.3	80.6
Grasse_LLR	7845	3.4	24.5		100.0	2.3	11.3		100.0	3.9	19.1		100.0	0.3	1.2		98.7	1.7	8.1		94.6

Responsible Government Official: Carey Noll
NASA's Privacy Policy and Important Notices

Send us your comments

Last modified date: Thursday, April 16, 2009
Author: Mark Torrence
Maintained by: Carey Noll

year	quarter
2009	1
2008	1 2 3 4
2007	1 2 3 4
2006	1 2 3 4
2005	1 2 3 4
2004	1 2 3 4
2003	1 2 3 4
2002	1 2 3 4
2001	1 2 3 4
2000	1 2 3 4
1999	1 2 3 4
1998	1 2 3 4
1998	3 4

SLR Global Performance Report Card

April 1, 2008 through March 31, 2009

The performance report card is divided into three tables for readability. Table 1 contains performance parameters based on data volume, on-site processing statistics and operational compliance issues. Table 1 L contains information about Lunar Laser Ranging during the past year. Table 2 contains performance parameters based on various Ananlysis Cente's rapid orbital analysis results.

Below are the detailed descriptions of each column in Table 1 *plots of the columns are linked in this description and in Table 1:*

- ***Column 1** is the station location name.*
- ***Column 2** is the monument marker number.*
- ***Column 3** is the LEO pass total during the past 12 months.*
- ***Column 4** is the LAGEOS pass total during the past 12 months.*
- ***Column 5** is the high satellite pass total during the past 12 months.*
- ***Column 6** is the pass total (i.e., all satellites) during the past 12 months.*
- ***Column 7** is the LEO NP total during the past 12 months.*
- ***Column 8** is the LAGEOS NP total during the past 12 months.*
- ***Column 9** is the high satellite NP total during the past 12 months.*
- ***Column 10** is the NP total (i.e., all satellites) during the past 12 months.*
- ***Column 11** is the total tracking minutes (i.e., all satellites) during the past 12 months. This is computed by the summation of the number of normal points multiplied by its bin size in minutes.*
- ***Column 12** is the average single-shot calibration RMS, in millimeters, during the last quarter.*
- ***Column 13** is the average single-shot Starlette RMS, in millimeters, during the last quarter.*
- ***Column 14** is the average single-shot LAGEOS RMS, in millimeters, during the last quarter.*

The first entry in each table is for the performance baseline goal. Note: There are no baseline goals for NP data quantities, single shot RMS's.

Additional Notes: Blanks in any columns implies either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total passes.

2009

LAGEOS LEO

13 | 22

Table 1

Site Information		Data Volume									Data Quality		
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Location	Station Number	LEO pass Tot	LAGEOS pass Tot	High pass Tot	Total passes	LEO NP Total	LAGEOS NP Total	High NP Total	Total NP	Minutes of Data	Cal. RMS	Star RMS	LAG RMS
Baseline		1000	400	100	1500								
Yarragadee	7090	10720	2097	1554	14371	216492	25994	14013	256499	178604	4.9	8.6	9.3
San_Juan	7406	5856	1060	1367	8283	97481	12160	8898	118539	96605	9.8	10.5	14.9
Mount_Stromlo_2	7825	5999	1109	394	7502	74496	10927	3240	88663	62368	4.0	3.0	4.9
Zimmerwald_532	7810	5162	984	1011	7157	96027	13171	8653	117851	93767	6.5	9.0	11.8
Wettzell	8834	4395	957	319	5671	48183	6946	1441	56570	36944	3.7	12.4	18.6
Greenbelt	7105	4444	725	383	5552	101792	8603	2602	112997	55718	5.4	9.2	10.4
Graz	7839	4126	607	463	5196	77495	6458	3802	87755	51540	2.1	3.7	5.2
Herstmonceux	7840	3817	844	410	5071	55813	10636	1654	68103	44099	5.6	10.3	13.7
Changchun	7237	3617	595	359	4571	36560	3782	1453	41795	25233	7.1	10.7	11.3
Concepcion_847	7405	2567	923	618	4108	32171	11057	4780	48008	57332	5.7	15.5	19.3
Riyadh	7832	2339	626	268	3233	26716	5194	1446	33356	25889	8.6	11.6	15.0
Matera_MLRO	7941	2336	660	63	3059	29963	7455	520	37938	27811			
San_Fernando	7824	2547	416	64	3027	37764	3058	261	41083	19359	6.3	10.3	15.1
Potsdam_3	7841	1909	326	39	2274	37128	3766	298	41192	18475	10.7	12.6	16.7
Haleakala	7119	1765	391		2156	30159	4519		34678	17612	5.2	10.1	9.8
Monument_Peak	7110	1619	321	207	2147	28121	3630	1716	33467	23332	5.3	15.9	16.3
Katzively	1893	1189	320	227	1736	18178	2610	1432	22220	17853	36.4	44.8	39.3
Arequipa	7403	1572	137		1709	17953	753		18706	6910	6.5	7.3	4.3
Shanghai_2	7821	1447	166	29	1642	16997	1591	162	18750	9410	11.9	14.5	18.8
Beijing	7249	1264	313	59	1636	15761	2642	406	18809	12455	8.1	22.3	14.1
McDonald	7080	1026	365	218	1609	11110	3712	919	15741	15357	11.3	11.6	12.6
Hartebeesthoek	7501	1201	265	17	1483	14229	2028	93	16350	8960	5.0	10.0	11.4
Simeiz	1873	755	280	61	1096	9479	2478	594	12551	10269		47.6	56.4
Kiev	1824	821	101		922	8500	629		9129	3920	7.1	20.0	22.9
Ajaccio	7848	770	4		774	11162	27		11189	3564			
Kunming	7820	677	68		745	8528	425		8953	3848	17.2	18.9	23.0
Papeete	7124	506	144	18	668	8859	2092	100	11051	7273	4.0	10.0	9.7
Tanegashima	7358	427	89	100	616	6176	780	620	7576	6535	4.9	5.5	6.6
Simosato	7838	434	143		577	8224	1919		10143	6651	7.6	9.6	14.2
Koganei	7308	360	101	85	546	4754	893	601	6248	6421	9.6	13.1	15.2
Riga	1884	393	78	6	477	8575	1212	42	9829	4834	7.6	14.6	14.2
Grasse_LLR	7845	129	102	44	275	3085	1106	271	4462	4476	6.3	14.8	13.6
Lviv	1831	171	26		197	2658	185		2843	1231	14.3	60.4	70.0
Borowiec	7811	129	64		193	1534	641		2175	1790	17.1		
Burnie_Tafe	7370	67	2		69	992	6		998	323			
Helwan	7831	14			14	70			70	18	6.0	16.3	

Below are the detailed descriptions of each column in Table 1 L:

- ***the first column, L1**, is the station location name.*
- ***the second column, L2**, is the monument marker number.*
- ***the third column, L3**, is the number of nights during the past 12 months in which there were Lunar ranging measurements*
- ***the fourth column, L4**, is the number of Lunar Laser Ranging normal points during the past 12 months*
- ***the fifth column, L5**, is the number of Lunar Laser Ranging normal points during the past 3 months*
- ***the sixth column, L6**, is the average Lunar Laser Ranging normal points rms 3 months in mm*

2009 1st Quarter
2008 4th Quarter
2008 3rd Quarter
2008 2nd Quarter
2008 1st Quarter
2007 4th Quarter
2007 3rd Quarter
2007 2nd Quarter
2007 1st Quarter
2006 4th Quarter
2006 3rd Quarter
2006 2nd Quarter
2006 1st Quarter
2005 4th Quarter
2005 3rd Quarter
2005 2nd Quarter
2005 1st Quarter
2004 4th Quarter
2004 3rd Quarter
2004 2nd Quarter
2004 1st Quarter
2003 4rd Quarter
2003 3rd Quarter
2003 2nd Quarter
2003 1st Quarter
2002 4th Quarter
2002 3rd Quarter
2002 2nd Quarter
2002 1st Quarter
2001 4th Quarter
2001 3rd Quarter
2001 2nd Quarter

SLR Global Performance Report Card

Period - January 1, 1999 through December 31, 1999

In addition to the report card are the following graphs. *Note: Click on the hyperlinks below to go the appropriate graph. Please don't forget to change your printer page format to landscape if you want to print the charts.*

Special Note: This is the first report card that actually reflects the "true" pass totals. In previous reports cards, the pass totals were actually the pass segments totals.

- Total Data Volume (January 1999 - December 1999) by passes or by normal points
- LEO Satellite Data Volume (January 1999 - December 1999) by passes or by normal points
- LAGEOS Data Volume (January 1999 - December 1999) by passes or by normal points
- High Satellite Data Volume (January 1999 - December 1999) by passes or by normal points
- LAGEOS Single Shot RMS (4th Quarter 1999)
- LAGEOS Normal Point RMS (4th Quarter 1999)
- Short Term Bias Stability (4th Quarter 1999)
- Long Term Bias Stability (January 1999 - December 1999)
- Percentage of Good LAGEOS NP (4th Quarter 1999)

Below are the detailed descriptions of each column in the performance report card:

- **Column 1** is the station location name.
- **Column 2** is the monument marker number.
- **Column 3** is the LEO pass total during the past 12 months.
- **Column 4** is the LAGEOS pass total during the past 12 months.
- **Column 5** is the high satellite pass total during the past 12 months.
- **Column 6** is the pass total (i.e., all satellites) during the past 12 months.
- ***New* Column 7** is the LEO NP total during the past 12 months.
- ***New* Column 8** is the LAGEOS NP total during the past 12 months.
- ***New* Column 9** is the high satellite NP total during the past 12 months.
- ***New* Column 10** is the NP total (i.e., all satellites) during the past 12 months.
- **Column 11** is the average single-shot LAGEOS RMS, in millimeters, during the last quarter.
- **Column 12** is the average LAGEOS normal point RMS, in millimeters, during the last quarter, based on CSR Weekly LAGEOS analysis.
- **Column 13** is the measure of short term bias stability, in millimeters, during the last quarter. The short term stability is computed as the standard deviation about the mean of the pass-by-pass range biases from the CSR Weekly LAGEOS analysis.
- **Column 14** is the measure of long term bias stability, in millimeter, during the past year. A station must have tracked LAGEOS-1 in at least 8 of the last 12 months for a valid measurement. The long term stability is the standard deviation about the mean of the 15 day LAGEOS-1 range biases from CSR LAGEOS-1 long arc analysis.
- **Column 15** is the percentage of LAGEOS normal points that were accepted in CSR weekly LAGEOS analysis.
- **Column 16** is the average data latency time, in days, to the data centers, during the last quarter.
- **Column 17** is the ILRS normal point format revision number used within the last quarter.
- **Column 18** is a yes/no answer to the question of whether or not configuration files have been provided to the data centers.
- **Column 19** is a yes/no answer to the question of whether a station normal points comply with the ILRS Bin Size recommendations on all satellites.

The first entry in the table is for the performance baseline goal. *Note: There is no baseline goal for NP data quantities, single shot RMS, and normal point RMS.*

Additional Notes: Blanks in any columns mean either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total data volume.

		Data Quantity								Data Quality					Operational Compliance			
column 1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**
Location	Station	LEO Pass Total	LAG Pass Total	High Pass Total	Pass Total	LEO NP Total	Lageos NP Total	High NP Total	NP Total	SS RMS (mm)	NP RMS (mm)	Short Term (mm)	Long Term (mm)	% of Good Lageos NP	Data Latency (Days)	Format Revision Number	Conf. Files?	Bin Size Comp?
Baseline		**1000**	**400**	**100**	**1500**							**20**	**20**	**95**	**1**	**1**	**yes**	**yes**
Monument Peak	7110	5579	1525	896	8000	86,079	18,344	8029	112,452	8	2	11	5	98	1	1	yes	yes
Yarragadee	7090	3709	1052	1063	5824	58,238	12,562	8797	79,597	10	2	11	5	97	1	1	yes	yes
Mt. Stromlo	7849	3370	1185	978	5533	35,394	11,259	4955	51,608	11	2	15	6	98	1	1	yes	yes
Herstmonceux	7840	3085	984	751	4820	37,704	12,364	3553	53,621	18	3	9	7	100	1	1	yes	yes
Greenbelt	7105	3347	833	375	4555	48,031	9266	2418	59,715	11	2	9	6	99	1	1	yes	yes
Graz	7839	2544	647	1091	4282	54,342	10,094	7626	72,062	9	2	8	8	99	1	1	yes	yes
Wettzell	8834	1835	702	735	3272	29,901	7144	4089	41,134	28	6	18	10	99	1	1	yes	yes
Grasse	7835	2346	406	3	2755	46,372	4924	44	51,340	12	2	11	13	99	1	1	yes	yes
McDonald	7080	1755	497	396	2648	23,558	4855	1615	30,028	14	3	11	10	99	1	1	yes	yes
Changchun	7237	1584	463	466	2513	22,281	4621	2755	29,657	15	7	20	13	94	1	1	yes	yes
San Fernando	7824	1916	428	0	2344	28,056	3422	0	31,478	54	11	30	50	84	1	1	yes	yes
Potsdam	7836	1635	330	103	2068	21,966	3029	480	25,475	16	5	21	15	99	1	1	yes	yes
Zimmerwald	7810	1253	418	314	1985	17,937	5463	2446	25,846	45	11	11	10	98	1	1	yes	yes
Matera	7939	1216	449	0	1665	20,949	5470	0	26,419	145	29	38	9	54	1	1	yes	yes
Arequipa	7403	1319	209	0	1528	16,024	1876	0	17,900	7	3	20	15	96	1	1	yes	yes
Shanghai	7837	841	245	372	1458	12,014	2472	2261	16,747	18	7	25	14	94	1	1	yes	yes
Helwan	7831	1331	56	0	1387	15,214	300	0	15,514					19	1	0	yes	yes
Tahiti	7124	827	235	38	1100	10,803	2317	293	13,413							1	yes	
Borowiec	7811	719	292	42	1053	11,662	3443	161	15,266	33	8	18	16	98	1	1	yes	yes
Beijing	7249	694	187	96	977	9225	1443	493	11,161	29	7	44		70	1	1	yes	yes
Koganei	7328	587	242	73	902	6849	2355	362	9566	12	4	19	12	99	1	1	yes	yes
Riga	1884	581	222	0	803	12,587	3070	0	15,657	25	7	47	18	75	1	1	yes	yes
Grasse (LLR)	7845	0	229	538	767	0	4083	3873	7956	26	4	12	12	99	1	1	yes	yes
Simosato	7838	572	120	25	717	9458	1249	162	10,869	25	8	21		89	1	0	no	yes
Komsomolsk	1868	442	116	115	673	5092	725	374	6191		19	21		74	5	0	no	no
Haleakala	7210	403	130	138	671	5300	1260	1319	7879								yes	
Tateyama	7339	427	152	69	648	4922	1829	305	7056	14	3	14		100	1	1	yes	yes
Maidanak 2	1864	214	209	222	645	2682	1565	760	5007		8	19	17	93	2	0	no	no
Kashima	7335	409	131	54	594	5289	1293	216	6798	12	3	15		98	1	1	yes	yes
Metsahovi2	7806	480	71	15	566	8377	862	52	9291	33	8	25		95	1	1	yes	yes

1999

LAGEOS 14

LEO 15

year	quarter
2009	1
2008	1 2 3 4
2007	1 2 3 4
2006	1 2 3 4
2005	1 2 3 4
2004	1 2 3 4
2003	1 2 3 4
2002	1 2 3 4
2001	1 2 3 4
2000	1 2 3 4
1999	1 2 3 4
1998	1 2 3 4
1998	3 4

SLR Global Performance Report Card

April 1, 2008 through March 31, 2009

The performance report card is divided into three tables for readability. Table 1 contains performance parameters based on data volume, on-site processing statistics and operational compliance issues. Table 1 L contains information about Lunar Laser Ranging during the past year. Table 2 contains performance parameters based on various Ananlysis Cente's rapid orbital analysis results.

Below are the detailed descriptions of each column in Table 1 *plots of the columns are linked in this description and in Table 1:*

- ***Column 1** is the station location name.*
- ***Column 2** is the monument marker number.*
- ***Column 3** is the LEO pass total during the past 12 months.*
- ***Column 4** is the LAGEOS pass total during the past 12 months.*
- ***Column 5** is the high satellite pass total during the past 12 months.*
- ***Column 6** is the pass total (i.e., all satellites) during the past 12 months.*
- ***Column 7** is the LEO NP total during the past 12 months.*
- ***Column 8** is the LAGEOS NP total during the past 12 months.*
- ***Column 9** is the high satellite NP total during the past 12 months.*
- ***Column 10** is the NP total (i.e., all satellites) during the past 12 months.*
- ***Column 11** is the total tracking minutes (i.e., all satellites) during the past 12 months. This is computed by the summation of the number of normal points multiplied by its bin size in minutes.*
- ***Column 12** is the average single-shot calibration RMS, in millimeters, during the last quarter.*
- ***Column 13** is the average single-shot Starlette RMS, in millimeters, during the last quarter.*
- ***Column 14** is the average single-shot LAGEOS RMS, in millimeters, during the last quarter.*

The first entry in each table is for the performance baseline goal. Note: There are no baseline goals for NP data quantities, single shot RMS's.

Additional Notes: Blanks in any columns implies either that there was no data or that there was insufficient data. Only stations that have supplied data within the last year are included in the table. The table is sorted in descending order by total passes.

2009

LAGEOS LEO

13 | 22

Table 1

Site Information		Data Volume									Data Quality		
Column 1	2	3	4	5	6	7	8	9	10	11	12	13	14
Location	Station Number	LEO pass Tot	LAGEOS pass Tot	High pass Tot	Total passes	LEO NP Total	LAGEOS NP Total	High NP Total	Total NP	Minutes of Data	Cal. RMS	Star RMS	LAG RMS
Baseline		1000	400	100	1500								
Yarragadee	7090	10720	2097	1554	14371	216492	25994	14013	256499	178604	4.9	8.6	9.3
San_Juan	7406	5856	1060	1367	8283	97481	12160	8898	118539	96605	9.8	10.5	14.9
Mount_Stromlo_2	7825	5999	1109	394	7502	74496	10927	3240	88663	62368	4.0	3.0	4.9
Zimmerwald_532	7810	5162	984	1011	7157	96027	13171	8653	117851	93767	6.5	9.0	11.8
Wettzell	8834	4395	957	319	5671	48183	6946	1441	56570	36944	3.7	12.4	18.6
Greenbelt	7105	4444	725	383	5552	101792	8603	2602	112997	55718	5.4	9.2	10.4
Graz	7839	4126	607	463	5196	77495	6458	3802	87755	51540	2.1	3.7	5.2
Herstmonceux	7840	3817	844	410	5071	55813	10636	1654	68103	44099	5.6	10.3	13.7
Changchun	7237	3617	595	359	4571	36560	3782	1453	41795	25233	7.1	10.7	11.3
Concepcion_847	7405	2567	923	618	4108	32171	11057	4780	48008	57332	5.7	15.5	19.3
Riyadh	7832	2339	626	268	3233	26716	5194	1446	33356	25889	8.6	11.6	15.0
Matera_MLRO	7941	2336	660	63	3059	29963	7455	520	37938	27811			
San_Fernando	7824	2547	416	64	3027	37764	3058	261	41083	19359	6.3	10.3	15.1
Potsdam_3	7841	1909	326	39	2274	37128	3766	298	41192	18475	10.7	12.6	16.7
Haleakala	7119	1765	391		2156	30159	4519		34678	17612	5.2	10.1	9.8
Monument_Peak	7110	1619	321	207	2147	28121	3630	1716	33467	23332	5.3	15.9	16.3
Katzively	1893	1189	320	227	1736	18178	2610	1432	22220	17853	36.4	44.8	39.3
Arequipa	7403	1572	137		1709	17953	753		18706	6910	6.5	7.3	4.3
Shanghai_2	7821	1447	166	29	1642	16997	1591	162	18750	9410	11.9	14.5	18.8
Beijing	7249	1264	313	59	1636	15761	2642	406	18809	12455	8.1	22.3	14.1
McDonald	7080	1026	365	218	1609	11110	3712	919	15741	15357	11.3	11.6	12.6
Hartebeesthoek	7501	1201	265	17	1483	14229	2028	93	16350	8960	5.0	10.0	11.4
Simeiz	1873	755	280	61	1096	9479	2478	594	12551	10269		47.6	56.4
Kiev	1824	821	101		922	8500	629		9129	3920	7.1	20.0	22.9
Ajaccio	7848	770	4		774	11162	27		11189	3564			
Kunming	7820	677	68		745	8528	425		8953	3848	17.2	18.9	23.0
Papeete	7124	506	144	18	668	8859	2092	100	11051	7273	4.0	10.0	9.7
Tanegashima	7358	427	89	100	616	6176	780	620	7576	6535	4.9	5.5	6.6
Simosato	7838	434	143		577	8224	1919		10143	6651	7.6	9.6	14.2
Koganei	7308	360	101	85	546	4754	893	601	6248	6421	9.6	13.1	15.2
Riga	1884	393	78	6	477	8575	1212	42	9829	4834	7.6	14.6	14.2
Grasse_LLR	7845	129	102	44	275	3085	1106	271	4462	4476	6.3	14.8	13.6
Lviv	1831	171	26		197	2658	185		2843	1231	14.3	60.4	70.0
Borowiec	7811	129	64		193	1534	641		2175	1790	17.1		
Burnie_Tafe	7370	67	2		69	992	6		998	323			
Helwan	7831	14			14	70			70	18	6.0	16.3	

Below are the detailed descriptions of each column in Table 1 L:

- ***the first column, L1**, is the station location name.*
- ***the second column, L2**, is the monument marker number.*
- ***the third column, L3**, is the number of nights during the past 12 months in which there were Lunar ranging measurements*
- ***the fourth column, L4**, is the number of Lunar Laser Ranging normal points during the past 12 months*
- ***the fifth column, L5**, is the number of Lunar Laser Ranging normal points during the past 3 months*
- ***the sixth column, L6**, is the average Lunar Laser Ranging normal points rms 3 months in mm*

Active Sites

Ajaccio (AJAF)
Arequipa (AREL)
Beijing (BEIL)
Borowiec (BORL)
Changchun (CHAL)
Concepcion (CONL)
Golosiiv (GLSL)
Grasse (LLR) (GRSM)
Graz (GRZL)
Greenbelt (GODL)
Haleakala (HA4T)
Hartebeesthoek (HARL)
Helwan (HLWL)
Herstmonceux (HERL)
Katsively (KTZL)
Koganei (CRL) (KOGC)
Komsomolsk (KOML)
Kunming (KUNL)
Lviv (LVIL)
Maidanak1 (MAIL)
Maidanak2 (MAID)
Matera (MLRO) (MATM)
McDonald (MDOL)
Mendeleevo (MDVL)
Metsahovi2 (METL)
Monument Peak (MONL)
Mt. Stromlo (STL3)
Potsdam (POTL)
Potsdam3 (POT3)
Riga (RIGL)
Riyadh (RIYL)
San Fernando (SFEL)
San Juan (SJUL)
Shanghai (SHA2)
Simeiz (SIML)
Simosato (SISL)
Tahiti (THTL)
Tanegashima (GMSL)
Wettzell (WETL)
Wrightwood (OGTL)
Wuhan (WUHL)
Yarragadee (YARL)
Zimmerwald (ZIML)

Engineering Sites

Mt. Stromlo (STRK)
Stafford (STAL)

Inactive Sites

Mendeleevo2

General | Site Log | Meteorological Data | LAGEOS Performance | Satellite Data Info

Jump to: Photo, Contact, Coordinates, News, Links

Yarragadee Photo:

Back to Top

Yarragadee Contact:

Agency	EOSSS
Mailing Address	PO Box 137 Dongara, Western Australia 6525 Australia
Primary Contact	
Contact Name	Vince NOYES
Telephone (primary)	618 99291011
Telephone (secondary)	618 99271760
Fax	618 99291060
E-Mail	vnoyes@midwest.com.au / moblas@midwest.com.au
Secondary Contact	
Contact Name	Randall CARMAN
Telephone (primary)	618 99291011
Telephone (secondary)	618 99271572
Fax	618 99291060
E-Mail	carman@midwest.com.au

Yarragadee Coordinates:

Approximate Position:

X coordinate	[m]	-2389008
Y coordinate	[m]	5043332
Z coordinate	[m]	-3078526
Latitude	[deg]	29.0464 S
Longitude	[deg]	115.3467 E
Elevation	[m]	244
Additional Information		Site is east of Dongara.

Yarragadee News:

Local Events:

No local events found.

SLRMail Messages:

Date	Subject
Mon Feb 9 23:00:02 MET 1998	MOBLAS 5 (Station 7090) Frequency Problem
Wed Apr 16 13:22:13 CEST 2003	Yarragadee (7090) Degraded Data
Mon May 12 11:59:08 CEST 2003	Yarragadee (7090) Degraded Data
Wed Jul 14 09:02:12 CEST 2004	7090 YARL: Status of MOBLAS-5 in Yarragadee
Mon Jul 26 18:28:55 CEST 2004	7090 YARL: MOBLAS-5 Operations Resume
Thu Mar 17 22:13:50 CET 2005	7090 YARL: Moblas-5 Operational Status
Fri Mar 18 12:13:25 CET 2005	7090 YARL: Moblas5 Operational Status
Sun Mar 20 00:00:23 CET 2005	7090 YARL: Moblas5 Operational Status
Sun Mar 20 12:00:50 CET 2005	7090 YARL: Moblas5 Operational Status
Mon Aug 29 08:26:47 CEST 2005	7090 YARL: YARRAGADEE: MOBLAS 5 Station Down

Yarragadee Link:

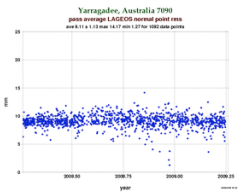
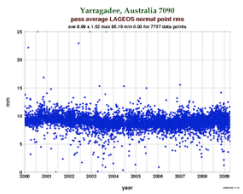
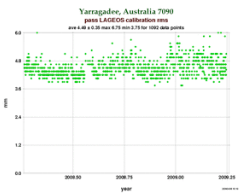
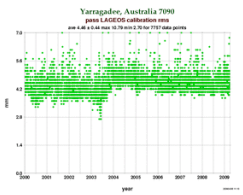
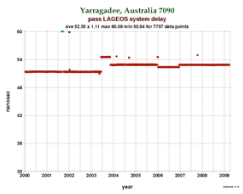
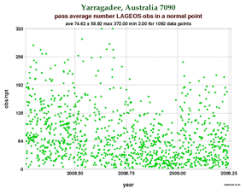
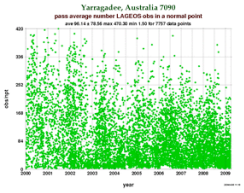
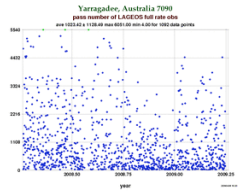
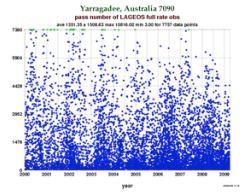
http://www.ga.gov.au/nmd/geodesy/slr/yatharagga.htm

Active Sites

Ajaccio (AJAF)
Arequipa (AREL)
Beijing (BEIL)
Borowiec (BORL)
Changchun (CHAL)
Concepcion (CONL)
Golosiiv (GLSL)
Grasse (LLR) (GRSM)
Graz (GRZL)
Greenbelt (GODL)
Haleakala (HA4T)
Hartebeesthoek (HARL)
Helwan (HLWL)
Herstmonceux (HERL)
Katsively (KTZL)
Koganei (CRL) (KOGC)
Komsomolsk (KOML)
Kunming (KUNL)
Lviv (LVIL)
Maidanak1 (MAIL)
Maidanak2 (MAID)
Matera (MLRO) (MATM)
McDonald (MDOL)
Mendeleevo (MDVL)
Metsahovi2 (METL)
Monument Peak (MONL)
Mt. Stromlo (STL3)
Potsdam (POTL)
Potsdam3 (POT3)
Riga (RIGL)
Riyadh (RIYL)
San Fernando (SFEL)
San Juan (SJUL)
Shanghai (SHA2)
Simeiz (SIML)
Simosato (SISL)
Tahiti (THTL)

General | Site Log | Meteorological Data | LAGEOS Performance | Satellite Data Info

Yarragadee: Station Performance

type	for the past year	since 2000
RMS		
Cal RMS		
Sys Dly		
Obs per Nrm Pt		
Fullrate Obs per Pass		

Note: For a larger view, please select a thumbnail.

Responsible Government Official: Carey Noll
NASA's Privacy, Security, Notices

Send us your comments

Author: Mark Torrence
Maintained by: Carey Noll

Summary

- Analysis Working Group solutions charted
- Network Performance Card revamped
- LAGEOS tracking is limited
- Station properties now more accessible
- We solicit Web-Site suggestions