



Station Performance Assessment Tools for the ILRS Stations

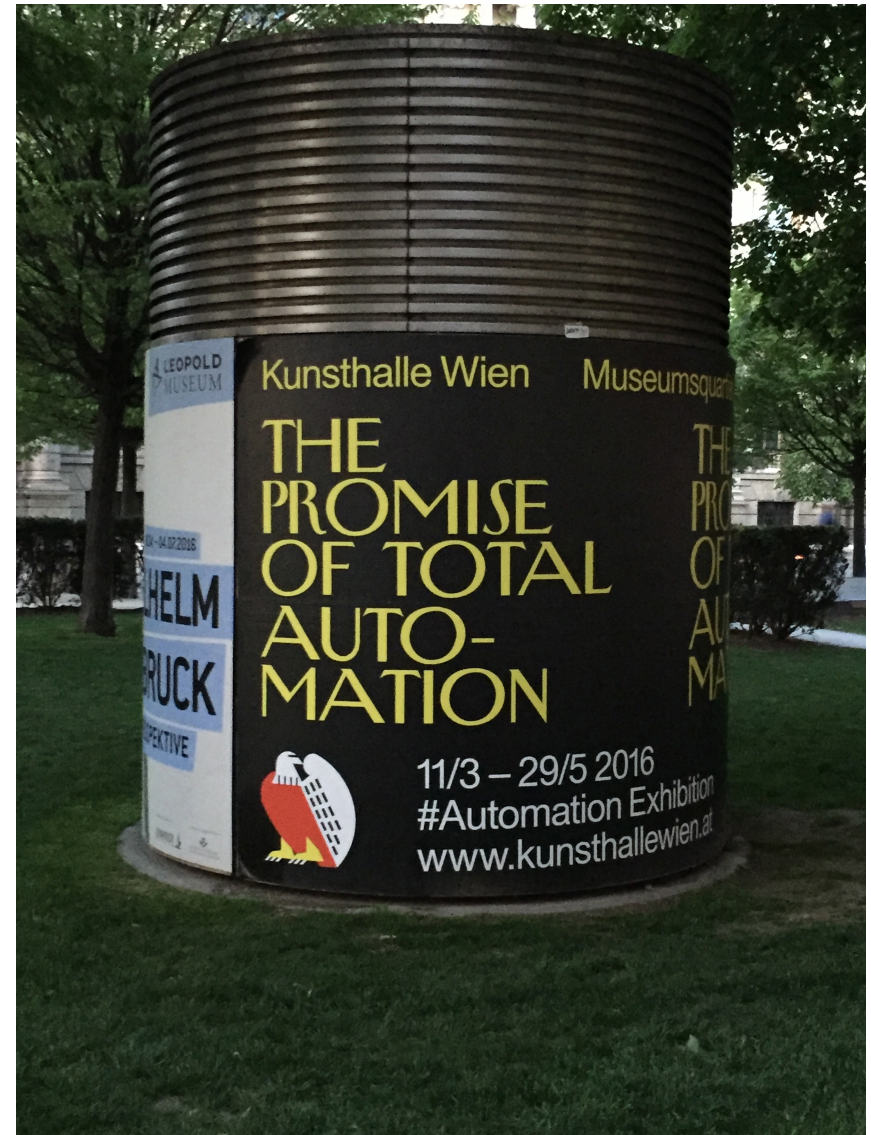
E. C. Pavlis, M. Kuzmicz-Cieslak and K. Evans
JCET/UMBC, Baltimore, MD, USA

20th International Workshop on Laser Ranging

October 8-14, 2016

Potsdam, Germany

- ◆ All of our products are the result of automated processing on a daily and weekly frequency
- ◆ Human intervention is only necessary in special occasions when there is a breakdown of the network or the processing CPUs




- 1 CRD-NP data content archived online, several parameters and flags are in the archive & can be visualized by station over time for all available pass segments
- 2 **Data yield for all active sites in the GLTN**
- 3 Data analysis for LAGEOS 1 & 2, ETALON 1 & 2 daily QC:
 - QC report for past 7 days with pass-by-pass systematics generated daily
 - Report submitted to CDDIS and upon request to stations
 - Reports archived on CDDIS and JCET data base for visualization (**see QC Viewer**)
- 4 Weekly arc analysis with single set of weekly-averaged systematics (far more stable estimates compared to the pass-by-pass QC product)
 - Systematic measurement errors archived and visualized online
- 5 ASC product results archived daily for QC of analysis products (for analysts)
 - AC offsets for positions and EOP from official TRF and IERS EOP series
 - Statistics of AC performance wrt ITRF and to the combined products
 - Station position and EOP evolution over time from ILRS standards
- 6 QC Viewer s/w package for all QC Reports (**soon to be online!!!**)
- 7 **Station Systematic Error PP results online (preliminary version)**
- 8 Station History Change Logs online




JCET ASC Products Monitoring Portal





International Laser Ranging Service
Analysis Standing Committee

VISTA-Pro[©]



Monitoring of ILRS Analysis SC Products

- WEEKLY STATION POSITIONS & DAILY EOP SERIES
- EVALUATION OF WEEKLY ASC PRODUCTS
- MONITORING SYSTEMATIC ERRORS AT ILRS STATIONS
- NETWORK PERFORMANCE ON LAGEOS AND LAGEOS2
- SYSTEMATIC ERROR ESTIMATION PILOT PROJECT
- NORMAL POINT DATA MONITORING (CDDIS)

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

NEW!!!



UMBC
AN HONORS UNIVERSITY IN MARYLAND

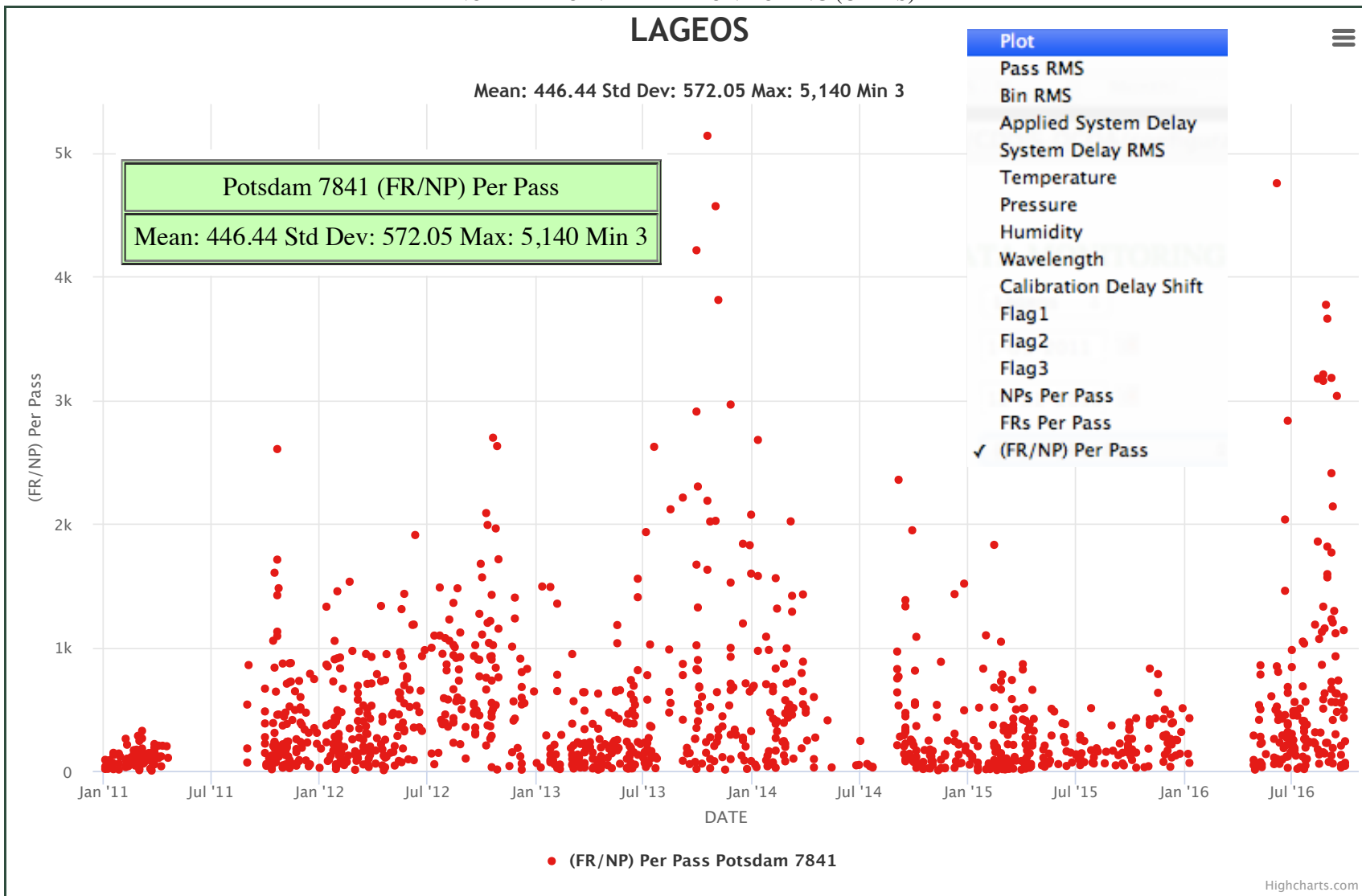
Responsible JCET Official: Dr. Erricos Pavlis
Web Curator: Magda Kuzmicz-Cieslak
Contact Us

Last Modified: 2016-10-09
Privacy Policy & Important Notice



(1) Example: Number of FR Ranges in a NP Range

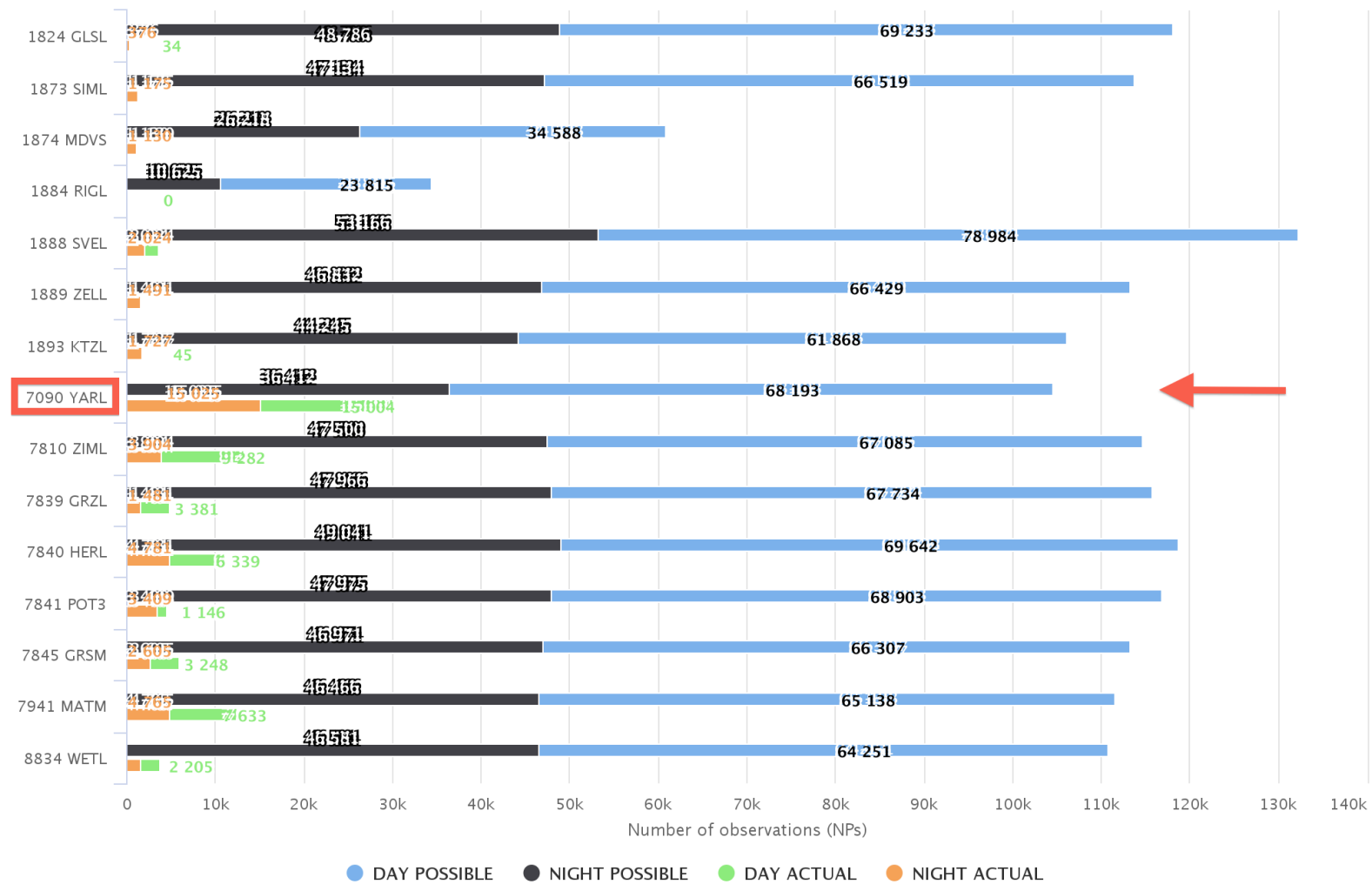
NORMAL POINT DATA MONITORING (CDDIS)



(2) Example A: European Network & Yarragadee

DAY vs NIGHT & ACTUAL vs POSSIBLE NPs for: LAGEOS

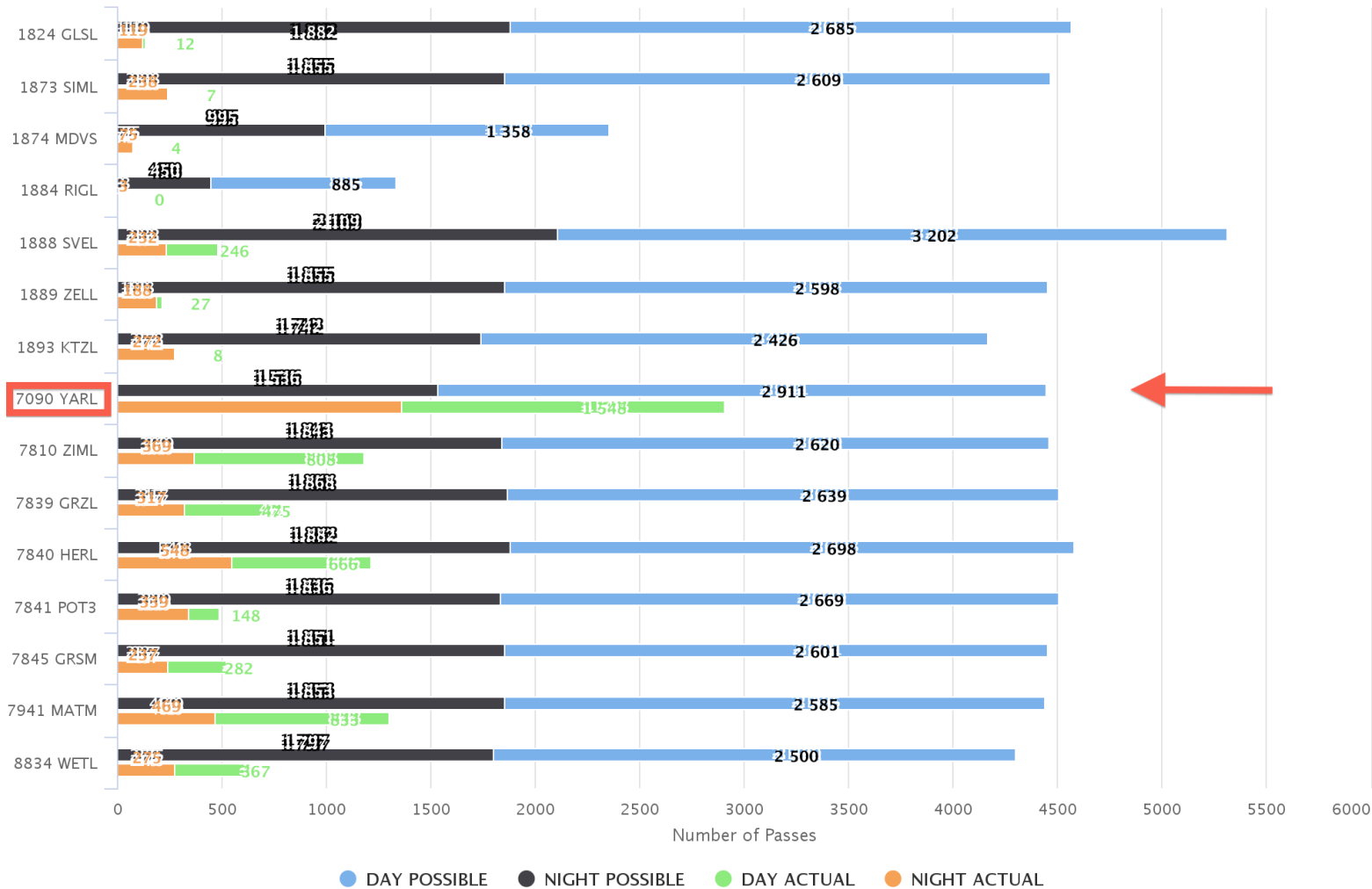
from 1-01-2014 to 12-31-2016
Minimumn elevation [°] 10



(2) Example B: European Network & Yarragadee

DAY vs NIGHT & ACTUAL vs POSSIBLE PASSES for LAGEOS

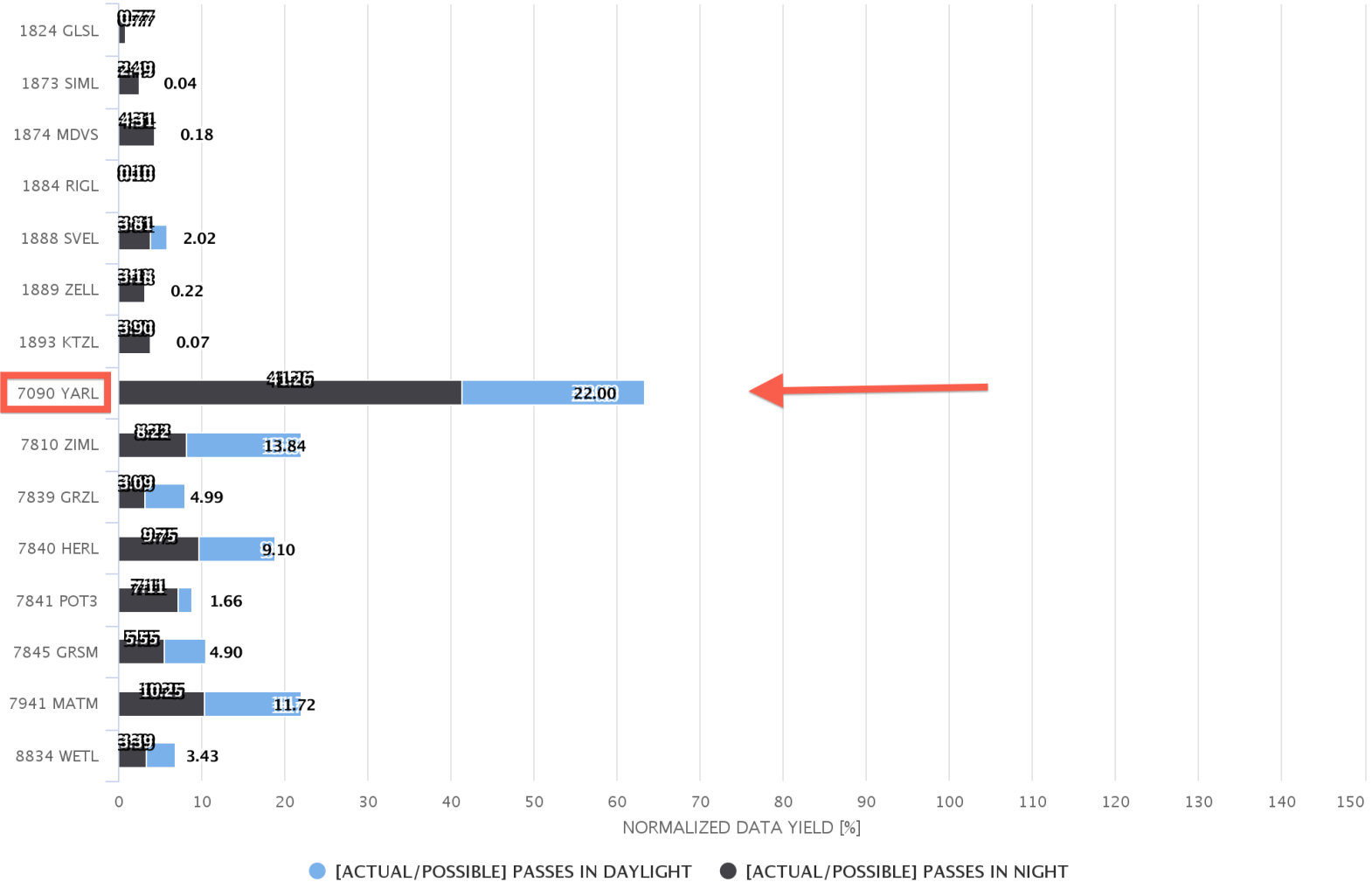
from 1-01-2014 to 12-31-2016
Minimum elevation [°] 10



(2) Example C: European Network & Yarragadee

DATA YIELD PERCENTAGE DURING DAY & NIGHT for: LAGEOS

from 1-01-2014 to 12-31-2016
Minimumn elevation [°] 10





(3) QC Reports (JCET)



```
# @Data span 141023-141030
# @contact epavlis@umbc.edu
# @website http://geodesy.jcet.umbc.edu/
# ITRF used: SLRF2008 (http://ilrs.gsfc.nasa.gov/working_groups/awg/SLRF2008.html)
# @version 1.0
#
```

each line contains:

- # STA ID = site name
- # YY/MM/DD HH:MM = pass starting time
- # SAT = satellite name (L1: LAGEOS1; L2: LAGEOS2; E1: ETAL01; E2:ETAL02; S1: STARLETTE; A1: AJISAI; LR: LARES)
- # GOD OBS = number of good normal points
- # RAW RMS = residual RMS before editing & bias application
- # PREC EST = post-fit scattering rms
- # RANGE BIAS = estimated range bias
- # RANGE BIAS SIGMA = estimated range bias sigma
- # TIME BIAS = estimated time bias
- # TIME BIAS SIGMA = estimated time bias sigma
- # PASS DUR = pass duration
- # EDIT OBS = number of bad normal points
- # CALIB+ MEAN = mean Applied System Delay (ILRS FR format cols 97-104)
- # CALIB SDEV = mean System Calibration Method (ILRS FR format cols 126)
- # CALIB SHIFT+ = mean Root Mean Square (ILRS FR format cols 111-114)
- # STPASS RMS = mean Pass RMS (ILRS FR format cols 58-64)
- # TEMP = mean surface temperature [K]
- # HUM = mean relative humidity of surface %
- # PRES = mean pressure [hPa]
- # WLEN = walelength [nm]
- # SCH = System Change Indicator (ILRS FR format cols 127)
- # SCI = System Configuration (ILRS FR format cols 128)
- # DRF = Data Release Flag (ILRS FR format cols 130)
- # ELEVATION MAX = maximum elevation for pass [degrees]
- # ELEVATION MIN = minimum elevation for pass [degrees]

```
#1824 Kiev 12356S001
```

#	GOOD	RAW	PREC	RANGE	RANGE	TIME	TIME	PASS	EDIT	CALIB+	CALIB	CALIB++	STPASS	TEMP	HUM	PRES	WLEN	S S D	ELEVATION						
#	OBS	RMS	EST	BIAS	BIAS	BIAS	BIAS	DUR	OBS	MEAN	SDEV	SHIFT	RMS	[K]	%	[hPa]	[nm]	C C R	MAX						
#	STA ID	YY/MM/DD	HH:MM	SAT	A	[mm]	[mm]	[mm]	[mm]	[us]	[MIN]	[mm]	[mm]	[mm]	[mm]	[K]	%	[hPa]	[nm]	H I F	[degrees]				
18248101	14/10/29	15:53	A1	17	39.8	23.0	32.5	9.6	61.0	2.6	0	0	40122	E	18	0	P	36	277.6	68.0	1007.9	532.0	1 1 0	65.8	20.8
18248101	14/10/29	17:54	A1	9	86.4	34.3	-79.3	25.8	21.4	6.7	0	0	40122	E	18	0	P	42	274.8	76.0	1007.5	532.0	6 5 0	70.9	31.0
18248101	14/10/29	19:55	A1	2	84.6	40.0	-74.6	49.2	0.2	8.7	0	0	40122	E	18	0	P	30	273.7	81.0	1007.4	532.0	0 1 0	22.9	21.9

(3) Example A: QC for GGAO (2015)

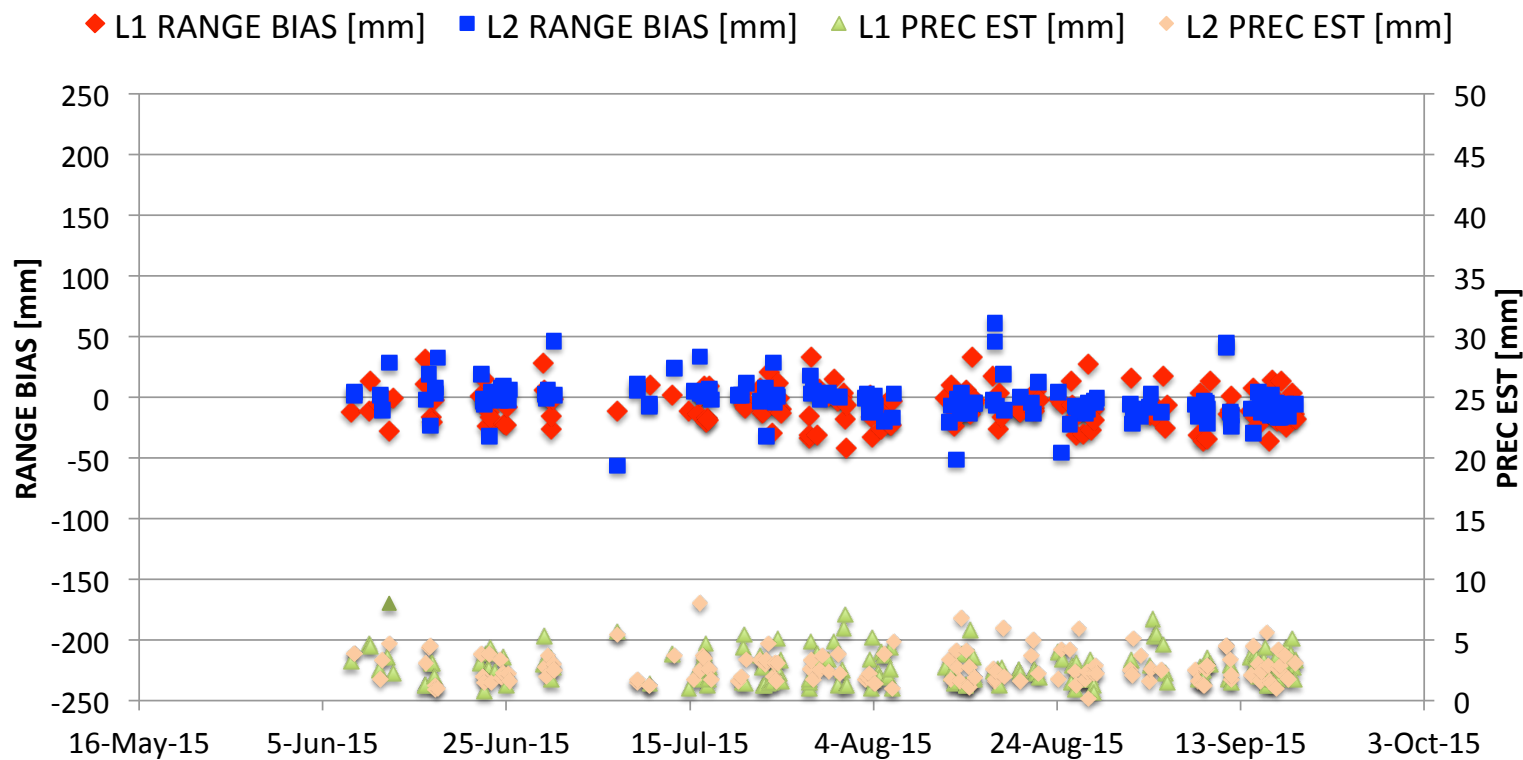
LAGEOS 1

&

LAGEOS 2

L1 78113802	PREC EST [mm]	RANGE BIAS [mm]
Mean	2.8	-7.4
STD	1.4	14.4
RMS	3.1	16.1
Point	160	160

L2 71050725	PREC EST [mm]	RANGE BIAS [mm]
Mean	2.7	-2.3
STD	1.3	16.7
RMS	3.0	16.8
Point	137	137



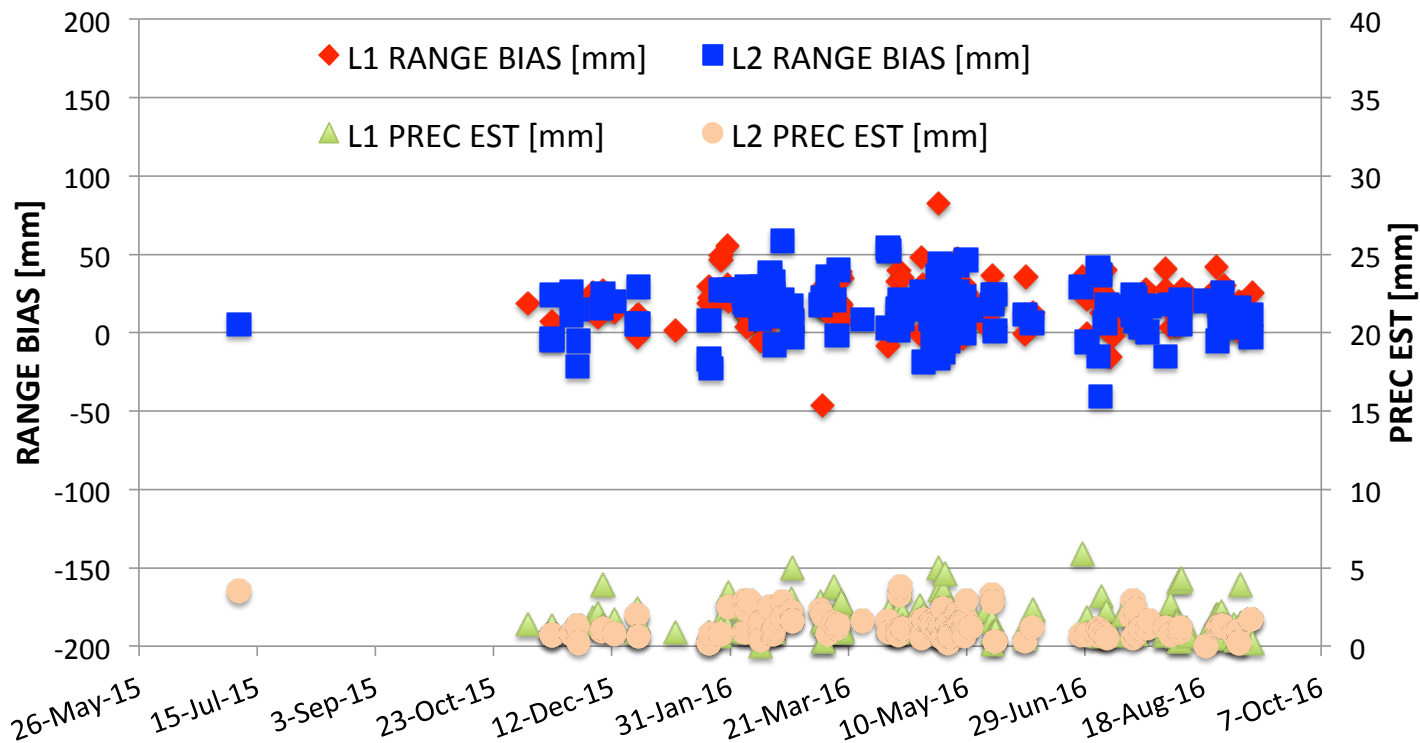
(3) Example B: QC for SOS-W (2015)

LAGEOS 1

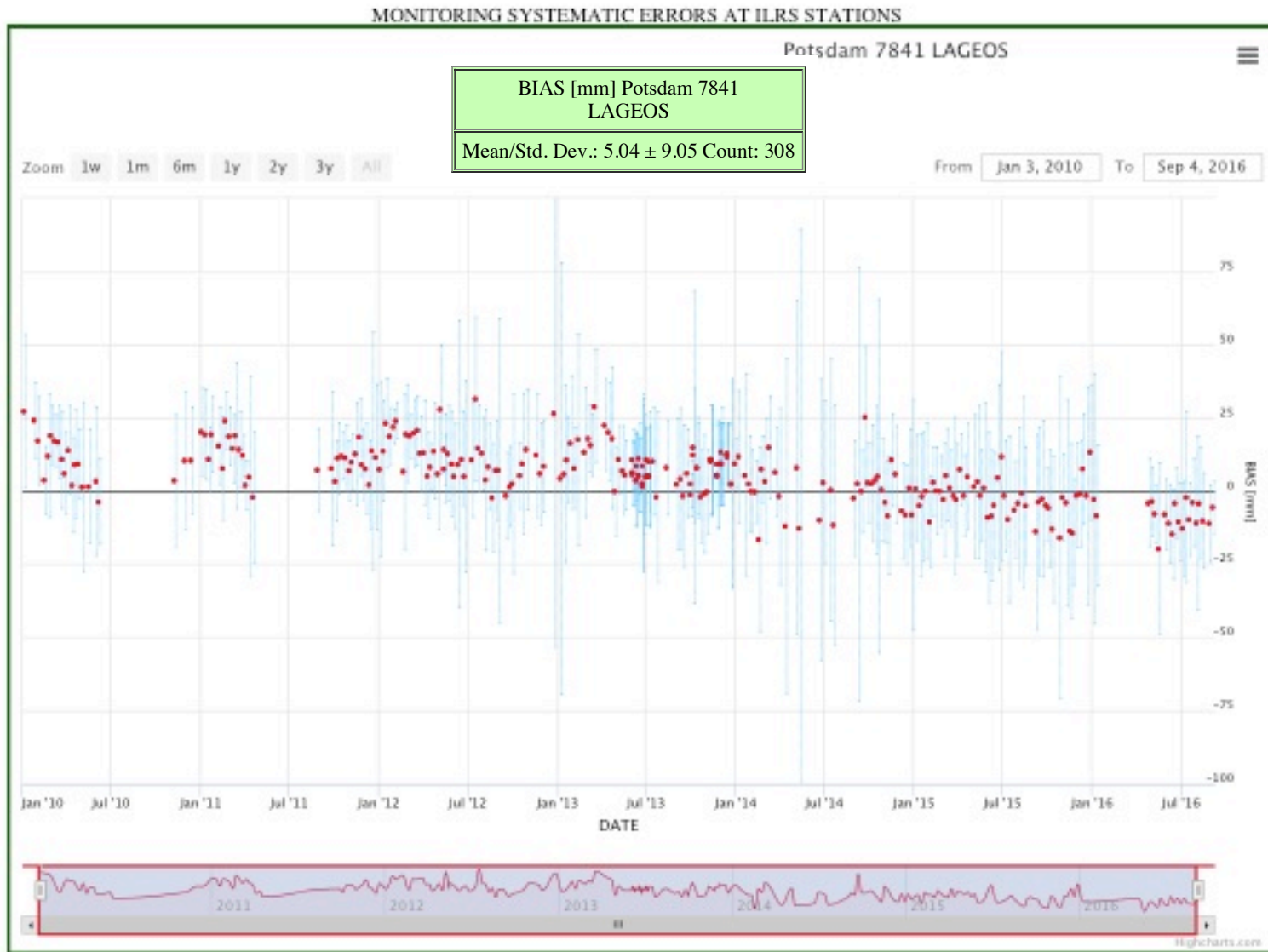
L1 78272201	PREC EST [mm]	RANGE BIAS [mm]
Mean	1.6	18.6
STD	1.0	14.3
RMS	1.9	23.4
Point	167	167

LAGEOS 2

L2 78272201	PREC EST [mm]	RANGE BIAS [mm]
Mean	1.3	14.2
STD	0.8	16.2
RMS	1.5	21.5
Point	128	128

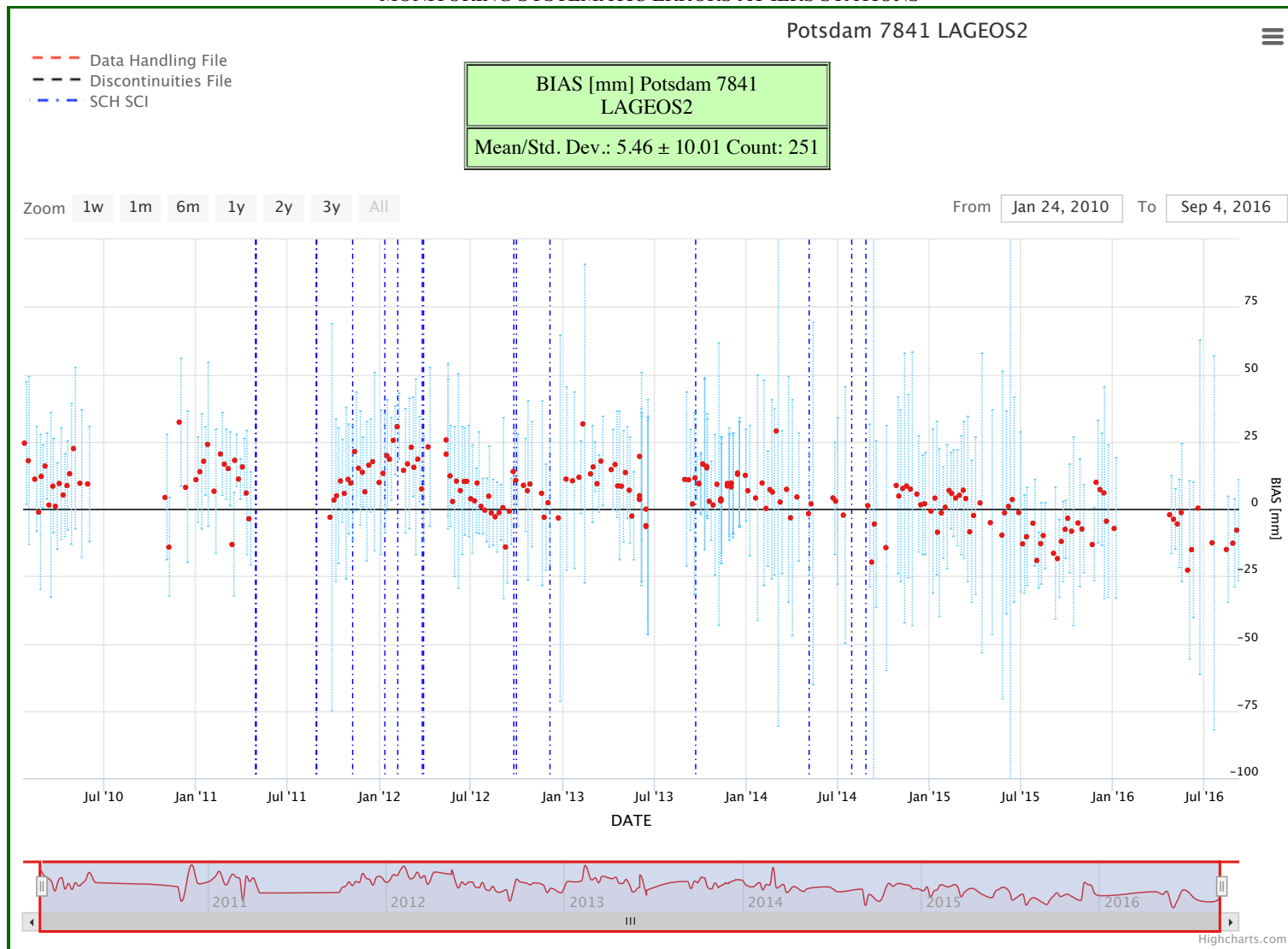


(4) Example A: Systematic Range Error/Site Events



(4) Example B: Systematic Range Error/Site Events

MONITORING SYSTEMATIC ERRORS AT ILRS STATIONS



(5) Example A: Daily ILRS Products – Position (Up)

EVALUATION OF WEEKLY ASC PRODUCTS

DAILY PRODUCT

WEEKLY PRODUCT

7-day arc daily solution
(sliding 1 d/day)

Combination Center: ILRSA ILRSB

Analysis Center: COM

Start (MM-DD-YYYY): 1-01-2000

End (MM-DD-YYYY): 12-31-2016

Group of results: SITE COORDINATES

Quantities to display: N-E-U OFFSETS

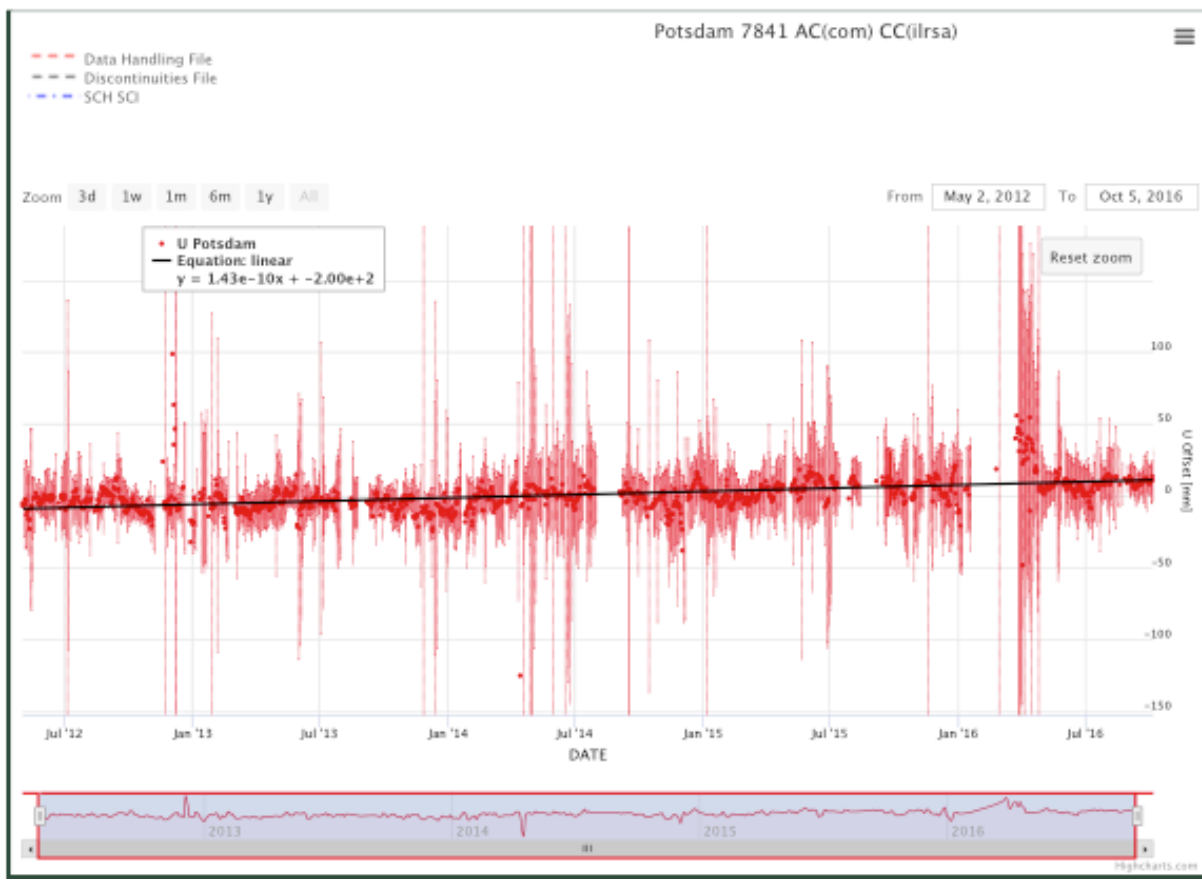
Station: 7841 Potsdam

N E U REGRESSION STATIONS EVENT

Plot Size: Minimum Maximum

Y axis: Min Max

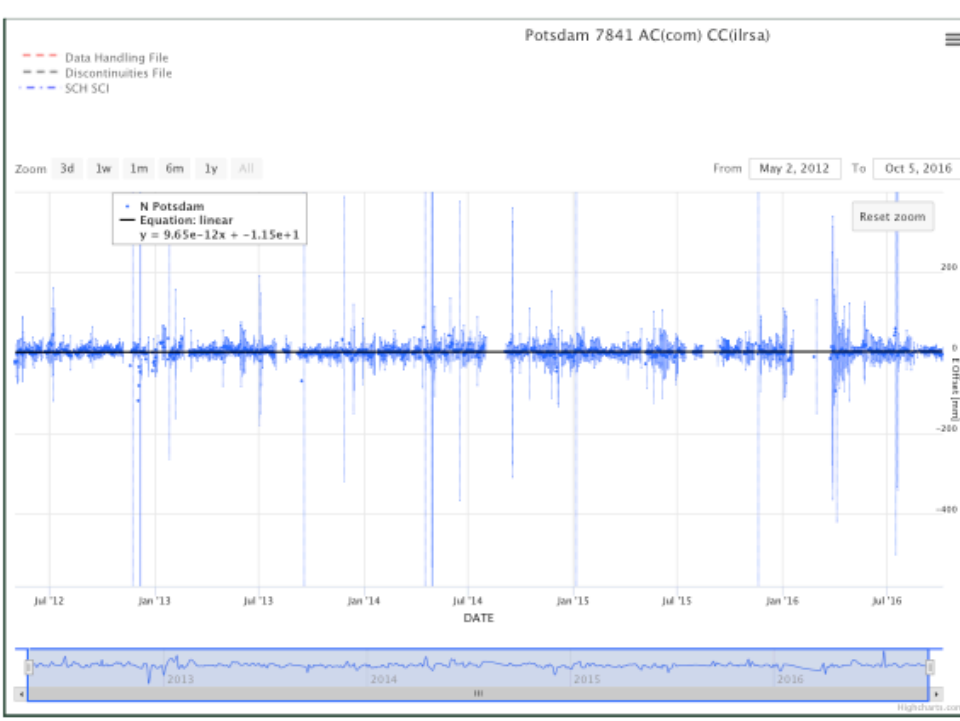
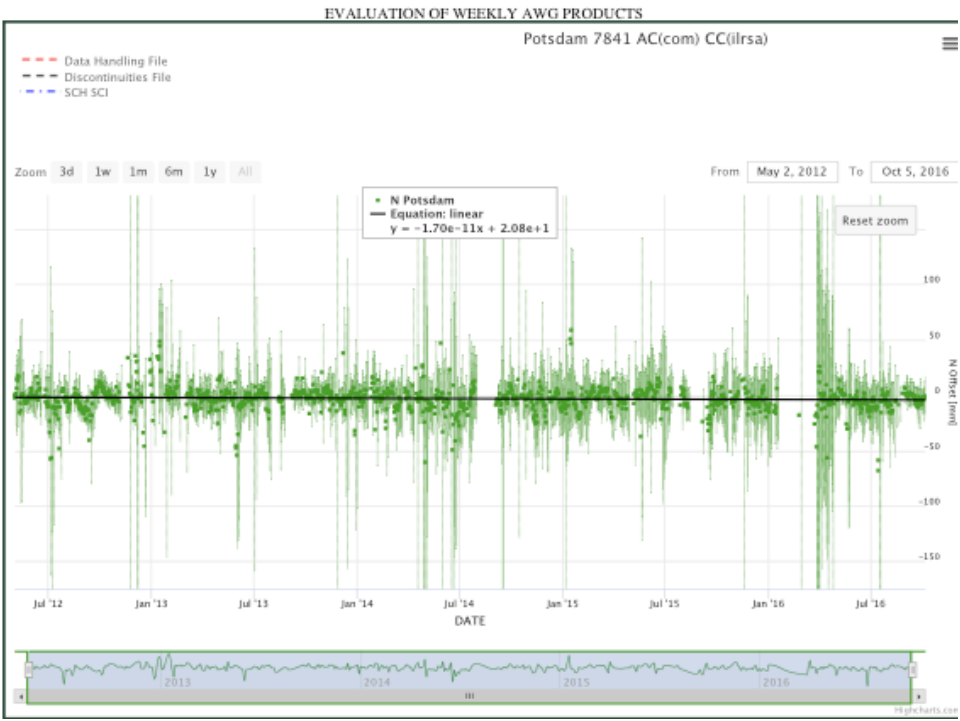
Submit Reset form



N Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)	E Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)	U Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)
Mean/Std. Dev.: -3.41 ± 11.20 Count:1225	Mean/Std. Dev.: 1.63 ± 10.17 Count:1227	Mean/Std. Dev.: 0.10 ± 11.08 Count:1217



(5) Example B: Daily ILRS Products – Position (N & E)

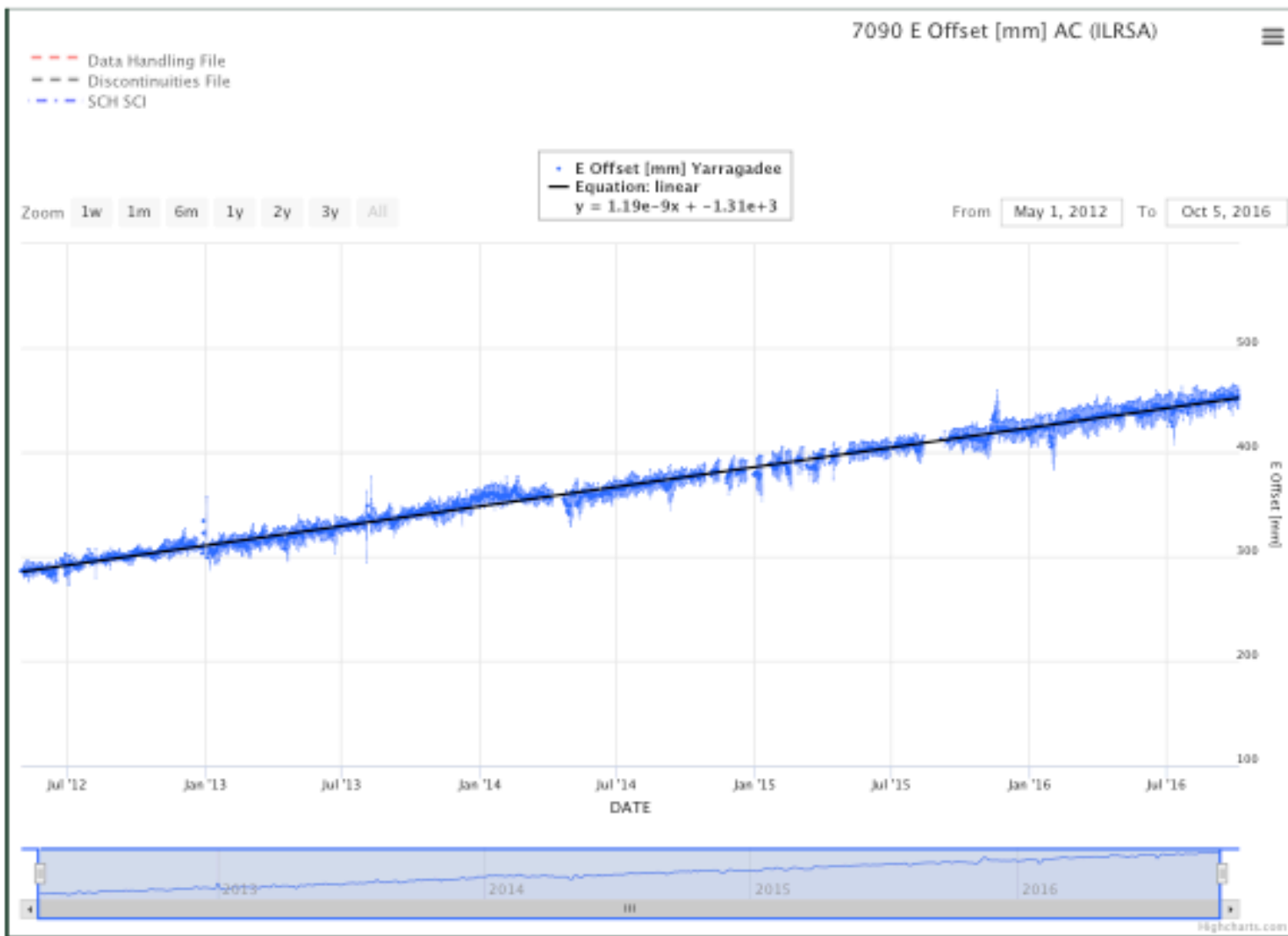


N Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)	E Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)	U Offset [mm] Potsdam 7841 AC(com) CC(ilrsa)
Mean/Std. Dev.: -3.41 ± 11.20 Count:1225	Mean/Std. Dev.: 1.63 ± 10.17 Count:1227	Mean/Std. Dev.: 0.10 ± 11.08 Count:1217

(5) Example C: Yarragadee (7090) North



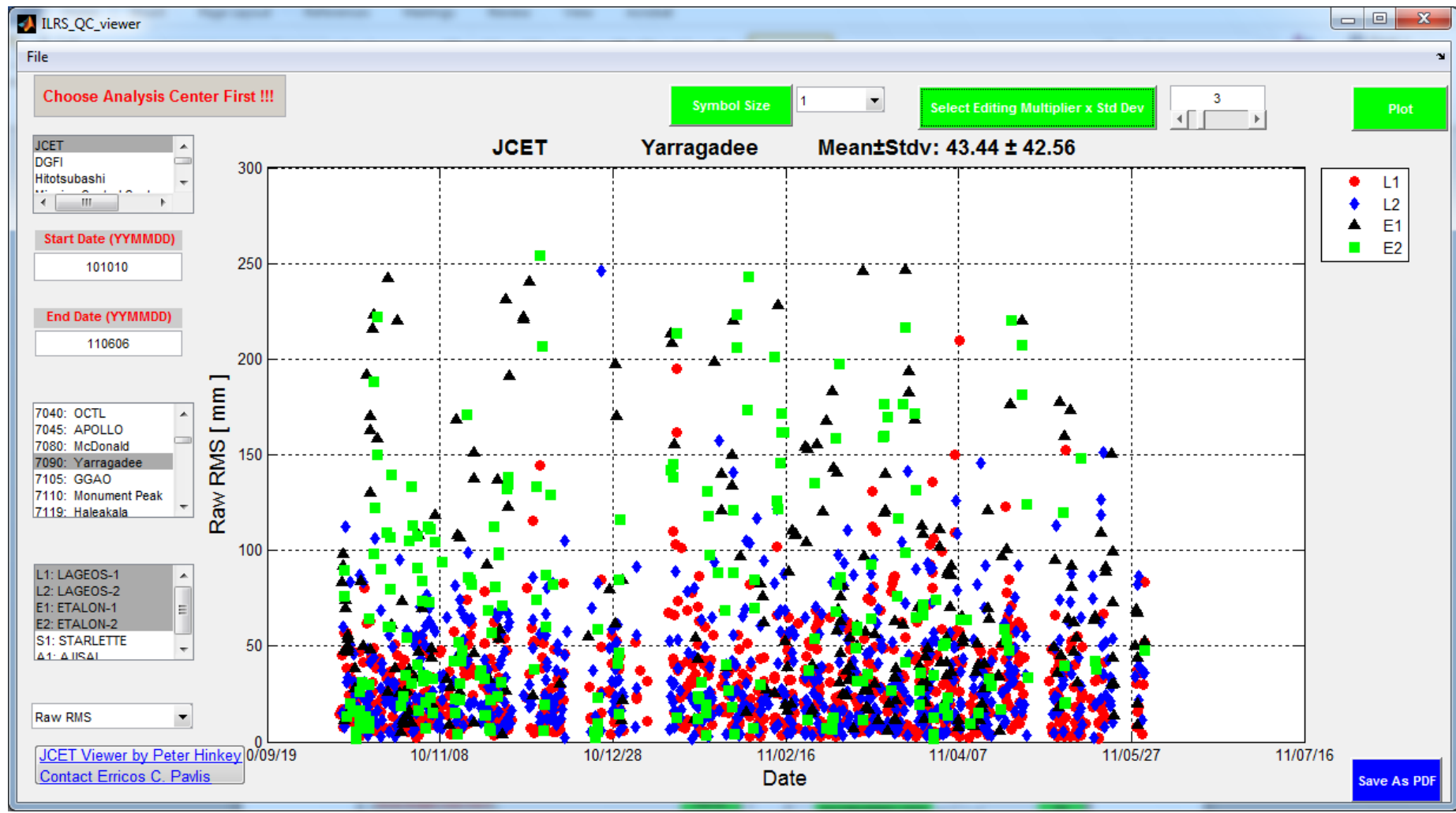
(5) Example D: Yarragadee (7090) East



(5) Example E: Yarragadee (7090) Up



(6) JCET QC Viewer s/w





(6) Example A: QC Reports (JCET)



```

#@Data span 141023-141030
#@contact epavlis@umbc.edu
#@website http://geodesy.jcet.umbc.edu/
# ITRF used: SLRF2008 (http://ilrs.gsfc.nasa.gov/working_groups/awg/SLRF2008.html)
#@version 1.0
#
# each line contains:
#
# STA ID           = site name
# YY/MM/DD HH:MM  = pass starting time
# SAT              = satellite name (L1: LAGEOS1; L2: LAGEOS2; E1: ETAL01; E2:ETAL02; S1: STARLETTE; A1: AJISAI; LR: LARES)
# GOD OBS         = number of good normal points
# RAW RMS         = residual RMS before editing & bias application
# PREC EST        = post-fit scattering rms
# RANGE BIAS      = estimated range bias
# RANGE BIAS SIGMA = estimated range bias sigma
# TIME BIAS       = estimated time bias
# TIME BIAS SIGMA = estimated time bias sigma
# PASS DUR        = pass duration
# EDIT OBS       = number of bad normal points
# CALIB+ MEAN    = mean Applied System Delay (ILRS FR format cols 97-104)
# CALIB SDEV     = mean System Calibration Method (ILRS FR format cols 126)
# CALIB SHIFT+   = mean Root Mean Square (ILRS FR format cols 111-114)
# STPASS RMS     = mean Pass RMS (ILRS FR format cols 58-64)
# TEMP           = mean surface temperature [K]
# HUM            = mean relative humidity of surface %
# PRES           = mean pressure [hPa]
# WLEN           = walelength [nm]
# SCH            = System Change Indicator (ILRS FR format cols 127)
# SCI            = System Configuration (ILRS FR format cols 128)
# DRF            = Data Release Flag (ILRS FR format cols 130)
# ELEVATION MAX  = maximum elevation for pass [degrees]
# ELEVATION MIN  = minimum elevation for pass [degrees]
#

```

```

#1824 Kiev 12356S001
#
#           GOOD      RAW      PREC      RANGE      RANGE      TIME      TIME      PASS      EDIT      CALIB+   CALIB   CALIB++  STPASS   TEMP   HUM   PRES   WLEN   S S D   ELEVATION
#           OBS      RMS      EST      BIAS      BIAS      BIAS      BIAS      DUR      OBS      MEAN    SDEV   SHIFT   RMS     [K]   %   [hPa]  [nm]   C C R   MAX     MIN
# STA ID YY/MM/DD HH:MM SAT A [mm] [mm] [mm] SIGMA [us] SIGMA [MIN] [mm] [mm] [mm] [mm] [mm] [mm] [K] % [hPa] [nm] H I F [degrees]
#
18248101 14/10/29 15:53 A1 17 39.8 23.0 32.5 9.6 61.0 2.6 0 0 40122 E 18 0 P 36 277.6 68.0 1007.9 532.0 1 1 0 65.8 20.8
18248101 14/10/29 17:54 A1 9 86.4 34.3 -79.3 25.8 21.4 6.7 0 0 40122 E 18 0 P 42 274.8 76.0 1007.5 532.0 6 5 0 70.9 31.0
18248101 14/10/29 19:55 A1 2 84.6 40.0 -74.6 49.2 0.2 8.7 0 0 40122 E 18 0 P 30 273.7 81.0 1007.4 532.0 0 1 0 22.9 21.9

```



(6) Example B: QC Reports (HITU)



```

#
# @contact t.otsubo@r.hit-u.ac.jp (Toshimichi Otsubo)
# @website http://geo.science.hit-u.ac.jp/slr/bias/
# @version 0.16 (2012/08/16)
# @createdAt 2014/10/30 14:17:02
#
# each line contains:
# sat = 4-char satellite name
# site = 4-char site name (CDP ID)
# date/time = pass starting time
# dur = pass duration (min)
# rb = estimated range bias (mm) with 1-sigma error
# tb = estimated time bias (microsec) with 1-sigma error
# prec = post-fit scattering rms (mm)
# bad/total = number of bad/total normal-points
# rms = single-shot rms (mm)
# pres/temp/humi = pressure (hPa), temperature (K) and humidity (%)
# sdelay = applied system delay (mm)
# shft = system delay shift (mm)
# rms = calibration single-shot rms (mm)
# cfg = system configuration flag; SCH and SCI
# r = data release flag
# wlen = laser wavelength (nm)
#
# 1824 = KIEV
# sat site date time dur rb mm error tb us error prec bad total rms pres temp hum sdelay shft rms cfg r wlen
LAG1 1824 2014/10/18 16:38 3 13 ( 26 ) ----- ( ---- ) 5 0 / 3 24 1004.3 275.8 66 40120 0 11 0 0 0 532
AJI1 1824 2014/10/18 17:42 3 -28 ( 34 ) ----- ( ---- ) 6 1 / 4 22 1005.0 275.6 72 40120 0 11 0 0 0 532
AJI1 1824 2014/10/18 19:45 3 -1058 ( 0 ) ----- ( ---- ) 0 2 / 4 18 1007.0 274.6 72 40120 0 11 0 0 0 532
LAG1 1824 2014/10/18 20:03 11 27 ( 681 ) -16.0 ( 314.6 ) 32 0 / 5 30 1007.1 274.9 68 40120 0 11 0 0 0 532
AJI1 1824 2014/10/18 21:47 0 12 ( 89 ) ----- ( ---- ) 13 0 / 2 22 1007.8 273.8 67 40120 0 11 0 0 0 532
LAG1 1824 2014/10/18 23:35 31 46 ( 71 ) 24.6 ( 38.4 ) 13 1 / 6 28 1008.3 271.6 69 40110 0 10 0 0 0 532
AJI1 1824 2014/10/18 23:52 1 101 ( 175 ) ----- ( ---- ) 35 0 / 4 22 1008.2 271.7 69 40110 0 10 0 0 0 532
STRL 1824 2014/10/19 00:24 5 -22 ( 102 ) ----- ( ---- ) 18 1 / 4 23 1008.3 271.4 71 40110 0 10 0 0 0 532
LAG2 1824 2014/10/19 01:40 8 14 ( 389 ) ----- ( ---- ) 44 2 / 4 24 1009.1 270.7 73 40165 0 11 0 0 0 532
STRL 1824 2014/10/19 02:14 0 -39 ( 134 ) ----- ( ---- ) 23 0 / 3 26 1009.3 270.5 74 40165 0 11 0 0 0 532
LAG1 1824 2014/10/19 03:07 12 -29 ( 119 ) ----- ( ---- ) 21 0 / 3 23 1009.8 270.5 75 40165 0 11 0 0 0 532
AJI1 1824 2014/10/19 16:54 1 -79 ( 99 ) ----- ( ---- ) 20 0 / 4 24 1004.1 276.5 67 40156 0 11 0 0 0 532
AJI1 1824 2014/10/24 20:29 4 100 ( 66 ) ----- ( ---- ) 11 1 / 4 30 1015.6 269.4 83 40121 0 11 0 0 0 532
AJI1 1824 2014/10/24 22:27 7 88 ( 31 ) 2.4 ( 14.4 ) 7 2 / 10 22 1015.8 268.7 86 40121 0 11 0 0 0 532
STRL 1824 2014/10/24 22:45 0 -42 ( 42 ) ----- ( ---- ) 7 0 / 3 19 1015.8 268.6 86 40121 0 11 0 0 0 532
LAG1 1824 2014/10/24 22:53 6 50 ( 134 ) ----- ( ---- ) 27 1 / 5 27 1015.8 268.7 86 40121 0 11 0 0 0 532
STRL 1824 2014/10/25 00:35 1 27 ( 40 ) ----- ( ---- ) 8 0 / 4 26 1015.6 268.2 89 40121 0 11 0 0 0 532
STEL 1824 2014/10/25 01:00 0 72 ( ---- ) ----- ( ---- ) 0 1 / 2 22 1015.6 268.1 90 40121 0 11 0 0 0 532
LAG1 1824 2014/10/25 02:03 7 -109 ( 32 ) ----- ( ---- ) 6 0 / 4 36 1015.5 268.1 91 40121 0 11 0 0 0 532
LAG2 1824 2014/10/25 02:17 14 -2 ( 185 ) -35.3 ( 135.3 ) 22 0 / 5 21 1015.6 267.6 93 40121 0 11 0 0 0 532

```

DGFI – Data files for the Deutsches Geodaetisches Forschungsinstitut Analysis Center (AC). The online source for these files is http://ilrs.dgfi.badw.de/fileadmin/quality/weekly_biases/ Last updated 8/14/2014

JCET – Date files for the Joint Center for Earth Systems Technology Analysis Center. The online source for these files is <ftp://cddis.gsfc.nasa.gov/pub/reports/slrjcet/> Last updated 8/14/2014

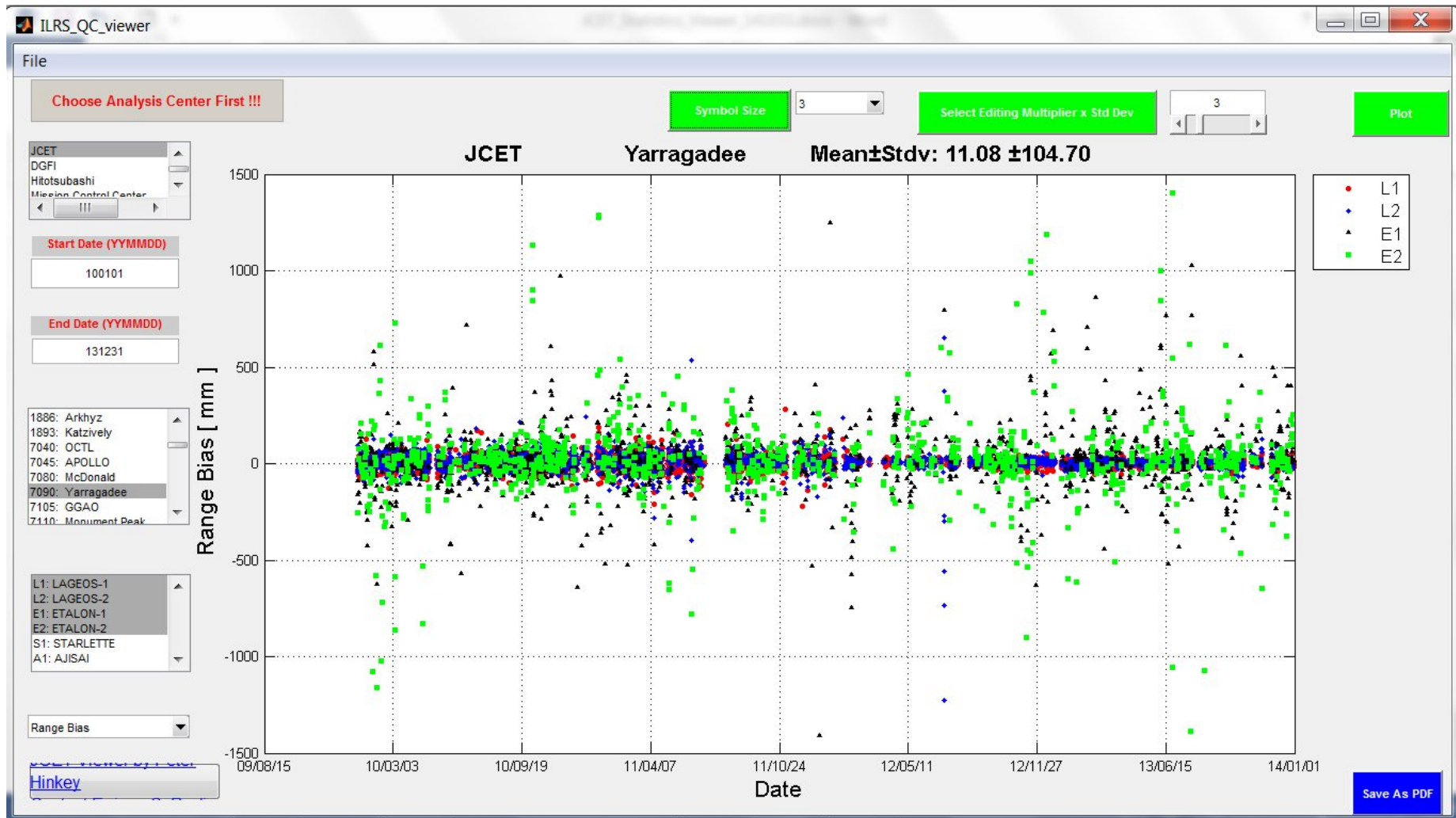
SLRCSR – Data files for the Center for Space Research Analysis Center. The online source for these files is <ftp://cddis.gsfc.nasa.gov/pub/reports/slrcsr/> Last updated 8/14/2014 **DISCONTINUED**

SLRSAO – Data files for the Shanghai Astronomical Observatory Analysis Center. The online source for these files is <ftp://cddis.gsfc.nasa.gov/pub/reports/slrSao/> Last updated 8/14/2014

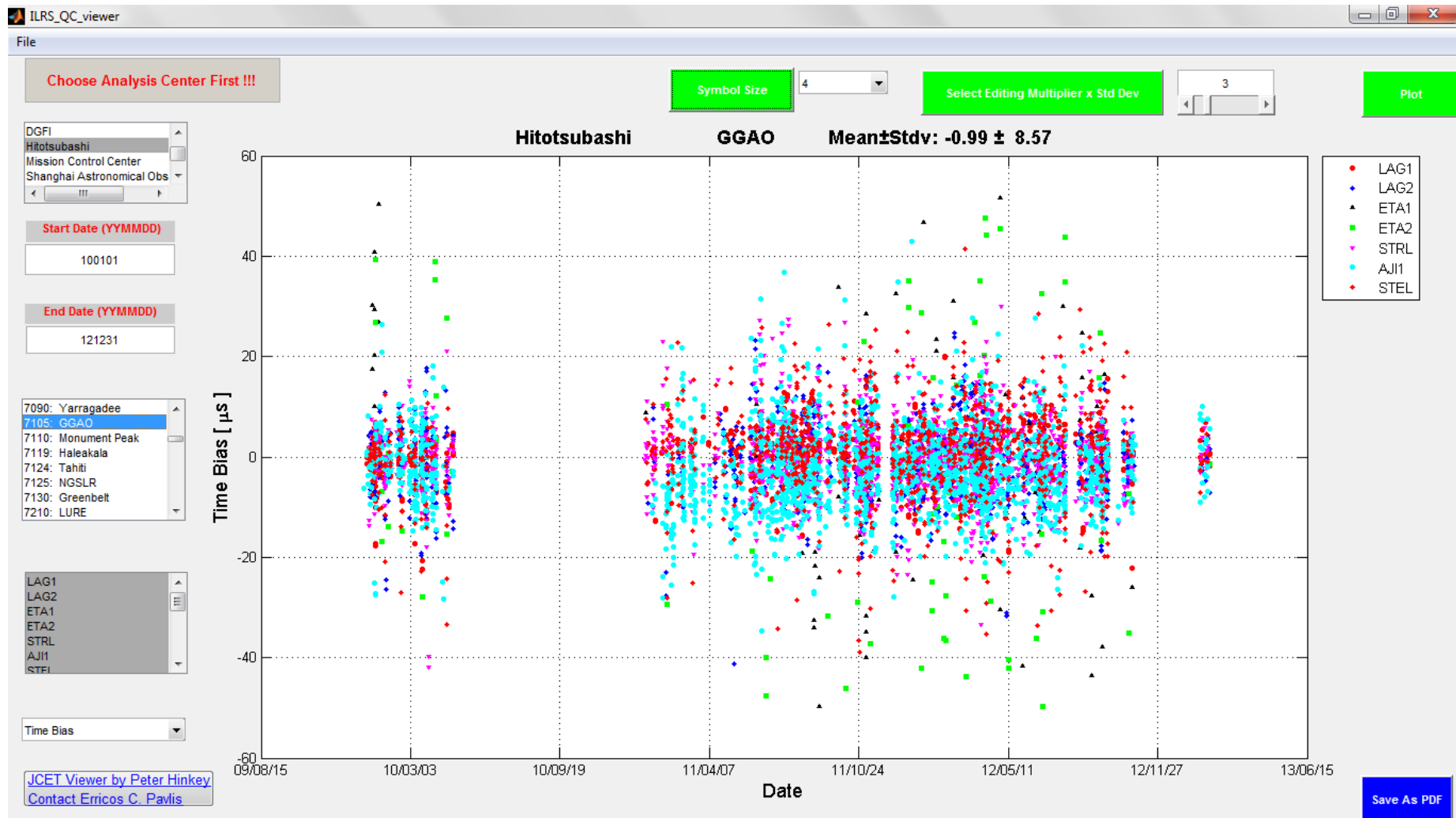
SLRMCC – Data files for the Mission Control Center Analysis Center. The online source for these files is <ftp://cddis.gsfc.nasa.gov/pub/reports/slrMCC/> Last updated 8/14/2014

SLRHITU – Data files for the Hitotsubashi Analysis Center. The online source for these files is <ftp://cddis.gsfc.nasa.gov/pub/reports/slrhITU/> Last updated 8/14/2014

(6) Plot A: JCET QC Viewer s/w

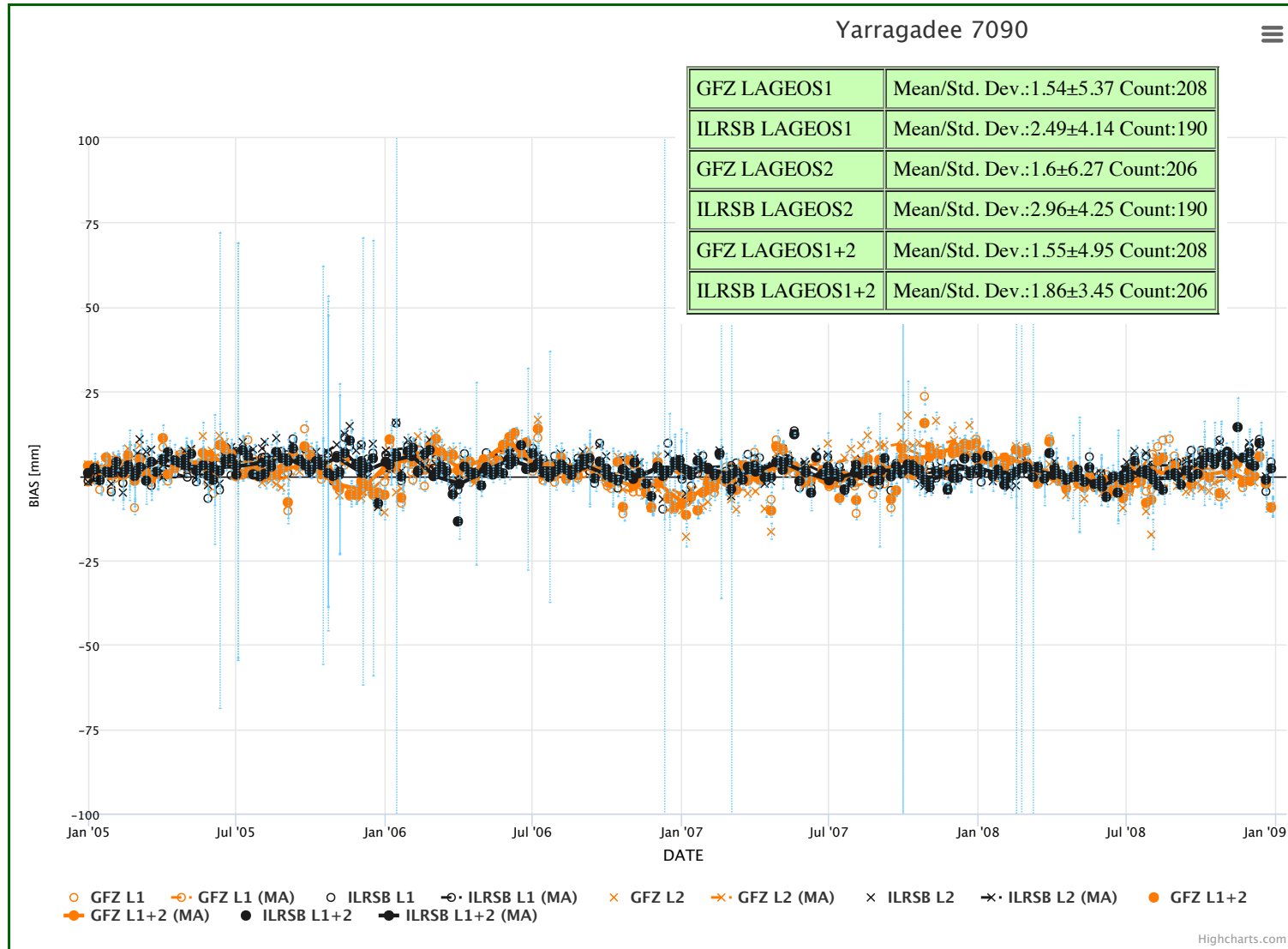


(6) Plot B: JCET QC Viewer s/w



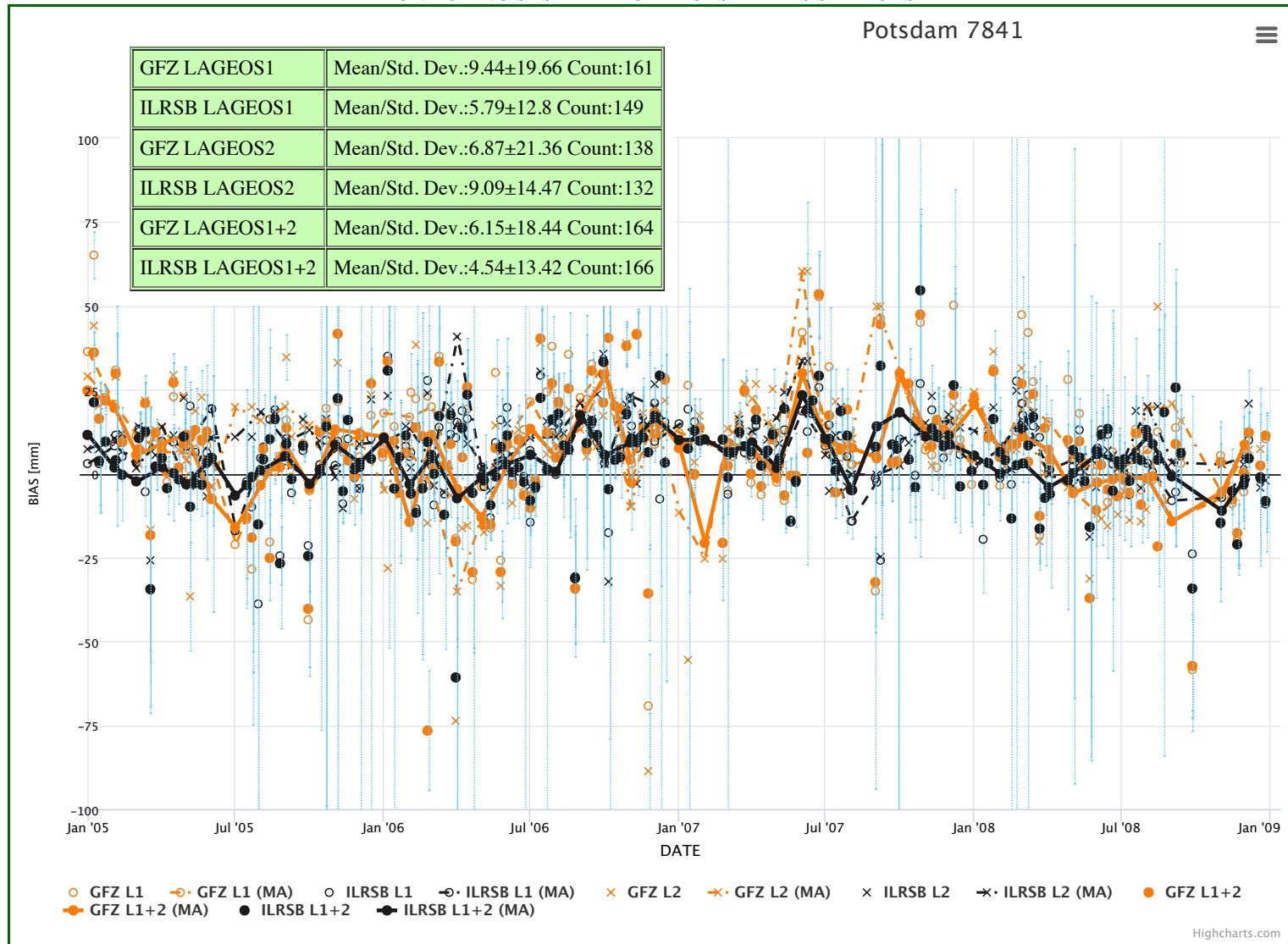
(7) Station Systematic Error PP - 1

MONITORING SYSTEMATIC ERRORS AT ILRS STATIONS



(7) Station Systematic Error PP - 2

MONITORING SYSTEMATIC ERRORS AT ILRS STATIONS





(8) Station History Change Log Query



Station History Change Logs Query Engine

Query:

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



(8) SHC Log Query - Results



Query Result

[SELECT DISTINCT * FROM HST WHERE STATION_CDP_NO='7841' ORDER BY DATE, TIME]

Get data file

DATE	TIME	STATION_CDP_NO	SOD_NO	SCH	SCI	HST	DATA_IMPCT_FLG	SUBSYSTEM	DESCRIPTION
2003-01-01	0	7841	8701	1	0	0	0	0	Start configuration: PMT H 5023 Tennelec TC454 discriminator SR620 time interval counter 50 ps (FWHM) laser (532nm) GPS time receiver HP 58503A Vaisala PT 200 meteo sensors
2003-01-01	0	7841	8701	0	1	0	0	0	standard configuration with SR620(PMT H5023 @1.6kV, TC454, SR620,single pe)
2003-05-30	0	7841	8701	0	0	1	1	04.01	Daylight filter (0.4 nm FWHM) introduced
2003-05-30	0	7841	8701	2	0	0	0	0	daylight filter (0.4 nm FWHM) introduced
2004-02-19	0	7841	8701	0	0	1	2	06.01	A031 Event timer replacing SR620 time interval counter
2004-02-19	0	7841	8701	3	0	0	0	0	A031 Event Timer replacing SR620 time interval counter
2004-02-19	0	7841	8701	0	2	0	0	0	new standard configuration with Event Timer (PMT H5023 @1.6 kV, TC454, A031ET, single pe)
2004-09-06	0	7841	8701	0	3	0	0	0	configuration for high satellites (AD 230 SPAD, TC454, A031ET, Single pe in SPAD Geiger mode)
2004-09-06	0	7841	8701	0	4	0	0	0	secondary configuration for high satellites (AD230 SPAD, TC454, SR620, Single pe in SPAD Geiger mode)
2008-10-26	0	7841	8701	0	0	1	1	04.01	Daylight filter replaced by same type and FWHM
2011-05-01	0	7841	8701	0	5	0	0	0	kHz laser, Event Timer A032-ET, SPAD MPD-1CTC for secondary configuration
2016-03-23	12	7841	8701	0	0	1	1	05.02	Repaired pump diode for external amplifier and new coupling fibre installed, maximum output power 530 mW
2016-05-24	14	7841	8701	0	0	1	0	04.01	Optical components of telescopes cleaned (negative achromat Tx, entrance window and coupling mirror Rx)



(8) Station History Change Log - 7403



Query Result

[SELECT * FROM HST WHERE STATION_CDP_NO='7403']

[Get data file](#)

DATE	TIME	STATION_CDP_NO	SOD_NO	SCH	SCI	HST	DATA_IMPCT_FLG	SUBSYSTEM	DESCRIPTION
1992-07-18		7403	1303	1					Baseline configuration: MCP-PMT, cascaded constant fraction discriminator, HP5370 timer, Setra barometer, cesium beam frequency standard, GPS receiver, az-el mount, ND: YAG Laser, wavelength 532.1 nm, 200 ps laser, 100 meter target HP computer upgrade, optical attenuation mechanism
1995-10-23		7403	1303	2					New normal point generation software (VM)
1998-11-30		7403	1303	3					New controller computer and tracking software, new data processing computer and data processing software, parascientific barometer
2001-05-23		7403	1303	4					New processing and normal point software V2.5 system
2001-05-26		7403	1303	5					True Time GPS steered rubidium and CNS clock
2002-04-08		7403	1303	6					Laser Data Processing System v1.3 installation
2002-07-24		7403	1303	7					Laser Data Processing System v1.3 Final Installation
2002-12-16		7403	1303	8					Laser Cavity Dump Upgrade
1992-07-18		7403	1303		1				Baseline configuration
2011-09-06	15.4833	7403	1306	0	0	1	2	12	MET 4 installation and update to Monitor and Sattrk programs
2011-09-06	15.4833	7403	1306	0	0	1	2	12	MET 4 installation and update to Monitor and Sattrk programs
2011-09-06	15.4833	7403	1306	0	0	1	2	12	MET 4 installation and update to Monitor and Sattrk programs
2011-09-06	15.4833	7403	1306	0	0	1	2	12	MET 4 installation and update to Monitor and Sattrk programs
2011-04-27	14.5	7403	1306	0	0	1	2	5.01	Installation of a Laser Start Diode and Start Diode Cable
2011-10-24	14.5	7403	1306	0	0	1	2	5.01	Changed Laser Table and Start Diode
2011-09-06	15.4833	7403	1306	0	0	1	2	12	MET 4 installation and update to Monitor and Sattrk programs



Thank you for attending the Clinic!



SLR SITE LOGs Spreadsheets



<ftp://cddis.gsfc.nasa.gov/slr/slrlog>

Name	Date Modified	Size	Kind
gol1_20141019.log	Oct 28, 2014 11:25 AM	27 KB	Log File
▶ slrhst	Oct 25, 2014 12:03 PM	--	Folder
▶ oldlog	Oct 25, 2014 10:50 AM	--	Folder
ziml_20141025.log	Oct 25, 2014 10:47 AM	46 KB	Log File
site_log_book_20141022.xlsx	Oct 23, 2014 7:51 AM	322 KB	Micro...rkbook
site_log_book_full_20141020.xlsx	Oct 23, 2014 7:50 AM	146 KB	Micro...rkbook
site_log_book_full.xlsx	Oct 23, 2014 7:49 AM	146 KB	Micro...rkbook
site_log_book.xlsx	Oct 23, 2014 7:49 AM	322 KB	Micro...rkbook
sfel_20140916.log	Sep 26, 2014 9:59 AM	30 KB	Log File
matm_20140902.log	Sep 17, 2014 11:10 AM	38 KB	Log File
▶ images	Sep 10, 2014 9:28 PM	--	Folder
irkl_20140902.log	Sep 2, 2014 9:30 AM	14 KB	Log File
monl_20140619.log	Aug 29, 2014 11:42 AM	24 KB	Log File
bral_20140826.log	Aug 26, 2014 9:12 AM	13 KB	Log File
sosw_20140501.log	Aug 1, 2014 8:58 AM	18 KB	Log File
sisl_20140707.log	Jul 10, 2014 1:04 PM	31 KB	Log File
ha4t_20140702.log	Jul 8, 2014 7:30 AM	23 KB	Log File



SLR SITE LOGs Summary: Current



Sections "0" to "17" as in each Site Log

1	A	B	C	D	E	F	G	H
1	Site Number	Location	Prepared by	Preparer E-mail	Date Prepared	Report Type	Format Version	
2	1824	Golosiiv	Mikhailo Medvedskij	medved@mao.kiev.ua	4/21/11	UPDATE	1	
3	1831	Lviv	Andriy Bilinsky	slr1831@ukr.net	1/13/14	UPDATE	1	
4	1863	Maidanak	Van Husson, Natalia Parkhomenko	van.husson@honeywell-tsi.com	5/13/03	NEW	1	
5	1864	Maidanak	Van Husson, Natalia Parkhomenko	van.husson@honeywell-tsi.com	5/13/03	NEW	1	
6	1868	Komsomolsk-na-Amure	Natalia Parkhomenko	parknataliya@yandex.ru	1/27/14	UPDATE	1	
7	1870	Mendeleevo	Mark Kaufman	mark@imvp.aspnet.ru	5/9/02	UPDATE	1	
8	1873	SIML	Lazar Shtirberg	lazar@crao.crimea.ua	1/26/09	UPDATE	1	
9	1874	Mendeleevo	Igor Ignatenko	lgig@vniiftri.ru	8/14/13	UPDATE	1	
10	1879	ALTAY	Natalia Parkhomenko	natalia.n@g23.relcom.ru	3/25/09	UPDATE	1	
11	1884	RIGA	Kalvis Salminsh	kalvis.salmins@lu.lv	3/11/14	UPDATE	1	
12	1886	Arkhyz	Natalia Parkhomenko	parknatliya@yandex.ru	2/15/12	UPDATE	1	
13	1887	Baikonur	Parkhomenko Natalia	parknataliya@yandex.ru	2/13/12	UPDATE	1	
14	1888	Svetloe	Iskander Gayazov	gayazov@ipa.nw.ru	1/31/12	NEW	1	
15	1889	Zelenchukskaya	Iskander Gayazov	gayazov@ipa.nw.ru	1/31/12	NEW	1	
16	1890	Badary	Iskander Gayazov	gayazov@ipa.nw.ru	1/31/12	NEW	1	
17	1891	Irkutsk	Emelyanov Valery	eva@niiftri.irk.ru	9/2/14	Update	1	
18	1893	Katzively	Andriy Makeyev	clogao@rambler.ru	8/2/11	UPDATE	1	
19	7040	OCTL	Keith E. Wilson	kwilson@jpl.nasa.gov	1/27/05	NEW	1	
20	7041	WSC	Daniel Murphy	dmurphy@ll.mit.edu	8/20/13	NEW	1	
21	7045	APOLLO	Tom Murphy	tmurphy@physics.ucsd.edu	6/29/09	NEW	1	
22	7080	McDonald Observatory / Mt. Fowkes	Randall L. Ricklefs	ricklefs@csr.utexas.edu	2/4/14	UPDATE	1	
23	7090	MOBLAS-5 / YARRAGADEE	Nikki Desch	nikki.desch@exelisinc.com	10/11/12	UPDATE	1	
24	7105	Goddard Geophysical Astronomical Observatory	Justine Woo	Justine.woo@exelisinc.com	1/16/14	UPDATE	1	
25	7110	Monument Peak	Justine Woo	Justine.Woo@exelisinc.com	6/19/14	UPDATE	1	
26	7119	Haleakala, Maui	Daniel O'Gara	ogara@ifa.hawaii.edu	7/1/14	UPDATE	1	
27	7124	Tahiti Geodetic Observatory	Nikki Desch	nikki.desch@exelisinc.com	10/31/12	UPDATE	1	
28	7125	NGSLR	Julie Horvath	julie.horvath@honeywell.com	10/19/14	UPDATE	1	
29	7130	Greenbelt	Craig Foreman	Craig.Foreman@honeywell-tsi.com	1/17/06	UPDATE	1	
30	7210	LURE	Daniel J. O'Gara	ogara@lure.ifa.hawaii.edu	5/9/02	UPDATE	1	
31	7231	Wuhan	Guo Tangyong	whslr@public.wh.hb.cn	5/9/02	UPDATE	1	
32	7237	Changchun	Fan Cunbo	fancb@cho.ac.cn	8/13/13	UPDATE	1.02	
33	7249	Beijing SLR Station	Qu Feng	qufeng@casm.ac.cn	1/3/12	UPDATE	1	
34	7308	Koganei	Hiroo Kunimori	kuni@crl.go.jp	10/7/02	NEW	1	
35	7328	Koganei	Hiroo Kunimori	kuni@nict.go.jp	8/31/10	UPDATE	1	
36	7335	Kashima	Hiroo Kunimori	kuni@crl.go.jp	5/9/02	UPDATE	1	
37	7337	Miura	Hiroo Kunimori	kuni@crl.go.jp	5/9/02	UPDATE	1	
38	7339	Tateyama	Hiroo Kunimori	kuni@crl.go.jp	5/9/02	UPDATE	1	
39	7343	Beijing	Guo Tangyong	whslr@public.wh.hb.cn, guoty@21cn.com	5/9/02	UPDATE	1	
40	7355	Huamei	Guo Tangyong	whslr@public.wh.hb.cn, guoty@21cn.com	4/20/03	UPDATE	1	

