

Quality control and bias analysis at DGFI-TUM

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Present QC at DGFI-TUM

Concept

Satellites used in processing

- Lageos1/2 Etalon1/2 Lares
- Ajisai Starlette Stella Larets

Processing strategy

- Part of daily processing for ILRS products
- Every 4 hours as a background batch process
- Hardware Linux-PC (Intel I7, 64 Gbyte)
- Software DOGS-OC 5.4
- Station coordinates SLRF2008
- Alert: email to me if one or more bias parameters exceed certain thresholds
 - 15 cm range bias, 0.1 msec time bias
 - Contact with stations through ILRS/Rapid Service Mail (if required)

Results presented at the DGFI Webpage (http://ilrs.dgfi.tum.de/quality/weekly_biases)

- Weekly lists for each satellite (includes all stations)
- For each station a bias history (2015.0 to actual epoch) Lageos1/2 only

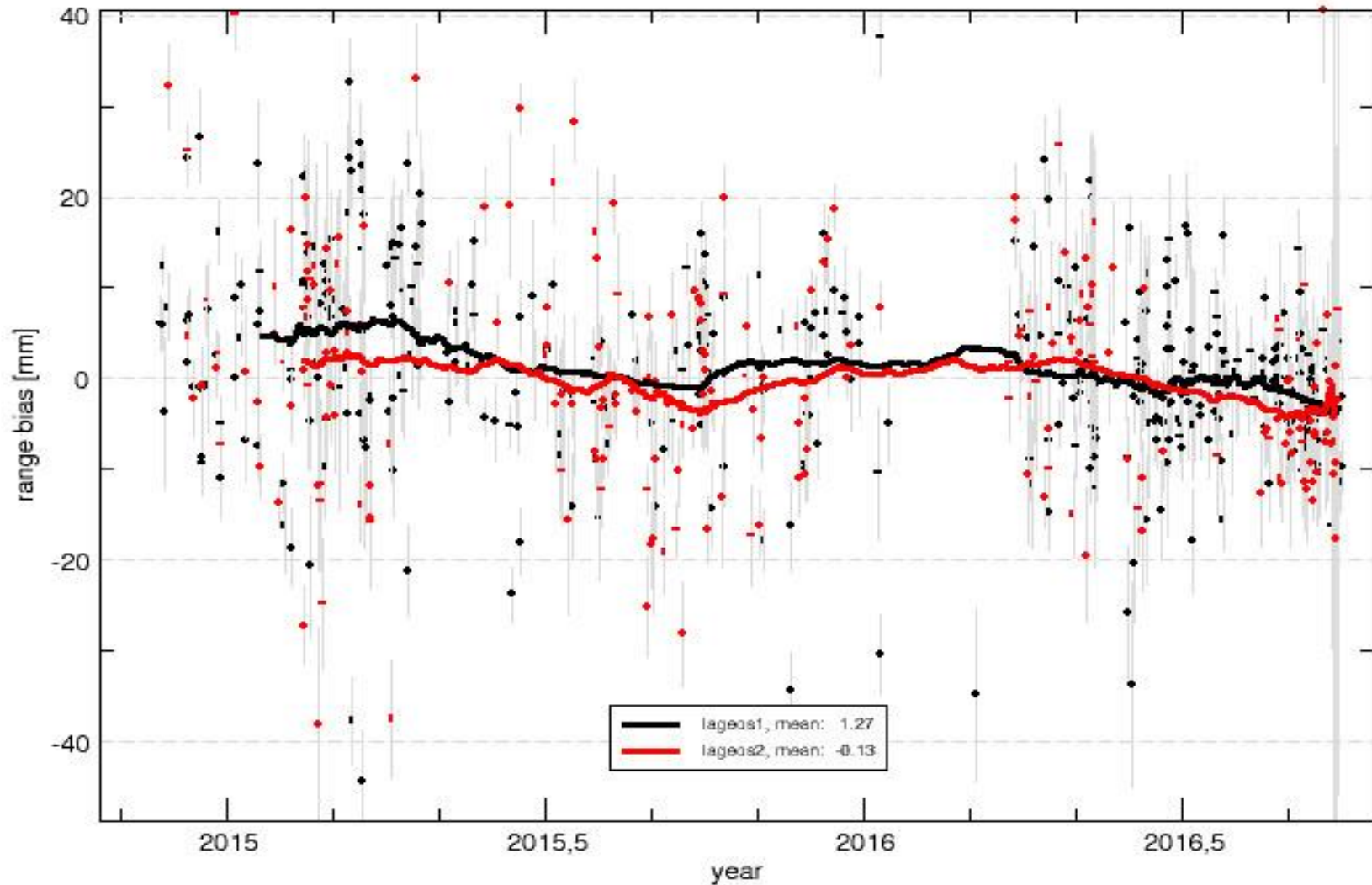
Examples of Web pages

List

Station	year	mm	dd	hh	mm	range-bias [cm]	sigma [cm]	prec.est. [cm]	no of observations	edit.	time-bias [microsec.]	sigma	
Herstmon	2016	9	20	22:02	:	0.79	0.53	0.16	4	0		7840	
Herstmon	2016	9	21	13:35	:	0.57	0.39	0.18	15	0		7840	
Herstmon	2016	9	21	17:05	:	-0.12	0.28	0.14	11	0		7840	
Herstmon	2016	9	22	19:13	:	0.38	0.31	0.13	14	0		7840	
Herstmon	2016	9	22	22:39	:	0.59	0.25	0.18	20	0	-5.76	1.26	7840
Herstmon	2016	9	23	02:09	:	-0.61	0.30	0.21	14	0		7840	
Herstmon	2016	9	23	17:54	:	0.54	0.29	0.14	15	0		7840	
Herstmon	2016	9	23	21:21	:	0.43	0.32	0.24	14	0		7840	
Herstmon	2016	9	24	00:43	:	0.05	0.24	0.17	16	0		7840	
Herstmon	2016	9	24	23:23	:	-0.17	0.32	0.15	10	0		7840	
Potsdam	2016	9	19	19:47	:	0.65	0.36	0.18	12	0		7841	
Potsdam	2016	9	21	17:04	:	-0.29	0.27	0.24	13	0		7841	
Potsdam	2016	9	21	20:41	:	0.72	0.56	0.26	3	0		7841	
Potsdam	2016	9	22	03:51	:	-1.89	0.52	0.16	7	0		7841	
Potsdam	2016	9	22	19:09	:	0.16	0.34	0.27	13	0		7841	
Potsdam	2016	9	22	22:41	:	0.50	0.28	0.65	11	0	-5.25	1.71	7841
Potsdam	2016	9	23	17:59	:	0.17	0.37	0.22	8	0		7841	
Potsdam	2016	9	23	21:25	:	0.32	0.34	0.23	13	0		7841	
Potsdam	2016	9	24	20:07	:	0.54	0.41	0.11	12	0		7841	
Potsdam	2016	9	24	23:28	:	-0.57	0.29	0.23	13	0		7841	
Baikonur	2016	9	18	21:05	:	-17.02	0.68	0.28	3	0		1887	
Baikonur	2016	9	19	16:07	:	-10.15	0.43	1.05	8	0	-19.90	2.19	1887
Baikonur	2016	9	19	19:28	:	-10.01	0.39	0.97	6	0	-18.80	2.04	1887

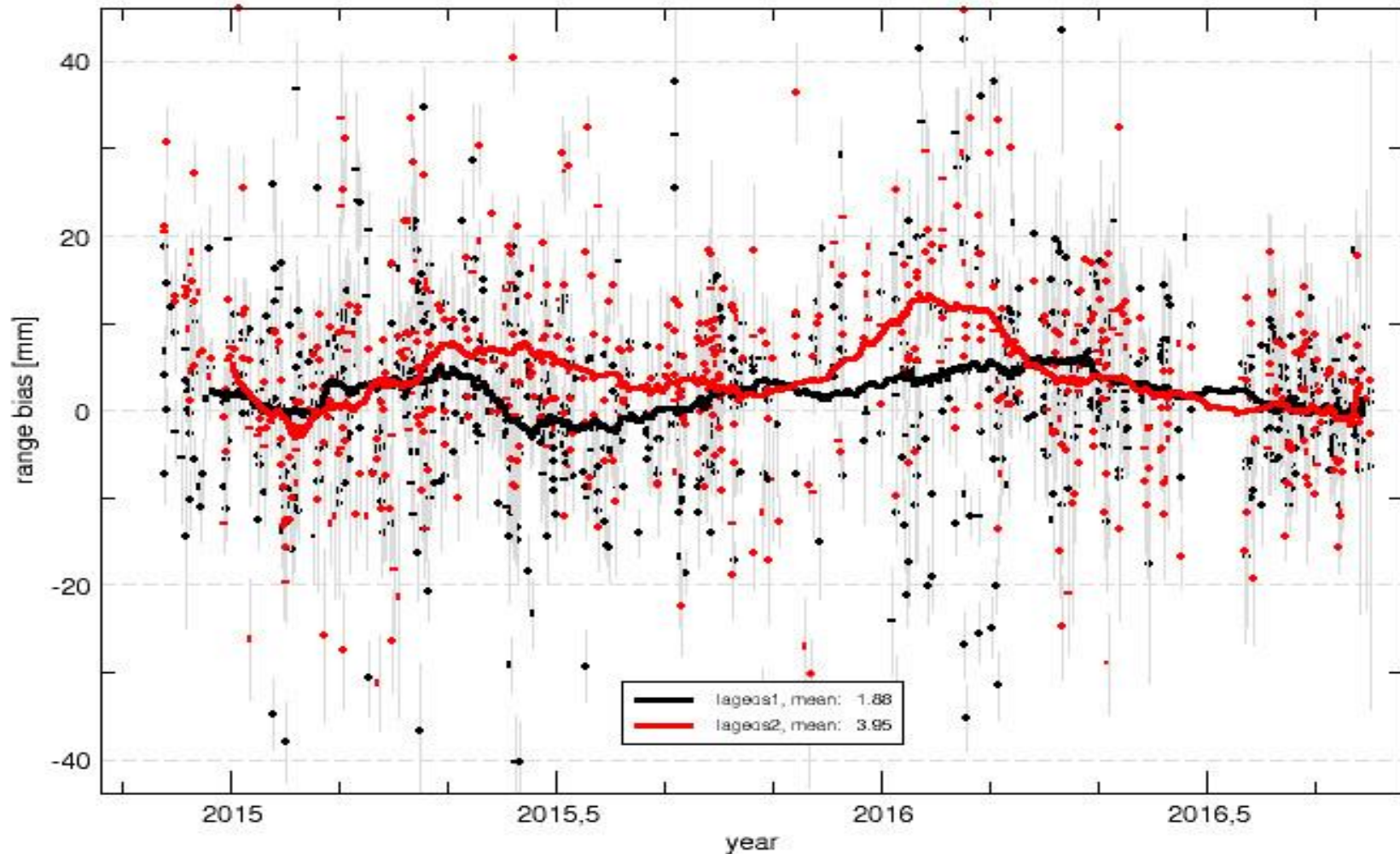
Examples of Web pages bias history

SLRF2008 Bias analysis: one per pass and running average of 60 passes
Potsdam (7841)



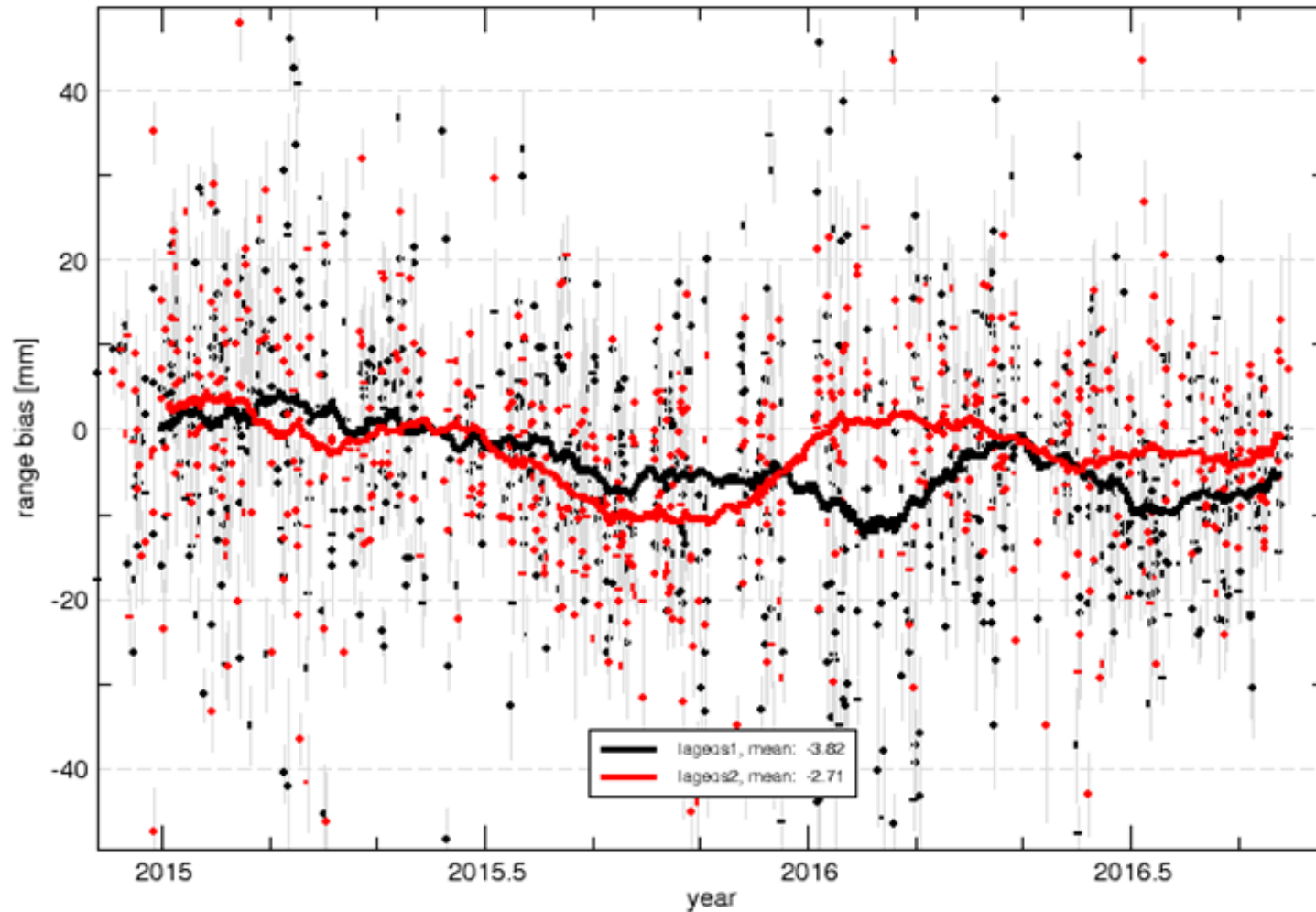
Examples of Web pages bias history

SLRF2008 Bias analysis: one per pass and running average of 60 passes
Herstmonceux (7840)



Examples of Web pages bias history

SLRF2008 Bias analysis: one per pass and running average of 60 passes
Washington (7105)

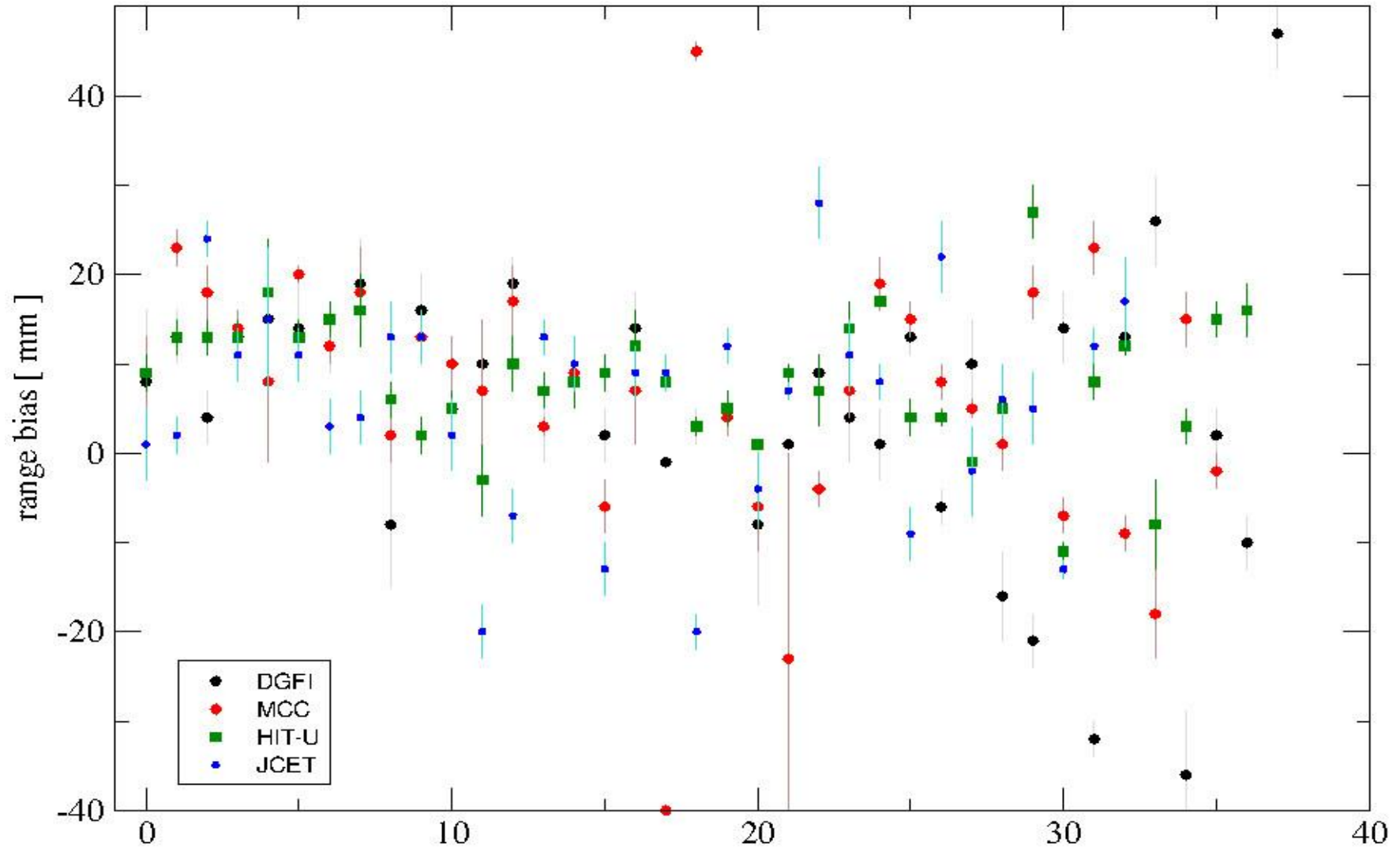


Additional informations and processing not yet published at Web pages

- 5 QC centres deliver report which are summarized at AIUB (presently 4 of them)
- Since ITRF2014 will be next reference station coordinate set we have processed all biases using ITRF2014
 - Few new or very old stations are missing in ITRF2014; new SLRF2014 is needed
- Lares will be the next satellite added to the standard ILRS products. Therefore we have added Lares in the bias analysis
 - Solving 4x4 low degree harmonics
- The mean values over the last 2 years are not zero for all stations
 - Problems in modelling, no geocenter motion applied
 - No atmosph.tidal loading (annual signal)
 - Station coordinates
 - Mean values are 10% smaller with ITRF2014

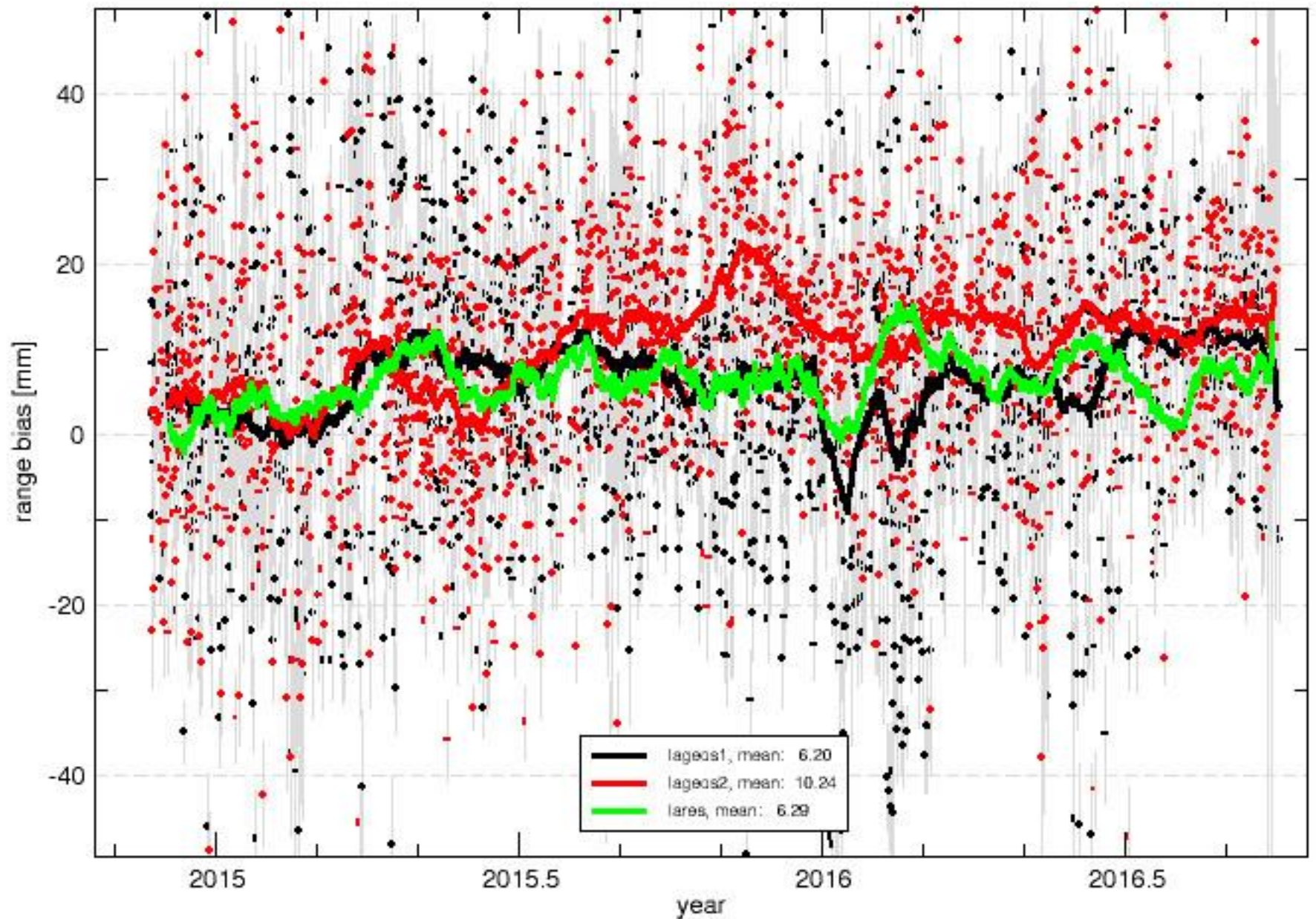
Lageos1 range bias comparison

Yarragadee range biases (Sep. 26 - Oct. 05 2016)



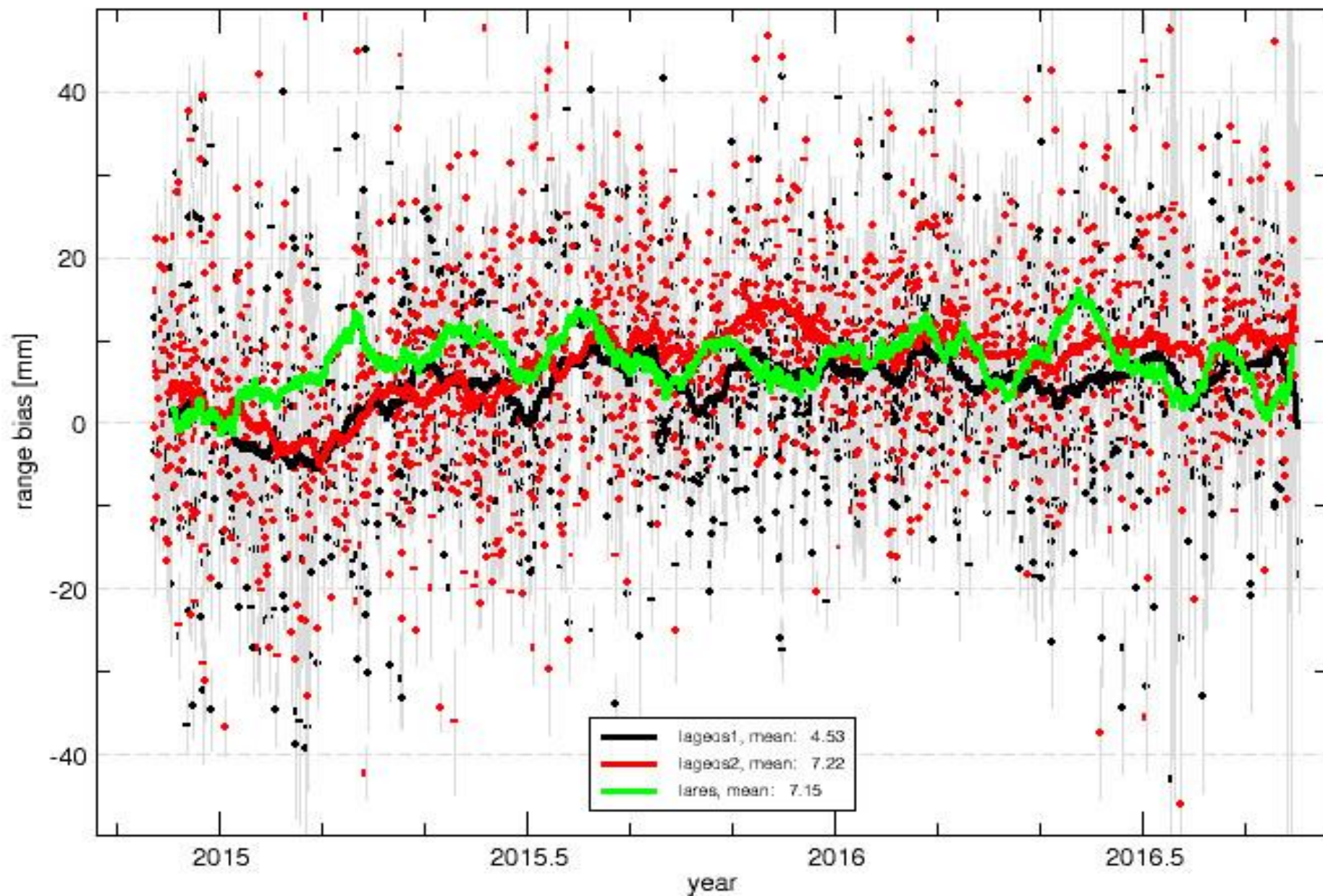
SLRF2008 Bias analysis: one per pass and running average of 60 passes

Yarragadee (7090)



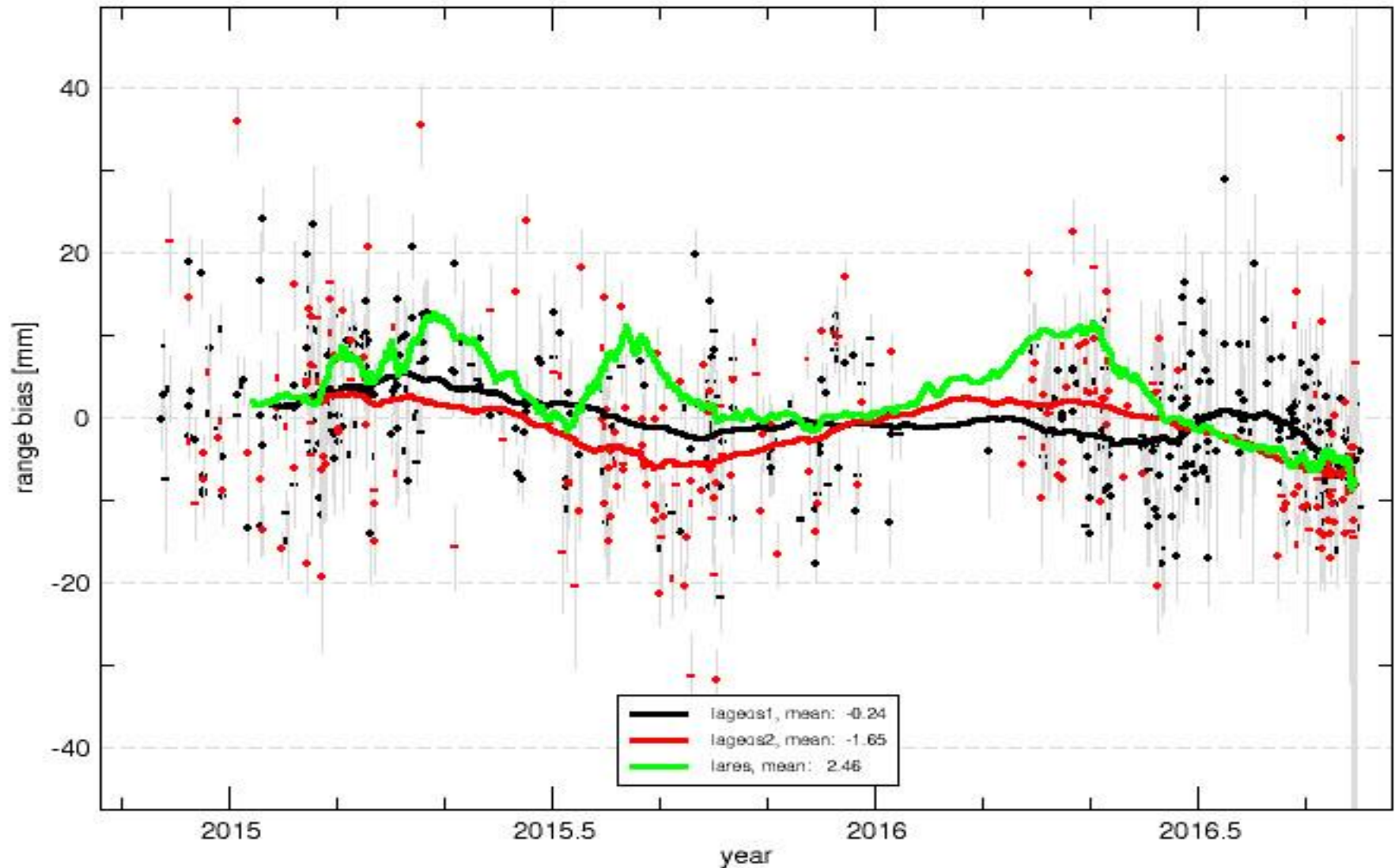
ITRF2014 Bias analysis: one per pass and running average of 60 passes

Yarragadee (7090)



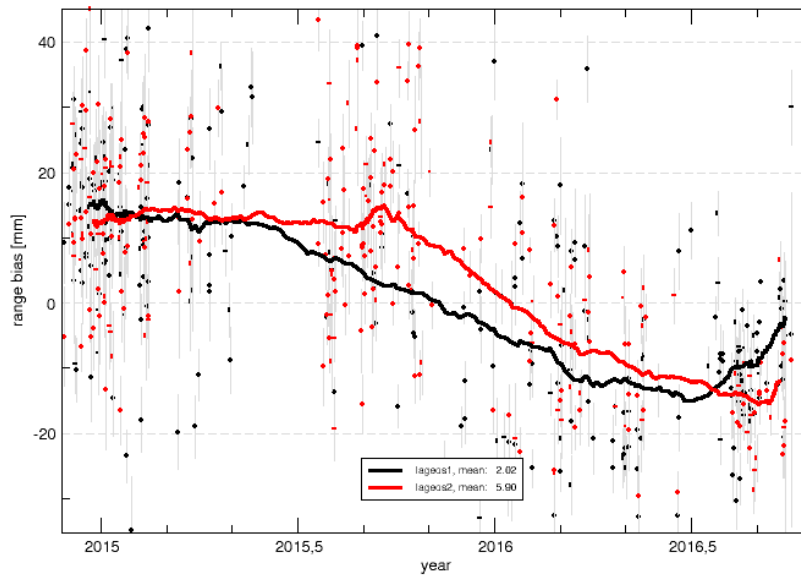
Examples of Web pages bias history

ITRF2014 Bias analysis: one per pass and running average of 60 passes
Potsdam (7841)

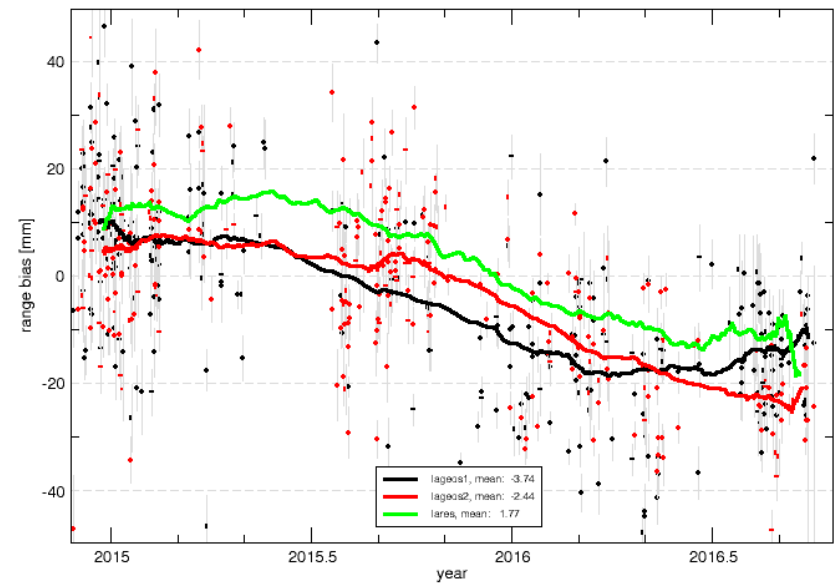


Examples of Web pages bias history

SLRF2008 Bias analysis: one per pass and running average of 60 passes
Shanghai (7821)

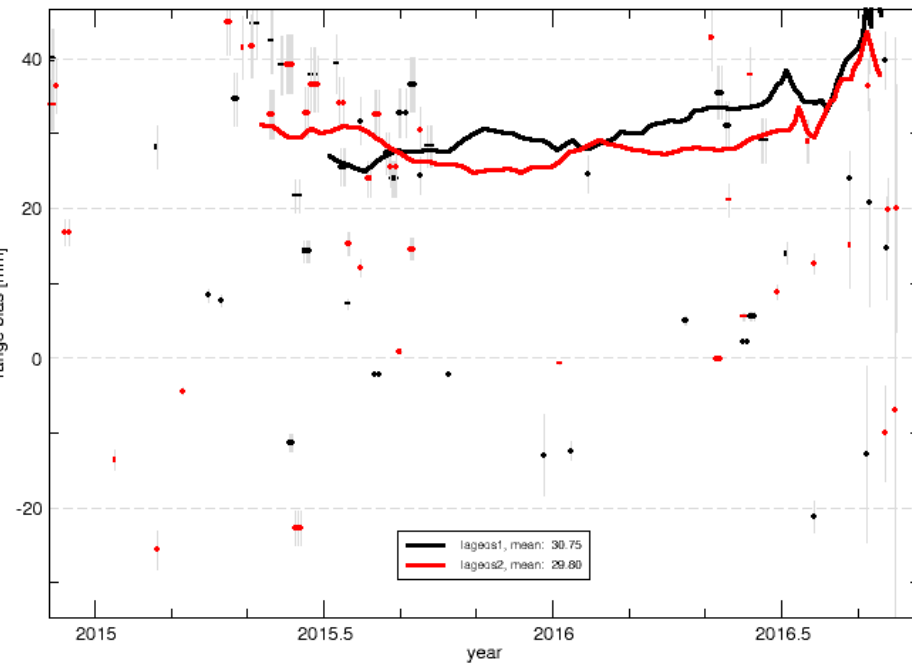


ITRF2014 Bias analysis: one per pass and running average of 60 passes
Shanghai (7821)

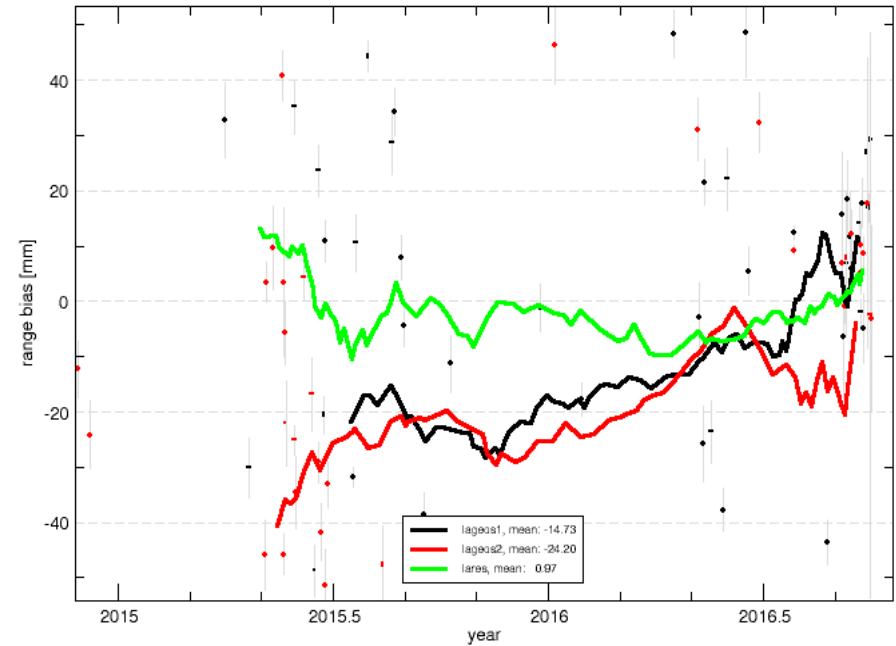


Examples of Web pages bias history

SLRF2008 Bias analysis: one per pass and running average of 60 passes
Arequipa (7403)



ITRF2014 Bias analysis: one per pass and running average of 60 passes
Arequipa (7403)



Thank you