

ILRS QCB Meeting

December 14, 2020

Agenda

- Brief on the ILRS contribution to the Reference Frame (Erricos)
- Minimum FR population for NPs on LEO satellites using LARES (John)
- Updates on the NP.py software and some comparisons between the Herstmonceux NPs and the Weiner Filter (Matt)
- Testing of the Herstmonceux NP software (Randy)
- Minico results; Common Pass analysis; Patterns in data (Van)
- Do any of the satellite C/M models need to be changed to accommodate the new station configuration (Jose)
- Simosato Message (Erricos)
- More stress on long and short stability rather than NP
- Stress History Change Logs
- Document on Best practices (calibrations, barometer, etc.)
- Anything else?



Data Analysis

December 14, 2020

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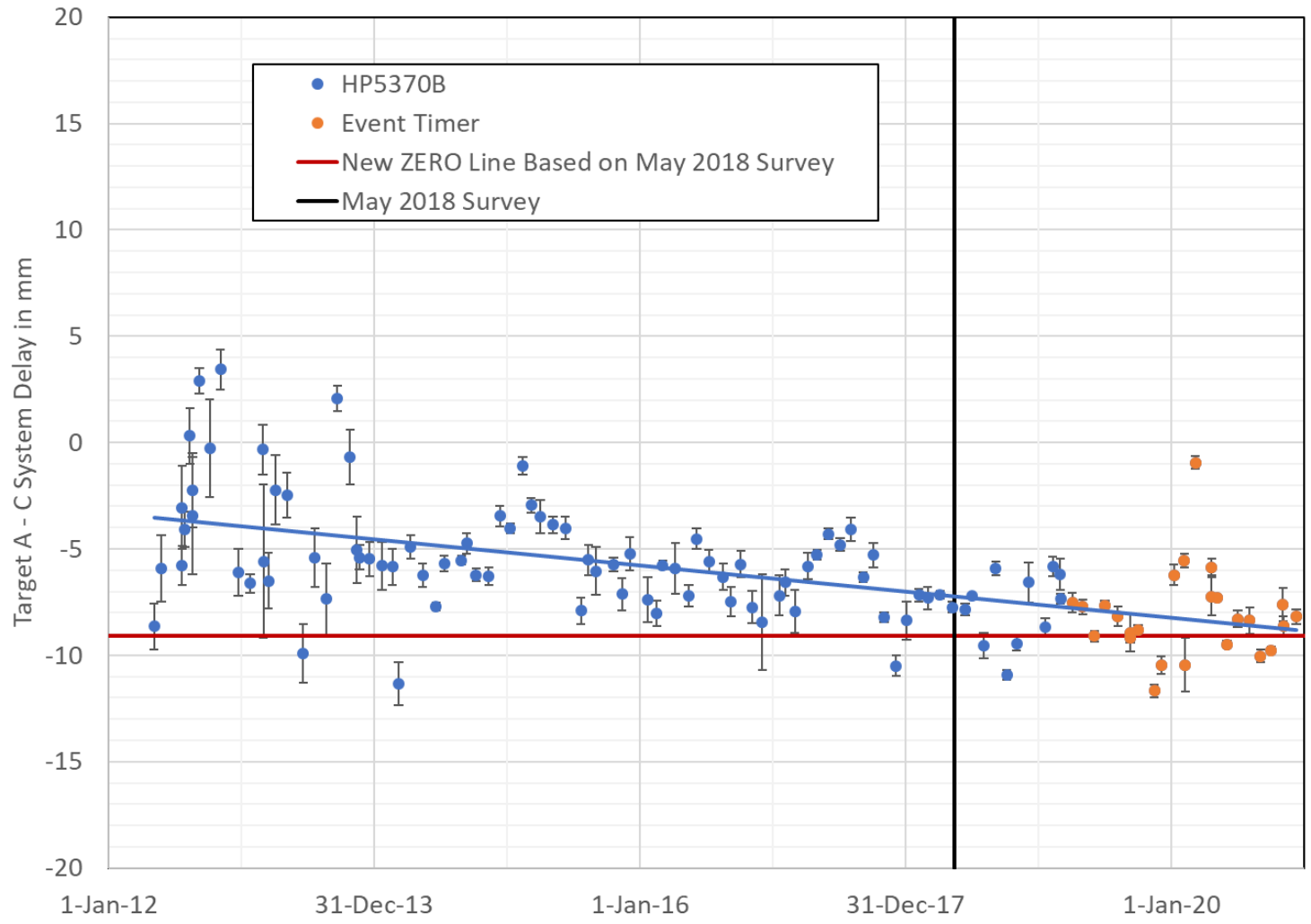
7090 Yarragadee Center of Mass Corrections



Satellite	Pre ETM CoM in mm	Post ETM CoM in mm	Difference Post-Pre ETM CoM in mm
Etalon	582.3	589.3	7.0
LAGEOS-1	245.5	246.2	0.7
LAGEOS-2	244.8	245.7	0.9
Lares	130.1	130.4	0.3
Starlette	76.1	76.3	0.2
Ajisai	995.4	1000.5	5.1

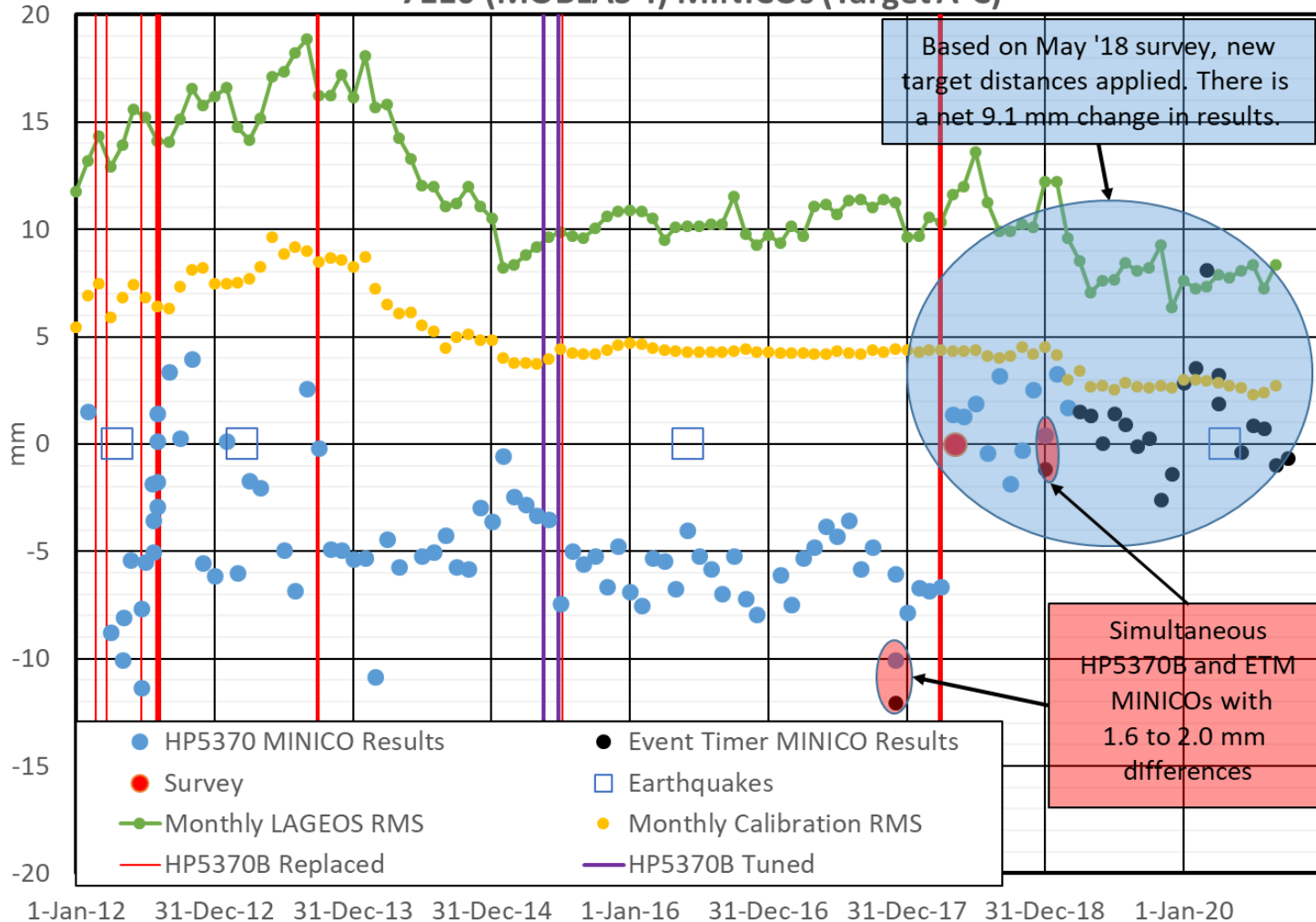
- Since 7090 HP5370B comparisons to event timer data by Erricos and Varghese agree to the 1-2 mm level, what is the rationale for the 7 and 5 mm changes in Etalon and Ajisai Center of Mass Corrections; respectively?

7110 Monument Peak MINICO Results

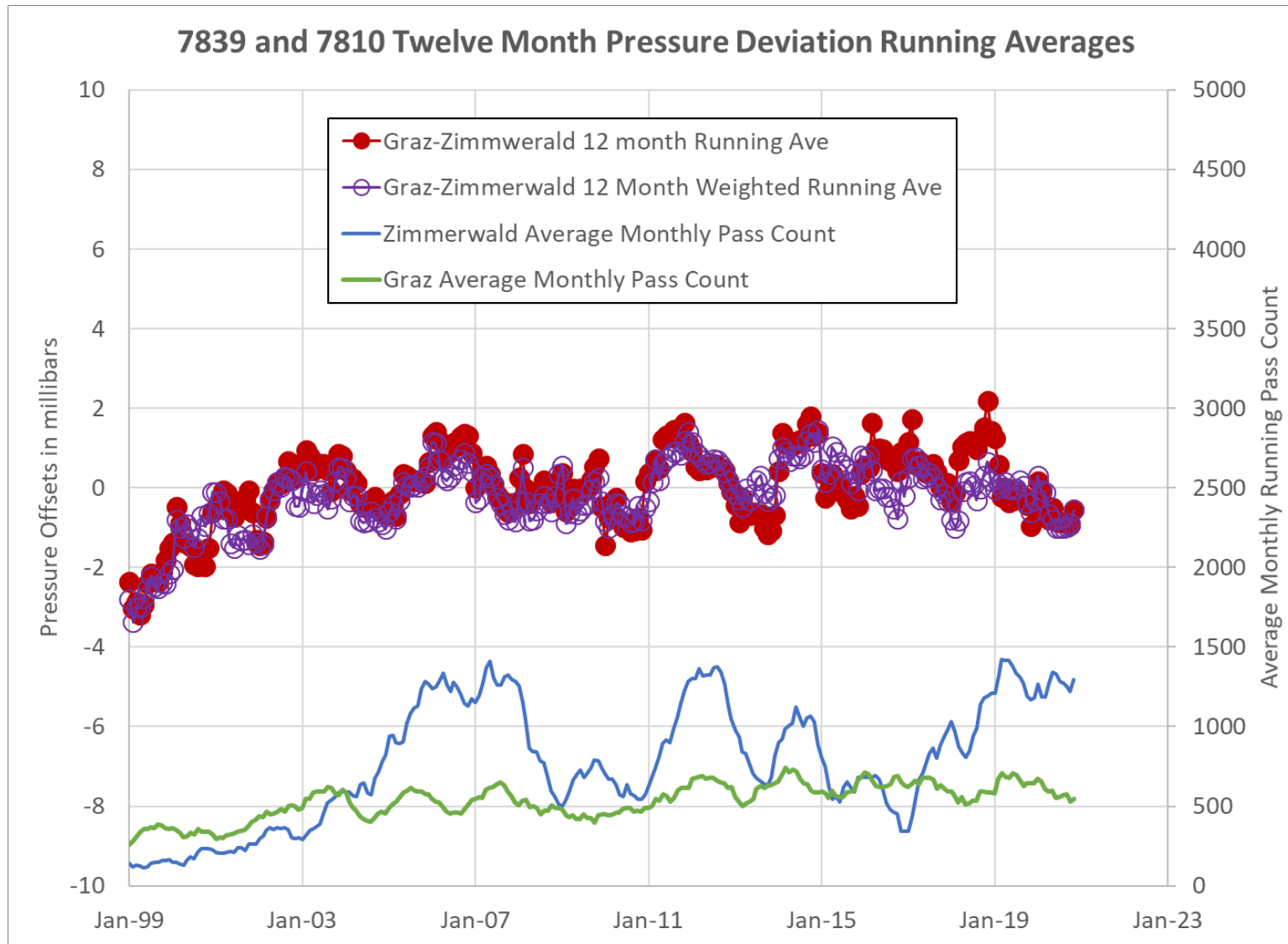


- ◆ The last 2 local surveys of 7110 Monument Peak were done in November 2011 and May 2018. Between these two surveys, there was mm level movement in both calibration piers and the intersection of optical axes [Carpenter, Troy 2019].
- ◆ The net effect of these movements was a 9.1 mm relative change in the calibration distances to these two targets.
- ◆ The vertical black line donates the date of the last survey. The horizontal red line denotes the new expected offset in system delays between these 2 calibration targets, assuming a perfect system and no more local site motion. The next chart applies this 9.1 mm offset post May 2018 survey to the results.

7110 (MOBLAS 4) MINICOs (Target A-C)



- ◆ Same as last chart, except all the MINICO results post May 2018 survey, have been shifted 9.1 mm up.
- ◆ This chart also contains the monthly average LAGEOS (green circles) and calibration (yellow circles) single shot RMSs.
- ◆ There were two MINICOs taken in parallel between the HP5370B and the Event Timer with a difference of ~2 mm in results. This difference is due to non-linearities in the HP5370B 200 mHz integrators.
- ◆ The vertical red lines on this chart on when the HP5370B was replaced with another HP5370B. Sometimes these changes occurred in rapid fashion (e.g. less than 1 week apart).



- ◆ This is a chart of pressures differences (12 month running averages, weighted and unweighted based on monthly data volume) after removing seasonal variations between Graz and Zimmerwald, two neighboring EUROLAS station. These two stations are 610 km apart.
- ◆ Since the stations are relatively close, this analysis technique was being investigated to see if it could be used to detect pressure differences in these 2 stations at the millibar level.